Populism and financial markets

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ABSTRACT

How do financial markets react to populist electoral success? Theoretically, the effect can go in one of two directions. In the first instance, populists tend to espouse resolutely anti-finance ideas, and thus a populist wave would be expected to be bad for financial returns across the board. On the other hand, populists also tend to enact various stimulus and redistributive schemes, and these policies could also give a boost to financial markets. Additionally, in the long-term, if populists become entrenched, they take over the commanding heights, meaning a need for functioning financial markets in order to provide capital for the elites. Utilizing new advances in the measurement of populism, this paper amasses a database of populist advances across developed economies since 2008 and arrays them against equity market performance. Using EGARCH-M volatility modelling on pooled data and event studies on specific episodes of populist success, this analysis reveals that a) populism's effect in the short run is mainly through volatility channels and b) populism's longer-term effects are highly dependent on the specific brand of populism and the country context in which populism operates.

1. Introduction and related literature

The rise of populism in developed economies has been a defining feature of the political landscape for at least a decade. Long finding fertile ground in developing economies, the advent of new strains of populism (Devinney and Hartwell, 2020) in advanced countries, retaining the same themes as old-style populists, has generated substantial policy uncertainty. Specific policies such as Brexit or the US trade war with China have mingled with longer-term shifts such as the move of Hungary and Poland away from rule of law to create a much more challenging environment for firms (Cumming et al., 2020) and for financial markets (Balduzzi et al., 2020).

Research both established (Dornbusch and Edwards, 1990) and recent (Rhodes-Purdy et al., 2020) has associated the incidence of economic crises with the rise of populism, positing that populism is both a proximate cause of economic crises (due to profligate macroeconomic policy) as well as an effect of these crises (as the electorate becomes disenchanted with ineffective elites). However, these relationships are observed at a highly aggregated level, obscuring the specific ways in which populism may influence an economy and, in particular, its financial institutions (Benczes, 2016).

This note attempts to rectify this omission in the literature by examining the effect of populist electoral success on financial markets around the world.[1] Theoretically, there are several ways in which populism could influence finance: in the first instance, populist discourse is directed at the establishment and has an explicit goal of changing existing institutions (Mazzuca, 2013). This purposeful disruption would create waves of uncertainty and make it very difficult for financial markets to adjust (Bazdresch and Levy, 1991). At

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the same time, the anti-elite stance of populists resonates with the public (Bos et al., 2020) and is often targeted at bankers and financiers, meaning nationalization/expropriation is a threat for financial institutions (Comroff, 2011; Ádám, 2019).

Conversely, there is a chance that populism can be beneficial for financial markets, as positions within financial institutions are rewards for political insiders (Enyedi, 2016) and firms curry favor with the new regime. Reluctant to kill the goose that laid the golden egg, populists realize that financial markets are powerful are needed to help fund the redistributive schemes which populists are fond of (Hendrikse, 2018).

The analysis below uses both event study and volatility modelling to explore these effects, focusing on the impact of populism on both returns and overall volatility. The contribution of this letter is two-fold: first, it is the first paper to empirically explore across a broad swathe of countries the overall manner in which populist electoral success (defined in two ways) affects financial markets in the short-term. Secondly, this paper follows papers such as Absher et al. (2020) to examine the consequences of populism, marking the first examination of the financial market consequences of a populist government over the longer-term.

2. Data and methodology

To examine the relationship between populism and financial markets, I utilize daily stock market returns for eleven countries who have seen at least one episode of populist electoral success, with data from January 2008 to mid-February 2020.[2] "Populist electoral success" is defined as either where the country has acknowledged populists as part of government (in coalition or governing alone, e.g. Argentina, Austria, Brazil, Hungary, India, Italy, the Philippines, Poland, USA), or where there was an election which saw surprise gains from populist parties and which allowed them to either contest leadership or enter the legislature (France, Germany).

In order to understand the short-term ramifications of populist electoral success, an event study is utilized along the lines of Dangol (2008), Chau et al. (2014), and Bash and Alsaifi (2019) in the context of unexpected political news. The "event" used here is one of two dates: either the day in which the election occurred (and thus any surprise of populist support was revealed) or the day in which the populist party started its term in office as the majority/leading party. The exact dating of the elections and the assumption of power of the populist government is taken from several sources, including the European Election Database from NSD - Norwegian Centre for Research Data and the Constituency-Level Elections Archive (CLEA) from the University of Michigan.

These two event dates are then used to ascertain the behavior of financial markets in two specific areas, the first being log returns of the country's broader stock market index in the days surrounding the electoral event:

$$R_t = \ln\left(\frac{P_t}{P_{t-1}}\right) \tag{1}$$

It is also plausible that returns may not be affected by a populist victory or the entry of populists into government, but the uncertainty surrounding a populist victory may engender much higher levels of volatility. Thus, we also use a metric for revealed volatility, fashioned here using the Yang-Zhang (2000) approach, which computes daily volatility as a function of intra-day returns around extremes (high and low price) and timing (closing and open prices):

$$\sigma = \sqrt{\sigma_o^2 + k\sigma_c^2 + (1-k)\sigma_{rs}^2} \tag{2}$$

Where

$$k = \frac{0.34}{1.34 + \frac{T+1}{T-1}} \tag{3}$$

$$\sigma_o^2 = \frac{1}{T-1}\sum_{t=1}^{T}\left(\ln\left(\frac{o_t}{c_{t-1}}\right) - Avg\ln\left(\frac{o_t}{c_{t-1}}\right)\right)^2 \tag{4}$$

$$\sigma_c^2 = \frac{1}{T-1}\sum_{t=1}^{T}\left(\ln\left(\frac{c_t}{o_t}\right) - Avg\ln\left(\frac{c_t}{o_t}\right)\right)^2 \tag{5}$$

And σ_{rs} is Rogers-Satchell volatility, calculated as

$$\sigma_{rs} = \sqrt{\frac{1}{N}\sum_{i=1}^{N}\left(ln\frac{h_i}{l_i}\right)\left(ln\frac{h_i}{o_i}\right) + \left(ln\frac{l_i}{c_i}\right)\left(ln\frac{l_i}{o_i}\right)} \tag{6}$$

Where *h* is the high price for day *i*, *l* is the low price, *o* is the opening price, and *c* is the closing price (given that we are interested in

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[2] The countries in the database are Argentina, Austria, Brazil, France, Germany, Hungary, India, Italy, the Philippines, Poland, and the USA.

daily volatility, N has been set to 1).

The event study itself is run using a historical mean model with the corresponding estimation window for 250 days prior to the event, as per MacKinlay's (1997) rule of thumb.[3] Abnormal returns (ARs) are calculated from the assumption of normal returns equal to historical mean returns, with normal returns then subtracted out from actual returns; these ARs are then aggregated over the event window. The diagnostic test utilized to analyze the abnormal returns and their statistical significance is the well-known Patell (1976) test, but in practice, the use of both parametric and non-parametric (I.e., either the Wilcoxon or generalized rank test of Kolari and Pynnonen (2011)) diagnostics yielded exactly the same results (summary statistics are shown in Appendix Table A1).

The event study approach only captures the immediate effects of populism on equity markets, however, when it is likely that populist parties would have larger effects on the financial sector the longer that they are in power. To ascertain these effects, I also utilize asymmetric volatility models which treat surprise populist electoral success as an immediate news shock for business; this reality necessitates the use of a leverage term to capture this asymmetric effect, which also allows us to account for volatility clustering, which is certain to occur around political events. After diagnostics, the model best-suited for this exercise was found to be an Exponential GARCH-in-Mean (EGARCH-M) specification along the lines of Nelson (1991), but with the variance included in the mean equation (Koutmos and Theodossiou 1994), in order to understand the relationship of populism over time:[4]

$$y_{it} = \phi_0 + \sum_{i=1}^{r} \varphi_1 y_{t-i} + \beta \sigma_t^2 + \varsigma_1 Populism_t + \lambda_1 x_t + \varepsilon_t \tag{7}$$

Where y is the stock market returns of the specific country under examination, *Populism* is the variable of interest, x_1 is a vector including additional explanatory variables, and σ^2 is the variance. As this specification is designed to measure returns and volatility for each day that a populist party is in power, the *Populism* variable is coded as 1 if a populist party is leading government and 0 if it is not.[5] Additionally, as a daily series contains noise unrelated to populism, the returns variable in Eq. 7 is the mean of daily returns aggregated monthly; this also allows us to include plausible macroeconomic covariates for stock market performance derived from the literature (see Bilston et al., 2001, Humpe and Macmillan, 2009, or Paye, 2012). In particular, we include the increase in the country's industrial production index (as a proxy for economic activity), the policy rate of the country's central bank, changes in the country's exchange rate *vis a vis* the dollar (to proxy for relative price movements), a country's debt to GDP ratio (to capture specific macroeconomic effects of populists in power but to separate out these effects from populist governance), and returns to the S&P 500 to capture global markets.[6] As shown in Eq. 7, we also include the previous period's returns to capture any lingering persistence or autoregressive effects.

Unlike the event study, the volatility function here is distilled from the data rather than being calculated directly as in Eq. 2. The EGARCH family can model the conditional variance in many ways, with the simplest EGARCH (1,1) model of Nelson (1991) used here:

$$\log(\sigma_t^2) = \omega + \alpha|\eta_{t-1}| + \gamma \eta_{t-1} + \beta \log(\sigma_{t-1}^2) + \zeta_2 Populism_t + \lambda_2 x_t \tag{8}$$

Where x_t includes the contemporaneous rate of the central bank in the conditional volatility, along with the populism variable, and α is the ARCH term, γ is the leverage term, and β is the GARCH term. Given the exigencies of the data for each country, a GED distribution (as shown in Nelson's [1991] original paper) is most appropriate (confirmed via normal information criteria).

3. Results and discussion

The results of the event studies, by country and by populist event, are shown in Table 1, and have one result which is immediately apparent: populist electoral success, whether in relation to the election itself or the assumption of power, has very little effect on stock market returns and instead influences markets via volatility. Indeed, with regard to returns, only France, India, and the Philippines saw a significant effect on returns as a result of the election – all of which were positive (in the case of the Philippines, an increase in returns of 7-8%), albeit decaying rapidly. Returns upon assumption of power are also highly muted, with Austria seeing a slightly significant increase within the one-day window around the start of its populist government, Brazil seeing dramatic gains around Bolsonaro's inauguration (increases of up to 12% five days out), and Italy seeing growing pessimism surrounding the Five Star Movement (decreases in returns of 7 to 8% both within the 5- and 10-day windows). For all other countries, returns may trend either negative or positive, but there is no statistical significance to their deviation from historical means.

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[3] There is no unanimity in finance on what is the "appropriate" estimation window (according to Park, 2004, any choice over 100 days is unlikely to yield very different results). An earlier version of the paper used a window of 360 days and results were not different in terms of significance apart from Italy, which showed more significance with the 250-day window rather than 360 days.

[4] As will be seen below, the EGARCH-M model fit each country best with the sole exception of Argentina, which was best served by a GARCH-M (1,1) model.

[5] This means that France and Germany drop out of the analysis, as they do not have populist parties in government.

[6] Summary statistics of the monthly data are shown in Appendix Table A2, while sources are described in Appendix A3. The US model omits the S&P 500 for obvious reasons.

Table 1
Results of event studies, financial market responses to populist election and governance.

Populist event	Metric	Event Window, in Days around the Event			
		[-1,1]	[-3,3]	[-5,5]	[-10,10]
Austria					
Election	Returns	1.04	0.48	0.47	-0.13
		0.4691	*0.8301*	*0.8669*	*0.974*
	Realized volatility	-0.07	-0.64	-1.75	-2.88
		0.9359	*0.6328*	*0.2975*	*0.2259*
Start of Term	Returns	2.89**	2.18	1.70	3.61
		0.0324	*0.2946*	*0.5192*	*0.3316*
	Realized volatility	2.06***	1.17	0.68	0.32
		0.005	*0.289*	*0.627*	*0.870*
Argentina					
Election	Returns	-2.96	3.44	13.48	3.43
		0.593	*0.6841*	*0.2047*	*0.816*
	Realized volatility	11.26***	20.00***	25.34***	27.09***
		0.000	*0.000*	*0.000*	*0.000*
Start of Term	Returns	-4.42	5.61	9.48	22.25
		0.4243	*0.5071*	*0.372*	*0.1307*
	Realized volatility	1.82	8.53***	13.06***	25.05***
		0.3985	*0.0095*	*0.0016*	*0.000*
Brazil					
Election	Returns	2.97	5.23	6.15	5.33
		0.345	*0.2801*	*0.3154*	*0.5374*
	Realized volatility	6.45***	8.09***	8.31***	9.60***
		0.000	*0.000*	*0.000*	*0.002*
Start of Term	Returns	10.97***	10.17*	12.46*	10.54
		0.0015	*0.0564*	*0.0643*	*0.2675*
	Realized volatility	4.24***	3.86*	3.96	-0.41
		0.002	*0.070*	*0.141*	*0.913*
France					
Election (April 21, 2017)	Returns	5.01***	3.83	2.63	4.31
		0.0076	*0.1855*	*0.4717*	*0.4036*
	Realized volatility	1.09	-0.71	-2.66	-3.86
		0.2286	*0.6101*	*0.1295*	*0.1196*
Germany					
Election	Returns	0.00	0.30	1.53	3.96
		0.9996	*0.8743*	*0.5283*	*0.247*
	Realized volatility	-0.79	-1.80	-2.77*	-5.40***
		0.2802	*0.1113*	*0.0521*	*0.0073*
Populist event	**Metric**	**Window in Days**			
		[-1,1]	**[-3,3]**	**[-5,5]**	**[-10,10]**
Hungary					
Election	Returns	1.36	1.21	1.40	5.58
		0.7078	*0.8287*	*0.8429*	*0.5759*
	Realized volatility	0.26	-1.31	-2.03	-3.46
		0.8829	*0.6251*	*0.551*	*0.4707*
Start of Term	Returns	-1.65	4.77	-5.98	-14.51
		0.6114	*0.3406*	*0.3445*	*0.1041*
	Realized volatility	0.50	4.26**	12.39***	14.09***
		0.711	*0.0385*	*0.0000*	*0.0001*
India					
Election	Returns	3.97	5.68	14.53**	11.26
		0.1854	*0.2188*	*0.0129*	*0.1721*
	Realized volatility	3.75***	3.82***	6.87***	6.27***
		0.000	*0.0043*	*0.000*	*0.009*
Start of Term	Returns	-0.01	-0.32	2.17	13.92*
		0.9973	*0.9436*	*0.7087*	*0.0888*
	Realized volatility	1.40	0.16	1.87	7.27***
		0.1029	*0.9065*	*0.2646*	*0.0021*
Italy					
Election	Returns	-1.37	-0.59	-0.57	-2.59
		0.346	*0.7915*	*0.8412*	*0.5165*
	Realized volatility	1.39**	3.00***	2.36*	3.24*
		0.0262	*0.0018*	*0.0519*	*0.0588*
Start of Term	Returns	0.77	-1.03	-7.03**	-8.37**
		0.6032	*0.6546*	*0.0153*	*0.0407*
	Realized volatility	1.44**	5.60***	8.50***	12.52***
		0.0385	*0.000*	*0.000*	*0.000*
Philippines					

Table 1 (*continued*)

Populist event	Metric	Event Window, in Days around the Event			
		[-1,1]	[-3,3]	[-5,5]	[-10,10]
Election	Returns	7.44***	8.77**	7.98	3.57
		0.005	*0.0316*	*0.1218*	*0.6237*
	Realized volatility	3.61***	4.38***	5.51***	1.99
		0.000	*0.0009*	*0.0009*	*0.398*
Start of Term	Returns	1.68	2.82	1.30	8.05
		0.5233	*0.4877*	*0.8006*	*0.266*
	Realized volatility	1.60*	2.79**	2.66	1.25
		0.08	*0.0497*	*0.1391*	*0.6224*

Populist event	Metric	Window in Days			
Poland		[-1,1]	[-3,3]	[-5,5]	[-10,10]
Election	Returns	0.09	-2.93	-2.19	-6.06
		0.9682	*0.376*	*0.6008*	*0.3048*
	Realized volatility	0.46	0.01	0.14	-0.26
		0.5575	*0.9952*	*0.9258*	*0.9052*
Start of Term	Returns	-0.44	0.29	-2.47	-5.42
		0.8422	*0.9318*	*0.5673*	*0.3741*
	Realized volatility	0.64	1.30	1.98	2.28
		0.4293	*0.2997*	*0.2094*	*0.3061*
United States of America					
Election	Returns	0.77	1.12	4.87	3.95
		0.7775	*0.79*	*0.3589*	*0.5982*
	Realized volatility	1.95**	1.73	1.28	-2.41
		0.0205	*0.1815*	*0.4354*	*0.296*
Start of Term	Returns	1.20	-0.67	-0.69	0.69
		0.6258	*0.8588*	*0.8858*	*0.9182*
	Realized volatility	-0.67	-1.55	-2.88**	-4.80**
		0.3454	*0.1548*	*0.0365*	*0.0134*

Note: Table shows the results of an event study conducted around a) an election where populists made substantial gains and b) the start of a majority populist government's term. Study conducted using a historical mean model with an estimation window of 250 days, a Patell (1976) diagnostic test, and upper/lower bounds of the event window as shown in the table columns. Coefficients given as percent changes, with standard errors shown below coefficients in italics. *** $p<0.01$; ** $p<0.05$; * $p<0.1$.

By contrast, realized volatility appears to be where populist electoral success affects financial markets, as nearly all countries (with the exception of Poland) see a statistically significant impact of populist political gains. However, the size and direction of the effect seems to be tied to the specific conditions of each country: paradoxically, in emerging market countries used to populist leaders, volatility seems to increase the most surrounding populist electoral success, with Argentina seeing double digit, highly statistically significant increases in volatility even 10 days out from the election. At the same time, Brazil, India, and Italy (and Austria, but only within the one-day window) saw single-digit increases in revealed volatility. For more established economies (and, perhaps not coincidentally, democracies), volatility decreased the further out one goes from the electoral date, with financial markets in France, Germany, and the US perhaps understanding that things were not as bad as appeared on election night; additionally, in the French and German case, the political power of the populists were shown to either not translate into any power (France) or only a limited role in the legislature (Germany), meaning that the shock of success was overtaken by the realization of populist impotence. Finally, in the US case, as Republicans (even populist ones) are generally seen as "the party of business," it is possible that the uncertainty of the election was driving volatility and it dissipated once it was clear that Trump had been elected.

Shifting to the results of the EGARCH-M modelling (Table 2), the inclusion of monthly macroeconomic variables allows a fuller picture of the effect of populism across countries. As with the event studies, however, the results are highly context- and country-dependent, calling for nuance as one looks at the broader phenomenon of "populism;" in particular, that populism may not necessarily be "anti-business," even as it may generate uncertainty. Looking across the results, we can see that this is indeed the case, as populists in power in Austria, Italy, and the Philippines were correlated with statistically significantly lower market returns, while in Argentina, Hungary, India, and the US, the effects of populism appeared to be positive for stock markets. Perhaps more interestingly, populists in power were associated with *lower* levels of returns volatility in Brazil, India, the Philippines, Poland, and the USA, while countries which had extensive experience with populism in the past (Argentina and Italy) or a longer period of populists in power (Hungary) saw higher levels of volatility. In each case, the variance term was significant in the conditional mean, showing that volatility also determines returns, while there were high levels of significance of the leverage term, showing that populism does in fact act as a news shock (although not always in the same direction across countries).

Table 2
Results of GARCH Modelling, Monthly Stock Market Returns and Populists in Power.

Variable/Country	Dependent Variable: Monthly Stock Market Returns								
	Austria	Argentina	Brazil	Hungary	India	Italy	Philippines	Poland	USA
Conditional Mean									
Populists in Power	-0.001	0.009	-0.0003	0.002	0.004	-0.0008	-0.0008	-0.0005	0.001
	*2.46***	*4.43****	*0.53*	*2.10***	*4.69****	*3.64****	*1.79**	*1.51*	*2.68****
Lagged Returns	0.17	0.12	-0.26	0.53	0.04	0.72	0.33	-0.11	-0.14
	*2.22***	*1.56*	*7.02****	*10.61****	*0.77*	*31.49****	*8.78****	*2.79****	*2.08***
Change in Industrial Production	-0.0002	-0.0001	0.00001	-0.0002	-0.0003	-0.00003	-0.000004	-0.0003	0.0005
	1.44	*1.83**	*0.48*	*1.99***	*3.16****	*0.52*	*0.63*	*4.24****	*3.14****
Lagged Policy Rate	-0.001	0.0003	-0.0004	0.0007	0.001	0.001	0.0006	-0.0005	-0.001
	*10.70****	*3.86****	*0.48*	*11.64****	*7.99****	*6.70****	*4.12****	*3.99****	*5.07****
Change in Exchange Rate	-0.02	0.0005	-0.03	-0.00007	-0.001	0.007	0.001	-0.02	-0.001
	*2.41***	*0.64*	*19.90****	*4.53****	*9.12****	*1.58*	*15.24****	*13.43****	*0.20*
Debt-to-GDP ratio	-0.0001	-0.0001	0.0001	-0.000004	0.0002	-0.0004		-0.0002	0.000009
	*6.31****	*0.30*	*6.40****	*0.11*	*9.74****	*0.12*		*2.65****	*4.90****
Growth of Government Expenditure/GDP							-0.009		
							0.93		
S&P Returns	-0.0002	0.04	0.008	0.02	0.02	0.02	0.004	0.01	
	0.05	*4.26****	*2.33***	*7.76****	*4.26****	*5.39****	*1.44*	*4.40****	
C	-0.002	-0.06	-0.008	-0.13	-0.03	-0.02	0.002	0.001	0.01
	*59.12****	*4.19****	*3.82****	*28.32****	*22.10****	*58.03****	*3.11****	*3.28****	*11.42****
Conditional Volatility									
Populists in Power	0.15	0.0002	-2.97	0.28	-0.88	0.07	-0.40	-0.16	-2.09
	*1.65**	*3.20****	*5.34****	*3.36****	*3.69****	*2.97****	*1.67**	*3.55****	*2.87****
γ (leverage effect)	-0.25	N/A	0.16	0.21	-0.33	-0.28	0.64	-1.49	0.16
	*16.78****		*1.48*	*9.97****	*5.20****	*17.56****	*6.02****	*336.86****	*3.15****
α (ARCH term)	-2.29	-0.08	0.89	-0.12	-0.25	-0.07	-0.63	-0.10	0.47
	*5.70****	*3.31****	*5.61****	*9.04****	*3.45****	*5.09****	*5.40****	*1.01*	*5.51****
β (GARCH term)	0.80	0.58	-0.63	-0.11	0.11	0.03	-0.03	0.47	-0.81
	*580.03****	*4.81****	*10.33****	*8.14****	*5.44****	*9.52****	*2.97****	*45.10****	*13.12****
n	144	144	144	144	131	144	141	144	145
AIC	-9.10	-7.65	-8.81	-9.1	-8.79	-8.96	-9.34	-9.06	-9.51
Model	EGARCH-M	GARCH-M	EGARCH-M	EGARCH-M	EGARCH-M	EGARCH-M	EGARCH-M	EGARCH-M	EGARCH-M

Note: Table shows EGARCH/GARCH Volatility modelling of monthly returns on the populist in power dummy and a series of macroeconomic controls, as noted in the text. Variance term included in the conditional mean but not shown here for reasons of space. Conditional variance is modeled including both the populist in power dummy and the central bank policy rate, with the ARCH (α), GARCH (β), and leverage effects (γ) shown above. Absolute value of t-stats shown under coefficients. *** $p<0.01$; ** $p<0.05$; * $p<0.1$. Distribution in each case is GED, apart from the United States, which was GED with fixed parameter (1.8) to minimize information criteria.

4. Conclusion

This letter has made a brief examination of the effects of populism on financial markets globally, looking at both the event of populist electoral sikuccess and the longer-term impacts of populist in power. The results show that that volatility increases sharply in general around populist electoral success (and decreases sharply once it appears that populists will not be in power, as in Germany and France), while having little effect on returns in the short-term. Regarding the longer-term, however, country conditions matter highly for market returns, but volatility decreases for countries experiencing populism for the first time (or the first time in a long time) as the government's policies become clearer.

As a first attempt to explore these relationships on such a broad scale, much remains to be done for future work. Are specific sectors affected by populism in different ways, with more entrepreneurial sectors faring worse? How do waves of populism affect markets in addition to single populist events in a country? And can we see the precise channels by which populism can influence financial markets? Much of this will require drawing on the expanding political science literature and more precise classifications of types of populism and specific descriptions of populist leaders and their policies (Devinney and Hartwell, 2020).

CRediT authorship contribution statement

Christopher A. Hartwell: Conceptualization, Data curation, Formal analysis, Methodology, Project administration, Resources, Software, Supervision, Validation, Writing – original draft, Writing – review & editing.

Declaration of Competing Interest

None.

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Appendix A3: A Note on Sources

With regard to the macroeconomic data utilized in the monthly EGARCH-M analysis shown in the main text, several different sources were used. In the first instance, the bulk of the industrial production, exchange rate, and policy rate data was obtained from the

Table A1
Summary Statistics (event study).

Argentina	Stock Market Returns	Realized volatility	Austria	Stock Market Returns	Realized volatility	Brazil	Stock Market Returns	Realized volatility
Mean	0.0001	0.017246	Mean	-0.000113	0.013017	Mean	0.00001	0.017103
Median	0.0007	0.013824	Median	0.00041	0.010496	Median	0.000269	0.014242
Maximum	0.1490	0.123153	Maximum	0.12021	0.116892	Maximum	0.185944	0.183059
Minimum	-0.6597	0.000115	Minimum	-0.102526	0.00006	Minimum	-0.174239	0.00004
Std. Dev.	0.0264	0.011896	Std. Dev.	0.015838	0.009785	Std. Dev.	0.022317	0.012661
Skewness	-6.0659	2.298896	Skewness	-0.220037	3.348552	Skewness	-0.185866	4.021602
Kurtosis	143.4730	11.51488	Kurtosis	9.164792	22.37204	Kurtosis	10.70939	33.13465
Jarque-Bera	2431138.00	11451.74	Jarque-Bera	4792.299	52708.43	Jarque-Bera	7444.12	121558.3
Probability	0.000	0.000	Probability	0.0000	0.0000	Probability	0.000	0.000
Observations	2935	2935	Observations	3011	3011	Observations	2999	2999
France	**Stock Market Returns**	**Realized volatility**	**Germany**	**Stock Market Returns**	**Realized volatility**	**Hungary**	**Stock Market Returns**	**Realized volatility**
Mean	0.00003	0.011168	Mean	0.000178	0.011528	Mean	0.000182	0.012296
Median	0.000352	0.00923	Median	0.000749	0.009351	Median	0.000421	0.010008
Maximum	0.105946	0.077828	Maximum	0.107975	0.103007	Maximum	0.131777	0.125206
Minimum	-0.0947	0.00009	Minimum	-0.074335	0.000255	Minimum	-0.126489	0.00007
Std. Dev.	0.014123	0.007885	Std. Dev.	0.0138	0.008389	Std. Dev.	0.015101	0.008578
Skewness	-0.024358	2.683339	Skewness	-0.015896	3.198684	Skewness	-0.088489	3.274977
Kurtosis	9.744396	14.92106	Kurtosis	9.225273	21.61078	Kurtosis	11.78473	25.98474
Jarque-Bera	5879.486	22090.5	Jarque-Bera	4962.259	49588.93	Jarque-Bera	9717.892	71899.8
Probability	0.000	0.000	Probability	0.000	0.000	Probability	0.000	0.000
Observations	3102	3102	Observations	3073	3073	Observations	3021	3021
India	**Stock Market Returns**	**Realized volatility**	**Italy**	**Stock Market Returns**	**Realized volatility**	**Philippines**	**Stock Market Returns**	**Realized volatility**
Mean	0.000128	0.010903	Mean	-0.000138	0.01361	Mean	0.000271	0.00924
Median	0.00059	0.008074	Median	0.000427	0.011427	Median	0.000461	0.007744
Maximum	0.193465	0.163627	Maximum	0.108743	0.086577	Maximum	0.088051	0.115936
Minimum	-0.122531	0.001556	Minimum	-0.133315	0.000139	Minimum	-0.129104	4.57E-05
Std. Dev.	0.016216	0.009782	Std. Dev.	0.016489	0.008679	Std. Dev.	0.013942	0.006793
Skewness	0.238486	4.980585	Skewness	-0.212997	2.305785	Skewness	-0.590642	3.390609
Kurtosis	13.68089	52.1561	Kurtosis	7.835411	12.14599	Kurtosis	9.174078	32.17709
Jarque-Bera	14283.85	314338.6	Jarque-Bera	3018.967	13442.32	Jarque-Bera	4865.243	110478.5
Probability	0.000	0.000	Probability	0.000	0.000	Probability	0.000	0.000
Observations	2999	2999	Observations	3075	3075	Observations	2955	2955

Poland	Stock Market Returns	Realized volatility	USA	Stock Market Returns	Realized volatility
Mean	-0.000211	0.011612	Mean	0.00004	0.009053
Median	0.000136	0.009479	Median	0.000535	0.006947
Maximum	0.109293	0.080338	Maximum	0.096206	0.100483
Minimum	-0.109954	0.00007	Minimum	-0.092257	0.0001
Std. Dev.	0.017103	0.008131	Std. Dev.	0.01281	0.008156
Skewness	-0.293382	2.887646	Skewness	-0.218799	3.991924
Kurtosis	7.772345	16.62433	Kurtosis	11.76771	29.83728
Jarque-Bera	2916.919	27627.53	Jarque-Bera	9799.994	99663.66
Probability	0.000	0.000	Probability	0.000	0.000
Observations	3028	3028	Observations	3052	3051

Table A2
Summary Statistics (monthly analysis).

Argentina						
	Exchange Rate	Populists in Power	Industrial Production	Policy rate	Stock Market Returns	Debt to GDP
Mean	12.80456	0.669087	126.777	23.91717	0.0001	58.347
Median	7.06955	1	104.000	24.75	0.00057	55.700
Maximum	59.9103	1	205.500	83.26	0.013633	98.800
Minimum	3.00291	0	81.000	9.5	-0.038858	41.800
Std. Dev.	13.83549	0.468939	40.258	17.77268	0.006393	15.598
Skewness	1.963682	-0.718824	0.743	1.445793	-2.037089	1.220
Kurtosis	6.134961	1.530384	1.821	4.450799	12.71983	3.545
Jarque-Bera	152.5652	25.53571	21.738	63.23262	671.0718	37.766
Probability	0.000	0.000003	0.000	0.0000	0.0000	0.000
Observations	145	145	145	145	145	145
Austria						
	Exchange Rate	**Populists in Power**	**Industrial Production**	**Policy rate**	**Stock Market Returns**	**Debt to GDP**
Mean	0.801203	0.131313	100.9653	0.211315	-0.0001	-1.968
Median	0.781216	0	99.42545	-0.12	0.000229	-1.515
Maximum	0.948851	1	118.2	3.7	0.006498	2.000
Minimum	0.634609	0	85.3029	-0.62	-0.014171	-8.200
Std. Dev.	0.083774	0.33396	8.03323	1.030352	0.003153	2.201
Skewness	0.011565	2.169156	0.439396	2.003755	-1.159617	-0.412
Kurtosis	1.811001	5.751714	2.572927	6.7011	6.281281	2.435
Jarque-Bera	8.60337	160.5567	5.807551	181.0295	98.21938	6.079
Observations	146	146	146	146	146	146
Brazil						
	Exchange Rate	**Populists in Power**	**Industrial Production**	**Policy rate**	**Stock Market Returns**	**Debt to GDP**
Mean	2.634199	0.09589	92.61671	16.62774	0.00004	61.587
Median	2.31955	0	92.6	17.155	0.00007	57.160
Maximum	4.347	1	110.46	21	0.010349	77.380
Minimum	1.5625	0	74.26	10.44	-0.013026	51.270
Std. Dev.	0.851513	0.295454	9.419799	2.890211	0.004227	9.008
Skewness	0.398913	2.744928	-0.142177	-0.128579	0.008714	0.548
Kurtosis	1.667605	8.534632	2.159635	1.940645	3.120146	1.669
Jarque-Bera	14.67179	369.6883	4.78802	7.229212	0.089661	18.083
Probability	0.000652	0.000	0.091263	0.026928	0.95616	0.000
Observations	146	146	146	146	146	146
Hungary						
	Exchange Rate	**Populists in Power**	**Industrial Production**	**Policy rate**	**Stock Market Returns**	**Debt to GDP**
Mean	239.2672	0.801712	94.55309	3.902397	0.000193	-2.937
Median	232.1264	1	92.60772	2.775	0.000271	-2.815
Maximum	309.2715	1	118.4099	11.5	0.007439	3.100
Minimum	147.1107	0	71.70598	0.9	-0.015924	-8.100
Std. Dev.	40.12719	0.399673	12.22303	2.999738	0.003103	2.089
Skewness	-0.179564	-1.511123	0.180898	0.518907	-0.880199	0.079
Kurtosis	1.959886	3.284088	2.129672	1.976896	7.335483	2.811
Jarque-Bera	7.365761	56.05596	5.404241	12.91979	133.1971	0.371
Probability	0.02515	0.000	0.067063	0.001565	0.000	0.831
Observations	146	146	146	146	146	146
India						
	Exchange Rate	**Populists in Power**	**Industrial Production**	**Policy rate**	**Stock Market Returns**	**Debt to GDP**
Mean	56.56633	0.41847	95.59233	7.195076	0.00008	69.171
Median	58.85115	0	94.2909	6.75	0.000425	68.700
Maximum	73.6323	1	119.2405	10.25	0.012597	74.900
Minimum	39.3737	0	75.37025	6	-0.012679	66.300
Std. Dev.	9.209792	0.493787	10.82137	1.301905	0.003652	2.440
Skewness	-0.144034	0.333562	0.147359	0.589452	-0.366874	0.687
Kurtosis	1.617189	1.115485	2.251187	1.766261	4.743214	2.418
Jarque-Bera	10.97333	21.98049	3.561688	16.01559	19.6745	13.562
Probability	0.004142	0.000017	0.168496	0.000333	0.000053	0.001
Observations	132	132	132	132	132	146
Italy						
	Exchange Rate	**Populists in Power**	**Industrial Production**	**Policy rate**	**Stock Market Returns**	**Debt to GDP**
Mean	0.801203	104.9735	104.9735	0.385482	-0.000117	-3.196
Median	0.781215	104.141	104.141	0.07715	0.000235	-2.350
Maximum	0.94885	131.689	131.689	4.2989	0.009447	2.200

(*continued on next page*)

Table A2 (*continued*)

Argentina						
	Exchange Rate	Populists in Power	Industrial Production	Policy rate	Stock Market Returns	Debt to GDP
Minimum	0.63461	97.192	97.192	-0.4642	-0.008001	-12.200
Std. Dev.	0.083775	6.984577	6.984577	1.141135	0.003064	3.032
Skewness	0.011565	2.075759	2.075759	2.40505	-0.211326	-0.840
Kurtosis	1.81101	7.826403	7.826403	8.046046	3.163569	3.273
Jarque-Bera	8.603241	246.5531	246.5531	295.6479	1.249449	17.627
Probability	0.013547	0.000	0.000	0.000	0.535409	0.000
Observations	146	146	146	146	146	146
Philippines						
	Exchange Rate	**Populists in Power**	**Industrial Production**	**Policy rate**	**Stock Market Returns**	**Government Expenditure/ GDP**
Mean	101.5958	0.291982	124.4613	3.979167	0.000259	0.104555
Median	101.24	0	123.51	4.00	0.000609	0.105622
Maximum	112.07	1	189.53	6.00	0.008285	0.132036
Minimum	91.59	0	61.84	3.00	-0.009758	0.076502
Std. Dev.	4.752736	0.455929	28.07871	0.686088	0.002792	0.012465
Skewness	0.192533	0.916478	0.023598	0.702568	-0.798004	-0.208127
Kurtosis	2.386288	1.840236	1.999088	3.759486	4.490442	2.322259
Jarque-Bera	3.149516	28.22868	6.024312	15.30735	28.61193	3.742881
Probability	0.207058	0.000001	0.049186	0.000474	0.000001	0.153902
Observations	144	144	144	144	144	142
Poland						
	Exchange Rate	**Populists in Power**	**Industrial Production**	**Policy rate**	**Stock Market Returns**	**Debt to GDP**
Mean	3.34214	0.353082	96.4589	3.116438	-0.000202	-3.408
Median	3.325575	0	94.5	2.75	-0.000201	-3.080
Maximum	4.20407	1	125.3	6.25	0.011069	2.900
Minimum	2.06691	0	71.4	1.75	-0.012986	-12.800
Std. Dev.	0.473222	0.47779	14.46617	1.423075	0.003471	2.777
Skewness	-0.473627	0.614013	0.25025	0.597184	-0.268603	-0.630
Kurtosis	2.719499	1.385109	2.113501	2.127147	4.459397	3.680
Jarque-Bera	5.937155	25.03852	6.304644	13.31268	14.71212	12.462
Probability	0.051376	0.000004	0.042753	0.001286	0.000639	0.002
Observations	146	146	146	146	146	146
USA						
	Exchange Rate	**Populists in Power**	**Industrial Production**	**Policy rate**	**Stock Market Returns**	**Debt to GDP**
Mean	1.262302	0.256164	101.5352	0.697055	4.01E-05	96.315
Median	1.28085	0	102.4187	0.18	0.000294	100.655
Maximum	1.5759	1	110.5516	3.94	0.005417	117.021
Minimum	1.0545	0	87.0742	0.07	-0.010923	64.111
Std. Dev.	0.13378	0.436123	5.797015	0.851488	0.002327	10.877
Skewness	0.27379	1.119166	-0.615595	1.306615	-1.084621	-1.513
Kurtosis	2.111921	2.263505	2.748948	3.668469	6.044763	4.593
Jarque-Bera	6.621875	33.77806	9.604712	44.26128	85.02184	71.116
Probability	0.036482	0.000	0.00821	0.000	0.000	0.000
Observations	146	146	146	146	146	146

IMF's International Financial Statistics and the St. Louis Federal Reserve FRED database, with the industrial production measure for Argentina obtained from Bloomberg. Debt to GDP ratios were taken from a myriad of sources, mainly national central banks and the BIS general government debt database; for most countries, this was only available on a quarterly basis, so linear interpolation was utilized to make it at a monthly frequency (this was done for all countries apart from Brazil).

Finally, as historical debt to GDP ratios appears to be a guarded secret in the Philippines (indeed, a graduate student needed to file a freedom of information request in 2021 to obtain the historical monthly debt data, a luxury which was not available during the time of this R&R),[7] growth of government expenditures to GDP was utilized instead, taken from the Statistics Agency of the Philippines.

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[7] The request may be found at: https://www.foi.gov.ph/requests/aglzfmVmb2ktcGhyHQsSB0NvbnRlbnQiEEJUci00MDc5NjgyNzQxNTgM.

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