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Political uncertainty, risk of Frexit and European sovereign spreads

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ABSTRACT
Using data from a prediction market (crowd-based forecasts), we build a daily measure capturing the risk of Frexit related to the 2017 French presidential elections. We study how unexpected changes in this new measure of political uncertainty in France affect European sovereign spreads vis-à-vis Germany. We show that our uncertainty proxy drives not only the French sovereign spread but also the spreads of those EU countries deemed the most vulnerable to the risk of desegregation of the Euro Zone. These results suggest that specific political uncertainty affects short-term investor's expectations and may outweigh other economic determinants of sovereign spreads shortly prior to high stake elections

I. Introduction: political context and related literature

Does political uncertainty affect sovereign spreads? Finance literature considers that general determinants of the long-term government bond yield spreads for euro area countries are the international risk aversion, the country-specific credit risk, the liquidity risk and the global economic uncertainty (Attinasi, Checherita-Westphal, and Nickel 2009; Costantini, Fragetta, and Melina 2014), often captured by stocks volatility. We focus on this notion of global uncertainty and ask whether an ephemeral rise in political uncertainty may have a sizable explicative power on sovereign spread fluctuations through specific political information which is not fully aggregated by financial markets and traditional determinants of spreads.

A growing literature tries to quantify uncertainty and investigates its effect on economic activity. A strand of this literature focuses on events studies and exploits micro and macro natural experiments. Bloom (2009) uses political shocks like the Cuban Missile Crisis or the 9/11 attacks as instruments for uncertainty. It shows that those events generate both short and sharp recessions and recoveries. Recently, many commentators have argued that policy-related uncertainty has been a key factor slowing the recovery following the 2008 crisis (see, among others, Croce et al. 2012; Istrefi and Piloiu 2014;

Fernández-Villaverde et al. 2015). Baker, Bloom, and Davis (2015) investigate the relation between uncertainty and economic activity by developing an index of policy-related economic uncertainty (EPU Index) based on newspaper articles regarding policy uncertainty and find a negative impact on economic outcomes in the long run. A last strand exploits prediction markets to measure uncertainty: Wolfers and Zitzewitz (2004) analyse the extent to which prediction markets can give an accurate measure of the prior probability of an event happening and, thus, be used to aggregate disperse information into efficient forecasts of unknown future events.

Bloom (2014) stresses that the uncertainty literature needs to explore more natural experiments and mobilize a wider set of uncertainty measures. In particular, measures that could capture specific type of uncertainty are required. In this article, we contribute to this literature in two main ways. First, we focus specifically on political risk and study its impact on sovereign European spreads. We consider the campaign for the 2017 French presidential election which has featured several exogenous events which we use as natural experiments. Second, we propose a new daily proxy for political uncertainty based on trading prices of forecasting markets. To the best of our knowledge, we are the first to relate forecasting markets to sovereign spreads fluctuations and to study this relation at the daily frequency.

We use the campaign leading to the 2017 French presidential election as a natural experiment. It has seen the nomination of underdog candidates and was tainted by scandals, thus assuming a character of unpredictability and announcing a re-composition of the French political landscape. In brief, for the first time in the 5th French republic, the outgoing President, François Hollande, was not running. Both socialist (PS) and republican (LR) parties, which have been alternatively in power since 1981, were outdistanced in the polls and did not pass the first round of the election, an unprecedented situation that is related to the judicial issues faced on the main candidate (NYT (2017)). Overall, the far-right party (Front National), which supports a unilateral exit from European treaties (the Frexit), had a dominant position in the polls, with more than 25% of voting intention at the first round.

We use the risk of Frexit as a proxy for political uncertainty and we find that our measure drives not only the French sovereign spread but also the spreads of others EU countries over the period from September 2016 to February 2017. These results suggest that specific political uncertainty affects short-term investors' expectations and may outweigh other economic determinants of sovereign spreads during a short period of time. While we do not want to overstate the practical contributions of our findings, they could be useful for investors as our new measure of political uncertainty may be used in asset pricing models to aggregate disperse political information that affects financial markets fluctuations in the short run during a period of political turmoil. Our results are also relevant to the burgeoning literature on populism (Guiso, Herrera, and Morelli 2017; Rodrik 2017). Notably, they suggest that investors anticipated large economic losses from the implementation of this particular populist political platform and that the mere threat of implementation implied a nonnegligible economic cost. The remainder of this article is organized as follows. In Section II, we present the data and our measure of uncertainty. In Section III, we provide some descriptive statistics, detail our empirical specification and present our findings. Section IV concludes.

II. Data and measurement

We follow Wolfers and Zitzewitz (2006) and use daily data from a predictive market to build a new measure of political uncertainty and capture the risk of Frexit. The predictive market HYPERMIND is an online bet platform designed to generate probabilities that follow the model of the Iowa Electronic Market described by Berg and Rietz (2003). Regarding the French presidential market, the question asked to forecasters is the following: *which candidate will be elected president after the second round of the French election?* and each candidate is listed in the form of a binary Arrow-Debreu security that can be exchanged between traders. Traders start with the same endowment of virtual money – called h – and are allowed to buy and sell contracts that pay $h100$ if a given candidate wins the election and $h0$ otherwise.[1]

Figure 1 displays the trading prices for four main candidates to the election and highlights two events that both triggered political turmoils: the first horizontal line from the left is the Republican party primary election on 20 and 27 of November 2016 and the second horizontal line indicates the publication date of incriminating evidences against the Republican candidate François Fillon by the French media. Bets are virtual and market participation is free but selective: HYPERMIND traders are selected on the basis of merit and rewarded only for their forecasting quality. Around 2500 traders are engaged in this presidential market.
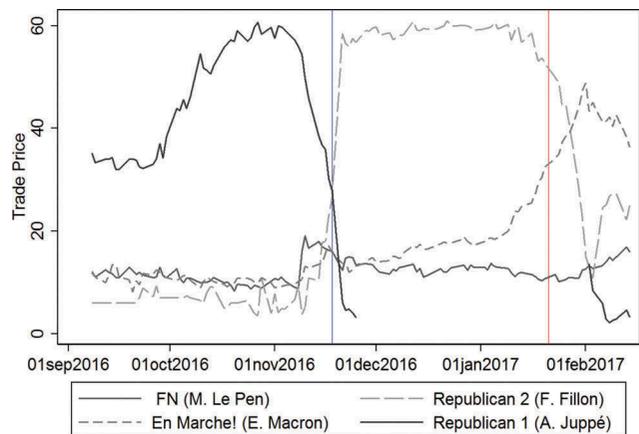

Figure 1. Trading prices for four French election candidates.

III. Results

Descriptive evidence

We use the risk of Frexit as a proxy for political uncertainty. We measure this risk by the gap between the trade price associated with the leading candidate (the highest trade price on the market, p_{max}) and the trade price p_{Frexit} of the far-right candidate, Marine Le Pen, which supports an unconditional exit of France from the Euro Zone. So, this proxy for uncertainty writes $U = p_{max} - p_{Frexit}$ and U belongs empirically $\in [0, 1]$ [2]: when it comes close to zero, it reflects that the likelihood of the far right party winning the presidential election is close to the one of the favourite candidate. In contrary, when this measure increases close to 1, the likelihood of the far-right party being elected decrease.

Figure 2 compares fluctuations of our measure of political uncertainty and fluctuations of the French sovereign spread vis-à-vis Germany, computed as the yield of the Obligations Assimilables du Trésor (OAT) 10 years minus the one of the Bund 10 years. We cover a six month period which was rich in political events (with both the Republican and the socialist party primary election, the incumbent president's decision to not seek to re-election, and finally, the shadow of suspicions of fictitious employment which have further weakened the political campaign of François Fillon). Those events sharply impacted the measured political uncertainty as agents witnessed the deep and sudden re-composition 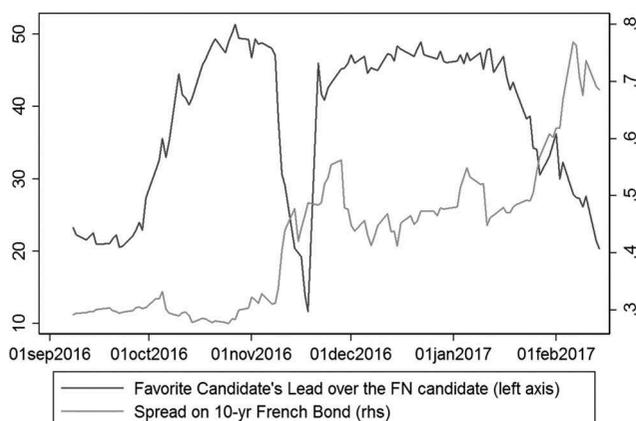of the French political landscape. It is interesting to notice that those events both have hit leading political opponents of the far-right party and weakened the pro-EU camp: this involves a decrease of U which reflects a rise of the probability of Frexit. This rise coincides with one of the sovereign French spread, as financial markets aggregate this political risk in the OAT 10 years pricing.

We explore the idea that other Euro Zone countries may be equally exposed to the risk of Frexit, i.e. the risk of the desegregation of the Euro Zone. Figure 3 displays fluctuations of both Italian and Spanish spreads vis-à-vis Germany compared to our political uncertainty proxy. It appears that both Italian and Spanish sovereign spreads strongly co-move with the rise of the French political uncertainty. In the next part, we address the question of whether those observed correlations reveal an impact of the French election on European spreads, conditionally on economic controls, and thus if our measure of political uncertainty has an independent explanatory power on spreads fluctuations.

Regression analysis

We carry out an empirical analysis of the determinants of long-term government bond yield spreads for selected euro area countries over the period from September 2016 to February 2017 at daily frequency. We include our proxy for French political uncertainty in addition to the main determinants of long-term government bond spreads, such as (i)

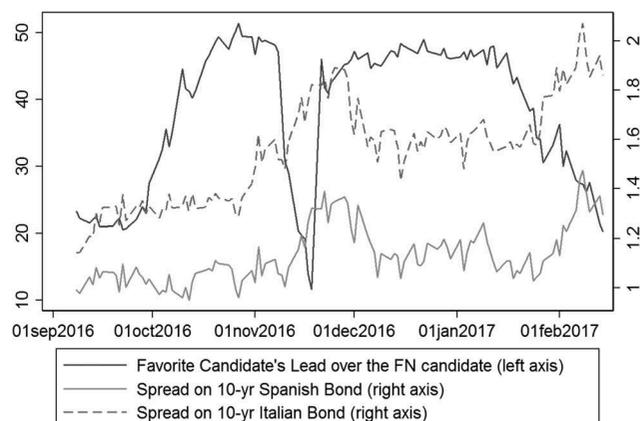Figure 2. Political uncertainty and French sovereign spread vis-à-vis Germany.

Figure 3. Political uncertainty in France versus Italian and Spanish sovereign spreads.

[2]In principle, U could become negative if the far-right party becomes the favourite for the French election. As it is shown in Figure 2, it does not occur in our sample.

international risk aversion and (ii) uncertainty and the perceived amount of risk. The dependant variable S_{it} is long-term sovereign bond spreads vis-à-vis Germany. The basic specification underlying our analysis is an equation of the form:

$$S_{it} = \alpha + \beta_1.U_{t-1} + \beta_2.X_{it-1} + \varepsilon_{it} \qquad (1)$$

with U_t our proxy for French political uncertainty, X_{it} a vector of the main economic determinants of the spread and $\in_{it}$ are the i.i.d. random disturbances and i represents the ith country. The vector X_{it} of control variable gathers the Volatility Index (VIX) index which is a proxy for economic uncertainty and the spread between US corporate AAA bonds and the long-term TBill, a proxy for international risk aversion and electoral proximity is a linear time trend which captures the imminence of the election. All explicative variables are lagged.

Table 1 reports estimates of Equation 1 for France using simple OLS regression. The coefficient for the measure of political uncertainty is negative and highly significant at conventional levels. That corroborates descriptive evidence above: the French

sovereign long-term spread vis-ã-vis Germany increases when the distance in probability between the leading candidate and the far-right pro-Frexit party decreases (i.e. the likelihood of Frexit increases). Main determinants of the spread appear to be significant and of the expected sign, but we note that the classic proxy for uncertainty (i.e. stock volatility) loses both in significance and magnitude when we add our proxy for specific political uncertainty. This implies that our measure of political risk seems to aggregate specific political information relevant for the pricing of the long-term sovereign bond interest rate which is not captured by traditional economic determinants.

We then test whether this political effect is limited to France or whether it affects other Euro Zone countries through the rise of Frexit likelihood. We estimate Equation 1 for Italy, Spain, Portugal, Greece and Netherlands sovereign spreads (respectively, Columns (1)–(5)) over a period from September 2016 to February 2017, using the same baseline specification (Column (5) of Table 1). Table 2 reports estimates for those five countries. The coefficient of interest is always negative and significant at

Table 1. Uncertainty and French sovereign spread.

	(1)	(2)	(3)	(4)	(5)
Political uncertainty	−0.089	−0.259***			−0.309***
	(−0.78)	(−4.99)			(−6.88)
Volatility (VIX)			−1.319***	−1.152***	−0.518**
			(2.87)	(−3.94)	(−1.99)
Risk aversion (Spread AAA-TBill)			−0.563***	0.407***	0.227***
			(−6.68)	(4.33)	(2.75)
Election proximity		0.265***		0.313***	0.305***
		(6.00)		(12.58)	(14.67)
Observations	110	110	110	110	110
R^2	0.01	0.91	0.57	0.83	0.88

Note. The sample consists of time series daily data from September 2016 to February 2017, the 14th. We use simple OLS regressions. The dependant variable for Columns (1)–(5) is the French 10 years bond spread vis-à-vis Germany. Explanatory variables are lagged. Election proximity is a linear time trend.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2. Uncertainty and EU countries sovereign spreads.

	(1) IT	(2) SP	(3) POR	(4) GRE	(5) NL
Political uncertainty	−0.386***	−0.221**	−0.628***	−1.245**	−0.176***
	(−2.67)	(−2.11)	(−4.58)	(−1.99)	(−4.01)
Volatility (VIX)	0.521	−0.197	−3.339***	0.989	−0.114
	(0.80)	(−0.41)	(−4.79)	(0.40)	(−0.49)
Risk aversion (Spread AAA-TBill)	0.525**	0.299	−0.043	1.126	0.150
	(2.14)	(1.44)	(−0.17)	(1.15)	(1.35)
Election proximity	0.509***	0.215***	0.213***	−0.939***	0.093***
	(10.54)	(4.64)	(3.33)	(−3.77)	(3.14)
Observations	110	110	110	110	110
R^2	0.65	0.32	0.62	0.59	0.26

Note. The sample consists of time series daily data from September 2016 to February 2017, the 14th. We use simple OLS regressions. The dependant variable for columns (1)–(5) is the ith country 10 years bond spread vis-à-vis Germany. Explanatory variables are lagged. Election proximity is a linear time trend. IT stands for Italy, SP for Spain, POR for Portugal, GRE for Greece and NL for Netherlands.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

conventional levels. In particular, its magnitude is high for countries which are the more exposed to the risk of desegregation of the Euro area as Greece or Portugal. Our results are complementary to the existing literature on the economic cost of broadly defined uncertainty in two main ways. First, they rely on a new and specific measure of political uncertainty (the perceived risk of Frexit). Second, they show that temporary fluctuations in that new measure have a clear short-run impact on investors' expectations at the domestic level and furthermore trigger spillovers across borders.

Results for French long-term sovereign spread vis-à-vis Germany are robust when we include to our baseline specification (Column (5)) a quadratic time trend, month fixed effect, lagged dependant variable or when we change VIX for VSTOXX as a volatility measure (see Table A1 in Appendix). We notice serial correlation in the disturbances with Durbin's test (Durbin (1970)) and show that our results hold when we add to Equation 1 the lagged dependant variable to erase the serial correlation (see Table A2 in Appendix).

IV. Conclusion

This article has presented some evidence on the connection between specific political uncertainty and investor choices. We build a new measure of specific political uncertainty, capturing the perceived risk of Frexit in the campaign leading up to the 2017 French presidential election. This measure displays a negative correlation with the level of Euro Zone countries' long-term sovereign spread vis-à-vis Germany, conditional on traditional economic proxies for uncertainty and spread determinants.

Two messages merge from our results: first, predictive markets and crowd-based forecasting appear to produce specific political information about uncertainty and risk that (i) has strong explanatory power and (ii) is not fully aggregated by financial markets, for example through stock volatility or global risk aversion. Second, investors appeared worried by Frexit and reacted strongly when faced with an increase in its likelihood. This suggests that, in accordance to existing literature, uncertainty regarding a specific event weighs on investors' behaviour, even when its likelihood is low. Overall, we think these results suggest that the study of political

uncertainty spillovers across borders is both an important and promising avenue for further research and that prediction markets will provide useful data for this endeavour.

Disclosure statement

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Appendix

Table A1. Robustness (uncertainty and French sovereign spread).

	(1)	(2)	(3)	(4)	(5)
Political uncertainty	−0.346***	−0.309***	−0.388***	−0.077***	−0.350***
	(−4.44)	(−6.88)	(−7.10)	(−2.70)	(−8.29)
Volatility proxy 1 (VIX)	−0.604	−0.518**	−0.530**	0.028	
	(−1.33)	(−1.99)	(−2.08)	(0.19)	
Risk aversion (Spread AAA-TBill)	−0.737***	0.227***	0.247***	−0.017	0.074
	(−8.46)	(2.75)	(3.04)	(−0.35)	(0.86)
Election proximity		0.305***	0.435***	0.045**	0.304***
		(14.67)	(7.56)	(2.24)	(14.65)
Quadratic time trend			−0.001**		
			(−2.42)		
Lagged Spread FR-GER				0.837***	
				(15.91)	
Volatility Proxy 2 (VSTOXX)					0.480**
					(2.05)
Observations	110	110	110	110	110
R^2	0.64	0.88	0.89	0.97	0.88

Note. The sample consists of time series daily data from September 2016 to February 2017, the 14th. We use simple OLS regressions. The dependant variable is the French 10 years bond spread vis-à-vis Germany. Explanatory variables are lagged. Election proximity is a linear time trend.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A2. Serial correlation of disturbances (uncertainty and French sovereign spread).

	(1)	(2)	(3)	(4)	(5)
Lagged spread FR-GER	0.993***	0.831***	0.956***	0.910***	0.837***
	(37.68)	(12.16)	(23.81)	(17.01)	(12.39)
Political uncertainty	−0.013	−0.076**			−0.077**
	(−0.69)	(−2.52)			(−2.44)
Volatility (VIX)			0.011	−0.040	0.028
			(0.13)	(−0.41)	(0.28)
Risk aversion (Spread AAA-TBill)			−0.053*	−0.005	−0.017
			(−1.89)	(−0.13)	(−0.40)
Election proximity		0.049***		0.023	0.045**
		(2.84)		(1.45)	(2.14)
Observations	110	110	110	110	110
R^2	0.96	0.97	0.96	0.96	0.97
Durbin's Test (p-value)	.96	.82	.95	.75	.87
Serial correlation	No	No	No	No	No

Note. The sample consists of time series daily data from September 2016 to February 2017, the 14th. We use simple OLS regressions with robust SEs. The dependant variable is the French 10 years bond spread vis-à-vis Germany. Explanatory variables are lagged. Election proximity is a linear time trend. We perform Durbin's test for serial correlation of disturbances and display the p-value of the test: p-values indicate that we cannot reject the null hypothesis (H0: No serial correlation).
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$