Price of a Surprise

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Abstract

By utilizing a novel data set of 24 democracies for the 1972–2018 period, we investigate how election outcomes, including election surprises, are priced by the stock market. We show that a right-wing win has a statistically significant negative effect on volatility, and has a significant positive effect on abnormal returns, even if it is anticipated. We also document that while an incumbent-win has a positive effect on returns, the opposite is true for a surprise win by a large margin for a right-wing or a coalition government.

Keywords: Election, Excess Returns, Surprises, Volatility
JEL Classification: G14, G15 P16

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1 Introduction

There is a strong relationship between politics and the financial markets, and this relationship can go in both ways. Forsythe et al. (2001) show that political stock markets are better at predicting election outcomes than opinion polls, despite the fact that traders exhibit substantial biases. This effect is found to be stronger and more pronounced at the sectorial level (Herron et al., 1999). Two recent political events provided an excellent opportunity to investigate the effects of politics on financial markets. Breinlich et al. (2018) contend that the negative initial stock price response to the Brexit referendum was affected by fear of a recession and even by political speeches. Similarly, Darby and Roy (2019) suggest that stock market volatility peaked in the UK when polls suggested that the Scottish Independence Referendum was too close to call. This is consistent with Arin et al. (2011) who show that political variables have a stronger effect on market volatility than market returns, as well as Białkowski et al. (2008) who found that the country-specific component of index return variance can easily double during the week around an election due to several factors, such as a narrow margin of victory. In a similar vein, using a triple difference-in-difference approach and data from two-round presidential elections in five Latin American countries between 1999 and 2018, Carnahan and Saiegh (2020) document that financial volatility is greatest in the days immediately following unpredictable, decisive, elections.

Both Bialkowski et al. (2008) and Carnahan and Saiegh (2020) point out that whether the election outcome is predictable or anticipated, is an important determinant of how stock markets responds to election outcomes. This is hardly surprising - since the seminal work of Fama (1970,1991), the efficient market hypothesis postulates that security prices reflect all available information and thus all anticipated events are already priced into stocks. Hence, only unanticipated events explain movements in prices and information related to these events comes in a random fashion. While it is not straightforward to differentiate between anticipated and unanticipated news/events, the difference between election polls and actual election outcomes provide us with an excellent opportunity to investigate whether anticipated news/events were already priced by the financial markets.

We contribute to this literature in a number of ways. First, we create a novel historical dataset for 24 countries for the 1972-2018, period which includes both poll results prior to elections and the actual election result. This allows us to quantify the magnitude of the election surprise. We believe this is particularly important and, to our knowledge, we are the first to investigate whether the magnitude of the surprise, rather than the surprise itself, has an impact on the financial markets' response to election outcomes. Then, we proxy stock markets' uncertainty constructing two indicators, namely excess returns and the spread between the conditional and unconditional volatility, estimated by means of a GARCH model. Averages of the two days and five days, after the elections, excess returns and excess volatility indicators are, in turn, regressed against a set of election related variables as well as election surprise variables. Our results show that both anticipated and unanticipated election-related political events have a substantial effect on stock market returns and volatility. The paper is structured as follows: Section 2 describes the data and the model specifications used. Section 3 presents the empirical results and Section 4 presents the conclusion.

2 Data and Methodology

2.1 Data

Our study investigated 24 countries (European Union countries, USA and Canada) to explore the effects of anticipated versus unanticipated election results on financial markets. We gathered election data from the countries' official election sites. The US senate election results were collected from the Senate.gov website, while the USA House of Representatives election results were obtained from the History, Art and Archives Institution database. Data for the US presidential election results were obtained from the American Presidency Project database. For the EU, both parliamentary and presidential election results data (1990-2012), were gathered from the European Election database, while the election data from 2012-2019 were based on The Election Resource site database. Finally, Canada's Election data (1979-2015) was collected from the Canadian Elections Database.

As for the electoral polls, data were collected from various sources. The US data were obtained from Gallup. The German polls data were obtained from Allensbach Institute. UK polls data were collected from Markback. For most of the remaining European countries, poll data were obtained from the Poll of Polls website, whereas Abacus, Kantar and SWG provided data for Canada, France and Italy, respectively. As a final step, we tracked the published polls results in the local media and newspapers (such as CNN and Newyork Times) to complete the missing data for Portugal and Germany. Financial data on returns and interest rates were downloaded from CEIC, Investing.com and MarketWatch databases. The United States is the country most represented in our dataset with seventeen elections followed by Spain (11) and Portugal (10). The number of elections for the remaining countries were less than 10 with Belgium, Estonia and the Netherlands being the least represented.

Please Insert Table 1 here

2.2 Measuring the Surprise Effect

We construct three separate indicators to quantify election surprises: (i) the percentage difference between the leading party's share in the election and in the poll closest to the election, which we call Lead surprise, (ii) the percentage difference between the (election share of the leading party in the election - election share of the trailing party in the elections) - (poll share of the leading party in the polls - poll share of the trailing party in the polls), which we call Lead margin surprise, and finally, (iii) a dummy variable which takes the value of 1 if the party trailing in the polls actually won, which we call Dummy surprise.

2.3 Calculation of Excess Returns and Volatility

First we construct two indices aimed to proxy stock markets excess returns and stock market excess volatility using the daily data series. For each country the excess returns are as follows:

$$ER_t = r_t - i_t \tag{1}$$

where ER_t are the excess returns, r_t the stock market returns and i_t represents the 3-month government bond yield. Average excess returns for h days (where h takes the value of either 2 or

5) after election dates were computed as:

$$AER_t = \frac{(r_{t+1} - i_{t+1}) + \cdots + (r_{t+h} - i_{t+h})}{h}$$
$$AER_t = \frac{\sum_{j=1}^{h} r_{t+j} - i_{t+j}}{h} \quad (2)$$

Furthermore, we proxy stock market unanticipated uncertainties by means of excess conditional volatilities. We first fit the following GARCH(1,1) model using daily data, where r_t stands for stock market returns:

$$r_t = \mu + \lambda r_{t-1} + \epsilon_t,\ \epsilon_t = \sigma_t e_t$$
$$\sigma_t^2 = \omega + \alpha \epsilon_{t-1}^2 + \beta \sigma_{t-1}^2 \quad (3)$$

Unconditional volatilities are computed as $\frac{1}{1-(\alpha+\beta)}$. The residual vector is normally distributed and the parameters of the model were estimated by maximum likelihood. Finally we calculate the averages of the spread between conditional and unconditional volatility in the two and five days after the election. Those will then feed the panel dataset used in the estimation described in the following section.

2.4 The Model

As already mentioned, the aim of the empirical analysis is to investigate the impact of election surprises on financial markets. For this purpose, we construct and estimate a pooled panel data aimed at investigating the cross-country variation in the magnitude of such effect. We utilize country-specific variables including dummy variables for whether the election was won by a right-wing party, an incumbent party or a coalition, as well as whether the country is a parliamentary or presidential democracy. Finally, interaction variables between the election surprise variables and the aforementioned country-specific political variables are included. The use of a time-invariant variable (i.e. Parliamentary dummy) along with repeated time observations (i.e. more than one election within the same month for some countries) does not allow us to control for country-specific and time-specific effects, respectively. The model takes the following form:

$$y_{i,t} = \alpha + \beta_i Surprisej_{i,t} + \gamma_i RightWing_{i,t} + \delta_i Coalition_{i,t} + \lambda_i Incumbent_{i,t} + \theta_i Parliamentary_{i,t} + \phi_i Z_{i,t} + \varepsilon_{i,t}, \quad (4)$$

where $y_{i,t}$ stands for excess returns (or excess conditional volatility) for country i during day t. $Z_{i,t-1}$ is the vector of interaction variables (Surprise*RightWing, Surprise*Incumbent, Surprise*Coalition, Surprise*Parliamentary) while the Surprise variable can be Lead surprise, Lead margin surprise and Dummy surprise depending on the specification. We should also note that all errors are White (1980) corrected.

Various model specifications are estimated. In Models 1-6 the dependent variable indicators are the two days averages after the election whereas Models 7-12 consider the five days averages. Furthermore, Models (1), (4), (7) and (10) utilize the Lead surprise indicator, models (2), (5), (8) and (11) utilize the Lead margin surprise variable, and finally models (3), (6), (9) and (12) use the Dummy surprise. Therefore, while a number of variables (Right-Wing win, Incumbent

win, Coalition win and Parliamentary dummy) are common across all specifications, the surprise variable, as well as the interactions of the surprise variable with the political control variables, differ across specifications. We argue that surprise variables and their interactions proxy how "unanticipated" events are priced by the stock market, while controlling for "anticipated" events.

3 Empirical Results

The results show that a right-wing win, even if anticipated, has a positive and significant effect on excess returns (regressions 1-3, 7-9) and a negative effect on excess conditional volatility (regressions 4-6, 10-12). This result is particularly surprising, given the fact that previous studies (Bialkowski et al., 2008; as well as Carnahan and Saiegh ,2020) reported that unpredictable elections with a narrow margin of victory are more likely to affect stock market volatility. Nevertheless, the left-wing governments may be seen as riskier, in the sense that they are perceived "less business-friendly". When we turn our focus on the first moment, we see that in addition to a right wing win, an incumbent win has some statistically significant positive effects on excess returns even if they are anticipated (regressions 1, 2, 7, 8). The former result is consistent with Mukherjee and Leblang (2007) who argue that stock markets perform better under right-wing governments, as well as with Riley and Luksetich (1980) who suggested that the stock market prefers Republicans in the short run following an election. On the other hand, the interaction variable between Lead margin surprise and Right Wing Win has a statistically significant negative sign (regressions 2 and 8), suggesting that a big surprise in terms of a winning margin may wipe off some of the positive abnormal returns. Similarly, the interaction of Lead surprise*Coalition has a negative and statistically significant effect (regression 7), implying a coalition government with a surprisingly large winning margin for the lead party is not well perceived by the financial markets. These two aforementioned results imply that financial markets react negatively to consolidation of power beyond expectations. We should also note that there is no significant effect of the dummy surprise variable or its interactions. This implies that the magnitude of the surprise may be more important that the surprise itself. Finally, overall, we also observe that the magnitude of the effect of election surprises (in absolute value) tends to decrease when a five-day period after the election is considered. [1] Empirical results are presented in Table 2.

Please Insert Table 2 here

4 Conclusion

While some prior studies investigated the effects of elections on financial markets (Bialkowski et al., 2008; Breinlich et al., 2018; Carnahan and Saiegh, 2020; Darby and Roy, 2019), our study is the first that quantifies the magnitude of the surprise, and therefore truly differentiates between "anticipated" versus "unanticipated" election outcomes. It also investigates the effects of a larger spectrum of political variables (party orientation, type of democracy, type of government etc), as

[1] We also calculate excess returns and excess conditional volatilities for the first day after elections.The results are not presented due to space constraints and are available upon request.

well as the interaction of these political variables with the surprise effect, on the stock market looking at the first and second moment. Our results also show that both unanticipated (i.e. interaction variables with surprise measures) and anticipated variables (i.e right-wing or incumbent win) may affect stock returns and volatility. This particular result presents us with a new puzzle, and further avenues of research, more specifically, explaining the reasons behind this market inefficiency. We also show that the surprise effect matters more for returns rather than volatility. While this result is consistent with Arin et al. (2013), it contradicts other previous studies (Carnahan and Saiegh, 2020). Finally, we show that the "surprise" effect weakens over time, as expected.

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Table 1: Data Description

	Elections Data	
Countries	Sample	Number of Elections
Austria	2002-2017	7
Belgium	2003-2014	4
Canada	1997-2015	7
Croatia	2000-2016	6
Cyprus	2008-2018	5
Czechia	2002-2018	9
Denmark	1994-2015	7
Estonia	2003-2015	4
Finland	2000-2018	8
France	1995-2012	8
Germany	1998-2017	6
Greece	2004-2015	5
Hungary	2002-2018	5
Italy	2001-2018	5
Poland	1997-2015	9
Portugal	1995-2016	10
Republic of Ireland	1997-2018	8
Slovakia	2002-2016	8
Slovenia	2004-2018	8
Spain	1982-2016	11
Sweden	1998-2018	6
The Netherlands	2010-2017	3
United Kingdom	1987-2017	8
United States	1972-2016	17
Total number of countries		24
Total number of elections		174

Note: Sample sizes are driven by data availability.

Table 2: Effects of Election Surprises on Financial Markets

	2 Days after Election						5 Days after Election					
	Excess Returns			Conditional Volatility			Excess Returns			Conditional Volatility		
	1	2	3	4	5	6	7	8	9	10	11	12
Intercept	−4.016***	−3.841***	−3.631***	1.294***	1.367***	1.349***	−4.166***	−4.473***	−3.915***	1.260***	1.356***	1.313***
	(0.665)	(0.727)	(0.635)	(0.130)	(0.125)	(0.156)	(0.676)	(0.693)	(0.636)	(0.124)	(0.127)	(0.161)
Lead Surprise	2.476			1.550			1.030			1.908		
	(6.108)			(1.451)			(6.061)			(1.453)		
Lead Surprise^2	−4.358			−1.872			−3.105			−2.177		
	(7.197)			(1.712)			(7.411)			(1.718)		
Lead Margin Surprise		11.07			1.259			−0.850			1.484	
		(12.55)			(1.945)			(9.858)			(1.875)	
Lead Margin Surprise^2		−30.91			1.708			−4.196			1.766	
		(30.29)			(4.819)			(25.10)			(4.652)	
Dummy Surprise			−2.300			1.708			−2.180			0.305
			(1.645)			(4.819)			(1.661)			(0.298)
Right Wing win	3.277**	2.392**	2.686*	−0.417***	−0.469***	−0.418***	2.902*	2.082*	2.472*	−0.400***	−0.437***	−0.413***
	(1.208)	(0.839)	(1.131)	(0.0882)	(0.0850)	(0.0896)	(1.327)	(0.905)	(1.240)	(0.0856)	(0.0886)	(0.0918)
Incumbent win	1.473*	1.157*	0.978	−0.0860	−0.0328	−0.0804	1.489*	1.164*	1.148	−0.0861	−0.0396	−0.0835
	(0.655)	(0.569)	(0.655)	(0.111)	(0.104)	(0.113)	(0.665)	(0.569)	(0.663)	(0.105)	(0.0993)	(0.113)
Coalition win	0.482	0.206	0.300	−0.0685	−0.0234	−0.0730	0.646	0.336	0.454	−0.0785	−0.0355	−0.102
	(0.655)	(0.676)	(0.742)	(0.0977)	(0.0938)	(0.104)	(0.624)	(0.678)	(0.717)	(0.0930)	(0.0892)	(0.0962)
Parl.	−0.389	0.002	−0.294	0.0536	−0.0780	−0.0530	−0.254	0.436	−0.137	0.0807	−0.0694	−0.005
	(0.683)	(0.678)	(0.699)	(0.136)	(0.132)	(0.146)	(0.693)	(0.678)	(0.702)	(0.125)	(0.126)	(0.150)
Interaction Variables												
Lead Surprise*Right	−14.11			−2.247			−11.40			−2.034		
	(17.39)			(1.746)			(19.28)			(1.798)		
Lead Surprise*Incumbent	−7.809			0.842			−7.232			0.679		
	(9.332)			(1.684)			(9.522)			(1.638)		
Lead Surprise*Coalition	−16.41			0.663			−22.13*			0.661		
	(10.13)			(1.493)			(10.20)			(1.455)		
Lead Surprise*Parl.	9.624			−0.859			12.46			−1.081		
	(11.67)			(1.798)			(12.04)			(1.749)		
Lead Margin Surprise*Right		−31.74*			0.141			−34.46*			0.203	
		(14.94)			(1.689)			(16.78)			(1.613)	
Lead Margin Surprise*Incumbent		−14.72			2.659			−16.77			2.646	
		(14.43)			(2.129)			(15.26)			(2.030)	
Lead Margin Surprise*Coalition		−8.837			2.835			−23.28			2.522	
		(11.99)			(1.929)			(15.41)			(1.916)	
Lead Margin Surprise*Parl.		20.84			−0.606			24.72*			−3.332	
		(10.63)			(1.446)			(11.12)			(2.020)	
Dummy Surprise*Parl.			0.253			−0.0769			0.638			−0.189
			(1.613)			(0.414)			(1.646)			(0.368)
Dummy Surprise*Right			0.942			−0.282			0.696			−0.382
			(2.455)			(0.235)			(2.850)			(0.307)
Dummy Surprise*Incumbent			2.147			0.0702			1.444			0.0488
			(1.527)			(0.351)			(1.515)			(0.334)
Dummy Surprise*Coalition			0.666			0.240			0.313			0.354
			(1.579)			(0.261)			(1.977)			(0.321)
Countries	24	24	24	24	24	24	24	24	24	24	24	24
Elections												
Obs	162	162	162	175	175	175	162	162	162	175	175	175
R^2	0.08	0.12	0.08	0.05	0.07	0.04	0.09	0.13	0.08	0.06	0.09	0.04
F-statistics	2.32	2.29	1.96	4.77	3.92	4.13	3.19	2.28	1.44	5.21	2.28	4.31
	(0.01)	(0.02)	(0.05)	(0.000)	(0.000)	(0.000)	(0.001)	(0.02)	(0.18)	(0.000)	(0.02)	(0.000)

Note: Robust standard errors are presented in round parentheses. F-test p-values are in square brackets. ***, ** and * represent significance level at 1%, 5% and 10%, respectively.