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Communicating in an eventful campaign: A case study of party press releases during the German federal election campaign 2021

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Communicating in an eventful campaign: A case study of party press releases during the German federal election campaign 2021

Supplementary material

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A Appendix

A.1 Codebook

Table 1: Adapted codebook based on Manifesto Project (MARPOR) coding scheme.

	Issue	MARPOR codes
1	Agriculture	703.1, 703.2
2	Culture	502
3	Defense	104, 105
4	Democracy	202.1, 202.2, 202.3, 202.4, 203, 204
5	Economy	401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 412, 413, 414, 415, 416.1, 704
6	Education	506, 507
7	Environment	416.2, 501
8	Equality	503, 705
9	European Union	108, 110
10	Foreign Affairs	101, 102, 103.1, 103.2, 106, 107, 109
11	Freedom	201.1, 201.2
12	Immigration	601.2, 602.2, 607.1, 607.2, 607.3, 608.1, 608.2, 608.3
13	Labour	701, 702
14	Law and Order	605.1, 605.2
15	NA	000
16	Political Authority	305.1, 305.2, 305.3, 305.4, 305.5, 305.6
17	Political System	301, 302, 303, 304
18	Society and Values	601.1, 602.1, 603, 604, 606.1, 606.2
19	Technology and Infrastructure	411
20	Welfare State	504, 505, 706

A.2 Description of BERT application

As our BERT model, we use the pre-trained model weights of a multilingual BERT (Devlin et al., 2019) model in the cased variant. The pre-trained model weights were obtained and the training was performed using the *huggingface* package (Wolf et al., 2020). We apply BERT in the following steps:

1. We use all Manifesto Project (MARPOR) handbook 5 coded manifestos from the Manifesto Corpus (Lehmann et al., 2022) as our model building data set (total 728,904 quasi-sentences). As we aggregate MARPOR codes into our issue categories (see Appendix A.1), we can directly use the labelled Manifesto Corpus for the model training.
2. We keep 10% randomly chosen quasi-sentences out of the data set to validate and monitor the model during the training process.
3. The quasi-sentences are transformed into token-ids by the BERT tokenizer without further pre-processing. A simple truncation and padding strategy is applied: Every text input is starting from it's beginning truncated or padded to BERTs maximum token input length (512 tokens).
4. The training runs over 1 epoch with an effective batch size of 16. The AdamW Optimizer with a learning rate of 0.00005, a weight decay of 0.01 and 100 warm-up steps was chosen as a optimizer. The trained model achieves an accuracy of 0.63 on the held-out manifesto quasi-sentences.
5. We filter our press release data set for non-policy related text via a keyword search (e.g., if 'Termin' is contained in a text we label it as non-policy related).
6. We apply the model trained on the labelled manifestos to the remaining unlabelled and policy-related press releases. The model provides probabilities for each issue per text and we use this information to classify each press release into the issue category (see Appendix A.1) with the highest probability. The only exception is the category 'political authority' (e.g. references to a party's or politician's competence), which in itself does not represent a political issue but is often linked to a particular policies. In cases where the model reports 'political authority' with the highest probability, we label the press release according to the issue with the second highest probability.

A.3 Additional validation statistics for BERT application

This section (see Table 2) provides several additional validation statistics (precision, recall and f1-score) for the computer-based topic classification of the press releases with the BERT model. Our manually coded validation data set ($N = 164$) does not include press releases coded as ‘Culture’. Therefore, no statistics are available for this issues.

Table 2: Precision, recall and f1-scores achieved by the computer-based topic classification of press releases.

	Precision	Recall	F1
Agriculture	1.00	1.00	1.00
Culture			
Defense	1.00	0.40	0.57
Democracy	0.76	0.62	0.68
Economy	0.78	0.70	0.74
Education	0.80	0.80	0.80
Environment	0.60	0.86	0.71
Equality	0.13	1.00	0.24
European Union	0.40	0.67	0.50
Foreign Affairs	0.33	0.86	0.48
Freedom	0.94	0.43	0.59
Immigration	0.90	0.82	0.86
Labour	1.00	1.00	1.00
Law and Order	0.57	1.00	0.73
NA	1.00	0.68	0.81
Political System	0.25	1.00	0.40
Society and Values	1.00	0.75	0.86
Technology and Infrastructure	1.00	0.56	0.71
Welfare State	0.47	0.73	0.57

A.4 Press releases by party office and parliamentary party group

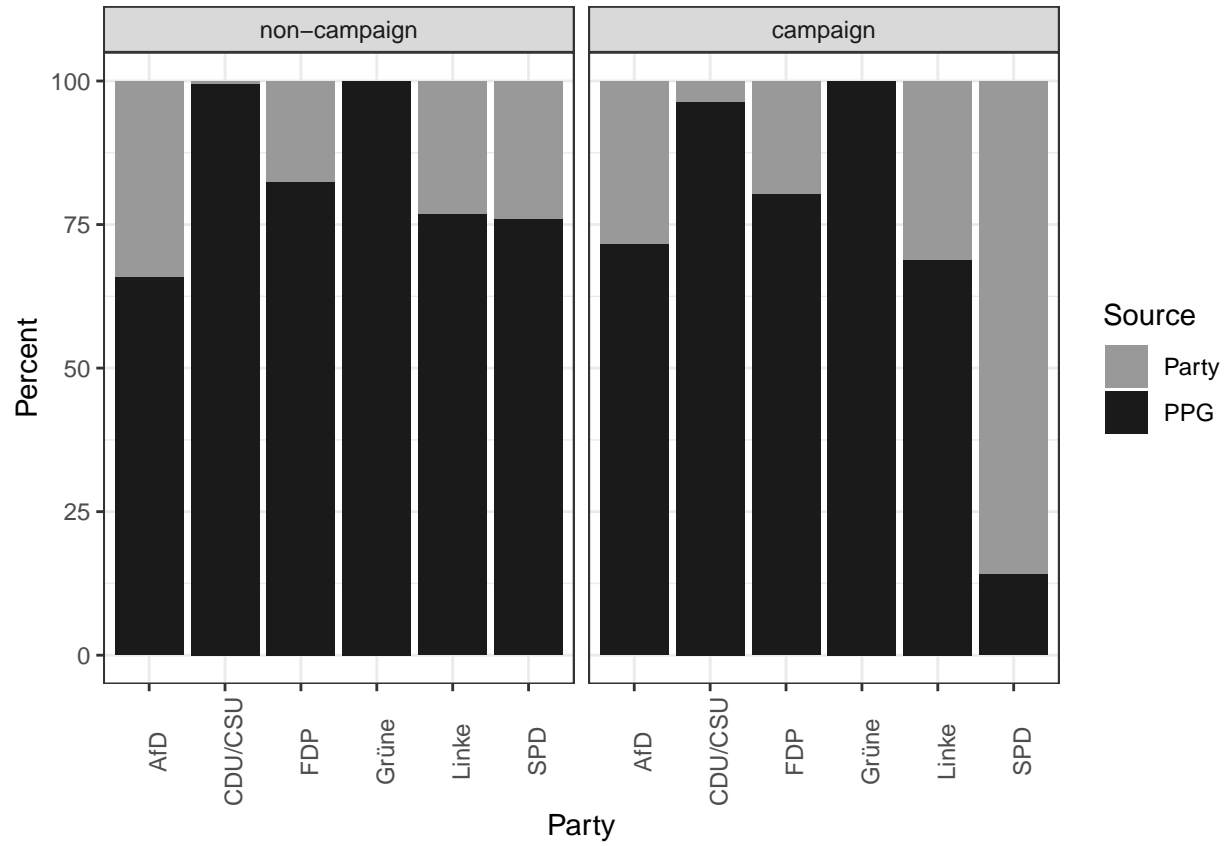


Figure 1: Distribution of press releases published by party office and parliamentary party group (PPG) before and during the election campaign.

A.5 Party issue agendas in manifestos and press releases

This section compares party issue agendas in manifestos and press releases during the German federal election campaign in 2021.

Figure 2 displays a scatter plot for the correlation between manifesto salience and press release salience per party. The solid line is a fitted regression line. The dashed line is a fictional regression line with slope = 1 and intercept = 0, representing a regression line where a one unit increase in manifesto salience would result in a one unit increase in press release salience. Furthermore, the correlation coefficients are displayed in the plot.

Tables 3 and 4 provide the issue salience (in percent) per party in manifestos and press releases respectively.

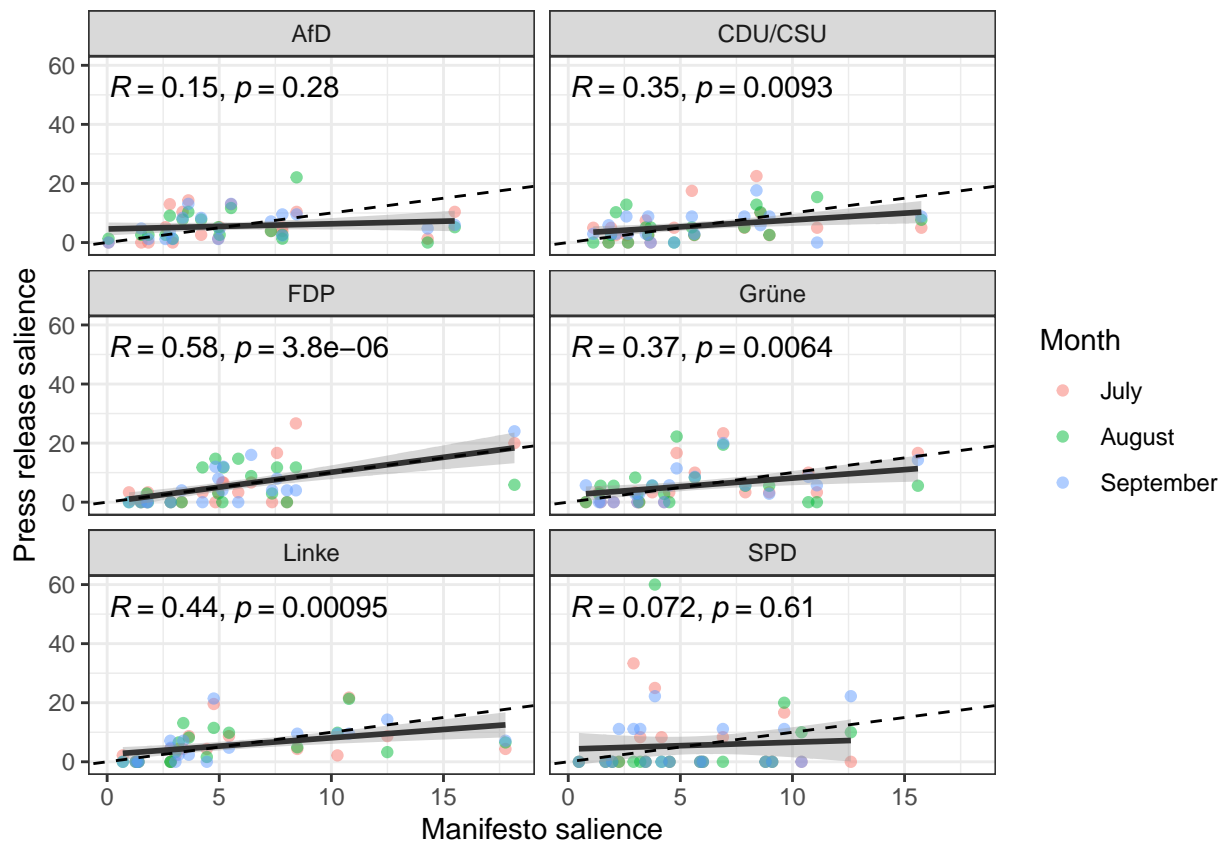


Figure 2: Correlation plots between manifesto salience and press release salience per party.

Table 3: Issue salience (in percent) per party in manifestos.

	AfD	CDU/CSU	FDP	Grüne	Linke	SPD
Agriculture	2.60	1.91	0.97	0.78	0.70	0.48
Culture	0.06	1.12	1.51	1.44	1.36	2.26
Defense	2.92	3.46	1.77	1.37	3.40	1.96
Democracy	3.62	2.59	4.83	5.65	5.43	3.86
Economy	15.50	15.75	18.17	11.09	12.49	9.63
Education	1.84	1.80	4.25	2.99	3.05	3.21
Environment	2.80	8.40	6.42	15.59	10.27	8.80
Equality	3.37	3.68	7.35	10.71	17.76	10.40
European Union	7.81	5.62	5.18	4.28	1.28	4.16
Foreign Affairs	4.19	5.51	5.85	6.91	4.76	5.89
Freedom	7.31	2.13	7.58	4.84	3.64	3.45
Immigration	8.45	2.67	1.82	2.03	1.40	1.66
Labour	1.52	3.57	3.32	3.75	8.48	9.10
Law and Order	5.02	8.97	4.96	4.51	3.19	4.52
Political System	7.81	8.58	5.14	3.09	2.82	2.91
Society and Values	14.29	4.72	2.84	3.16	2.84	6.00
Technology and Infrastructure	4.96	11.10	8.02	7.90	4.45	6.90
Welfare State	5.53	7.86	8.42	8.96	10.79	12.60

Table 4: Issue salience (in percent) per party in press releases (July-September 2021).

	AfD	CDU/CSU	FDP	Grüne	Linke	SPD
Agriculture	2.94	3.54	1.12	1.98	0.67	0.00
Culture	0.42	2.65	0.00	1.98	0.00	3.23
Defense	0.84	5.31	1.12	1.98	8.72	0.00
Democracy	12.61	7.96	8.99	8.91	8.05	35.48
Economy	7.14	7.08	15.73	2.97	8.05	16.13
Education	1.26	1.77	5.62	4.95	2.01	6.45
Environment	8.40	17.70	10.11	11.88	7.38	0.00
Equality	8.82	1.77	2.25	5.94	6.04	3.23
European Union	5.46	2.65	10.11	0.99	0.00	3.23
Foreign Affairs	6.30	10.62	6.74	20.79	16.78	0.00
Freedom	5.04	5.31	12.36	16.83	6.71	0.00
Immigration	13.87	0.88	1.12	1.98	0.00	0.00
Labour	2.52	4.42	1.12	4.95	6.04	0.00
Law and Order	4.20	4.42	4.49	2.97	4.70	0.00
Political System	2.94	8.85	3.37	0.99	3.36	16.13
Society and Values	2.10	1.77	0.00	0.99	1.34	0.00
Technology and Infrastructure	2.52	7.08	1.12	4.95	2.01	6.45
Welfare State	12.61	6.19	14.61	3.96	18.12	9.68

A.6 Correlation between variables of interest

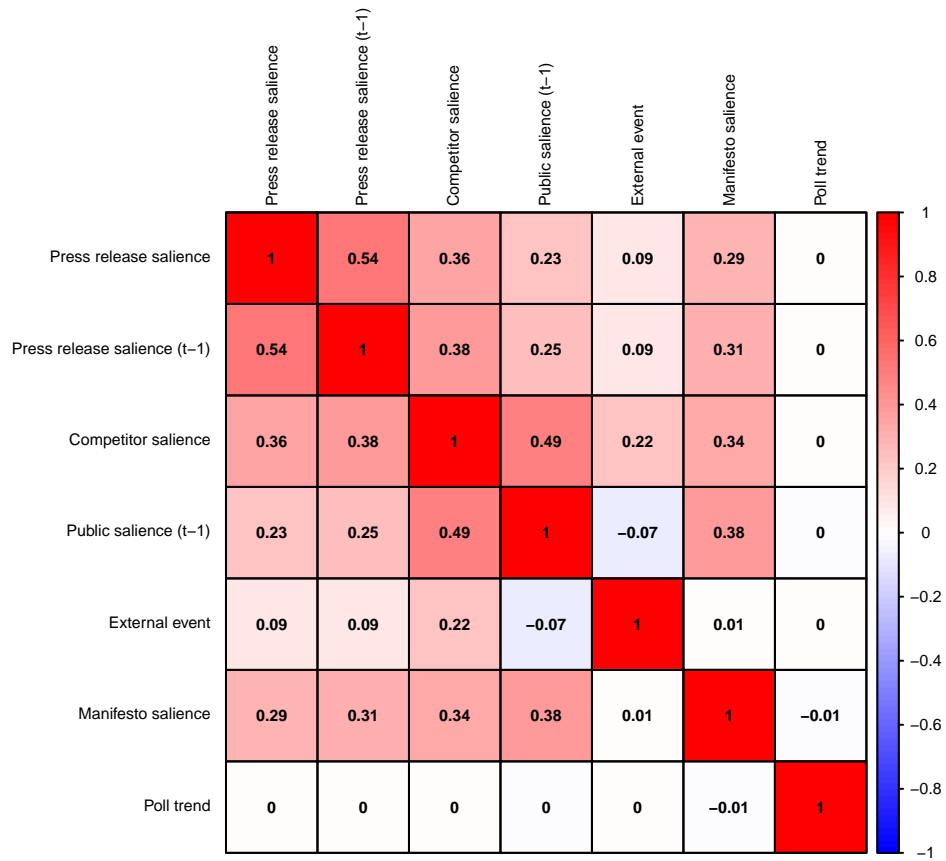


Figure 3: Correlation matrix for variables of interest.

A.7 Regression models with SPD excluded as outlier

Tables 5 and 6 in this section report the analysis from Tables 2 and 3 of the main paper without the observations for the SPD.

Table 5: Testing issue emphasis strategies in party press releases (SPD excluded as outlier).

	<i>Dependent variable:</i>			
	Press release salience (t0)			
	(1)	(2)	(3)	(4)
Competitor salience	0.295** (0.079)			0.259* (0.107)
Public salience (t-1)		0.042 (0.042)		0.013 (0.051)
External event			2.566*** (0.116)	1.925** (0.462)
Manifesto salience	0.223** (0.078)	0.245* (0.099)	0.279 (0.136)	0.228* (0.105)
Government status	0.064 (3.671)	0.068 (1.605)	0.077 (1.142)	0.065 (3.576)
Party size	-0.003 (0.154)	-0.003 (0.060)	-0.004 (0.050)	-0.003 (0.151)
Press release salience (t-1)	0.430** (0.097)	0.484*** (0.090)	0.485*** (0.090)	0.420** (0.104)
Constant	0.350 (1.711)	1.332 (0.990)	1.231 (0.873)	0.404 (1.625)
Observations	270	270	270	270
R-squared	0.392	0.367	0.373	0.397
Adj. R-squared	0.381	0.355	0.361	0.381

Note:

*p<0.1; **p<0.05; ***p<0.01
Standard errors clustered by party and issue.

Table 6: Examining the influence of standing in polls on issue emphasis strategies in party press releases (SPD excluded as outlier).

	<i>Dependent variable:</i>		
	Press release salience (t0)		
	(1)	(2)	(3)
Competitor salience	0.282** (0.075)		
Public salience (t-1)		0.049 (0.041)	
External event			3.723*** (0.205)
Poll trend	0.107 (0.167)	-0.050 (0.156)	-0.130 (0.159)
Competitor salience:Poll trend	-0.019 (0.033)		
Public salience (t-1):Poll trend		0.010 (0.011)	
External event:Poll trend			1.675** (0.496)
Manifesto salience	0.222 (0.122)	0.248* (0.098)	0.274** (0.097)
Government status	0.096 (5.272)	0.080 (3.880)	-0.379 (3.542)
Party size	-0.004 (0.220)	-0.004 (0.157)	0.018 (0.136)
Press release salience (t-1)	0.431** (0.112)	0.480*** (0.085)	0.496*** (0.093)
Constant	0.437 (2.372)	1.309 (1.804)	0.865 (1.468)
Observations	270	270	270
R-squared	0.392	0.368	0.386
Adj. R-squared	0.376	0.351	0.369

Note:

*p<0.1; **p<0.05; ***p<0.01
Standard errors clustered by party and issue.

A.8 Regression models with time lag for *competitor salience*

Tables 7 and 8 in this section report the analysis from Tables 2 and 3 of the main paper with a lagged version of the variable *competitor salience*.

Table 7: Testing issue emphasis strategies in party press releases (models with lags for competitor salience).

	<i>Dependent variable:</i>			
	Press release salience (t0)			
	(1)	(2)	(3)	(4)
Competitor salience (t-1)	0.228** (0.089)			0.197 (0.144)
Public salience (t-1)		0.047 (0.034)		0.021 (0.034)
External event			1.325*** (0.119)	0.993** (0.334)
Manifesto salience	0.189 (0.096)	0.208 (0.104)	0.250** (0.095)	0.181 (0.166)
Government status	0.023** (0.009)	0.029 (0.038)	0.035*** (0.003)	0.023 (0.165)
Party size	-0.001 (0.010)	-0.002 (0.031)	-0.002 (0.028)	-0.001 (0.016)
Press release salience (t-1)	0.465*** (0.076)	0.497*** (0.074)	0.503*** (0.060)	0.463*** (0.073)
Constant	0.689*** (0.017)	1.418*** (0.350)	1.340** (0.406)	0.750*** (0.148)
Observations	324	324	324	324
R-squared	0.32	0.311	0.309	0.321
Adj. R-squared	0.309	0.3	0.298	0.306

Note:

*p<0.1; **p<0.05; ***p<0.01
Standard errors clustered by party and issue.

Table 8: Examining the influence of standing in polls on issue emphasis strategies in party press releases (models with lags for competitor salience).

	<i>Dependent variable:</i>		
	Press release salience (t0)		
	(1)	(2)	(3)
Competitor salience (t-1)	0.232* (0.091)		
Public salience (t-1)		0.050 (0.031)	
External event			1.328* (0.640)
Poll trend	-0.145 (0.206)	-0.108*** (0.017)	-0.011 (0.071)
Competitor salience (t-1):Poll trend	0.026 (0.036)		
Public salience (t-1):Poll trend		0.020 (0.017)	
External event:Poll trend			0.171 (0.833)
Manifesto salience	0.189 (0.100)	0.202 (0.118)	0.249** (0.092)
Government status	0.026 (0.054)	0.029 (0.042)	0.045 (0.266)
Party size	-0.002 (0.025)	-0.002 (0.038)	-0.002 (0.017)
Press release salience (t-1)	0.464*** (0.096)	0.498*** (0.095)	0.504*** (0.099)
Constant	0.677*** (0.075)	1.434** (0.392)	1.330* (0.535)
Observations	324	324	324
R-squared	0.321	0.314	0.309
Adj. R-squared	0.306	0.299	0.294

Note:

*p<0.1; **p<0.05; ***p<0.01
Standard errors clustered by party and issue.

A.9 Regression models with time lag for *external event*

Tables 9 and 10 in this section report the analysis from Tables 2 and 3 of the main paper with a lagged version of the variable *external event*.

Table 9: Testing issue emphasis strategies in party press releases (models with lags for external event).

	<i>Dependent variable:</i>			
	Press release salience (t0)			
	(1)	(2)	(3)	(4)
Competitor salience	0.281* (0.117)			0.282* (0.125)
Public salience (t-1)		0.047 (0.034)		0.005 (0.046)
External event (t-1)			-0.422 (1.186)	-0.870 (1.153)
Manifesto salience	0.182 (0.095)	0.208 (0.104)	0.247* (0.100)	0.176 (0.111)
Government status	0.017 (0.071)	0.029 (0.038)	0.034 (0.145)	0.016 (0.166)
Party size	-0.001 (0.016)	-0.002 (0.031)	-0.002 (0.029)	-0.001 (0.022)
Press release salience (t-1)	0.459*** (0.108)	0.497*** (0.074)	0.508*** (0.063)	0.461*** (0.103)
Constant	0.470*** (0.095)	1.418*** (0.350)	1.418*** (0.317)	0.505** (0.133)
Observations	324	324	324	324
R-squared	0.326	0.311	0.307	0.327
Adj. R-squared	0.315	0.3	0.296	0.312

Note:

*p<0.1; **p<0.05; ***p<0.01
Standard errors clustered by party and issue.

Table 10: Examining the influence of standing in polls on issue emphasis strategies in party press releases (models with lags for external event).

	<i>Dependent variable:</i>		
	Press release salience (t0)		
	(1)	(2)	(3)
Competitor salience	0.282* (0.140)		
Public salience (t-1)		0.050 (0.031)	
External event (t-1)			-0.431 (1.126)
Poll trend	-0.045 (0.101)	-0.108*** (0.017)	0.025 (0.045)
Competitor salience:Poll trend	0.008 (0.027)		
Public salience (t-1):Poll trend		0.020 (0.017)	
External event (t-1):Poll trend			-0.358 (0.232)
Manifesto salience	0.182* (0.090)	0.202 (0.118)	0.249* (0.107)
Government status	0.021 (0.239)	0.029 (0.042)	0.063 (0.224)
Party size	-0.001 (0.017)	-0.002 (0.038)	-0.004 (0.030)
Press release salience (t-1)	0.459*** (0.111)	0.498*** (0.095)	0.503*** (0.112)
Constant	0.469* (0.188)	1.434** (0.392)	1.455** (0.417)
Observations	324	324	324
R-squared	0.326	0.314	0.308
Adj. R-squared	0.311	0.299	0.293

Note:

*p<0.1; **p<0.05; ***p<0.01
Standard errors clustered by party and issue.

A.10 Regression model with time lag for *poll trend*

Table 11 in this section reports the analysis from Table 3 of the main paper with a lagged version of the variable *poll trend*.

Table 11: Examining the influence of standing in polls on issue emphasis strategies in party press releases (models with lags for poll trend).

	<i>Dependent variable:</i>		
	Press release salience (t0)		
	(1)	(2)	(3)
Competitor salience	0.278** (0.100)		
Public salience (t-1)		0.049 (0.028)	
External event			1.301*** (0.307)
Poll trend (t-1)	0.336 (0.235)	-0.070 (0.126)	0.008 (0.055)
Competitor salience:Poll trend (t-1)	-0.061 (0.049)		
Public salience (t-1):Poll trend (t-1)		0.013 (0.022)	
External event:Poll trend (t-1)			-0.262 (0.534)
Manifesto salience	0.176 (0.093)	0.207 (0.104)	0.248** (0.088)
Government status	0.027 (0.061)	0.028 (0.048)	0.005 (0.021)
Party size	-0.002 (0.014)	-0.002 (0.029)	0.001 (0.018)
Press release salience (t-1)	0.463*** (0.094)	0.496*** (0.066)	0.503*** (0.081)
Constant	0.507** (0.145)	1.422** (0.385)	1.315** (0.508)
Observations	324	324	324
R-squared	0.33	0.312	0.309
Adj. R-squared	0.315	0.297	0.294

Note:

*p<0.1; **p<0.05; ***p<0.01
Standard errors clustered by party and issue.

A.11 Regression models per party

Table 12 in this section tests issue emphasis strategies in party press releases per party and therefore reports regression models per party.

Table 12: Testing issue emphasis strategies in party press releases per party.

	<i>Dependent variable:</i>					
	Press release salience (t0)					
	AfD	CDU/CSU	FDP	Grüne	Linke	SPD
Competitor salience	-0.017 (0.106)	0.429** (0.157)	0.401 (0.342)	0.480** (0.209)	0.369* (0.208)	0.410 (0.813)
Public salience (t-1)	0.124** (0.051)	-0.072 (0.060)	0.131 (0.087)	-0.200*** (0.054)	0.062 (0.107)	0.063 (0.152)
External event	3.016 (1.750)	3.480 (4.404)	2.208 (3.964)	1.013 (1.874)	0.336 (5.503)	-6.082 (5.150)
Manifesto salience	0.065 (0.095)	0.365** (0.171)	0.771*** (0.184)	0.258** (0.115)	0.097 (0.120)	-0.207 (0.441)
Press release salience (t-1)	0.550*** (0.114)	0.073 (0.196)	-0.022 (0.213)	0.505*** (0.116)	0.487** (0.180)	0.469*** (0.131)
Constant	1.410* (0.742)	0.962 (0.989)	-1.563 (1.216)	-0.310 (0.654)	-0.063 (0.867)	1.814 (1.932)
Observations	54	54	54	54	54	54
R-squared	0.529	0.27	0.446	0.601	0.526	0.259
Adj. R-squared	0.48	0.194	0.388	0.56	0.477	0.182

Note:

*p<0.1; **p<0.05; ***p<0.01
Standard errors clustered by issue.

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