

The Similarity of ECB's Communication: A Replication and Extension

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Introduction

- ▶ Replication of Amaya and Filbien (2015): Analysis of ECB press conference communications.
- ▶ Extension to assess robustness:
 - ▶ Extended sample period (1994–2019).
 - ▶ Integration of Monetary Policy (MP) Tone.
- ▶ Key focus: Impact of communication similarity on market stability.

Objective

- ▶ Analyze the evolution of ECB speech similarity.
- ▶ Investigate the relationship between communication similarity and financial market reactions.
- ▶ Assess robustness across extended timeframes and new explanatory variables.

Methodology Overview

- ▶ Textual similarity measured using Jaccard index.
- ▶ Financial market reactions measured via cumulative abnormal returns (CAR).
- ▶ Regression models to estimate:
 - ▶ Effect of time on similarity.
 - ▶ Effect of similarity and sentiment on CAR.

Results: Similarity Analysis (Table III)

- ▶ Consistent increase in similarity over the extended period (1994–2019).
- ▶ Coefficient for *Time (count)*: 0.0062 ($p < 0.01$), confirming time-driven standardization.
- ▶ Improved adjusted R-squared: 0.353 in the full model.

Table III: Regression Results for Similarity (Extended Time Period)

Variable	(1)	(2)	(3)	(4)
Intercept	-2.5153** (0.053)	-5.0410* (0.436)	-5.0393* (0.448)	-3.2016** (0.083)
Time		0.3241** (0.054)	0.3239** (0.056)	
Time (count)				0.0062*** (0.001)
Output gap	0.0460 (0.032)		0.0415 (0.030)	0.0649 (0.030)**
Inflation	0.0073 (0.009)		0.0024 (0.007)	-0.0008 (0.006)
Delta MRO	-0.0979 (0.117)		-0.1715** (0.067)	-0.1121 (0.096)
Adj. R-squared	-0.003	0.119	0.211	0.353
No. of Observations	270	270	270	270

Results: CAR Analysis (Table IV)

- ▶ CAR results show reduced magnitude for key effects:
 - ▶ Interaction term *Pessimism* \times *Similarity*: No longer significant in extended period.
 - ▶ Output gap remains significant, reflecting macroeconomic influence on CAR.
- ▶ Adjusted R-squared values stable, confirming robustness.

Table IV: Regression Results for CAR (Extended Time Period)

Variable	(1)	(2)	(3)	(4)	(5)
Intercept	0.0109** (0.001)	0.0108* (0.001)	0.0116* (0.001)	0.0112** (0.001)	
Pessimism	1.042e-05 (0.001)				
Pessimism x Similarity			-0.0069 (0.006)	-0.0048 (0.006)	
Output gap		-0.0024* (0.001)		-0.0024* (0.001)	
Inflation		6.682e-0 (0.000)		7.174e-05 (0.000)	
Delta MRO		0.0028 (0.003)		-7.958e-05 (0.0029)	
Surprise MRO					
Adj. R-squared	-0.004	-0.119	-0.002	-0.117	
No. of Observations	270	270	270	270	

Monetary Policy Tone Analysis (Table V)

- ▶ Introduction of *MP Tone* reveals nuanced impacts:
 - ▶ *MP Tone* \times *Similarity*: Significant negative impact on CAR (-0.0200 to -0.0310, $p < 0.05$).
 - ▶ Highlights role of similarity in mitigating negative effects of pessimistic tones.
- ▶ Output gap retains significance, indicating macroeconomic relevance.

Table V: Regression Results for CAR (Extension)

Variable	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	0.0048 (0.003)	0.0109** (0.001)	0.0144* (0.005)	0.0123* (0.001)	0.0128** (0.001)	
MP Tone	0.0089* (0.005)		-0.0052 (0.008)			
MP Tone \times Similarity				-0.0200* (0.012)	-0.0310** (0.015)	
Output gap		-0.0024* (0.001)	-0.0026* (0.001)		-0.0025* (0.001)	
Inflation		5.521e-05 (0.000)	6.713e-05 (0.000)		7.368e-05 (0.000)	
Delta MRO		-0.0029 (0.003)	-0.0027 (0.003)		-0.0034 (0.003)	
Surprise MRO						
Adj. R-squared	0.005	0.122	0.121	0.001	0.129	
No. of Observations	269	269	269	269	269	

Discussion

- ▶ Time-driven standardization improves clarity and reduces market uncertainty.
- ▶ Monetary policy tone interacts with similarity to shape market reactions.
- ▶ Robust findings across:
 - ▶ Extended time periods.
 - ▶ Integration of new explanatory variables.

Implications for Policy

- ▶ Standardized communication enhances transparency and predictability.
- ▶ Effective communication strategies can stabilize financial markets.
- ▶ Future research:
 - ▶ Investigate sentiment analysis beyond monetary policy tone.
 - ▶ Explore cross-country comparisons for central bank communication.

Conclusion

- ▶ Replication validates original findings on ECB communication.
- ▶ Extensions highlight robustness of results across time and methodologies.
- ▶ Reinforces the critical role of clear, consistent communication in monetary policy.