

Predictions on TARGET2 Balance

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Abstract

Placeholder

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1 Background

European Union, as the largest monetary organization and the second largest economy in nominal terms (only after the United States) according to GDP, PPP, and nominal GDP, those normally accepted economic measures, was established in November, 1993. EU countries gather together to make determination on economic policies, environmental issues, political pointviews, and even educational and employment development. Therefore, the study of the EU economy assists in the long run of understanding and predicting the global trend of economic development. Starting from the year of 1999 with some EU member states, now 19 out of 28 EU states/countries accept and use euro as official and main currency in a currency union (called Eurozone); however the remaining 9 states still accept the usage of euro in some ways, making euro the most widely used currency in the EU.

TARGET2 stands for Trans-European Automated Real-time Gross settlement Express Transfer system and works as a settlement system for the Eurozone. It is based on an integrated central technical infrastructure, called the Single Shared Platform (SSP), which is operated by three central banks of France, Germany, and Italy. Beginning in November 2007, TARGET2 starts to replace TARGET and is made accessible to members outside of the Eurozone countries. Since TARGET2 works as an interbank real-time gross settlement payment system for the clearing of cross-border transfers in the Eurozone, the objectives includes supporting EU monetary policy, stablizing Eurozone money market, minimizing systemic risk and increasing the efficiency of cross-border transfers. Understanding and accurately predicting of TARGET2 balance can establish a good foundation about the global economics.

2 Literature Review

2.1 Target 2

2.2 Target2

2.3 Policy

2.4 Measuring Economic Policy Uncertainty

2.5 Box-Cox Transformation

3 Model

3.1 Data Source and Cleaning

The policy uncertainty index of various countries is derived directly from Economic Policy Uncertainty website and the target2 balance datasets are from Institute of Empirical Economic Research at Osnabrück University, which is a reliable source for tracking TARGET2 balances from January 1987 to June 2019, updated nearly on a monthly basis.

Since the timelines of two datasets are moduled the same, after year and month, there is no difficulty transferring the combined ones into a time series. Referring to the raw dataset, there are missing variables only for ECB and Cyprus groups. Table 1 below has shown descriptive details of countries' target2 balance as well as the policy uncertainty index from a macroeconomic perspective. In addition, Figure 1 of uncertainty index has shown that most index lie below 200 with some extreme values extending to 1000. The policy uncertainty is measured using political news and macroeconomic events in 100 percentage. The extreme higher index of United Kingdom and France can be explained by the event of Brexit and the discussion around exiting from the EU. Figure 2 shows the median ranking of Target2 Balance, which corresponds to people's usual understanding. Figure 3 displays the

only two negative examples of Austria and Begium, where the balance from 2001 till now has been below zero. For the purpose of prediction on Target2 Balance, the time intervals

Table 1: Descriptive statistics

	mean	sd	min	max
Austria	-24296.7933783784	14674.3237811389	-46049.49	4086.61
Belgium	-23289.5541891892	19329.5564321393	-98312.13	7687.79
Cyprus				
ECB				
European-News-Index	154.548700315458	66.3208691016548	47.6923446655273	433.277496337891
France	185.035862158011	98.0282374243346	30.6203689575195	574.633178710938
France-News-Index	185.035862158011	98.0282374243346	30.6203689575195	574.633178710938
Germany	137.807954985816	65.0741829256057	28.4339847564697	454.005432128906
Germany-News-Index	137.807954985816	65.0741829256057	28.4339847564697	454.005432128906
Greece	102.636670389217	26.6825469949835	47.1814761087496	188.704530504278
Greece-policy-uncertainty	123.493935990991	60.0910694754914	28.63219	344.2343
Ireland	121.966938633335	55.9441890855816	22.9658655600782	282.127765252969
Italy	110.990210017642	38.5988775008311	31.7015342712402	241.018203735352
Italy-News-Index	110.990210017642	38.5988775008311	31.7015342712402	241.018203735352
Netherlands	95.8721697437445	38.2458191255031	27.2133611447053	233.73110601772
Spain	109.835684836893	32.7956285430677	56.2692222595215	236.578872680664
Spain-News-Index	112.530257319545	57.697184778201	23.3175201416016	407.419403076172
Sweden	91.4955742387561	18.6321694506138	53.73406929	156.7298215
UK	209.477777781787	156.802512055422	30.4688014984131	1141.79553222656
UK-News-Index	209.477777781787	156.802512055422	30.4688014984131	1141.79553222656

are parsed from the year 2001 because the transition of millennial, even though the financial crisis around 2008 has also seriously influenced the economics and our further prediction. Furthermore, for any need of calculating the accuracy, the test dataset is splitted from January 2015 to June 2019.

3.2 Transformation and Decomposition

Firstly, the additive decomposition of Greece balance from 2001 to June 2019 shows that there might not be a clear trend but there is a clear seasonality occuring every year. Moreover, the multiplicative decomposition shows the same, however, with a smoother trend line.

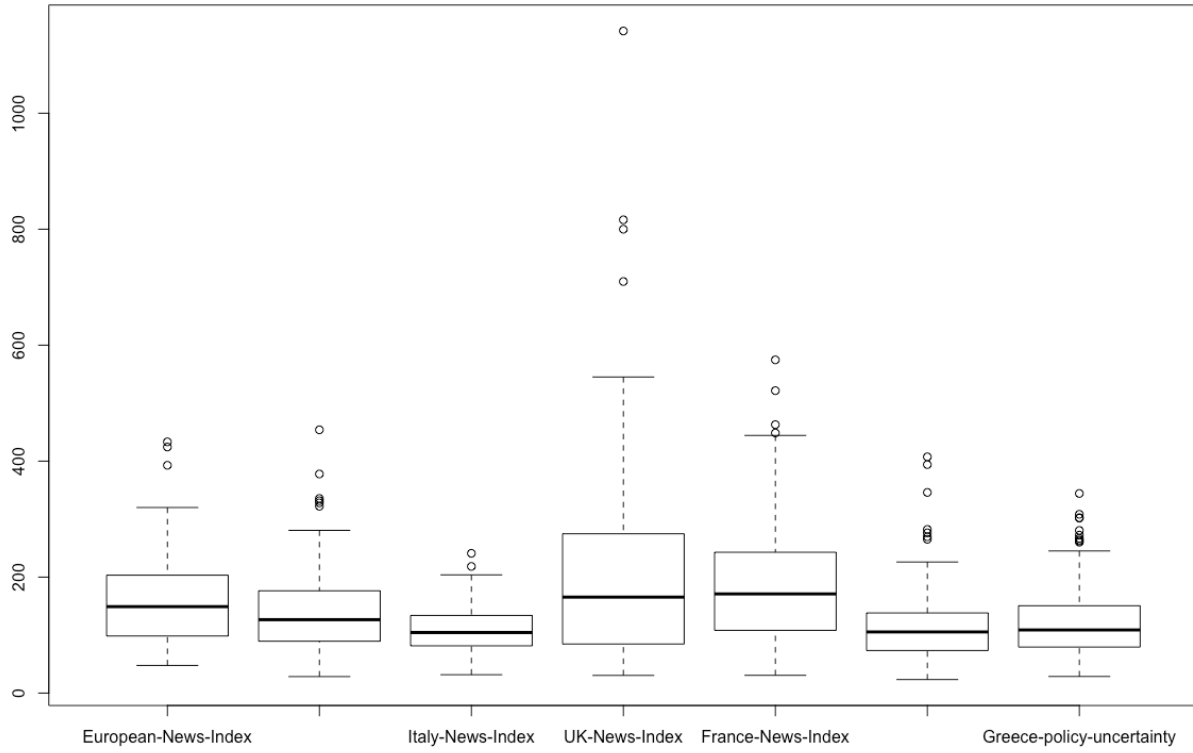


Figure 1: European, Germany, Italy, UK, France, Spain, Greece News Index

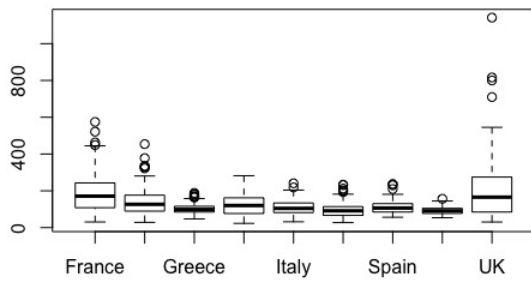


Figure 2: Target2 of France, Germany, Greece, Ireland, Italy, Netherlands, Spain, and UK

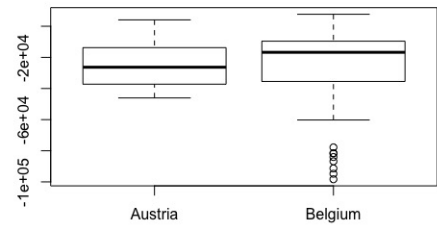


Figure 3: Negative Target2 Balance of Austria and Belgium

4 Next Things

Tables

Appendix A. Placeholder