Economic policy uncertainty: are there regional and country correlation?

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Abstract

This study examines the correlation of economic policy uncertainty (EPU) across countries and regions. Using correlation analysis, the findings reveal that some countries have a positive EPU correlation while other countries have a negative EPU correlation. The economic policy uncertainty index is positively correlated and jointly significant for EU member-countries. There is evidence of cross-regional positive correlation. Also, the EPU correlations are significant for Europe, non-EU countries and the region of the Americas during the global financial crisis, which suggest that financial crises are a contributory factor that drives the correlation of economic policy uncertainty in certain regions.

Keywords: economic policy uncertainty, European Union, uncertainty, economic policy, financial crisis, correlation, Asia, Europe, EPU index.

JEL code: G21; G32; M41

1. Introduction

This paper examines the correlation of time-varying economic policy uncertainty (EPU) among countries and regions. Economic policy uncertainty (EPU) is a hot topic in the recent literature. It has attracted increased scholarly interest in recent years. Much studies have examined the economic consequences of economic policy uncertainty, focusing on the interaction between economic policy uncertainty and economic activity (see Colombo, 2013; Baker et al., 2014; Davis, 2016; Baker et al, 2016). Also, there is evidence that EPU affects oil prices (You et al, 2017; Sun et al, 2020), digital currencies (Demir et al, 2018; Wang et al, 2019), unemployment (Caggiano et al, 2017), stock market performance (Li et al, 2020; Chen et al, 2017), exchange rate (Beckmann and Czudaj, 2017), corporate dividend (Farooq and Ahmed, 2019), corporate cash holdings (Duong et al, 2020; Phan et al, 2019), corporate governance (Ongsakul et al, 2020), insurance (Balcilar et al, 2020), among others.

Few studies have considered the impact of EPU on correlated risks (see., Chiang, 2019; Tsai, 2017; Bernal et al, 2016), while no studies have considered the correlation of EPU between countries and regions. In this paper, I argue that EPU in one country may be transmitted to other countries through regional economic integration and globalization effects, and these effects may be observed through correlations. These correlations may transmit economic and systemic risks to countries, yet the literature have not examined cross-country and regional EPU. To fill this gap and address this issue, this paper uses correlation analysis to assess the correlation of EPU among countries and regions to determine the strength of the association of EPU across countries and regions. Specifically, the Pearson correlation method is used to explore the co-movement of the aggregate economic policy uncertainty index for 22 countries. The findings show that EPU is highly correlated across countries, and there is high positive EPU correlation for countries in Europe and European Union (EU) countries.

This paper contributes to the literature on the consequences of EPU (see., Baker et al, 2016; Sun et al, 2020; Caggiano et al, 2017; Li et al, 2020; Chen et al, 2017; Farooq and Ahmed, 2019; Duong et al, 2020; Phan et al, 2019; Balcilar et al, 2020). It builds on the work of several authors that studied the macroeconomic effects of policy uncertainty, and the effect of policy uncertainty on the financial system. On the empirical side, this paper builds on the insights of Li et al (2015) and Gao and Zhang (2016), and apply their ideas to test the association of EPU.

The rest of the study is structured as follows. Section 2 presents the literature review. Section 3 presents the methodology section. Section 4 concludes.

2. Literature review

2.1. The Economic Policy Uncertainty (EPU) Concept

Economic policy uncertainty is uncertainty derived from the unknown impact of new economic policies on the private sector and the economy. EPU can also derive from whether existing economic policies will change in the near future (Baker et al. 2016; Ng et al. 2020; Danisman et al, 2020). Policy uncertainty may arise from multiple sources: inflation uncertainty, negative economic growth, financial crisis, abnormal lending cuts, rising unemployment rate, foreign exchange volatility, and unexpected changes in monetary policy rate (Ball, 1992; Istiak and Alam, 2019; Zhang et al, 2019; Chen et al, 2020).

Recently, concerns about economic policy uncertainty increased after the global financial crisis, following partisan policy disputes in the US, and unconventional regulatory interventions by regulators and policy makers in the Eurozone (Baker et al, 2016). Unexpected changes in economic policy, mainly monetary policy, fiscal policy and regulatory policy, sparked debates about the contribution of high economic policy uncertainty to the macro- and micro- economy. There is the argument that high EPU affect firms through its effect on the production, investment and pricing decisions of firms (Wang et al, 2014; Kang et al, 2014; Drobetz et al, 2018). In the private sector, high EPU make firms delay investment which affects the level of cash-flow and output (Wang et al, 2014; Kang et al, 2014). In the banking sector, high EPU give bank managers incentives to reprice their loan portfolio and increase interest rate on loans (Ng et al, 2020; Danisman et al, 2020). High EPU can also affect countries through trade tariff spillovers. High EPU in an exporting country may lead to foreign exchange volatility and increase in import tariffs, which can transmit uncertainties to countries that rely on the former for import (Handley and Limao, 2017; Constantinescu et al, 2019).

2.2. Measuring the EPU index

Economic policy uncertainty is commonly measured using the EPU index developed by Baker, Bloom and Davis (2016). The EPU index is an aggregated index consisting of four components. The first component captures EPU using a newspaper-based approach based on the frequency of keywords in 10 leading US newspapers that contain the following terms: ‘‘economic’’ or ‘‘economy’’; ‘‘uncertain’’ or ‘‘uncertainty’’; ‘‘Congress’’, ‘‘deficit’’, ‘‘Federal Reserve’’, ‘‘legislation’’, ‘‘regulation’’ or ‘‘White House’’ (and other variants such as ‘uncertainties’, ‘regulatory’ or ‘the Fed’). The second component captures EPU using tax code expirations. The third component captures EPU using disagreement over consumer price index (CPI) forecasts. The fourth component captures EPU using disagreement over government purchases forecasts. The overall EPU index is constructed as a weighted average based upon the following underlying four components: ½ weight on broad news-based policy uncertainty index, and a weight of 1/6 for each of the remaining three components: the CPI forecast disagreement measure, the tax

expiration code index, and the federal, state, local purchases disagreement measure (Baker et al, 2016). Many studies have used this index to examine the economic consequences of EPU (see, Wang et al, 2019; Rossi and Sekhposyan, 2017; Baker et al, 2016; Alola and Uzuner, 2020).

2.3. Limitation of the EPU index

Previous studies rely on the EPU index of Baker et al (2016). The EPU index, like every other index, has some weaknesses. The most important limitation of the index is that the data underlying the EPU index is limited to a set of mostly advanced economies, and for many of these countries the data are available only after the early 1990s (Ahir et al., 2020), and non-existent for many developing countries. Secondly, Baker et al (2016)'s EPU index does not take into account other components that might drive economic policy uncertainty such as government elections, trade wars, oil price crisis, etc. Thirdly, the EPU index is majorly based on text-searching newspaper archives. Measuring the EPU index using text-searching based on newspaper articles poses some comparability issues when analysing EPU in different countries due to language differences for some countries outside the U.S. This problem is further amplified when the text is a mixture of both opinions and explanations about the past events and future projections.

2.4. Related Literature

A body of literature document the influence of EPU on the correlation between several economic variables. For instance, Antonakakis et al (2013) examine the extent of time-varying correlations among stock market returns, stock market implied volatility and policy uncertainty based on the policy uncertainty index of Baker et al (2012). They find that the dynamic correlations of policy uncertainty and stock market returns are consistently negative, except during the 2008 global financial crisis wherein the correlations were positive. Fang et al (2018) investigate whether the time-varying long-run correlation of crude oil and the U.S. stock market is influenced by economic policy uncertainty (EPU), and find that EPU has a significant positive influence on the long-run oil-stock correlation.

Sun et al (2020) investigate the dynamic interaction between economic policy uncertainty and financial stress using a multi-scale correlation framework. They find that the correlation for short-term fluctuation of economic policy uncertainty and financial stress is significant and fluctuates drastically. Gao and Zhang (2016) investigate the effect of economic policy uncertainty (EPU) on the correlation between the UK stock market and gold market. They find that less certain economic policies result in lower correlations, while more certain economic policies result in higher correlations, and they find that the recent financial crisis did not change the EPU effect on the correlations. Dakhlaoui and Aloui (2016) investigate the dynamics of volatility spillovers between the US economic policy uncertainty and the BRIC equity markets. Using the cross correlation test, they find strong evidence of time-varying correlation between US economic

uncertainty and stock market volatility, and the correlation is highly volatile during periods of global economic instability.

Yang and Jiang (2016) investigate the dynamic correlation between government's policy uncertainty and Chinese stock market returns, and show that there is a low dynamic correlation coefficient between policy uncertainty and market returns. Tsai (2017) examine the source of global stock market risk. They use EPU data in four countries or regions, and find that the EPU in China is the most influential, and its contagion risk spreads to different regional markets, except for Europe; also, the effect of EPU in the United States is inferior to that in China while the EPU in Japan influences contagion risk in emerging markets. Liu and Dong (2020) investigate the impact of economic policy uncertainty on trade credit provision and the role of social trust. They find that a negative correlation between EPU and trade credit exist over a wide range of both developed and developing economies.

3. Research Design

3.1. Data

Data for economic policy uncertainty (EPU) index was collected from the EPU database which is available at: https://www.policyuncertainty.com. The EPU index was developed based on Baker, Bloom and Davis (2016)'s methodology. Data was collected for 22 countries, namely: Australia, Brazil, Canada, Chile, China, Colombia, France, Germany, Greece, India, Ireland, Italy, Japan, Korea, Mexico, Netherland, Russia, Singapore, Spain, Sweden, UK and US. The data was collected for the period 1998 to 2017. Table 1 shows the classification of the sample into countries and regions.

Table 1: Countries in the sample

European Union (EU)	Spain, France, Germany, Ireland, Greece, Italy, Netherlands, UK and Sweden.
Countries outside the EU (NONEU)	Australia, China, Singapore, India, Japan, Korea, Brazil, US, Colombia, Canada, Mexico, Russia and Chile.
Countries in Europe (EUROPE)	France, Germany, Ireland, Greece, Netherlands, Russia, Spain, Italy, UK and Sweden.
Asia Region (AS)	China, Singapore India, Japan and Korea.
Region of the Americas (RAM)	Brazil, US, Colombia, Canada, Mexico and Chile.
All countries	Australia, Brazil, Canada, Chile, China, Colombia, France, Germany, Greece, India, Ireland, Italy, Japan, Korea, Mexico, Netherlands, Russia, Spain, Singapore, UK, US and Sweden.

3.2. Methodology

The economic policy uncertainty (EPU) index developed in Baker, Bloom and Davis (2016) consists of four components: disagreement over government purchases forecasts components, the news-related component, tax code expirations component, and disagreement over CPI forecasts. The four components of EPU are then aggregated into a single EPU index. Recent studies have used the aggregated EPU index to investigate the economic consequences of policy uncertainty under several economic contexts (e.g., Ashraf and Shen, 2019; Nguyen et al 2020; Caglayan and Xu, 2019; Phan et al, 2020).

The method of analysis used in this study is the Pearson correlation analysis. The focus on Pearson correlation statistic is because Pearson's correlation coefficient measures the statistical relationship or association between two continuous variables. It also measures the strength of the association between two variables (Gujarati, 2009). Generally, the correlation statistic shows whether and how strongly two pairs of variables are related. Therefore, the study uses the Pearson correlation to test the association of EPU between countries and regions.

3.3. Descriptive statistics

Table 2 reports the summary of the average (mean) values of the EPU index for each country and region. The EPU variable is 116 on average, and is higher in France, Brazil and the UK, and much lower in Sweden and Mexico. For the regions, the EPU variable is much higher in Europe, the EU and in the region of the Americas, and lower in Asia and outside the EU.

Table 2: Descriptive statistics of country EPU values			
	Country	Region	Mean of EPU
1	Australia	NONEU	100
2	Brazil	Region of the Americas	143
3	Canada	Region of the Americas	136
4	Chile	Region of the Americas	108
5	China	Asia Region	121
6	Colombia	Region of the Americas	101
7	France	EU/EUROPE	159
8	Germany	EU/EUROPE	128
9	Greece	EU/EUROPE	100
10	India	Asia Region	97
11	Ireland	EU/EUROPE	112
12	Italy	EU/EUROPE	107
13	Japan	Asia Region	109
14	Korea	Asia Region	122
15	Mexico	Region of the Americas	95
16	Netherland	EU/EUROPE	97
17	Russia	EUROPE	118
18	Spain	EU/EUROPE	102
19	Singapore	Asia Region	115
20	Sweden	EU/EUROPE	91
21	UK	EU/	175
22	US	Region of the Americas	118
		Asia Region	107
		Region of the Americas	117
		European Union (EU)	119
		Non-EU region	112
		Europe	119
	Mean		116
	Median		106
	Standard deviation		56
	Minimum value		27
	Maximum value		543
	Observation		435

4. Discussion of results

4.1. Regional correlation

In Table 3, EPU is positively correlated and significant in all the regions. This indicates similarities across regions. The positive EPU correlation is stronger between Asia and the EU region as well as between the EU and Europe region. The positive correlation is weaker for Asia and the region of the Americas, as well as for Europe and the region of the Americas.

Table 3: Pearson correlation using regional variables

Regions	AS	EU	NONEU	RAM	EUROPE
AS	1.000				

EU	0.929***	1.000			
	(0.00)	-----			
NONEU	0.944***	0.928***	1.000		
	(0.00)	(0.00)	-----		
RAM	0.707***	0.724***	0.889***	1.000	
	(0.00)	(0.00)	(0.00)	-----	
EUROPE	0.912***	0.995***	0.918***	0.711***	1.000
	(0.00)	(0.00)	(0.00)	(0.00)	-----

P-values are reported in parenthesis. ***, **, * represent significance at 1%, 5% and

4.2. EU countries

Table 4 reports the correlation result for countries in the European Union (EU) region in the sample. As can be observed, EPU is positively correlated and significant for all countries, with a particularly high positive correlation in France, Germany, Ireland, UK and Spain, and a much lower correlation in UK, Italy and the Netherlands. The positive correlation indicates that the regional economic policies of the EU affects member countries in a similar way.

Table 4: European Union (EU) Region: Pearson correlation

Countries	SPAIN	FRANCE	GERMANY	ITALY	NETHERLAND	SWEDEN	UK	IRELAND	GREECE
SPAIN	1.000								

FRANCE	0.846***	1.000***							
	(0.00)	-----							
GERMANY	0.760***	0.868***	1.000***						
	(0.00)	(0.00)	-----						
ITALY	0.630***	0.471**	0.521**	1.000					
	(0.00)	(0.03)	(0.01)	-----					
NETHERLAND	0.498**	0.250	0.329	0.784***	1.000				
	(0.02)	(0.28)	(0.16)	(0.00)	-----				
SWEDEN	0.476**	0.532**	0.643***	0.482**	0.429*	1.000			
	(0.03)	(0.01)	(0.00)	(0.03)	(0.06)	-----			
UK	0.635***	0.903***	0.891***	0.328	0.132	0.564**	1.000		
	(0.00)	(0.00)	(0.00)	(0.16)	(0.58)	(0.01)	-----		
IRELAND	0.772***	0.946***	0.870***	0.487**	0.372	0.566**	0.912***	1.000	
	(0.00)	(0.00)	(0.00)	(0.03)	(0.15)	(0.01)	(0.00)	-----	
GREECE	0.741***	0.687***	0.713***	0.634***	0.466**	0.578**	0.565**	0.661***	1.000
	(0.00)	(0.00)	(0.00)	(0.00)	(0.04)	(0.01)	(0.01)	(0.00)	-----

P-values are reported in parenthesis. ***, **, * represent significance at 1%, 5% and 10%.

4.3. Non-EU countries

Table 5 reports the correlation result for the countries outside the European Union (NONEU) region. As can be observed, EPU is positively correlated and significant for all countries, with a particularly high positive correlation between Canada and Singapore, China and Singapore, and US and Australia. EPU has a low positive correlation between Mexico and US, and Brazil and Australia. EPU also has a low negative correlation between Colombia and India, Mexico and Japan, Mexico and Colombia, and between Mexico and Australia.

Table 5: Non-European Union (NONEU) Region: Pearson correlation

Country	AUSTRALIA	CHINA	SINGAPORE	INDIA	JAPAN	KOREA	BRAZIL	US	COLOMBIA	CANADA	MEXICO	RUSSIA	CHILE
AUSTRALIA	1.000												

CHINA	0.451*	1.000											
	(0.09)	---											
SINGAPORE	0.727***	0.932***	1.000										
	(0.00)	(0.00)	---										
INDIA	0.850***	0.297	0.534**	1.000									
	(0.00)	(0.28)	(0.04)	---									
JAPAN	0.894***	0.598**	0.796***	0.678***	1.000								
	(0.00)	(0.02)	(0.00)	(0.00)	---								
KOREA	0.742***	0.671***	0.831***	0.448*	0.758***	1.000							
	(0.00)	(0.00)	(0.00)	(0.09)	(0.00)	---							
BRAZIL	0.043	0.833***	0.655***	-0.160	0.256	0.402	1.000						
	(0.87)	(0.00)	(0.00)	(0.56)	(0.35)	(0.13)	---						
US	0.919***	0.685***	0.894***	0.725***	0.865***	0.880***	0.313	1.000					
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.25)	---					
COLOMBIA	0.291	0.825***	0.744***	-0.015	0.527**	0.616**	0.873***	0.496*	1.000				
	(0.29)	(0.00)	(0.00)	(0.95)	(0.04)	(0.01)	(0.00)	(0.05)	---				
CANADA	0.709***	0.879***	0.952***	0.581**	0.731***	0.709***	0.639**	0.840***	0.702***	1.000			
	(0.00)	(0.00)	(0.00)	(0.02)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	---			
MEXICO	-0.008	-0.275	-0.181	-0.206	-0.108	0.251	-0.292	0.030	-0.129	-0.335	1.000		
	(0.97)	(0.32)	(0.51)	(0.46)	(0.70)	(0.36)	(0.29)	(0.91)	(0.64)	(0.22)	---		
RUSSIA	0.151	0.643***	0.551**	0.149	0.223	0.129	0.696***	0.285	0.575**	0.708***	-0.619**	1.000	
	(0.59)	(0.00)	(0.03)	(0.59)	(0.42)	(0.64)	(0.00)	(0.30)	(0.02)	(0.00)	(0.01)	---	
CHILE	0.213	0.531**	0.503**	0.074	0.283	0.304	0.649***	0.311	0.666***	0.624**	-0.235	0.843***	1.000
	(0.44)	(0.04)	(0.05)	(0.79)	(0.30)	(0.27)	(0.00)	(0.25)	(0.00)	(0.01)	(0.39)	(0.00)	---

P-values are reported in parenthesis. ***, **, * represent significance at 1%, 5% and 10%.

4.4. Asian countries

Table 6 reports the correlation result for countries in the Asia region. As can be observed, EPU is positively correlated and significant between China, Singapore, Japan and Korea, and a particularly high positive correlation between China and Singapore, Korea and Singapore, Japan and Singapore, and between Japan and Korea. EPU has a low negative correlation between China and India; and between India and Korea.

Table 6: Asia Region (AS) Region: Pearson correlation

Country	CHINA	SINGAPORE	INDIA	JAPAN	KOREA
CHINA	1.000				

SINGAPORE	0.932***	1.000			
	(0.00)	-----			
INDIA	0.297	0.534**	1.000		
	(0.28)	(0.04)	-----		
JAPAN	0.598**	0.796***	0.678***	1.000	
	(0.02)	(0.00)	(0.00)	-----	
KOREA	0.671***	0.832***	0.448*	0.758***	1.000
	(0.00)	(0.00)	(0.09)	(0.00)	-----

P-values are reported in parenthesis. ***, **, * represent significance at 1%, 5% and 10%.

4.5. Countries in the Region of the Americas (RAM)

Table 7 reports the correlation result for countries in the region of the Americas. As can be observed, EPU is positively correlated and significant for some countries with a particularly high positive correlation between Canada and the US, and a much lower positive correlation between US and Chile. On the other hand, EPU is negatively correlated and significant for other countries, and the negative correlation is stronger between US and Mexico, and between Canada and Mexico. Overall, the result shows that RAM countries have correlated EPU, and the correlation is positive for some countries and negative for other countries.

Table 7: Region of the Americas: Pearson correlation

Country	BRAZIL	US	COLOMBIA	CANADA	MEXICO	CHILE
BRAZIL	1.000					

US	0.332	1.000				
	(0.15)	-----				
COLOMBIA	0.621***	0.419*	1.000			
	(0.00)	(0.06)	-----			
CANADA	0.681***	0.784***	0.457**	1.000		
	(0.00)	(0.00)	(0.04)	-----		
MEXICO	-0.453**	-0.035	0.176	-0.424*	1.000	
	(0.04)	(0.88)	(0.45)	(0.06)	-----	
CHILE	0.329	0.268	0.697***	0.314	0.271	1.000
	(0.15)	(0.25)	(0.00)	(0.17)	(0.24)	-----

P-values are reported in parenthesis. ***, **, * represent significance at 1%, 5% and 10%.

4.6. Financial crisis analysis across regions

In this section, I divide the sample into three subsamples: the pre-, during- and post- financial crisis era, and examine whether the events during, after and before the 2007/2008 global financial crisis are contributory factors in explaining the regional EPU correlation. The pre-crisis era covers the 1998 to 2006 period. The during-the-crisis subsample covers 2007 to 2009 period. The inclusion of 2009 into the during-the-crisis subsample allows us to capture the after-shocks of the financial crisis which persisted up until 2009 for many countries. The results are reported below.

4.6.1. Pre-financial crisis era

Table 8 reports the correlation result for the regions in the pre-financial crisis era. As can be observed, EPU is positively correlated and strongly significant in all regions prior to the global financial crisis. The EPU correlations are generally high, and much lower between EUROPE and the RAM region, and higher between EUROPE and EU region in the pre-financial crisis.

Table 8: Pre-financial crisis (1998-2006): regional correlation

Region	AS	EU	NONEU	EUROPE	RAM
AS	1.000				

EU	0.898***	1.000			
	(0.00)	-----			
NONEU	0.891***	0.831***	1.000		
	(0.00)	(0.00)	-----		
EUROPE	0.888***	0.992***	0.774**	1.000	
	(0.00)	(0.00)	(0.01)	-----	
RAM	0.714**	0.702**	0.952***	0.618*	1.000
	(0.03)	(0.03)	(0.00)	(0.07)	-----

P-values are reported in parenthesis. ***, **, * represent significance at 1%, 5% and 10%.

4.6.2. During the financial crisis

Table 9 reports the correlation result for the regions during the financial crisis era. As can be observed, EPU is positive and strongly correlated in all regions during the financial crisis. This suggest that the global financial crisis contributed to the increasing correlation of economic policy uncertainty. The EPU correlation coefficient is statistically significant for the EU and AS region, EUROPE and AS region, EU and EUROPE region, RAM and NONEU region, and the NONEU and EUROPE region. This suggest that the global financial crisis contributed to the increasing correlation of economic policy uncertainty particularly in the EU and Europe region. On the other hand, the EPU correlation coefficient is not significant for the AS and NONEU region, the AS and RAM region, the EU and RAM region, and EUROPE and RAM region.

Table 9: During the financial crisis (2007-2009): regional correlation

Region	AS	EU	NONEU	EUROPE	RAM
AS	1.000				

EU	0.998**	1.000			
	(0.03)	-----			
NONEU	0.986	0.974	1.000		
	(0.11)	(0.14)	-----		
EUROPE	0.999**	0.997**	0.988*	1.000	
	(0.01)	(0.04)	(0.09)	-----	
RAM	0.977	0.963	0.998**	0.980	1.000
	(0.13)	(0.17)	(0.02)	(0.12)	-----

P-values are reported in parenthesis. ***, **, * represent significance at 1%, 5% and 10%.

4.6.3. Post-financial crisis era

Table 10 reports the correlation result for the regions in the post financial crisis era. As can be observed, EPU is positively correlated and strongly significant in all regions in the post financial crisis era. The EPU correlation coefficients after the financial crisis are lower than the EPU correlations before and during the financial crisis. The post-financial crisis EPU correlation is much higher between the EU and EUROPE regions, while the EPU correlations are lower and insignificant between the AS and RAM regions after the financial crisis.

Table 10: Post financial crisis era (2010-2017): regional correlation

Region	AS	EU	NONEU	EUROPE	RAM
AS	1.000				

EU	0.899***	1.000			
	(0.00)	-----			
NONEU	0.867***	0.891***	1.000		
	(0.00)	(0.00)	-----		
EUROPE	0.841***	0.981***	0.919***	1.000	
	(0.00)	(0.00)	(0.00)	-----	
RAM	0.593	0.715**	0.912***	0.799**	1.000
	(0.12)	(0.04)	(0.00)	(0.01)	-----

P-values are reported in parenthesis. ***, **, * represent significance at 1%, 5% and 10%.

5. Conclusion

This study examined the association of economic policy uncertainty across countries and regions using correlation analysis. The findings reveal that the EPU index of EU member-countries are positively correlated in a significant way. The EPU index of countries in Asia and the region of the Americas reports mixed correlation with some countries having a positively correlated EPU and other countries having a negatively correlated EPU. There is also evidence of cross-regional positive correlation which may be explained by the adoption of copy-cat government economic policies (or, the reluctance to formulate new economic policies) by countries in different regions. Finally, the findings reveal that the EPU correlations were high in all regions during the global financial crisis compared to the post-financial crisis era, and suggest that financial crises are a contributory factor that drives the correlation of EPU across regions.

The findings have two implications. Firstly, the feedback from a country's EPU to another country's EPU, as shown by the correlation analysis, is consistent with spillovers effects arising from globalization, and is also consistent with the well-documented fact that crisis associated with high EPU tend to be deeper than other downturns (see Baker et al, 2012; Lean and Nguyen, 2014). The results imply that policy makers should pay attention to correlated country risks, and the possibility of unusually large economic losses following spikes in economic policy uncertainty in interconnected countries. Secondly, EPU in one country may have contagion effects to other countries either through (i) regional economic integration, or (ii) copy-cat reaction to policy uncertainty by economic agents in different countries, or (iii) policy makers adopting similar

economic policies used in other countries. Thirdly, the findings of this paper bring clarity to the debate on whether policy uncertainty has contagious effects on economic policies mainly monetary policy, fiscal policy and regulatory policies in several countries. Therefore, policy makers and regulators should pay attention to how economic policy uncertainty in one country might be transmitted to other countries in order to protect the economic system from economic instability caused by policy uncertainty from other countries.

Regarding the usefulness of the findings, the findings are useful to policymakers and regulators in their assessment of how rising economic policy uncertainty in other countries could affect their country. Such assessment can help policymakers and regulators exercise a great deal of caution in their decision to adopt foreign economic policies. Also, the potential for correlated country EPU can pressure policymakers to focus on formulating stable economic policies to lower uncertainty in the business environment.

The study has some limitations. One limitation of the study is that correlation analyses do not show a causal relationship across countries and regions. Correlation analysis only tests the time-varying co-movement or correlation of EPU across countries and regions, therefore, the findings should be interpreted with caution. The findings do not imply causality. The findings should rather be seen as showing the time-varying co-movements or correlations of EPU across countries and regions. Another limitation of the study is that, due to the weaknesses of the correlation statistic, it was difficult to factor-in all the micro factors that drive the observed EPU correlations. Another limitation of the study is that the EPU index does not capture other type of policy uncertainty that may have stronger correlation across countries such as trade policy uncertainty. Finally, the analysis did not breakdown the EPU index into its micro components, such as the four components of the aggregate EPU index proposed by the Baker, Bloom and Davis (2016), as this information is not available for a large country sample.

Future research can explore the association of EPU using the four components of the economic policy uncertainty index proposed by the Baker, Bloom and Davis (2016) when such information becomes available. Future research can also investigate whether high levels of financial development dampens the correlation of EPU across countries and regions.

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