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The Economic Uncertainty Policy and the Volatility of Global Sustainable Investment

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Abstract: This study aims to examine the effect of economic policy uncertainty (EPU), financial stress and global macroeconomics on volatility and sustainable investment returns globally. This study uses panel data in the form of stock prices from sustainable investments in 22 around the world that have Sustainable Stock Exchanges. Quantitative research design will be used in this research. The data collection method uses secondary data obtained from the Thomson Reuters Datastream for stock data, economic policy uncertainty data from the EPU database and the World Bank database for macroeconomic data collection. The first step to testing the variables is to double-sort the economic policy uncertainty index, financial stress index, macroeconomic variables, and stock prices. Then the last one is doing dynamic statistics, namely ARCH-GARCH.

Keywords: sustainable investment; economic policy uncertainty; market volatility; sustainable stock exchanges

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1. Introduction

The introduction should briefly place the study in a broad context and highlight why it is important. It should define the purpose of the work and its significance. The current state of the research field should be carefully reviewed and key publications cited. Please highlight controversial and diverging hypotheses when necessary. Finally, briefly mention the main aim of the work and highlight the principal conclusions. As far as possible, please keep the introduction comprehensible to scientists outside your particular field of research. All the references mentioned in the text should be cited in the "Author-Date" format—e.g., (Baranwal and Munteanu [1921] 1955), (Berry and Smith 1999), (Cojocaru et al. 1999) or Driver et al. (2000). See the end of the document for further details on references.

2. Results

This study uses a quantitative method research design with secondary data collection through a stock database. This study uses continuous stock data from the Thomson Reuters Datastream and Bloombergs databases. The sample used is the monthly share price data from January 2015 - December 2020. All stocks included in the list of sustainable stocks (Socially Responsible Investment) on the stock exchanges of each country. There are 22 countries that have sustainable stock exchanges that will use in this research. Macroeconomic conditions data from 22 countries that listed will be downloaded from World Bank Database.

Data on economic policy uncertainty is obtained from the Economic Policy Uncertainty database created by Scott R Baker, Nick Bloom and Steven J. Davis (Baker, Bloom, Davis, et al., 2016). The EPU index is based on the frequency of coverage of the newspaper in 10 leading newspapers. The digital archives of each newspaper were searched for the monthly number of articles using a particular string of keywords. For example, the articles must include a trio of words such as: "uncertain" or "uncertainty;" "economy" or "economic;" in addition to any of the following terms: "deficit," "Congress," "Federal Reserve," "Regulation," "Legislation," "White House." In short, the EPU index refers to economic policy problems, anticipated (or actual) changes in government policy and related issues.

2.1. Panel Data Regression Results

2.1.1. Oneway (individual) effect Random Effect Model (Swamy-Arora's transformation)

Table 1. Effects of Oneway Random Effect Model

	Var	Std. Dev.	Share
Idiosyncratic	2335972	1528	0.136
Individual	14834483	3852	0.864
Theta	0.9657		

Table 2. Residuals of Oneway Random Effect Model

Min	1st Qu.	Median	3rd Qu.	Max
-4973.699	-451.453	-40.829	341.134	11160.228

Table 3. Coefficients of Oneway Random Effect Model

	Estimate	Std. Error	z-value	Pr(>|z|)
Intercept	2868.27549	1034.71913	2.7720	0.005571 **
EPU	1.91422	0.43864	4.3640	1.277e-05 ***
GPR	3.67071	1.97727	1.8565	0.063388 .

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Table 4. Regression result of Oneway Random Effect Model

R-Squared	0.014231
Adj. R-Squared	0.013179
Chisq	27.04 on 2 DF
p-value	1.3438e-06
Number of obs	1876

2.1.2. Fixed Effect

Table 4. Coefficients of Fixed Effect Model

	Estimate	Std. Error	t-value	Pr(>|t|)
1	-1044.99	251.86	-4.1490	3.49e-05 ***
2	-2427.54	183.66	-13.2177	< 2.2e-16 ***
3	-2740.60	270.65	-10.1260	< 2.2e-16 ***
4	4942.76	149.79	32.9981	< 2.2e-16 ***
5	-3083.60	155.36	19.8478	< 2.2e-16 ***
6	-2191.57	139.63	-15.6951	< 2.2e-16 ***
7	-2435.44	264.10	-9.2215	< 2.2e-16 ***
8	6057.38	145.06	41.7564	< 2.2e-16 ***
9	-2872.38	139.55	20.5836	< 2.2e-16 ***

10	2263.18	191.48	11.8195	< 2.2e-16 ***
11	-2783.00	262.51	-10.6014	< 2.2e-16 ***
12	278.96	208.89	1.3354	0.1819
13	8719.43	141.49	61.6273	< 2.2e-16 ***
14	-2682.57	151.95	-17.6545	< 2.2e-16 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

2.1.3. Twoways effects Random Effect Model (Amemiya's transformation)

Table 6. Effects of Twoways Random Effect Model

	Var	Std. Dev.	Share
Idiosyncratic	2003219	1415	0.126
Individual	13490310	3673	0.850
Time	372069	610	0.023
Theta	0.9667 (id)	610	0.4729 (total)

Table 7. Residuals of Twoways Random Effect Model

Min	1st Qu.	Median	3rd Qu.	Max
-4454.371	-399.233	-24.041	296.122	10097.578

Table 8. Coefficients of Twoways Random Effect Model

	Estimate	Std. Error	z-value	Pr(>|z|)
Intercept	3232.717112	988.628698	3.2699	0.001076 **
EPU	0.600740	0.451409	1.3308	0.183252
GPR	-0.048054	1.929540	-0.0249	0.980131

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Table 9. Regression result of Twoways Random Effect Model

R-Squared	0.00096711
Adj. R-Squared	-9.966e-05
Chisq	1.81316 on 2 DF
p-value	0.4039
Number of obs	1876

3. Discussion

Authors should discuss the results and how they can be interpreted from the perspective of previous studies and of the working hypotheses. The findings and their implications should be discussed in the broadest context possible. Future research directions may also be highlighted.

4. Materials and Methods

5. Conclusions

The main contribution of this research is to examine the effect of economic policy uncertainty and global politic risk on sustainable investment in global market. In the literature, some research had examined the correlation of economic policy uncertainty and global political risk on investor behavior, investor decision, stock market volatility, stock

returns, and etc. However, their approaches were rarely applied to test the effect of culture on stock returns under the context of sustainable stock indices. Most of the study on sustainable investing has concentrated on the American market and the European market, which first has a sustainability ranking. Thus, an innovative approach was proposed in this paper to analyze the influencing factors of cultural dimensions on sustainable stock returns using FGLS fixed-effect model.

Secondly, this research used the feasible generalized least square (FGLS) fixed effect model to identify the influencing factors of sustainable stock returns. Empirical research found that the following economic political risk (EPU) and global political risk (GPR) are significant ($p<0.01$). These factors are filtered as the main factors to examine the correlation between culture and sustainable stock returns. Finally, to find the robust result, empirical results were tested by using ordinary least square (OLS) regression, FGLS regression, FGLS regression with id fixed effect, and FGLS regression with time fixed effect. The results of all regression methods were shown to be consistent with the empirical analysis.

6. Patents

This section is not mandatory but may be added if there are patents resulting from the work reported in this manuscript.

Supplementary Materials: The following are available online at www.mdpi.com/xxx/s1, Figure S1: title, Table S1: title, Video S1: title.

Author Contributions: For research articles with several authors, a short paragraph specifying their individual contributions must be provided. The following statements should be used "Conceptualization, X.X. and Y.Y.; methodology, X.X.; software, X.X.; validation, X.X., Y.Y. and Z.Z.; formal analysis, X.X.; investigation, X.X.; resources, X.X.; data curation, X.X.; writing—original draft preparation, X.X.; writing—review and editing, X.X.; visualization, X.X.; supervision, X.X.; project administration, X.X.; funding acquisition, Y.Y. All authors have read and agreed to the published version of the manuscript." Please turn to the CRediT taxonomy for the term explanation. Authorship must be limited to those who have contributed substantially to the work reported.

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Data Availability Statement: In this section, please provide details regarding where data supporting reported results can be found, including links to publicly archived datasets analyzed or generated during the study. Please refer to suggested Data Availability Statements in section "MDPI Research Data Policies" at https://www.mdpi.com/ethics. You might choose to exclude this statement if the study did not report any data.

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Conflicts of Interest: Declare conflicts of interest or state "The authors declare no conflict of interest." Authors must identify and declare any personal circumstances or interest that may be perceived as inappropriately influencing the representation or interpretation of reported research results. Any role of the funders in the design of the study; in the collection, analyses or interpretation of data; in the writing of the manuscript, or in the decision to publish the results must be declared in this section. If there is no role, please state "The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results".

Appendix A

The appendix is an optional section that can contain details and data supplemental to the main text—for example, explanations of experimental details that would disrupt the flow of the main text but nonetheless remain crucial to understanding and

reproducing the research shown; figures of replicates for experiments of which representative data is shown in the main text can be added here if brief, or as Supplementary data. Mathematical proofs of results not central to the paper can be added as an appendix.

Appendix B

All appendix sections must be cited in the main text. In the appendices, Figures, Tables, etc. should be labeled starting with "A"—e.g., Figure A1, Figure A2, etc.

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