

Effect of Economic Policy Uncertainty on Market Risk and Market Risk Premium

Frederick Adjei*

Economics, Finance & Accounting Department, Southeast Missouri State University, Cape Girardeau, MO, USA

*Corresponding author: fadjei@semo.edu

Received February 04, 2020; March 06, 2020; Accepted March 14, 2020

Abstract We study the effect of the level of economic policy uncertainty on market risk and market risk premium by employing an OLS regression model. The results show that economic policy uncertainty impacts market risk more during the recession periods than during the expansion periods. However, we do not find support for a relationship between economic policy uncertainty and market risk premium. Evidently, the level of economic policy uncertainty impacts market risk and policymakers must take that into consideration when deliberating new economic policy.

Keywords: *Economic Policy Uncertainty, Market Risk, Market Risk Premium*

Cite This Article: Frederick Adjei, "Effect of Economic Policy Uncertainty on Market Risk and Market Risk Premium." *Journal of Finance and Economics*, vol. 8, no. 2 (2020): 57-60. doi: 10.12691/jfe-8-2-2.

1. Introduction

Economic policy makers hesitance to implement new monetary or fiscal policy may result in an uncertainty termed Economic Policy Uncertainty (EPU) [1]. Economic Policy Uncertainty affects the trading behavior of economic agents [2] and will have real contemporaneous and future impacts in the market. Pastor and Veronesi [3] show that policy uncertainty affects market risk and also elevates the equity risk premium.

In this study, we examine the relationship between degree of economic policy uncertainty, stock market risk, and market risk premium. The uniqueness of our study is that with the *EPU* measure, developed by Baker, Bloom, and Davis [1], we can differentiate economic policy uncertainty impacts from business cycle impacts and examine the effect of economic policy uncertainty on market volatility.

2. Economic Policy Uncertainty and Market Risk

The economic policy uncertainty (*EPU*) measure by Baker, Bloom, and Davis [1], presents a chance to directly examine the impact of *EPU* on market risk. With the *EPU* measure, we extend extant studies such as Bernanke [2] and Bernanke and Kuttner [4] who find that monetary policy adjustments affect market volatility.

Several studies in the existing literature present a link between the degree of economic policy uncertainty and

market risk. Panousi and Papanikolaou [5] find that economic policy uncertainty could increase managerial risk aversion and affect the equity risk premium. Pastor and Veronesi [3] develop a theoretical model to investigate the link between economic policy uncertainty and market risk and find that the degree of economic policy uncertainty impacts market volatility.

In this study, we investigate the impact of the degree of economic policy uncertainty on market risk and market risk premium. Following Pastor and Veronesi [3], who show that political uncertainty affects market volatility, our primary hypothesis is that higher economic policy uncertainty may lead to higher market risk.

Hypothesis I: Higher economic policy uncertainty is correlated with an increase in contemporaneous market risk.

Additionally, Pastor and Veronesi [3] show that policy uncertainty elevates the equity risk premium and find that political uncertainty commands a risk premium and the impacts are stronger when the economy is recessionary. We hypothesize that higher economic policy uncertainty is correlated with higher market risk premium.

Hypothesis II: Higher economic policy uncertainty is correlated with an increase in market risk premium.

3. Economic Policy Uncertainty Measure

In this section, we discuss the *EPU* measure: the economic policy uncertainty index developed by Baker, Bloom, and Davis [1]; and our primary model.

3.1. The Economic Policy Uncertainty (EPU) Index

The EPU index is made up of parts of measurement that track three dimensions of economic policy uncertainty: (a) the frequency of references to economic uncertainty and policy in 10 leading newspapers; (b) the number of federal tax code provisions set to expire in future years; (c) the extent of disagreement among economic forecasters over future federal, state, and local government purchases and the level of the CPI. We discuss our model next.

3.2. EPU, Market Risk, Market Risk Premium

In this study, our main hypothesis is that the degree of economic policy uncertainty affects market risk. To test our hypothesis, we employ an OLS regression framework with market risk measured by the standard deviation of daily market returns. The model is the following:

$$s_t = \psi + EPU_t + TS_t + DS_t + RR_t + DV_t + DV_t * EPU_t + \varepsilon_t \quad (1)$$

Where σ_t is the standard deviation of daily market returns, ψ is the intercept term, EPU_t is the monthly EPU index level, TS_t is the monthly term spread, DS_t is the monthly default spread, RR_t is the monthly relative interest rate, DV_t is a dummy variable set to 1 for a recession year and zero otherwise, and ε_t is the error term. $DV_t * EPU_t$ is an interaction term between the recession dummy variable and the EPU Index.

To test our second hypothesis: higher economic policy uncertainty is correlated with higher market risk premium; we employ a second OLS regression in the following form:

$$RPM_t = \psi + EPU_t + TS_t + DS_t + RR_t + DV_t + DV_t * EPU_t + \varepsilon_t \quad (2)$$

where RPM_t is the monthly market risk premium, ψ is the intercept term, EPU_t is the monthly EPU index level, TS_t is the monthly term spread, DS_t is the monthly default spread, RR_t is the monthly relative interest rate, DV_t is a dummy variable set to 1 for a recession year and zero

otherwise, and ε_t is the error term. $DV_t * EPU_t$ is an interaction term between the recession dummy variable and the EPU Index.

4. Data and Descriptive Statistics

The dataset spans the period from January 1985 to December 2019, consistent with the available EPU data. We obtain stock market return data from CRSP. We use the three-month Treasury bill rate as a proxy for the risk-free rate (RF), and obtain the data from the Federal Reserve Economic Data.

For business cycle conditioning variables, we follow Santa-Clara and Valkanov [6]. We employ the *default spread* which is the difference between yields of BAA-rated bonds and AAA-rated bonds, *term spread* which is the difference between the yield to maturity of a 10-year Treasury note and the three-month Treasury bill, the *relative interest rate* which is computed as the deviation of the three-month Treasury bill rate from its one-year moving average. Treasury securities data are obtained from the Federal Reserve Economic Data.

Table 1 shows the summary statistics of the variables we use in the study. *std* is the standard deviation of daily market returns, and *RPM* is the market risk premium. Market return is of monthly periodicity

Table 1 shows the summary statistics of the variables we use in the study. The average of the EPU Index is 113.8 and the standard deviation is 42.8. The EPU index is elevated during the recession periods; with a median of 113.5, and during the expansion periods the median is 101.2. The median of monthly standard deviation of market returns for the full sample period is 0.774 and the standard deviation is 0.577.

5. Empirical Results

In this section, we present the results of the regression estimations.

Table 1. Summary Statistics

Panel A: Descriptive Statistics of Main Variables									
Variable	Full Sample N=417			Expansion N=257			Recession N=60		
	Mean	Median	STD	Mean	Median	STD	Mean	Median	STD
std	0.929	0.774	0.577	0.857	0.715	0.473	1.362	1.089	0.883
Market Return	0.978	1.460	4.377	1.138	1.460	4.018	0.027	1.350	6.048
RPM	0.707	1.170	4.375	0.873	1.180	4.015	-0.280	0.915	6.046
EPU Index	1.138	1.037	0.428	1.110	1.012	0.419	1.304	1.135	0.449
Term Spread	1.841	1.860	1.091	1.795	1.735	1.112	2.116	2.315	0.922

Default Spread	0.987	0.910	0.374	0.927	0.900	0.248	1.346	1.120	0.680
Relative Rate	0.000	-0.003	0.413	0.000	-0.005	0.355	0.000	0.030	0.666

Table 2. EPU and Market Risk Regression

Variable	Full Sample Period	Expansion Period	Recession Period
<i>Intercept</i>	0.088 (0.315)	0.290 (0.004)	-0.828 (0.008)
<i>EPU Index</i>	0.287 (0.000)	0.334 (0.000)	0.866 (0.000)
<i>Term Spread</i>	-0.045 (0.041)	-0.039 (0.076)	-0.011 (0.911)
<i>Default Spread</i>	0.575 (0.000)	0.290 (0.004)	0.805 (0.000)
<i>Relative Rate</i>	-0.040 (0.483)	-0.094 (0.159)	0.124 (0.335)
<i>Recession Dummy</i>	-0.572 (0.004)		
<i>EPU Index * Recession Dummy</i>	0.607 (0.000)		
<i>Adjusted R²</i>	0.370	0.131	0.670
<i>Observations</i>	417	357	60

Table 3. EPU and Market Risk Premium Regression

Variable	Full Sample Period	Expansion Period	Recession Period
<i>Intercept</i>	1.457 (0.080)	1.435 (0.115)	3.938 (0.256)
<i>EPU Index</i>	-0.647 (0.250)	-0.625 (0.246)	-4.524 (0.020)
<i>Term Spread</i>	-0.050 (0.807)	-0.165 (0.405)	1.158 (0.283)
<i>Default Spread</i>	0.240 (0.717)	0.460 (0.616)	-0.571 (0.656)
<i>Relative Rate</i>	-0.851 (0.112)	-0.293 (0.629)	-1.134 (0.438)
<i>Recession Dummy</i>	3.999 (0.033)		
<i>EPU Index * Recession Dummy</i>	-3.916 (0.005)		
<i>Adjusted R²</i>	0.0278	0.005	0.089
<i>Observations</i>	417	357	60

In Table 2, we present results of the regression with the standard deviation of returns as the dependent variable. Even after counting business cycle effects, the coefficient for *EPU* is positive and statistically significant, indicating that economic policy uncertainty has an effect on market risk. This result is consistent with Bernanke [2], which chronicles that increased monetary policy uncertainty has negative effects on corporate investment.

For robustness, we divide the sample into expansion and recession periods and rerun model 1. Surprisingly, we uncover that the coefficient for *EPU* is positive; statistically significant at the 1% level, during both

recession and expansion periods. However, on including an interaction term between a recession dummy variable and the *EPU* Index in the regression, the positive and statistically significant coefficient of the interaction term indicates that economic policy uncertainty impacts market risk more during the recession periods than during the expansion periods.

In Table 3, we show results of the regression with the market risk premium as the dependent variable. After controlling business cycle effects, the coefficient for *EPU* is not statistically significant for the full sample. However, on bifurcating the sample into recession and expansion

periods, the coefficient for *EPU* is negative and significant in the recession period. However, this finding is not consistent with the extant literature.

6. Conclusion

We study the effect of the level of economic policy uncertainty on market risk and market risk premium by employing an OLS regression model.

First, the results of the OLS regression estimation show that economic policy uncertainty impacts market risk more during the recession periods than during the expansion periods. Second, we do not find support for a relationship between economic policy uncertainty and market risk premium.

Clearly, the level of economic policy uncertainty impacts market risk and policymakers must take that into consideration when deliberating new economic policy.

References

- [1] Baker, Scott R., Nicholas Bloom, and Steven J. Davis. "Measuring Economic Policy Uncertainty." Chicago Booth Research Paper No. 13-02 (2013).
- [2] Bernanke, Ben. "Irreversibility, uncertainty and cyclical investment." *Quarterly Journal of Economics* 98 (1983): 85-106.
- [3] Pastor, Lubos, and Pietro Veronesi. "Uncertainty about government policy and stock prices." *Journal of Finance* 67.4 (2012): 1219-1264.
- [4] Bernanke, Ben and Kenneth N. Kuttner. "What Explains the Stock Market's Reaction to Federal Reserve Policy?" *Journal of Finance* 60 (2005): 1221-1257.
- [5] Panousi, Vasia, and Dimitris Papanikolaou, "Investment, idiosyncratic risk, and ownership." *Journal of Finance* 67 (2012): 1113-1148.
- [6] Santa-Clara, Pedro, and Rossen Valkanov. "The presidential puzzle: Political cycles and the stock market." *The Journal of Finance* 58.5 (2003): 1841-1872.
- [7] Pastor, Lubos, and Pietro Veronesi. "Political uncertainty and risk premia." *Journal of Financial Economics* 110.3 (2013): 520-545.



© The Author(s) 2020. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).