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Time-Varying Shocks to Loan Defaults from Monetary Policy Uncertainty

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Abstract: Based on the economic policy uncertainty data constructed by Baker et al. (2016) from 2011 to 2020, this paper then empirically examines the time-varying shocks of economic as well as monetary policy uncertainty indices on loan default risk using a TVP--VAR model, with a view to stabilizing leverage in China and resolving. The results of the study show that the economy and the monetary policy uncertainty index have a time-varying impact on loan default risk. The results show that: (1) the rise in economic and monetary policy uncertainty leads to the rise in loan default risk, and the long-term effect is stronger than the short-term effect. (2) The impact of economic and monetary policy uncertainty on loan defaults is influenced by specific economic events. (3) Policy uncertainty is also heterogeneous, with economic policy uncertainty presenting positive shocks in the short and medium term and negative shocks in the long term, while monetary policy uncertainty is positive in the short and long term and negative in the medium term.

Keywords: economic policy uncertainty; monetary policy uncertainty; loan default; TVP-VAR; impulse response

JEL Classification: E52

1. Introduction

Loan default risk is a representative indicator of a bank's credit rating, a reflection of the credit quality of a country's banks, and also affects the good functioning of a country's financial market. Since 2012, financial market reform has been promoted, various banks have further improved their credit management systems for SMEs, and while the speed and volume of loans have grown, the quality of banks' loans has declined. The 2016 Central Economic Work Conference clearly required that prevention and control of financial risks be placed in a prominent position in banks. At the same time, Xing and Wang (2021) pointed that with the government's innovation in economic and monetary policies in banking and financial markets, economic and monetary policy regulation tools are gradually diversified, and the role of monetary policy as the main instrument for adjusting the banking market is crucial in macroeconomic and financial operations. The two financial crises that swept the world in the 1920s and 1930s and the beginning of the 21st century gave all countries and governments a wake-up call to pay attention to economic policy uncertainty on the banking sector, the financial industry, and the macroeconomy. Therefore, this paper uses time-varying parametric vector autoregressive models to study the degree of impact of economic policy uncertainty and monetary policy uncertainty on banks' loan defaults in different periods of banking industry development, as well as time-varying characteristics, and to make policy recommendations for credit management and risk prevention in China's banking market.

Monetary policy uncertainty mainly arises from the central bank's trade-off between using the money supply model or the Phillips curve model with open market operations as the main policy instrument, including uncertainty within the operating model, uncertainty in the transmission mechanism of action, uncertainty in the operating strategy and uncertainty in the choice between the two models. Wang and Wang (2020) pointed out that rising monetary policy uncertainty can lead to economic cyclical fluctuations, which have implications for both macroeconomic and microeconomic agents. When monetary policy uncertainty rises, the central bank or the bank in the development of loan default policy against, cannot determine the true relationship between the economic operation, coupled with the existence of data in the bank management process, measurement techniques are not perfect, which in turn leads to the frequency of bank loan defaults. For the direct impact of monetary policy uncertainty on loan default, the current research method is still mainly through non-time-varying parameters for empirical research, while there is little research on building dynamic time-varying models, therefore, this paper analyzes the impulse response of monetary policy uncertainty at different time points and equally spaced time points facing different shocks by analyzing the TVP-VAR model of economic policy uncertainty and monetary policy time-varying shocks of uncertainty on loan defaults.

Theories related to monetary policy were first proposed by Keynes on the interest rate transmission channel of monetary policy, focusing on the transmission mechanism of monetary policy, which refers to the intermediate objectives and changes in socio-economic life caused when various monetary instruments are applied in macroeconomic operations. In the West, theoretical analysis of the transmission mechanism has focused on the Keynesian school and the monetary school. The Keynesian school's idea of the transmission of monetary policy can be summarized as the influence of interest rates, and hence investment and output, through an increase or decrease in the money supply M. The Keynesian school places importance on the role of the interest rate. The monetary school, on the other hand, differs from the Keynesian school in that the monetary school places no emphasis on the role of the interest rate and emphasizes the role of the money supply and the real money balance. Bernanke and Blinder (1988) stated that the channel of monetary policy transmission is mainly through the monetary channel and the credit channel, which includes balance sheets and bank loans.

Regarding theories related to economic policy uncertainty, previous scholarly research has focused on discussing the causes of economic policy uncertainty. The time lag theory of policy argues that uncertainty arises from intrinsic and extrinsic time lags of policy. The intrinsic time lag refers to the time required between when an economic shock occurs, when the policymaker identifies the economic shock, and when the policymaker begins to act. The extrinsic time lag refers to the period after the policy is implemented until it actually has an impact on economic agents. The theory of government discretionary policy suggests that there is temporal inconsistency in policy, when policy makers prefer to announce policies in advance, which affects the expectations of economic agents, and when economic agents adjust their behavior according to their expectations, the policy makers exercise discretion and contradict the announced policy, which leads to the discredited policy (Guo et al.,2018; Xu,2021).

With regard to the theory of monetary policy uncertainty, Cook and Korn (1991) first proposed the "policy expectations hypothesis" on monetary policy uncertainty, which argues that monetary policy uncertainty affects asset prices in financial markets mainly through the guidance of public expectations of future policies. This implies that when monetary policy uncertainty rises, public expectations will be inconsistent with actual expectations, which in turn will affect changes in financial markets, and monetary policy uncertainty will affect the degree of price response in the market, so that there will be deviations between the actual realized and expected values of macroeconomic indicators.

In recent years, one of the great challenges facing the banking industry is non-performing loans of banks and the quality of their credit assets has gradually deteriorated, and it is crucial to dispose of non-performing loans to prevent large-scale credit risk or credit risk of banks. Non-performing loans are loans where the borrower is unable to return the interest or even the principal as per the agreed contractual date. Reducing the level of non-performing loans in commercial banks requires efforts from all sides. Jin (2017) found that the current balance of non-performing loans in China's banking sector is still in an upward trend, but the year-on-year increase in the balance has entered a decline since 2016, and the industry-wide non-performing loan ratio is stabilizing, but the quality of loans is still low.

Focusing on two perspectives of monetary policy uncertainty and loan default risk, and starting from the direct impact of monetary policy uncertainty on loan default, the literature covering such topics has been little studied by scholars. From the direct impact perspective, Wang and Li (2019) first measured the default risk factor and build the impulse response function of monetary uncertainty shocks and default risk factor by constructing a nonlinear DSGE model with stochastic volatility The results of the study show that when monetary policy uncertainty rises leads to a rise in default risk. Christiano et al. (2014) through BGG model to construct default risk factor and similarly conclude that default risk rises when monetary policy volatility increases. When the volatility of monetary policy increases, the greater the uncertainty of financial market operations, and the resulting interbank credit risk from monetary policy uncertainty is bound to rise. Bank credit risk includes individual, corporate long and short-term deposit and loan risk, various types of bond term spread risk, etc. Wang (2021) and Deng et al. (2021) investigated the long-term and short-term effects of economic policy uncertainty on bank credit allocation and financing constraints using monthly data on bank credit and economic policy uncertainty index, and the results show that economic policy uncertainty suppresses the scale of bank loans and strengthens the financing constraints of enterprises. Chi et al. (2017) showed that there is a significant positive correlation between economic policy uncertainty and bank non-performing loan ratio. But some scholars hold different views. Bordo et al. (2016) found that based on risk avoidance, banks will limit the scale of loans. Therefore, when economic uncertainty increases, banks' non-performing loans will decline.

2. Methodology

2.1. Time-Varying Parametric Vector Autoregressive Model (TVP-VAR)

Vector autoregressive model (VAR) is proposed to overcome the disadvantages of multiple regression models to describe the relationship between variables only in terms of economic theory, it is an unstructured model, mainly through economic data to determine the impact of economic dynamics, often used to analyze the dynamic impact of each stochastic fluctuations between economic variables on the system of variables, to explain the impact of shocks and uncertainty on the formation of economic variables. The main application is in the field of monetary policy. In practice, the var model is not easily interpreted in the var model for the estimates of individual parameters due to the consistency of the estimated quantities, therefore, generally var model by observing the impulse response function of the system. The impulse response function approach (IRF) is to analyze the dynamic impact on the system when the VAR model is subjected to some shock, which describes the impact on the current and future values of all endogenous variables after a shock of a standard deviation size is applied to the random error term of an endogenous variable. The vector autoregressive model has the same explanatory variables wrapped in each equation, and the explanatory variables are the lagged terms of the explanatory variables. TVP-VAR model treats all variables included in the equation as endogenous, thus avoiding the division between endogenous and exogenous variables, so that only *c* is exogenous and *mpu*, *epu*, and *default* are all endogenous.

Consider the following expression for the VAR model:

$$Y_t = \mu + A_1 Y_{t-1} + \ldots + A_P Y_{t-p} + \varepsilon_t, t = 1,2,3\ldots, T \tag{1}$$

where Y_t is the endogenous variable of the VAR model, Y_t = {epu,mpu,default}, *epu* stands for the index of economic policy uncertainty, *mpu* stands for the index of monetary policy uncertainty, *default* stands for the index of loan default risk, and *P* is the lagged order, ε_t is the K-dimensional perturbation term, and the individual components are not correlated with their own lagged values.

An important issue in estimating VAR models is the determination of the optimal lag order (p) of the model. Unconstrained VAR models are suitable for dealing with multivariate analysis and forecasting, and are also widely used in the study of economic and financial problems, while the limitation of VAR models is that they cannot examine the contemporaneous effects between multiple variables, so subsequent economists have tried to introduce structure into VAR models and consider the contemporaneous effects of multiple variables, i.e., SVAR models (Structural VAR). The most basic SVAR model is set up as follows:

$$AY_t = F_1 Y_t + \ldots + F_P Y_{t-p} + \delta_t, t = p + 1, \ldots, n \tag{2}$$

whereY_t is a k*1 dimensional observable vector, *A* is a k*k matrix of associative parameters, and $F_1 \ldots F_p$ is the k*1-dimensional coefficient matrix, and$\delta_t$is the k*1-dimensional structural shock variable. When the joint parameter matrix is a triangular matrix, i.e.

$$A = \begin{pmatrix} 1 & \cdots & 0 \\ \vdots & \ddots & \vdots \\ a_{k1} & \cdots & 1 \end{pmatrix}_{k*K} \tag{3}$$

The above equation can be rewritten as:

$$Y_t = B_1 Y_t + \ldots + B_p Y_{t-p} + A^{-1} \sum \varepsilon_t, t = p + 1, \ldots, n \tag{4}$$

$$B_i = A^{-1} F_i \tag{5}$$

Then by the Kronecker product:

$$X_t = I_s \otimes (Y_{t-1}, \ldots Y_{t-p}) \tag{6}$$

Simplifying gives the simplified SVAR equation:

$$Y_t = X_t \beta + A^{-1} \sum \varepsilon_t \tag{7}$$

TVP-VAR model is a multivariate time series model that introduces stochastic fluctuations and time-varying parameter features based on traditional VAR and SVAR models, which can explain the dynamic relationship between endogenous variables in the economy. TVP-VAR model treats all system variables as endogenous variables and analyzes the impact of shocks to each endogenous variable on other variables, and also fully takes into account individual and time effects. So the above equation can again be rewritten as:

$$Y_t = X_t \beta_t + v_t, \; t = p + 1, \ldots, n \tag{8}$$

where t = 2011, 2012, ... , 2020 denotes the year, Yt denotes the three endogenous variables of economic policy uncertainty, monetary policy uncertainty and loan default risk, and the coefficient β_t, the random disturbance termsv_t all vary over time and with:

$$v_t = A_t^{-1} \Sigma_t \varepsilon_t \tag{9}$$

Primiceri (2005; 2013) assumed that the parameter matrix is a lower triangular matrix:

$$A_t \Omega_t A_t^T = \Sigma_t \Sigma_t^T \tag{10}$$

The parameter matrix A_t can also be written as:

$$A_t = \begin{pmatrix} 1 & \cdots & 0 \\ \vdots & \ddots & \vdots \\ a_{k1,t} & \cdots & 1 \end{pmatrix}_{k*K} \tag{11}$$

Order:

$$a_t = (a_{21}, a_{31}, a_{41}, \ldots a_{k,k-1}). h_t = (h_{1t}, .., h_{kt}).\ \ h_{it} = \log\sigma_{it}^{2} \tag{12}$$

The logarithmic stochastic volatility matrix. Assume that the parameters in the TVP-VAR equation obey a random wandering process and obey the following distribution.

$$\beta_{t+1} = \beta_t + \mu_{\beta t} \tag{13}$$

$$a_{t+1} = a_t + u_{at} \tag{14}$$

$$h_{t+1} = h_t + u_{at} \tag{15}$$

Since all parameters in the TVPVAR model are time-varying, it is not possible to estimate the parameters by least squares and great likelihood methods, Nakajima (2011) refers to Bayesian estimation and uses Gibbs sampling method in Markov Monte Carlo model (MCMC) for parameter estimation, which overcomes the shortcomings of traditional estimation methods and provides time-varying parameter estimation for TVPVAR model provides an accurate estimation method.

2.2. Data Sources and Variable Selection

The monthly data used in this paper are obtained from the official website of economic policy uncertainty, the Guotaian database and the China Stock Bond Information Network, and the time span is from January 2011 to December 2020. The economic policy uncertainty index and the monetary policy uncertainty index are referenced from Baker et al. (2016) by extracting newspaper articles such as the South China Morning Post that contain information on "monetary policy", "uncertainty". then Husted et al. (2020) used this to construct the economic policy uncertainty index. Regarding the construction of the overall bank default risk index, this paper extracts eight indicators from the bond market and bank level that can reflect loan default risk including TED spread, the ratio of credit to GDP gap of financial institutions and corporate bond spread, and extracts the main influencing factors through principal component analysis to obtain the main indicator of bank loan default. which refers to Gilchrist et al. (2009) take TED spread as an important indicator for loan default risk construction, which can focus on reflecting credit default in financial market.

3. Results

In this paper, by studying the direct impact of economic policy uncertainty and monetary policy uncertainty index on loan default risk, the data sample interval is from January 2011 to December 2020, and the data frequency is monthly, firstly, we need to determine the optimal lag order of TVP-VAR model, which is the same as the lag order of conventional VAR model. Therefore, we select three variables, economic policy uncertainty index epu and monetary policy uncertainty index mpu and loan default index default, for empirical analysis, and use the monthly data from January 2011 to January 2020 as the sample to construct a loan default risk index to measure the loan default risk in China, and establish a TVP-VAR model to study through impulse response function The impact of monetary policy uncertainty shocks on loan default risk in China.

3.1. Smoothness Test

Since there is a seasonal trend in the monetary policy uncertainty index and the loan default risk index, seasonal adjustment is performed. Adf test is first performed on the three variables, and the results show that the economic policy uncertainty index, the monetary policy uncertainty index is smooth at the 5% level of significance, and the loan default risk index has a unit root. therefore, the loan default risk index is differenced and tested, smooth after second order differencing and the optimal lag order is 5. The results are shown in Table 1.

Table 1. ADF test results

variable	ADF statistics	5% threshold	conclude	variable	ADF statistics	5% threshold	conclude
mpu	-4.188447	-2.885863	smoothly				
default	2.372568	-2.886959	unstable	D(default,2)	-10.98144	-2.886959	smoothly
epu	-5.904088	-2.885863	smoothly				

3.2. Selection of the Lag Order

The AIC and SC criterion is generally used, and the final lag order is the order where AIC, SC, and HQIC take the minimum value, and when AIC and SC do not take the minimum value at the same time, the LR value is used to make the judgment of the optimal lag order. As shown in the table below, when AIC and HQIC and LR take the fourth lag order, the value is the smallest, so the optimal lag order is determined to be the fourth order.

Table 2. Hysteresis orders

Lag	Logl	LR	FPE	AIC	SC	HQIC
0	-904.3662	NA	2,933.462	16.49757	16.57122	16.52744
1	-841.5999	120.9678	1,103.745	15.52000	15.81460*	15.63949
2	-826.4046	28.45682	986.5767	15.40736	15.92290	15.61646
3	-808.9059	31.81567	846.1649	15.25284	15.98933	15.55156
4	-794.7359	24.99087*	771.6506*	15.15883*	16.11628	15.54718*
5	-786.5159	14.04872	784.9489	15.17302	16.35141	15.65098
6	-777.3819	15.11252	786.3832	15.17058	16.56992	15.73816
7	-769.5154	12.58649	807.5077	15.19119	16.81148	15.84839
8	-764.8897	7.148796	881.2350	15.27072	17.11196	16.01754

Note: The superscript ***, **, *, are significant at the level of 1%, 5% and 10%, respectively. The t-statistic is in brackets.

3.3. Results of Parameter Estimation

After determining the form of the model variables and the optimal lag order, the empirical operation of the TVP-VAR model can be carried out below. In this paper, we use the Matlab code package written by Nakajima, and for the sake of empirical convenience, we do not change the names of the variables in the code, and set economic policy uncertainty as p, monetary policy uncertainty as x, and loan default index as i. After the model is set up, the MCMC function can be used for parameter estimation, with the function "MCMC(10000)" represents MCMC iteration 10,000 times, and discard the first 1,000 times as the "pre-burn value", MCMC function will output 4 graphs, respectively for MCMC parameter estimation results, posterior estimates of stochastic volatility, posterior estimates of time-varying parameters (2). In this paper, the input sample size is 120*3, the lag length is 5, the running time of the program is 687.58 seconds, and the parameter estimation results (table + graph) are as follows.

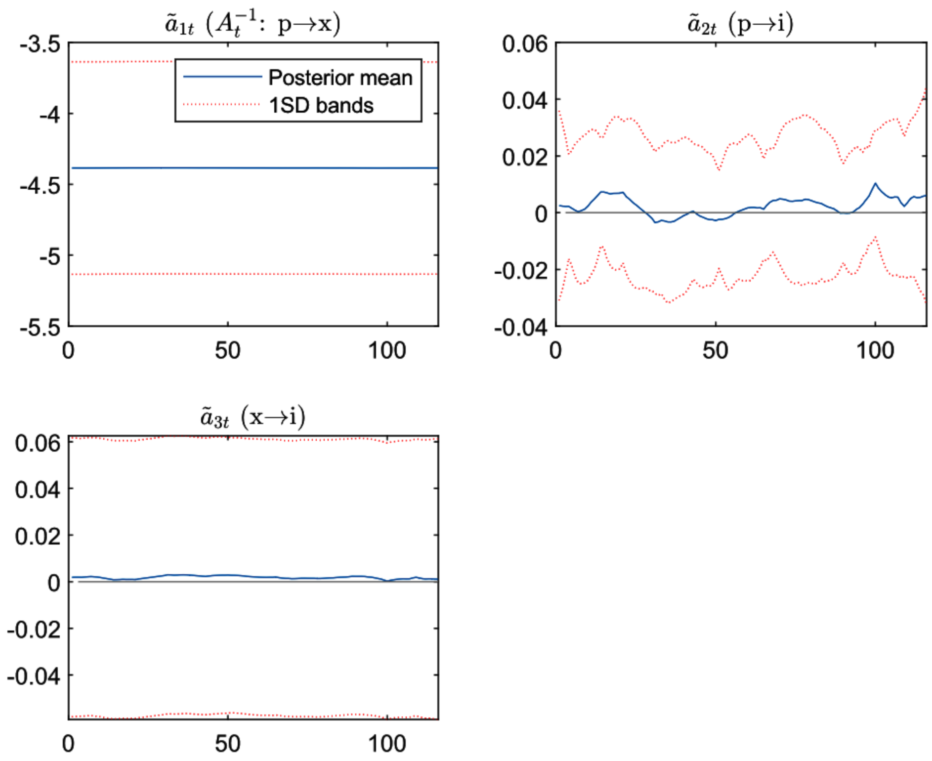

Figure 1. Parameter estimation

Table 3. TVP-VAR model parameter estimation results

Parameter	Mean	Stdev	95% U	95% L	Geweke	Inef.
sb1	0.0023	0.0003	0.0018	0.0029	0.194	6.98
sb2	0.0023	0.0003	0.0018	0.0028	0.197	7.01
sa1	0.0056	0.0018	0.0034	0.0101	0.942	34.97
sa2	0.0050	0.0012	0.0033	0.0078	0.000	19.54
sh1	0.0057	0.0017	0.0034	0.0101	0.553	35.77
sh2	0.0056	0.0016	0.0034	0.00098	0.241	26.47

Since we are examining the impact of economic policy uncertainty and monetary policy uncertainty on loan defaults, we only need to analyze the response of loan default risk to economic policy uncertainty and monetary policy uncertainty, so we only need to focus on the latter two plots. The Geweke convergence diagnostic is used to determine whether the Markov chain obtained from the pre-simulation converges to the posterior distribution, while the invalid influence factor is the ratio of the variance of the posterior sample mean to the variance of the uncorrelated serial sample mean. The parameters of the model are estimated by the MCMC algorithm, and it is clear from the results that the convergence statistic cannot reject the original hypothesis of the posterior distribution at the 5% significance level, and therefore the results are convergent, and the MCMC test results are convergent, except that the Geweke values sa1 and sh1 are greater than 0.5 and the null factors are both less than 120, which indicates that at least 120 valid samples were obtained in 10,000 MCMC samples, the posterior distribution sampling is good, and the model parameter estimation results are robust.

3.4. Impulse Response Results

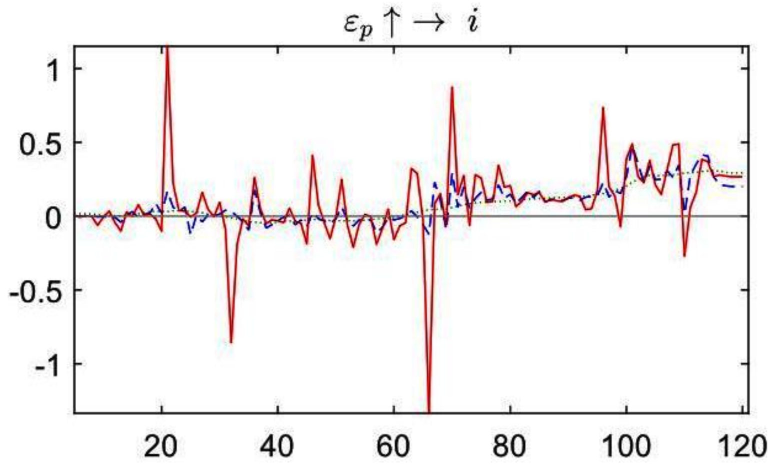

Figure 2. Isometric impulse response plot of economic policy uncertainty and loan defaults

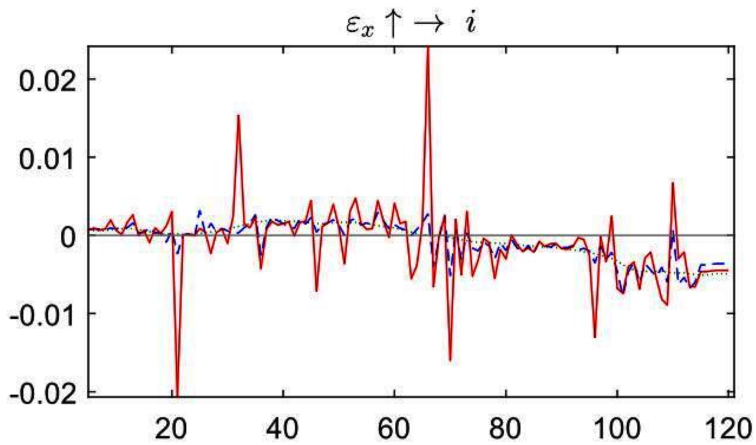

Figure 3. Equally spaced impulse response plots of monetary policy uncertainty and loan defaults

Equally spaced impulse responses are impulse response functions of variables induced by shocks of different time horizons (lags). Unlike the two-dimensional impulse response under the VAR model, the TVP-VAR model can apply variable parameters to calculate impulse response plots for each variable at all time points at different lags. Considering the comparability of impulse responses across periods, the size of the shock term is set equal to the mean of the random fluctuations in the sample period. The graphs depict the dynamics of the shocks to the economic policy uncertainty index, the monetary policy uncertainty index, and the loan default index for lags 4, 8, and 12.$\varepsilon_p \uparrow \rightarrow i$; $\varepsilon_x \uparrow \rightarrow i$. The results of equally spaced impulse responses of the economic policy uncertainty as well as the monetary policy uncertainty index to the loan default index are indicated.

First, observing the effect of economic policy uncertainty on loan defaults, there is little variation across time intervals between period 0 and 80, with coefficients ranging between 0 and 0.2, but between periods 80-120, shocks rise with lags 4 and 8, ranging between 0.2-0.4, while the volatility range for lag 12 has exceeded 0.4 and rises rapidly, indicating that economic policy uncertainty has a greater impact on the long-term effects of loan defaults, with rising economic policy uncertainty rapidly leading to higher loan default risk as time progresses.

Second, observing the effect of monetary policy uncertainty on loan defaults, there is little difference across time intervals in the period 0-90, with coefficients close to 0. This indicates that the effect of monetary policy uncertainty on loan defaults is insignificant, but starts to turn negative in the period 90-120, with the volatility range of loan defaults for lags 4 and 8 lying roughly at -0.05-0, while the volatility for lag 12 range lies roughly at -0.1-0, so that the long-term effect of loan defaults due to monetary policy uncertainty is more pronounced. This suggests that monetary policy uncertainty brings increasing volatility to loan defaults as time progresses, and that in the long run, rising monetary policy uncertainty

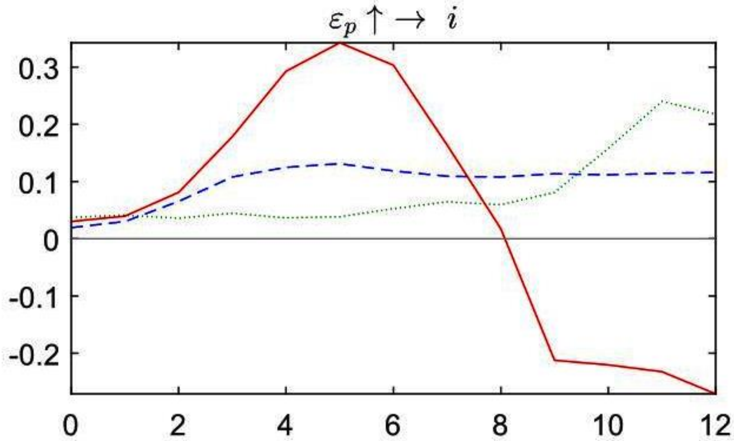

Figure 4. Impulse response plot of economic policy uncertainty and loan defaults at different points in time

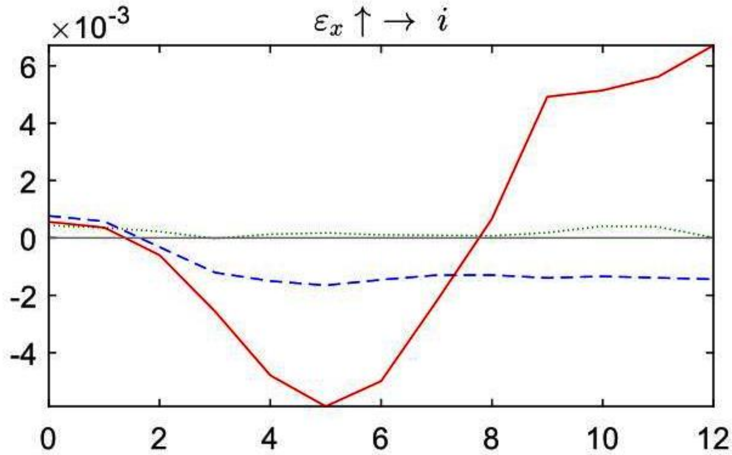

Figure 5. Impulse response plot of monetary policy uncertainty and loan defaults at different points in time

ultimately leads to lower loan default risk. When uncertainty increases in the current year, it becomes more difficult for banks to assess firms' performance, and with the incentive of risk aversion, banks will reduce risk-based loans and lower the amount of non-performing bank loans, which helps prevent loan defaults by firms.

The split-point impulse response is the impulse response function at different identified points in time. To further examine the time-varying pattern of the monetary policy uncertainty index on loan default shocks, three representative observations are selected in Figure 4, October 2012, March 2018, and December 2019. The results of the time-pointed impulse responses of monetary policy uncertainty as well as economic policy uncertainty on the loan default index are examined, so it is only necessary to look at.

First, looking at the impact of economic policy uncertainty on loan defaults, the shock to the loan default index is positive in both October 2012 and March 2018, with a smaller impact in the current period. In particular, the shock in December 2019 rises sharply after about period 2, peaks in about period 5, then the shock declines and becomes negative in about period 8, continues to fall sharply, and levels off in about period 9 when the fluctuations level off. This suggests that rising economic policy uncertainty exacerbates loan defaults in the first eight periods and that there is a time lag in this effect, while in the long run it appears that economic policy uncertainty curbs loan default risk to some extent. The impact of the impulse response function is stronger in 2019 compared to 2012 and 2018, with positive shocks rising rapidly in the short run and such shocks turning negative and remaining high in the long run. The possible reasons for this are the sudden outbreak of the epidemic, the implementation of economic policies that do not take into account the unexpected situation, the more conservative business decisions of enterprises and banks, the uncertainty of the future business direction of enterprises, and the unpredictability of conventional business decisions in the case of repeated epidemics, which may lead to unpredictable defaults of enterprises and exacerbate loan defaults. However, since the epidemic, China has adopted prudent economic and monetary policies to effectively prevent and control financial risks by lowering the reserve requirement ratio for financial institutions, expanding the amount of refinancing and establishing a long-term management mechanism, so in the long run, it seems that the risk of loan defaults by banks tends to decline.

Second, examining the impact of monetary policy uncertainty on loan defaults again, the impact of monetary policy uncertainty on loan defaults is positive at this point in time in October 2012, with a smaller impact in the current period, and then tends to converge. This suggests that rising monetary policy uncertainty exacerbates loan defaults. At this point in March 2018, after about the second period, the direction of the shock is negative, with a smaller impact in the current period and in the long run. In particular, December 2019 shows a negative shock overall, a positive shock in the current period, a negative shock in about period 2, then keeps falling, reaches a minimum in period 5, starts rising again from period 6, and becomes positive in about period 8, suggesting that the impact of monetary policy uncertainty on loan defaults is positive in the current period, negative in the medium term, and becomes positive again in the long-term shocks. In the long run, when monetary policy uncertainty rises, loan defaults rise. The reason for this may be that, on the one hand, when monetary policy uncertainty rises under the epidemic, the volatility of corporate loan costs increases, the performance and investment of both sales-oriented and investment-oriented firms are hit, and the sunk costs of corporate investments in infrastructure are difficult to recover, which can exacerbate corporate loan defaults. On the other hand, due to the global public health emergencies, banks have difficulty in assessing the performance of enterprises, and with the incentive of risk aversion, they will reduce risky loans to banks and reduce the amount of non-performing loans to banks, which will help prevent loan defaults by enterprises, and therefore the data show that loan defaults by banks will decrease.

4. Discussion and Conclusions

This article introduces the impact of economic policy uncertainty and monetary policy uncertainty on loan default. According to the empirical conclusion, generally speaking, the impact of uncertainty on loan default is positive. However, economic policy uncertainty presents a positive impact in the short and medium term and a negative impact in the long term, while monetary policy uncertainty presents a positive impact in the short and long term and a negative impact in the medium term. Therefore, based on the empirical results, we need to consider the following situations when dealing with the relationship between uncertainty and loan default: (1) When formulating economic policies, specifically monetary policies, the government should maintain openness and consistency in policy information, take into account the long-term goals of economic operation, not just immediate interests, and reduce the negative impact of policy uncertainty.(2) For enterprises and banks, the government should strengthen its support for enterprise investment, stimulate enterprise vitality, improve banks' risk management and prevention and control mechanisms, reduce enterprises' non-performing loan rate in banks, and create a good environment for win-win cooperation between banks and enterprises.(3) Banks should continuously improve the quality of credit assets, improve bank management structure, personnel management structure, internal management structure, including talents, loan review mechanism, enterprise lending mechanism, institutional operation mechanism, which is conducive to curbing banks' loan default risk behavior and reducing default risk in the financial market.

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