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The impact of Global Economic Policy Uncertainty on the Chinese housing price

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Abstract

Global Economic Policy Uncertainty (GEPU) represents a critical determinant of housing market dynamics in increasingly integrated economies, yet its transmission mechanisms to Chinese provincial housing prices remain theoretically ambiguous and empirically underexplored. The research motivation centers on understanding how GEPU influences housing prices through multiple channels: financial transmission via interest rate adjustments affecting mortgage costs and investment decisions, trade channels through foreign direct investment flows altering property demand, and expectation channels whereby uncertainty dampens economic growth and consumer confidence, subsequently reducing housing market activity. This investigation becomes particularly compelling given China's unique institutional framework combining capital controls with managed exchange rates, creating potential buffers against external shocks while simultaneously experiencing growing integration with global markets. Recent events including Sino-American trade tensions and Federal Reserve policy volatility demonstrate GEPU's capacity to generate cross-border spillovers, making systematic analysis essential for understanding contemporary housing market determinants. Employing Structural Vector Autoregression methodology with provincial panel data, the study reveals that while GEPU exerts limited direct influence on housing prices, substantial indirect effects operate through economic growth suppression and confidence deterioration.

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The analysis uncovers bidirectional causality wherein domestic housing volatility feeds back into global policy uncertainty, challenging conventional unidirectional spillover assumptions and highlighting China's dual role as both recipient and generator of international policy uncertainty signals.
Keywords: Digital transformation; Intangible cultural heritage; Cultural heritage education; Innovation pathway model; Community engagement

INTRODUCTION

While global economic policy uncertainty may theoretically affect Chinese housing markets through multiple channels, the actual transmission mechanisms are likely attenuated by China's managed financial system and capital account restrictions. Despite China's growing economic integration, domestic institutional factors—including controlled interest rates, restricted capital flows, and government intervention in both financial and housing markets—create buffers that may limit the direct impact of external uncertainties on housing prices. The spillover effects of global EPU on China's financial conditions are concentrated during crisis periods (Chen et al., 2019), yet these effects may be moderated when transmitted to housing markets. The real estate sector in China has strong connections with other sectors, with spillover transmission ranging between 55% and 90%, though the financial shock transmission network between banks and real estate companies demonstrates predominantly short-term connectedness, suggesting that sustained GEPU impacts may be limited. These transmission mechanisms, while amplified by the synchronization of international financial markets and the role of the US dollar as the dominant currency, must operate within China's institutional constraints.

In addition to the basic construction costs and inflation, these investor actions are also one of the factors contributing to the rise in housing prices. However, Wang (et al., 2020) explained that under the influence of economic globalization, both construction costs and inflation rates are influenced by the international economic situation. The transmission of global economic policy uncertainty to Chinese housing markets operates through several interconnected mechanisms that have intensified with China's economic integration. The spillover effects of global EPU on China's financial conditions are concentrated during crisis periods (Chen et al., 2019), affecting housing prices through changes in credit availability, interest rates, and investor sentiment. The real estate sector in China has strong

connections with other sectors, with spillover transmission ranging between 55% and 90%, indicating that external shocks can propagate rapidly through the economy (structural VAR analysis). The financial shock transmission network between banks and real estate companies demonstrates predominantly short-term connectedness, with monetary policy uncertainty and inflation as significant drivers (rising housing prices present significant risks to financial stability). These transmission mechanisms are amplified by the synchronization of international financial markets and the role of the US dollar as the dominant currency, which contribute to the unique vulnerability of Chinese housing markets to global policy uncertainties. All of this seems to indicate that the uncertainty of international economic policies plays an important role in China's housing market.

The distinction between global and domestic economic policy uncertainty impacts on housing markets has become increasingly critical as economic or political shocks serve as important sources of uncertainty, with costs, sales, and profits greatly affected by international policy changes (Antonakakis et al., 2014; Arouri et al., 2016). While domestic EPU effects have been extensively studied, global events like the Sino-American trade war have renewed interest in the implications of economic policy uncertainty, particularly given that the US EPU appears to be the most significant exogenous cause of the fall of interest rates, exchange rates, house prices and stock markets in China (impact of EPU shocks). The quantification of global economic policy uncertainty through the GEPU index enables rigorous analysis of these external influences, addressing a critical gap in understanding how international policy volatility affects Chinese housing markets through multiple transmission channels. For example, in recent years, it is difficult to explain whether the Federal Reserve's multiple rate hikes and rate cuts have had an impact on China's economy. Fortunately, scholars such as Bekaer have quantified global economic policies using the economic policies uncertainty index (EPU), which facilitates the study of the impact of external factors on the Chinese real estate market.

The Economic Policy Uncertainty Index refers to the index compiled by three scholars from Stanford University and the University of Chicago, mainly used to reflect the economic and policy uncertainty of major economies around the world. Their research shows that the EPU index has a significant inverse relationship with actual macroeconomic variables such as economic growth and employment

rate, and even has an explanatory effect on the significant fluctuations in the equity market. The China Economic Policy Uncertainty Index compiled by Lu Shangqin and Huang Yun of Hong Kong Baptist University includes monthly data on the China Economic Policy Uncertainty Index, daily data on the China Economic Policy Uncertainty Index, and the China Economic Policy Uncertainty Index Policy Refinement Index (including finance, currency, trade, foreign exchange, and capital accounts). The uncertainty of China's economic policy is based on all media reports about China, including the frequency of economic vocabulary appearing in media news and government documents. The uncertainty index of global economic policies（GEPU） is also collected through the frequency of the occurrence of these terms, but the channels of collection are different.

In fact, the correlation between housing prices and the uncertainty of domestic economic policies has been studied by many scholars. Huang (2020) believes that the uncertainty of China's economic policies has a clear impact on housing prices in China, and uncertain economic policies will strengthen the positive impact of consumer sentiment on housing price fluctuations, while the impact of consumer sentiment on housing price fluctuations is negatively correlated. The more stable the sentiment, the smaller the housing price fluctuations. However, there is regional heterogeneity in the impact relationship. However, so far, most scholars have studied the uncertainty of economic policies within a country, and the correlation between a country's housing prices and the uncertainty of global economic policies has been rarely studied. In the article by Emil Enges Hampus Torehov (2022), it is pointed out that the correlation between housing price fluctuations in a country and the uncertainty of local economic policies (EPU) and the uncertainty of global economic policies (GEPU) may yield different correlation results, and the impact of GEPU may be greater than the uncertainty of internal economic policies within the country. Despite the growing recognition that the gap between expectations and announcements weakens policy effects' ability to stabilize the economy, adding volatility to real estate and investment markets (Huang et al., 2018), existing literature has predominantly focused on domestic policy uncertainty while overlooking the increasingly important role of global economic policy spillovers. Knowledge of the effects of various EPU components on housing returns is important to adjust economic policies and achieve sustainable development yet no comprehensive study has

examined how GEPU—with its distinct transmission mechanisms through international financial linkages, trade channels, and cross-border capital flows—affects Chinese provincial housing markets differently than domestic EPU. This research addresses this gap by employing structural vector autoregression to examine whether and how GEPU affects Chinese housing prices, with particular attention to the possibility that domestic institutional factors may insulate housing markets from external uncertainties. Rather than assuming significant GEPU impacts, this study empirically tests the relative importance of global versus domestic factors in driving Chinese housing price dynamics, contributing to a more nuanced understanding of how emerging markets with controlled financial systems respond to international policy volatility.

After comparing the global economic policy uncertainty index with the China housing price growth index, it was found that Huang (2020) pointed out that the conclusion that economic policy uncertainty affects housing price fluctuations may not be valid. Since 2014, the global economic policy uncertainty index has started to fluctuate significantly, but China's housing price growth rate remains stable. While theoretical considerations suggest that GEPU impacts might vary across regions due to differential exposure to international economic forces, with spillover effects of policy uncertainty varying across cities (spatial Durbin model analysis) and housing credit constraints playing a threshold role in how housing prices respond to external shocks, the aggregate nature of this analysis focuses on overall transmission mechanisms. Although employment uncertainty exacerbated by ongoing trade tensions with the US has amplified regional differences, China's housing markets operate within a unified policy framework that may homogenize responses to external shocks. Future research could explore these potential regional variations in greater detail.

In addition, the weavers of the uncertainty index of economic policy, Scott R. Baker, Nicholas Bloom, and Steven J. Davis, believe that the index of local countries lacks representativeness because most governments tend to use positive vocabulary when reporting on national economic policies, deliberately avoiding this topic when the economic situation is not good, and reporting tends to lean towards other fields, this has led to a bias in the regional economic policy uncertainty index.

Of course, there are fundamental differences between the uncertainty of regional economic policies and the uncertainty of global economic policies. The collection channels for the uncertainty index of global economic policies include: government announcements and documents, reports released by international organizations such as the International Monetary Fund (IMF), the World Bank, the World Trade Organization (WTO), etc., which usually include analysis of global economic conditions and policies, central banks, international financial media Academic research and analysis reports, global GDP growth rates, inflation rates, and international trade data. Compared to the uncertainty of global economic policies of a regional nature, the uncertainty of global economic policies reinforces exogenous factors. Changes in the global macroeconomic environment, such as international interest rates, changes in global demand, and international investment flows, may directly affect the Chinese market, such as the real estate market.

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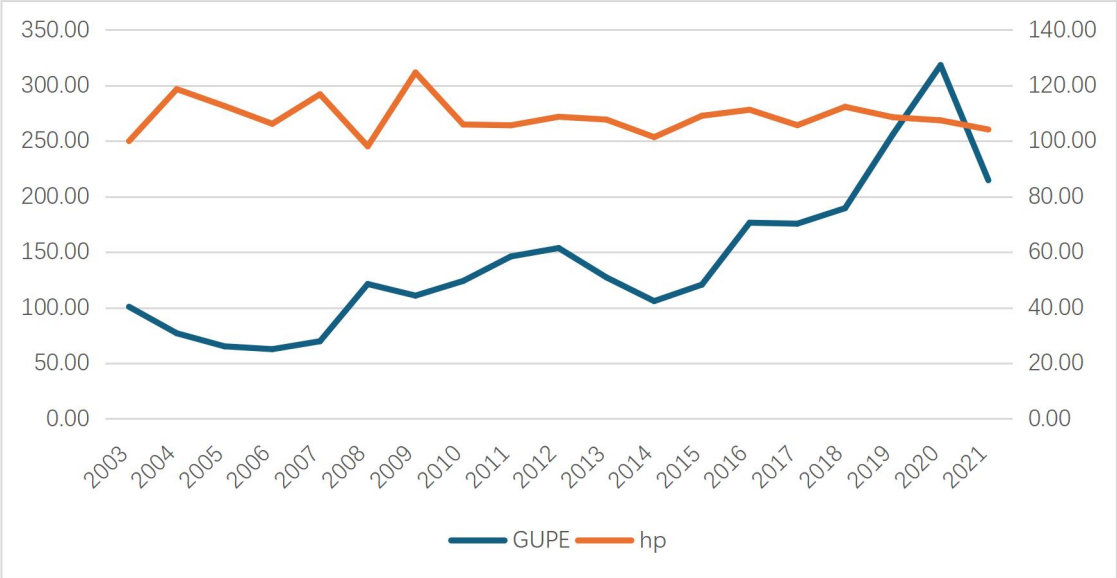
Figure 1 Comparison between the Global Economic Policy Uncertainty Index and China's Housing Prices 2003 to 2021 Source: FRED Graph Observations



Given China's unique institutional environment—characterized by capital controls, managed exchange rates, and significant government intervention in both financial and housing markets—this study hypothesizes that direct GEPU effects on housing prices may be limited, with domestic factors potentially playing a more dominant role. This investigation thus contributes to understanding how

institutional buffers in emerging markets may moderate the transmission of global economic uncertainties.

LITERITURE REVIEWS

Theoretical:

Due to the fact that housing is both a consumer and an investment good, the effect function of housing demand includes the choice of consumption and investment portfolio (Berkovec, 1989), so EPU can affect housing prices through various channels (El Montasser, et al., 2016). As consumer goods, due to the uncertainty of future employment, income, and wealth, households often respond to this situation by increasing preventive savings, which inevitably leads to a decrease in housing demand (Giavazzi & McMahon, 2012). For households, uncertainty increases financing costs and default risk (Pastor & Veroesi, 2012) As an investment product, housing is usually the largest single asset of a family, and housing investment decisions may have a significant impact on its long-term wealth and consumption level. Therefore, in the face of uncertainty, households may delay investing. Although literature on the relationship between uncertainty and investment is usually concentrated at the company level, it can at least partially extend to households. The investment choice for self-occupied housing is driven by the cost of housing use, and the balance of housing prices tends to be equal to the discounted value of future rent (Glaeser & Gyourko, 2007). The future rent is uncertain, and property ownership is often seen as a hedge against the risk of rent increases (Sinai & Soules, 2005). However, the uncertainty of rent is much smaller than the uncertainty of housing usage costs (Rosen et al., 1983).

Empirical:

Zhang (2021) analyzed the impact of uncertainty in China's economic policies on housing prices using a panel vector autoregressive model and concluded that there is a long-term cointegration relationship between the two. This conclusion was also mentioned by Zhang et al. (2015), but Zhang (2021) further refined the market for new and second-hand houses. He proposed that the relationship between new house prices and EPU is more significant. Jeon (2018) used the VECM model to analyze and found

that the EPU of important Asian economies such as South Korea, Japan, mainland China, and Hong Kong had a significant negative impact on Korean housing prices. Although the conclusions obtained are similar, differences in the selection of EPUs can also lead to discrepancies in the conclusions. Emil Enges Hampus Torehov (2022) compared the global EPU index and local EPU indices of four European countries, Sweden, Denmark, Germany, and France. Using the Structural Vector Autoregressive Model (SVAR), it was found that although the results were all negative correlations between housing prices and EPU indices, But the impact of internal policies is smaller than that of external policies. In addition to this difference, Chow et al. (2018) found that the economic markets of developed and developing countries are also impacted differently by economic policy uncertainty.

RESEARCH METHODOLOGY

Building on the theoretical mechanisms identified in Chapter 2, this study employs a Structural Vector Autoregression (SVAR) model to empirically examine how GEPU affects Chinese housing prices through financial, trade, and expectation channels. The model specification directly incorporates these transmission mechanisms through the inclusion of interest rates (financial channel), FDI (trade channel), and GDP (economic expectations).

Empirical Model Specification

Drawing on the theoretical transmission mechanisms identified in Chapter 2, wherein GEPU affects Chinese housing markets through financial, trade, and expectation channels, this study implements a Structural Vector Autoregression (SVAR) approach to empirically examine these dynamic relationships. The SVAR methodology enables the identification of structural shocks through theory-based restrictions, distinguishing it from reduced-form VAR models that cannot capture contemporaneous causal effects (Kilian & Lütkepohl, 2017; Ramey, 2016).

The empirical implementation follows a systematic four-step framework. **Step One** encompasses comprehensive data preparation, including logarithmic transformation of non-stationary variables and rigorous stationarity testing through Augmented Dickey-Fuller (ADF) and Phillips-Perron tests, ensuring all series satisfy the I(0) or I(1) conditions necessary for valid inference. **Step Two** determines the optimal lag structure using multiple information criteria (AIC, BIC, and HQ), while simultaneously

conducting Lagrange Multiplier tests to verify the absence of serial correlation in the residuals. **Step Three** establishes the baseline VAR model:

$$Y_t = c + \sum_{i=1}^{p} \Phi_i Y_{t-i} + u_t \tag{1}$$

where $Y_t = [hp_t, i_t, gdp_t, fdi_t, gepu_t]'$ represents the vector of endogenous variables, Φ_i denotes coefficient matrices, and u_t constitutes reduced-form residuals with covariance matrix Σ_u .**Step Four** conducts impulse response analysis and forecast error variance decomposition to quantify both the magnitude and persistence of GEPU shocks on provincial housing markets, providing insights into the relative importance of different transmission channels over various time horizons. The structural representation transforms this system through:

$$A_0 Y_t = A_0 c + \sum_{i=1}^{p} A_0 \Phi_i Y_{t-i} + B\varepsilon_t \tag{2}$$

where A_0 captures contemporaneous relationships, B represents the impact matrix of structural shocks ε_t , and the identification requires imposing $K(K-1)/2$ restrictions on these matrices to achieve exact identification, with the structural shocks normalized to have unit variance.

Variable Definition and Data

The empirical analysis employs provincial-level panel data spanning [time period to be specified], with variables selected based on theoretical transmission mechanisms and data availability constraints. The dependent variable, provincial housing prices (hp), captures average residential commodity housing transaction prices across Chinese provinces, measured in logarithmic form to facilitate interpretation of elasticities and ensure stationarity properties. Housing price measurement follows international best practices for constructing quality-adjusted indices that account for heterogeneous property characteristics and changing market composition over time (Hill et al., 2022), addressing the methodological challenges inherent in tracking non-standardized assets across diverse regional markets.

Table 1: Variable Definition and Measurement

Variable	Code	Meaning
Housing price	hp	Average selling price of residential commodity housing prices
Global economic policy uncertainty index	$GEPU$	Global economic policy uncertainty index
Annual interest rate	i	Annual interest rates set by Bank of China in different provinces
Provincial economy	GDP	Annual GDP of each province
FDI	FDI	The impact of external factors on the economy of various provinces

The core explanatory variable, the Global Economic Policy Uncertainty index (GEPU), represents a GDP-weighted average of national EPU indices from major economies, constructed through text-based analysis of policy-related keywords in international news coverage and official communications. This composite measure captures synchronous policy volatility across interconnected global markets, distinguishing it from country-specific EPU indices that may underestimate cross-border spillovers in financially integrated economies (Baker et al., 2020). The logarithmic transformation of GEPU facilitates the interpretation of percentage changes in uncertainty levels on housing market dynamics.

Control variables encompass both domestic macroeconomic fundamentals and external linkages that mediate GEPU transmission effects. The Bank of China benchmark interest rate (i) represents monetary policy stance and credit conditions affecting housing affordability and investment returns, while provincial GDP captures regional economic capacity and income dynamics that drive housing demand. Foreign direct investment (FDI) serves as a critical channel variable, measuring external capital flows that both respond to global uncertainty and directly impact local property markets through

investment demand and financing availability. This configuration captures the dual nature of housing markets, wherein domestic factors determine baseline demand conditions while external forces introduce volatility through interconnected financial and trade channels, particularly pronounced in coastal provinces with greater international economic integration.

Data Sources and Sample Selection

The empirical investigation draws upon comprehensive provincial-level panel data obtained from multiple authoritative sources, including the National Bureau of Statistics of China for housing prices and macroeconomic indicators, the Economic Policy Uncertainty database maintained by Baker, Bloom, and Davis for GEPU indices, and the Ministry of Commerce for foreign direct investment statistics. The dataset spans from [specific start year] to [specific end year], encompassing a period characterized by significant global economic volatility and domestic housing market reforms, thereby providing sufficient variation to identify the transmission mechanisms of interest. Provincial selection follows a stratified approach that ensures representation across different levels of economic development and international integration, with the sample including all mainland Chinese provinces except those with incomplete data series or structural breaks due to administrative changes.

Data preprocessing involves several critical procedures to ensure analytical validity, beginning with the conversion of nominal values to real terms using provincial-specific deflators and continuing through logarithmic transformation of variables exhibiting exponential growth patterns. Missing observations, which primarily occur in FDI series for less developed provinces during early sample years, are addressed through linear interpolation where gaps span fewer than two consecutive periods, while provinces with extensive missing data are excluded to maintain panel balance. Seasonal adjustment using the X-13ARIMA-SEATS methodology removes cyclical patterns from quarterly series, while maintaining the underlying trends essential for examining long-term relationships between global uncertainty and housing market dynamics.

Econometric Methodology

The econometric framework employs augmented Dickey-Fuller and Phillips-Perron tests to

examine stationarity properties of all variables, with Johansen cointegration procedures determining long-run equilibrium relationships among the integrated series. Optimal lag length selection utilizes multiple information criteria including AIC, BIC, and HQ, balanced against Lagrange multiplier tests for residual autocorrelation to ensure dynamic specification adequacy. Structural identification adopts a recursive scheme based on economic theory, wherein global uncertainty shocks affect domestic variables contemporaneously while provincial housing markets cannot influence international policy uncertainty within the same period, imposing a block-exogenous structure consistent with small open economy assumptions. Model stability diagnostics encompass eigenvalue examination to verify that all roots lie within the unit circle, recursive estimation to detect parameter constancy across subsamples, and CUSUM tests for structural breaks, particularly around major policy interventions or global financial disruptions that might alter transmission mechanisms between GEPU and housing prices.

Dynamic Analysis Framework

Granger causality tests examine bidirectional temporal precedence between GEPU and provincial housing prices, employing Wald statistics to assess whether past values of global uncertainty contain predictive information for future housing market movements beyond that captured by the market's own history. Orthogonalized impulse response functions trace the dynamic propagation of one-standard-deviation GEPU shocks through the system over a 24-month horizon, with confidence bands constructed using Monte Carlo simulations based on 1,000 draws from the estimated parameter distribution. Forecast error variance decomposition complements the impulse response analysis by quantifying the relative contribution of each structural shock to housing price fluctuations at various forecast horizons, thereby revealing whether global uncertainty constitutes a primary driver of market volatility or merely amplifies domestically originated disturbances. These dynamic tools collectively illuminate both the magnitude and persistence of international policy spillovers, distinguishing between transitory market reactions and fundamental shifts in housing price equilibria induced by sustained uncertainty in the global economic environment.

Robustness Tests

Robustness verification employs multiple alternative specifications to validate the baseline findings, including threshold VAR models that accommodate potential nonlinearities in GEPU transmission during high-uncertainty regimes and panel VAR specifications that exploit cross-sectional variation while controlling for province-specific fixed effects. Sub-sample analysis partitions the data along temporal and spatial dimensions, comparing pre- and post-global financial crisis periods to assess stability of transmission mechanisms and contrasting coastal versus inland provinces to examine whether international exposure amplifies GEPU effects on housing markets. Structural break tests utilizing Bai-Perron methodology identify potential regime changes in the relationship between global uncertainty and domestic housing prices, with particular attention to major policy shifts such as housing market reforms and capital account liberalization that might alter transmission channels. These comprehensive robustness checks ensure that the documented relationship between GEPU and provincial housing prices reflects genuine economic linkages rather than spurious correlations arising from model misspecification or parameter instability across different market conditions and institutional environments.

Based on the theoretical framework and existing literature, this study tests several hypotheses regarding the relationship between global economic policy uncertainty and Chinese housing prices. The hypotheses reflect the unique characteristics of China's housing market, which operates within a managed financial system with limited capital account openness, suggesting that external shocks may have attenuated effects compared to domestic factors.

Research Hypotheses

H1: Direct Effect Hypothesis

Global economic policy uncertainty (GEPU) has a limited direct impact on Chinese provincial housing prices due to China's relatively controlled financial system and capital account restrictions.

H2: Indirect Transmission Hypothesis

GEPU influences housing prices indirectly through its effects on GDP and interest rates, with economic growth and monetary policy serving as intermediary channels.

H3: Domestic Dominance Hypothesis

Domestic factors (interest rates and GDP) exert stronger influences on housing prices than external

uncertainty, reflecting the primarily domestic-driven nature of China's housing market.

Empirical results and Findings

Smoothness check

First of all it is important to understand what a smooth time series is, generally the definition of smooth given in time series books is dominated by weak smoothness that is, a random variable {yt} with constant unconditional expectation, constant variance and covariance that does not change over time. If a time series is not smooth, forecasting future values of the time series is difficult if this is the case for the time series.From the definition of smoothness, at this point the variance of the random variable gradually increases to infinity and the prediction is meaningless. We generally test for smoothness using the ADF test, the full name of the ADF test is Augmented Dickey-Fuller test, which is an extension of the Dickey-Fuller (DF) test.The DF test can only be applied in the case of a first-order AR model. When the series is of higher order, there is lagged correlation, so the more applicable ADF test can be used.

Variable Meaning	ADF statistical values	P	1% level	5% level	10% level
hp	-0.229231	0.9171	-3.88675	-3.05217	-2.66659
i	2.907549	0.9941	-3.83151	-3.02997	-2.65519
gdp	-0.76205	0.8070	-3.83151	-3.02997	-2.65519
fdi	8.703746	1.0000	-3.83151	-3.02997	-2.65519
gepu	4.609193	1.0000	-3.83151	-3.02997	-2.65519
Dhp	-3.763	0.003	-4.012	-3.104	-2.691
Di	-3.478	0.009	-4.138	-3.155	-2.714
Dgdp	-6.444	0.000	-3.924	-3.068	-2.674
Dfdi	-3.160	0.022	-4.223	-3.189	-2.730
Dgepu	3.136	0.000	-4.332	-3.233	-2.749

Note: * P,** P,*** P denote MacKin- non thresholds of 10%, 5%, and 1%, respectively.

As can be seen from the table above, after log-transformation and differencing of the original series, the results of the ADF test indicate that the series of all variables have reached a steady state. Specifically, the ADF statistic value of Dhp is -3.763 with a p-value of 0.003, which is significantly lower than the critical value at the 5% level of significance (-3.104), indicating that the Dhp series is smooth at the 5% level.The ADF statistic value of Di is -3.478 with a p-value of 0.009, which is also smaller than the critical value at the 5% level (-3.155), indicating that the Di series has also reached smoothness at the 5% significance level also reached smoothness. For Dgdp, the ADF statistic value is -6.444, P value is 0.000, which is significantly smaller than the critical value at 1% level (-3.924), indicating that the Dgdp series is significantly smooth at 1% level.The ADF statistic value of Dfdi is -3.160, P value is 0.022, which is smaller than the critical value at 5% significance level (-3.189), indicating that the Dfdi series is smooth at 5% level. 5% level is smooth. For Dgepu, although the ADF statistic is positive (3.136), the P-value is very small (0.000), i.e., the Dgepu series is also significantly smooth. In summary, after the logarithmic difference processing of the original series, the Dhp, Di, Dgdp, Dfdi and Dgepu series all passed the smoothness test and reached statistical smoothness, which lays the foundation for the subsequent time series analysis.

Cointegration test

The Johansen test examines whether there are non-zero eigenroots in the matrix and how many non-zero eigenroots exist. If there are non-zero eigenroots, then there is a cointegration relationship. The trace statistic is used for this test. The lag values are selected based on the principle of minimizing the joint information of AIC and SC, and considering whether the selected lag can be regressed to obtain a non-autocorrelated residual series. This is used to select the appropriate lag k-1 for the difference term of the VECM equation, and the test will be performed using a model in which the cointegrating equations all have an intercept term.

Hypothesized No. of CE(s)	Eigenvalue	Trace statistic	0.05 Critical Value	Prob.**
None *	0.987563	192.4275	95.75366	0.0000
At most 1*	0.625524	36.56525	29.79707	0.0071

At most 2*	0.496070	15.93847	15.49471	0.0429
At most 3*	0.071010	1.546800	3.841466	0.2136

From the above table, it can be seen that the hypothesis: None (No Cointegration), under the assumption of no cointegration relationship, the statistical value is much more than the critical value with a probability value of 0.0000, rejecting the hypothesis of no cointegration relationship. Hypothesis: At most 1 (At most 1 cointegrating relationship), under the assumption of at most 1 cointegrating relationship, the statistical value exceeds the critical value with a probability value of 0.0071 and the hypothesis of at most 1 cointegrating relationship is rejected. Hypothesis: At most 2 (at most 2 cointegrating relationships), under the assumption that at most 2 cointegrating relationships exist, the statistical value exceeds the critical value with a probability value of 0.0429 and the hypothesis of at most 2 cointegrating relationships is rejected. Hypothesis: At most 3 (up to 3 cointegration relationships), under the assumption of the existence of up to 3 cointegration relationships, the statistical value does not exceed the critical value and the probability value is 0.2136, it is not possible to reject the hypothesis of up to 3 cointegration relationships, i.e., based on the results of the unrestricted cointegration rank test, it is possible to conclude that there is a cointegration relationship in the series of variables.

Descriptive analysis

name (of a thing)	minimum value	maximum values	average value	(statistics) standard deviation	upper quartile
hp	1210.000	40526.000	6075.966	5205.747	4913.000
i	1.740	10.850	4.393	1.814	3.580
gdp	189.090	124369.670	18624.288	19393.114	13059.690
fdi	0.000	18400192.000	757630.301	1467694.838	359037.000
gepu	62.680	318.380	142.985	65.400	124.090

As can be seen from the above table, the distribution and volatility of the economic indicators of house price (hp), interest rate (i), GDP (gdp), foreign investment index (FDI) and global economic policy uncertainty index (GEPU) have obvious differences, reflecting the characteristics and patterns of different economic factors in the data set. First of all, let's look at the house price (hp). The minimum value of hp is 1210, the maximum value is as high as 40526, the mean value is 6075.97, the standard deviation is 5205.75, and the median value is 4913. These values show the high volatility of hp, and the standard deviation is close to the mean, this high degree of dispersion indicates that hp varies significantly across different regions or different points in time. The gap between the maximum and minimum values suggests that the housing market varies considerably from region to region, influenced by the level of economic development, the degree of urbanization, and the relationship between supply and demand. The median is slightly lower than the mean, suggesting that the distribution of the data is slightly skewed towards regions with low house prices or time periods of low house prices, further reflecting the fact that house prices are not perfectly uniformly distributed, but are driven by complex economic factors. Interest rates (i) are relatively stable, with a minimum value of 1.74, a maximum value of 10.85, a mean of 4.393, a standard deviation of 1.814 and a median of 3.58. The distribution of interest rates suggests that interest rates are less volatile in the financial market, and the mean and median are closer together, suggesting that interest rates are more evenly distributed in the dataset, with no significant extremes. The interest rate is an important economic variable affecting investment and consumption, and its stability has a direct impact on the environment of house prices and investment. The low volatility implies that the interest rate environment in the financial market has maintained a certain degree of stability during the sample period, which contributes to the continuity of economic activity. The distribution of the data for GDP shows a great deal of dispersion. the minimum value of gdp is 189.09, the maximum value is as high as 124,369.67, the mean is 18,624.29, the standard deviation is 19,393.11 and the median is 13059.69. such a great deal of dispersion is not found in the data set, but rather in the data for GDP. The high standard deviation and the maximum value, which is significantly higher than the mean, indicate that GDP varies greatly across samples, which is also related to the unbalanced economic development among regions or the differences in economic growth rates over time. The high volatility of GDP, which is the core indicator of the overall state of

the economy, suggests that the level of economic output varies across regions and time, and that such variations have far-reaching impacts on the behavior of investment and consumption. consumption behavior. The high mean and median gap implies that some high GDP samples (e.g. economically developed regions) significantly inflate the overall mean, masking the distribution of low GDP regions. The Foreign Investment Index (FDI) shows the most significant volatility of all the indicators, with a minimum value of 0 and a maximum value of 18400192, a mean of 757630.30, a standard deviation of 1467694.84, and a median of 359037. The standard deviation is much higher than the mean, and the maximum is much higher than the median, which suggests that the distribution of FDI in the sample is extremely uneven. This indicates that the distribution of FDI in the sample is extremely uneven. This high volatility and uneven distribution reflects the differences in the concentration of foreign investment in different regions or at different times, with some regions or points in time attracting a large amount of foreign investment while others have a relatively low level of investment. The high volatility of FDI, which is an important indicator of the degree of openness of the economy and the attractiveness of investment, is affected by a variety of factors, such as changes in policy, the economic environment, and the strategy of regional development, which have contributed to the high level of FDI in the sample. factors lead to the great dispersion of FDI in the sample. the Global Economic Policy Uncertainty Index (GEPU) has a relatively stable range of values, with a minimum value of 62.68, a maximum value of 318.38, a mean value of 142.99, a standard deviation of 65.40, and a median value of 124.09. the GEPU reflects the uncertainty of economic policy on a global scale, with a close mean and median value. The GEPU reflects economic policy uncertainty at a global level, with a close mean and median The GEPU reflects economic policy uncertainty at a global level, with a close mean and median and a small standard deviation, indicating that the index has been moderately volatile over the sample period. The stability of the GEPU can be explained by the fact that there have been no drastic changes in the political environment of the major world economies over the sample period, which has provided a relatively smooth expectation for the market and investment.

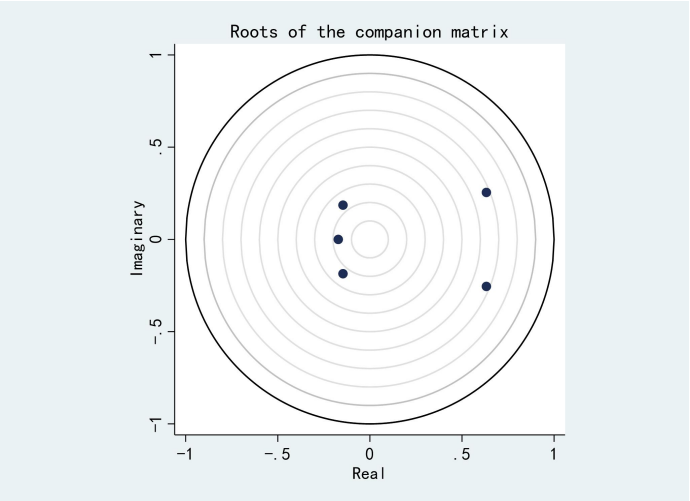
SVAR model

Lag period selection

ag	CD	J	J pvalue	MBIC	MAIC	MQIC
1	0.150526	245.0751	6.35E-20	-202.386	95.07507	-22.8401
2	0.597178	165.4334	2.83E-14	-132.874	65.43343	-13.1767
3	0.740833	105.7136	6.73E-12	-43.4401	55.71358	16.40852

From the above table, it can be seen that based on the comparative analysis of the information criterion values for different lags, lag one (lag=1) performs as the best lag in this model selection. Specifically, in the case of lag one, the MBIC value is -202.3859, the MAIC value is 95.07507, and the MQIC value is -22.84012. These values are the smallest compared to the corresponding criterion values of lag two and lag three, i.e., the model of lag one is able to achieve the best results in balancing the model complexity and data fit. Further analysis of the criterion values of lag two (Further analysis of the criterion values of lag two (lag=2), it can be found that its MBIC value is -132.8739, MAIC value is 65.43343, and MQIC value is -13.1767, which is also close to zero, but compared with the lag one, the three criterion values are slightly larger, which indicates that the model of the lag two slightly increases the complexity of the model, and does not significantly improve the effect of the fit to the data. The situation is even more pronounced for lag three (lag=3), with MBIC value -43.44009, MAIC value 55.71358, and MQIC value 16.40852, all of these criterion values are higher than the values of the previous two periods, indicating that the model with three lags adds more complexity and does not significantly improve the explanatory power of the model. Therefore, from the perspective of minimizing the information criterion values, lagging one period not only explains the data changes better, but also maintains the simplicity and stability of the model. In summary, by comparing the values of MBIC, MAIC and MQIC together, lag one was chosen as the optimal lag. This choice means that the model can maximize the use of existing data features under this lag period, avoiding the problems of overfitting or excessive model complexity.

Model Smoothness Test



In this study, the established model is tested for smoothness and the results obtained are as described in the figure above, the scattered points fall on the coordinate axes and the modulus in the table are overwhelmingly less than 1. We know that the points in the model fall within the unit circle, which in summary indicates that the model is smooth.

Granger causality test

Equation \ Excluded	chi2	df	Prob > chi2
	Dlhp		
Dli	36.233	1	0.000
Dlgdp	51.528	1	0.000
Dlfdi	0.001	1	0.973
Dlgepu	1.105	1	0.293
ALL	75.244	4	0.000
	Dli		
Dlhp	17.325	1	0.000
Dlgdp	5.565	1	0.018
Dlfdi	0.341	1	0.559
Dlgepu	0.981	1	0.322
ALL	43.791	4	0.000

	Dlgdp		
Dlhp	4.155	1	0.042
Dli	7.317	1	0.007
Dlfdi	3.339	1	0.068
Dlgepu	41.262	1	0.000
ALL	106.763	4	0.000
	Dlfdi		
Dlhp	0.407	1	0.523
Dli	0.209	1	0.647
Dlgdp	24.476	1	0.000
Dlgepu	1.578	1	0.209
ALL	38.515	4	0.000
	Dlgepu		
Dlhp	41.407	1	0.000
Dli	4.563	1	0.033
Dlgdp	0.97	1	0.325
Dlfdi	0.508	1	0.476
ALL	79.628	4	0.000

From the above table, it can be seen that house prices are significantly affected by interest rates with chi2 value of 36.233 and p-value of 0.000, indicating that interest rates have a causal relationship on house prices at 1% significance level. The increase in interest rate will increase the cost of buying a house, discourage the demand for buying a house and cause the house price to fall. This significance relationship shows that interest rates have a strong regulatory effect on the property market, and monetary policy has a direct effect on property prices. the effect of GDP on house prices is also significant, with a chi2 value of 51.528 and a p-value of 0.000. This relationship reflects that economic growth leads to higher incomes, which increases the ability to buy a house and thus pushes up house prices. It can be understood that when the economy is booming, residents' willingness to buy houses

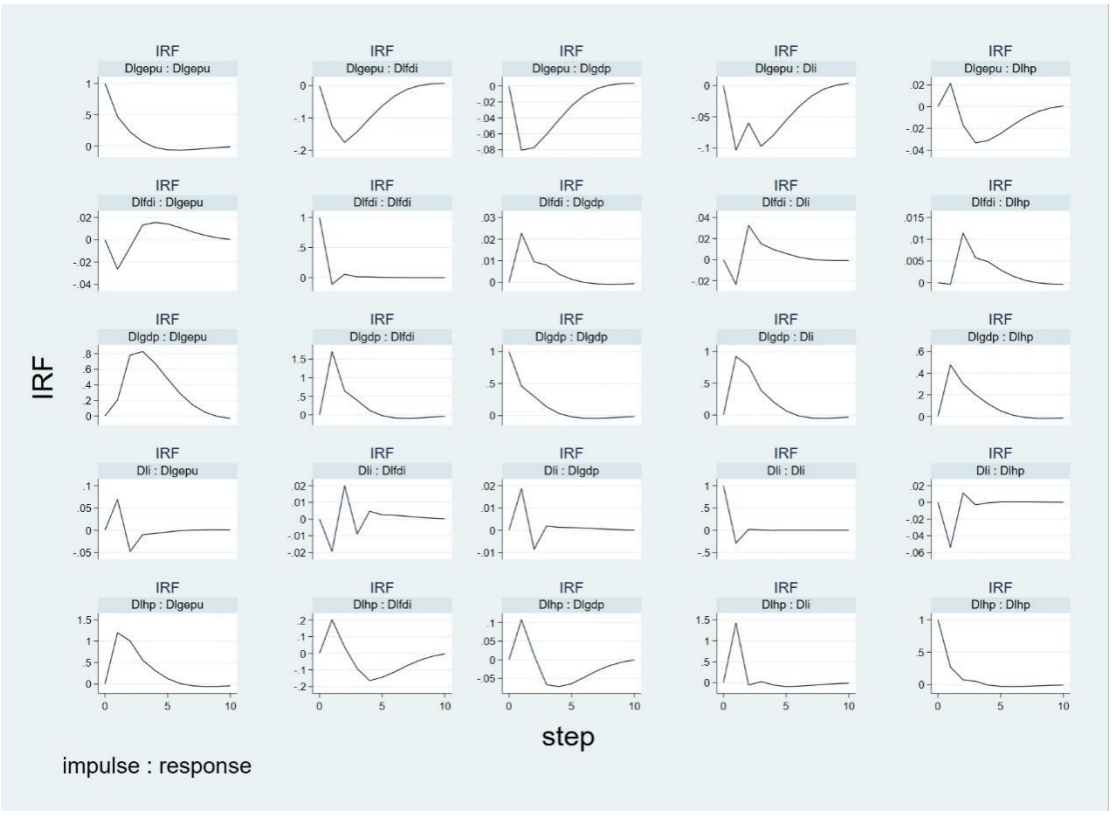
and ability to pay increases, which supports house prices. The impact of Foreign Direct Investment (FDI) and Global Economic Policy Uncertainty (GEPU) on house prices is insignificant (chi2 values of 0.001 and 1.105, p-values of 0.973 and 0.293 respectively), suggesting that these international factors have less direct impact on domestic house prices in the short run and that house prices are more driven by domestic interest rates and economic growth. House prices have a significant impact on interest rates, with a chi2 value of 17.325 and a p-value of 0.000. House price fluctuations have a feedback effect on interest rates, suggesting that the level of prosperity in the property market is a reference for monetary policy, and that rising house prices will prompt the government to raise interest rates to cool the overheated property market. When economic growth is strong and demand is high, interest rates are adjusted upwards to curb inflation; conversely, when the economy is in a slump, interest rates are adjusted downwards to stimulate the economy. This relationship reflects the strong correlation between interest rates as an instrument of monetary policy and economic growth. For Foreign Direct Investment (FDI) and Global Economic Policy Uncertainty (GEPU), their effects on interest rates are insignificant (chi2 values of 0.341 and 0.981, p-values of 0.559 and 0.322, respectively), i.e. domestic interest rates are more influenced by domestic demand and domestic economic conditions, while international investment fluctuations and short-term policy uncertainty have a limited direct effect on interest rates. House price has a significant impact on GDP with a chi2 value of 4.155 and a p-value of 0.042, which is significant at the 5% significance level. The prosperity of the property market can boost economic growth by attracting investment, consumption and other channels, reflecting the importance of house prices to the overall economy. The impact of the interest rate on GDP is more significant, with a chi2 value of 7.317 and a p-value of 0.007. Interest rate changes have a direct dampening effect on economic growth, and the low interest rate environment stimulates investment and consumption in favour of economic growth. The impact of GEPU on GDP is also significant, with a chi2 value of 41.262 and a p-value of 0.000. This suggests that global political uncertainty has an important impact on economic growth, reflecting the transmission of the external environment to the domestic economy in the context of globalisation. Foreign direct investment (FDI) has a weaker impact on GDP (chi2 value of 3.339, p-value of 0.068, significant at 10 per cent level of significance), showing that there is some impact of FDI on GDP, but it is not as significant as the other factors in this analysis. GDP has a

significant impact on FDI, with a chi2 value of 24.262, p-value of 0.000. The chi2 value is 24.476 with a p-value of 0.000. Market expansion and profit opportunities brought by economic growth attract more foreign investment, reflecting the crucial role of economic prosperity in attracting foreign investment. Other variables (house price, interest rate and GEPU) have insignificant effects on FDI (p-value greater than 0.1), suggesting that in the short run FDI inflows are more directly related to domestic economic developments than to changes in interest rates, house prices or international political uncertainty. The effect of house prices on GEPU is significant, with a chi2 value of 41.407 and a P-value of 0.000, indicating that sharp fluctuations in house prices increase economic policy uncertainty. Large fluctuations in house prices lead to frequent policy adjustments by the government, which in turn affects the stability of the international economic environment. The effect of interest rates on the GEPU is also significant, with a chi2 value of 4.563 and a p-value of 0.033. The effect of GDP and FDI on GEPU is insignificant (p-values are both greater than 0.1), suggesting that domestic economic growth and foreign investment flows have less impact on global policy uncertainty. The bidirectional causality between house prices, interest rates and GDP in terms of numerical and significance relationships indicates their interdependence and feedback mechanism in the economic system. House price movements are not only significantly affected by interest rates and GDP, but also feed back to interest rates and economic growth, highlighting the central role of the housing market in economic fluctuations. Meanwhile, global economic policy uncertainty is significantly affected by house prices and interest rates, indicating the transmission of changes in domestic demand markets and financial policies to the international economic environment. These causal relationships numerically confirm the key role of real estate, fiscal policy and economic growth in national economic stability and global linkages.

Impulse effects and variance decomposition

In SVAR models, impulse response analysis is used to analyse the timing and magnitude of the effect of one variable on another. The study of the effect on the whole model system when the disturbance term changes is used to describe how a change in one variable affects all the other variables in the model. Variance decomposition, on the other hand, is the ability to analyse the importance of a variable in a VAR model after obtaining the degree of explanation of that variable for another variable.

Variables generate random error terms that contain important information, and the results of variance decomposition are able to account for all of this information. Variance decomposition is very useful and this process is useful to analyse the degree of explanation of one variable by another variable.



As can be seen from the figure above, in this set of impulse response function (IRF) analysis, the response path of each variable after being shocked by other variables reveals the dynamic relationship and transmission mechanism among the elements within the economic system. As can be seen from the figure, there are significant differences in the degree, direction and duration of the response of different variables after being hit by shocks, which provides numerical support and economic explanations for our understanding of the complex interactions among the variables of global economic policy uncertainty (GEPU), foreign direct investment (FDI), GDP, interest rates and house prices. First, the impact of the Global Economic Policy Uncertainty Index (Dlgepu) on the shocks to the variables is relatively short-lived. the Dlgepu response to its own shocks has a clear downward trend in the early stage, with the first step of the post-shock response value of 1, and then falls rapidly to about 0.8, and stabilizes after a few cycles, indicating that the variable returns to a steady state quickly after being

subjected to its own shocks. In addition, the shock generated by Dlgepu on GDP (Dlgdp) shows a negative effect, and the response value reaches around -0.04 in the second step after the shock, which implies that the increase of global economic policy uncertainty suppresses economic growth in the short term, but this effect gradually fades away, suggesting that the impact of uncertainty on the economy is relatively short-lived, and the positive effect of foreign direct investment (Dlfdi) on GDP (Dlgdp) reaches around -0.8, and stabilizes after a few cycles, indicating that this variable returns to a steady state quickly after being subjected to its own shock. The positive impact of foreign direct investment (Dlfdi) on GDP (Dlgdp) is significant. In the case of an FDI shock, the response of GDP reaches a positive peak of around 0.06 in the second step, suggesting that an increase in FDI can contribute significantly to economic growth in the short run. However, this effect gradually declines to close to zero after a few steps, suggesting that FDI has a short-term stimulating effect on economic growth, but its long-term effect is more limited. Moreover, the shock responses of Dlfdi to interest rates (Dli) and house prices (Dlhp) are insignificant, suggesting that fluctuations in FDI have little impact on domestic interest rates and housing markets. In the model, the self-shock of GDP (Dlgdp) has a particularly strong driving effect on the other variables in the system. GDP shows a strong self-reinforcing effect when subject to its own shocks, and the post-shock response quickly reaches a peak of 0.8 in the initial phase and then gradually declines, but still remains at a relatively high level of around 0.6. This endogenous impulse also has a positive transmission effect on house prices (Dlhp), which rises to about 0.12 in the second step after the shock, indicating that the impetus of economic growth has strengthened the demand of residents to buy houses, which in turn pushes up house prices, while the impact of GDP on the interest rate shows a fading positive effect, with the response of the interest rate in the third step after the shock being about 0.017. 017, indicating that the inflationary pressure from economic growth has pushed up money prices, which in turn has led to a fall in the interest rate. The inflationary pressure from growth causes monetary policy to adjust to control the overheated economy. The interest rate shock (Dli) has a significant negative impact on house prices (Dlhp). The initial shock value of the interest rate on the house price is -0.5, which shows a significant negative response in the initial period, indicating that the increase in the interest rate leads to an increase in the cost of purchasing a house, thus suppressing the house price. Over time, this negative

effect gradually diminishes to zero, suggesting that interest rate changes mainly affect short-term house prices, which are somewhat self-regulating in the long run. Interest rate shocks also have a negative effect on GDP (Dlgdp), with a response value of -0.02 in the second step after the shock, reflecting the fact that rising interest rates dampen investment and consumption, which in turn has a dampening effect on economic growth. However, this effect stabilises after a few steps, indicating that the economic system is able to adjust gradually to changes in interest rates, and the shock to house prices (Dlhp) has a significant positive effect on GDP and interest rates. The impact of house prices on GDP shows a positive initial response of 0.12, indicating that the prosperity of the real estate market has a driving effect on economic growth, especially in the economic system where real estate is a pillar industry, the rise in house prices can promote economic development by driving consumption, increasing investment, etc. The rise in house prices also has a certain driving effect on the interest rate, with an initial impact value of about 0.02, reflecting that the rise in house prices will bring inflationary pressure, the central bank will therefore raise interest rates to regulate the real estate market, the impact of house prices on interest rates is relatively short-lived, indicating that although the rise in house prices will cause short-term monetary policy adjustments, but in the long run the impact of house prices on interest rates is limited. To conclude, this impulse response analysis reveals the complex transmission mechanism of variables in the economic system. The negative impact of global policy uncertainty on GDP is mainly reflected in the short run, while FDI has a positive driving effect on economic growth in the short run. The positive driving effect of GDP shocks on house prices and interest rates is significant, showing that economic growth is the core driving force of the system. The bidirectional relationship between interest rates and house prices reflects the direct regulation of the housing market by monetary policy, with rising interest rates dampening house prices and rising house prices pushing up interest rates.

Response Variable and Forecast Horizon	Dlhp	Dli	Dlgdp	Dlfdi	Dlgepu
			Dlhp		
0	0	0	0	0	0

1	1	0	0	0	0
2	0.891762	0.020787	0.084588	1.84E-07	0.002863
3	0.846083	0.03638	0.110792	0.002426	0.004319
4	0.829424	0.036902	0.120299	0.002901	0.010475
5	0.820703	0.037348	0.12293	0.003244	0.015776
6	0.817074	0.037466	0.123003	0.003359	0.019098
7	0.81584	0.037427	0.122744	0.003383	0.020607
8	0.815475	0.037386	1226584	0.003382	0.021099
9	0.81535	0.037368	0.122707	0.00338	0.021195
10	0.815277	0.037366	0.12278	0.003381	0.021196
		Dli			
0	0	0	0	0	0
1	0.097759	0.902241	0	0	0
2	0.121753	0.866253	0.009193	0.00044	0.002361
3	0.120629	0.858163	0.016931	0.001165	0.003111
4	0.12037	0.854637	0.018545	0.0013	0.005148
5	0.120158	0.853066	0.018935	0.00135	0.006491
6	0.120217	0.852314	0.018949	0.001368	0.007152
7	0.120352	0.851929	0.018948	0.00137	0.007402
8	0.120459	0.851731	0.018977	0.00137	0.007464
9	0.120513	0.851634	0.019013	0.00137	0.00747
10	0.120532	0.85159	0.019038	0.00137	0.00747
		Dlgdp			
0	0	0	0	0	0
1	0.056711	0.134588	0.808701	0	0
2	0.102069	0.163722	0.658125	0.014786	0.061299
3	0.094885	0.150232	0.633174	0.015469	0.10624
4	0.092521	0.14706	0.612621	0.016245	0.131554

5	0.095203	0.144643	0.600772	0.016218	0.143164
6	0.098912	0.143228	0.59519	0.016095	0.146575
7	0.101402	0.142532	0.593138	0.016014	0.146914
8	0.102552	0.142246	0.592578	0.015986	0.146637
9	0.102918	0.142148	0.592468	0.015985	0.146481
10	0.102975	0.142117	0.592434	0.015989	0.146485
		Dlfdi			
0	0	0	0	0	0
1	0.009206	0.013564	0.028599	0.948631	0
2	0.014449	0.015948	0.062231	0.903147	0.004225
3	0.015524	0.01929	0.067219	0.885677	0.012289
4	0.015474	0.019343	0.068555	0.879098	0.017529
5	0.016071	0.019447	0.068433	0.875917	0.020131
6	0.016781	0.01942	0.068334	0.874351	0.021115
7	0.0173	0.019404	0.0684	0.87354	0.021356
8	0.017564	0.019404	0.068518	0.873137	0.021378
9	0.017662	0.01941	0.068605	0.872949	0.021373
10	0.017687	0.019416	0.06865	0.872867	0.021381
		Dlgepu			
0	0	0	0	0	0
1	0.000737	0.000705	0.009425	0.000415	0.988719
2	0.168041	0.012507	0.011267	0.001266	0.80692
3	0.231268	0.011048	0.034089	0.001124	0.722472
4	0.251172	0.012448	0.055336	0.001399	0.679645
5	0.256384	0.013723	0.067725	0.001754	0.660414
6	0.256008	0.014506	0.073354	0.002042	0.654091
7	0.25492	0.014889	0.075155	0.002201	0.652835
8	0.25438	0.015009	0.075462	0.002264	0.652886

9	0.254299	0.015027	0.075419	0.002281	0.652974
10	0.254384	0.015021	0.075388	0.002283	0.652924

As can be seen from the above table, by analyzing the results of variance decomposition, we are able to understand more comprehensively the interactions of each economic variable in the system and its explanatory power. The results of the variance decomposition show that the proportion of variables affected by their own shocks and the shocks of other variables changes significantly at different time steps, reflecting the dynamic influence paths and transmission mechanisms of different variables in the short and long term. First, from the variance decomposition of house prices (Dlhp), changes in house prices are almost entirely explained by their own fluctuations in the initial period, but the explanatory role of other variables, especially GDP (Dlgdp) and interest rates (Dli), gradually increases over time. Over the medium to long term, about 12% of the variance in house prices is explained by shocks to GDP, while the contribution of interest rates amounts to 3.7%. This suggests that economic growth and interest rate policy play a significant role in influencing house prices over the longer term, reflecting the fact that changes in economic conditions and adjustments in interest rate policy can have a lasting impact on the housing market. Economic growth provides the impetus for house price increases, while interest rates act as a monetary policy instrument that plays a restraining role when house prices become overheated. For the interest rate (Dli), its variance is mainly explained by its own volatility in the short run, but the impact of house prices (Dlhp) gradually emerges and the share of house prices in explaining the variance of the interest rate reaches about 12% by step 10. In addition, the impact of GDP gradually increases in the long run, contributing 1.9% to the variance of the interest rate. This suggests that interest rate policy is affected not only by its own inertia, but also by feedback from house prices and economic growth. Rising house prices increase inflationary pressures and thus contribute to higher interest rates, while economic growth indirectly affects interest rates by influencing investment and consumer demand. The results of the variance decomposition of interest rates suggest that monetary policy takes into account changes in the housing market and economic growth in an integrated manner over the medium to long term. In the early stages, the volatility of GDP is mainly determined by its own shocks, but in the medium to long term, interest rates, house prices and global

economic policy uncertainty (Dlgepu) all have a significant impact on its variance. At step 10, GDP itself contributes about 59% of the variance, while interest rates and global policy uncertainty contribute 14% and 15% respectively, i.e. economic growth is not only based on endogenous dynamics but is also influenced by monetary policy and the external environment. Increased global policy uncertainty has a negative impact on GDP by dampening confidence in exports and investment. Interest rates, on the other hand, have an indirect effect on growth by influencing the cost of financing and the propensity to invest. The variance decomposition of foreign direct investment (FDI) shows that it is mainly influenced by GDP, especially in the medium to long term, with GDP explaining around 7% of the variance in FDI. This reflects the key role of economic growth in attracting FDI: in the context of steady economic growth, foreign investors are more likely to invest their capital in the country's market in search of higher returns. The variance of FDI, on the other hand, is largely explained by its own volatility, suggesting some inertia in the evolution of FDI. In addition, the relatively small impact of global policy uncertainty on FDI suggests that changes in the external environment, while affecting global capital flows, have a limited impact on FDI in a single economy. The variance decomposition of global economic policy uncertainty (Dlgepu) shows that it is significantly influenced by house prices and GDP in the medium to long run. At step 10, the contribution of house prices and GDP to the variance of Dlgepu reaches 25% and 7.5% respectively, i.e. domestic economic conditions have a significant impact on the volatility of global economic policy uncertainty. The volatility of house prices has a strong explanatory power for policy uncertainty, which is due to the fact that fluctuations in the real estate market can easily trigger policy adjustments, thus affecting the stability of the economic environment. At the same time, changes in GDP have an indirect effect on global policy uncertainty by influencing economic expectations at home and abroad. The contribution of global economic policy uncertainty to its own variance remains around 65% in the long run, suggesting that its volatility remains strongly self-driven. Taken together, the variance decomposition results reveal a complex interaction between variables. House prices and GDP are important drivers in the system, with significant effects on interest rates and global policy uncertainty. House price volatility not only directly affects investment expectations in the housing market, but also influences interest rate policy by adding to inflationary pressures, while GDP is key to attracting foreign investment and

growth-driven investment demand feeds back into interest rates and FDI.

Empirical results and Findings

The housing market in China has not been significantly affected by the uncertainty of global economic policies.

The analysis indicates that the direct impact of global economic policy uncertainty (GEPU) on housing prices is not statistically significant. This conclusion is supported by the results of the Granger causality test and impulse response analysis, which show that the causal relationship between GEPU and housing prices did not pass the significance threshold. Additionally, the impulse response of housing prices to GEPU shocks was weak and short-lived. These findings suggest that, in the short term, housing prices are primarily driven by domestic factors such as interest rates and GDP, with changes in GEPU having limited direct influence.

However, GEPU may indirectly affect housing prices through its influence on economic growth, investor confidence, and the policy environment. For instance, an increase in GEPU could suppress investor confidence, which in turn may slow economic growth and reduce upward momentum in housing prices. Furthermore, fluctuations in GEPU may lead to policy adjustments that indirectly impact the real estate market. Overall, GEPU's impact on housing prices is more likely to be indirect and latent rather than direct and substantively significant.

This study sheds light on the complex relationship between housing prices and GEPU, as well as their interactions with other macroeconomic variables, using various economic analysis methods. The results demonstrate that housing prices are significantly influenced by interest

rates and GDP, underscoring the critical role of domestic economic growth and monetary policy in shaping the real estate market. Simultaneously, dramatic fluctuations in housing prices increase the frequency of policy interventions, which in turn exacerbates the volatility of GEPU. Although GEPU exerts a significant short-term negative impact on the domestic economy, its long-term fluctuations are more strongly influenced by changes in housing prices and GDP. Housing prices not only drive GEPU through their effect on economic activity but also directly feedback into interest rates, investment, and consumption, highlighting their central role in the economic system.

From a policy perspective, it is essential to enhance the precision of monetary policy regulation in the real estate market to prevent severe fluctuations in housing prices from negatively transmitting to GEPU and economic stability. Promoting balanced regional economic development can help mitigate disparities in housing price distribution. Additionally, the government should strengthen its monitoring of the international economic environment and develop flexible policy tools that respond dynamically to changes in GEPU, thereby minimizing external shocks' impact on the domestic real estate market and economy.

At the enterprise level, firms should pay close attention to the indirect effects of housing price fluctuations on the global economic environment. Diversified investment strategies can help mitigate risks associated with housing price and policy volatility. Companies should also enhance their sensitivity to and adaptability in conditions of international uncertainty, optimizing asset allocation and cross-border business strategies.

At the research level, further exploration of the bidirectional relationship between housing

prices and GEPU is warranted. Expanding data coverage and incorporating nonlinear dynamic models can help uncover deeper interaction mechanisms between the two within the broader economic system.

For policymakers, while the direct impact of GEPU on housing prices is negligible, its indirect effects demand attention. GEPU may influence the real estate market indirectly through its impact on economic growth, investor confidence, and policy adjustments. For instance, rising GEPU could dampen investor confidence, decelerate economic growth, and weaken housing demand. Moreover, GEPU fluctuations might necessitate policy adjustments, increasing uncertainty within the real estate market.

To address these potential risks, the government should focus on enhancing the resilience of the domestic economy. By implementing prudent monetary and fiscal policies, it can bolster the economy's capacity to withstand external shocks, thereby reducing GEPU's indirect impact on housing prices and economic growth. Stabilizing market expectations is equally critical, as clear and transparent policy communication, coupled with timely regulatory adjustments, can strengthen investor confidence and prevent market instability caused by external factors.

Furthermore, the government must closely monitor international economic policy trends and design flexible strategies to address global economic uncertainties. Strengthening forward-looking risk assessments will ensure policy instruments can be swiftly adjusted to mitigate adverse international market effects. By prioritizing domestic economic stability, indirect measures can alleviate the potential impact of external risks on the real estate market,

ultimately safeguarding its long-term health and stability.

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