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THE ROLE OF QUANTITATIVE EASING IN STABILISING THE CHINESE REAL ESTATE MARKET

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Introduction. Amid declining external demand, reduced domestic consumption, and issues with excess production capacity, authorities in several countries, including China, were forced to resort to quantitative easing to support the national economies. Additionally, the potential implications of the current US tariff policy further complicate this matter. Considering the real estate sector's paramount importance to China's economy, it is essential to understand how monetary policy adjustments, particularly quantitative easing, will impact the market.

Aim and tasks. The study aims to analyse the effects of contemporary monetary policy in China on its real estate sector and, consequently, to understand the possible implications for the Chinese economy resulting from this type of monetary policy. This study also explores how market dynamics, property values, and overall investment trends are affected by changes in monetary policy, interest rates, and lending practices.

Results. The analysis reveals that the most significant influences on the average housing price dynamics in China from 2007 to 2023 are the average per capita disposable income of urban residents and the volume of investment in national real estate development projects. These factors explain 98.9% of the variation in housing prices ($R^2 = 0.989$), respectively. Moreover, changes in lending rates have little impact on housing prices. Simultaneously, an increase in household income by one unit is accompanied by an increase in housing prices of 0.151 units ($p < 0.01$) and an increase in real estate investments of 0.010 units ($p < 0.05$). The Durbin–Watson test (1.367) did not reveal autocorrelation. Simultaneously, interest rates, money supply (M2), and the value added by the secondary sector had no statistically significant effect.

Conclusions. The analysis revealed a correlation between increased income levels, rising real estate purchases, and increasing housing prices. Real estate investments directly influence supply capacity and overall market dynamics, and fluctuations in these investments lead to housing price adjustments. Substantial capital inflows into real estate development intensify competition among developers, thereby driving up the prices of land and housing. As changes in interest rate expectations have only a limited impact on the market, the central bank's ability to control housing prices through monetary policy is constrained. Ultimately, income levels are more important than construction costs.

Keywords: Monetary Policy, Real Estate Market, Stepwise Regression, Investment, Quantitative Easing.

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1. Introduction.

Over the past two decades, with the introduction of market-oriented housing commercialisation policies by China's State Council, the nation's urban housing system underwent a transformation (Zhang, 2023). The pivotal 1998 housing monetisation reform marked a decisive change, ending decades of welfare housing allocation and establishing the Housing Provident Fund system nationwide (Dong, 2017; Lu & Wan, 2021). These reforms catalysed the emergence of the commercial housing market, positioning real estate as a key engine of economic growth. Between 2007 and 2023, the average urban housing prices surged from 3,885 yuan to 10,437 yuan. This expansion has contributed to China's economic development by improving living standards, driving fiscal revenue growth, creating jobs, and establishing synergistic industrial linkages, particularly in the construction, manufacturing, finance, and service sectors.

However, sustained price escalation has generated systemic risks. The ratchet effect is now influencing the real estate market, where escalating prices increasingly outpace the affordability of urban residents while creating excessive economic dependence on property markets (Zhang et al., 2023). Historical precedents underscore this danger. The 2008 U.S. subprime mortgage crisis demonstrated the global contagion risks associated with real estate bubbles (van Helten, & Cassis, 2021). For China's second-largest economy, unchecked market volatility could yield consequences, especially since the COVID-19 Pandemic's impacts have already triggered nationwide housing price corrections (Zeng & Yi, 2022).

Amid unsustainable price trends and post-pandemic economic challenges, policymakers have shifted their focus from curbing housing inflation to stabilising the markets (Tan & Chan, 2021). Since 2022, downside risks have intensified amid global inflationary pressures, prompting monetary tightening and a decline in loan rates in China (Ma et al., 2020). This study examines the impact of quantitative easing policies on China's real estate market dynamics to inform risk mitigation strategies for policymakers, investors, and industry stakeholders.

2. Literature Review.

Based on current research, the main factors influencing real estate market price fluctuations are the loan interest rate, money supply, and per capita income of urban residents, investment in real estate development, and the value added of secondary industries.

2.1. The Loan Interest Rate.

Lower interest rates tend to support higher housing prices, as lower borrowing costs increase the purchasing power and demand in the housing market. Central banks commonly use quantitative easing policies to regulate long-term interest rates internationally. According to Miles and Monro (2021), the sharp decline in real risk-free interest rates between 1985 and 2018 was one of the factors driving the rise in UK housing prices relative to household income. Similarly, Hoesli and Malle (2022) argue that the prevailing low-interest policy has safeguarded housing prices from the adverse effects.

According to Garriga et al. (2023), following the 2008 global financial crisis, argue that housing prices were primarily affected by the loose monetary policies adopted by various economies. Amaral et al. (2024) proposed that a uniform decline in real risk-free interest rates may have heterogeneous spatial impacts on home values, disproportionately boosting prices in regions with lower initial rent price ratios. Januário and Cruz (2023) confirmed that post-2008 financial crisis GDP growth and low interest rates had a positive impact on real estate prices. Howard and Liebersohn (2023) have shown how the housing price volatility is further amplified by the low interest rates.

Therefore, the described body of work defines the loan interest rate as the deciding factor in the real estate price fluctuations. In China, the relationship between loan interest rates and real estate prices is shaped by unique policy interventions. Zhao (2020) argues that homeowners, who are typically affluent and have steady incomes, may benefit more from low-interest rates and increasing housing prices.

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Yiu (2023) examined the use of these two global interest rate shocks as quasi-experiments to investigate the impact and causality of monetary policy (utilising the real interest rate as an agent) on housing prices.

2.2. The M2 Money Supply.

An increase in the M2 money supply often leads to higher property prices, as more money flowing into the market drives up asset prices, including property.

Usually closely correlated with changes in housing prices, the M2 money supply is considered a critical macroeconomic factor affecting them (Bahmani-Oskooee et al., 2023), as well as the most effective macroeconomic tool in impacting them (Akpolat, 2024). Interestingly, a change in the US money supply is followed by fluctuations not only in the respective American market but also globally, including China (Zhan et al., 2023). An increase in domestic M2 money supply yielded a positive response from the Chinese real estate market (Yang et al., 2022). Therefore, one can assume that money supply and real estate prices are positively correlated.

2.3 The Per Capita Disposable Income of Urban Residents.

Increasing the per capita disposable income of urban residents enhances their ability to purchase real estate, which in turn positively influences demand and drives up housing prices. This suggests a direct impact.

Pennington (2021) noted that demographic shifts, namely, the increased influx of newcomers possessing relatively high incomes, contribute to the rise in housing prices. Moreover, this effect is observable across various regions and holds on a global scale. The strong association between increasing income levels and rising real estate prices was further studied by Yang and Pan (2020). A multiple linear analysis of housing prices and income levels in China conducted by Zhang (2020) found a strong positive correlation between the two. Furthermore, Chinese real estate prices appear to be significantly affected by GDP and the urban consumer price index (Li et al., 2022).

In recent decades, Chinese housing prices have been affected by a significant increase in the population's disposable income levels, resulting from rapid economic growth and subsequent urbanisation. Furthermore, improvements in public services, such as infrastructure and transportation, tend to increase housing prices due to the increased perceived value of the location, which causes rising demand. According to Gan et al. (2021), this impact varies with income fluctuations, exhibiting an inverted U-shaped relationship.

2.4. The Secondary Industry Value-Added.

According to the theory of economic growth and income effect, the secondary industry is the key driving force of economic development. Manufacturing and construction developments create jobs, higher income levels, and increased purchasing power, and increased demand could drive prices higher. The rising costs of building materials, such as steel and cement, have further increased property development costs, resulting in higher housing prices. Additionally, the development of public facilities has enhanced the quality of life, attracted more homebuyers, and further increased demand in the real estate market.

Internationally, the secondary industry, which encompasses manufacturing, public services, and construction, plays a significant role in shaping real estate markets. Al Obaid (2020) found that industrialisation has had a positive impact on the housing demand in Turkey. Shibani et al. (2020) found that the decline in the construction industry has also led to a decline in housing marketing and lower housing prices.

While the real estate and construction sectors have been significant drivers of China's economy, the value-added of the secondary industry did not directly shape the real estate market; instead, the real estate and construction sectors, which are heavily reliant on manufacturing (part of the secondary industry), are closely linked through input-output linkages and the supply of materials for construction projects.

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The value added from the secondary industry, which involves manufacturing and assembly, indirectly contributes to the real estate market by supplying the materials and goods needed for construction.

Simultaneously, Yin et al. (2022) posited a high interconnection between industrial output and real estate prices. Their study examined the impact of increased housing prices on resource allocation and industrial value chain upgrading. This impact is negative, but not uniform in its effects. According to Zhao et al. (2021), the spatial inequality of the Chinese real estate market is especially affected by the nation's GDP, government expenditure, fiscal policy, and secondary industry. The current interplay between industrial output and housing prices in China underscores the unique characteristics of the real estate market. Jiuwen et al. (2024) proposed that the positive externalities of concentrated production and rationalisation of government public service expenditure play an important role in stabilising the housing market. Yu et al. (2023) found that the improvement of public facilities greatly increases the value of surrounding real estate.

2.5. The Investment Scale of Real Estate Development.

Large-scale investments in real estate development often drive up housing prices. This occurs as regional values rise, infrastructure improves, and demand is stimulated, all of which contribute to higher prices.

Globally, the scale of real estate development investment is a key driver of housing price growth. Kohl (2021) noted a growing trend of treating housing as an investment asset, which has resulted in greater financialisation of the housing market and, subsequently, rising prices. Ma et al. (2020) argued that increased investment in real estate development directly contributes to the rise in housing prices. These studies emphasise the role of investment in shaping global real estate markets.

In China, the significant scale of real estate development investment has been a major factor in driving up housing prices. Qian et al. (2021) believe that more real estate investment will lead to higher house prices.

Cai et al. (2020) observed that rising house prices led to increased demand for housing loans, with banks playing a crucial role in facilitating home purchases. This dynamic reflects the unique financialisaton of China's housing market and its impact on real estate prices.

2.6. Hypotheses.

A literature review suggests that interest rates, money supply, income levels, investment, and industrial output are the primary factors influencing housing prices.

At the same time, China's real estate market is further influenced by unique policy intervention, rapid urbanisation, and financialisation. Therefore, based on the above, the following hypotheses are being used as the base for analysis:

H1: The loan interest rate is negatively correlated with real estate prices.

H2: The M2 money supply is positively correlated with real estate prices.

H3: The per capita disposable income of urban residents is positively correlated with real estate prices.

H4: The secondary industry value added is positively correlated with real estate prices.

H5: The investment scale of real estate development is positively correlated with real estate prices.

3. Methodology.

3.1. Data and Model.

This study used data from the National Bureau of Statistics of China, spanning 2007 to 2023. The data include the central bank loan interest rate (for more than five years), M2 money supply, national urban residents' per capita disposable income, value added of secondary industries, real estate development investments, and other related data. Assuming that the central bank's loan interest rate is X_1, M2 money supply is X_2, national urban residents' per capita disposable income is X3, added value of the secondary industry is X_4, and national real estate development investment is X_5. A descriptive statistical analysis of the above-mentioned variables is presented in Table 1 below.

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A multiple linear regression model was constructed as follows:

$$Y = \beta_0 + \beta_i X_i + e \quad (1)$$

where Y is the national average house price, X_i is the factor affecting the national average house price, i is the number of explanatory variables, β is the regression coefficient, and e represents the error term.

3.2. Data Processing.

In this study, the relationship between the explanatory and explained variables was initially examined using a linear scatter plot, as illustrated in Figure 1.

Multiple linear regression analysis and heteroscedasticity tests were then performed. As shown in Table 2, R^2 values close to 1 indicate a strong fit of the model.

Table 1. Descriptive Statistical Analysis Table of the Variables.

Variable Quantity	National average house price	Loan interest rate	M2 Money Supply	Per-capita disposable income	Added value of the secondary industry	National real estate development investment
Average	7151	5.73%	1408166.75	31987.45	299609.42	90538.59
Median	6793	5.65%	1324511.12	31790.3	281338.9	95978.85
Maximum	10437	7.49%	2845576.92	51821	483164	147602
Minimum	3806	4.24%	379226.81	13785.8	126630.5	21203.19
Standard Deviation	2187.24	0.90%	736023	11946.73	109259.3	39285.87
Observed Value	17	17	17	17	17	17

Source: based on National Bureau of Statistics of China (2007-2023).

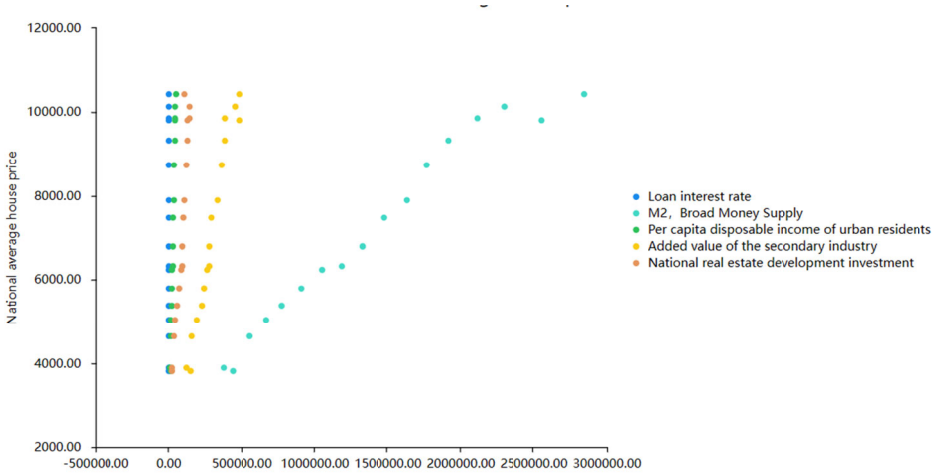

Fig. 1. The Scatter Plot of the Explanatory Variables and the Interpreted Variables, 2007-2023.

The regression results indicate a significant linear relationship between the national average house price and the explanatory variables (p-value = 0.000 < α = 0.05). The coefficients for the loan interest rate, M2 money supply, urban residents' per capita disposable income, secondary industry value added, and national real estate development investment were 0.831, 0.509, 0.436, 0.295, and 0.158, exceeding significance level of α=0.05.

The coefficients failed t-test, indicating multicollinearity in the explanatory variables.

According to Table 3, two methods, the White test and the Breusch-Pagan test, were employed to test for heteroscedasticity. To ensure validity, the multicollinearity problem between the five selected independent variables should be reduced from the model, and some relevant independent variables should be removed.

Table 2. Results of the Multiple Linear Regression Analysis.

	B	***SE***	***t***	***p***	***95% CI***
Constant	2574.249	1838.436	1.400	0.189	-1029.019 ~ 6177.517
Loan interest rate	-4853.731	22194.629	-0.219	0.831	-48354.404 ~ 38646.942
M2 Money Supply	0.001	0.002	0.683	0.509	-0.002 ~ 0.005
Per-capita disposable income	0.108	0.134	0.808	0.436	-0.155 ~ 0.372
Added value of the secondary industry	-0.006	0.005	-1.100	0.295	-0.016 ~ 0.004
National real estate development investment	0.015	0.010	1.516	0.158	-0.004 ~ 0.035
R^2	0.990				
Adjusted R^2	0.986				
F	$F(5,11) = 220.196$, $p = 0.000$				
D-W	1.049				

Dependent variable National average house price
**p<0.05 **p<0.01*

Table 3. Results of The Heteroscedasticity Test.

White Test		**Breusch-Pagan Test**	
$\chi 2$	p	$\chi 2$	p
17.000	0.386	3.192	0.670

The results of the correlation coefficient matrix between the variables are shown in Table 4. The null hypothesis for the tests is that the model does not exhibit heteroscedasticity. The table shows that both tests accept the null hypothesis ($p > 0.05$), indicating that the model does not suffer from heteroscedasticity issues. This strengthens the validity of the multiple linear regression results, indicating that the t-values and p-values are reliable and can accurately reflect the statistical significance of the coefficients.

Table 4. The Pearson Correlation Matrix.

	National average house price	**M2 Money Supply**	**Loan interest rate**	**Per-capita disposable income**	**Added value of the secondary industry**	**National real estate development investment**
National average house price	1					
M2 Money Supply	0.981**	1				
Loan interest rate	-0.935**	-0.940**	1			
Per capita disposable income of urban residents	0.992**	0.994**	-0.938**	1		
Added value of the secondary industry	0.979**	0.990**	-0.924**	0.992**	1	
National real estate development investment	0.951**	0.897**	-0.865**	0.936**	0.921**	1

**p*<0.05 ***p*<0.01

Table 4 presents a strong correlation between Y and X_1, X_2, X_3, X_4, *and* X_5. By separate simple regression analysis of Y with X_1, X_2, X_3, X_4, and X_5.

The results of the analysis are shown in Table 5 – Table 9.

As shown in the Table 5, the model formula is $Y = 20136.966\text{-}226817.440X_1$.

Table 5. Results of Linear Regression Analysis between Y and X_1.

	B	**SE**	***Beta***	**t**	**p**	**VIF**	**Tolerance**
Constant	20136.966	1292.460	-	15.580	0.000**	-	-
X_1	-226817.440	22299.998	-0.935	-10.171	0.000**	1.000	1.000
R^2			0.873				
Adjusted R^2			0.865				
F			F (1,15) =103.453, p=0.000				
D-W			1.186				

Dependent variable: National average house price.

*p<0.05 **p<0.01

The model's R^2 value is 0.873, indicating that the loan interest rate can explain 87.3% of the variation in the national average housing price. The model passed the F-test (F = 103.453, p < 0.05), indicating that the loan interest rate will likely impact the national average housing prices.

Moreover, the final specific analysis shows that the regression coefficient value of the loan interest rate is -226817.440 (t = -10.171, p =0.000 <0.01), which means that the loan interest rate will significantly and negatively impact the national average housing price.

Table 6. Results of Linear Regression Analysis between Y and X_2.

	B	***SE***	***Beta***	***t***	***p***	***VIF***	**Tolerance**
Constant	3045.607	236.166	-	12.896	0.000**	-	-
X2	0.003	0.000	0.981	19.615	0.000**	1.000	1.000
R^2			0.962				
Adjusted R^2			0.960				
F			F (1,15) =384.741, p=0.000				
D-W			0.644				

Dependent variable: National average house price.

*p<0.05 **p<0.01

Table 6 presents the M2 money supply as the independent variable and the national average housing price as the dependent variable for the linear regression analysis. The model formula is: $Y = 3045.607 + 0.003X_2$, and the R^2 value is 0.962. This means that the M2 money supply can explain 96.2% of the changes in the national average housing price.

The F-test results (F = 384.741, p < 0.05) indicate that the M2 money supply will impact the national average housing price. In the final specific analysis, the regression coefficient for the M2 money supply was 0.003 (t = 19.615, p < 0.01), indicating that the M2 money supply has a significant and positive impact on the national average housing price.

Table 7. Results of Linear Regression Analysis of Y and X_3.

	B	**SE**	***Beta***	**t**	**p**	**VIF**	**Tolerance**
Constant	1340.056	200.634	-	6.679	0.000**	-	-
X3	0.182	0.006	0.992	30.917	0.000**	1.000	1.000
R^2			0.985				
Adjusted R^2			0.984				
F			*F* (1,15) =955.858, *p*=0.000				
D-W			1.236				

Dependent variable: National average house price.

*p<0.05 **p<0.01

Table 7 depicts urban residents' per capita disposable income as the independent variable for the national average housing price as the dependent variable. In the table above, the model formula is: $Y = 1340.056 + 0.182X_3$. The model's R^2 value is 0.985, indicating that 98.5% of the variation in the national average housing price change can be explained by the per-capita disposable income of urban residents.

Both the F-test of the model ($F = 955.858$, $p < 0.05$) and the p-value indicate that the model is statistically significant. The final analysis reveals that the regression coefficient for the per capita disposable income of urban residents is 0.182 ($t = 30.917$, $p < 0.01$), indicating a significant and positive influence on the national average housing price.

Table 8 shows the value added of the secondary industry used as the predictor variable and the average housing price as the outcome variable in the regression analysis. The model formula is $Y = 1277.519 + 0.020X_4$, and the R^2 value of the model is 0.959. This means that the value added by the secondary industry can explain 95.9% of the national average change in housing prices, as shown in the table above. The model successfully passed the F-test ($F = 350.536$, $p < 0.05$), indicating that the secondary industry's value-added impacts the national average housing price. Analysis shows (regression coefficient 0.020, $t = 18.723$, $p < 0.01$) that the secondary industry's value added will have a significant positive effects on the national average housing price.

Table 8. Results of Linear Regression Analysis between Y and X_4.

	B	**SE**	***Beta***	**t**	**p**	**VIF**	**Tolerance**
Constant	1277.519	333.919	-	3.826	0.002**	-	-
X4	0.020	0.001	0.979	18.723	0.000**	1.000	1.000
R^2			0.959				
Adjusted R^2			0.956				
F			*F* (1,15) =350.536, *p*=0.000				
D-W			1.223				

Dependent variable: National average house price.

*p<0.05 **p<0.01

As shown in Table 9, the national real estate development investment is used as the independent variable, and the national average housing price is the dependent variable for the linear regression analysis.

The model is $Y = 2355.600 + 0.053X_5$, and its R^2 value is 0.905, indicating that national real estate development investment can explain 90.5% of the variation in the national average housing price change.

The model also passed the F-test ($F = 142.898$, $p < 0.05$), suggesting that national real estate development investment affects the national average housing price.

Finally, shows that the regression coefficient of 0.053 ($t = 11.954$, $p < 0.001$) predicts a significant positive impact on the national average housing price.

Table 9. Results of Linear Regression Analysis between Y and X_5.

	B	**SE**	***Beta***	**t**	**p**	**VIF**	**Tolerance**
Constant	2355.600	437.291	-	5.387	0.000**	-	-
X5	0.053	0.004	0.951	11.954	0.000**	1.000	1.000
R^2				0.905			
Adjusted R^2				0.899			
F				F (1,15) =142.898, p=0.000			
D-W				0.552			

Dependent variable: National average house price.
*p<0.05 **p<0.01

The data presented in Tables 5-9 demonstrates the impact of several key variables on the national average house prices, which are regarded as independent variables in the one-by-one analysis. This study uses the stepwise regression method to determine the optimal regression equation using the national average house price as the dependent variable and X_1-X_5 as the independent variables.

Stepwise regression is a technique that specifies variables, gradually selecting the most relevant independent variables through forward selection and backward elimination (Table 10). This method can help reduce multicollinearity. The adjusted R^2 accounts for the number of variables in the model. If the adjusted R^2 is significantly lower than R^2, it may imply overfitting to the data.

Table 10. Results of the Stepwise Regression Analysis.

	B	**SE**	***Beta***	**t**	**p**	**VIF**	**Tolerance**
Constant	1419.805	182.525	-	7.779	0.000**	-	-
Per-capita disposable income	0.151	0.015	0.824	10.099	0.000**	8.124	0.123
National real estate development investment	0.010	0.005	0.180	2.206	0.045*	8.124	0.123
R^2				0.989			
Adjusted R^2				0.987			
F				F (2,14) =603.491, p=0.000			
D-W				1.367			

Dependent variable: National average house price.
*p<0.05 **p<0.01

As shown in Table 10, the adjusted R^2=0.987 is close to R^2=0.989; therefore, the model is not overfitted.

Following the model analysis, to identify statistically significant independent variables and address issues of multicollinearity, the stepwise regression method was employed.

The model focuses on two key factors: the per capita disposable income of urban residents and investments in real estate development. With an R^2 value of 0.989, these variables can explain 98.9% of the variance in the national average prices. The model passed the F-test ($F = 603.491$, $p < 0.05$), indicating its validity.

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The final analysis shows the following:

- The regression coefficient value for urban residents' per capita disposable income was 0.151 (t = 10.099, p < 0.01). This suggests that the per capita disposable income of urban residents has a significant impact on the national average housing price.

- The regression coefficient value for national real estate development investment is 0.010 (t = 2.206, p = 0.045 <0.05), indicating a significant impact on the national average housing price.

The summary analysis reveals that both the per capita disposable income of urban residents and national real estate development investment are expected to substantially and positively influence the national average housing price.

4. Results.

A multiple linear regression equation was developed that relates the national average housing price (Y) to the per capita disposable income of urban residents (X_3) and the national real estate development investment (X_5). The multiple linear regression equation is as follows $Y=1419.805 + 0.151X_3 + 0.010X_5$.

4.1. The Goodness-of-Fit Degree.

In the model discussed above, the coefficient R^2 = 0.989. After adjusting for the sample size of 17 and the number of independent variables of 2, the corrected coefficient R^2 = 0.987 is obtained. This means that the national average housing price (Y) can be explained by the multiple regression equation, which includes the per capita disposable income of urban residents (X_3), and the national real estate development investment (X_5). The estimated standard error is 182.585, indicating that the national average housing price varies based on X_3 and national real estate development investment X_5, with a corresponding average forecast error.

4.2. Significance Analysis.

Table 10 presents the results of the stepwise regression analysis. Both β_1 and β_2 have p-values below 0.05, leading to the rejection of the null hypothesis and confirming the test's success.

The relationships between the variables were examined to address potential multicollinearity issues. Excluding the five-year loan interest rate (X_1), M_2 money supply (X_2), and added value of the secondary industry (X4), a significant relationship was observed between national average housing prices (Y), urban residents' per capita disposable income (X_3), and national real estate development investment (X_5).

The regression results show a Durbin-Watson (D-W) statistic of 1.367, which falls below the 5% significance level and within the range of 1.02-1.54 for a sample size of 17, indicating no significant first-order autocorrelation. Thus, the model exhibited no sequential correlation.

Thus, it can be concluded that the disposable income per urban resident has the most significant impact on housing prices (a one-unit rise in disposable income per urban resident results in a 0.151-unit increase in housing prices), closely followed by the level of investment in national real estate development.

In contrast, for the Chinese real estate market during the analysed period, interest rates, M_2 money supply, and secondary industry value added, contrary to conventional economic understanding, did not have a relevant impact on housing prices.

5. Discussion.

The results of this study show that quantitative easing and broader monetary expansion have only a limited effect on the Chinese housing market. While the regression results suggest a certain association between liquidity growth and movements in the housing variable, these relationships are neither strong nor consistent.

This pattern contrasts with typical observations in advanced economies, such as the United States and Japan, where quantitative easing operates more directly through interest rates, asset prices, and market expectations. To understand this divergence, it is necessary to situate the findings within the structural characteristics of China's financial system and the institutional constraints that shape the behaviour of both lenders and property developers.

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A central issue limiting the potency of quantitative easing in China is the strong role of the state in directing credit. Although China's financial sector has become more market-oriented over time, major banks remain state-owned and respond to policy guidance rather than solely to market signals. As a result, when the central bank injects liquidity, it does not automatically feed into areas such as household mortgages or those of private developers. Instead, much of it is channelled towards projects and sectors that align with government priorities. This means that the usual channels through which quantitative easing works elsewhere, cheaper credit, more risk-taking, and greater access to finance, are much weaker in China's property sector, which helps explain why the empirical effects in this study are fairly muted.

Moral hazard and implicit guarantees also play major roles. For many years, both lenders and borrowers assumed that the government would backstop major financial institutions and large developers in the event of financial difficulties. These expectations suppress risk awareness. When market participants believe that the state will intervene if necessary, changes in interest rates or liquidity conditions tend to matter significantly less in their decision-making. This helps explain the weak statistical relationship found in this study. If people respond more to perceived political guarantees than to monetary conditions, then quantitative easing has less room to influence property outcomes.

The third factor is the dependence of local governments on land-sale revenues. Land finance has become essential for funding local public spending, creating incentives that often counter national monetary signals. When liquidity is tight, local governments may restrict the supply of land to maintain prices; when liquidity is loose, they might sell more land to boost their budgets.

This sort of behaviour can easily overshadow the impact of quantitative easing on developers' costs or households' borrowing conditions. This also means that the property market is shaped as much by local fiscal strategy as by monetary policy, which again fits with the findings of this study.

Finally, China's captive banking system limits the practical application of quantitative easing. With few alternative investment options, households tend to keep their savings in banks, and banks themselves face constraints on where they can invest. This setup restricts the type of portfolio shifts and risk-taking behaviour that quantitative easing is intended to encourage. In a system where banks continue to lend primarily to low-risk or government-guided sectors and households have limited freedom to move their money elsewhere, additional liquidity does not automatically translate into greater demand for property or developer financing.

Taken together, these structural features provide a coherent explanation for why the empirical analysis finds only a modest link between quantitative easing and housing market outcomes. The structure of the Chinese financial system and the incentives it embodies limit the influence of monetary policy compared to that in more liberalised economies. Factors such as credit allocation, local government behaviour, and risk perceptions tied to state support weaken the pathways through which quantitative easing typically operates. Therefore, the lacklustre outcomes are not surprising; they reflect an institutional environment in which administrative controls and fiscal objectives often take precedence over monetary conditions.

This discussion clarifies the empirical findings but also suggests that future research should consider institutional variables (land supply behaviour, credit quotas, and regulatory interventions) to gain a more comprehensive understanding of the mechanisms affecting China's real estate market.

6. Conclusions.

The conducted analysis shows that, for the Chinese real estate market during the analysed period, the dominant drivers of housing prices, contrary to common economic understanding, were changes in residents' income and fluctuations in real estate investment. The former directly impacts effective demand and the latter directly affects supply capacity.

Notably, as interest rate expectations have shown little to no impact, the central bank's monetary policy has demonstrated limited effectiveness in controlling housing prices.

Moreover, income levels drive housing prices more than development costs. Therefore, policymakers should prioritise supporting income growth to ensure the stable and sustainable development of the real estate market. Since a surge in property development investment creates competition, pushing prices higher and making it challenging for central banks to regulate them through interest rate policies, macro-control policies should focus on managing real estate investment to balance the housing supply and prevent price fluctuations.

Furthermore, raising the cost of speculation through tax policies to curb speculative behaviour in the real estate market has proven effective. In Singapore, speculation was reduced by buyer stamp duties (ABSD) on foreign buyers and owners of multiple properties. Similarly, in Hong Kong, a special stamp duty (SSD) of up to 20% is imposed on short-term property resales, while Canada imposes a 20% property transfer tax on foreign buyers. These measures have proven effective in promoting healthier market development. The effectiveness of real estate market regulation hinges on balanced macro-control strategies, cautious monetary policies, and prudent deployment of quantitative monetary measures.

Risk management and careful consideration of potential adverse effects are essential for ensuring the stable growth of the real estate market. Strategic government action in addressing strong housing demand, along with infrastructure development, provides robust support for sustained economic growth. In conclusion, monetary policy must be carefully developed and implemented to achieve its objectives.

The current economic situation calls for a set of policies to be put in place:

1. To manage housing demand, purchase restrictions should be lifted, mortgage interest rates lowered, and reasonable housing needs met.

2. To mitigate risks, banks should curb their exposure to real estate and adjust development loans.

3. Various fiscal measures are taken to discourage speculation.

4. To promote a reasonable return on housing prices, the reform of China's real estate industry should optimise its development structure and growth model. As part of this reform, excess profits from real estate investments will be gradually reduced, resulting in more effective control of the idle funds.

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