

# Does US Dollar Supply Trigger House Price Fluctuations? An International Comparison

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**Abstract:** Cyclical fluctuations in asset prices are closely related to the overall stability of the macroeconomy and have thus become a significant topic in academic and professional exploration. Among these fluctuations, changes in the supply of the U.S. dollar, the global reserve, and primary settlement currency have a broad and far-reaching impact on international financial markets. Since COVID-19, asset prices across various countries have shown differing trends due to fluctuations in the U.S. dollar supply. Housing prices, a key focus in asset pricing research, have been affected to varying degrees. This thesis utilizes seven house price indices from representative cities worldwide from 2020 to 2023 to compare the differential impacts across various countries using an empirical approach. The results indicate that the impact of the U.S. dollar money supply (M2) diminishes in a gradient from the U.S. to East Asia, and then to Europe.

**Keywords:** Dollar supply; Quantitative easing; Property prices; International comparisons

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## 1. Research context

Cyclical fluctuations in asset prices have profound implications for economic stability, investment decisions, financial market conditions, business operations, social wealth effects, risk management, and policymaking. Studies on asset price volatility contribute to effective economic policy formulation, optimization of investment strategies, management of financial risks, and the overall stability and health of market development. Thus, asset price volatility has consistently been a key focus for both academics and practitioners<sup>[1]</sup>.

In 2020, facing the potential regression of the U.S. economy due to the COVID-19 outbreak, the Federal Reserve implemented two interest rate cuts, reducing the emergency rate to zero in March and encouraging residents to make asset purchases based on their ‘actual needs’. The U.S. then resumed its “quantitative easing (QE)” program, removing limits on purchasing U.S. Treasury bonds and mortgage-backed securities, and enacted a series of emergency lending arrangements to support the market. Within three weeks, the Fed’s balance sheet expanded to \$5.8 trillion, reflecting a \$1.5 trillion increase in money supply.

Following the U.S. QE program, central banks worldwide took similar actions, increasing their money supply, which triggered a ripple effect in global financial markets. For instance, the European Central Bank (ECB), the Bank of England (BoE), and the Reserve Bank of Australia (RBA) implemented their own easing measures. The ECB launched the Pandemic Emergency Purchase Programme (PEPP) of EUR 750 billion in March, later expanding it to EUR 1.35 trillion and extending it to at least June 2021. The BoE aggressively cut its benchmark interest rate to a historic low of 0.1% and expanded its asset purchase program. The RBA also reduced its cash rate to a record low of 0.1%, initiated a government bond-buying program, and committed to purchasing national and state government bonds, targeting a 0.1% yield on three-year government bonds.

By 2022 and 2023, the interest rate cuts and unlimited QE led to high inflation in the U.S. In response, in March 2022, the Federal Reserve raised its benchmark interest rate by 25 basis points to a range of 0.25% - 0.5%. This was the first rate hike since December 2018, marking the start of an interest rate increase phase. Over the following 18 months, the Fed raised interest rates 11 times, culminating in the highest rates in 22 years, with a cumulative increase of 525 basis points. The pace of rate hikes accelerated, with consecutive 75 basis point increases occurring four times, marking the fastest rise in nearly 40 years. As a result, real estate gains began to decline, and inflation was brought under control.

In the cyclical flow of U.S. dollar supply, global capital markets have exhibited corresponding cyclical effects. However, housing prices are geographically specific and influenced by regional market dynamics and policies, leading to significant variability in price volatility across the globe. This study addresses these issues by examining regional differences in house prices using empirical data and methods, exploring the reasons behind these variations.

## 2. Literature review

The influence of the U.S. dollar is like a tidal wave, capable of bringing prosperity as well as triggering crises. From Argentina's currency turmoil to Turkey's economic instability, each case vividly demonstrates the power of U.S. dollar supply volatility. This study focuses on real estate as an asset class, and by analyzing the changes in house prices in major cities around the world, it explores the differences in market performance across countries and the reasons for such variations. Indeed, financial cycles have a significant impact on property prices. In analyzing real estate prices, Lan <sup>[2]</sup> found that economic policy uncertainty has a significant and time-varying impact on financial cycles and real estate prices. Such financial cycle shocks positively affect house prices in the short term. Additionally, empirical studies show that the cyclical fluctuations of the U.S. dollar have a significant impact on the domestic U.S. market. For example, in analyzing the economic impact of the QE4 policy in the U.S., Zhu *et al.* <sup>[3]</sup> pointed out that QE4 increased U.S. GDP, social welfare, residents' income, consumer spending, and net returns on capital, and improved the terms of trade. Similarly, Xu <sup>[4]</sup>, in discussing the QE4 policy in the United States, mentioned that the Federal Reserve implemented quantitative easing, which could stabilize the financial market in the short term, promote a bear market rebound, and support economic recovery, with house prices positively correlated.

In studies of the impact of the U.S. dollar cycle, scholars have also found that global capital prices follow the flow of U.S. dollar inflows. Liu <sup>[5]</sup> pointed out that volatility in the international financial market has increased under the influence of the U.S. dollar. Liang <sup>[6]</sup> noted that since 2023, as the U.S. dollar index experienced fluctuations of decline and then rise, the yen as a whole showed a depreciation trend. However, in

China, the impact has been much smaller. Tao *et al.* [7] studied the effect of U.S. quantitative easing on China's price levels and pointed out that the impact of U.S. QE this time was less pronounced due to the timely and prudent measures taken by the Chinese government. Ye *et al.* [8] found that despite the strength of the QE4 policy, its impact on China's macroeconomy was smaller than during the QE3 and QE2 periods.

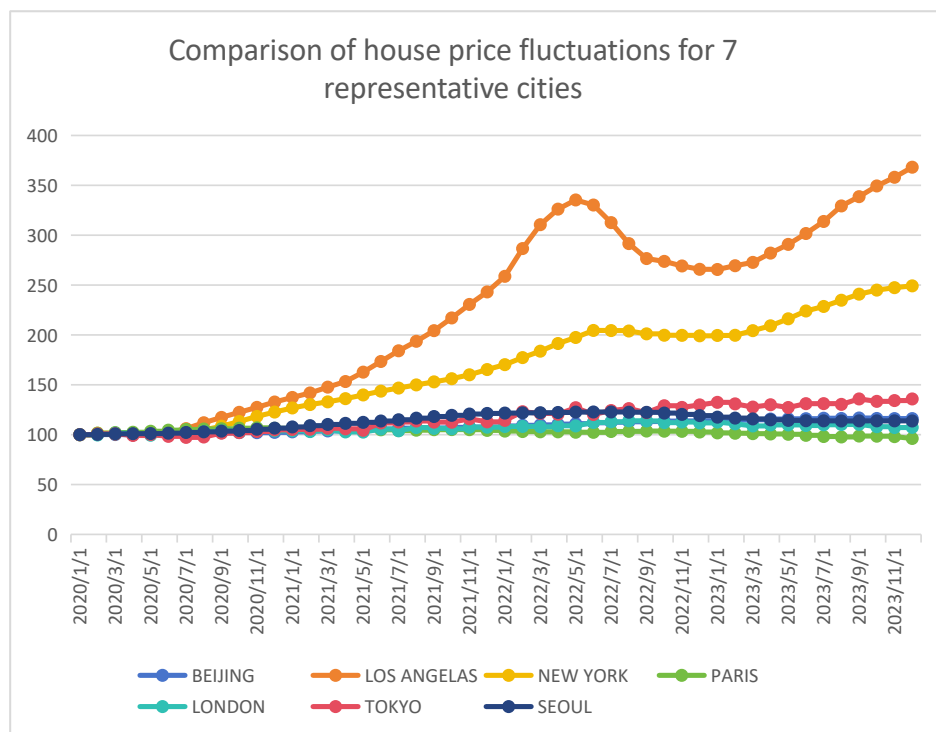
Does this difference exist in the housing market? This paper attempts to answer this question through empirical studies.

### 3. Research data

#### 3.1. Description of the research data

To study the impact of U.S. dollar supply circulation on different regions around the world, this paper utilizes monthly data from January 2020 to December 2023, obtained from the official websites of governments and research institutes in each country. The representative U.S. cities selected for this study are Los Angeles and New York. For East Asia, Tokyo, Seoul, and Beijing were chosen, and for comparison, London and Paris were included to represent European countries.

In addition, recognizing that China has tighter regulations on foreign currency flows, Beijing is distinguished from Tokyo and Seoul, as the housing market in mainland China is believed to be somewhat independent of the international market. In this study, the data for these seven cities are monthly property price increases on a month-on-month basis. For ease of comparison, the house price indices of the seven cities were normalized to 100 as of January 2020, and the monthly data was converted into continuous house price indexes, thus removing differences due to unit magnitude. **Figure 1** shows the house price fluctuations for the seven cities.



**Figure 1.** Comparison of house price fluctuations for 7 representative cities

As **Figure 1** illustrates, since the QE was launched in March 2020, housing price increases were observed in Los Angeles and New York, with this trend continuing until March 2022, when the U.S. Federal Reserve began raising interest rates. Afterward, property prices began to decline. From late 2022 to early 2023, as governments gradually lifted epidemic control restrictions, housing prices recovered as U.S. dollars flowed back into the domestic market in the U.S. This pattern reflects the housing price fluctuations in the two selected U.S. cities.

On the other hand, a visual comparison of the data shows that the real estate market trends in Tokyo and Seoul are largely consistent with those of the two U.S. cities, with a rise before 2022, followed by a decline and a rebound after January 2023. In contrast, property price fluctuations in the three cities in China and Europe are much smoother. Overall, prices in these regions have been on a downward trend.

## 4. Empirical analyses

### 4.1. Modelling

The following linear regression model was developed to compare the impact of U.S. dollar supply on property prices in different countries:

Here,  $y_i$  represents the real estate price index for major cities globally, with  $i = 1, 2, \dots, 7$  indicating the seven cities selected for the study.  $M2$  is the broad money supply in the United States, serving as an indicator of the U.S. dollar supply.  $k_0$  is a constant term, and  $k_1$  is the coefficient representing the influence of U.S. dollar supply, measured in billions of U.S. dollars per unit increase.

### 4.2. Data results

Using the above data, Eviews was employed to conduct a linear regression analysis to estimate the parameters for the impact of U.S. dollar supply on housing price fluctuations in the seven selected cities. The results are shown in the table below:

Cities	$k_0$	$k_1$	$t$ value for $k_1$	$P$ value for $k_1$
Metropolitan Territory of the United States				
Los Angeles	-620.5269	0.0410	8.945745	0.0000
New York	-259.9106	0.0211	7.599996	0.0000
East Asia (non-China)				
Tokyo	6.006860	0.0054	7.185068	0.0000
Seoul	29.37579	0.0041	17.64000	0.0000
Chinese city				
Beijing	55.51005	0.0026	7.719388	0.0000
European cities				
London	65.92127	0.0020	9.789195	0.0000
Paris	106.8914	-0.000197	-0.857511	0.3956

As the empirical results show, the values of  $k_i$  indicate the impact of U.S. dollar supply on house prices in each city. The two U.S. cities have the largest  $k_i$  values, with  $k_i = 0.0410$  for Los Angeles, implying that a \$1 trillion increase in U.S. dollar supply induces an increase of 0.0410 in the house price index. For New York,  $k_i = 0.0211$ , indicating that a \$1 trillion increase in U.S. dollar supply raises the house price index by 0.0211. Both impacts are significant at the 99% confidence level, as evidenced by the  $t$ -values and  $P$ -values.

Although the impact is not large in magnitude, a cross-sectional comparison shows that the effect of U.S. dollar supply on house prices follows a decreasing gradient globally: U.S. mainland > East Asian open cities > Mainland China > European cities.

### **4.3. Analysis of local variations in impact**

During the COVID-19 pandemic, to prevent a market recession, the Federal Reserve restarted its QE program, implementing unlimited purchases of U.S. Treasury bonds and mortgage-backed securities. As a direct result of such policy stimulus, local property prices in the U.S. were significantly impacted. Data from the first quarter of 2021 shows that home prices in nearly every metropolitan area in the U.S. rose, with the median home sales price per family unit increasing by 16.2 percent, the highest rate since 1989. At the same time, the relaxed monetary policy contributed to higher inflation rates, further driving up the cost and price of housing supply. Therefore, it is logical that the U.S. dollar supply would have the greatest impact on local property prices. Indeed, when the U.S. dollar supply tightened as a result of interest rate increases, the upward trend in real estate prices began to cool. This further highlights the sensitivity of U.S. domestic property prices to monetary policy and dollar supply.

In East Asia, the U.S. dollar, as an international currency, constitutes the largest portion of foreign exchange reserves in all East Asian countries, particularly in Japan. After the Federal Reserve initiated QE, a large influx of U.S. dollars entered East Asia's investment markets. Due to Japan's high level of market openness, international capital can more easily flow into its market. In contrast, China has stricter regulations on foreign currencies than Japan and South Korea. As a result, based on estimations for the three major cities of Tokyo, Seoul, and Beijing, Tokyo's property prices are the most affected by U.S. dollar supply, followed by Seoul, with Beijing being the least impacted.

In Europe, the property market has generally shown a downward trend in recent years, primarily due to the combined effects of various macroeconomic factors. Issues such as the energy crisis, inflation, and geopolitical tensions have significantly slowed economic growth. In particular, population decline and falling demand in Europe have placed considerable pressure on the property market. The deteriorating economic environment has not only dampened investor confidence but also reduced the ability and willingness of residents to purchase residential property. Against this backdrop, even though inflows of U.S. dollars have occurred, their impact on the European property market has been relatively limited, as the underlying economic conditions do not support a significant rise in house prices. Nevertheless, a comparison between London and Paris shows that more internationalized markets, such as London, are more affected by U.S. dollar supply. The "t-value" indicates that the impact of the U.S. dollar supply on Paris is not significant. This result aligns with expectations.

## **5. Conclusion**

This study conducted a regression analysis on the impact of U.S. dollar liquidity on house prices in seven cities,

using the price indices of New York, Los Angeles, Tokyo, Seoul, London, Paris, and Beijing from January 2020 to December 2023. The results indicate that the impact of U.S. dollar supply (M2) follows an overall decreasing gradient globally: U.S. mainland > open cities in East Asia > Mainland China > European cities. Among these, U.S. cities were the most affected by U.S. dollar supply, with housing prices rising rapidly when the dollar was oversupplied. In East Asia, the oversupply of U.S. dollars led to an inflow of hot money into Japan and South Korea, where capital markets are more open, resulting in increased local property prices in both countries. In contrast, China's real estate market was influenced by government regulation and control, and the financial market in the mainland was subject to restrictions on foreign capital inflows. As a result, the impact of the U.S. dollar was significantly smaller. Lastly, the European region was the least affected by U.S. dollar liquidity due to factors such as population decline and overall economic conditions. Therefore, when the Federal Reserve announced its QE program, the impact on property prices in Europe was minimal.

## Disclosure statement

The authors declare no conflict of interest.

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