EconEX: The Housing Market and Mortgage Backed Securities

Executive Summary: Since the onset of the COVID-19 pandemic, the Federal Reserve and other government institutions have been working diligently to ensure a smooth and full economic recovery. As 2021 reaches its halfway point, we must make an assessment of the progress made since January and decide the proper actions to take in order to ensure steady recovery through the end of the year.

In reviewing the year's progress, we need to ask ourselves this: are the actions put in place to control the effects of the pandemic still necessary? In particular, I aim to assess the potential consequences of the FED's decision to greatly increase their purchases of Mortgage-Backed-Securities in March 2020. Furthermore, I will give my recommendation on whether or not to continue this trend.

The Housing Market

The housing market is one of the most important markets in the economy. For most consumers, their house is not only their biggest asset but also their tallest financial hurdle. Volatility in the housing market can be catastrophic for many people, which affects their activities in other markets. Since early 2020, several events have contributed to the unpredictability of the housing market.

Lumber Prices:

A key commodity to the housing market, lumber suddenly became unavailable right at the beginning of the pandemic. Lumber mill workers were immediately sent home in March 2020, halting the production of lumber altogether. As Americans retreated to their home offices, many decided to finally start that home renovation project they had always dreamed of. Furthermore, the economy was in a very good state going into 2020, and historically low mortgage rates incentivized businesses and consumers alike to break ground on new projects. In the spring of 2020, demand was high and supply was extremely low, resulting in heavily inflated prices.

In order to confirm that these price changes had significant effects on the housing market, I constructed a multiple regression analysis. I regressed median home price against lumber price, number of new home building permits approved, and the 30 year mortgage rate. All variables were detrended to account for any time trends that may distort the results. My results suggested that, over the past five years, an increase in the price of wood led to statistically significant changes in home prices [1].

By using a five year timeline as opposed to a one year timeline, I was able to include statistics from before the onset of the COVID-19 recession. My goal was to eliminate the possibility that the correlation between home prices and lumber prices was a byproduct of the recession instead of a legitimate cause-and-effect relationship.

The impact of lumber prices on home prices is necessary in developing an understanding of how mortgages and their rates have changed over the past 18 months. Because the size and rate of mortgages depends on the price of the house being purchased, a spike in lumber prices--and therefore home prices--will likely result in larger mortgages with lower rates. The effects of this shift are discussed below.

30 Year Mortgage Rate and Discount Rate:

Mortgage rates typically move in tandem with the FED's discount rate. The FED had been steadily increasing the discount rate for the later half of the 2010's to counter expansionary measures put in place during the 2008 recession. In response to the pandemic, however, the FED dropped the rate from 2.25% in February 2020 to 0.25% in March 2020 [2].

As a result, mortgage rates fell at a constant pace throughout the pandemic. In February 2020, the average 30 year mortgage rate was 3.47%. Today, the average 30 year mortgage rate is 2.92%, seeing a ~0.5% decrease. This change has gradually taken place over the past 18 months, with its largest month-to-month change being a minimal 0.27% increase from December 2020 to January 2021 [3].

The increase in lumber prices has also aided in lowering the average 30 year mortgage rate. Typically, the size of a mortgage loan is negatively correlated with the interest rate offered. Because there is a flat processing cost that the bank incurs, it will typically offer higher interest rates to smaller mortgages. The additional interest on these smaller loans makes up for the fact that the processing fees are proportionately larger for smaller loans than for larger ones. Therefore, if home prices are rising--in part due to lumber prices--the average mortgage size will also increase, leading to smaller rates.

Both the decrease in the discount rate and the increase in lumber prices have put downward pressure on mortgage rates. These incentives to build began to significantly affect market activity in the summer of 2020, after some of the initial shock of the pandemic had subsided. Evidence of this is shown in the number of new home permits authorized.

New Home Permits Authorized:

I chose to use new home permits as a proxy for consumer activity in the housing market. The reason I chose to use this statistic instead of new home starts is because there is a lag period between when the home is approved and when the home is actually started. New home starts, therefore, could potentially underestimate the responsiveness of consumers in the housing market.

The number of permits approved sharply declined from 1,589 in February 2020 to 938 in April 2020. Since then, however, the number of permits approved has been quickly rising. The initial decline was likely due to consumers not trusting the unstable economic conditions. By July 2020, however, new permit levels were almost back to pre-pandemic levels, reporting 1,542. In

January 2021, the metric had reached its highest point since 2006 with 1,883 permits being approved [4].

In order to confirm that low rates influenced the change in new home permits, I constructed a multiple regression model. In this model, I regressed the number of permits approved on the 30 year mortgage rate, the discount rate, real GDP, inflation, median home price, and lumber price. Furthermore, I detrended these variables against a time variable in order to purge the data of time trends [5].

The results of the regression showed that mortgage rates had a statistically significant impact on new permits approved. Median home price and lumber price, however, did not have statistically significant impacts.

Since median home price and lumber prices are not significant in determining the number of new permits approved, we can come to the conclusion that consumers in the housing market are most responsive to changes in mortgage rates. Still, lumber prices and home prices have proved significant when determining mortgage rates, and therefore are still relevant in this analysis.

Summary of Housing Market Conditions:

Taking into account recent changes in lumber prices, mortgage rates, and new home permits approved, we can now make a proper assessment of the condition of the housing market.

Upon the onset of the pandemic restrictions in March 2020, housing market activity halted. At the same time, a key commodity in home building--lumber--became unavailable due to workers being unable to work. This lack of supply and excess demand heavily inflated lumber prices, in turn inflating home building prices. At the same time, the FED had greatly reduced the discount rate in order to stimulate economic activity during a recession.

Both the lowering of the discount rate by the FED and the price hike in lumber contributed to lower mortgage rates. Lowering the discount rate incentivized banks to pass on a lower mortgage rate to its customers in order to remain competitive. Price hikes in lumber lead to higher home prices. A higher home price leads to larger mortgages, which typically have lower rates.

As proved in my earlier regression of new home permits, people are more price sensitive to mortgage rates than home prices. This is significant because it tells us that mortgage rates are a more accurate indicator of future housing activity than housing prices.

The incentives to build were strong, and people acted quickly. This led to a spike in housing activity in mid-summer 2020, which has not faltered since. The current housing market is very hot with high prices and high demand. This is important to consider when determining the FED's involvement in the mortgage market.

Mortgage Backed Securities:

The Great Recession:

It is important to note that a large contributor to the 2008 financial crisis was the mismanagement of mortgage backed securities. Similar to today's conditions, the housing market in the years leading up to the crash in December of 2007 was seeing extremely promising growth. Because of this, banks had incentive to produce large quantities of mortgages in order to turn large profits. The consequences of this were felt when borrowers began defaulting on their mortgages. A halt in the flow of money from borrowers sent a shock through the financial world, leaving investors with worthless assets.

The point here is that there are consequences of an overheated economy, and that mortgage backed securities can quickly become unstable assets. Although there are measures in place to better regulate financial markets, hot market conditions still provide incentive for reckless behavior. Banks may begin to lend too much, and consumers may take on loans they cannot afford in the long run. Consequences of these events are severe and worth considering when enacting monetary policy changes.

Current Actions:

The FED is buying up massive amounts of mortgage backed securities. The present face-value of mortgage backed securities that the FED holds is over double the face-value held at the beginning of the pandemic. There are two goals the FED is trying to achieve.

First, it is trying to provide banks with liquidity. If banks lend out too much money, they are unable to give customers their money if they wish to withdraw. If the money lent out by banks never comes back (i.e. borrowers default on their loans), the bank's customers will simply be out of luck and may never see that money again. By buying up these mortgage backed securities, the FED is providing liquidity to banks, reducing the risk of over-lending.

Second, the FED is trying to incentivize banks to loan out their additional liquidity. The FED has been quite public about their intentions to continue buying up these mortgage-backed-securities from banks. This news makes banks feel confident that they will be able to sell their mortgages, incentivizing them to make loans.

By giving banks the incentives and means to continue providing mortgages, the FED's recent actions have contributed to the recent heating up of the housing market. During an FOMC press conference held on June 16th, 2021, FED Chairman Jerome Powell announced that the FED intends on maintaining its current level of asset purchases for the foreseeable future. At this moment in the recession, it is important to consider whether or not this aggressive action is still necessary.

Recommendation:

Taking everything into consideration, I believe that the FED should begin to ease its purchasing of mortgage backed securities.

The housing market is currently hot. The median home price has steeply increased over the past 18 months, initiated in part by soaring lumber prices and further increasing due to excess demand onset by low mortgage rates. Increased activity in the housing market indicates an increase in overall consumer confidence. Since purchasing a house is typically a consumer's most costly purchase, increased activity in this market indicates that overall consumer confidence is growing. This is evident in recent changes of other key economic indicators.

The DOW Jones has maintained levels above 34,000 since early May 2021 [6]. Inflation is hovering around 2.3%, above the FED's target rate of 2% [7]. Real GDP is nearing pre-pandemic levels of $19,000 billion [8]. These key indicators signal that the economy is primed for a strong and stable recovery without the need for continued intervention.

The FED's decision to continue aggressively purchasing mortgage backed securities could lead to an overheating of the economy. By continuing to inject money into an economy that is already hot, the FED runs the risk of out of control inflation. The additional liquidity will cause both prices and wages to increase. These rising costs may become unsustainable for both consumers and producers, causing businesses to lay off employees and consumers to restrict their spending.

Furthermore, increasingly hot market conditions provide incentives for both consumers and producers of financial products to act irrationally. Although the FED is equipped to take on the risk of holding a large portion of the mortgage debt, private firms and investors are not. The increase in debt purchasing by the FED may send a signal to investors that markets will be strong in the near future. Optimistic investors may choose to act on strong growth forecasts and increase their asset purchases in tandem with the FED. The consequences of this could be similar to those seen in the Great Recession.

The incentives produced from a robust housing market could lead to problematic conditions if left unchecked. As the economy continues to make a strong recovery, it is important to consider the implications of overheating the economy.

Sources

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Appendix A

Multiple Regression of Lumber Price and Housing Indicators on Median Home Price*

Variable Name	Coefficient	Standard Error	P-Value
Lumber Price	67.9322	32.9077	0.044
# Permits Approved	31.4970	12.2283	0.013
30-Year Mortgage Rate	416.7009	2198.134	0.850

*All variables were detrended against a time variable in order to account for distorting time trends. All data used was monthly data from May 2016 to May 2021. Data gathered from https://fred.stlouisfed.org/.

Appendix B

Multiple Regression of 30-Year Mortgage Rate and Various Indicators on # Permits Approved*

Variable Name	Coefficient	Standard Error	P-Value
30-Year Mortgage Rate	-121.099	27.9004	0.000
Discount Rate	-40.1479	20.3920	0.054
Real GDP	0.1734	0.0281	0.000
Inflation	153.474	44.1290	0.001
Median Home Price	0.0010	0.0009	0.266
Lumber Price	-0.0788	0.3498	0.823

*All variables were detrended against a time variable in order to account for distorting time trends. All data used was monthly data from May 2016 to May 2021. Data gathered from https://fred.stlouisfed.org/.