The Effect of Federal Reserve's Monetary Policy on Wealth Inequality During COVID-19

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Abstract: The term 'wealth' in wealth inequality is referred to the total asset of a household, and the wealth inequality implies the uneven distribution of wealth within a community. While many papers have discussed and investigated the change in wealth inequality in the past, this paper aims to investigate the change in wealth inequality during the COVID-19 pandemic (Q4 2019 to Q2 2022) in the United States. This approach was to take a snapshot of the wealth distribution of the top 0.1% and the bottom 50% at the start of Q4 2019 and forecast the change in wealth from changes in asset prices. Conclusive evidence from this paper and from prior research indicates that wealth inequality and the Federal Reserve's monetary policy are inversely proportional; in other words, as the FED loosens its policy, wealth inequality expands.

Keywords: Wealth Inequality, Monetary Policy, COVID-19, Asset Composition, Federal Reserve

1. Introduction

Wealth inequality is the disparity in asset distribution across the population. The rise in wealth inequality in the past couple of decades has been evident and has been a major economic concern for the United Nations and OECD. Since the 2008 financial crisis, the Federal Reserve has ballooned their balance sheet from 900 billion to today's 8.8 trillion while maintaining interest rates at record low levels for nearly two decades. Although the FED's chair reiterated that their action "absolutely" does not widen the wealth gap in America, many papers, such as Kuhn et al. [1]; Davis [2]; Kartashova et al. [3]; and Coibion et al. [4], have found conclusive evidence that the FED's monetary policy has widened the wealth gap of Americans.

This paper aims to find the relationship between the FED's monetary policy decisions and the effect on wealth inequality in Americans since the COVID-19 pandemic. It will first look at past literature and explore the asset composition between different wealth groups. Then the paper will analyze the price movements for these assets with a particular focus on US equities, private businesses and real estate. Finally, panel data collected from the Federal Reserve measuring the distribution of household wealth will be used to corroborate the findings.

The motivation for this research is that, while most prior investigations have concluded that the FED's policies does dramatically increase wealth inequality, Colciago et al. [5] have found mixed results regarding the impact of the central bank's policy on wealth inequalities. This report will use the most up-to-date data, which will factor in the decline of equity prices during the first and second

quarters of 2022, to analyze whether the FED's action during and after COVID-19 has widened wealth inequality.

2. Data

The data used to analyse the effect of monetary policy on wealth inequality is panel data retrieved from the Federal Reserve of the United States of America.It measures the composition of assets and liabilities for the top 0.1% and bottom 50% of the American population.

3. Findings

3.1. Asset and Liabilities Composition for Different Wealth Brackets

To understand the fundamental of this issue, the asset, and liabilities composition of the top 0.1% and bottom 50% are critically analyzed. Figures 1 and 2 display the asset composition.
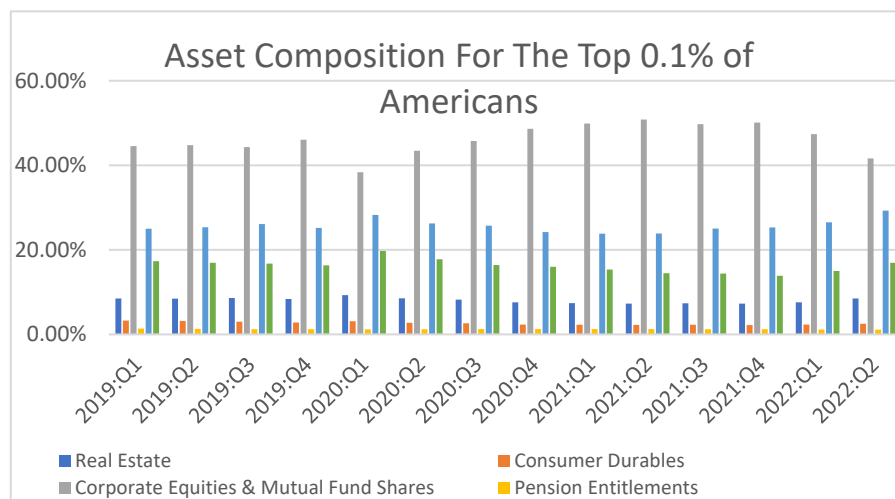

Figure 1: Asset composition for the top 0.1% of Americans [6].
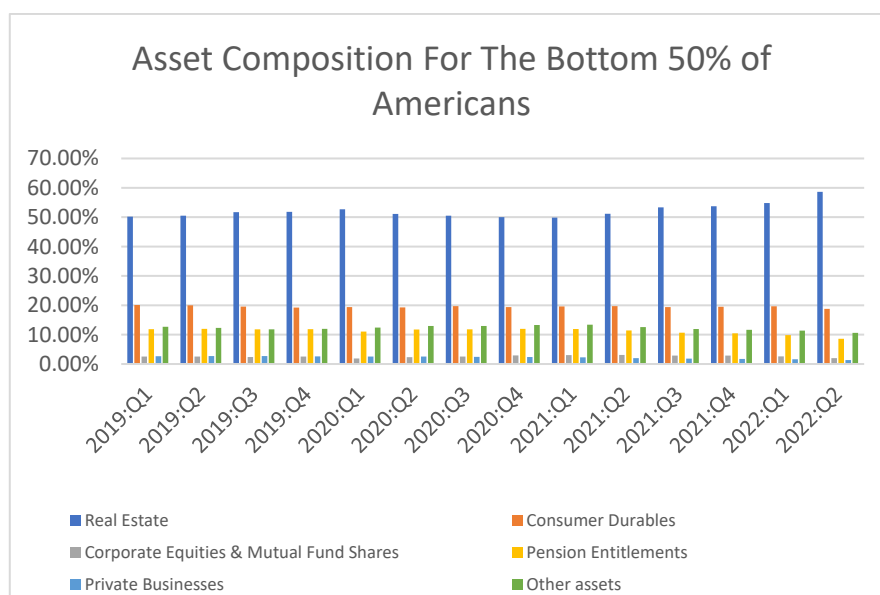

Figure 2: Asset composition for the bottom 50% of Americans [6].

Analyzing both figures, there are a few significant differences. The bottom 50% holds significantly more real estate, 51.81% to be exact (snapshot at Q4 2019), compared to 8.36% held by the top 0.1%. Most of the wealth of the top 0.1% is in corporate equities and mutual fund shares, which account for around 46.07% of their wealth, while only accounting for 2.52% of the wealth of the bottom 50%.

Another interesting observation is that consumer durables, a depreciating asset, account for a whopping 19.21% of assest for the bottom 50%, while they only account for 2.8% of wealth for the top 0.1%. Besides shares, the top 0.1% holds a significantly higher percentage in wealth in private business, 25.20%, compared to the bottom 50%, who only holds 2.58%.

The liabilities to asset ratio reveal the percentage of assets that are funded by liabilities. Figure 3 reveals a huge difference between the percentage of assets funded by liabilities between the top 0.1% and the bottom 50 percent. While 72% of assets for the bottom 50 percent were funded by liabilities, only 0.1% of assets for the top 0.1% were funded by liabilities.
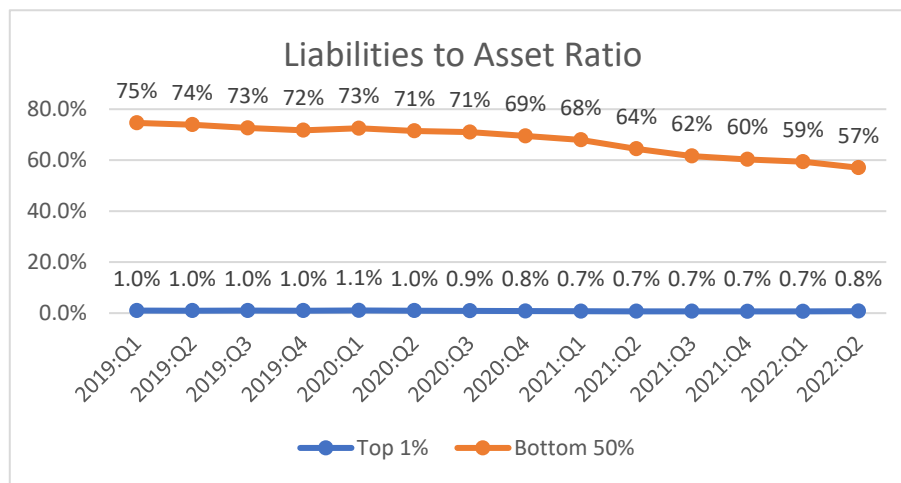

Figure 3: Liabilities to asset ratio for the top 0.1% and bottom 50% [6].

The liabilities composition in Figure 4 and 5 reveals more details behind the amount of leverage each population is carrying and which debt vehicle each population uses to fund their assets.
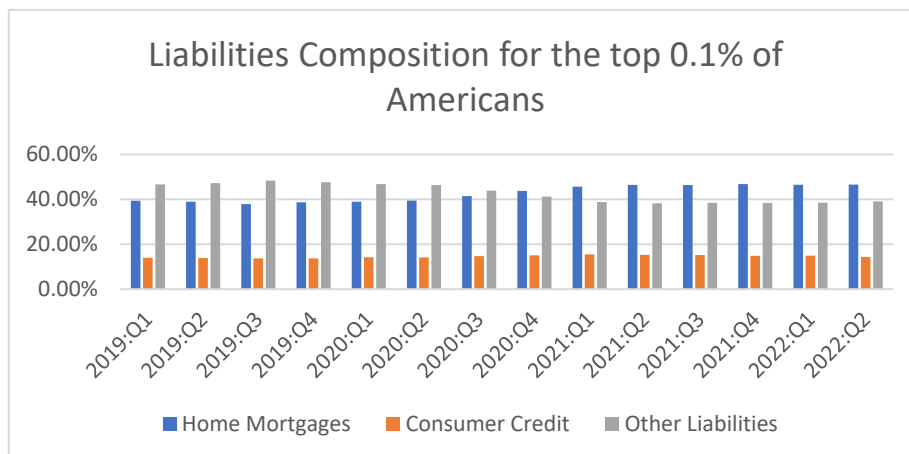

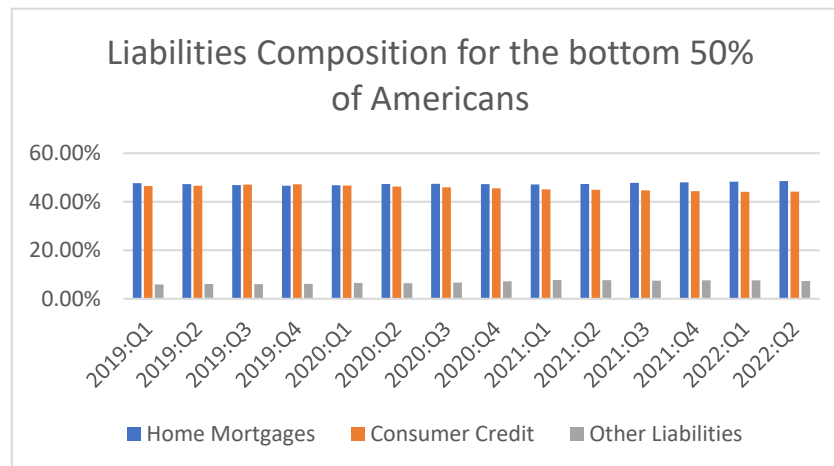Figure 4: Liabilities composition for the top 0.1% of Americans [6].

Figure 5: Liabilities composition for the bottom 50% of Americans [6].

From further investigation, Figure 4 and 5 reflects that both the top 0.1% and bottom 50% hold similar levels of liabilities in home mortgages at 46.61% and 38.64% respectively. However, the striking difference is the composition of consumer credit. While liabilities for the top 0.1% consists of 13.74% of consumer credit, the bottom 50% holds 3.4 times more consumer credit as a percentage of total liabilities at 47.21%.

3.2. Asset Movements for Both Population Groups

For the wealth gap to widen, the net worth (asset – liabilities) of the top 0.1% must increase at a faster pace than the net worth of the bottom 50%. In this section, a model is developed to estimate the wealth changes of the top 0.1% and the bottom 50%. The model uses wealth composition data as a snapshot meaning that it assumes that households do not buy or sell assets during the pandemic. First, the percentage increase of household assets is calculated from Q4 2019 to March 2022. This time frame is selected since Q4 2019 is the last quarter before the Federal Reserve started to loosen their policy (120 billion/month QE and an interest rate cut), and March 2022 is when the Federal Reserve started to tighten their policy (stop of QE and 25 basis point interest rate hike).

While price fluctuations for equities are valued through the Wilshire 5000 Total Market Full Cap Index, real estate is valued through the median sales price for houses sold in the United States. Both data are retrieved from the St. Louis Fed Reserve website. In figure 6, since Q4 2019, equities have increased by 59.17% and real estate has increased by 37.36% to March 2022.
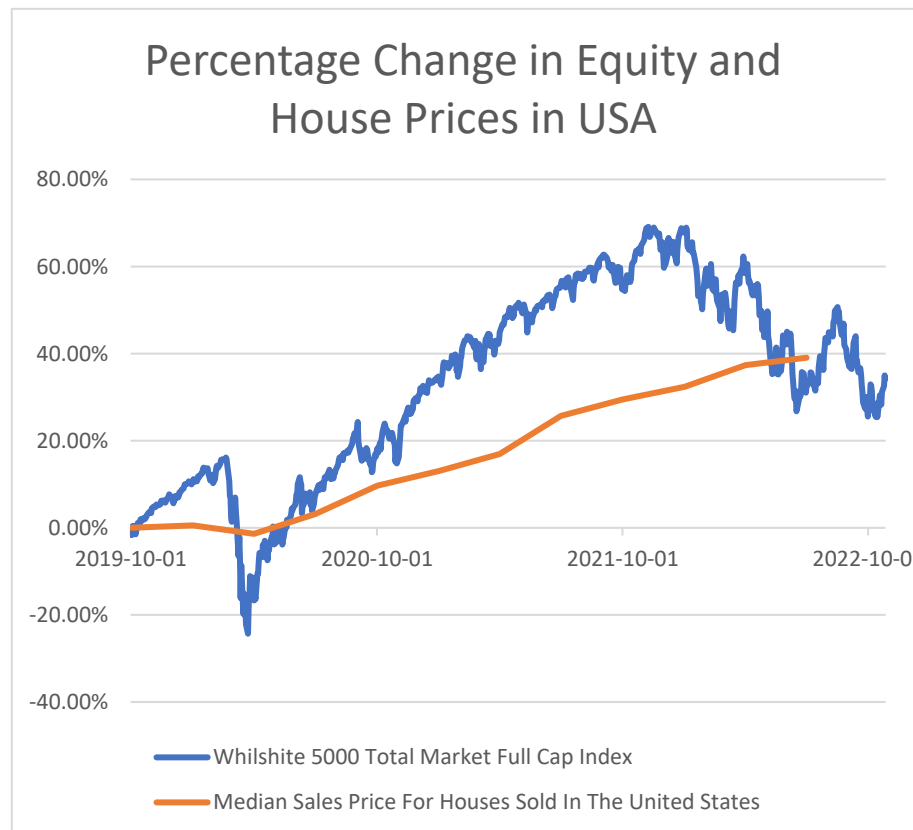
Figure 6: Percentage change in equity and housing prices in the USA [7, 8].

Consumer durables are a depreciating asset which account for 19.12% of asset for the bottom 50%, while only contributing to 2.8% for the top 0.1%. Cao et al proposes four different model to measure deprecation, which has four outcomes between 13.9% and 16.4%. However, unlike many other assets, consumer durables are necessity for humans. As seen in figure 1 and 2, consumer durables rarely fluctuate between Q1 2019 and Q 2 2022. Therefore, for simplicity reasons, consumer durables are considered to remain the same during our test period.

In the United States, Pension Funds are indexed annually in accordance with inflation. The cost-of-living adjustment for 2019, 2020, 2021 and 2022 are 1.6%, 1.3%, 5.9% and 8.7% respectively [9]. This equates to a total adjustment of $(1 + 1.6\%) \times \frac{1}{4} \times (1 + 1.3\%) \times (1 + 5.9\%) \times (1 + 8.7\%) \times \frac{1}{4} = 7.4\%$ from Q4 2019 to Q1 2022.

Private Businesses are businesses that do not offer its stock to be traded on a public exchange. The performance of private businesses was calculated based on the performance on private equity within the US. According to Chartered Alternative Investment Analyst (CAIA), US private equity returned 17.7% in 2019, 2.65% in 2020, and 55.17% in 2021 [10]. However, the best estimation for the performance of private equity firms in the first half of 2022 is -18% from research conducted by EY [11]. Relying on these numbers, it can be concluded that private business returned $(1 + 17.7\%) \times \frac{1}{4} \times (1 + 2.65\%) \times (1 + 55.17\%) \times (1 - 18\%) \times \frac{1}{2} = 19.21\%$ from Q4 2019 to Q1 2022.

For residents in the US, other savings will mainly include cash and bank deposits. Historically, saving rates are negatively correlated with wealth, especially in the bottom 40%-50% of the population. It is estimated that the top 0.1% saves on average 0.917% while the bottom 50% saves on average 2.01% relative to their total wealth annually. Although these savings will likely be

invested in different assets, it is particularly hard to model such changes. Therefore, it is assumed that savings will be kept as cash or bank deposits.

Assuming that each wealth group total asset was worth $100 at the end of Q4 2019, and the composition of assets do not change, a formular was created to reflect these changes in the total value of the asset for both wealth groups.

<div align="center">Total asset for the top 0.1%</div>

$$\text{Total asset} = 8.36 \times \Delta\text{value of real estate} + 2.8 + 46.07 \times \Delta\text{value of equities} \\ + 1.24 \times \text{pension indexation} + 25.20 \times \Delta\text{value of private business} + 16.33 \\ + \text{total savings}$$

Applying the price changes in assets:

$$\text{Total asset} = 8.36 \times (1 + 0.37) + 2.8 + 46.07 \times (1 + 0.59) + 1.24 \times (1 + 0.064) \\ + 25.20 \times (1 + 0.19) + 16.33 + 4.42 = \$139.73$$

<div align="center">Total asset for the bottom 50%</div>

$$\text{Total asset} = 51.81 \times \Delta\text{value of real estate} + 19.21 + 2.52 \times \Delta\text{value of equities} \\ + 11.88 \times \text{pension indexation} + 2.58 \times \Delta\text{value of private business} + 12 \\ + \text{total savings}$$

Applying the price changes in assets:

$$\text{Total asset} = 51.81 \times (1 + 0.37) + 19.21 + 2.52 \times (1 + 0.59) + 11.88 \times (1 + 0.064) \\ + 2.58 \times (1 + 0.19) + 12 + 5.42 = \$127.33$$

The findings reveal that assets held by the top 0.1% have risen by an average of approximately 39.73% while those held by the bottom 50% have risen by an average of approximately 27.33% from Q4 2019 to Q2 2022. There are several reasons why the assets of the richest 0.1% has outgrown the bottom 50% by 12.4%. One reason is that 80.87% of assets held by the top 0.1% saw appreciation, while 68.79% of assets held by the bottom 50% had appreciated. This is mainly caused by consumer durables accounting for significantly more shares of assets for the poor, which has impeded on their ability to invest in equities, real estate, or private companies. Furthermore, pension entitlement, which accounts for 10% of assets for the poor, has appreciated less than real estate or equities, since it is closely linked to inflation. Greenwald et al. [12] supports our finding, and in his research, he found that majority of wealth inequality takes place in financial wealth (equity, real estate, private business) rather than human wealth (wage, pension). The top performer equities (appreciated by 59%) consist of 46.07% of the wealthiest 0.1%'s asset while only contributing 2.52% of the bottom 50%. Not only do the rich hold more appreciating assets, but those appreciating assets held by the rich have appreciated more than the appreciating assets held by the poor. The core findings are consistent with Coibion et al. [4] and Inui et al. [13], where a decrease in interest rates has fueled the equities and real estate markets disproportionally amongst the rich and the poor.

3.3. Interest Rate Rises and Its Impact on Liabilities

In March 2022, the FED increased the Federal Funds rate (FFR) by 0.25 basis points, marking the first rate rise since the COVID-19 pandemic. At the time of this writing (October, 2022), the FFR is currently sitting at 3.25%, and the FED is expected to raise another 75 basis points in November. The sudden rise in rates has various implications on the liabilities of American families. For home loans surprisingly, the recent rise in interest rates will likely have a minimal effect, since 90% of homeowners chooses 30-year fixed rate mortgages [14]. On the other hand, consumer credit, which is charged at high variable rate (16.27% average in US), will be affected by the recent movements in interest rates. In addition, credit card companies have explicitly targeted the poor through advertisements and marketing campaigns [15]. By taking on more credit card debt than they could afford, the bottom 50% are at greater risk of financial stress when the interest rate increases.

3.4. FED Monetary Policy's Impact on Unemployment and Income

Since the unemployment rate is one important indicator the FED looks at when adjusting its monetary policy, several studies have directed towards finding the relationship between unemployment and income. Research suggests that changes in wages affect the top income earners [16], while the unemployment rate and total hours worked affect the bottom income earners [17]. When unemployment rises, low-income earners will lose their jobs first, since those jobs are likely to be low-skilled or labor intensive. As a result, the current FED target of unemployment rate back to 4%-5% will only hurt low-income earners. In addition, Dolado et al. [18] found conclusive evidence that an expected monetary loosening will decrease the labor share of income for low-skilled workers and raise it for high-skilled workers. Thus, increasing income and wealth inequality.

4. Conclusion

The nature of wealth inequality is complex not only involves economic variables controlled by the central bank, but also heavily depends on the distribution of income, spending habits and demographics. Nonetheless, examination of prior research, research into changes in the value of asset and the financial burden of liabilities all indicate a modest influence between FED Reserve's monetary policy and wealth inequality in the United States of America. Future research should be directed towards spending habits and the wealth redistribution between the wealthy and poor, since as Benjamin Franklin once said, "a penny saved is a penny earned. Even though the poor will likely never catch up to the wealthy, it is still worth investigating whether the inequality is acerating and what the poor can do to levitate the financial burden.

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