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Does the U.S. Federal Reserve Consider the Credit Cycle Theory When Trying to Predict Recession?

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ABSTRACT

The credit cycle theory states that credit build-ups and their subsequent crashes are the common cause of recessions. If true, this theory could be used to both predict and prevent future recessions. However, it is unclear if policymakers do in fact take the theory into account when crafting monetary policy. Using the U.S. Federal Reserve (the Fed) as a case study, this paper seeks to answer if policymakers consider the credit cycle theory when attempting to predict recessions and determine optimal monetary policy. This paper analyzes Federal Open Market Committee minutes from meetings prior to four previous recessions: the Savings and Loan Crisis, the Dot-Com Bubble, the Great Recession, and the Covid Recession. The results indicate that the Fed did not begin to consider the credit cycle theory when implementing monetary policy until after the Great Recession. Credit was not addressed prior to the Savings and Loan Crisis and was only substantially mentioned on the eve of the Dot-Com Bubble and the Great Recession. This indicates that instead of continually discussing credit, the Fed was only concerned with credit when it began to tighten. While it did mention credit build-up, especially before the Great Recession, the Fed did not adjust its monetary policy accordingly. Instead, it primarily adjusted policy to manage inflation. However, after the Great Recession, the Fed began adhering more closely to the credit cycle theory both in terms of what was discussed in each meeting, as it consistently discussed credit, and how it implemented monetary policy.

Introduction

There is substantial evidence that build-ups of credit can cause recessions, known as the credit cycle theory. The theory, which was first laid out by Hyman Minsky, states that the economy moves in cycles, and during the upside of these cycles credit begins to build up rapidly, generally in a specific sector, to form bubbles. During these periods of build-up, banks are more eager to give out loans and consumers are more eager to take them out. When the credit bubble inevitably pops, sending the economy down, many borrowers will default on their loans, aiding, and sometimes causing, a recession. Assuming this theory is accurate, recessions could be eased by tempering the upswing of credit cycles, and they can be predicted by analyzing build-ups in credit and discovering when it is abnormally high.

There are real benefits to being able to predict recessions and prevent them from happening. It could lead to millions of people retaining their jobs and trillions of dollars being saved, and the credit cycle theory certainly lays out a strong case for how this could be done. However, the vital work behind the theory becomes useless if policy-making bodies do not adhere to it.

This paper's goal is to discern if this theory impacts how government regulators shape monetary policy and if they use indicators laid out by Minsky to try and anticipate and prevent future recessions. This paper answers the question using the United States Federal Reserve as a case study for policy-making bodies by reading the minutes put out by the Federal Open Market Committee before different recessions.

The Federal Open Market Committee meets eight times a year and releases minutes pertaining to each meeting. These minutes are summaries of what was discussed in each meeting and are great indicators of the Federal Reserve's views on economic conditions and their thoughts on macroeconomic developments. The minutes also include any monetary policy implemented and why the Federal Reserve chose to do so. Different indicators in the Federal Reserve minutes, such as how often they mention credit conditions or rising debt, as well as how monetary policy decisions made by the Federal Reserve adhere to the credit cycle theory, will be used to answer this question. The four recessions studied are the recession of 1990, the recession of 2001, the recession of 2007, and the recession of 2020. The recessions were chosen based on their corresponding credit-to-GDP gap. This statistic measures how much America's credit-to-GDP ratio deviates from the nation's average at a given time. Therefore, recessions that have a high credit-to-GDP gap are well suited for this paper to study because they are more likely to be tied to a credit bubble. Minutes for the five meetings preceding the start dates of each of the recessions as dated by the National Bureau of Economic Research were read and analyzed for this paper.

The main finding is that the Federal Reserve did not consider indicators of credit demand while trying to anticipate recessions, especially when making monetary policy decisions, prior to the recession of 2007. The Federal Reserve made decisions that were far more concerned with inflation and the monetary base rather than credit demand. Prior to the recession of 1990, the minutes contained little to no mention of any credit build-up and the danger that it could pose despite the growing credit bubble at that time. Prior to the recessions of 2001 and 2007, the Federal Reserve acknowledged potential credit risks, but it did not adjust its policy stance materially before the recession. These kinds of reactions show that central bankers were not basing their policy on the credit cycle theory to preemptively address recession risks but instead reacted after a recession appeared inevitable. However, after the recession of 2007 and the credit crunch that caused it, the Federal Reserve began actively discussing and considering the credit cycle theory when crafting policy decisions. The Federal Reserve evolved throughout the years, but specifically after the Great Recession began to consider additional factors such as credit build-up and its relationship to employment, focusing on the dangers that it may pose to the economy. This led them to become much more aware of the credit cycle theory. Ideas pertaining to the theory were mentioned far more often within the minutes before the Covid Recession despite the fact that it was not caused by a credit bubble.

This paper is structured as follows. The first section is an overview of the history of the credit cycle theory and an in-depth explanation of what the theory entails. The second section explains this paper's methodology including, why this paper analyzes the Federal Reserve Minutes, what recessions this paper chooses to focus on and why, and what specific minutes this paper's findings are based on. The third section gives a summary of all the minutes read as well as the conclusions that can be drawn from them. The final section will conclude.

Credit Cycle Theory Overview

The first and possibly most influential paper written about how credit cycles affect recessions was by Hyman P. Minsky (1977). Minsky sought to understand the reason for the numerous recessions that had been plaguing America throughout the 1960s and 1970s. Minsky argued against the dominant theory of his time claiming that recessions should be seen as the norm in a capitalist society rather than outlier events. He wrote that recessions are caused by credit booms gone bust. Minsky argued that in times of economic prosperity credit was far too easy to come by creating bubbles of various kinds, like real-estate bubbles. During these bubbles and times of economic euphoria, banks would be more eager to lend money, and investors more eager to borrow money in order to not miss out on profit opportunities. People would become able to tolerate significantly more risk which was fine in good times as returns were high. This cycle of adding on leverage and making higher profits would continue for some time. However, Minsky argues that inevitably some exogenous factor would pop the bubble

causing investors' portfolios to rapidly shrink and leaving banks with countless bad loans. Minsky concludes that the instability caused by the credit bubbles popping would lead to panic and recession. This idea is the foundation of the credit cycle theory and Minsky led the way for future studies on whether credit cycles are the true causes of recessions.

The credit cycle theory was also researched by Charles P. Kindleberger and Robert Z. Aliber (1978). This piece of literature further dove into the true causes of recessions and, much like Minsky, Kindleberger and Aliber argued that recessions were caused by credit booms and their inevitable fallout. The authors based their arguments on many of the same points that Minsky did while citing multiple historical examples to back their claim. Their analysis starts with the Dutch Tulip bubble that took place in the 1600s. This was a time in Dutch history when tulip bulb prices became incredibly inflated during a period of economic expansion. The Dutch spent more and more money on these tulips forcing them to borrow money to sustain their tulip buying. However, once the country ran out of buyers, the economic climate quickly flipped. This caused the price of tulips to rapidly lose value, leaving many with near-worthless holdings of tulips and large amounts of debt to pay off. It also left banks with countless outstanding loans now at great risk of default. This uncertainty helped to lead the entire economy into recession. Kindleberger and Aliber laid out similar examples to the tulip bubble to back up their theory. These examples were used to show how throughout history recessions are preceded by large credit bubbles that caused overspending and overleveraging, with companies and consumers taking on too much debt.

Schularick and Taylor (2012) provide empirical support for the credit cycle theory. This article sought to address whether credit cycles truly do cause recessions and if they can be used as a predictive measure. Schularick and Taylor studied recessions during the time period 1870-2008 splitting them up into two groups, pre-World War II and post-World War II. The two concluded that credit fallouts are large factors in recessions that took place after World War II. They especially said that post-World War II credit build-up was a far better indicator of recessions than growth in the monetary base, which had historically been a key measure used to assess the monetary policy stance. Schularick and Taylor also found that the data shows that monitoring credit growth can in fact be predictive of future recessions, claiming that factors such as a switch in the second derivative of credit trends in the downward direction can be seen as a way to predict that a recession is likely on the horizon, meaning if the growth of credit starts increasing at a decreasing rate it likely means the current credit bubble is about to pop. The paper written by Schularick and Taylor was instrumental in codifying the theory set forth by Minsky and others by supporting their ideas with statistical evidence.

Methodology

In this paper, the United States Federal Reserve will be used as a case study for economic regulating government bodies across the world. The Federal Reserve controls monetary policy in the United States and holds considerable sway over the largest economy in the world. The Federal Reserve acts in accordance with a dual mandate. Its two primary goals are to keep inflation within a given range, close to two percent, and to keep unemployment at its natural rate, presumably between 4.5-5.5%. Recessions almost always are correlated with higher unemployment rates so the U.S. Federal Reserve has a vested interest in limiting the potency and frequency of recessions. The Fed can affect the economy by enacting monetary policy, which often takes the form of adjusting interest rates, mainly the Federal Funds Rate.

The Federal Reserve was chosen not only because of its importance to the global economy but because of the accessible documents documenting the Board’s decisions. The Federal Reserve publishes multiple documents outlining each of the Federal Open Market Committee's eight yearly meetings. Of the documents, the

Federal Open Market Committee minutes give the best insight into how the Board thinks outside of the meetings' complete transcripts. These documents are found on the Federal Reserve Board of Governors website.[1] The minutes are in-depth summaries of what was discussed in each Federal Open Market Committee meeting. They generally begin with the Board members giving their opinions on the nation's economic outlook. This section will include a discussion of any data points released in the prior months and how the Board believes changes in the market will affect the economy as a whole. The minutes always conclude with any policy decisions the Board may be considering or enacting. The insight that the minutes provide can determine how the Federal Reserve thinks and if it adheres to the credit cycle theory.

This paper focuses on recessions with the highest credit-to-GDP gap before their onset since this paper's goal is to study the Federal Reserve's view on credit cycles and their relation to recessions. The National Bureau of Economic Research (NBER 2022) officially dates U.S. recessions. Each recession dated by the National Bureau of Economic Research was cross-referenced with a measure called the credit-to-GDP gap. United States credit-to-GDP gap, found on BIS statistics (2022), is shown in Figure one with U.S. recessions shaded in gray.

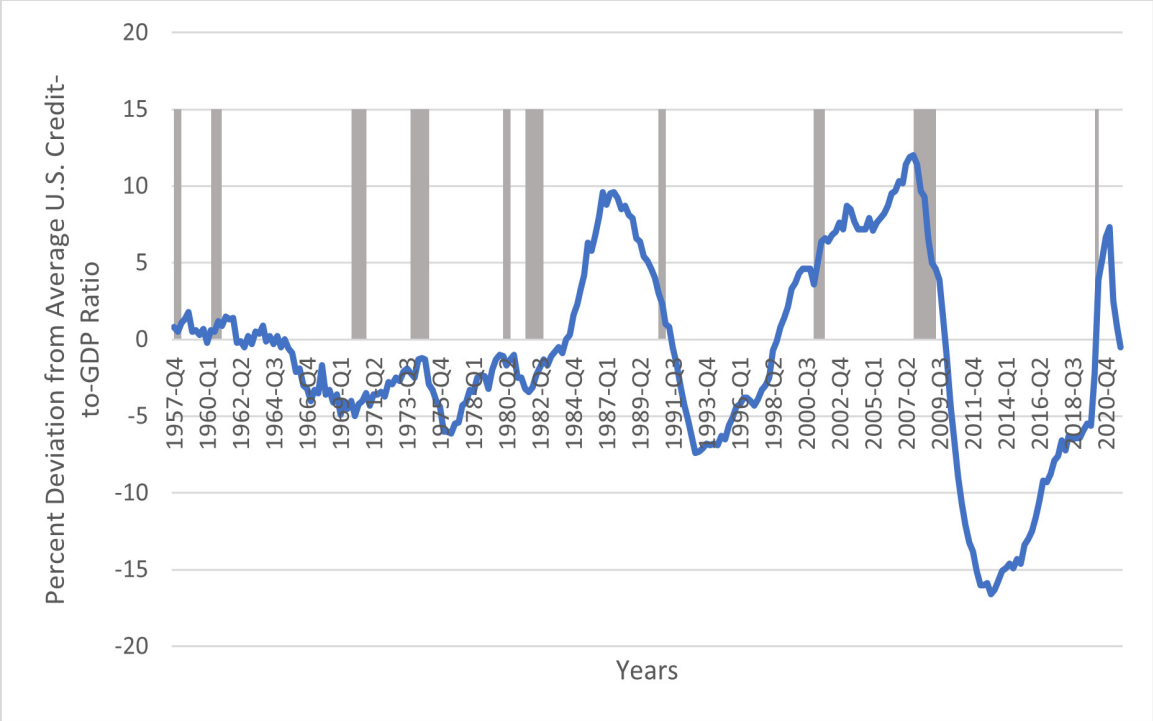

Figure 1. United States Credit-to-GDP gap and U.S. Recessions. The blue line shows the credit-to-GDP. The shaded gray bars signify each recession since 1957 and its duration. As Determined by the NBER.

Credit-to-GDP gap is a measure that calculates how much the U.S.'s credit-to-GDP ratio deviates from the mean. This is calculated by finding the percentage difference between the credit-to-GDP ratio in a given quarter and its long-term trend. The higher the line, the more it deviates above the mean; the lower the line, the

[1] Meetings prior to 2017 are found at https://www.federalreserve.gov/monetarypolicy/fomccalendars.htm. Meetings after 2017 are found at https://www.federalreserve.gov/monetarypolicy/fomc_historical_year.htm

more it deviates below the mean. While this is far from a perfect measure, it effectively shows when the largest credit bubbles are building in America. The reading consisted of minutes from the five Federal Open Market Committee meetings leading up to the official start date of each chosen recession. The exact minutes read can be seen in Table 1.

Table 1. Duration and Minutes Read for Recessions Studied

Recession	Duration	Minutes Read for this Study
The Savings and Loan Crisis	July 1990 - March 1991	November, December (1989) February, March, May(1990)
The Dot-Com Bubble	March 2001 - November 2001	August, October, November, December (2000) January (2001)
The Great Recession	December 2007 - June 2009	May, June, August, September, October (2007).
The Covid Recession	February 2020 - April 2020	July, October, November, December (2019) January (2020)

The Savings and Loan Crisis

The Savings and Loan Crisis has the second highest credit-to-GDP gap of all U.S. recessions. This recession was similar to the Great Recession as it was caused by a bubble in consumer mortgage and commercial real estate loans. Aside from the kind of loans made, the main difference between the Savings and Loan Crisis and the Great Recession was that in 1990 the kinds of institutions hurt the most were known as thrifts or saving and loans institutions, with nearly a third of the 3,234 of them going bankrupt shown in Pontell, H. N., & Calavita, K. (1993). The U.S. market was coming out of the bull market of the 1980s. With this incredible economic expansion, a large credit bubble formed, and many firms were over-leveraged and too speculative. The growth of credit seen through the 1980s and the resulting recession in 1990 illustrates a prime led to another example of a credit boom going bust.

The Dot-Com Bubble

The recession of 2001 has the third highest corresponding credit-to-GDP gap. The 2001 recession, also referred to as the Dot-Com Bubble, was caused by over-investing in tech companies, particularly new websites, and is discussed by Crain, M. (2021). The internet was brand new at the time and many investors did not want to miss out on the opportunity to earn large profits from these new companies. Venture capitalists spent billions of dollars funding private tech companies before they reached an initial public offering where their stock prices would inevitably soar, making many in the process incredibly rich. However, much like in previous recessions,

many eventually realized that these tech companies were incredibly overvalued, and the market plunged with countless online companies going bankrupt. While the 2001 recession was not as impactful as many others in terms of how it affected metrics like unemployment, it caused a sizable loss of wealth through a stock market decline and was another example of the danger of credit bubbles. For these reasons, it is a prime case for this paper to study.

The Great Recession

The recession with the highest corresponding credit-to-GDP gap and perhaps the most pertinent recession to this paper is the Great Recession. As the name suggests, the Great Recession was the most significant U.S. economic downturn since the Great Depression nearly 100 years ago. The Great Recession is so relevant because it was most directly caused by credit build-up and overleveraging discussed in Christiano, L. J., Eichenbaum, M. S., & Trabandt, M. (2015). It is a clear example of the credit boom gone bust scenario laid out by the credit cycles theory. This recession was caused mainly by the overlending of subprime mortgages, a kind of mortgage that catered to people with low credit scores. These risky mortgages were given out with little regard during the credit boom of the early 2000s. They were then packaged into mortgage-backed securities and collateralized debt obligations which were sold off to big banks who shouldered all the risks. As this was occurring, large financial institutions also saw their leverage ratios rise to dangerous levels. These were all classic signs of a credit bubble. When conditions began to change, millions of Americans defaulted on their mortgages, losing their homes, causing the banks to lose billions of dollars, and sending the economy into a downward spiral. The downward spiral caused many banks to fail, most notably Lehman Brothers, a large investment bank. The recession led to a vast economic restructuring.

The Covid Recession

The 2020 Recession is unlike the previous three because it was caused not by a credit boom gone bust but instead by the Covid-19 pandemic. Since the recession was clearly not directly caused by a credit bust, it serves as an interesting counterfactual for this paper. There are considerable arguments that the Federal Reserve acted in a manner that prevented any credit bubble from bursting and kept the recession relatively short compared to the others. During the Covid Recession, the U.S.'s credit-to-GDP gap rose as opposed to the other three recessions where it noticeably declined. It will be important to see whether the Federal Reserve acted noticeably differently to combat a recession not directly caused by credit and how it compares to the previous recessions mentioned.

Within the minutes pertaining to these recessions, multiple factors will be considered to ascertain if the Federal Reserve was actively thinking about credit cycles and if they were anticipating the upcoming recessions. The most obvious factor to consider is the Federal Funds Rate, which is the Fed's key policy tool. This is the rate banks charge for interbank lending, and it is set by the Federal Reserve. For many of the recessions studied in this paper, the Federal Funds rate was the main tool by which the Federal Reserve set monetary policy. To slow the growth of credit, the Fed can increase the Federal Funds Rate, which tends to also increase other interest rates. Rate hikes might be a sign that the Federal Reserve thinks a credit bubble is forming. On the other hand, if the Federal Reserve believes the economy is going into a recession, it will lower the Federal Funds Rate making money cheaper to borrow. Since the rate can also be adjusted to combat other factors, particularly inflation, context is very important. Discussions around the Federal Funds Rate are generally the centerpiece of the minutes and an easy way to gauge the Federal Reserve's outlook on the economy.

Other key factors to consider are how much the Federal Reserve was discussing things like real estate prices, consumer and business spending and investment, the leverage ratio of companies, consumer debt ratios, and personal savings rates. These are all factors that can indicate the growth or decay of credit. If the Federal

Reserve was actively thinking and talking about these factors, it would be showcased in the minutes, indicating that the Federal Reserve was acutely aware of credit cycles.

Description of Federal Reserve Minutes

This section gives a summary of each set of minutes read. It serves as a way to illustrate exactly how the Federal Reserve was thinking prior to each recession and if it was thinking of credit conditions.

The Savings and Loan Crisis

The first set of minutes read for the 1990 recession, or the Savings and Loan Crisis, was from November 1989. In November, the Federal Reserve foresaw moderate economic growth. At this time, the Federal Reserve was notably interested in the monetary base. All of the meetings prior to the Savings and Loan Crisis contained similar rhetoric. In December, the Federal Reserve wrote that economic growth had slowed and that their primary objective was price stability, but there was no real talk of credit.

In February 1990, the Board commented that economic growth had increased again but there were low industrial returns. The Board also remarked that interest rates were rising again. Again, the main focus of this meeting was the monetary base, inflation, and low-interest rates. The March meeting saw much of the same with the board discussing continued economic growth and a continued rise in interest rates.

The final meeting before the recession was in May 1990. While there was continued economic growth, short-term interest rates fell and long-term interest rates increased, resulting in a widening interest rate spread. The growth of the monetary base slowed. In summary, prior to the Savings and Loan Crisis, the Fed barely mentioned the build-up of credit. Instead, they were far more focused on monetary growth and inflation.

The Dot-Com Bubble

The recession after 1990 was the Dot-Com Bubble of 2001. The first minutes read for this recession were from August 2000. Compared to the lead-up to the Savings and Loan Crisis, there is a difference in what the Federal Reserve discussed. The Federal Reserve talked about their worries that bank lending standards were beginning to tighten up and that they knew the growth in the stock market could not be sustained although there was still moderate economic growth. However, they still discussed inflation and the monetary base, saying the Federal Funds Rate would be set at 6.5% to slow the inflation caused by the rapid gain in stock prices that predated the Dot-Com Bubble.

The Board brought up many of the same issues in October 2000. It said there was still moderate economic growth, but it worried about how economic growth had slowed from the previous year; business investment was slowing, and credit was becoming tighter. Despite these worries, the Federal Funds Rate was kept at 6.5% to combat inflation. By November, conditions were beginning to deteriorate. The Board talked about how economic growth had begun to slow, which was primarily seen by slowing business investment. It pointed out how interest rates had risen amidst the uncertainty, and it emphasized multiple times how tightening credit and a fall in asset values were endangering the economy. However, it again kept the Federal Funds Rate at 6.5% because of the inflationary pressures at the time.

The conditions worsened even further by the meeting in December 2000. Slowing consumer spending and poor business investment hurt the economy. Most of this was due to a loss in business and consumer confidence, and the Federal Reserve acknowledged that this was due to overinflated equity prices from the previous year. Despite all this, the Federal Funds Rate was kept at 6.5% but a statement was issued saying the risk had shifted from inflation to the slowing economic environment. January 2001 was when the final meeting before

the recession took place. By then the economic climate had worsened even further. The market was beginning to crash and in the time between meetings, the Federal Funds Rate was lowered to 6%, and in January it was moved down again to 5.5%. The Federal Reserve believed the deterioration of economic conditions was due to many of the same factors including lower investment, lower spending, and a tightening of credit standards. The Federal Reserve admitted in this meeting that they were caught off guard by the severity of the economic downturn.

In summary, the Federal Reserve more actively discussed factors of the credit cycle theory but was slow to adjust monetary policy for the ensuing recessions leading it to ultimately be caught off guard and having to act in a reactionary way in an effort to stave off recession.

The Great Recession

The next recession was the Great Recession, which started in December 2007. The first set of minutes read for this were from May 2007. The main concern facing the Federal Reserve in May was rising inflation. It discussed how economic growth was below the trend and it worried that core inflation was too high, likely caused by the economic boom of the previous three to five years. Because of their fears of inflation, the Federal Funds Rate was set to 5.25%. In June, the Federal Reserve had many of the same worries. While the economy had picked up, they still believed that inflation was too high, and that remained their greatest fear. The Federal Reserve acknowledged that there were too many risky mortgages being issued now at risk of default, but it believed this issue would not spill over into the rest of the economy. It also touched on how savings rates were at a historic low, but this was glossed over. Along with this, it mentioned that credit was beginning to tighten. In the end, the Federal Funds Rate was kept at 5.25% to combat inflation.

In the August meeting, the economic outlook was still strong. However, the Federal Reserve began to discuss some of the risk factors that could cause the recession. It mentioned how credit quality was deteriorating and that credit conditions were tightening. However, the FOMC did not act on any of these observations. It also mentioned the rapid growth of consumer debt and the decline of the stock market. The Federal Reserve still decided to keep the Federal Funds rate at 5.25% but issued a statement that risks had shifted from inflation to the equity market. By September the economy was still strong but the Federal Reserve's worries had increased. Most notably, the deteriorating housing sector caused consumer credit to tighten severely. There were also many pressing liquidity issues surfacing. The Federal Reserve lowered the Federal Funds rate to 4.75% in an attempt to combat the tightening of credit.

The final meeting before the recession took place in October 2007. There was less worry this month but many of the same points were restated. There was still worry around credit, rising business debt, and the mortgage sector. The board decided to lower the Federal Funds Rate by another 25 basis points to 4.5% in an effort to stimulate the economy. In summary, the Federal Reserve continued to discuss issues pertaining to the credit cycle theory, but they did not adjust monetary policy in time to slow the oncoming recession.

The Covid Recession

The final recession this paper will analyze is the Covid Recession, and the first minutes read were from July 2019. These minutes took a completely different shape. They were significantly longer, more detailed, and touched on a much broader range of subjects than the minutes previously mentioned. The July minutes discussed issues across the economy as a whole but also had an extensive section on how credit was rising quickly. It mentioned concerns about rising asset prices in non-regulated businesses as well as many banks having lower capital ratios.

In September, the Board again extensively talked about credit, mentioning how consumer credit was getting dangerously high. The Federal Funds Rate also dropped 25 basis points at this meeting because of

growing tension with international trade and tightening of credit in the overnight funding markets. The trend of talking about credit conditions continued in the October meeting where the Federal Reserve talked about the credit conditions across multiple sectors. I also remarked how many companies had growing leverage ratios but that they did not see much risk in that. The October meeting ended with another 25 basis point drop in the Federal Funds Rate and this was due again to international trade tensions and tightening credit in the overnight funds markets. In December, there was less talk about credit, and market conditions remained relatively stable. However, it did mention that investment was highly volatile.

The final minutes before the beginning of the Covid Recession were from January 2020. Again, the Federal Reserve talks considerably about credit conditions. It again talked about its worries regarding growing corporate indebtedness. While the Fed was concerned about credit conditions before the start of the Covid Recession, the recession itself was clearly not caused by a credit bubble. However, the difference in the subjects the Federal Reserve talked about is notable. In all the meetings it still discusses inflation and the monetary base but due to the increase in the length and depth of the meetings, it also discusses issues pertaining to credit markets and went as far as to adjust monetary policy in response to them.

Discussion

The Federal Reserve has evolved in terms of what it discusses and the factors it considers when enacting monetary policy. Until the end of the Great Recession, there is no evidence that the FOMC used the credit cycle theory as an important framework to interpret economic conditions and guide its policy. In 1990, the Federal Reserve focused mostly on monetary growth to keep inflation and unemployment close to their respective targets. This meant in this time period the Federal Reserve was not considering the effects credit cycles might have on these factors as there is little to no mention of the credit conditions beginning prior to the 1990 recession.

By the 2001 recession, the Federal Reserve had certainly expanded on what it was monitoring in the economy. The FOMC actively discussed the fluctuating equity prices as well as the dangers of tightening credit. This discussion implies the Federal Reserve by this time was actively thinking about the credit cycle theory. However, even though the Federal Reserve was beginning to discuss credit cycles more frequently, it still tailored monetary policy mostly toward inflation. This use of monetary policy shows that while the Federal Reserve was thinking about credit cycles, it still did not see them as a great indicator of an incoming recession or at the very least something the Board should focus its monetary policy on. Leading up to the Great Recession, the Federal Reserve acted in much of the same way. The bulk of their discussion hinged on inflation and the monetary base, but it did spend considerably more time discussing issues of credit, liquidity, and leverage. The Federal Reserve also failed to adjust monetary policy in a way that would indicate it was truly following the credit cycle theory.

In all three of these cases, the Federal Reserve acted in a reactionary way. It would hesitate to adjust policy until after the equity and credit markets began to move down and a recession was all but inevitable. There were multiple times throughout the readings when the Federal Reserve correctly ascertained that a recession was possible and there may be risks due to tightening credit. However, each time it opted not to adjust the monetary policy in line with these risks until the recession was imminent, often keeping the Federal Funds Rate focused on managing inflation. While keeping inflation in a specific range is one of the Fed's goals, its other goal is to keep unemployment low. If it had believed in the credit cycle theory and that the increases in credit and leverage it mentions multiple times were real indicators that a recession was on the horizon, the Fed would have adjusted monetary policy based on those indicators with the hopes that it could keep unemployment down and avoid recession. However, this was not the case for the first three recessions studied.

The Federal Reserve would sparsely mention credit until well after credit conditions tightened and deteriorated rather than discussing it consistently as the credit cycle theory suggests. If the Fed had been considering the credit cycle theory, it would have been concerned with growing credit not just falling credit. This can be seen in Figure 2, specifically 2b and 2c, which shows the number of mentions of the word "credit" in the five FOMC meeting minutes before each of the four recessions considered. This Figure also clearly shows how credit was mentioned more as the recessions became more recent with it being mentioned zero times in 1990 and a high of 29 times in 2007. In contrast, prior to the Covid Recession, there were consistently frequent mentions of credit but no real trend. This is likely due to the fact that the Fed was always focused on credit. A credit bubble did not cause the Covid Recession so there was no reason for there to be a rise in the mention of credit.

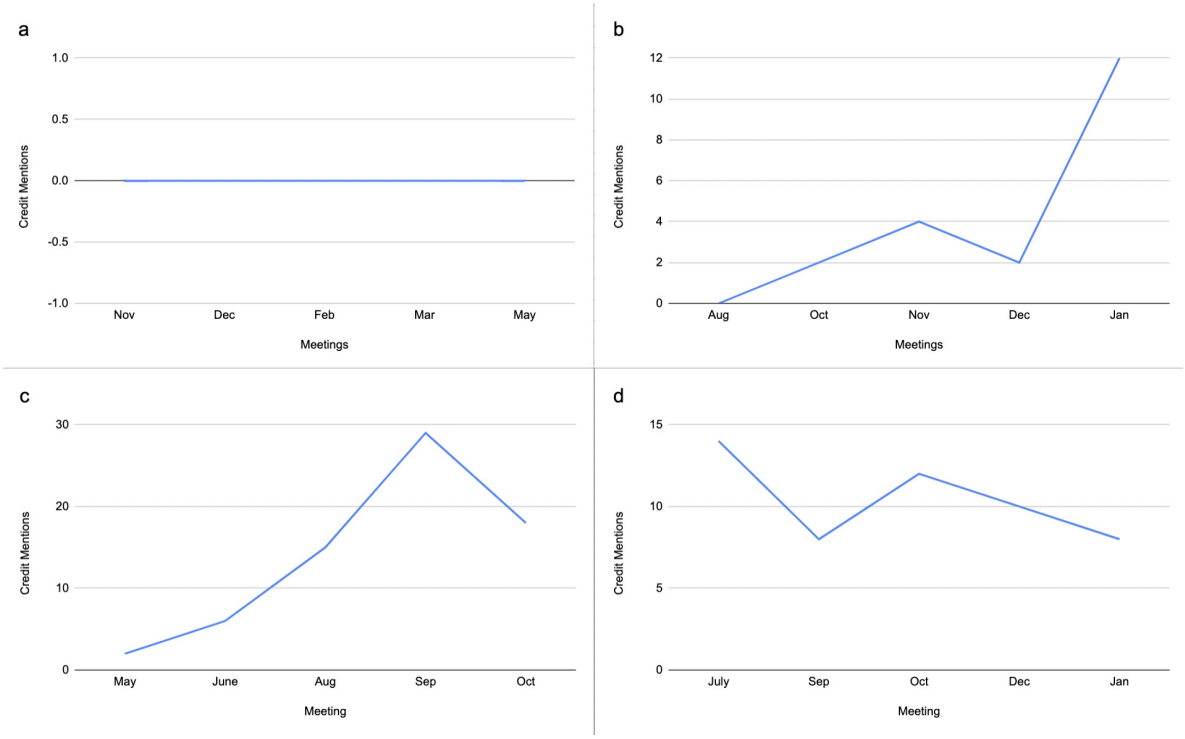

Figure 2. The Number of Times Credit was Mentioned Per Meeting. a) Savings and Loan Crisis, b) Dot-Com Bubble, c) Great Recession, d) Covid recession

The Federal Reserve's school of thinking drastically shifted after the Great Recession. It is clear that they were heavily influenced by the events of the Great Recession and the credit crunch that triggered it. By 2019, the Federal Reserve had greatly expanded the ways it could enact monetary policy to include practices like quantitative easing to hel[p improve credit conditions. It also greatly expanded the areas of the economy it discussed. In the meetings prior to the Covid recession, the Federal Reserve was actively discussing the condition of credit in various sectors, the dangers of rising asset prices, and the leverage ratios for financial firms. It also indicated a willingness to change monetary policy to police these factors. These kinds of discussions show that the Federal Reserve began to adhere to the credit cycle theory much more closely after the Great Recession than it did before.

Conclusion

Through an examination of Federal Reserve minutes prior to the four most recent United States recessions, this paper shows that the Federal Reserve has evolved to consider the credit cycle theory. The goal of the Federal Reserve has always been to balance its dual mandates to keep unemployment at its natural rate and price levels stable. Recessions are always correlated with some increase in unemployment so naturally, the Federal Reserve would be interested in limiting them. In 1990 the Federal Reserve focused exclusively on inflation and the monetary base and their relation to employment, as that was the bulk of what was discussed in meetings and what monetary policy was tailored towards.

However, as they learned from previous recessions, the Federal Reserve began to discuss credit cycles and their implication on the economy by 2001 and into the Great Recession. This discussion was helpful, but the Federal Reserve was still hesitant to move the Federal Funds Rate based solely on changes in credit markets. Instead, they opted to continue to base it primarily on inflationary pressures and the risk that could pose to employment. However, after the Great Recession, the Federal Reserve better understood how many factors could affect employment including credit cycles, and it began discussing these factors significantly more and using them as a basis to adjust policy accordingly.

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