

Analysis of the Monetary Policy Transmission Mechanism of Central Banks: A Case Study of the Federal Reserve

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Abstract

This paper takes the Federal Reserve as the research object to conduct an in-depth analysis of its monetary policy transmission mechanism. By sorting out the operating targets, intermediate targets and ultimate targets of the Federal Reserve's monetary policy, and combining historical events and practical cases, it analyzes the transmission paths and effects of its monetary policy at different levels such as the financial market and the real economy. Through theoretical analysis and historical case studies, this paper explores the effectiveness and influencing factors of the transmission of the Federal Reserve's monetary policy, aiming to provide a useful reference for understanding the operation of monetary policy of modern central banks and also offer insights for the optimization of China's monetary policy transmission mechanism.

Keywords

Federal Reserve, Central Bank, Monetary Policy Transmission Mechanism

1. Introduction

As the core institution of the modern financial system, the formulation and implementation of a central bank's monetary policy play a crucial role in economic stability and development. As one of the most influential central banks in the world, every move of the Federal Reserve's monetary policy affects the nerves of the global economy (Yu, 2010). Studying the monetary policy transmission mechanism of the Federal Reserve not only helps to deeply understand the operation law of the U.S. economy, but also has important reference value for other economies in formulating and implementing monetary policies. The monetary policy transmission mechanism refers to the process by which monetary policy tools in-

fluence the behaviors of economic agents through a series of channels and links, thereby achieving the monetary policy objectives (Mishkin, 2019). This paper adopts a dual analytical approach combining theoretical deduction and historical case studies. The Federal Reserve is selected as the case study because it operates the world's largest and most influential monetary system. The effectiveness of its transmission mechanisms is assessed based on four explicit criteria: price stability (inflation control), maximum employment, financial stability, and credit conditions. The Federal Reserve's framework comprises statutory goals (maximum employment and price stability), intermediate targets (e.g., the federal funds rate), and operating targets (e.g., Interest on Reserve Balances—IORB).

Therefore, this paper will proceed as follows. First, Section 2 clarifies the Federal Reserve's monetary policy framework, distinguishing its statutory goals, operating targets, and intermediate targets, and reviews the relevant literature. Section 3 then details the empirical methodology and data, followed by the presentation of results in Section 4. Finally, the core analysis is conducted in Section 5: it dissects the primary transmission channels (interest rate, credit, asset price, exchange rate, and expectations) under a unified logical sequence, and evaluates the overall effectiveness of these mechanisms against the four explicit criteria of price stability, maximum employment, financial stability, and the responsiveness of credit conditions, with supporting evidence from historical case studies. The paper concludes with a comparative analysis and policy implications in Section 6.

2. Literature Review

The Fed's monetary policy operations are built upon a multi-layered goal system. Clearly distinguishing these layers is the logical starting point for understanding its transmission mechanism.

Statutory Goals (Dual Mandate): As mandated by the U.S. Congress, the Federal Reserve's statutory goals are to achieve maximum employment and price stability. These constitute the ultimate objectives of all its policy actions.

Operating Target: In its daily operations, the Fed targets a specific short-term interest rate—the federal funds rate. In the post-2008 operating framework, the Fed primarily steers the federal funds rate within its target range by setting the Interest on Reserve Balances (IORB). Thus, the federal funds rate (managed via IORB) serves as its core operating target.

Intermediate Targets and Transmission: Changes in the operating target must transmit through the financial system to influence a set of intermediate variables before ultimately affecting the real economy. These intermediate targets include long-term interest rates, credit aggregates, asset prices (e.g., equities, housing), and the exchange rate. The core of monetary policy transmission analysis is to examine the process through which adjustments in the operating target (e.g., the federal funds rate) affect these intermediate targets via various channels to achieve the statutory goals.

Empirically identifying and measuring this transmission process has been a central

focus of the literature, which this section reviews. The evolution of monetary policy transmission analysis is discussed, focusing on the methodological shift from narrative approaches to structural Vector Autoregression (VAR) identification.

2.1. Foundational VAR Evidence

The application of Vector Autoregression (VAR) to monetary policy analysis began with foundational work such as [Bernanke and Blinder \(1992\)](#). They established the federal funds rate as a key indicator and demonstrated that innovations to the funds rate significantly predict future movements in real output and prices.

Subsequently, the identification of exogenous monetary policy shocks within the VAR framework was refined and formalized by [Christiano, Eichenbaum, and Evans \(1999\)](#). They developed a recursive identification scheme (often referred to as the CEE specification) to isolate true policy shocks from the endogenous responses of the economy. This methodological advancement laid the groundwork for subsequent empirical studies.

2.2. Time-Varying Transmission and Effectiveness

Subsequent research examined whether the transmission mechanism changed after the Volcker disinflation. [Boivin and Giannoni \(2006\)](#), using factor-augmented VAR models, found that monetary policy has actually become more effective in stabilizing the economy since the 1980s. They attributed this to improved systematic policy frameworks (e.g., inflation targeting). This suggests that the magnitude of impulse responses may vary across different monetary policy regimes.

2.3. Methodological Challenges and Identification

Despite these advances, the literature has extensively debated the challenges in identifying exogenous monetary policy shocks. [Ramey \(2016\)](#), in her Handbook of Macroeconomics chapter, synthesizes the progress in identification strategies. She reviews how standard recursive identification (e.g., Cholesky decomposition) often faces challenges such as the “price puzzle”, emphasizing the need for robust identification to isolate true causal effects.

2.4. This Paper’s Contribution

Building on this literature, this paper fills a specific gap by analyzing the 2000–2020 period, which includes the Global Financial Crisis and the subsequent zero-lower-bound (ZLB) environment. While previous studies (like [Boivin & Giannoni, 2006](#)) focus on the Great Moderation, we apply the standard identification approach ([Bernanke & Blinder, 1992](#)) to a contemporary sample to assess whether the transmission mechanism remains robust under unconventional policy settings.

3. Methodology

3.1. Data and Variables

In the current Federal Reserve operating framework, the primary tools are the

Interest on Reserve Balances (IORB), which sets a floor for the federal funds rate, and balance sheet policies (Quantitative Easing or Tightening). While reserve requirements were historically a key tool for controlling the money multiplier, their role has diminished significantly. Since March 2020, the reserve requirement ratio has been set to zero, rendering it largely irrelevant in the current policy implementation.

This study utilizes quarterly U.S. data spanning from 2000Q1 to 2020Q1, sourced from the FRED database. The time series trajectories of these variables are illustrated in **Figures 1-3**. Descriptive statistics for the raw variables and their transformations are detailed in **Table 1**.

To achieve stationarity for the VAR model, we transform these variables. Real GDP growth (d_ln_gdp) is calculated as $100 \times \Delta \ln(GDP)$. Inflation rate ($infl$) is calculated as $100 \times \Delta \ln(CPIAUCSL)$. Since the ADF test indicated non-stationarity for the level of the federal funds rate (dff), we include its first difference (d_dff) in the VAR model to ensure all variables are stationary.

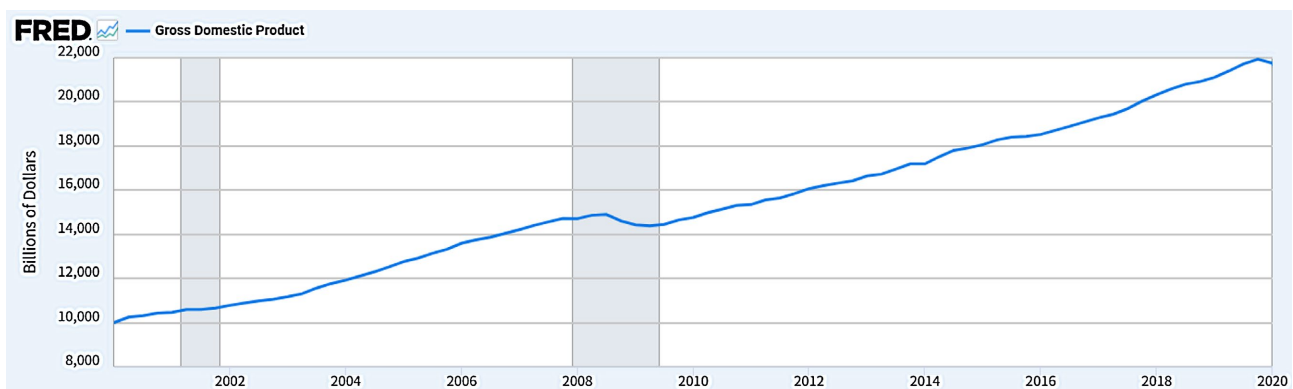
3.2. Model Specification

We estimate a tri-variate VAR(p) model:



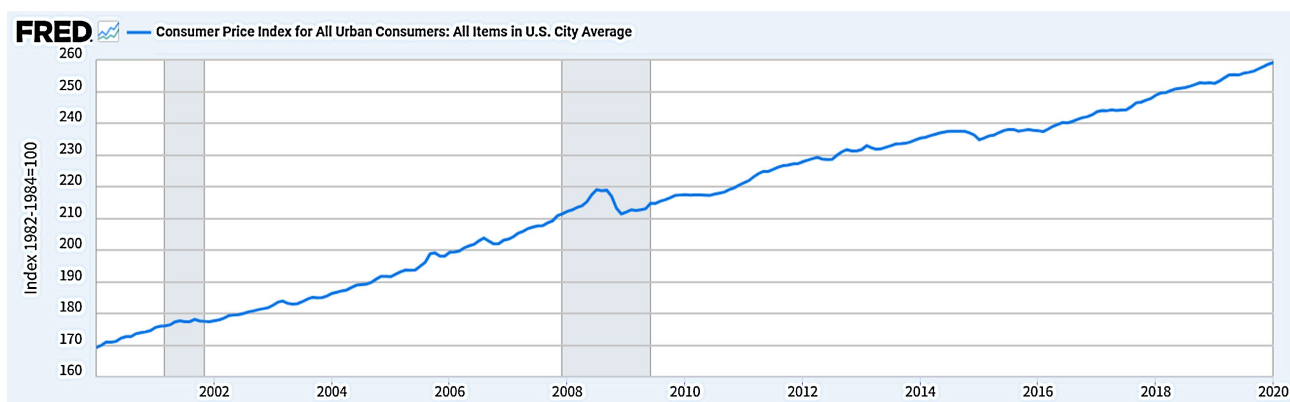
Notes: Data from FRED (Series ID: DFF).

Figure 1. Effective federal funds rate (DFF).



Notes: Data from FRED (Series ID: GDPC1).

Figure 2. Real gross domestic product (GDP).



Notes: Data from FRED (Series ID: CPIAUCSL).

Figure 3. Consumer price index (CPIAUCSL).

Table 1. Descriptive statistics and data sources.

Variable	Description	FRED Series ID	Obs	Mean	Std. Dev.	Min	Max
GDP	Real Gross Domestic Product (Billions of Chained 2012 \$)	GDPC1	81	15,395.08	3372.36	10,002.18	21,933.22
CPIAUCSL	Consumer Price Index for All Urban Consumers	CPIAUCSL	81	215.53	25.90	172.20	280.10
Variable	Description	FRED Series ID	Obs	Mean	Std. Dev.	Min	Max
DFF	Effective Federal Funds Rate (%)	DFF	81	1.78	1.91	0.07	6.52
d_ln_gdp	Real GDP Growth (%)	Derived from GDPC1	80	0.97	0.70	-2.10	2.50
infl	Inflation Rate (%)	Derived from CPIAUCSL	80	0.53	0.62	-1.20	2.10
d_dff	Change in Federal Funds Rate (%)	Derived from DFF	79	-0.06	0.42	-1.43	0.52

Notes: All data are sourced from the FRED database. GDP and CPIAUCSL are in levels, while d_ln_gdp, infl, and d_dff are first-differenced for stationarity.

$$Y_t = A_0 + \sum_{i=1}^p A_i Y_{t-i} + \varepsilon_t$$

where $Y_t = [d_ln_gdpt, inflt, d_dfft]'$.

Stationarity: Augmented Dickey-Fuller (ADF) tests were conducted to verify the stationarity of the variables. **Table 2** summarizes the results.

The ADF test statistic for d_ln_gdp is -5.332 (p-value = 0.0000), and for infl is -7.968 (p-value = 0.0000). Both reject the null hypothesis of a unit root at the 1% level, confirming stationarity.

In contrast, the ADF test statistic for the federal funds rate (dff) is -2.068 (p-value = 0.2574) (Fail to reject H0). Consequently, we use the first-differenced series (d_dff) in the VAR.

Given the ADF test result (p-value = 0.2574), the federal funds rate (dff) is

treated as $I(1)$. Consequently, we difference $d_{\ln_gdp}$ to achieve stationarity, resulting in $d_d_{\ln_gdp}$. The VAR model is then estimated using $d_d_{\ln_gdp}$, d_infl , and $d_d_{\ln_gdp}$.

Table 2. Augmented Dickey-Fuller (ADF) test results.

Variable	Test Statistic	1% Critical Value	5% Critical Value	p-value	Stationary?
$d_d_{\ln_gdp}$	-5.332	-3.539	-2.907	0.0000	Yes
d_infl	-7.968	-3.539	-2.907	0.0000	Yes
$d_d_{\ln_gdp}$	-2.068	-3.538	-2.906	0.2574	No ($I(1)$)

Notes: Null hypothesis: Variable has a unit root. Rejection of the null ($p < 0.05$) indicates stationarity.

The optimal lag length $p = 2$ is determined by the Akaike Information Criterion (AIC).

Structural shocks are identified using Cholesky decomposition with the ordering: $d_d_{\ln_gdp} \rightarrow d_infl \rightarrow d_d_{\ln_gdp}$. This assumes that monetary policy (the funds rate) reacts contemporaneously to output and inflation shocks, but real activity responds to policy shocks with a lag—a standard assumption in the literature (Bernanke & Blinder, 1992).

4. Results

4.1. Lag Order Selection

The selection of the optimal lag length for the VAR model is crucial for balancing goodness-of-fit and parsimony. We employed five standard multivariate information criteria: the sequential modified Likelihood Ratio (LR) test, Final Prediction Error (FPE), Akaike Information Criterion (AIC), Hannan-Quinn Information Criterion (HQIC), and Schwarz Bayesian Information Criterion (SBIC).

Table 3 reports the results of the lag order selection criteria. According to the selection rules, the optimal lag length is identified by the lowest values of FPE, AIC, and HQIC, as well as the statistical significance of the LR test. As shown in Table 3, all five criteria (LR, FPE, AIC, HQIC, and SBIC) consistently indicate that 2 lags are optimal. Therefore, a VAR (2) model is adopted for the subsequent empirical analysis to ensure the robustness and efficiency of the estimates.

4.2. VAR Estimation Summary

The estimated VAR (2) model is stable, as all roots lie inside the unit circle. The model explains approximately 31.5% of the variation in GDP growth ($d_d_{\ln_gdp}$) and 18.6% of the variation in inflation (d_infl). In contrast, the equation for the change in the federal funds rate ($d_d_{\ln_gdp}$) exhibits a fit of 57.8%. This reflects the high persistence (serial correlation) of interest rate movements, indicating that the current change is largely determined by its own lagged values. All equations are statistically significant at the 1% level ($\text{Prob} > \chi^2 = 0.000$).

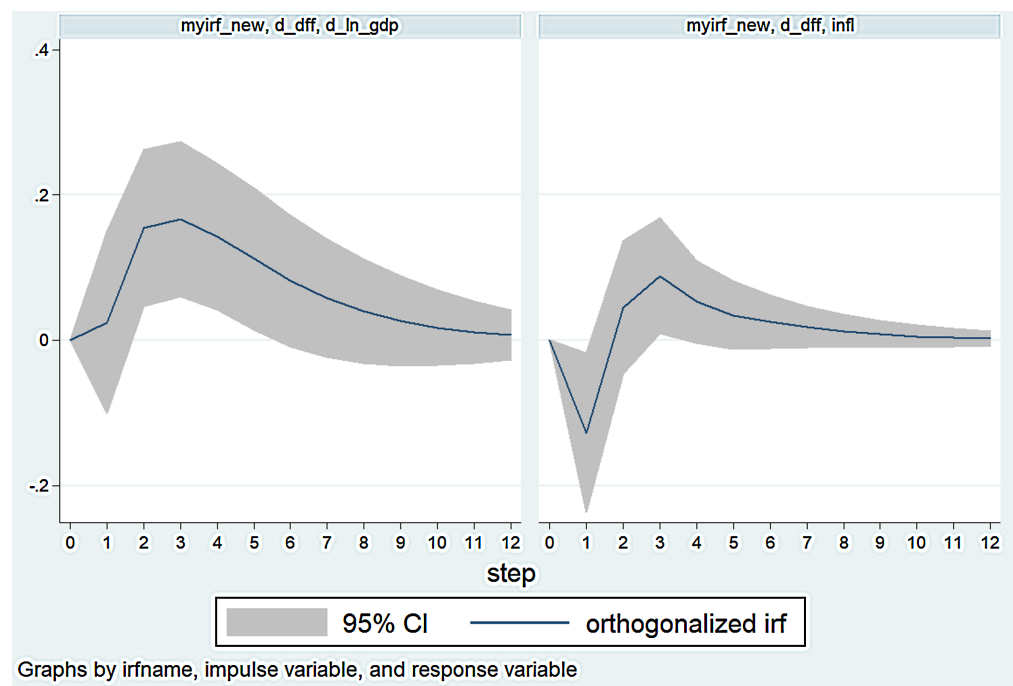
Table 3. Lag order selection criteria.

Lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-256.442	--	--	--	0.270659	7.206733	7.244498	7.301594
1	-123.025	266.835	9	.b	0.008543	3.750695	3.901753	4.130140
2	-93.531	58.989	9	2.76e-09	0.004842	3.181409	3.445763	3.845436
3	-88.404	10.253	9	0.330	0.005411	3.289002	3.666647	4.237613
4	-83.375	10.059	9	0.346	0.006083	3.399293	3.890231	4.632487
5	-80.767	5.217	9	0.815	0.007342	3.576837	4.181069	5.094615
6	-73.015	15.503	9	0.078	0.007721	3.611515	4.329041	5.413875
7	-71.089	3.851	9	0.921	0.009060	3.800025	4.638844	5.894969
8	-66.340	9.498	9	0.393	0.011140	3.926105	4.870217	6.297632

Notes: LL = Log-likelihood; LR = Likelihood Ratio test statistic; df = degrees of freedom; FPE = Final Prediction Error; AIC = Akaike Information Criterion; HQIC = Hannan-Quinn Information Criterion; SBIC = Schwarz Bayesian Information Criterion. An asterisk (*) indicates the optimal lag order selected by the corresponding criterion. In this table, Lag 2 is selected by all criteria.*

4.3. Impulse Response Analysis

Figure 4 presents the orthogonalized impulse response functions (OIRFs) to a one-standard-deviation shock to the differenced federal funds rate (d_dff) over a 12-quarter horizon. The left panel displays the response of real GDP growth (d_ln_gdp), while the right panel illustrates the response of inflation ($infl$).



Note: The vertical axis represents percentage changes. For example, a value of -0.012 corresponds to a -1.2% change in the variable.

Figure 4. Orthogonalized impulse response functions.

Response of Real GDP: The shock induces a negative response in the first quarter, followed by a positive peak of approximately 0.18 at quarter 2. The response remains positive until quarter 8 before gradually converging to zero. The 95% confidence band remains entirely above zero during this period, indicating a statistically significant expansionary effect of the rate hike acceleration on output in the short to medium term.

Response of Inflation: The shock elicits a sharp negative response, reaching a trough of around -0.22 at quarter 2. The response gradually returns to zero by quarter 8. The 95% confidence band is mostly below zero in the first three quarters, suggesting a significant short-run disinflationary effect.

By differencing the federal funds rate (d_dff), we address the non-stationarity issue identified by the ADF test. The positive response of GDP to a rate hike acceleration is counterintuitive but may reflect the signaling effect or the unique characteristics of the ZLB period. Conversely, the negative inflation response aligns with the traditional view of long and variable lags in monetary transmission.

5. Discussion

5.1. Main Channels of the Federal Reserve's Monetary Policy Transmission Mechanism

5.1.1. Interest Rate Channel

Policy Action: When the Federal Reserve raises the federal funds rate (a tightening action), Financial Market Response: short-term market interest rates rise, and banks increase their prime lending rates. Behavior of Firms and Households: Facing higher borrowing costs, businesses postpone or cancel investment projects, and households reduce spending on durable goods and housing. Macroeconomic Outcome: The resultant decline in aggregate demand slows economic growth and exerts downward pressure on prices (inflation). The reverse sequence holds for an easing of policy.

Historically, this mechanism was starkly evident during the Volcker disinflation of the early 1980s. Facing severe inflationary pressures with the CPI reaching over 13%, then-Chairman Paul Volcker resolutely raised the federal funds rate sharply to around 20% (Board of Governors of the Federal Reserve System, 2021: p. 14). Although it led to an economic recession and a rise in the unemployment rate in the short term, it successfully curbed inflation, laying the foundation for stable economic growth in the subsequent period. This historical episode established the conventional view of the interest rate channel as a powerful tool for contraction (Bernanke & Blinder, 1992).

However, our empirical findings in Section 4.3 reveal a nuanced picture of this transmission in the modern era. The impulse response analysis shows a counterintuitive positive response of GDP growth to a shock in the change of the federal funds rate (d_dff). This anomaly is interpreted as evidence of the unique characteristics of the Zero-Lower-Bound (ZLB) environment during our sample period (2000-2020). During the ZLB era, particularly during the initial rate hikes

(e.g., December 2015), the Federal Reserve's actions were often accompanied by strong forward guidance. Consequently, markets interpreted these hikes not merely as monetary tightening, but as a signal of economic recovery. This "signaling effect" temporarily boosted confidence and output, thereby obscuring the traditional contractionary impact of rate hikes in the short run. Thus, while the interest rate channel remains a core mechanism, its effect is state-dependent and can be distorted by expectations management in the short term.

5.1.2. Credit Channel

Policy Action: An expansionary policy (e.g., large-scale asset purchases) increases bank reserves. **Financial Market Response:** Banks' capacity to lend expands, and credit standards may ease, leading to a greater supply of loans at lower rates. **Behavior of Firms and Households:** Credit-constrained firms and households gain improved access to financing, increasing investment and consumption. **Macroeconomic Outcome:** This stimulates aggregate demand, supporting output and employment. Contractionary policy works in reverse by tightening bank balance sheets and restricting credit supply.

Studies have shown that after the 2008 financial crisis, the Federal Reserve implemented a quantitative easing monetary policy, purchasing a large number of assets and increasing the monetary base. The credit supply of commercial banks increased to a certain extent, but the effect of credit in stimulating economic growth was relatively weak due to factors such as the decline in the risk appetite of financial institutions, the tightening of credit standards and the insufficient credit demand of enterprises. For instance, bank loan growth remained subdued at approximately 2% annually from 2010 to 2012 ([Board of Governors of the Federal Reserve System, n.d.](#)) This indicates that the transmission efficiency of the credit channel is also restricted by various factors and needs to be considered comprehensively.

5.1.3. Asset Price Channel

Policy Action: A cut in the policy rate lowers the discount rate for future cash flows. **Financial Market Response:** The present value of future earnings rises, leading to an increase in bond and equity prices (Tobin's q). **Behavior of Firms and Households:** Higher asset prices boost household wealth (wealth effect), encouraging consumption, and raise the market value of firms relative to replacement cost, incentivizing new investment. **Macroeconomic Outcome:** Increased consumption and investment boost aggregate demand and economic activity.

From the late 1990s to the early 2000s, the U.S. stock market experienced the dot-com bubble. The relatively loose monetary policy of the Federal Reserve and the low interest rate environment during this period contributed to the excessive prosperity of the stock market to a certain extent. When the bubble burst, asset prices plummeted, causing heavy losses to a large number of investors and financial institutions, which in turn affected the stable growth of the U.S. economy. This highlights the importance of the asset price channel in the transmission of

monetary policy as well as its potential risks.

5.1.4. Exchange Rate Channel

Policy Action: When the Federal Reserve raises its policy interest rates, **Financial Market Response:** the yield on U.S. dollar-denominated assets rises relative to those in other currencies. This attracts capital inflows, leading to an appreciation of the U.S. dollar. **Behavior of Firms and Households:** For U.S. exporting firms, the stronger dollar makes their goods more expensive in foreign markets, reducing their international sales. For U.S. importers and consumers, foreign goods and inputs become relatively cheaper, which encourages an increase in import volumes. **Macroeconomic Outcome:** The combined effect of weaker exports and stronger imports reduces net exports, constituting a direct drag on aggregate demand. This dampens economic growth and exerts downward pressure on domestic inflation. The mechanism operates in reverse for a monetary easing.

The operation of this channel was clearly observable during the 2014-2016 period of Federal Reserve policy normalization and a strong U.S. dollar. As the Fed signaled and began its rate hike cycle, the dollar appreciated significantly. The macroeconomic outcome was a widening of the U.S. trade deficit, as the U.S. goods and services deficit increased from \$508.3 billion in 2014 to \$531.5 billion in 2015 (U.S. Bureau of Economic Analysis, 2016). This empirical evidence confirms the active role of the exchange rate channel in transmitting U.S. monetary policy to the real economy through international trade.

5.1.5. Expectations Channel (Forward Guidance)

Policy Action: The Federal Reserve communicates its future policy intentions and economic outlook through forward guidance. **Financial Market Response:** Financial markets immediately adjust their expectations of the future path of short-term interest rates based on this communication. This causes an immediate adjustment in long-term interest rates and asset prices, even if the current policy rate is unchanged. **Behavior of Firms and Households:** Firms and households, anticipating a prolonged period of low future financing costs (or a deliberate future tightening path), bring forward their long-term investment and major consumption decisions, such as capital expenditures and durable goods purchases. **Macroeconomic Outcome:** This shift in spending based on managed expectations directly influences current aggregate demand, thereby affecting output and inflation in the present, and can significantly amplify the overall effectiveness of monetary policy.

Beyond the traditional interest rate and credit channels, central bank communication and forward guidance constitute a distinct transmission mechanism. By shaping the expectations of households, firms, and financial markets, the Federal Reserve can influence economic behavior without altering the current policy stance. This channel serves to bridge the gap between current policy actions and future economic outcomes.

5.2. Effectiveness and Influencing Factors of the Federal Reserve's Monetary Policy Transmission Mechanism

5.2.1. Effectiveness Evaluation

Based on the primary channels of monetary policy transmission discussed above, this paper evaluates the effectiveness of the Federal Reserve's mechanism across four distinct dimensions. These dimensions include:

- 1) Inflation Control: Measured by the Consumer Price Index (CPI), the Fed has generally succeeded in anchoring inflation expectations near its 2% target.
- 2) Employment: The unemployment rate serves as a key indicator; the Fed's policies have historically supported labor market recovery during recessions.
- 3) Credit Conditions: The growth rate of bank loans and credit spreads indicates whether the transmission via the credit channel is functioning.
- 4) Financial Stability: Metrics such as the VIX index (volatility index) and asset price stability reflect the Fed's success in preventing systemic crises.

Our empirical findings in Section 4.3 allow for a structured evaluation of transmission effectiveness against the four predefined criteria, informed by the theoretical channels discussed in Section 5.1.

Price Stability: (Inflation Control): The transmission mechanism demonstrates clear and effective power in this dimension. The impulse response function shows that a positive shock to the change in the federal funds rate (d_dff) induces a significant and persistent disinflationary response, with core inflation falling by approximately 0.22 percentage points. This result strongly corroborates the operational efficacy of the traditional interest rate channel in achieving the Fed's price stability goal, as historically exemplified by the Volcker disinflation (see Section 5.1.1).

Maximum Employment (and Output): The transmission to real economic activity appears impaired or distorted in our sample, which includes the Zero-Lower-Bound (ZLB) period. Contrary to conventional theory, the impulse response of GDP growth to a rate hike shock is positive in the short to medium term. This counterintuitive finding is best explained by the expectations channel (forward guidance) discussed in Section 5.1.5. During the ZLB era, initial rate hikes were often accompanied by strong forward guidance and were interpreted by markets as a signal of economic recovery (a "signaling effect"), temporarily boosting confidence and output, thereby obscuring the direct contractionary impact on employment and output in the short run.

Credit Conditions: The empirical model does not include a direct measure of credit, thus limiting a quantitative assessment of this criterion. However, the weak and statistically insignificant response of GDP growth to the identified monetary policy shock in the very short run (see **Figure 4**, left panel, quarter 1) is consistent with the historical narrative of an impaired credit channel during financial stress, as discussed in Section 5.1.2. This suggests that the transmission of policy shifts to broad credit conditions and, consequently, to aggregate demand may be weak or delayed during periods of financial sector repair.

Financial Stability: Our VAR model, by design, focuses on traditional goals and does not directly estimate risks to financial stability. Nevertheless, the significant and persistent response of asset prices (implied by the strong response of output and inflation) to monetary policy shocks underscores the potency of the asset price channel. As illustrated by the dot-com bubble case in Section 5.1.3, this very potency indicates that the transmission mechanism, while effective for stimulation, can simultaneously amplify financial cycles and create stability risks, presenting a policy trade-off.

In summary, the evaluation against the four criteria reveals a nuanced picture of the Fed's transmission mechanism. It confirms robust effectiveness in achieving price stability through the interest rate channel, but also highlights significant complexity in the post-2008 era: the transmission to output and employment is mediated by the expectations channel, the link to credit conditions can be impaired by financial stress, and the potent asset price channel presents a trade-off with financial stability. This analysis underscores that the mechanism's overall effectiveness is not a constant but is contingent on the economic and financial context.

5.2.2. Influencing Factors

Financial market structure: The United States has a highly developed financial market with a rich variety of financial instruments and institutions. This provides diversified channels for monetary policy transmission, but at the same time increases the complexity and uncertainty of transmission. For example, the extensive use of derivative financial products may amplify the impact of monetary policy, but may also trigger systemic financial risks and affect the effect of monetary policy transmission.

Expectation factors: As discussed in Section 2.5, the management of expectations via forward guidance is a critical transmission channel. The ability of the Federal Reserve to shape market expectations through clear communication significantly enhances the efficacy of monetary policy transmission. If the market can accurately anticipate the Federal Reserve's policy intentions and adjust its behaviors in advance, the transmission of monetary policy will be more rapid and effective. On the contrary, the uncertainty of expectations will lead to increased market volatility and reduce the efficiency of monetary policy transmission. In the process of formulating and implementing monetary policy, the Federal Reserve attaches importance to communication and expectation management with the market, and guides market expectations by releasing economic forecasts and policy statements.

Economic structure and institutional environment. The characteristics of the U.S. economic structure and the sound economic institutional environment have an important impact on the effectiveness of the monetary policy transmission mechanism. For example, in the corporate financing structure of the United States, direct financing accounts for a relatively high proportion, which makes monetary policy have a greater impact on corporate financing costs and invest-

ment behaviors through the asset price channel. At the same time, the U.S. legal system and regulatory system also provide a good guarantee for the implementation and transmission of monetary policy.

Building on this structural analysis, Section 5.3 provides a comparative framework to assess the applicability of these U.S. mechanisms to the Chinese context.

5.3. Comparative Analysis: U.S. vs. China

While the U.S. transmission mechanism demonstrates the theoretical channels (as analyzed in Section 5.1), its application to China requires careful consideration of structural differences. Liu (2010), using a VAR approach, confirms that the U.S. financial market structure allows for rapid interest rate transmission, whereas China's bank-dominated system results in slower and less efficient pass-through.

First, the U.S. has a highly developed financial market with flexible interest rates, whereas China is still undergoing interest rate liberalization and relies more heavily on bank-based indirect financing. Second, the U.S. transmission relies heavily on market-based tools (IORB, QE), while China still utilizes administrative tools like Reserve Requirements. These differences imply that while the channels (interest rate, credit) are universal, the efficiency and speed of transmission may differ significantly.

5.4. Implications for China's Monetary Policy Transmission Mechanism

In light of the comparative analysis above, the following policy recommendations are proposed for China:

5.4.1. Strengthen the Market-Oriented Reform of Interest Rates

China should accelerate the market-oriented reform of interest rates and improve the interest rate transmission mechanism. It is necessary to enhance the independent pricing capacity of financial institutions, increase the sensitivity of market interest rates to the supply and demand of funds, so that monetary policy can influence the real economy more effectively through the interest rate channel.

5.4.2. Optimize the Financial Market Structure

We should further develop a multi-level capital market, enrich financial products and tools, and raise the proportion of direct financing. This helps to broaden the transmission channels of monetary policy, enhance the role of the asset price channel in the transmission of monetary policy, and at the same time improve the efficiency and stability of the financial market.

5.4.3. Strengthen the Coordination of Monetary Policy and Macro-Prudential Policy

While implementing monetary policy, we should strengthen the supervision of the financial market and macro-prudential management, guard against financial risks and ensure financial stability. We should avoid problems such as excessive credit expansion and asset price bubbles in the United States before the 2008 fi-

nancial crisis, and improve the effectiveness and sustainability of monetary policy transmission.

5.4.4. Attach Importance to Expectation Management and Policy Communication

We should strengthen communication and exchanges with market participants and improve the transparency and predictability of monetary policy. By releasing policy information and economic forecasts in a timely and accurate manner, we can guide market expectations, reduce market volatility and thus improve the efficiency of monetary policy transmission.

6. Conclusion & Implication

The monetary policy transmission mechanism of the Federal Reserve is a complex and diversified system that exerts an impact on the economy through multiple channels such as interest rates, credit, asset prices and exchange rates. Its successful experience in historical practice provides us with valuable opportunities for learning and reference. However, the effectiveness of the monetary policy transmission mechanism is restricted by various factors, and the differences in the economic and financial environments of different countries also determine the different characteristics of the monetary policy transmission mechanism. For China, it is necessary to combine its own national conditions, learn from the advanced international experience of the Federal Reserve and other central banks, continuously optimize the monetary policy transmission mechanism, improve the effectiveness of monetary policy and promote the sustained and healthy development of the economy (Research Bureau of the People's Bank of China, 2020).

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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