

Exploring the Implementation of Quantitative Easing (QE) as an Expansionary Monetary Policy Across Nations and Regions: Implications for the Global Economy

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Abstract. Quantitative easing (QE) represents an unconventional, yet potent monetary policy lever employed by central banks. Through the strategic acquisition of government bonds and diverse financial assets, these banks effectively pump liquidity into the economic system. The objective is twofold: to deliberately drive down interest rates, thereby reducing the cost of borrowing and encouraging investment, and ultimately to stimulate economic growth and revitalize economic activity. This approach, though unconventional, has proven to be a vital tool in the central banks' arsenal for addressing economic downturns and fostering economic recovery. This paper explores the global ramifications of QE by analyzing its implementation in various countries and regions, with a focus on the resulting economic outcomes and the interconnected impacts on the global economy. Through a series of case studies, the research delves into how QE influences international capital flows, exchange rate volatility, global trade patterns, and the dynamics of financial markets. Additionally, the paper provides a critical evaluation of QE's effectiveness in achieving its intended economic objectives, while also highlighting potential risks such as asset bubbles, inflationary pressures, and increased debt levels. By examining both short-term benefits and long-term implications, this study offers insights into optimizing the deployment of QE policies to enhance their effectiveness and mitigate adverse effects. The research underscores the necessity for careful consideration and management of QE's broader economic impacts, ensuring that such policies support sustainable global economic stability.

Keywords: QE policy, Global economy, International trade.

1. Introduction

1.1. The background of QE policy

Quantitative easing (QE) constitutes a pivotal monetary policy strategy employed by central banks, prominently distinguished by a deliberate expansion of the base money supply. This augmentation is achieved by the massive acquisition of medium- to long-term securities, particularly government bonds, typically after the implementation of a zero or near-zero interest rate environment. The central bank's intervention, in this context, serves two fundamental objectives: firstly, to further reduce borrowing costs and bolster market liquidity, and secondly, to stimulate economic activity and facilitate growth by fostering increased investment and consumption. Thus, QE serves as a potent tool in the central bank's arsenal for countering economic sluggishness and promoting economic resilience.

Firstly, the central bank elevates the prices of these bonds through their purchase, subsequently reducing the yields offered on Treasury bonds as well as mortgage-backed securities (MBS). This reduction in yields compels financial institutions to seek higher returns elsewhere, thereby redirecting their capital towards other investments. These might include funding industrial ventures, startups, or purchasing stocks of major corporations.

Second, the QE policy encourages businesses to increase their borrowing and spending activities, stimulated by the more favorable lending conditions created by the lower interest rates. The ultimate objective of these measures is to enhance liquidity in the market, making it easier for businesses to access capital, thereby stimulating economic activity and improving employment rates.

In this way, QE plays a crucial role in addressing economic downturns by ensuring that businesses can secure the financial resources needed to sustain operations and foster job creation.

1.2. The Global Financial Crisis and the application of QE

(1) Global economic recession

The world has transitioned into a post-crisis era marked by sluggish growth, subdued interest rates, minimal inflation, and elevated levels of debt. During this period, many economies are facing long-term sluggish demand, insufficient corporate investment, and weakened household consumption, while the trend of ant globalization is also beginning to rise.

(2) Rise in unemployment and foreclosures

The financial crisis caused many people to lose their jobs in the United States. The total number of unemployed people in the United States in 2008 was 2.6 million, the highest level since the end of World War II. In January 2009, nearly 600000 Americans lost their jobs, the unemployment rate was close to 8%, and reached the highest level of 10% in October of that year.

(3) Emergency assistance from major financial institutions

The financial crisis has led to difficulties for some large financial institutions, a decline in credit in major markets, a setback in public confidence, and a continued deepening of the negative impact on the real economy.

In 2008, the Federal Reserve first began using quantitative easing (QE) to provide financial support to the economy, and while this short-term action increased the stability of the banking sector, it did not promote long-term economic growth in the United States. After the 2008 financial crisis, major economies such as the eurozone and Japan, as well as other central banks around the world, also adopted quantitative easing policies. Quantitative easing as a policy tool to deal with the downward pressure on the global economy [1].

1.3. QE's global goals and expected effects

Quantitative Easing (QE) was implemented with several pivotal objectives in response to the 2008 financial crisis, aimed at stimulating global economic growth, fostering international trade, and ensuring stability in international financial markets. For the United State, QE had three broad aims as follows: "Reduce short, medium long-term interest rates", "cleaning up bank balance sheets through the purchase and removal of non-performing loans" and "Inject liquidity into banks' balance sheets to improve lending capacity and on lending and so avoid a deep recession".

1.4. Purpose and significance of the research

This paper discusses the impact and meaning of quantitative easing policy and the application of quantitative easing policy in modern times from a global perspective.

2. Case Description

2.1. The implementation of QE policy in the United States

The first round of quantitative easing totalled \$800bn, of which the Fed allocated \$600bn to buy mortgage-backed securities. That figure includes \$100 billion of debt issued by Fannie Mae, Freddie MAC and the Federal Home Loan Banks. An additional \$500 billion was earmarked for the purchase of mortgage-backed securities backed by the three companies [2]. The third iteration of Quantitative Easing (QE3) was executed by the Open Market Trading Desk of the Federal Reserve Bank of New York, involving monthly purchases of \$40 billion worth of agency mortgage-backed securities (MBS). Additionally, the program continued with "Operation Twist," an initiative aimed at reducing long-term interest rates. In QE2, the Fed announced that it would buy a total of \$600 billion in long-term Treasury bonds by the second quarter of 2011, with purchases of about \$75 billion per month [3].

From the end of 2008 to October 2014, the Fed launched three rounds of QE, buying a total of about 3.9 trillion dollars in assets. These asset purchases have significantly expanded the Fed's balance sheet, with its holdings rising from about 6.1 per cent of gross domestic product to 25.3 per cent. The size of the Fed's balance sheet increased from 900 billion dollars to 4.5 trillion dollars [3]. Until 2013, the Federal Reserve held more than 20% of both the Treasury and MBS markets [2]. As a leading economy and financial market globally, the monetary policy of the United States exerts considerable spillover effects on the worldwide market, evident in several key aspects:

The Fed's monetary policy changes affect the level of global interest rates. Such as, when the US Federal Reserve raises interest rates, global interest rates may rise, affecting the independence and effectiveness of monetary policy.

Fed policy changes can trigger changes in global capital flows. For instance, in anticipation of the Fed exiting QE or raising interest rates, global capital could flow back to the US, causing a shock to financial markets in emerging markets and other countries.

The Federal Reserve's monetary policy exerts a profound influence on the fluctuations of the dollar's exchange rate. Consequently, alterations in the US dollar's exchange rate subsequently propagate, impacting the exchange rate parity and the balance of payments of various other nations. If the appreciation of the US dollar can lead to the depreciation of non-US currencies, which in turn affects the competitiveness of these countries' exports and the cost of imports.

2.2. QE in the Eurozone and Japan

2.2.1 The Eurozone QE policy

The European Central Bank (ECB) has embarked on a strategy of quantitative easing (QE), which centers on large purchases of government bonds and various financial assets. In the initial stages of 2015, for example, the European Central Bank unveiled a broad quantitative easing program, including monthly asset purchases worth €60 billion, which continued until September 2016, eventually bringing the cumulative total to €1.08 trillion. Furthermore, the European Central Bank (ECB) has augmented its bond purchase program (QE) by an additional €120 billion and expanded its asset repurchase scheme. It remains committed to continuing the Targeted Long-Term Refinancing Operation (TLTRO) III, alongside introducing supplementary Long-Term Refinancing Operations, aimed at infusing liquidity into the market under favorable conditions. This comprehensive approach is designed to sustain market stability and liquidity coverage until the conclusion of TLTRO III operations in June 2020 [4]. The aim of the policy is mainly to stimulate investment and consumption by businesses and individuals by increasing market liquidity, raising asset prices and lowering borrowing costs.

2.2.2 The Japan QE policy

Commencing in the 1990s, Japan embarked on unconventional monetary stimulus measures, ultimately encountering a period colloquially referred to as the "lost decade." After reducing interest rates in 1991, the Bank of Japan initiated quantitative easing (QE) in 2001, which subsequently served as the blueprint for contemporary QE practices worldwide. Japan's late quantitative easing, also known as QQE (quantitative and qualitative easing), was a more aggressive form of monetary policy that the Bank of Japan (BoJ) started to implement after 2013. In contrast to traditional QE, QQE involves not only large-scale purchases of government bonds, but also purchases of exchange-traded funds (ETFs) and corporate bonds, among others. With the aim of bolstering employment, the Japanese government provided subsidies to corporations and implemented measures enabling banks to extend loans to borrowers without stringent restrictions [1]. However, this policy of dispensing low-cost loans to financially unviable enterprises has resulted in a protracted decline in productivity and a subsequent escalation of public debt. In addition, The Bank of Japan has instituted a negative interest rate policy, whereby the policy rate is driven into negative territory. This strategic move is intended to incentivize banks to increase lending and thereby stimulate economic activity within the country [4].

By increasing market liquidity, QE policies can help ease global deflationary pressures and promote economic growth. But at the same time, it also triggered volatility in global currency markets and exacerbated imbalances in the global economy.

2.3. The reaction of emerging markets

In the face of Global capital movements and financial markets volatility brought about by QE policies, emerging market countries usually adopt a series of economic and administrative measures to reduce potential risks and maintain economic stability.

Here are some of the main responses:

Emerging market countries may impose capital controls to limit inflows and outflows of hot money to reduce financial market instability. Brazil, for example, has imposed a financial transactions tax on foreign capital flowing into stocks and government bonds to lower expectations of investment returns [5].

To prevent the emergence of asset price bubbles, the central bank can mitigate excess liquidity by issuing central bank bills and elevating the reserve requirement ratio. These measures help to reduce the impact of hot money on the economy and reduce the trauma to the economy when hot money is withdrawn.

Set up special accounts or "capital pools" to manage funds other than foreign trade surpluses and foreign investment as hot money. Through the establishment of private equity funds and other ways, the funds are earmarked for special purposes, and the inflow, exit time and way are limited to enhance the controllability and predictability of capital flows [5].

We will strengthen supervision over the real estate and financial sectors and maintain stability in the real estate and financial markets by raising transaction income taxes and curbing unreasonable increases in land and housing prices. This will not only reduce the willingness of residents to save for house purchases, release consumption potential, but also reduce the pressure on currency appreciation and stimulate economic growth.

Encourage domestic enterprises to invest overseas and guide capital outflow to ease the pressure on the balance of payments. This can not only promote the international development of enterprises, but also disperse domestic financial risks.

Emerging market countries should strengthen financial cooperation with other countries and regions to jointly cope with the challenges brought by QE policies. We will strengthen dialogue and coordination on economic and financial policies through multilateral platforms to enhance our ability to respond to crises.

International capital flows have an important impact on the economic performance of emerging markets.

During the QE policy period, a large amount of international capital flowed into emerging market countries, providing sufficient financial support for these countries and promoting economic growth. However, these capital inflows may also contribute to the creation of asset price bubbles and amplify financial risks.

When QE policies begin to unwind or market expectations change, international capital may quickly withdraw from emerging market countries, leading to increased financial market volatility. Such outflows can trigger financial instability and economic crises.

International capital flows also have an impact on emerging market exchange rates. Large capital inflows may lead to currency appreciation, increasing the cost of exporters; Capital outflows can result in the depreciation of the local currency and potentially destabilize the domestic economy.

Emerging market countries typically rely on external financing to support economic growth. However, uncertainty about international capital flows can increase debt risk in these countries, especially if capital outflows lead to higher financing costs.

3. Analysis on the Problem

3.1. Impact of QE on global economic growth

3.1.1 Promote economic recovery and growth

Lower borrowing costs: By buying long-term bonds, QE has lowered long-term interest rates, thereby lowering borrowing costs for businesses and consumers. This stimulates investment and consumption, which in turn boosts economic growth. The low-interest rate environment has made it easier for businesses to obtain financing for expansion and research and development, while also encouraging consumers to spend more, creating a virtuous circle of economic activity.

Increase money supply: QE policy increases market liquidity by increasing money supply. This has helped ease the credit crunch and helped revive economic activity. Consumer and business confidence comes from an increase in the money supply, which stimulates economic growth.

Boosting asset prices: Quantitative easing often propels asset prices upwards, particularly in the stock and real estate markets. This is because a lot of liquidity has entered the market and investors are seeking higher returns, thus pushing up asset prices. Rising asset prices further boost market confidence and promote economic recovery and growth.

3.1.2 Impact on international trade and investment.

International trade relations: The influence of quantitative easing (QE) policies on international trade relations is intricate and subject to fluctuations. On the one hand, a weaker currency may boost export growth, helping to improve the economic situation of countries with trade deficits. However, it could also trigger retaliatory measures from trading partners, such as higher tariffs or other trade protection measures. In addition, QE policies may indirectly affect international trade by affecting global commodity prices and financial market volatility.

Cross-border investment: QE policies may promote an increase in cross-border investment. Low interest rates and easy monetary policy have reduced the costs and risks of cross-border investments and encouraged companies to expand overseas operations. However, it could also lead to investment flows to those countries and regions most affected by QE policies, thus exacerbating global economic imbalances.

3.2. International capital flows and exchange rate fluctuations

Exchange rate movements: QE policies can lead to a devaluation of the currency of the implementing country, thus making its exports more competitive. However, it could also trigger other countries to adopt similar policies to offset the impact of exchange rate movements, leading to currency competition and trade tensions around the world [1].

Capital flows: QE policies may trigger changes in international capital flows. On the one hand, low interest rates and easy monetary policy may attract foreign investors to put their money into countries that implement QE policies in search of higher returns [1].

On the other hand, when markets expect QE policies to end, capital may quickly withdraw from these countries, leading to financial market volatility and instability.

The detrimental aspects encompass not merely the escalating debt but also the manner in which credit funds are utilized. Companies use low-cost loans not to finance real investment activities, but to speculate in the stock market by investing in financial assets. Those implementations due to share prices rose sharply, exacerbating the speculative nature of the market and widening the gap between the financial and real sectors, thereby slowing the rate of economic growth. The monetary policies adopted after the crisis triggered a surge in the prices of all financial assets and fueled speculative bubbles. National and international regulators are implementing structural reforms in the financial and real sectors, which are aimed at boosting economic growth in both short - and long-term phases [4].

3.3. Long-term risks and challenges

3.3.1 The long-term global economic impact of QE

Asset Bubbles and Financial Risks has pushed up asset prices through massive purchases of financial assets, such as Treasury bonds and agency mortgage-backed securities. This rise in asset prices can create a bubble, which can burst once market expectations change, or policies adjust, triggering financial risks. The prolonged low-interest rate environment has also encouraged investors to seek riskier, higher-yielding investments, increasing the vulnerability of financial markets [5].

Global Economic Imbalances' policies have led to capital flows from advanced countries to emerging market countries, exacerbating global economic imbalances. Emerging market countries face upward pressure on their currencies, inflation, and asset price bubbles, while developed countries may face a prolonged period of low growth and high unemployment [6].

Monetary policy independence is impaired: QE has influenced other countries' monetary policies by affecting global capital flows and exchange rates. Some countries have had to adjust their monetary policies in response to external shocks caused by QE, thus sacrificing the independence of monetary policy.

Long-term inflationary pressures: While quantitative easing can help speed up economic growth in the short term, in the long run, too much money supply can cause inflationary pressures to rise. This requires the central bank to adjust policy when appropriate to avoid overheating and runaway prices [7].

3.3.2 Exit strategy

The exit from QE needs to be handled carefully to avoid shocks to financial markets and the economy. Here are some possible exit strategies:

Tapering asset purchases: Central banks can gradually reduce the size and frequency of asset purchases, allowing markets to gradually adjust to changes in monetary policy.

To raise interest rates: As the economy recovers and inflationary pressures rise, the central bank can gradually raise interest rates to control the money supply and inflation.

Reducing the balance sheet: Central banks can further tighten monetary policy by shrinking their balance sheets by selling financial assets they hold.

Strengthen communication: The central bank needs to strengthen communication with the market and clarify the exit strategy and timetable to reduce market uncertainty and panic [8].

4. Suggestion

4.1. Global policy coordination and cooperation

International organizations such as the United Nations, the World Bank and the International Monetary Fund should promote cooperation among countries by organizing international conferences to develop common policies and standards. By signing trade agreements and establishing free trade areas, countries can reduce trade barriers, promote trade liberalization and economic integration, and achieve mutual benefit and win-win results, such as G20 summit, Eurozone, ASEAN, RCEP, etc. Central banks can promote global economic stability by coordinating monetary policies to avoid currency competition and exchange rate fluctuations.

4.2. Addressing the challenges of global QE policy

Consider other international unconventional monetary policy instruments

Commencing in 2014, central banks globally embarked on an unconventional path by deploying negative interest rates as a policy tool. This measure has significantly disrupted the traditional banking landscape, as banks typically rely heavily on the spread between deposit and lending rates to generate profits. Not only are deposit rates negative, but so are debt yields in many countries. Treasury yields have plummeted swiftly to historically unprecedented lows, despite US Treasuries retaining a positive

yield territory, in contrast to European and Japanese securities, where negative interest rates have disrupted the typical relationship between stock prices and Treasury yields [4].

By constantly improving financial regulatory laws and regulations, standardizing the order of financial markets, and using advanced technologies such as artificial intelligence to strengthen the functional and digital level of global financial regulation and prevent systemic risks.

4.3. Improve policy transparency and communication

There are various parties involved in enhancing the transparency of international policies and enhancing policy communication to reduce market uncertainties. Include the following aspects:

Firstly, Governments of all countries play a central role in international affairs, and each country should strengthen communication with other countries through diplomatic channels and jointly formulate and promote international policies with greater transparency. International organizations should enhance policy transparency among member states by holding international conferences, signing agreements and formulating rules. For example, the United Nations, the World Trade Organization (WTO), and the International Monetary Fund (IMF) have their respective roles [9].

Secondly, Industry associations and standard-setting bodies has significant influence in promoting industry norms and improving policy transparency. It is necessary to develop unified industry standards and issue policy guidance to help enterprises understand international policy dynamics and reduce market uncertainty caused by information asymmetry [10].

Thirdly, Multinational companies should actively participate in international policy discussions, promote policy transparency, and promote policy implementation and enforcement through their compliance operations and supply chain management.

Lastly, the attention and scrutiny of the media and the public are also important forces to promote the transparency of international policies. Media to increase public understanding and awareness of international policies by reporting and commenting on them; The public should actively participate in policy discussions and give feedback to the government.

5. Conclusion

5.1. Research findings

5.1.1 Positive impact

Promote long-term economic growth: Quantitative easing has proven effective in stimulating both business investment and consumer spending by augmenting the money supply and reducing the costs associated with borrowing. In the low-interest rate environment, enterprises carry out capital expansion, technological transformation and market expansion, so as to promote the improvement of production efficiency and market competitiveness. At the same time, due to lower borrowing costs, consumers are more willing to spend, which stimulates the growth of domestic demand. This dual effect has promoted the recovery and growth of the world economy.

Boost asset prices: Quantitative easing has caused a flood of liquidity into financial markets, pushing up the prices of stocks, bonds, real estate and other assets. The rise in the price of such assets increases the wealth of market participants, creating a "wealth effect" that further stimulates consumption and investment, forming a virtuous circle. At the same time, rising asset prices also improve the balance sheets of financial institutions, enhancing their lending capacity and market confidence.

Improving credit conditions: Quantitative easing has increased the willingness and ability of financial institutions to lend by reducing their financing costs. This is conducive to improving the credit environment and enabling more enterprises and individuals to obtain loan support, thus promoting the development of the economic activities such as the production and circulation of material and spiritual goods and services. In addition, the quantitative easing policy has also promoted

the liquidity of the financial market, reduced market uncertainty and instability, and ensured stable economic growth.

5.1.2 Potential risks

Asset bubble: Quantitative easing can cause asset prices to rise excessively, creating bubbles. That would trigger financial market turmoil and a recession. This risk is particularly prominent in the real estate market and the stock market.

Inflationary pressure: Quantitative easing causes the currency to depreciate and inflationary pressures to rise. Currency depreciation will affect international trade and capital flows, weakening export competitiveness. Consumer purchasing power and social stability are also affected by inflationary pressures. In addition, a prolonged low-interest rate environment can also trigger a "liquidity trap" that fails to create effective economic value even if the money supply continues to increase.

Worsening debt problem: Quantitative easing exacerbates government and corporate debt problems. In a low-interest rate environment, governments and companies are more inclined to borrow to finance, resulting in ever-expanding debt. When debt becomes too large to control, it increases fiscal risks and economic vulnerabilities.

International capital flow and financial market fluctuation: The implementation of QE has sparked significant shifts in international capital flows and heightened volatility within financial markets. On the one hand substantial capital outflows from developed economies, driven by the pursuit of higher yields, have directed their path towards emerging market nations. On the other hand, when markets anticipate the end of QE, capital will quickly withdraw from these countries, leading to financial market volatility and instability.

5.2. Limitations and future prospects of the study

5.2.1 Limitations

This investigation, albeit comprehensive in its examination of the global implications of QE policies, encounters several constraints. First, the research predominantly relies on historical data and case studies from major economies such as the United States, the Eurozone, and Japan. Accordingly, the conclusions drawn may not entirely envelop the multifaceted impacts of QE in developing markets or smaller economies, where the financial architectures and market paradigms can vary substantially.

Second, the study is limited by its focus on short- to medium-term effects of QE policies. The long-term consequences of prolonged QE, such as potential structural changes in the economy or the risks associated with unwinding these policies, require further investigation. Additionally, the study primarily examines QE in isolation, without fully accounting for other concurrent monetary or fiscal policies that may also influence economic outcomes.

Finally, the global economic environment is constantly evolving, with new challenges such as geopolitical tensions, technological disruptions, and climate change. These factors may alter the effectiveness and impact of QE policies in ways that are not fully explored in this study.

5.2.2 Future Prospects

In the future, research efforts should be directed towards overcoming these constraints by broadening the scope of analysis to encompass a broader spectrum of economies, with a particular focus on those in emerging markets. Conducting comparative studies that delve into the varying impacts of quantitative easing (QE) across diverse economic settings would offer more and more nuanced comprehension of its worldwide repercussions.

Moreover, future studies should investigate the long-term implications of QE, especially under the background of global economic stability and structural economic changes. Research could explore how central banks might effectively exit from QE without destabilizing financial markets or triggering economic downturns. Additionally, the interaction between QE and other macroeconomic policies, including fiscal stimulus and regulatory reforms, warrants further exploration.

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