

Non-Financial Sector Debt and Economic Growth: A Literature Review

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Abstract: In 2022, the global non-financial sector debt surged to 3.1 times the GDP, reflecting the result of the reliance of various countries' real economic sectors on debt-driven economic growth since the 2007-2008 financial crisis. How does debt affect economic growth? This question has sparked numerous theoretical and empirical studies in academia. This article uses "debt" and "economic growth" as keywords or titles in both Chinese and English to retrieve literature from renowned academic databases such as CNKI and EBSCO ASP. Based on the collected literature, the article categorizes them into four types according to research themes. The article also focuses on the development and trends of research projects related to debt and economic growth funded by the Chinese National Social Science Fund over the past five years. Therefore, our work contributes to providing a systematic understanding of how non-financial sector debt influences economic growth at the macroeconomic level.

1. Introduction

Non-financial sector debt refers to the sum of public debt of the government sector, debt of non-financial corporations, and debt of households. China's "14th Five-Year Plan for National Economic and Social Development and Visionary Goals for 2035" explicitly proposes to "maintain the macro leverage ratio with stability as the main principle, with stability while allowing for reduction." However, according to data calculated by the International Monetary Fund, in 2022, China's non-financial sector debt accounted for a staggering 291% of GDP, a significant increase of 37 percentage points compared to 2019. Government sector public debt accounted for a high proportion of 112% of GDP, while the proportion of non-financial corporate debt to GDP increased by approximately 15 percentage points compared to 2019. Although household sector debt only moderately increased by 5 percentage points, it still far exceeds the average level of emerging economies. During the same period, debt levels in many European and American countries surged. According to data provided by the International Institute of Finance, global non-financial sector debt soared to \$305 trillion in 2022.

In fact, since the 2007-2008 financial crisis, there has been no significant deleveraging at the global level. Whether it is low-income developing countries, emerging economies, or developed countries, they have all unprecedentedly relied on debt to drive economic growth. So, what is the mechanism

behind debt-driven growth? What are the risks of excessive reliance on debt for economic growth? In the current context of intensified international political disputes and increased downward pressure on economic development, summarizing the key literature on the relationship between debt and economic growth helps us deepen our understanding of the above-mentioned issues and can provide important decision-making basis for formulating global economic development policies.

2. Methodology

The global financial crisis of 2007-2008 and the European sovereign debt crisis sparked a wave of research on the relationship between debt and economic growth in this century. Numerous influential theories and empirical studies have been conducted on this issue. To collect relevant literature, we conducted searches using both Chinese and English keywords or titles such as "debt" and "economic growth" in databases such as CNKI, Springers, Web of Science, and EBSCO ASP. We also adjusted the search based on the results from Google Scholar. Subsequently, we screened the obtained full-text papers, excluding academic papers that focused on financial sector and micro-level analysis of firms and households. After organizing and summarizing the relevant literature, this article presents a categorization of these studies based on their research themes. We also explored the database of projects funded by the Chinese National Social Science Fund to gain insights into the changes in research projects related to "non-financial sector and economic growth" that have received support from the fund in the past five years.

3. Relationship between Non-financial Sector Debt and Economic Growth

3.1. Impact of Public Debt on Economic Growth

The evolution of theoretical perspectives on the impact of public debt on economic growth. After the European sovereign debt crisis in 2007, numerous studies rooted in endogenous growth theory have constructed mathematical models to demonstrate a non-linear relationship between public debt and economic growth [1]. This so called "Turning Point Theory" means that when public debt exceeds a certain scale, it will have a negative impact on economic growth. By using creditor-debtor model and agent-based model, one study suggests that deficit financing resulting from government spending can, at least in principle, help the economy avoid unemployment and deflation issues, thus promoting economic stability and growth [2]. The "Turning Point Theory" faced a significant challenge recently from Olivier Blanchard, the president of the American Economic Association. In his speech at the 2019 AEA Annual Meeting, Blanchard used an extended overlapping generations model to demonstrate that public debt and deficits not only have no fiscal costs but also increase social welfare [3].

Pioneering Research by based on simple descriptive statistical methods demonstrated a significant decline in average growth rates when public debt exceeded 90% of GDP [4]. Their findings became an important basis for the United States government in formulating policies to reduce public expenditures. Critics have pointed out shortcomings in the research by Reinhart & Rogoff, including coding errors, selective exclusion of data, and unconventional weighting [5]. Consequently, many scholars have utilized panel threshold regression methods proposed by Hansen and panel smooth threshold regression methods introduced by González et al. to estimate the threshold effects of public debt under non-exogenous sample grouping [6-9]. Although there are variations in the estimated thresholds, most of these studies confirm the existence of a turning point where public debt promotes economic growth [10-19].

Causal relationship testing between public debt and economic growth. Puente-Ajovín et al. analyzed the bidirectional linear causal relationship between public debt and economic growth using

traditional Granger causality tests [20]. However, their study did not consider the possibility of a nonlinear relationship between the two variables. Di Sanzo & Bella identified this limitation and improved upon it by employing the nonlinear causality testing method proposed by Diks & Panchenko [21-22]. Nevertheless, the time series stationarity test in their study still utilized a linear unit root test model. De Vita et al. argued that linear unit root tests are unable to identify time series with nonlinear evolutionary processes [23]. Consequently, they employed the nonlinear unit root test and nonlinear causality testing method proposed by Kruse to examine the bidirectional causal relationship between public debt and economic growth [24]. However, the bidirectional causality between public debt and economic growth was only confirmed in the study by Afonso & Hauptmeier, while other studies have shown significant differences in the causal relationship between the two variables [25].

3.2. Impact of Credit Fluctuations on Economic Growth

Following the 2007 U.S. subprime crisis, economists extensively discussed the relationship between credit fluctuations in non-financial corporations and households and economic growth. However, the related research is still an ongoing and open discussion, far from reaching a consensus [26-31]. Nonetheless, there has been some consensus at the empirical level regarding the adverse effects of rapid credit growth on the economy [32-35]. These studies indicate that rapid credit growth in non-financial corporations, households, and government sectors leads to instability in both the financial and real economy.

3.3. Projects Funded by the National Social Science Fund of China

Since 2009, a series of fiscal stimulus measures implemented by China in response to the international financial crisis have led to a rapid increase in the scale of public sector debt, particularly at the local government level, posing significant threats to China's financial stability and economic development. Therefore, in the past five years (2018-2022), the National Social Science Fund has provided strong support for research in related fields, with a total of 60 funded projects. In the early stages, these projects primarily focused on the following research themes: the scale, spatial distribution characteristics, and sustainability measurement of local government debt (particularly implicit debt); the analysis of risk evolution and transmission mechanisms of local government debt (particularly implicit debt); and the research on regulatory and governance mechanisms for local government debt based on financial, accounting, and fiscal approaches. In the projects funded in 2022, attention shifted towards examining the impact of local debt on total factor productivity, innovation, human capital upgrading in enterprises, and macroeconomic fluctuations.

4. Conclusion and Discussion

In summary, there are two main phenomena in current macroeconomic research on the relationship between non-financial sector debt and economic growth. Firstly, the focus of research is primarily on the economic growth effects of government debt, with a specific emphasis on the impact of local government debt in the case of China. Non-financial corporate and household debt are rarely incorporated into the analysis framework of economic growth. Secondly, current research mainly analyzes the impact of debt size on economic growth, while the study of the impact mechanism of debt structure on macroeconomic growth is lacking. Analysis of non-financial corporate and household debt is more commonly found in micro-level research, which may explain the first phenomenon. Additionally, the ease of measuring "debt size" compared to "debt structure" may be the primary reason for the second phenomenon.

Since the 2007 financial crisis, there has been a popular trend in calculating the threshold of public debt-to-GDP ratio, but the extensive debates it has generated indicate that policymakers should not overestimate the importance of any specific threshold. The historical experience of major economies around the world suggests that rapid credit growth in the non-financial sector is a key indicator of potential financial crises. Different types of debt serve different economic functions and pose different risks. Although we lack a scientific method to accurately assess how much debt is too much and what debt composition is optimal, it is still crucial to understand the scale and structure of global non-financial sector debt and analyze the mechanisms through which debt size and structure impact output growth. This will help us propose effective policy recommendations.

Faced with the massive debt overhang created by past credit growth, there is no definite and costless path to deleveraging. To address the debt overhang issue in the non-financial corporate sector, it relies mainly on increasing equity capital, asset restructuring, and debt-to-equity swaps. In the case of China, mixed-ownership reforms of state-owned enterprises and the introduction of private capital can also be utilized. Using fiscal deficits to prevent economic recession or stimulate economic growth can effectively boost nominal demand when the private sector is deleveraging. However, financing fiscal deficits poses a challenge for policymakers in different countries. If borrowing is the chosen method, debt is merely shifted among different sectors, making it difficult to achieve overall deleveraging at the macroeconomic level, which is not conducive to long-term economic stability and development. Nevertheless, we should recognize that fiscal austerity is not without costs. Unnecessary fiscal austerity measures implemented after 2010 led to a 3% decline in the UK's GDP, significantly hampering economic growth in the Eurozone as well. We suggest that in necessary cases, direct write-offs could be employed to reduce the debt-to-GDP ratio, as failure to do so would make escaping the burden of debt even more challenging.

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