Is China Facing A Balance Sheet Recession

Analysing China's economic challenges and policy solutions for recovery

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by

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TU Delft

Preface

Completing this thesis piece has been one of the most joyful, powerful, yet craziest times during my 27 years' journey. Being one of the things that I can have control over and carry out based on my own preferences, I chose this thesis topic from a Chinese's perspective, because I am curious about China's current economy. No one can always do the things that only fall in their interests. There will always be things that they have to do for some reason, even if it's not in their interests. So I am very happy to have such a journey. This journey is meaningful and special to me, for it may be my last campus experience where I can enjoy taking in new knowledge so purely and focus, and get little disturbance from trivial matters. I like it, enjoy it, and am grateful to it.

I am lucky to have two supportive, insightful, and lovely supervisors. Dr. Servaas Storm being my first supervisor gives me useful guidance among the enormous knowledge of economics. Whenever I have ideas about the thesis yet immature due to my limited economic knowledge, he can always find accurate theory or terminology to describe my thoughts, making my research more professional. Dr. Haiko van der Voort, even though not specialising in economics, can always jump out from a pure economics view and provide advice from a more overall and comprehensive perspective, considering that the research is still interdisciplinary in nature. It can be said that without their timely, useful, and kind support, I could not graduate so smoothly and quickly.

I would also give myself huge applause for having done a pretty incredible and seemingly impossible task to finish my thesis in such a short time and so early. In the second year of my master, I set a goal of challenging myself to graduate earlier in May. However, the prerequisite of starting the thesis makes it only possible for me to start the thesis in February. The only option left for me to still achieve my goal is to be really hard working and fasten my research progress. Combined with my concurrent teaching assistant job, the progress till April was still lagging. But I have the advantage that I know myself well, knowing what I am capable of. The lag was considered manageable and still doable with harder work, and the estimation of myself was proved quite accurate. The craziest time came during April, when I completed two-thirds of my thesis content in only less than a month. Even with extremely limited time, I did not give in to compromise the quality of my research. It was an amazing time that even myself am also unbelievable how I managed it. I am proud to say that I tried, I strived, and I succeeded.

Last but not least, I would also express my infinite thanks to my family and friends. Even though they are not experts in my research topic, they still support me in their own ways, power me up, and motivate me when I was tired. I am surrounded by love and support, regardless of distance and time difference. I will always remember and be grateful for their support.

More words will only be repeated. All I want to show is my gratitude to everyone that have helped me either directly or indirectly. You have powered me up and contributed to my thesis journey. You added value to this unforgettable memory of mine, and I enjoy it so much.

Daijie Huang
Delft, May 2025

Executive Summary

The COVID-19 pandemic since 2020 has pressed the pause button for the whole world for almost a full year. Starting from 2021, many countries have gradually resumed their economic activities and recovered from the pandemic. China, however, despite its economy showing signs of recovery, a slowdown in economic growth is also obvious and continuous. Before the pandemic, China ' s economy maintained on average an annual GDP growth rate of 9%, with the lowest still exceeding 6%. But this growth rate dropped to an average of 4.9% since 2020, with only the year 2021 exceeding 6%. The slowdown in economic growth makes people wonder what has happened to China's economy.

Meanwhile, the concurrent China also shares some similarities with Japan in the 1990s. At their respective times, both economies were the countries with the second-largest GDP in the world after the United States, had bubbles in real estate, shared export-oriented models, faced challenges posed by ageing populations, and were subject to external pressures from the United States in trade and technology. Since 1990, Japan has entered a prolonged recession which was explained as being the balance sheet recession by an economist Richard C. Koo. The similarities and comparisons have raised the question of whether China, too, might enter a similar phase of balance sheet recession.

However, some China-specific features have distinguished China from Japan and other Western countries where the balance sheet recession theory can explain their recessions well. For example, China is a socialist country, it has its socialist market economy. State-owned enterprises (SOEs) have dominated critical sectors and the state can have many interventions into the market through SOEs. The differences could obscure the typical symptoms of a balance sheet recession. The research gap remains in the applicability of the balance sheet recession theory in the context of China-specific features. Therefore, this research tries to study the applicability of the balance sheet recession theory to China's current economic performance, and give policy recommendations to reverse its economic slowdown trend accordingly.

To address the research gap, several steps are taken. First is to study the balance sheet recession theory, and try to summarise the typical patterns of a balance sheet recession. The patterns are summarised as having a deflationary spiral, decoupling between monetary base, money supply, and private credit, and liquidity trap. Then, the China-specific features that are most relevant to the balance sheet recession theory are studied. Through investigation, China has specific features of high saving rates and low consumption, large occurrences of SOEs compared to private firms, and a bank-based financial system. These features are likely to influence the typical patterns of a balance sheet recession.

After sequential analysis of the balance sheet recession theory and the China-specific features, the economic statistics of China are analysed and compared to the typical patterns of a balance sheet recession. The results of the analysis are that the balance sheet recession theory can only explain part of China's current economy. According to the current available data, only the household sector has shown a sign of balance sheet problems that the growth rate of credit demand has dropped and their non-performing loan ratio has raised. The non-financial corporate sector as a whole perform healthy economic activities, with steady growth in credit demand and the decreasing non-performing loan ratio. There are few data that distinguishes between SOEs and private firm, hence further investigation into the debt behaviours of the non-financial private sector is unavailable.

According to the analysis, the conclusion is that China has an obvious slowdown in its economic growth, while the household sector experienced balance sheet-related debt issues. Meanwhile, China is in the face of uncertainties. Following the irreversible trend of deglobalisation, tariffs can influence China's export sharply. The policy focus for the Chinese government now is to boost domestic demand efficiently, to dampen the possible economic disruption caused by the tariffs.

In conclusion, the research is policy-relevant through giving the following actionable policies, for the economic recovery of China. It is recommended to carry out monetary policies such as lowering interest

rates and supplying liquidity into the market, as well as fiscal policies such as consumption stimulus through vouchers, targeted subsidies given to low and mid-income households, support to tariff-affected industries, and improving the social welfare system. Those policies can be effective in reversing the economic slowdown and buffering the tariff shocks in the short term.

In the longer term, to obtain a more robust economic structure even in the face of external shocks such as tariffs and wars, structural reform is unavoidable in China. China has to change its export-led economy into a domestic demand-driven economy, develop a more comprehensive global trading and supply chain network, as well as keep investing in technological innovation. But the firepower of China's fiscal policy remains questionable, and how much fiscal support the Chinese government can provide is unknown.

Furthermore, the research gives valuable insights into the balance sheet recession theory. It examines how well the balance sheet recession theory can explain China's economy in its specific context. The research also suggests incorporating theories of state capitalism into the original balance sheet recession theory. Since the original theory considers few interventions by the state. The potential modification of the theory helps better fit economies like China, where the economy is state-led or is a socialist system.

Contents

Nomenclature

Abbreviations

Abbreviation	Definition
ABC	Agriculture Bank of China
ABS	Asset-backed Securities
AFRE	Aggregate Financing to the Real Economy
AI	Artificial Intelligence
BOC	Bank of China
BSR	Balance Sheet Recession
CCB	China Construction Bank
CMB	China Merchants Bank
CPI	Consumer Price Index
CRMCC	China Railway Materials Commercial Corp
FRED	Federal Reserve Economic Data
GDP	Gross Domestic Product
GS	Goldman Sachs
ICBC	Industrial and Commercial Bank of China
IMF	International Monetary Fund
KPI	Key Performance Indicator
LGFV	Local Government Financing Vehicle
LPR	Loan Prime Rate
MBS	Mortgage-backed Securities
MPC	Marginal Propensity to Consume
NBS	National Bureau of Statistics
NFRA	National Financial Regulatory Administration
PBoC	People's Bank of China
PPI	Producer Price Index
QE	Quantitative Easing
RMB	Renminbi (Chinese yuan)
SASAC	State-owned Assets Supervision and Administration Commission of the State Council
SBC	Soft Budget Constraints
SOE	State-owned Enterprise
SSE	Shanghai Stock Exchange
TOPIX	Tokyo Stock Price Index
WMP	Wealth Management Product
YoY	Year-Over-Year

Symbols

Symbol	Definition	Unit
c	Consumption	[currency, e.g., $]
d	Aggregate demand	[currency, e.g., $]
e	Export	[currency, e.g., $]
g	Government spending	[currency, e.g., $]
i	Investment	[currency, e.g., $]

Symbol	Definition	Unit
m	Import	[currency, e.g., $]
y	Grosse domestic product	[currency, e.g., $]

1

Introduction

1.1. Current situation

The COVID-19 pandemic has caused significant disruptions globally, with profound implications for economic systems, public policies, and sustainable development trajectories. In China, the pandemic's aftermath has amplified vulnerabilities in its economy, which include a prolonged real estate-driven slowdown, high levels of household, corporate, and government debt, and weakened domestic demand. Before the pandemic, China's economy maintained an annual gross domestic product (GDP) growth rate exceeding 6%, but this rate dropped to an average of 4.5% after 2020 (Li, 2023). Figure 1.1 draws the GDP growth of China from 2000 to 2024. An obvious trend of slowdown in its economic growth is observed. A key contributing factor to this slowdown has been widely accepted as the decline in house prices in China's real estate market, which is regarded as the bursting of real estate bubbles created during a period of rapid expansion of the housing market (Q. S. Deng et al., 2023; Hodges, 2024). This market downturn, coupled with poor stock market performance, has triggered an asset-side shock, leading to a slowdown in China's economy (T. Lu et al., 2024). As the world's second-largest economy and a key driver of global growth, China's economic trajectory influences international trade, financial markets, and the broader development agenda. However, its current stagnation - marked by a faltering real estate sector, high debt burdens, and weak domestic demand - has exposed vulnerabilities in its economy.

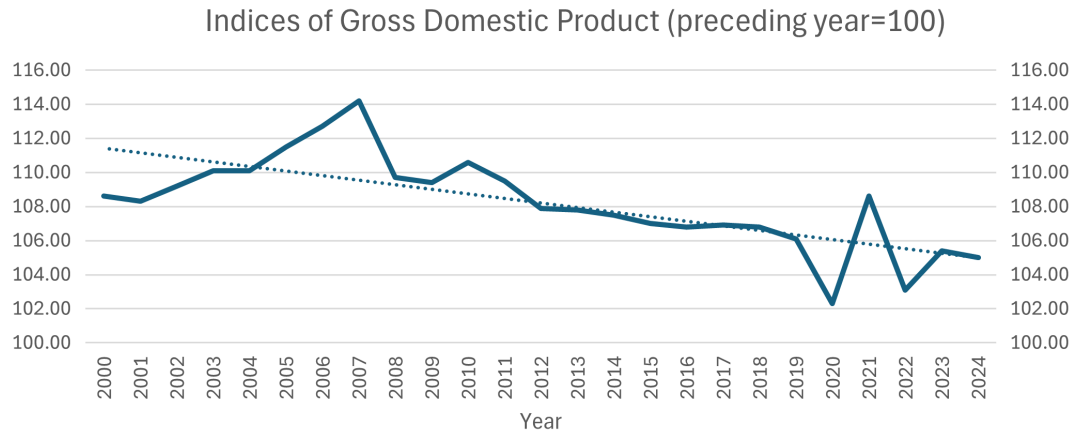

Figure 1.1: Annual GDP growth of China from 2000 to 2024, using the previous year as the base, which equals 100. Source: National Bureau of Statistics (NBS) of China.

When studying China's current economic slowdown, parallels have been drawn between the current China and Japan in the 1990s. Both economies, at their respective times, were the second largest in the world after the United States, shared export-oriented models, relied heavily on real estate, faced

challenges posed by ageing populations, and were subject to external pressures from the United States in trade and technology (Wigglesworth, 2023). To explain Japan's prolonged stagnation since the 1990s, Richard C. Koo, Chief Economist at Nomura Research Institute, introduced the concept of a balance sheet recession (Koo, 2003). This comparison has raised the question of whether China, too, might enter a similar phase of balance sheet recession.

1.1.1. Concepts of a balance sheet recession

From the name of the balance sheet recession, it can be learnt that it is a type of recession that relates to the balance sheet. To introduce the background more clearly, before discussing the balance sheet recession, the concepts of recession and balance sheet are introduced.

What is a recession

According to Weinstock (2024), an economic recession shows a slowdown in economic activity for a period of time, characterising a significant, widespread, and prolonged decline. Significance refers to the depth of the economic contraction, which usually involves a noticeable drop in key economic indicators beyond normal fluctuations. Widespreadness means the recession affects multiple sectors, regions, and demographics, not just isolated industries or groups. Prolongedness refers to the duration of the downturn, which usually lasts more than a few months.

What is a balance sheet

A balance sheet is a financial statement that provides a snapshot of the financial position of an entity at a specific point in time (Williams et al., 2008, p. 40). Assets and liabilities stand on two sides of the balance sheet. Assets are resources that generate value for an entity, e.g., cash, property, equipment, and investments. Liabilities are debts or obligations that an entity must repay, e.g., loans and unpaid bills (Barrow, 2008, Chapter 4). Different forms of assets and liabilities differ from households, corporations, and governments. But generally and in short, assets are what the entity owns and liabilities are what the entity owes.

Figure 1.2 and 1.3 are examples of balance sheets for households and firms respectively. Note that in Figure 1.2, owner's equity and debt ratio are introduced with equations. From equations, owner's equity is the value that one owns, which equals total assets value minus total liabilities value. While the debt ratio is more direct, it shows the proportion of how much your assets are financed with debts, which equals the ratio between total liabilities value and total assets value. In Figure 1.3, shareholder's equity is introduced. From the equation, shareholder's equity is the difference between the total assets value and the total liabilities value of a firm, which equals a firm's net worth (Hayes, 2024). In a more accounting way, shareholder's equity is the owners' claim on assets of a firm after all debts have been paid up (CFI Team, 2024b). In Section 2.4.3, where the collective behaviour of households and businesses is discussed, the terms owner's equity, debt ratio, and shareholder's equity will be presented again and illustrated through different balance sheet examples.

Balance sheet example for households (currency: $)			
Assets		Liabilities	
Current assets (e.g., cash, bonds, stocks)	20,000	Current liabilities (short term) (e.g., credit cards, tax dues)	5,000
Fixed assets (e.g., house, car, personal property)	500,000	Long term liabilities (e.g., mortgage, car loan)	400,000
Total assets (Current + Fixed assets)	520,000	Total liabilities (Current + Fixed assets)	405,000
		Owner's equity or net worth (Total assets - Total liabilities)	115,000
		Debt ratio (Total liabilities/Total assets)	77.88%

Figure 1.2: An example balance sheet for households. The table is interpreted based on (Barrow, 2008, Table 4.3) and (AgSouth Farm Credit, 2023), by categorising assets and liabilities into short-term and long-term.

Balance sheet example for firms (currency: $)			
Assets		Liabilities	
Current assets (e.g., cash, bonds, stocks, inventory, accounts receivable)	300,000	Current liabilities (short term) (e.g., accounts payable, deferred revenue, short-term loan)	200,000
Fixed assets (e.g., land, equipment, property)	150,000	Long term liabilities (e.g., mortgage, long-term loan, bonds payable)	100,000
Total assets (Current + Fixed assets)	450,000	Total liabilities (Current + Fixed assets)	300,000
		Shareholder's equity (e.g., common stock, retained earnings) (Total assets - Total liabilities)	150,000
		Debt ratio (Total liabilities/Total assets)	66.67%

Figure 1.3: An example balance sheet for firms. The table is interpreted based on (Barrow, 2008, Table 4.5) and (Pipedrive Inc, 2024), by categorising assets and liabilities into short-term and long-term, and adding shareholder's equity on the liability side.

Therefore, given the simple explanations of the recession and the balance sheet, a balance sheet recession could be understood superficially from its name, which is a type of recession that is related to balance sheet problems.

What is a balance sheet recession

The concept of a Balance Sheet Recession (BSR) was first introduced by Koo (2003) to describe the prolonged economic stagnation in Japan after the bursting of its asset bubble in the early 1990s. It is a specific type of economic stagnation triggered by asset bubbles and the subsequent collapse in asset values. Firms, focusing on debt repayment rather than profit maximisation, reduce borrowing and investment, thereby stalling economic recovery, even amid low interest rates (Cooper & Koo, 2004). This type of recession is characterised by declining asset prices, debt contraction, and economic stagnation, where the declining asset prices and debt contraction together creat a self-reinforcing doom loop of the recession. The process of a balance sheet recession can be simplified into Figure 1.4, where the self-reinforcing doom loop of the recession often leads to a vicious cycle in the economy and prolongs stagnation.

1.1.2. Is China in a balance sheet recession

Now if we take a look into China's post-pandemic economic indicators - including a low core consumer price index (CPI) (below 1%), declining house prices, weak credit demand, and falling private investments (National Bureau of Statistics of China, 2024a, 2024e, 2024f) - they align with the key features of a balance sheet recession. These trends have fueled speculation about whether China is entering a balance sheet recession.

Debate ongoing

While there is significant public and scholarly debate on this issue, there is still no consensus yet. Supporters of this theory claim that the current economic activities in China suggest a deleveraging process where households and corporations prioritise debt repayment over consumption or investment (Evans-Pritchard et al., 2024; Véron et al., 2023). Others argue that there are indicators contradict this narrative, e.g., China's high M2 money supply growth (National Bureau of Statistics of China, 2024c) give the impression of an economy still in active expansion. On the other hand, the unique economic structure of China - state-driven economy, state-owned enterprises dominating critical sectors - could obscure the typical symptoms of a balance sheet recession (The China Briefing, 2023; X. Zhang, 2024). However, academic research on this debate remains sparse. Most studies either address structural risks in China's economy without directly linking them to balance sheet recession (Hu et al., 2022) or only recently began exploring this connection (Dada, 2024; Ma, 2024).

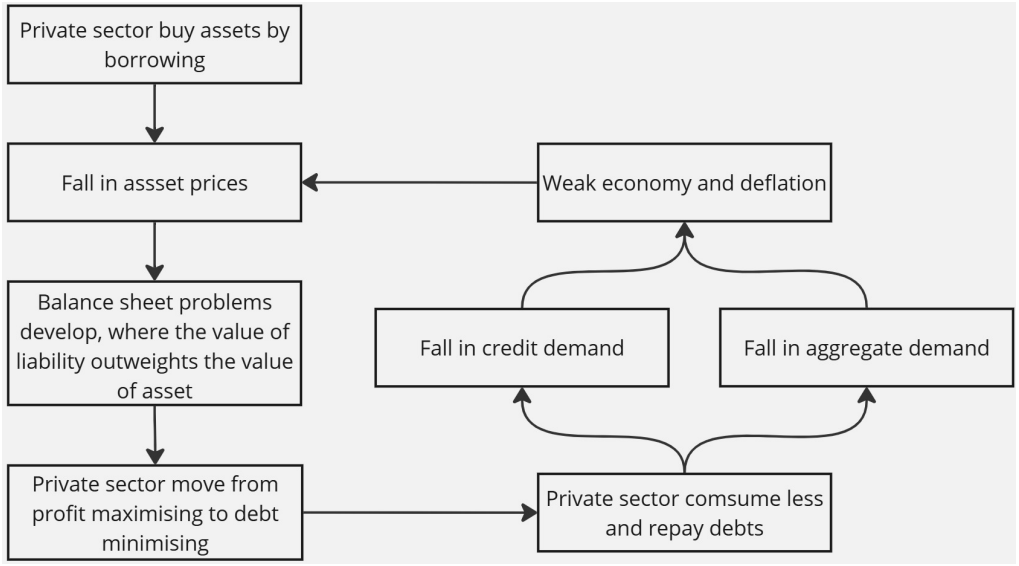

Figure 1.4: Doom loop of the economy when balance sheet recession happens. The figure is simplified based on Mitchell (2009), by presenting the process of the balance sheet recession and removing policy stimulation for recovery.

Research gap

The mentioned recent research includes one PhD thesis and one study that does not explicitly address the balance sheet recession but rather focuses on China's economic system. Such limited academic attention highlights a significant research gap in understanding how balance sheet recession theory applies to the highly distinctive and complex economy of China.

More specifically, the existing literature on balance sheet recessions provides substantial insights into their mechanics and policy implications, particularly in advanced economies. However, it inadequately addresses the applicability and validity of balance sheet recession theory in the context of China. This gap is critical because China's unique economic, demographic, and institutional characteristics challenge the assumptions underpinning much of the existing theoretical framework. This research thus not only seeks to adapt and extend balance sheet recession theory to new contexts but also contributes to the broader discourse on economic policy-making in markets with complex debt dynamics and institutional structures.

1.2. Research question and method

1.2.1. Research question

To fill in the mentioned gap, the research answers the following question:

To what extent does the theory of balance sheet recession explain China's current slowdown in economic growth? Which policy implementations are effective in facilitating economic recovery?

The completeness and logic of the answer are ensured by a sequence of sub-questions used as the milestones throughout the research. The sub-questions are the following:

1. What are the core characteristics and mechanisms of balance sheet recessions?
2. What are the core characteristics of China's economy?
3. To what extent can the balance sheet recession theory explain China's current economic performance, taking China-specific characteristics into account?
4. Based on China's current economy, which policy interventions are likely to be effective for recovery while facing increasing uncertainties?

1.2.2. Methodology of the research

This study addresses the research question by examining the applicability of the balance sheet recession theory to analyse China's economic slowdown and explore policy interventions to stimulate recovery. China's economic slowdown and its potential ripple effects on the international economy pose a pressing policy challenge under a context with distinct structural and institutional features. To answer the research question, a comprehensive analysis of balance sheet recession theory in the context of China is necessary. The research involves adapting a Western-based economic theory to a unique Eastern institutional context, examining both the economic performance and structural characteristics of China, and considering the interplay of global and domestic factors when recommending policy interventions.

Therefore, from an academic perspective, the research is interdisciplinary in nature. It requires the study of the economic theory of the balance sheet recession, as well as the study of China's institutional context, then accordingly analysis the applicability of economic theory under China's context and give policy recommendations. Considering the multifaceted nature of the research question, of it combining economy, policy, and data analysis, a mixed-methods approach is adopted, which integrates both quantitative and qualitative data in order to study the questions from different perspectives and research lenses (Shorten & Smith, 2017).

Mixed-method research approach adopted due to the interconnections between different research disciplines

More specifically, the study integrates nuanced system diagnosis and applies multiple analytical techniques to identify actionable policy solutions. Theoretical synthesis is used to answer the first sub-question, trying to extract the core characteristics and patterns of a balance sheet recession according to the economic theory. Institutional analysis will be used to answer the second sub-question, studying and analysing China's specific structure. Later, pattern matching and data analysis will be employed to answer the third sub-question, examining the applicability of the balance sheet recession theory to China's current economic performance. Pattern-matching, aiming to compare two patterns to see if they match (Hak & Dul, 2009), is useful for correlating observed economic behaviours with theoretical expectations, providing a comprehensive assessment of the relevance of balance sheet recession theory to China's economic performance. Finally, based on the results of the previous analysis, the possible policy implementations for economic recovery will be investigated and assessed.

The findings could potentially update or modify Koo's theory of a balance sheet recession, given in China's context. Moreover, the findings will have broader implications for developing policy tools applicable in similar contexts worldwide, thereby providing valuable insights to governments, researchers, and businesses navigating complex and more tailored economic systems.

1.3. Relevance to Master's studies

The international programme Engineering and Policy Analysis (EPA) is designed to train students to analyse a challenging interdisciplinary problem with a case-based approach and to model and simulate dynamic systems accordingly as well as assessing (policy) solutions for a better world (TU Delft, n.d.). The EPA programme combines the 'Modelling and Simulation Line' which serves to analyse, model, and simulate complex, multi-actor challenges with the 'Policy and Politics Line' which more focuses on analysing a policy context and decision-making in an evolving process. The thesis tackles the economic aspects based on the case of China, tries to analyse the research question from a systemic point of view, and corporates decision-making by assessing the effectiveness of the possible effective policies that aimed for China's economic recovery.

This study aims to address a long-lasting challenge in the economic system - how does economic slowdown or stagnation link to its system? By examining China's economic slowdown, the complex interconnections lie between sectors in China, such as the dependency on real estate as a driver of economic growth and the structural debt burdens across all levels of the economy (Ge et al., 2022), which require a systemic analysis. From an academic or scientific point of view, the study could possibly change or modify the balance sheet recession theory originally developed by Koo. From a societal or political point of view, the study will contribute to a systemic diagnosis of this policy-relevant problem in China's context, that policy analysis should not only consider the internal factors within a system, but

also take the external factors or uncertainties into consideration. The policy recommendations aim to offer actionable solutions that balance short-term economic stabilisation with long-term reforms of the economic structure, addressing both domestic and global challenges and wishing to provide solutions to other emerging countries that would face similar problems.

Through interdisciplinary approaches, this research draws on qualitative and quantitative analysis techniques such as institutional analysis, pattern matching, and data analysis. These methods help disentangle the interconnected dynamics of China's economy, such as debt deleveraging, its specific economic structure, as well as the external uncertainties, to identify intervention points. By integrating quantitative data analysis with qualitative assessments of Chinese institutional and policy contexts, the study provides a holistic understanding of economic slowdown and its implications for sustainability, equity, and resilience in its economic systems.

1.4. Structure of the thesis

To answer the research questions outlined above, the thesis is structured to follow a coherent narrative. Chapter 2 provides an extensive literature review about the theory of balance sheet recession, clarifying the causes, mechanisms, characteristics, and solutions of the theory, with the aim of providing clear patterns of the balance sheet recession. Chapter 3 analyses the China-specific features, including two parts - China's economic performances that are specific and different from the other countries, and China's unique institutional structures. Following this, Chapter 4 uses the previously summarised patterns of the balance sheet recession and the China-specific features to match the theory with China's current economic situation, examining the applicability of the theory in China's context. After that, Chapter 5 will move forward to investigate the policy solutions for China's economic recovery and give recommendations to the relevant policymakers. Finally, Chapter 6 summarises the results made from all the previous chapters and discusses the limitations and further improvements of the research.

2

Literature review on balance sheet recession theory

To study whether China is facing a balance sheet recession, one must first know the concepts of the balance sheet recession. This chapter reviews the existing studies about the theory of balance sheet recession, and synthesises the theory ' s core mechanisms, key performance indicators (KPIs), causes, and policy solutions.

2.1. Mechanisms of a balance sheet recession

Reminded from section 1.1 that a balance sheet is separated into assets side and liabilities side, the balance sheet recession relates to an imbalance between the assets and liabilities on the balance sheet. Therefore, when the bubbles in asset prices burst, the catastrophic declines in asset prices (e.g., housing market, stock market) will severely impair households' and businesses' balance sheets.

A balance sheet recession occurs during this specific situation. After the burst of bubbles, the significant decline in asset prices renders individuals insolvent since liabilities exceed assets. Insolvency means that individuals (either households or firms) are unable to pay debts (Gibson, 2025). Under the circumstance that individuals' liability value exceeds asset value, they are unable to repay all their debts even if they have sold all their assets. Due to the fear of insolvency, individuals will strive to repay debts to become solvent again. The problems of insolvency will be explained in Section 2.2.

Unlike typical recessions caused by cyclical downturns in demand-side or supply-side shocks, a balance sheet recession arises when economic agents (households, firms, and sometimes governments) become overly indebted and prioritise repairing their balance sheets over maximising profits, behaving in the form of repaying debts over consumption or investment (Koo, 2013).

The main mechanisms of the balance sheet recession have the following sequences (Koo, 2014):

1. **Build-up of the recession: Debt-drive growth and the burst of bubbles** (phases 8 and 9 in Figure 2.1)
   Balance sheet recessions often follow periods of debt-driven growth, where the economy is overheated and excessive credit expansion finances speculative behaviours, hence rapidly pushing up asset prices. The rise in asset prices grows much faster than underlying economic fundamentals (e.g., income growth and corporate earnings), which is unsustainable and creates bubbles.
2. **Start of the recession: Balance sheet repair dynamics** (phases 1 and 2 in Figure 2.1)
   When these bubbles burst, the collapse in asset prices leaves borrowers with excessive liabilities relative to their diminished asset values. Unlike standard recessions, where lower interest rates and fiscal stimulus can quickly revive demand, households and businesses use surplus income to pay down debt rather than consume or invest, turning from profit-maximising mode to debt-minimising mode. In the balance sheet repair periods, the economic recessions involve a long period of deleveraging, which further suppresses economic activities.

3. **Self-reinforcement of the recession: Doom loop of the stagnation** (prolonged phase 3 in Figure 2.1)
   The reduced spending leads to lower corporate revenues, lower profits, and higher unemployment. This doom loop, in other words, a negative feedback loop, creates a vicious cycle that prolongs stagnation. It might take 20 years for individuals and business to repair their balance sheets (Koo, 2015).

Figure 2.1 provides a graphic illustration of the mechanisms of a balance sheet recession in the forms of cyclical development. In balance sheet recession theory, the focus is more on the 'Yin' side (phases 1 to 5), where asset prices decline and a balance sheet recession happens. While the 'Yang' side (phases 6 to 9) presents the accumulation of the asset bubbles.

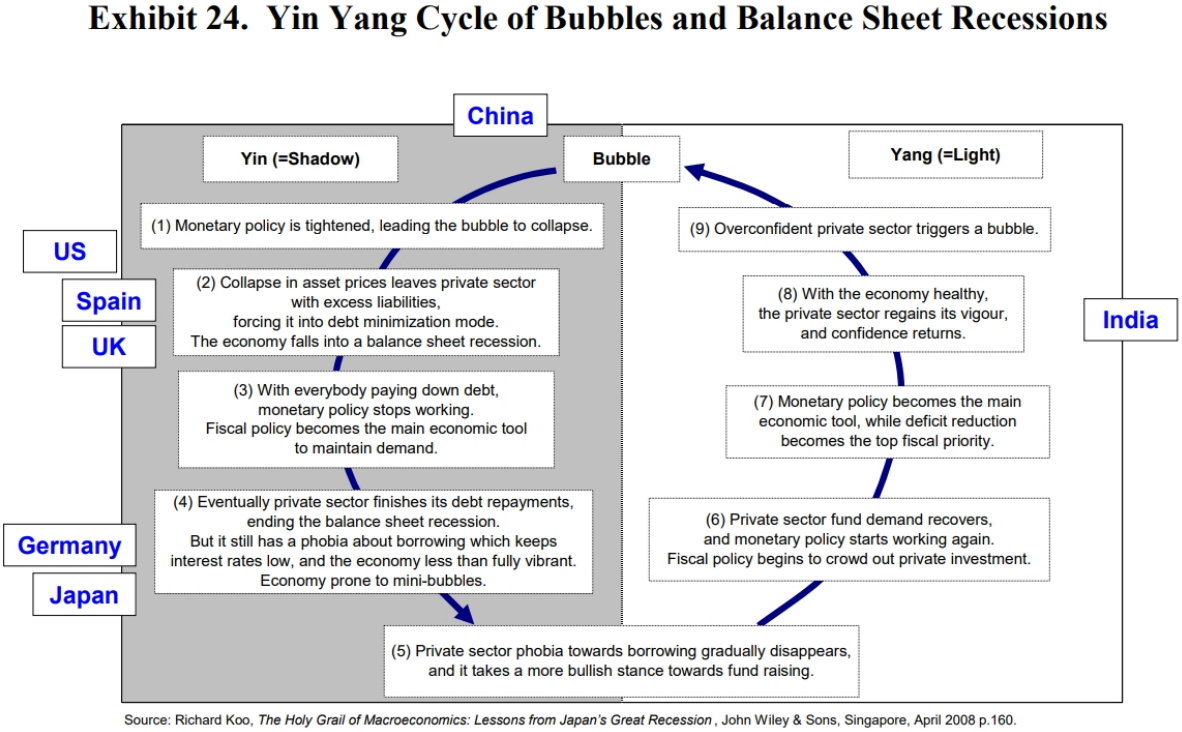

Figure 2.1: Cycle of balance sheet recession. Yin is the downward of the economic cycle when a balance sheet recession happens, and Yang is the upward of the cycle. Source: Koo (2008, p. 61).

2.2. Insolvency as a problem

One key mechanism for a balance sheet recession is that both households and firms repay debts due to fear of insolvency. The following question is: Why is insolvency a problem? Insolvency usually refers to a business when it is unable to repay debts (Gibson, 2025). However, the concept can be extended to households as well. From both households' and corporations' perspectives, insolvency represents a state of financial instability. Among different types of insolvency, cash flow insolvency and balance sheet insolvency are most related to this research.

2.2.1. Cash flow insolvency

Cash flow insolvency concerns an individual who cannot meet its financial obligations when they are due (GoCardless, 2022). In other words, they don't have enough cash or liquidity to repay their debts, even though they still have enough assets. Their assets (e.g., investments and properties) are not liquid enough to sell or convert into cash in a short time, making them unable to meet their short-term repaying obligations. Figure 2.2 uses households as an example of case flow insolvency.

In the figure, the households place most of their assets into long-term investments and properties. The 15000 worth of bonds in current assets can only be mature after two years, leaving only 5000 cash

Cash flow insolvency example for households			
Assets		Liabilities	
Current assets - cash - bonds (maturity date: two years later)	20000 - 5000 - 15000	Current liabilities (short term) - credit cards - mortgage and car loan (due date: end of the month)	20000 - 5000 - 15000
Fixed assets (e.g., house, car, personal property)	500,000	Long term liabilities (e.g., mortgage, car loan)	400,000
Total assets (Current + Fixed assets)	500,000	Total liabilities (Current + Fixed assets)	400,000

Figure 2.2: An example of cash flow insolvency by presenting the balance sheet of households.

at hand. On the liability side, their mortgage and car loans through installments need to be paid back 15000 by the end of the month. Even though they only have a 5000 worth of short-term credit bill, their debt obligation to be repaid before this month is 20000 in total. If they cannot source their cash flow by the end of the month, they will become cash flow insolvency.

A similar situation also applies to corporations. If the company has too many accounts payable, bonds payable, or loan installments to repay in a short time, while they hold too little cash, and their investments, accounts receivable, and properties are rather long-term and unliquid, they would also face cash flow insolvency.

2.2.2. Balance sheet insolvency

Unlike cash flow insolvency, balance sheet insolvency only looks into a corporation's balance sheet. Once its liabilities outweigh its assets, the corporation is balance sheet insolvent. As a result, balance sheet insolvency is also called accounting insolvency or technical insolvency since it is 'insolvent on the books' (Kenton, 2021).

The concept of balance sheet insolvency was originally used to assess a corporation's financial statement, but it can be extended and applied to households as well. In several circumstances can an individual (either household or corporation) be technically insolvent - liabilities grow faster than its assets - due to increased debts and borrowings or the rising interest fees, or from the asset side, the assets depreciate or the prices of assets drop faster than the repay of the debts for some reason (GoCardless, 2022). Figure 2.3 shows an example of balance sheet insolvency. It can be seen that the liabilities value exceeds the assets value, leading to a debt ratio of larger than 100%. In this example, the firm is said to be balance sheet insolvent, while the cash flow statement is not taken into account.

Balance sheet insolvency example for firms			
Assets		Liabilities	
Current assets (e.g., cash, bonds, stocks, inventory, acounts receivable)	200,000	Current liabilities (short term) (e.g., accounts payable, deferred revenue, short-term loan)	200,000
Fixed assets (e.g., land, equipment, property)	100,000	Long term liabilities (e.g., mortgage, long-term loan, bonds payable)	150,000
Total assets (Current + Fixed assets)	300,000	Total liabilities (Current + Fixed assets)	350,000
		Shareholder's equity (e.g., common stock, retained earnings) (Total assets - Total liabilities)	- 50,000
		Debt ratio (Total liabilities/Total assets)	116.67%

Figure 2.3: An example of balance sheet insolvency by presenting the balance sheet of firms.

Specifically for a corporation, regardless of its healthy cash flow or its healthy business operations, as

long as its liabilities exceed its assets, it faces the problem of balance sheet insolvency. Furthermore, if it appears to be 'insolvent on the books', debt owners can force a response of the company, typically by selling assets or declaring bankruptcy to alleviate its debt obligations (Kenton, 2021), despite there are some calls for a higher threshold for balance sheet insolvency if the company is still cash flow solvent (Day, 2013). If the debt owners are tolerant enough, a technically insolvent company can still use their healthy cash flow to operate businesses and repay debts. In this situation, the company will need to prioritise debt repaying over borrowing and making investments, to eliminate the risks of insolvency.

2.2.3. Insolvency for households and firms

During a balance sheet recession, the drastic drop in asset prices could easily lead households and firms into technical insolvency despite their healthy cash flow, which is a problem for them.

Insolvency problems for households

For households, a simple illustration of the balance sheet problem is illustrated in Figure 2.4. For a high-leverage household which haves a debt ratio of around 80% (see Figure 2.4c for the origin balance sheet before the drop in asset prices), a tiny decline in asset prices could cause a huge increase in their debt burdens. In Figure 2.4a where asset prices decline by 10%, the net worth of this household is already halved. If the asset prices decline even more to 20% (see Figure 2.4b), they could have an almost zero or even negative equity value and have a debt ratio nearly or larger than 100%. Once the debt ratio exceeds 100%, even if they sell all the current assets they own, they still cannot repay all their debts, which is already at the edge of balance sheet insolvency.

Assets (10% decline)		Liabilities	
Current assets (e.g., cash, bonds, stocks)	18,000	Current liabilities (short term) (e.g., credit cards, tax dues)	5,000
Fixed assets (e.g., house, car)	450,000	Long term liabilities (e.g., mortgage, car loan)	400,000
Total assets (Current + Fixed assets)	468,000	Total liabilities (Current + Fixed assets)	405,000
		Owner's equity or net worth (Total assets - Total liabilities)	63,000
		Debt ratio (Total liabilities/Total assets)	86.54%

(a) 10% decline in asset prices.

Assets (20% decline)		Liabilities	
Current assets (e.g., cash, bonds, stocks)	16,000	Current liabilities (short term) (e.g., credit cards, tax dues)	5,000
Fixed assets (e.g., house, car)	400,000	Long term liabilities (e.g., mortgage, car loan)	400,000
Total assets (Current + Fixed assets)	416,000	Total liabilities (Current + Fixed assets)	405,000
		Owner's equity or net worth (Total assets - Total liabilities)	11,000
		Debt ratio (Total liabilities/Total assets)	97.36%

(b) 20% decline in asset prices.

Assets (no decline in asset prices)		Liabilities	
Current assets (e.g., cash, bonds, stocks)	20,000	Current liabilities (short term) (e.g., credit cards, tax dues)	5,000
Fixed assets (e.g., house, car)	500,000	Long term liabilities (e.g., mortgage, car loan)	400,000
Total assets (Current + Fixed assets)	520,000	Total liabilities (Current + Fixed assets)	405,000
		Owner's equity or net worth (Total assets - Total liabilities)	115,000
		Debt ratio (Total liabilities/Total assets)	77.88%

(c) No decline in asset prices.

Figure 2.4: Three balance sheet examples for households with different percentage decline in asset prices.

From past experiences of the U.S., Japan, and Europe, they all observed a drastic 30% decline in house prices after the burst of the assets price bubble (Koo, 2015, Figure 1.1 and 1.2). Under this circumstance, the more drastic drop in asset prices could cause more severely imbalanced balance sheets for households, hence households will strive to keep a healthy cash flow, resulting in avoiding and fearing unemployment, much less consumption, and eventually selling assets if their income cannot cover the cost of debt.

Insolvency problems for firms

For firms, a simple illustration of the balance sheet problem is illustrated in Figure 2.5. Figure 2.5a and 2.5b represent the decline in asset prices of 10% and 30% respectively. For a relatively high-leverage company, a 30% decline in the asset prices could already push the company to the edge of balance sheet insolvency, where the debt ratio approximates 100%.

Assets (10% decline)		Liabilities	
Current assets (e.g., cash, bonds, stocks, inventory, accounts receivable)	270,000	Current liabilities (short term) (e.g., accounts payable, deferred revenue, short-term loan)	200,000
Fixed assets (e.g., land, equipment, property)	135,000	Long term liabilities (e.g., mortgage, long-term loan, bonds payable)	100,000
Total assets (Current + Fixed assets)	405,000	Total liabilities (Current + Fixed assets)	300,000
		Shareholder's equity (e.g., common stock, retained earnings) (Total assets - Total liabilities)	105,000
		Debt ratio (Total liabilities/Total assets)	74.07%

(a) 10% decline in asset prices.

Assets (30% decline)		Liabilities	
Current assets (e.g., cash, bonds, stocks, inventory, accounts receivable)	210,000	Current liabilities (short term) (e.g., accounts payable, deferred revenue, short-term loan)	200,000
Fixed assets (e.g., land, equipment, property)	105,000	Long term liabilities (e.g., mortgage, long-term loan, bonds payable)	100,000
Total assets (Current + Fixed assets)	315,000	Total liabilities (Current + Fixed assets)	300,000
		Shareholder's equity (e.g., common stock, retained earnings) (Total assets - Total liabilities)	15,000
		Debt ratio (Total liabilities/Total assets)	95.24%

(b) 30% decline in asset prices.

Assets (no decline in asset prices)		Liabilities	
Current assets (e.g., cash, bonds, stocks, inventory, accounts receivable)	300,000	Current liabilities (short term) (e.g., accounts payable, deferred revenue, short-term loan)	200,000
Fixed assets (e.g., land, equipment, property)	150,000	Long term liabilities (e.g., mortgage, long-term loan, bonds payable)	100,000
Total assets (Current + Fixed assets)	450,000	Total liabilities (Current + Fixed assets)	300,000
		Shareholder's equity (e.g., common stock, retained earnings) (Total assets - Total liabilities)	150,000
		Debt ratio (Total liabilities/Total assets)	66.67%

(c) No decline in asset prices.

Figure 2.5: Three different balance sheet examples for firms with different percentage decline in asset prices.

A company will publish its financial statement regularly to keep the public in track of its businesses. The financial statements indicate a company's revenue, balance sheet, and cash flow statements (Murphy, 2024). Audited by agencies and accountants, the financial statements are assured accurate and support financing and investment decisions for financial sectors.

During a balance sheet recession, a company's balance sheet can be impaired due to drastic drops in asset prices, leading the company to the edge of balance sheet insolvency. Once the financial statement indicates an unhealthy balance sheet, doubts about a company's solvency will be raised. For investment purposes, credit rating agencies will downgrade the company, private investors will sell corporate bonds and stock shares due to low confidence in the company, and the interest rate will be higher for this company to borrow if they want to make investments to further develop their businesses. Figure 2.6 illustrates how the publishing of the balance sheet problem for a company further impairs its debt repaying ability and balance sheet.

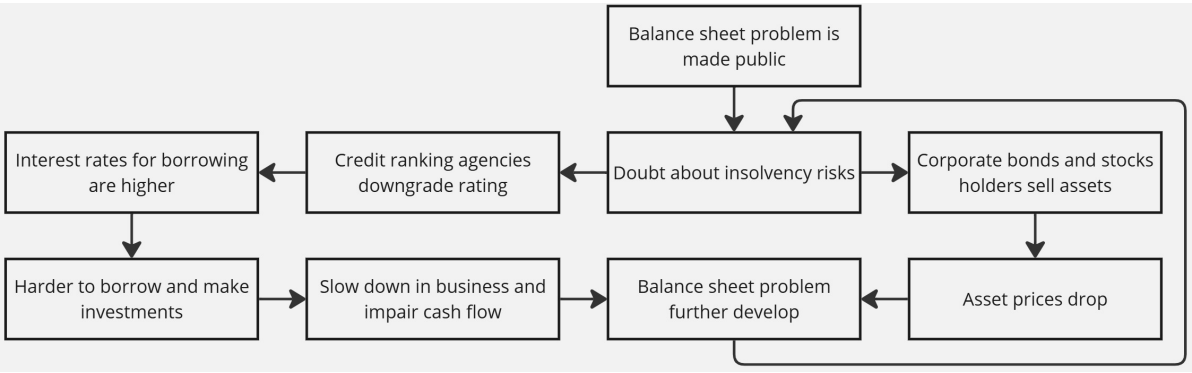

Figure 2.6: The negative feedback loop for a company if their balance sheet insolvency risk is made public.

As a result, in order to maintain healthy businesses and cash flow, to make the public confident about the company, before the balance sheet is published, the company will try their best to repay debt and

repair their balance sheet. Once the public's confidence is maintained, the company will be less likely to go bankrupt and will have more investments in the future. More specifically, before the firm's balance sheet returns to a safe level, the firm will keep cutting down on spending, repaying debts and not borrowing, which could also be performed through decreasing wages and sacking.

2.2.4. Fear of insolvency makes the balance sheet insolvency a more serious problem

From the previous sections, it can be concluded that cash flow insolvency involves the actual inability to repay debts at the exact timing (when the debt is due), even though the debtors still have enough assets, but lack of time to sell them or finance themselves. Meanwhile, balance sheet insolvency involves the financial statement that the debtors' liabilities outweigh assets, regardless of the health of their cash flow. When the drastic drop in asset prices happens, it is possible that balance sheet insolvency occurs in a wide range among many households and corporations. Unlike cash flow insolvency, as long as the debtors can repay their debts timely, they can still gradually solve balance sheet insolvency. It raises the question, in the 1990s in Japan, why many individuals still chose to minimise their spending and repay debts, even though many of them still had a healthy cash flow. As stated previously, the fear of insolvency is the main motivation for such behaviour. Then it leads to a further question, why is this fear so powerful, that leads to the collective behaviour of repaying debts hence causing the balance sheet recession?

Households' fear of insolvency

For households that take loans and experience balance sheet insolvency, their debts are certain, the due dates are certain (monthly, quarterly, or annually) on the liability side. However, on the asset side, their asset values have dropped, and it remains uncertain how much the prices will still be dropping, especially during a financial crisis. Moreover, when such a profound financial crisis happen, the economy will react to it continuously, even if not instantly. Under the circumstances when the economy performs badly, households and firms will find ways to survive, for example, sanctions or wage cuts could happen because it helps corporations to cut spending.

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As a result, under the atmosphere of economic uncertainty, households experiencing balance sheet insolvency have the pressure of repaying debts timely. In normal period, households are confident of their debt repayment abilities since they are in a stable stage. They have a healthy cash flow, and the possibility of being sacked is low. However, the economic environment suffers, performing in ways of dropping in asset prices and the possible unemployment. The uncertainty stemming from society and the economy dampens households' confidence in repaying debts timely, generates or amplifies households' fear of turning from balance sheet insolvency to actual insolvency. Ultimately, it leads to the behaviours of reducing consumption and repaying debts.

Firms' fear of insolvency

Similar to households, firms are also fear of being insolvent. The firms' fear is more complex compared to households' fear. The firms similarly have the fear of uncertainty during the unstable period of an economy, as discussed in the previous section. Also, they have the responsibility of publishing their businesses regularly, which relates to the public's confidence in the company. A firm's balance sheet problem will influence the public's confidence in this firm, which further influences the firm's asset prices

and its ability of debt repayment. Ultimately, a negative feedback loop is formed between the inability to repay debts and the firm's reputation. The detailed causal loop was described in Section 2.2 and Figure 2.6. This generates the fear of insolvency, and the fear motivates the firms to cut spending and repay debts.

In short, for firms, they are in fear of insolvency in the face of economic uncertainty. Meanwhile, to maintain stable and normal businesses, they have to stabilise the public's confidence in the firm, which amplifies the fear of being insolvent. It is crucial to distinguish that the fear of insolvency drives the collective behaviours of repaying debts and decreasing consumption during a balance sheet recession, not the insolvency itself, which holds true for both households and firms.

2.3. Differences between a balance sheet recession and a normal recession

For some who may not be familiar with economics, it can be confusing between a balance sheet recession and a normal recession. Even though a balance sheet recession is a recession, there are key characteristics to distinguish between a balance sheet recession and a normal recession.

In a normal and functioning economy, there would be typically two phases in a economic cycle - expansion and recession phase. Figure 2.7 illustrates a typical economic cycle. Due to cyclical factors such as temporary demand or supply shocks, high interest rates, or external events, there will be a decline in aggregate demand and a business cycle downturn. In response to the recession, households and businesses will reduce spending due to higher interest rates, income loss, or uncertainty while the debts remain manageable. But once monetary policy eases or confidence rebounds, spending and borrowing will resume. During the recession, asset prices may dip but few collapse, and inflation rarely turns negative. The recovery might take a few years combined with effective monetary and fiscal policies.

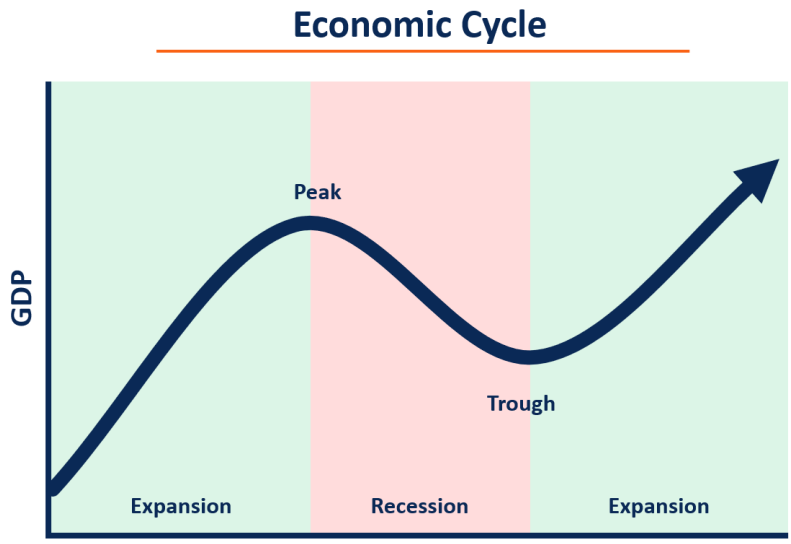


Figure 2.7: Typical economic cycle. The green area is the expansion of the economy and the red area is the recession of the economy. Source: CFI Team (2024a).

However, according to the mechanisms of a balance sheet recession illustrated in section 2.1, a balance sheet recession is triggered by systemic debt overhang and the collapse of asset prices. During the recession, households and businesses focus on deleveraging despite low interest rates. The switch from profit-maximising to debt-minimising further suppresses aggregate demand for years, leaving inefficient monetary policies and the likelihood of a deflationary spiral. The prolonged stagnation might take a country 20 years to fully recover.

Table 2.1 presents the key differences between a balance sheet recession and a normal recession, through which the core characteristics of a balance sheet recession and a normal recession can be summarised as follows:

- A balance sheet recession is basically systemic and debt-driven, where private-sector balance sheets are so seriously damaged that both households and businesses focus on debt reducing instead of spending despite the low interest rates.
- A normal recession is usually cyclical and demand-driven, which can be fixed with monetary and fiscal policies more easily.
- Traditional monetary policies such as interest rate cuts and quantitative easing (QE) do not work well in a balance sheet recession because the private sector is unwilling to borrow. Only strong fiscal stimulus (government spending) can help.

Table 2.1: The main differences between a balance sheet recession and a normal recession. The table is summarised and revised based on Koo (2015, p. 61), by keeping and adding features that differentiate between a balance sheet recession and a normal cyclical recession.

Feature	Normal recession	Balance sheet recession
Main cause	Cyclical factors	Debt overhang and collapse of asset prices
Debt level	Reasonable	Overhanging
Asset price	Dip	Drastically decline
Behaviour principle	Reduce spending	Minimise debt
Interest rate	Normal	Low or even zero
Price level	Inflation	Low inflation or deflation
Monetary policy	Effective	Ineffective
Fiscal policy	Counterproductive (crowding-out)	Effective (need to be aggressive)
Self-corrective mechanism	Adam Smith's 'invisible hand'	Balance sheet repair
Recovery speed	A few years	A decade or more
Economic model	At or near equilibrium	Far from equilibrium

2.4. Core characteristics of a balance sheet recession

From section 2.3, some of the core characteristics of a balance sheet recession are clear. To enable future analysis of the theory's applicability to China's current economy, this section will synthesise the key characteristics such as key performance indicators (KPIs) and symptoms of a balance sheet recession.

2.4.1. KPIs that a balance sheet recession shares with a normal recession

Sharing the nature of the recession, a balance sheet recession performs some common recession patterns as a normal recession. The key indicators used by the National Bureau of Economic Research (NBER) to measure recessions are **employment**, **consumption**, **retail sales**, and **industrial output** (NBER, 2025). During a recession, the unemployment rate increases, consumption decreases, retail sales decrease and industrial output decreases. Table 2.2 summerised the key indicators used by NBER to measure a general economic recession. Note that there are no universally fixed thresholds for declaring a recession, the table only summarises the quanlitative trends of those indicators during a recession without giving quantitative measurements of the extend how much those indicators should increase or decrease.

Table 2.2: The key indicators that a balance sheet recession shares with a normal recession.

Key indicator	Trend
Unemployment rate	Increase
Consumption	Decrease
Retail sales	Decrease
Industrial output	Decrease

2.4.2. KPIs that a balance sheet recession specifically owns

As summarised in section 2.3, the key characteristics that distinguish a balance sheet recession from a normal recession are the debt-driven root cause and their debt repaying behaviours. The key indicators proposed by Koo (2015, p. 5-10) are **monetary base**, **money supply** and **private credit**. Before investigating how these indicators work, the meanings of these three monetary indicators and their

flows and interconnections are given:

- In the traditional economy, the monetary base is the liquidity the central bank has supplied. It can be directly influenced by the printing press.
- The money supply indicates how much money is available for use (by the private sector), and is partly made up of bank deposits. There are different definitions of the money supply ranging from M1 to M4, whose usefulness varies under different contexts. As a result, the choice of different definitions of money supply will be given in the later chapter where analysis will be tailored to China-specific context.
- The private credit measures the amount of money the private sector has borrowed. Both money supply and private credit can directly impact gross domestic product (GDP) and inflation.

These three indicators are all important because the central bank can easily provide liquidity through the printing press or the purchase of government and corporate bonds from private financial sectors. But they are still the liquidity within the financial sector. In order to inject liquidity into the whole society, banks need to lend that money to households and businesses in the real economy. In other words, liquidity (base money) provided by the central bank will be kept in the banking system and not circulate in the market, unless there are private borrowers who need more credit. After which, the credit issued by private financial institutions becomes a deposit in someone's bank account, which is available to use and circulate in the real economy.

In a normal and functioning economy, those three indicators will move together, where the increase in the monetary base should ultimately flow to the money supply with the same amount of increase, in the forms of deposits and private credit. However, the three indicators have decoupled in the United States, Europe, and the United Kingdom after Lehman Brothers went bankrupt in 2008 and in Japan after the bubble burst in the 1990s (Koo, 2015, p. 5-10). Those economies all observed drastic increases in liquidity while minimal increases in money supply and credit.

Figure 2.8 uses the United States as an example to illustrate the decoupling between three monetary indicators. From 2007 January to 2008 July, three indicators were still aligned. However, starting in 2008 August when the global financial crisis occurred, an obvious decoupling between the three indicators was observed, where the monetary base increased sharply and unpropotionally faster than the money supply and the private credit - the monetary base (red line) increased by 366% by 2014 and the money supply (blue line) and the private credit (green line) merely increased by 46% and 5% respectively. Meanwhile, from the second subgraph, the consumer spending index has also decreased, from before the crisis around 2% to after the crisis around 1%.

2.4.3. Symptoms of the balance sheet recession

A balance sheet recession manifests itself through distinct symptoms that reflect the shift of the private sector from profit maximisation to debt minimisation. These symptoms persist and differentiate the balance sheet recession from the typical cyclical recession.

Symptom 1: Fallacy-of-composition problems

Koo (2015, p. 14-16) summarised the fallacy-of-composition problems Japan has experienced after the bubble burst in the 1990s. According to Jespersen et al. (2023, Chapter 5), a fallacy of composition describes a situation where a large number of individuals do the same thing while they collectively generate an outcome that is different from what was intended by each of them. Specifically in a balance sheet recession, in the face of the collapse of asset prices and its resulting huge gap in the liability side of the balance sheet, the correct thing for households and businesses to do is to repair their balance sheets, by stopping borrowing and spending, and keeping saving and returning debts. However, if everyone starts to save and repay debts, leaving few to borrow and spend, its collective behaviour will eventually contribute to a contradictory situation - a deflationary spiral (another symptom of the balance sheet recession will be discussed subsequently) - which leads to further decline in asset price and adds more pressures on individuals to deleverage. While it is correct and responsible for households and businesses to pay down debts to repair balance sheets and restore solvency, the whole society doing the same thing as a whole will lead to disastrous fallacy-of-composition problems.

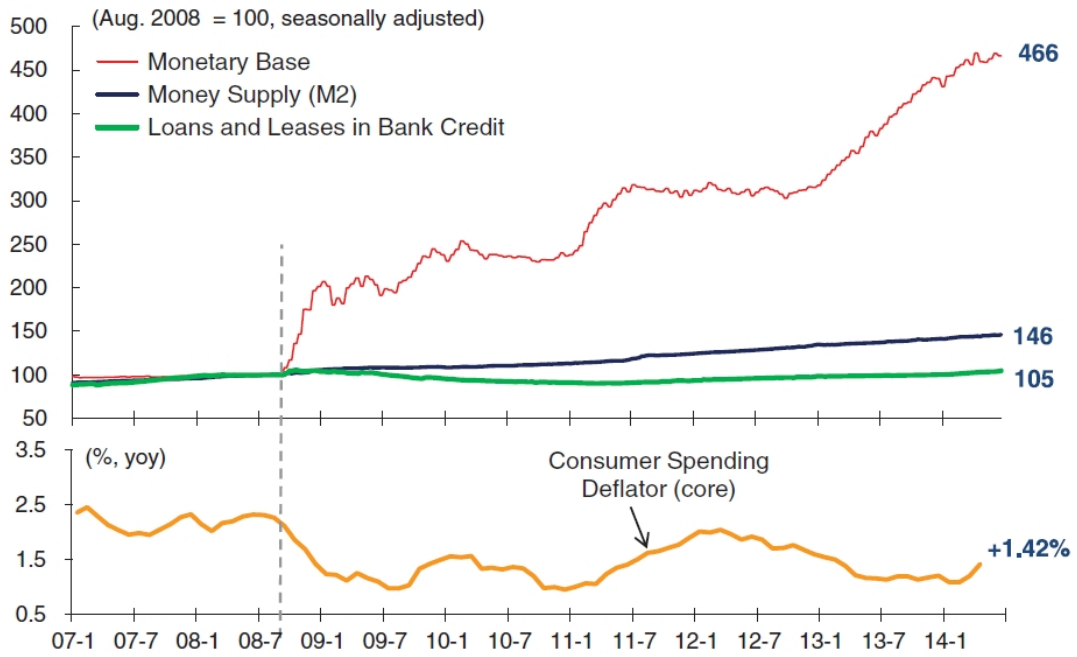


Figure 2.8: The United States as an example performs the decoupling between three monetary indicators after the 2008 global financial crisis. Source: Koo (2015, p. 7).

Symptom 2: Deflationary spiral

As described previously, the collective behaviour of each individual ultimately generates an unexpected and unpleasant result - a deflationary spiral. In a balance sheet recession, a deflationary spiral is generated and deepened as follows:

- **Trigger: Collapse of asset prices**
  As the bubbles burst, the asset prices will soon fall back to the prices which correspond to the underlying economic fundamentals (e.g., income growth and corporate earnings), squeezing the bubbles out.
- **Symptom: Imbalanced balance sheets**
  The decline in asset values despite the same remaining worth of liabilities creates huge gaps in the assets and liabilities sides of households' and businesses' balance sheets, impairing their balance sheets.
- **Collective behaviour: Debt-minimising instead of profit-maximising**
  Despite different symptoms and motivations for households and corporations to repay debts instead of maximise their profits, the root cause is the same - fear of the potential risks of insolvency (described in Section 2.2). The analysis of this collective behaviour will be given from households' and corporations' perspectives separately.

  Households' behaviour due to decrease in confidence and fear of insolvency
  For households, the declining value of assets (e.g., real estate and stock) lowers the net worth of their wealth, making them the sense of being poorer despite their income remaining the same. The situation will be worse for those who take out mortgages or loans to finance their assets, i.e., highly leveraged households. The decline in asset prices will increase their debt burdens, hence increasing default (insolvent) risks if they cannot refinance or sell their assets.

  The debt burdens will fuel the fear of the future. In order to still be solvent in their debt, they will make sure they still have a healthy cash flow before their balance sheets return to an affordable level, which could be a relatively long time. Hence, they need to make sure that their income won't decrease, which makes them more vulnerable to uncertainties and unemployment. As a result, their confidence will be reduced and they will cut spending and borrowing based on rational expectations of the future (Coibion et al., 2021), which results in reduced consumption

and borrowing, and the selling of assets.

Corporations' behaviour due to fear of insolvency
For businesses, similarly, the decline in asset prices increases their risks of default since their liabilities could possibly outweigh assets. Once the insolvency risks have been made public, credit rating agencies would probably downgrade the firm's ratings, panic and doubts could be generated among shareholders, hence creating bank runs or sells of corporate bonds and shares, which further decrease the prices of their bonds and stock shares. As a result, even for those businesses that have healthy cash flows but are still technically (balance sheet) insolvent, they will prioritise paying off debts with cash flow until their balance sheets have been repaired (Koo, 2015, p. 13). The switch from profit-maximising to debt-minimising will lower businesses' investment, which forms another source of the borrowing. Meanwhile, businesses will cut spending in order to repay debts faster, including the possibility of less hiring or even sacking.

Figure 2.9 illustrates the behaviours of households and corporations respectively when they face balance sheet problems, presented in casual flow diagrams. The different balance sheet problems for households and corporations and their motivations for changing from profit-maximising to debt-minimising mode are highlighted (yellow for households, orange for corporations).

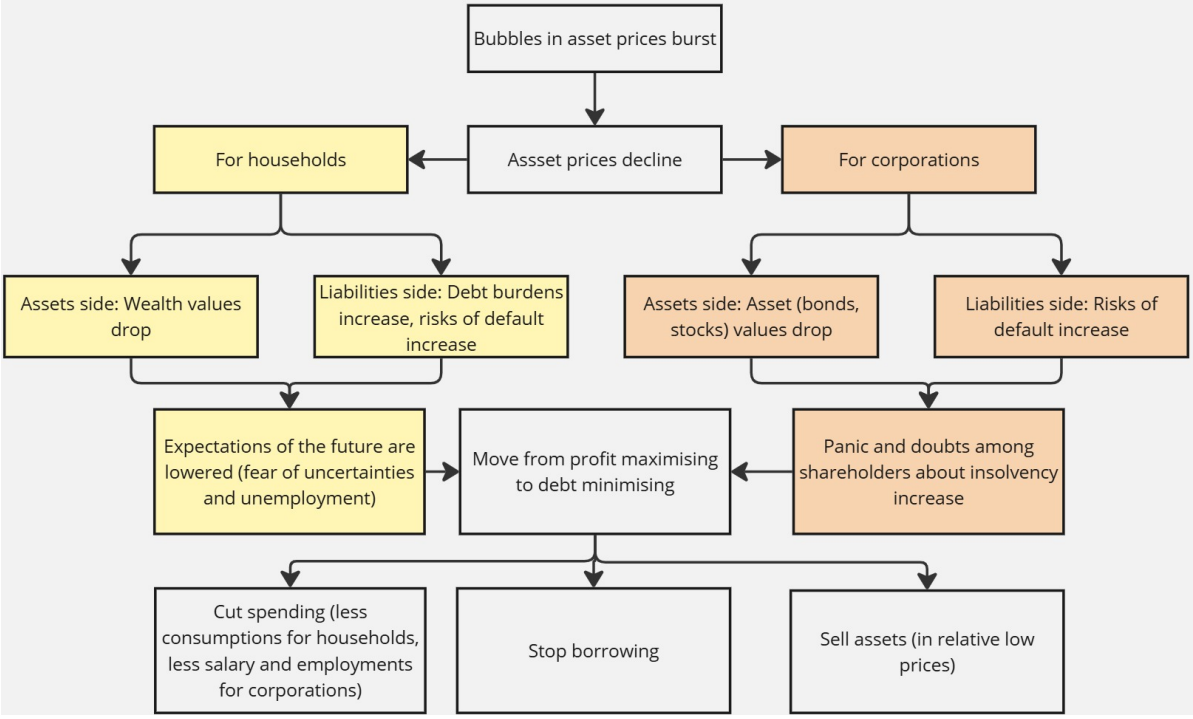


Figure 2.9: Causal reasoning for households' and corporations' behaviours during the balance sheet problems.

As stated before and also illustrated in Figure 2.9, households and businesses will have the same behaviours when facing a balance sheet problem. They will both take action by minimising debts instead of maximising profits, in the forms of **cutting spending**, **stopping borrowing** and **selling assets**. These initially correct and responsible collective behaviours will ultimately evolve into disastrous fallacy-of-composition problems, and the consequence of the fallacy-of-composition problems is the deflationary spiral.

- **Consequences of the collective behaviour: The beginning and deepening of a deflationary spiral**
  The formation of a deflationary spiral will be investigated through two lenses: reduced spending (consumption) and reduced borrowing (credit).

  Reduced spending: In a functioning economy, the spending of one person is the revenue of another person. If the majority starts to cut spending, correspondingly, their income will gradually

decrease due to the decreasing profits. With the reduced income, people will further lower their expectations about the future, which leads to further cuts in spending, stops in borrowing, and sales of assets. Through these processes, a vicious cycle is generated. Figure 2.10 illustrates the flow of the vicious cycle caused by reduced consumption.

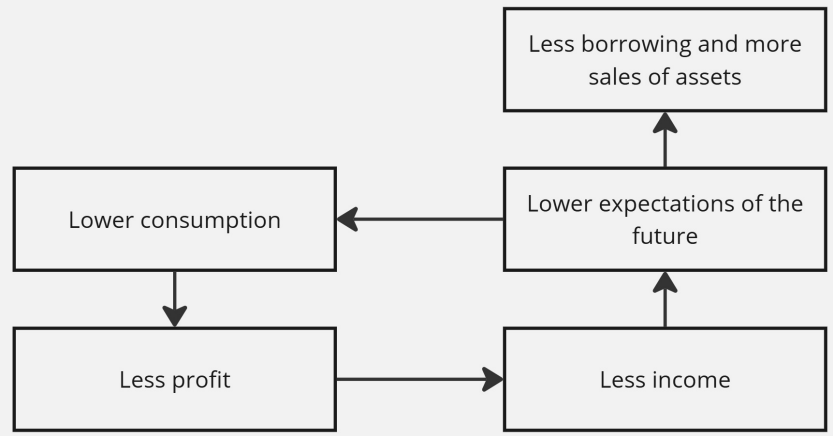


Figure 2.10: Causal diagram for the vicious cycle of reducing consumption.

Reduced borrowing: Similarly, the declined demand for credits will also generate a vicious cycle. From the side of households, the stop in borrowing means a delay in big purchases like houses and cars, which lowers the demand for these products. The revenue in relative industries will decline and hence the income for those employees will also drop. Following this is the lowered expectation for the future and hence they further cut spending, stop borrowing, and sell assets. Figure 2.11 illustrates the flow of the vicious cycle caused by reduced credit demand.

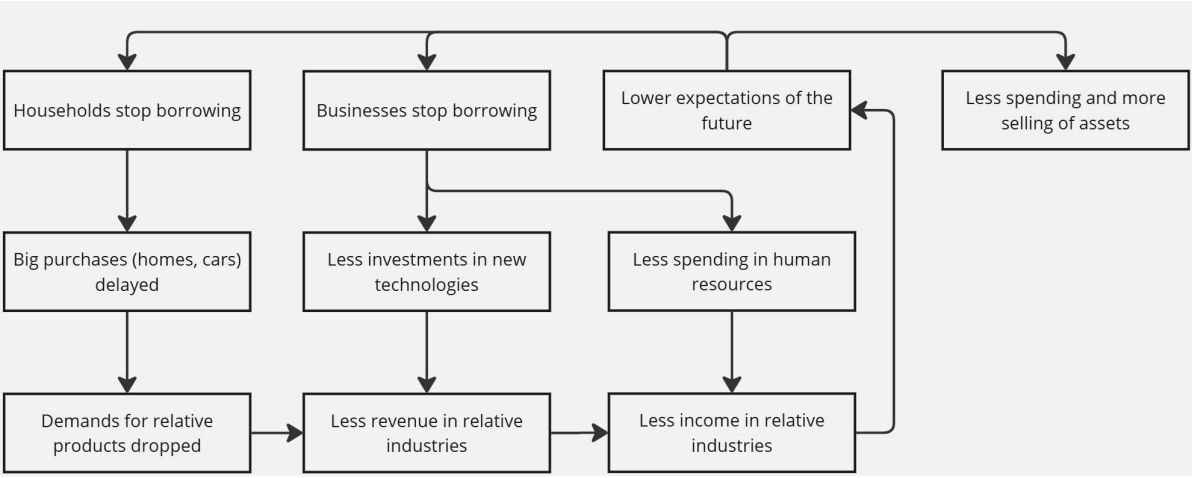


Figure 2.11: Causal diagram for the vicious cycle of reducing borrowing.

Notice that the causal relations between the drop in demands of consumption and credit are intertwined (Figure 2.10 and Figure 2.11). From an overall point of view, the formation and the deepening of a deflationary spiral is illustrated in Figure 2.12. In this causal loop, there are two similar blocks presenting the drop in asset prices with different meanings: (1) The asset price drop in the blue block presents the trigger of the balance sheet problem; (2) The product and asset price drop in the yellow block presents the deflationary spiral path.

In a deflationary spiral, a negative feedback loop (or doom loop) is observed. It follows the cycle of less consumption leading to less aggregate demand, less demand leading to less revenue and lower prices simultaneously, which further leads to less income. Ultimately, the cycle goes back to less consumption. This cycle sends the economy into a deflationary spiral, flowing with a decreasing price

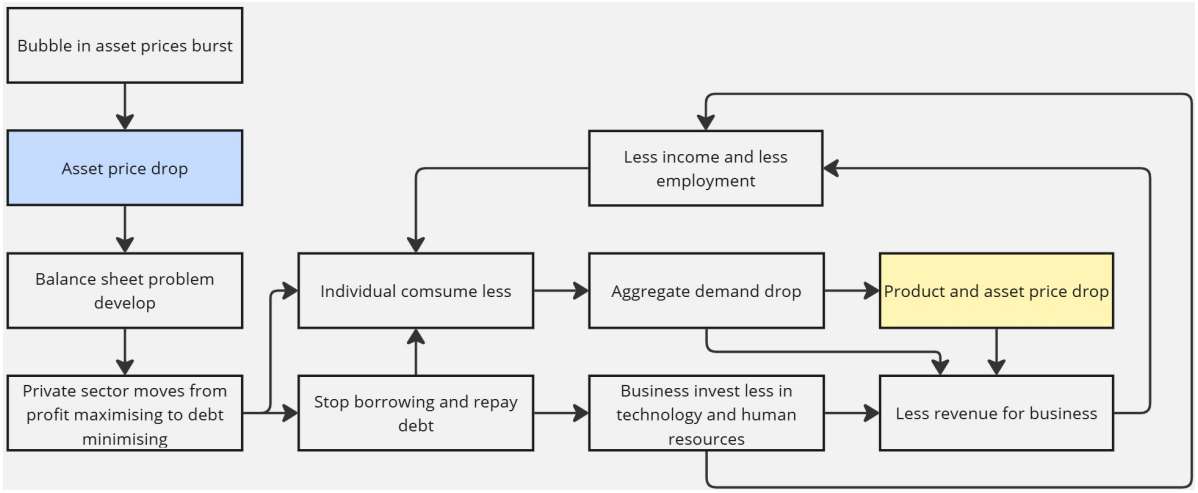


Figure 2.12: The formation and deepening of a deflationary spiral. The highlighted yellow blocks present the path of a deflationary spiral through the drop in prices and incomes. The blue block also presents the drop in asset price, but is used to indicate the trigger of the balance sheet problem.

level and income. Summarising at a conceptual level, the cycle chained from the trigger of a balance sheet problem (drop in asset prices), to the collective behaviour of the private sector (repay debt, spend and borrow less), which causes the fall in aggregate and credit demand and further leads to the weak economy. As a result, the cycle goes back to the fall in prices and reinforces the doom loop. Figure 2.13 illustrates the doom loop for a deflationary spiral at a conceptual level.

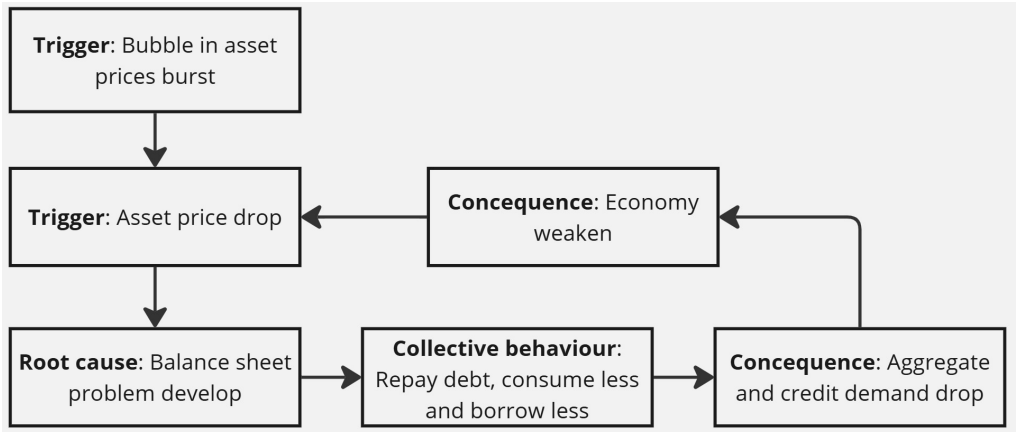


Figure 2.13: The doom loop for a deflationary spiral at a conceptual level.

The gradual price-decreasing process of a deflationary spiral can be illustrated through a numerical example (Koo, 2015, p. 15-16). Assume a household with an initial income of $1000 will spend $900 and save the remaining $100. The spent $900 is another's income in return, and continues to circulate in the economy. In an economy that is in equilibrium, the saved $100 will be borrowed from either business or household for investment or consumption, which again turns into the other's income. Ultimately, the initial $1000 income will become expenditure completely and the income flow stream continues.

However, in the face of balance sheet problems, the saved $100 will not be borrowed by either households or businesses, leaving only $900 as another's income. Then, the household receiving that $900 as income will only use similarly 90 percent of their income ($810) as expenditure, which in return only creates $810 income for someone else. In a repeated cycle, the initial $1000 income will drop into $900, $810, $ 729 and so on. Through this vicious cycle, a deflationary spiral is formed in the economy.

Symptom 3: Liquidity trap - high saving rates despite low or zero interest rates
A liquidity trap describes a situation when conventional monetary policies become ineffective even with low or even zero interest rates, leading to the failure to stimulate borrowing and investment (Krugman et al., 1998). According to the neo-classical macroeconomic theory of loanable funds, as interest rates increase, the demand for credit will decline and the supply for credit will increase. Savings perform as the source of credit supply. As a result, according to traditional macroeconomic theory, the monetary policy of decreasing interest rates would stimulate people to save less, borrow more and consume more, and the conclusion is supported by empirical evidence too (Amonoo et al., 2003).

However, reminded that in a deflationary spiral, everyone starts saving and stops borrowing, money is not consumed but saved instead. As a result, there are lots of savings flowing into the bank. In a balance sheet recession, people keep saving and repaying debt for the following reasons (Koo, 2015, p. 64):

- **Urgency of repaying debt due to technical insolvency**: In a nationwide plunge in asset prices, households and corporations prioritise deleveraging to reduce the risk of default. As long as the balance sheet problem remains, the private sector will keep repaying debt regardless of interest rate level.
- **Precautionary saving in response to future uncertainties**: The deflationary spiral raised by the balance sheet recession will generate less income and more unemployment. People are motivated to save more to guard against the probable job loss, income shocks, or unexpected expenses.
- **Deflation expectations**: In a deflationary spiral, where the deflation expectation will be formed, there is natural incentives for people to save rather than to spend, since the money (cash at hand) is more valuable in the future than today and there are also no attractive and profitable investments.

The relationships between interest rates, savings and credit demand is given in Table 2.3. The traditional monetary policies usually include changing interest rates and bank reserve requirements carried out by a nation's central bank (The Investopedia Team, 2024). As a result, traditional monetary policy used to adjust interest rates is inefficient and hence leads to a liquidity trap.

Table 2.3: The different trends of savings and credit demand when facing a decrease in interest rates in a traditional economy and during a balance sheet recession.

		Traditional economy	Balance sheet recession
Interest rate decrease	Savings	Decrease	Increase
	Credit demand	Increase	Decrease

2.4.4. Phenomenon in financial sector
In a balance sheet recession where people try to save and pay back debts, there are huge sources of money flooding into the financial system (mainly into banking systems and funds). The decrease in asset prices makes the capital return of stock, real estate, as well as corporate bonds less attractive. Moreover, in such a period when asset prices face huge uncertainties and risks of drastic drop, people's need for flight to safety increases. As a result, as the only few alternatives that offer higher liquidity while enduring fewer risks, government bonds are flooded with excessive amounts of funds, leading to soaring bond prices despite plunging bond yields. (Koo, 2015, p. 33) classified it as the consequence of a balance sheet recession, where Sweden, the United States and the United Kingdom all observed the same phenomenon that the 10-year government bond yields less than 2 percent.

2.5. Solutions for recovery from a balance sheet recession
Previous sections review in detail the core characteristics (including mechanisms, KPIs, symptoms and phenomena) of a balance sheet recession. Now the remaining question is - how to get out from such a recession when the strong doom loop of stagnation or even deflation is already formed. Reminded that a balance sheet recession occurs only after a nationwide asset bubble financed by debt bursts, the private sector collectively becomes a net saver instead of a borrower despite ultra-low interest rates.

Under this circumstance, traditional monetary policy is often ineffective and more focus is given to fiscal policy. The following sections will give a breakdown of effective policy combinations.

2.5.1. Insufficient but necessary monetary policy

Despite limited efficiency in a balance sheet recession due to near-zero interest rates and weak loan demand, central banks can still play a role in the following aspects:

- **Forward guidance on interest rates**: By announcing the continuously low interest rates for an extended period, forward guidance commits to anchor expectations and encourage borrowing (Koo, 2015, p. 43-44). With anchored expectations, the uncertainties feared by households and businesses are partly eliminated, hence confidence increased and so as consumption.
- **Quantitative easing (QE) programme**: Central banks buying government or corporate bonds to inject liquidity can help to stabilise asset prices at a relatively low cost. It can prevent deflation and financial instability. However, since the balance sheets still have not been repaired, and the motivation for households and corporations to prioritise repaying debt rather than profit maximising still exists, QE won't directly solve weak demand.

2.5.2. Bold and aggressive fiscal policy

Triggered and deepened by the weak aggregate demand in the private sector, the government must focus on the collapsing demand, and so as the fiscal stimulus. Ideally, if an economy wants to function as well as the level when a balance sheet recession did not happen, the amount of fiscal stimulus should be at least the amount of the declining private demand.

- **Government spending**: The main economic performance during the recession is the weak demand. As a result, the government carrying out fiscal stimulus that focuses on infrastructure and public investment could offset the declining demand. By spending the same amount as declining demand in the private sector (through fiscal deficits), aggregate demand is compensated, employment is restored, consumption and income are stabilised.
- **Cash transfers and consumption stimulus**: Consumption vouchers and targeted subsidies can be used to temporarily boost consumption and sales. By compensating consumers with relatively low prices, temporary relief of their living expenses provides more time for the private sector to react to their impaired balance sheets, hence reducing the urgency of repaying debt and the risks of their insolvency.
- **Debt relief and restructuring**: For households and businesses that are trapped in debt, the government can intervene to restructure loans, possibly involving debt forgiveness, extended repayment terms, or low-interest refinancing, performing as forms of debt relief or prolonging.
- **Tax reduction**: Tax cuts for households help to relatively increase their income and reduce financial burdens. For businesses, specific tax reductions can also help to reduce operation costs and stimulate investment, hence developing new technologies and boosting employment and revenue.

Different countries have their specific situation, resulting in different policies. However, the key to recovering the economy is to restore the declining demand (mostly through fiscal policy), restore confidence for the future, restructure debts and avoid deflation.

2.6. Patterns of a balance sheet recession

To better analyse the applicability of balance sheet recession theory to China's current economy, the pattern-matching method will be used to correlate observed economic behaviours with theoretical expectations, providing a comprehensive assessment of the relevance of balance sheet recession theory to China's stagnation. As a result, this section will give the proposed patterns of a balance sheet recession.

2.6.1. Deflationary spiral

Recall from section 2.4.3 where a deflationary spiral is introduced as the symptom of a balance sheet recession, there will be a doom loop chained from the fall in asset prices, drop in demand, to the weak

economy (see Figure 2.12 and 2.13). Interpreting the qualitative symptoms of a deflationary spiral into quantitative economic performance indicators, an obvious collapse in asset prices (e.g., house markets and stock markets), a decrease or lower increase in retail and credits, as well as a decrease or lower increase in production and income will be observed and supported by relative economic indicators. Table 2.4 summarises the qualitative symptoms and the key quantitative performance indicators (KPIs) for a deflationary spiral.

Besides, Table 2.4 adds the high debt ratio as another qualitative symptom as it is one of the premises for a balance sheet recession. If the private sector is not heavily debated, the collapse in asset prices won't influence their balance sheets significantly and hence the collective behaviour of debt-minimising instead of profit-maximising won't happen. The debt ratio of 0.8 to 0.9 is the average debt ratio for households and corporations in the Eurozone before the 2008 global financial crisis occurred (Oudshoorn, 2018, Figure 13).

Table 2.4: Key characteristics for a deflationary spiral, in the forms of qualitative symptoms and quantitative (statistical) economic performance indicators.

Qualitative symptom	Quantitative indicator (key performance indicator)	Trend
Hige debt ratio	0.8-0.9 (before the crisis)	N/A
Fall in asset price	House price	Drastic decline (collapse)
	Stock price index	Drastic decline (collapse)
Drop in demand	Consumption	Decline
	Retail sales	Decline
	Credit	Decline
Weaken in economy	Gross domestic product (GDP) growth	Decline
	Consumer price index (CPI) growth	Decline
	Wage growth	Decline
	Unemployment rate	Rise

To summarise, a deflationary spiral is one of the patterns for a balance sheet recession. Its detailed qualitative and quantitative indicators are given in Table 2.4.

2.6.2. Decoupling between monetary base, money supply, and private credit

Monetary base, money supply, and private credit are the three balance sheet recession-specific KPIs summarised in section 2.4.2. In a normal economic period, these three indicators are synchronous. However, empirical evidence shows an obvious decoupling between the monetary base and the money supply as well as the private credit after the asset price bubbles burst. This phenomenon was observed in Japan in the 1990s and the U.S., Europe, and the UK after 2008, pointed out by Koo (2015) of how it distinguished from traditional economy. Considering its unique economic behaviour compared to the traditional economy, the decoupling between the monetary base, the money supply and the private credit is counted as a pattern of a balance sheet recession.

Figure 2.14 presents the empirical evidence in Japan of the decoupling between three indicators. Similar to the U.S. which has described in section 2.4.2, around the 1990s in Japan, when the asset price bubbles busted, the decoupling between three monetary indicators was observed, combining with an obvious decline in consumer price index (CPI), from an average of 2% to around 0% for a prolonged period after the burst of bubbles. Moreover, notice that from the year 2002 to 2006, when the Japanese government took out the quantitative easing (QE) programme, the monetary base increased sharply by nearly twice while the money supply merely increased by 20 % and the bank lending even decreased. It shows the inefficiency in boosting the economy undergoing a balance sheet recession with monetary policies, as explained in section 2.5.1.

The statistical results for the three indicators in Japan are given in Table 2.5, noted that the numbers for the year 2001 and 2006 are roughly estimated according to Figure 2.14, while using 1990 quarter 1 as the benchmark where the indicators were 100.

Similarly, the statistical results for the three indicators in the U.S. are also given in Table 2.6, for a more convenient comparison, the year 2008 was also used as the benchmark with the indicators equal 100.

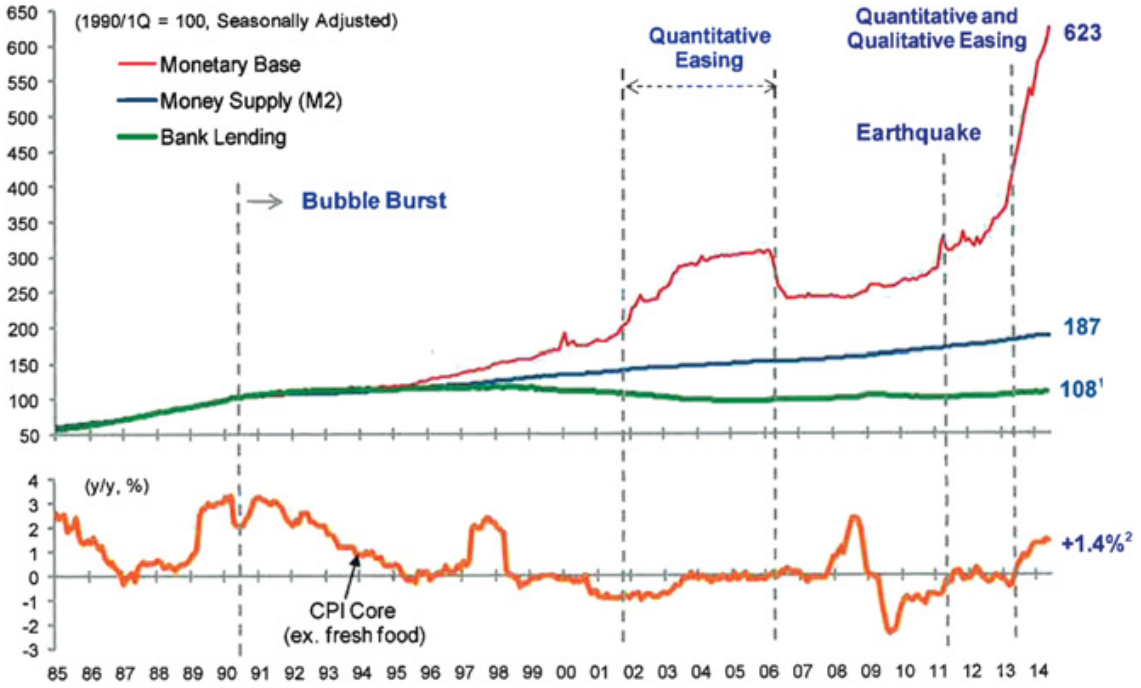


Figure 2.14: Empirical evidence in Japan shows the decoupling between three monetary indicators after the 1990s. Source: Koo (2015, p. 9).

Table 2.5: The statistical performances for the three key monetary indicators that show the decoupling in Japan during the recession period. Numbers are derived from Figure 2.14, using the year 1990 as the benchmark, where indicators equal 100.

Monetary indicators	Year			
	(when bubble bursted)	QE period		2014
	1990	2001	2006	
Monetary base	100	180	300	623
Money supply	100	140	150	187
Private credit	100	105	80	108

To summarise, another pattern for a balance sheet recession is the decoupling between three monetary indicators - the monetary base, the money supply, and the private credit. More specifically, the pattern consists of a shape increase in the monetary base while the barely increases or even decreases in the money supply and the private credit.

2.6.3. Low credit demand and high saving rates despite low interest rates

The decoupling between three monetary indicators as described in the previous section shows the inefficiency of monetary policies in a balance sheet recession. Another symptom of the inefficiency of the monetary policies is the decoupling trends between interest rates, credit demand, and saving rates.

As described in section 2.4.3, traditional monetary policy that decreases interest rates will usually raise credit demand and decrease savings. However, in a balance sheet recession, monetary policies are invalid, credit demand is low, and the saving rates are high regardless of the low interest rate level.

Once the interest rates fall close to or equal to zero, a liquidity trap is formed. It was what Japan has experienced for more than 20 years after 1990 when the bubbles in asset prices burst. During the balance sheet recession period in Japan categorised by Koo (2015, Figure 1.11) from 1990 to 2006, the interest rates in Japan have dropped sharply from 8% at the peak in 1990 to 0.5% in 1996, while the credit borrowed by the private sector has dropped from 18% of the nominal GDP in 1990 to 0, showing the net borrow from the private sector has turn zero. For the upcoming 10-year period, the net borrowing has even become negative while the interest rates remain at 0%. Figure 2.15 illustrates Japan's private sector kept repaying debts during the balance sheet recession despite the zero interest

Table 2.6: The statistical performances for the three key monetary indicators that show the decoupling in the U.S. during the recession period. Numbers are summarised from Figure 2.8, using the year 2008 as the benchmark, where indicators equal 100.

Monetary indicators	Year	
	(when bubble bursted) 2008	2014
Monetary base	100	466
Money supply	100	146
Private credit	100	105

rate. In the figure, the line represents the interest rate, the bars represent the debts raised by non-financial corporates, in forms of the funds raised by financial institutions and the funds flowing into the security markets.

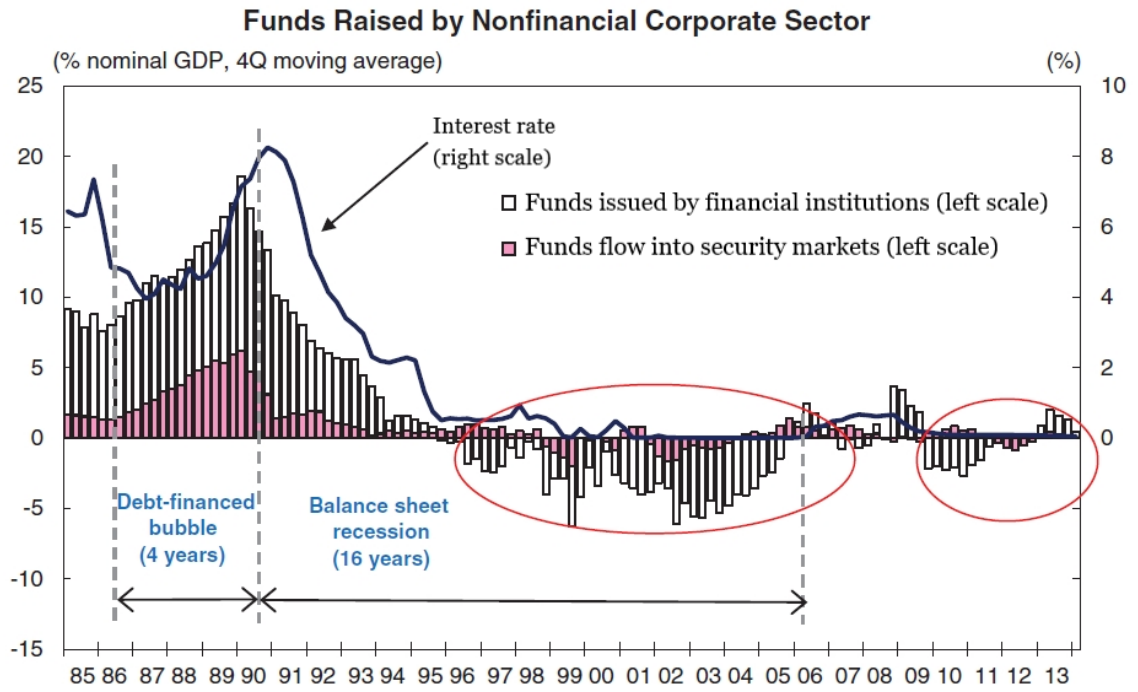


Figure 2.15: Japan's private sector kept deleveraging during the balance sheet recession regardless of zero interest rate. The figure is modified based on Koo (2015, Figure 1.11) to be more understandable.

Table 2.7 summarised the statistics for interest rate, credit demand, and savings for Japan during 1990 and 2006 and the Eurozone during 2008 and 2013. The empirical evidence shows an obvious trend that despite interest rate decreases, credit demand is still low and savings are still high. In the table, the credit demand changing from positive to negative presents a decrease in net borrowing, meaning the overall private sector is repaying debt. The savings changing from negative to positive presents an increase in net savings, showing the overall trend in the private sector that they switch from net consuming and investing before the crisis to net saving.

In summary, one of the patterns for a balance sheet recession is the weak or even negative credit demand and the high savings rates despite low or near-zero interest rates.

Overall, this chapter studies the theory of balance sheet recession. By studying the causes, mechanisms (Section 2.1), and characteristics of the balance sheet recession (Section 2.4), the research finally summarises three patterns of a balance sheet recession (Section 2.6): (1) deflationary spiral; (2) decoupling between three monetary indicators, and low credit demand; (3) high saving rates despite low interest rates. The summerised patterns will help to analyse the applicability of the balance sheet recession theory under China's context using the pattern matching method. In order to study the appli-

Table 2.7: The statistics and trend for interest rates, credit demand, and savings before and after the balance sheet recession. Numbers are estimated from Figure 2.15 and Koo (2015, Figure 1.3 and 1.18)

		Before the crisis	After the crisis	Trend
Japan (1990-2006)	Interest rate	8%	0%	Decrease
	Credit demand (% of nominal GDP)	20%	-5%	Decrease
	Savings (% of nominal GDP)	-1%	12%	Increase
Eurozone (2008-2013)	Interest rate	4%	0.5%	Decrease
	Savings (% of nominal GDP)	-5%	8%	Increase

cability of the balance sheet recession theory to China's economy, China-specific structural features, or namely institutional background, will be studied in the next chapter.

3

China-specific features

Reminded that the research is to study the applicability of balance sheet recession theory to China's current economy. The review on balance sheet recession theory has shown that it was originally developed and used to explain the recession in the 1990s in Japan. Also, it worked well after the 2008 global financial crisis that helped to explain the recession in the U.S. and Eurozone well. However, those countries or regions all share some common things - market-led economies and capitalist countries, which differ significantly from China. As a result, considering China's unique economic structure, policy framework, and institutional features, the balance sheet recession might perform differently compared to historical cases. To reliably assess the applicability and usefulness of the balance sheet recession theory in China, China-specific features must be analysed first. Among all China-specific features, e.g., a socialist country, export-led economic growth, and planning centrality, only the key features that are most relevant to and could possibly change the key performances of the balance sheet recession theory are analysed.

3.1. High saving rates and low consumption

One key feature of the China-specific economy is the high saving rates while the low contribution for consumption to gross domestic product (GDP) (Yang et al., 2012). It is necessary to make clear that the saving discussed throughout the whole research is the relative level, not the absolute value. Furthermore, by calling saving, it is actually referring to the saving rate, or more specifically, the share or rate of savings relative to GDP. The same can be applied to consumption which will be discussed later.

Since 2000, China's domestic saving rates have already been one of the highest all over the world, not only exceeding those in Western countries which tend to consume rather than save, but also far surpassing the saving rates in other East Asian countries such as Japan and South Korea. Figure 3.1 compares the saving rates in China with other major countries grouped by income. It can be seen that among 30 years (1980s to 2010s) China continuously has high saving rates. Even in the year 2023, China is still in the top 8 countries that have the highest saving rates (World Bank Open Data, 2025b). Figure 3.2 compares the saving rates in the form of the percentage of GDP in China, Japan, South Korea, the United States, and the Eurozone till year 2023.

Meanwhile, consumption has also contributed less to the GDP in China compared to other countries. Figure 3.3 compares the proportion of consumption in the GDP in China with Japan, South Korea, the United States and the United Kingdom. It can be seen that since 2000, the proportion of consumption in China has also been significantly lower than in other countries.

3.1.1. The role of high saving and low consumption from a model perspective

Saving rates relate to many things in an economy: (domestic) liquidity level, investment decisions (domestic and international), economic growth, and capital flow. The relationships between savings, consumption, investment, and other economic activities can be illustrated through a simple macroeconomic model (Tanner, 2017):

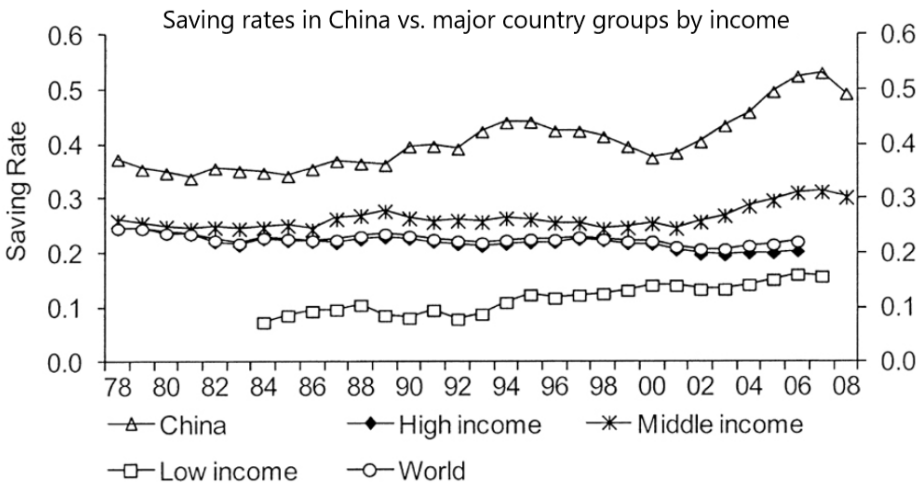


Figure 3.1: Comparison of saving rates in China and other major country groups till year 2008. Source: Yang et al. (2012).

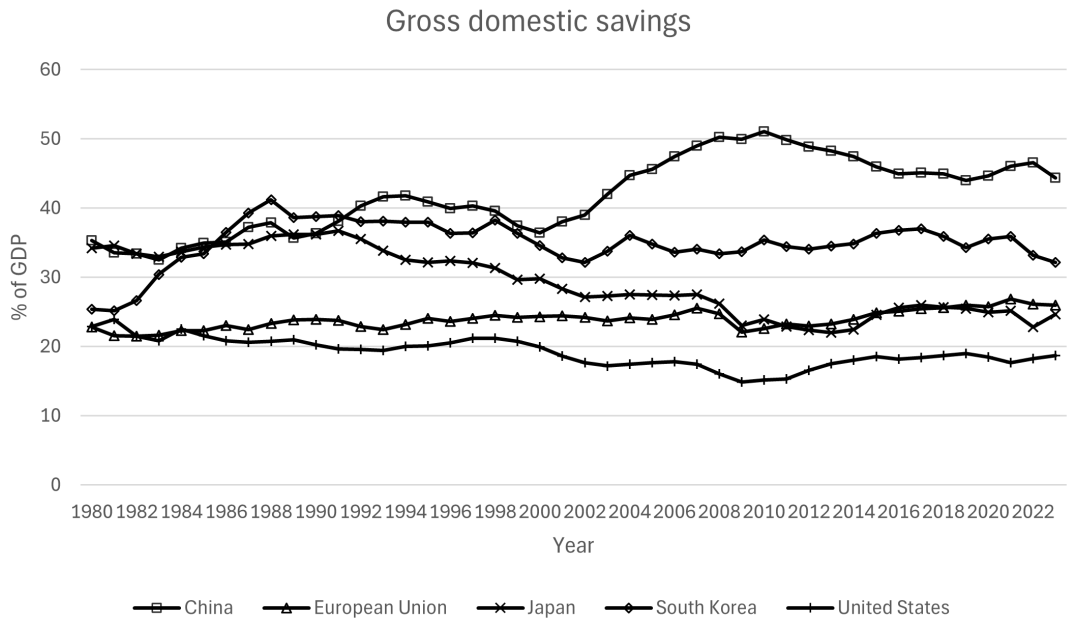


Figure 3.2: Comparison of saving rates in China, Japan, South Korea, the United States, and the Eurozone. Source: World Bank Open Data (2025b).

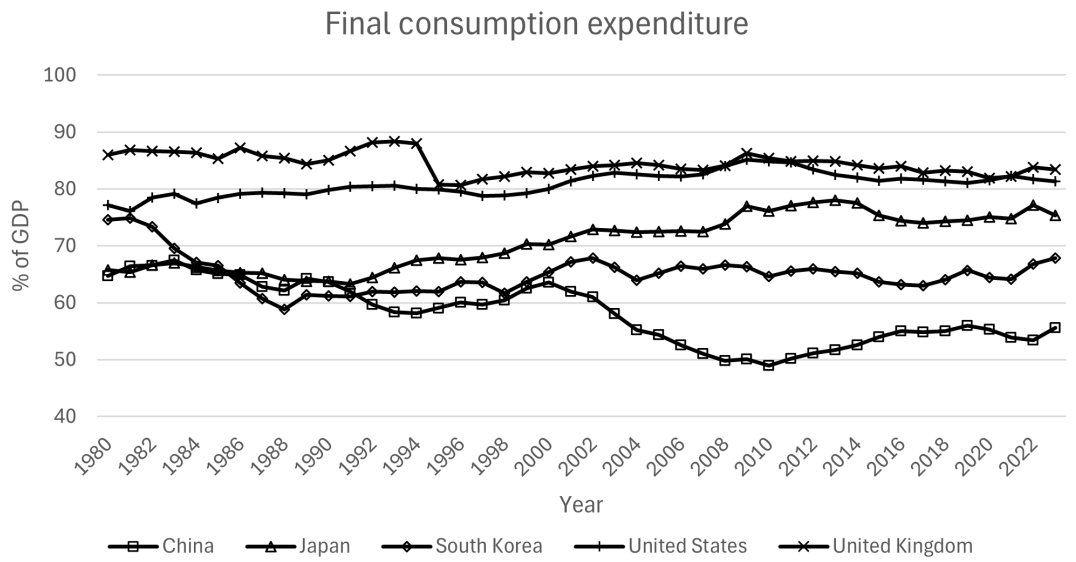


Figure 3.3: Comparison of consumption in China, Japan, South Korea, the United States, and the United Kingdom. Source: World Bank Open Data (2025a).

$$y = d \tag{3.1}$$

$$d = c + g + i + e - m \tag{3.2}$$

In equation 3.1, y is GDP and d is aggregate demand. It presents the basic money flow that the expenditure (demand) of one is the revenue (sales of product) of another. In equation 3.2, c is consumption, g is government expenditure, i is investment, e is exports, and m is imports. The model assumes that aggregate demand is composited by consumption, government expenditure, investment, and trade deficits (equals to $e - m$, i.e., the difference between exports and imports).

3.1.2. Comprehensive reasons for China having high saving rates

Considering an individual that has a certain amount of income, the higher the proportion it saves, the lower the proportion it will consume. Accumulatively, China as a whole has a large proportion of savings will eventually correlate to a low proportion of consumption. As stated in the previous section, China has almost the highest saving rate among all the countries in the world. This phenomenon is discussed widely, and the reasons for such high saving rates are mainly the following according to L. Zhang et al. (2018):

- **Drastic change in demographic**
  Due to China's one-child policy started from the late 1970s, the fertility rate has dropped dramatically, and the resulting savings rates have risen. Even though the policy was abolished in 2015, the (unnaturally) accelerated ageing trend has continued to influence the saving rates in China. The study has shown that elders tend to consume less compared to younger generations (Tian et al., 2024). The increasing ageing pattern will have long-term effects on the saving rates and consumption in China.
- **Social safety net**
  Since the establishment of the People's Republic of China, China has gradually transformed its social system from a planned economy to a market-based economy. In the planned economy, health care and pensions were largely covered by the state. However, with the reform of state-owned enterprises (SOEs) since the 1980s, many workers were laid off, and the health care coverage as well as the pension benefits have been reduced significantly. The transition between two social systems leaves a huge gap in the social safety net. Therefore, the workers in private firms have to increase their precautionary savings in the face of less health care coverage and

the pension benefits. The discussion of China's social system transformation and SOEs will be discussed in the later sections.

- **Income inequality**
  Over the past decades, China has reached an economic growth of over 10 percent on average. Accompanied by the rapid growth, the income inequality has also been enlarged. According to the empirical evidence, the marginal propensity to consume (MPC) is lower at higher wealth groups. In other words, with the same amount of increase in income, wealthier people will consume less than the low-income people while saving more. Moreover, the study has shown that the increasing wealth inequality will reduce the overall consumption and economic growth (Fisher et al., 2019). Furthermore, the increase in income inequality reflects the less progressive taxation scheme, inadequate social transfers, and the limited social safety net.

The above are the factors tested to have large and obvious effects on the saving rates and consumption in China. There are also some factors which can influence the saving rates, but with less effect or less relevance to the current study. The reasons for high saving rates and low consumption will be discussed again in a later chapter, where the policy recommendations will be given.

3.1.3. Symptoms of high saving, low consumption and high investment, high exports are paired effects, while causality relations remain untestified

Now look back to the saving rates, consumption, and investment from a model perspective. Referring back to equation 3.1 and 3.2, the lower the percentage of consumption (i.e., c) is in GDP, the higher the percentage of investment and exports (i and e) will be in GDP. As a result, combining the symptom of high saving rates and low consumption, China must have a high-investment, export-led growth model, which is also testified true for China's recent economic growth (Yang et al., 2012). However, the symptoms of low consumption and high investment and export are paired effects. It cannot verify the causality, that whether high saving and low consumption lead to high investment and export, or high investment and export lead to high saving and low consumption. The causality between high saving, low consumption and high investment, high export requires econometric methods to analyse. Considering the research range, the paired symptoms are already enough for the research analysis.

3.1.4. The impact of high saving and low consumptions to balance sheet recession

If China truly had experienced a balance sheet recession, the high savings rate and low consumption could play a critical role in the dynamics of a balance sheet recession and further amplify the risks and duration of it. Recall from Section 2.4.3, a deflationary spiral is described as one of the symptoms of a balance sheet recession. Among the deflationary spiral, low consumption sits in one of the consecutive chains where a deflationary spiral is formed and reinforced. Figure 3.4 highlights where low consumption will deepen the deflationary spiral.

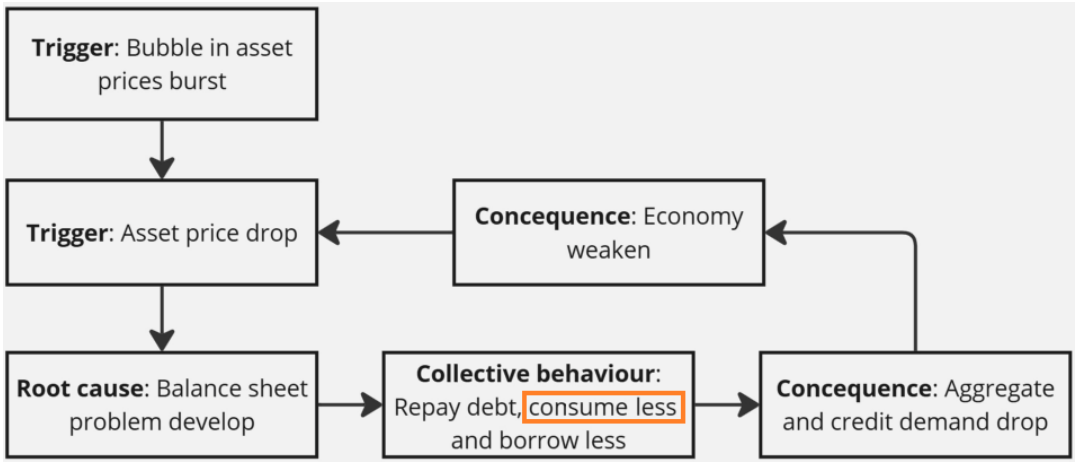


Figure 3.4: Low consumption will amplify and reinforce the deflationary spiral in a balance sheet recession.

Meanwhile, in a liquidity trap which is also possible during a balance sheet recession, as described in Section 2.4.3, the saving rates are high despite low interest rates. China's characteristics of high saving rates will make the liquidity trap easier to happen and monetary policies even more inefficient.

3.2. China's political economy

Being a socialist country, China is not a fully market-based economy and hence the price mechanism in China will be different from those in Japan and the U.S. (where balance sheet recession theory explains their recessions well). As a result, China's economic structure and system needs to be discussed and analysed.

When studying a country's economic structure and system, all the motivations or root causes for such system can be traced back to its own political economy. Being a socialist country, China's political economy is developed following the logic of Capital, using Marxist political economy as the theoretical core (Bai & Zhao, 2025). The economic system's structure and foundation will surely differ from those of capitalist countries (e.g., Japan and the U.S., where the balance sheet recession theory applies to and explains their own recessions well).

The political economy is a broad topic, which can already conduct many other research. Considering the current research range and the relevance to the balance sheet recession theory, the discussion of China-specific political economy will be discussed shortly and only highlight the key features that keep China special from typical Western or capitalist countries.

3.2.1. Theory foundation: socialism

In contrast with the capitalist where the ownership of means of production is private, the socialist runs a system where the ownership is predominantly public (Liberto, 2024). The means of production, first introduced by Marx and Engels, generally includes the assets and resources used to produce goods and services (Nickerson, 2024). More specifically, it includes the classical factors of production (i.e., land, labour, and capital) and the necessary goods, equipment, and infrastructure used to provide stable scales of production (Edmundson, 2019). Table 3.1 gives the general differences between a capitalist country and a socialist country.

Table 3.1: The general differences between a capitalist country and a socialist country. Table is interpreted based on Liberto (2024)

	Capitalism	**Socialism**
Ownership (e.g., land, capital goods)	Private	Public
Economy type	Market economy	Planned economy
Production of goods	Based on supply and demand in the market (price mechanism)	Planned
Decision of production	Made by private	Made by state

3.2.2. China-specific economy: socialist market economy

Founded on October 1, 1949, the People's Republic of China gradually transformed from the original new democracy to socialism (The People's Republic of China Yearbook, 2020). But socialism in China at that time was not completely the same as today. China has experienced different periods of development and reform, which gradually turned into today's social and economic structure.

Early after the foundation of China (1949 to 1978): planned economy

The economic system in the early days of the founding of the People's Republic of China was a planned economy with a single ownership system. At that time, it was characterised by public ownership, with only state-owned enterprises (SOEs) and collective enterprises, and almost without individual and private enterprises. However, after experiencing the ten years of civil unrest brought about by the 'Cultural Revolution', China urgently needed to modernise and catch up with countries and regions that developed faster during the same period (such as Japan and Singapore). Under this background, Deng Xiaoping proposed reform and opening up, led and pioneered socialism with Chinese characteristics (People's Daily Online, 2022).

Reform and opening up (from 1978): from planned economy to socialist market economy
During the reform and opening up, the economic system was reformed. Gradually, China has developed its own economic system - the socialist market economy (Xinhua News Agency, 2020). The traditional rigid planned economic system was broken and the market mechanism was introduced to revitalise the national economy. The key characteristic of the economic system is that it is mainly dominated by a planned economy, but also combined with a market economy, namely a socialist market economy. The key changes related to the economic systems are the following (Z. Zhang, 2024):

- Self-employment and private enterprises are allowed and developed. Recalled from Table Self-employment and private enterprises are allowed and developed. Recall from Table 3.1, in a market economy, private ownership exists. By introducing individual and private enterprises, the object of a market is enlarged. It helps increase employment, increase the volume of products and services, which further contributes to a more active market and boosts the economy.
- The price system of commodities and services is reformed. The prices of commodities such as agricultural and industrial products are liberalised, using price mechanisms in a typical market economy to adjust the prices. For example, the increased demand will push up the prices, the increasing price will stimulate the production and suppress the demand. Gradually, the supply and demand will become balanced. Figure 3.5 illustrates the price mechanism.
- Power is decentralised and profits are retained in state-owned enterprises (SOEs). Before the reform, the state decided the productions and operations of SOEs, all the profits made by SOEs were submitted to the state (Lin, 2021). By decentralisation and profit retention, SOEs have a certain degree of autonomy in production and operation, and can keep parts of their profits. The reforms mobilise the enthusiasm of enterprises and employees, and create incentives for the employees to work hard and for enterprises to improve productivity.

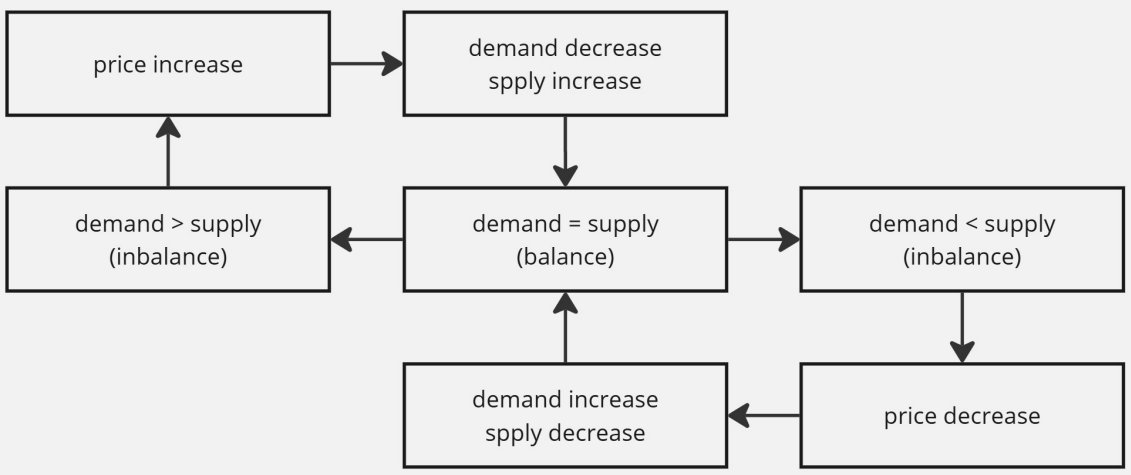


Figure 3.5: Price mechanism. In the balance, demand equals supply. Both demand exceeds supply and supply exceeds demand will cause imbalance and the price will push the market back to the balance again.

In conclusion, China has developed its special socialist economy market through reform and opening up, forming the basic economic system of 'public ownership as the main body and the co-development of multiple ownership economies' (People's Press, 2000, p. 20-21).

3.2.3. Differences between the socialist market economy in China and the capitalist economy

The former section discusses the formation of China's current political economic environment, and how China has gradually transformed from its planned economy to the current socialist market economy. Table 3.2 summarises the key differences between China's socialist market economy and a typical capitalist economy based on the previous discussions.

In short, capitalist economies prioritise private ownership and free market mechanism, to achieve efficiency and profit maximisation. In contrast, China's socialist market economy is a hybrid system that

Table 3.2: The key differences between the socialist market economy in China and the typical capitalist economy such as Japan and the U.S.

	Socialist market economy (China)	**Capitalist economy (e.g., Japan, the U.S.)**
Ownership (e.g., land, capital goods)	Mixed (Mainly public, combined with private)	Private
Economy type	Socialist market economy	Market economy
Production of goods	Planned + price mechanism	Price mechanism
Decision of production	Made by state and private	Made by private
Market objects	SOEs + private enterprises	Private enterprises
Government's influence	Large	Small

merges government planning with market mechanisms, to achieve socialist objectives (e.g., stability and autonomy). Among all the characteristics of the socialist market economy in China, state-owned enterprises (SOEs) play an especially crucial role (Ding, 2009) and will be discussed in the following section.

3.3. China's state-owned enterprises (SOEs)

After the foundation of China in 1949, state-owned enterprises (SOEs) were the product of the planned economy of that time. Determined by the nature of socialist public ownership and conformed to the planned economic system, SOEes are directly managed by the central government and are responsible for the production and distribution of the important industrial products for the national economy and people's livelihood (Qi et al., 2021). Being one of the main forms of public ownership economy, SOEs are of great significance in controlling the economic risks caused by the private ownership of the means of production from the root (Y. Lu, 2021).

Before the 1978 reform and opening up in China, SOEs played a key role in the national economy under the background of the planned economy. They accounted for more than 70% of the GDP at that time (Lin, 2021). However, the planned economy was not as efficient as the market economy, where prices act as an invisible hand to adjust the demand and supply. Moreover, the absence of the enterprises' autonomy in production and operation led to the rigid organisational structure and the lack of vitality (Qi et al., 2021).

3.3.1. Development and current situation of SOEs

Following the reform and opening up proposed by Deng Xiaoping, state-owned enterprise reform was one part of the reform to solve the problem of incapacity and inefficiency in the previous planned economy, as well as rationalising the reasonable boundaries between the government and the market (Shen, 2024).

State-owned enterprises have undergone a series of reforms since this period (Lin, 2021; Y. Lu, 2021):

- **Profit retention and contract responsibility system reform**
  Before the reform, all the revenue made by SOEs was submitted to the state, leaving no incentives for the SOE workers to work hard. To solve this problem, profit retention was introduced so that the managers of SOEs had some power over production decisions and SOEs were allowed to retain portions of profits and only handed parts of their profits over to the state. Before the reform, the 'household responsibility system' was at work. After the reform, the proportion and amount of the profit that is obliged to contribute to the collective and the state is written and signed through a contract. This obliged contribution is called 'contract obligation'. As a result, the reform is called profit retention and contract responsibility system reform.
- **Modern enterprise system reform**
  The contracting system also has its flaws. Ownership and management rights are separated, while the management rights are not well constrained (Z. Zhang, 2024). In this period, the reform was focused on establishing a modern enterprise system which can be summarised as 'grasping the large and letting the small go'. It privatised small SOEs, introduced a competitive elimination mechanism to improve the market efficiency of state-owned enterprises.

- **State-owned capital management and property rights system reform**
  In 2003, the State-owned Assets Supervision and Administration Commission of the State Council (SASAC) was established. It helps to guide and promote the reform and reorganisation of SOEs, and achieve the unified supervision of SOEs. Specifically, it supervises and strengthens the management of state-owned assets. Also, it is designed to improve corporate governance structure, promote the adjustment of the state-owned economic structure (State-owned Assets Supervision and Administration Commission of the State Council, 2025).
- **Transformation of the functions of state-owned assets regulatory agencies**
  At this stage, which is also the current stage in China, the goal is to classify and detail the reform of SOEs. With the aims of further improving the corporate governance structure of SOEs, accelerating the development of the mixed-ownership economy, and promoting the transformation of the state-owned assets supervision model from asset management to capital management.

With the progress of state-owned enterprise reform, SOEs have continued to increase their integration with the market economy, and operational efficiency has greatly improved (Y. Lu, 2021). During years of reformation, SOEs are still critical to China's economic system, have close relations to the national security and residents' daily standard livelihood nowadays.

The current SOEs in China can be summarised under three categories (Lin, 2021):

- Strategic high-tech capital-intensive industries: such as aerospace, aviation, chip manufacturing, and new materials. SOEs in these industries lead the corresponding industry and take over the roles of building technological advantages compared to other countries.
- Natural monopoly industries: such as energy, telecommunications, and railways. Those industries provide necessary basic living resources in daily life.
- Comparative competitive industries: such as steel and equipment manufacturing industries. Those industries are competitive and correspond to China's comparative advantages worldwide.

3.3.2. Roles of SOEs in China

As the backbone of the development of the socialist market economy in China, state-owned enterprises not only provide necessary support for the stable development of China's economy, but also are an important guarantee for maintaining China's economic independence and national security.

Based on estimation by C. Zhang (2019), SOEs contributed 27.5% of China's GDP in the year 2017 by the direct approach. Using the residual approach, SOEs still had a share of 23.1% of China's GDP in the same year. From the perspective of the shares of aggregate market capitalisation of China's top 100 listed firms, the importance of the SOEs to China is more obvious.

Figure 3.6 categorised enterprises by different ownership types and illustrates the share of market capitalisation among China's top 100 listed corporations. The share of SOEs bottomed in 2021 with 31.2% of the overall market capitalisation, and gradually increased to 54% in mid-2024. The number excludes mixed ownership enterprises. If counting them as state-owned as well, the private sector only has a share of 33.1% in mid-2024, with an average of 30.2% over 14 years from end-2010 to mid-2024 (Huang & Véron, 2024). Moreover, it can be seen from the figure that since 2020 or 2021, the share of private sector has dropped.

Besides the essential contribution of SOEs to China's economy that can be testified through statistics, SOEs play multiple critical roles in qualitative terms (Qu & Jin, 2024):

Leading industry and innovation development

The typical industries are chip manufacturing and new materials. These industries represent the scientific and technological innovation level of a country. In the process of transformation from an agricultural economy to an industrial economy, science and technology are the primary productive forces. They play an irreplaceable and important role in exploring new economic growth directions, crossing the middle-income trap, and achieving sustainable economic development.

Countering economic cycles and coping with market failures

During the recession period, SOEs increase employment and investment under the commands from the government and supported with subsidies, helping to smooth amplitude of the recession (Y. Lu,

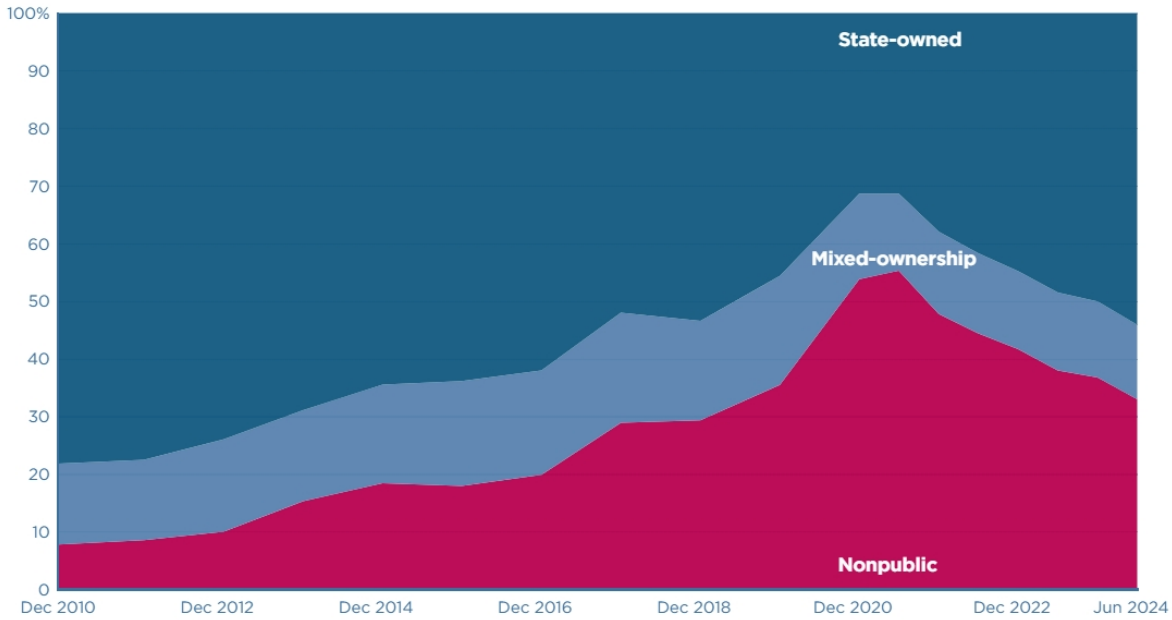


Figure 3.6: Share of aggregate market capitalisation of China's top 100 listed firms, categorised by ownership (state-owned in dark blue, mixed ownership in pale blue, and private ownership in red). Source: Huang and Véron (2024).

2021). The study has shown that the expansion in investment and employment are financed by loans issued by the banks (Fang et al., 2022).

Concerning the adjustment of the market, SOEs monopoly over key industries such as water, electricity, and gas to provide stable prices of those necessary daily resources, make sure that everyone can afford them. Also, SOEs can provide goods and services that the private sector is unable or unwilling to provide, to support the smooth implementation of national strategic goals.

Providing social security, public welfare, and taking over social responsibility

SOEs can effectively reduce the impact of external economic shocks on employment and help maintain social fairness and stability. The social responsibilities of SOEs are regulated by the government. Recently, with the emergence of the green economy, SOEs take over tasks such as the development of public welfare and green environmental protection regardless of the potential costs and loss of benefits.

3.3.3. Policy burdens and soft budget constraint of SOEs

Despite the government's intervention and effort to develop certain strategic industries and realise specific social goals, the unfulfilled implementation of market mechanisms will introduce inefficiency and distortion to the economy and society. Two by-products are policy burden and soft budget constraint inherent in SOEs.

Policy burden

As stated in the previous sections, SOEs are established and become the tools used by the state to realise industrial priorities or other policy goals under China's current socialist market economy. It means that SOEs take over the responsibility to steer economic development, maintain social stability, and support strategic sectors even when these sectors are not financially viable on their own. A viable firm means it has a socially acceptable expected profit without external assistance (Lin & Tan, 1999). Those extra responsibilities, obligations or constraints posed to SOEs become the policy burden.

In China's current situation, under the strategy and goals of building up the advantages in high-tech industries such as chip manufacturing, the relevant SOEs are unviable due to their capital-intensive nature. This type of burden is called the strategic policy burden (Lin, 2021).

There is another type of policy burden called the social burden. Also in capital-intensive industries, SOEs cannot create enough jobs while the government still assigns more workers than needed, hence

overstaffing the SOEs. Moreover, SOEs also take over the responsibility of pensions for their retired staff and other welfare costs (Lin, 2021; Lin & Tan, 1999). The overstaffing and welfare all form the social burden of SOEs.

Soft budget constraint

In a competitive market, an unviable firm will ultimately go bankrupt because unviability means the inefficiency of production and the loss in profit. SOEs have policy burdens and their cost and expense will increase while few profit or revenue are increased. However, since they are mediators for the state to fulfil its strategic development and policy goals, it forces the state to reallocate the resources to make sure those SOEs run properly, hence creating the soft budget constraint (SBC).

Soft budget constraint (SBC) was first introduced by Kornai (1986). It is used to describe that an organisation - quite often a SOE - does not face strict financial discipline because it expects external bailouts or subsidies from the state or government to cover losses. The budget could be softened through e.g. subsidies, tax-exemptions, soft credits (Kornai, 1986). Due to the existence of public ownership, SBC is inevitable since the government poses policy burdens to SOEs. As a result, the government has to take over the responsibility for the losses in SOEs (Lin & Tan, 1999).

The existences of the policy burdens posed to SOEs and the SBC have summerised by Lin (2021) to be the cause that SOEs are low in efficiency compared to the private firms in competitive market, have high leverage and many of them rely on protection and subsidies for survival.

3.3.4. SOEs' variation from households and private firms during the balance sheet recession

Considering the characteristics of SOEs in China, there are two possible symptoms that relate to the balance sheet recession theory.

First, SOEs endure policy burdens. As a result, their viability is affected. It is possible that they continuously make revenue less than the cost. If they want to survive and keep running their businesses, they need to take loans. This could make them highly leveraged. In forms of the balance sheet, their debt ratio could be higher than private firms and are more fragile to the drop in asset prices.

Second, despite the possibly high leverage, they have also been supported by soft budget constraints. Being reminded that they shoulder the role of the state's development goal, they are convinced that they will be protected and supported by the state. As a result, in the face of a balance sheet problem, the insolvency problem will be less serious than households and private firms. Consequently, SOEs might not prioritise debt repaying, yet keep making investments and possibly asking for loans and subsidies.

In conclusion, SOEs are backed by the central government, so they may perform differently compared to households and private enterprises during a balance sheet recession. The variation is performed in two ways: higher leverage level and less high prioritisation in repaying debts in the face of an insolvency (balance sheet) problem.

3.4. China's financial system

The previous section discussed the importance of state-owned enterprises to China's special socialist market economy and their possible different behaviours in the balance sheet recession. Among different sectors, SOEs play an even crucial role in the financial sector. According to estimation, in the year 2018, the value of SOEs assets occupies 56.3% of all the corporate assets in China. In the financial sector, the state-owned financial enterprises occupy 82% of the total asset value among all the financial corporations in China (Chen, 2021). In 2017, SOEs in the financial sector have contributed 88% of the financial sector's GDP in that year. Compared in the same year, the overall share of SOEs in China's GDP was only 27.5% (C. Zhang, 2019). Both the high share of asset value and share of GDP show that SOEs have become the majority in the financial sector, leaving only a few private corporates.

The high occurrence and occupation of SOEs in the financial sector imply the high accessibility and easy implementation of the state's intervention. Especially, the financial sector is highly associated with the loan issuing, which has a direct influence on the liability side of the balance sheets. As a result, under the context of China's socialist market economy, the financial sector could also have its special

characteristics and hence influence the typical patterns of a balance sheet recession. This section will discuss China's financial system in detail.

Being a socialist market economy, the China-characteristic economy is finding the relationship between the government and the market, trying to seek the balance between the government-led economy and market-led economy (Bai & Zhao, 2025). Since the reform and opening up in 1978, China started to financialise and its financial market has also experienced two key transformations (Shi, 2023). To better understand the development and current situation of the financial system in China, the concepts and definitions of financialisation are introduced first.

3.4.1. Concepts and definitions of financialisation

Among debates about the definitions of the term 'financialisation', the most generally accepted definition is given by Epstein (2005, p. 3) - financial markets, institutions, actors, and motives become increasingly dominant in the operation of the overall (both domestic and international) economy. This definition is still broad and barely distinguishes the differences between financialisation and the general expansion of finance. Shi (2023) reviewed and summarised financialisation as the financial development that brings fundamental transformation in the conduct of the economy and the institutions of economy and society. According to this definition, financialisation not only refers to the development of finance but also the fundamental and wide change in economy (e.g., individual behaviours, production and investment prioritisation). Table 3.3 illustrates the typical differences between a traditional market and a financialised market.

Table 3.3: The core differences between a traditional market and a financialised market. The table is interpreted based on Gratton (2025).

	Traditional economy	**Financialised economy**
Focus sector	Real economy	Financial market
Profit prioritisation	Revenue from production and trade	Profit from speculation, rent, debt
Investment decision	Traditional productive sectors (e.g., manufacturing and services)	Financial gains (e.g., shareholder returns, speculation)
Return duration	Long-term	Short-term

Shi (2023) also pointed out that the typical financialisation progress in core capitalist countries (e.g., the U.S. and the UK) perform in forms of financial innovations such as securitisation, and are mostly market-based. The concept of securitisation is discussed in the following section.

3.4.2. Concepts and definitions of securitisation

The most basic form of securitisation refers to the process that packs loans (such as mortgage) into financial products. The process involves the following steps (Ferguson et al., 2019; Jobst, 2008):

1. **Asset origination**
   An asset originator such as a bank or financial institution holds a pool of loans (e.g., mortgages, car loans, student loans).
2. **Asset pooling**
   The asset originator selects its assets and pools them into a portfolio. The loans held by banks are called assets, which is opposite to the typical balance sheets for households and firms where loans are liabilities. Figure 3.7 illustrates an example balance sheet for banks.

   Loans such as mortgages are issued by banks (lenders) to individuals (borrowers) such as households and firms. Being lenders, banks are expected to receive the principal payments as well as the interest of the loans from the borrowers. Therefore, on the balance sheets of banks, loans are counted as assets since they are the future inflow from the banks' perspective.

   Similarly, individuals deposit their cash into the banks. They can withdraw deposits and banks have to pay for them as well as their corresponding interest. Therefore, deposits are treated as liabilities as they are the future outflow to banks.
3. **Asset pools selling/transferring**
   The asset originator sells the pools of loans to the special purpose vehicle (SPV). The SPV is

Balance sheet example for banks (currency: $)			
Assets		Liabilities	
Loans issued to individuals (e.g., mortgage, car loans, student loans)	300,000	Deposits	200,000
Fixed assets (e.g., land, equipment, property)	150,000	Debts	100,000
Total assets	450,000	Total liabilities	300,000
		Shareholder's equity (Total assets - Total liabilities)	150,000

Figure 3.7: An example balance sheet for banks.

designed to isolate the risk from the originator. More specifically, the assets held by the SPV will not be affected even if the originator goes bankrupt. Once the asset pools have been transferred to the SPV, the pooled assets are removed from the originator's balance sheet. Even if the assets (loans) are insolvent, the originator will not suffer from the loss.

4. **Issuance**
   SPV issues those securities to the capital market and the investors. There are different types of securities. For example, mortgage-backed securities (MBS) are generated from the asset pools that consist of mortgages. Asset-backed securities (ABS) are backed by other types of loan excluded mortgages.

   After issuance, investors pay the amount of securities they want to buy to the issuer (typically SPV). Meanwhile, the issuer collects payments and interests from the original borrowers, deducts an amount of the revenue as a service fee, and in return, pays cash flows back to the investors from the underlying assets.

Figure 3.8 illustrates the process of securitisation. There are several incentives for the securitisation:

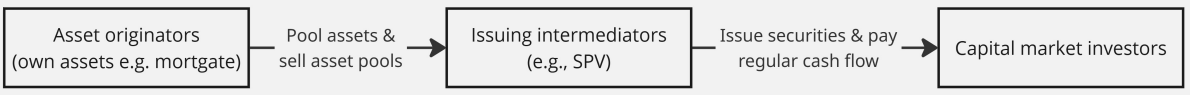


Figure 3.8: The process of securitisation.

- For banks that issue loans to individuals, the sale of asset pools helps them free up cash flows quickly and can use them to issue new loans, hence increasing the liquidity of their assets. Moreover, the sale of asset pools transfers the risk of default, where the loans could be possibly insolvent.
- For issuing intermediators, by buying asset pools and then selling them to the investors, they don't actually possess any assets yet still have stable income generated from the service fee that is deducted from the investors. Those issuers can have a steady and low-risk cash flow on the premise that those assets (loans) are still solvent.
- For investors in the capital market, securitisation provides a more flexible term of investment where they can have more choices besides traditional bonds and stocks. What is more, the capital return is highly possibly higher than government bonds since the securities are based on loans and the interest rates will be much higher than the bonds. The risk they endure is the probability that the loans are insolvent.

However, securitisation could also be problematic. Both theoretical and empirical evidence has shown that securitisation contributes to the emergence of moral hazard and regulatory arbitrage (Lubello & Rouabah, 2024). A moral hazard in this context refers to the situation that one party is incentivised to take risky behaviour because they assure that the possible risks and losses will be taken over (Claassen, 2021).

In order to obtain capital relief and higher liquidity, banks make use of securitisation and become riskier

in issuing loans, since they can pool the assets anyway and sell them to the issuing agents. Ultimately, the asset pools end up in the hands of investors. By asset pooling, banks successfully transfer the default risks to the investors. Given this incentive, banks are encouraged to take higher risks - issue loans that actually have high risks of default, and be less careful with screening. Aslo, in order to sell the asset pools that have a higher tendency of default, banks would also misreport credit quality, increasing the complexity and obscuring the assessment of the true credit risks. Evidence has shown that securitisation influences bank behaviour and hence causes financial instability, being the root cause of the 2008 global financial crisis (Deku et al., 2019).

In short, securitisation allows banks to have higher capital and the resulting possible credits given to small firms. However, through securitisation, the traditional banks have also passed through the risks of loans being insolvent to shadow intermediaries (Lubello & Rouabah, 2024). The issuing agents such as the special purpose vehicle (SPV) in Figure 3.8 are examples of shadow intermediaries. Shadowing banking is discussed in the next section.

3.4.3. Concepts and definitions of shadow banking

Similar to the term 'financialisation', there is no broadly accepted definition of shadow banking. The generally agreed concept of shadow banking regards it as financial intermediaries which conduct activities similar to formal banks while standing outside the standard regulatory framework (Pozsar et al., 2010). Shadow banking has two common features: bypassing the regulation system and involving in financial market innovations (e.g., assets securitisation and financial derivatives) (IMF, 2014).

3.4.4. Relationships between shadow banking and securitisation

Shadow banking and securitisation are interconnected. Securitisation is one of the channels that link the regulated banking system and the shadow banking system (Singh & Pozsar, 2011). It can be said that the organisation of the shadow banking system is based on securitisation and wholesale funding (Pozsar et al., 2013).

For the traditional regulated banks, they have the incentives to regulatory arbitrage hence securities their assets through unregulated shadow intermediaries. On the other hand, the shadow banking sector has the incentives to sell 'safe' yet still generate higher profit gain assets to their consumers (i.e., investors in capital market) (Baur et al., 2016). Through securitisation, the shadow banking system successfully expands credit, increases liquidity, by-passes the traditional regulations, and contributes to broader financial market complexities while introducing systemic risks at the same time.

3.4.5. Progresses of financialisation in China

After introducing the concepts and definitions of financialization and other relative terms, the focus is now on the financial system in China. Since the foundation of China in 1949, there are two main transformations of China's financial system. Shi (2023) summarised the developments of China's financial sector as the following stages:

- **Emergence of China's financial sector (1980s)**
  People's Bank of China (PBOC), being the only 'bank' in China under the planning system, formed the merely financial institution in China. In 1984, PBOC has separated all its commercial activities and transferred to four newly established state-owned banks, namely the 'Big Four' - Agricultufre Bank of China (ABC), Bank of China (BOC), China Construction Bank (CCB), and Industrial and Commercial Bank of China (ICBC). Afterwards, PBOC began to serve as a central bank and the 'Big Four' started to function in borrowing and lending businesses.
- **The first transformation: introduction of the financial market (late 1980s to 2008)**
  The first transformation was state-led to introduce the market mechanism into the financial sector in China. In response to the reforms and opening up, during this period, the banking sector also experienced reform. The reform includes the ownership reform, corporatisation and internationalisation. Meanwhile, international trade, the stock market, and the bond market were introduced too.

  Still, this transformation is characterised by China-specific features: state presence, bank-based market, partially liberalised and still credit-centric. For example, despite the emergence of the

bond market, state and state-owned entities were still composited the largest bond issuers in China. More specifically, state-owned enterprises (SOEs), state-owned commercial banks, and local government financing vehicles (LGFVs) were the dominant bond issuers. Also, the operations in the money market (e.g., interbank lending market, repo market, bill market) were not independent and still under regulations from the central bank.

- **The second transformation: the rise of shadow banking (after the 2008 global financial crisis)**
  The second transformation was carried out by market forces within the financial system due to the state's intervention in trying to cope with the 2008 global financial crisis. This transformation is characterised by higher liberalised finance while the central role of banks has been enhanced, which seems contradictory. During this period, the formal banking sector has increasingly been involved in shadow banking activities in the form of middlemen and gradually transformed themselves into the shadow banks.

Shadow banking is an important part of China's financial system, so shadow banking in China will be discussed first in the next section before finally returning to the discussions of the characteristics of China's financial system.

3.5. China's shadow banking

Similar to the financial system in China, China's shadow banking are also characterised by China-specific features under its socialist market economy. The emergence, working mechanisms, and characteristics of shadow banking will be discussed sequentially.

3.5.1. Emergence of China's shadow banking

Under China's relational and government-guided structure, as well as the incomplete mechanism of private and market-led finance, private firms have difficulties in raising funds and borrowing from the formal banking sector. In comparison, state-owned enterprises (SOEs) are more privileged in receiving subsidies and credits through banks, especially from state-owned banks (Shi, 2023). Due to this difficulty, those private firms are directly and indirectly forced to resort to informal finance (Tsai, 2015). As a result, shadow banking in China has been developed.

3.5.2. China's state-owned banks prefer issuing loans towards state-owned enterprises over private enterprises

It remains questionable why state-owned banks prefer and privilege loans towards SOEs. According to Shi (2023), the inertia that state-owned banks tilt towards state-owned enterprises (SOEs) rather than private firms is inherent in its relational and government-led structure. The main reasons are policy burdens and soft budget constraints.

Policy burden inherent in state-owned banks

SOEs are different from private-owned enterprises. They are entitled to the roles of leading industrial development and innovation, as well as other policy goals such as economy stabilisation, as described in Section 3.3.2. These specific goals, aside from purely profit pursuing compared to private firms, are called policy burdens (Section 3.3.3). Under this context, state-owned banks, also being a form of SOEs, have their own policy burdens of providing sufficient and cheap credits for other non-financial SOEs, to support state or regional development as the financial supportive intermediaries (Shi, 2023).

Soft budget constraint inherent in non-financial SOEs

Besides policy burdens inherent in state-owned banks, soft budget constraints (SBC) hidden in non-financial SOEs have also made state-owned banks biased towards SOEs over private firms.

The credit issuers believe that they would be forgiven for authorising the possibly or already defaulted loans since both state-owned banks and SOEs operate in the public sector (Shi, 2023).

This also aligns with the research by N. Zhu and Shiller (2016). Many investors believe in 'implicit guarantees' by the Chinese government. As long as the (bond or credit) issuers and financial institutions still care about their reputations, as long as the Chinese government wants a stable society under the

current functional regulatory framework, they will take care of the risk, even though this kind of risk should be considered carefully by the investors themselves before investing in correspondent products.

The different research similarly indicates that from official bankers to individuals such as households and firms, they all identify the soft budget constraints hidden under China's current socialist market economy. In the financial system, it performs in the way that state-owned banks are willing to issue loans to SOEs because they endure SBC, and the government will guarantee the debts of SOEs even in the face of possible insolvency.

Lack of a culture of private credit provision

Developed under the background of a government-led economy and the SOE system, state-owned banks lack a culture of private credit provision. The credit system is still incomplete, leaving the credit issuers unclear of the process of processing the individual businesses' loan requests, not to mention the evaluation of their creditworthiness (Shi, 2023). Most of the credit officers were trained and treated themselves as the bureaucrats instead of the commercial bankers (Tsai, 2002, p. 35).

In short, due to the structure of China's economic system as well as the history of the development of the banking system, state-owned banks were initially and are still have preferences in issuing loans towards SOEs over private firms.

3.5.3. Mechanisms of China's shadow banking

After understanding the motivation for the emergence of shadow banking in China, the discussion will move forward to its mechanism.

Acknowledging that the emergence of China's shadow banking is due to the lack of credit sources for private firms, the main mechanism of shadow banking would be around debt issuing. There are two primary products of shadow banking - shadow saving instruments and shadow lending instruments. Shadow banking works in the following steps (Shi, 2023):

1. **Deposits collection through shadow saving instruments**
   Shadow banks collect deposits from ultimate creditors such as household depositors, institutional investors and enterprises through shadow saving instruments. There are two main forms of shadow saving instruments - wealth management products (WMPs) and trust products (Ehlers et al., 2018).
2. **Credit intermediation and lending**
   Different forms of credit intermediation, such as trust loans, entrusted loans, and bond markets, composite shadow lending instruments. The entrusted loan is the largest component of shadow lending instruments in China (Ehlers et al., 2018). Through credit intermediation, the deposits collected from ultimate creditors are eventually lent to ultimate debtors such as SOEs and other enterprises.

Figure 3.9 illustrates the mechanism of shadow banking in China. The following step is to discuss the characteristics of China's shadow banking.

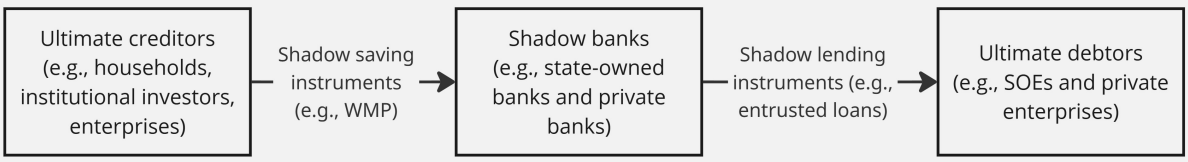


Figure 3.9: The mechanism of shadow banking in China. The figure is interpreted based on Shi (2023).

3.5.4. Characteristics of China's shadow banking

Similar to other countries' shadow banking, shadow banking in China shares some similar characteristics, while shadow banking in China also has its specific characteristics. The similar characteristics will be discussed first, then China-specific characteristics of shadow banking will be discussed.

Similarity 1: Coping with the rising financing demands

The motivation for securitisation is the increasing investment demand as described in Section 3.4.2. Similar to other countries where securitisation is the foundation of shadow banking, the emergence of shadow banking in China reflects the increasing demand for credit (described in Section 3.5.1). He and Wei (2023) stated that before 1996, the shadow banking activities initiated by banks had helped the non-state sectors get credit, where those sectors were more productive and their growths required funding.

Similarity 2: regulatory arbitrage

Also similar to the securitisation process in other countries, banks in China are involved in shadow banking, because they can act as credit intermediaries and earn the handling fees while outside regulations (He & Wei, 2023; Shi, 2023).

However, compared to shadow banking in other countries where securitisation plays a major role, China has two distinct characteristics that differentiate China's shadow banking from other countries' - banks dominate in the shadow banking system, and credit-based mechanism instead of securitisation (Shi, 2023). If we use securitisation as the main mechanism of shadow banking in other countries, since shadow banking is mainly organised around securitisation as describe in Section 3.4.4, we can easily distinguish the differences between China's shadow banking system and other countries' shadow banking systems through Figure 3.10.

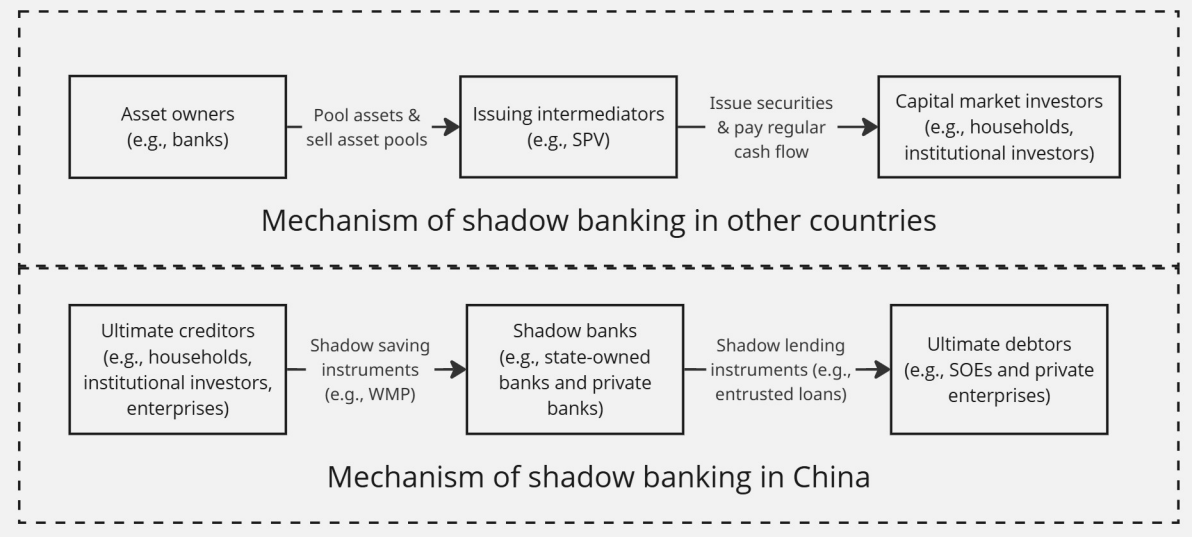


Figure 3.10: The mechanisms of shadow banking in other countries and in China separately. The upper box illustrates the mechanism of shadow banking in other countries (securitisation as the main mechanism), while the lower box illustrates shadow banking mechanism in China.

Difference 1: Bank centrality in shadow banking

In normal shadow banking, banks separate themselves from the special purpose vehicle (SPV) in order to bypass the regulation, to pack and sell assets (loans) to SPVs to get more liquidity as well as to hedge the risks of possible default loans (described in Section 3.4.2). However, in shadow banking in China, commercial banks innovatively involve themselves in shadow banking, performing as the middlemen, to bypass the regulation (Ehlers et al., 2018).

Empirical evidence has shown that commercial banks have played a central role in China's shadow banking system. Incentives for banks to involve in shadow banking are similar to the intermediators being incentivised and involved in shadow banking in other countries - banks can earn the handling fees without necessarily taking on the credit risks in their own balance sheets (Shi, 2023). Therefore, banks acting as middlemen and playing a central role become one characteristic of China's shadow banking system.

Difference 2: Credit-centric in shadow banking

If we compare the upper and lower boxes in Figure 3.10, the mechanism of shadow banking in other countries is mainly securitisation, where financial assets are pooled and repacked into new assets, and ultimately being sold in financial markets (Ehlers et al., 2018). While in China, shadow banking is still around credit issuing. It contributes to the second characteristic of China's shadow banking, i.e., credit-centric.

Combined with the characteristic that banks play a central role, China's shadow banking is still similar to the traditional banking system - the money flows from the ultimate creditors to the ultimate debtors. The mere difference is that in shadow banking, the money flows across one or multiple middlemen (Shi, 2023).

If we trace back to the root causes of why China's shadow banking is characterised as bank-based and credit-centric, the ultimate source is its financial system. Originating from the financial system, China's shadow banking reflects the fundamental nature of its financial system where is also bank-based and state-presented. In other words, the relational and government-led structure inherent in China has not been changed due to the emergence of shadow banking, instead, it has been reinforced by shadow banking (Shi, 2023).

3.6. Characteristics of China's financial system

After the detailed discussion and explanations of the history and current situation of both China's financial system and China's shadow banking, it will be easier to understand the characteristics of China's financial system.

3.6.1. Bank-based, state-presented financial system

Everything can be traced back to China's political environment. The overall governance feature in China is characterised and summarised as 'state entrepreneurialism', where the state uses the market as an instrument to strengthen planning centrality under China's socialist market economy (Wu, 2017). In accordance with the 'state entrepreneurialism', SOEs are established and commanded by the state to fulfill its strategic intention such as stabilising society, maintaining economic growth, and accumulating capital (Wu et al., 2022).

Being a part of China's economy, finance is also developed under 'state entrepreneurialism', and state-owned banks are also parts of SOEs. Under this context, the financialisation in China is not initiated by the market or private sector alike in other countries, or being the result of globalisation. Instead, the financialisation in the form of securitisation in China was initiated by the government in the face of the 2008 global financial crisis (Wu, 2021). The purpose of it was not realising the profit maximisation in the financial sector, but still was to achieve the development goals of the state (Wu et al., 2022).

Being one part of the , the financial sector in China also has the presentation of state, in which state-owned banks predominantly control the financial sector in China. In the presence of GDP, SOEs have contributed 88% of GDP in the financial sector in 2017. In comparison to all the sectors in China, SOEs only occupy the shares of 27.5% of the overall GDP (C. Zhang, 2019). From the perspective of asset scale, from 2016 to 2020, the banking sector occupies on average more than 91% of the asset values among banking, securities, and insurance (Liu et al., 2022). Figure 3.11 shows the percentages of banking, insurance, and securities assets from the year 2016 to 2020.

Therefore, considering the 'state entrepreneurialism' in China as well as the banking occupying large proportion of the financial sector, the financial system in China can be characterised as bank-based and state-presented.

3.6.2. The impact of China-specific financial system to balance sheet recession

Compared to capitalist countries where balance sheet recession theory explains economic recession well, the key difference of China is the frequent presence of government, or namely, government intervention. There are mainly two path where the government can intervene and hence influence the balance sheet recession.

Year	Assets			Total assets(Trillions)
	Banking assets (%)	Insurance assets (%)	Securities assets (%)	
2016	91.20%	6.09%	2.70%	248.09
2017	91.80%	5.96%	2.24%	274.50
2018	91.39%	6.24%	2.37%	293.52
2019	91.00%	6.45%	2.55%	318.68
2020	90.53%	6.60%	2.87%	353.19

Figure 3.11: The percentages of banking, insurance, and securities assets respectively from the year 2016 to 2020. Source: (Liu et al., 2022, Table 1).

Intervention in the housing market

Glaeser et al. (2017) has studied and state out that state-owned institutions dominant in China's banking system. Besides, the banks' policies regarding the housing market are under the government's guidance.

An example is in the year 2010, the government carried out a series of policies to cool down the housing market in China, when many people believed that it was overheated at that time. The policies tried to increase the threshold and requirements for people to buy housing. Some policies were increasing the down-payment ratio (the proportion of the value the buyer have to pay immediately after signing up the purchasing contract, the proportion that cannot be covered by the mortgage), and increasing the interest rates on mortgages for those who took loans to buy their second house (Fang et al., 2016).

Similarly, if the government has intervened to control the housing prices from raising soarly, the government can also take actions to introduce policies that prevent the housing prices from dropping drastically. Fang et al. (2016) has pointed out that due to frequent interventions by the government in the housing market, the households have gradually formed a sense that whenever the housing market fall in China, the government would take actions to support it. Despite the research in 2017 when housing prices have not started to dropped, Glaeser et al. (2017) concluded that the collapse of China's housing bubble is inevitable, however, the depth and duration will be dependent on the decisions made by the Chinese government.

Policies in the face of debt overhang

On the one hand, the government can intervene the housing prices. On the other hand, the government can also intervene the debt structure mainly through the banking sector.

Glaeser et al. (2017) studied China's real estate boom and found that real estate developers were more leveraged. However, he later indicated that their loans would possibly be restructured when needed, and being 'cozy with state banks'. Around and right following his research in 2017, there is a live example that the government intervene and helped a state-owned enterprise escape from the debt crisis. The details are discussed in Box 1 (see following), selected from B. Zhu et al. (2020).

Box 1: China Railway Materials escaped from debt crisis successfully with comprehensive measures

China Railway Materials Commercial Corp. (CRMCC, Chinese: 中国铁路物资 (集团) 总公司) is a large central enterprise directly supervised by the State-owned Assets Supervision and Administration Commission (SASAC) of the State Council. It is the largest railway productive services provider in China, called the "General Logistics Department" of China Railway in the industry. For years, CRMCC has been in good operating and business.

However, between 2012 and 2014, a systemic crisis in China's steel trade broke out. In 2012, China's bank regulator warned banks and other related financial institutions about the cautious lending to steel companies (Rabinovitch & Hook, 2012). Early in 2011, the general trend of the steel industry was already serious overcapacity, unsold steel, and weak prices (Paper, 2015), yet

steel companies still borrowed money, not for production, but instead for speculative purposes.

At that time, the funds loaned from banks did not stay in the steel trade industry itself. Instead, it flowed more to the real estate market and even the stock market, which were booming at the time. However, as steel prices plummeted, as well as investments in the real estate and stock markets depreciated, a large number of steel traders suffered huge losses and were unable to repay their bank loans by their maturities. The crisis began to surface at the end of 2011 and gradually evolved into a systemic crisis.

Being deeply involved in the steel trade industry, CRMCC suffered business losses for three consecutive years due to the systemic crisis in steel trading from 2012 to 2014. Combining the losses in assets, CRMCC faced serious insolvency risk. It further triggered a bond repayment crisis in early 2016, attracting the attention of the central leadership. At this stage, CRMCC faced extreme difficulties such as the predominant blockage of bank investments and credits, the seisure of assets and withdrawal of loans by some banks, and the almost complete broken of debt repayment capital chain.

At the tipping point of CRMCC being bankruptcy, the central government (mainly SASAC) intervened decisively. The central government guided and supported a series of measures, including debt restructuring, returning to the railway core business, optimising resource allocation, and deepening the reform.

The measures related to deleveraging and debt restructuring are the following:

1. **Resolve the bond repayment crisis**
   To maintain financial stability, the company took a series of quick and strong measures: dispose of assets, strengthen debt collection, request entrusted loans, cut operating expenses, and coordinate the rapid repayment of core state-owned enterprises to ensure 'rigid repayment' and avoid 'bond run'.
2. **Restructure debts**
   Under the supervision of SASAC and other regulatory institutions, the company restructured financial debts totaling 33.7 billion Chinese yuan, which was worth 5.1 billion dollars at the currency rate at that time. Within 9 months, the company successfully reached a debt restructuring plan with financial creditors. The bucket of plans included principal capital guarantee, partial debt repayment, extension of remaining debt, interest rate discount, option of debt-to-equity, as well as the backup of extra funds.

With the combined efforts of the company as well as the government, by the end of 2019, the remaining amount of the company's liabilities (including interests) had dropped to 12.2 billion Chinese yuan, and the debt ratio was 28%. The debt problem has been basically resolved.

The government's intervention to rescue CRMCC has created a new model for resolving the debt crisis of the troubled enterprises, and is a positive demonstration of market-oriented debt restructuring. Moreover, the restructuring of private debt has become the first case of restructuring of non-defaulted private debt in China, which is of great significance to maintaining the healthy development of the bond market, said B. Zhu et al. (2020).

Through debt restructuring, China Railway Materials has significantly alleviated short-term debt repayment pressure, reduced financial expenses, and hence has the opportunity and possibility for the company to turn losses into profits in the long run.

In short, in the financial market with China-specific characteristics, the typical patterns and the policies for the balance sheet recession could be different. The government can have control of housing prices through banking instruments. Through different financial institutions, the government can also help and promote debt restructuring. Those are the already-known examples and actions from the past. It should be noted that there are also other forms of government intervention through the financial market.

3.7. Summary of China-specific characteristics and its impacts on the balance sheet recession theory

In this chapter, the China-specific features that would possibly influence the balance sheet recession theory are discussed. The main features are the following.

The first feature is the high saving rates and the low consumption rates in China. The low consumption contributing low proportions in the overall GDP will be paired with the high proportions in investments and exports in China (equation 3.2). While it remains unknown the causality whether low consumption leads to high investment and exports or on the contrary, it is sure that high saving rates and low consumption will contribute to the deepened amplitude and prolonged duration of the deflationary spiral during the balance sheet recession, and also make the economy prone to a liquidity trap and worsen the effectiveness of traditional monetary policy (Section 3.1.4).

The second and the most distinct feature is rooted in China's national system - a socialist country with a socialist market economy. Due to 'state entrepreneurialism', SOEs are established and guided by the government to carry out specific strategic development of the country. The resulting policy burdens (shouldering special roles which might not priortise profits) will possibly make SOEs highly leveraged. On the other hand, the soft budget constraint that inherents in the planned economy would also imply that SOEs are not urgent in the face of insolvency compared to households and private firms, because the state wants to realise its goals and hence provide subsidies or discounts in debts. As a result, the debt structure and the business operating behaviours (profit maximising or debt minimising) of SOEs would be different from the typical patterns of a balance sheet recession - possibly higher leverage while less prioritising in debt repaying (Section 3.3.4).

Being a sector of China's economy, the financial market in China is dominated by SOEs and also are the tools for the government intervention. The known interventions from the past of the Chinese government are the intervention of the housing market and the help to SOEs for debt restructuring. The intervention in the housing market could influence the asset prices. The support to help debt restructuring can be a possible effective policy instrument when facing a balance sheet recession. Keep in mind that those are the already performed actions. There could be more interventions or policies that are unknown but effective (Section 3.6.2).

After summarising the features that could drive China's economic patterns different from a typical balance sheet recession, the next Chapter will study the economic performance in the current China, compare it to the typical patterns of a balance sheet recession, and try to find out how well the balance sheet recession could explain China's current economy.

4

Applicability of balance sheet recession theory to China's economy

The aim of this research is to resolve the heated debate on whether China is facing a balance sheet recession and how well the balance sheet recession theory explains China's current situation. This chapter will focus on studying China's economic performance and use the pattern matching method to investigate the applicability of the balance sheet recession theory to China's situation. The reasons for choosing the pattern matching method and the detailed methodology were discussed in Section 1.2.2. The following section will use the method as described directly. Further explanation will only be given when it is necessary.

Without further explanation, all the data used in this Chapter is from the National Bureau of Statistics of China (NBS of China). The data that was not gathered from the NBS of China will be pointed out and stated with its source.

4.1. China in trend of recession

Before studying how well the balance sheet recession explains China's current economy, the first question is: is China in the face of a recession? To answer this question, several key economic indicators need to be investigated. Discussed in Section 2.4.1, the National Bureau of Economic Research (NBER) uses industrial output, consumption, retail sales, and employment to measure recessions. Similarly, the research will also use such indicators but more specific and with available data.

Gross domestic product (GDP) is used as the indicator for industrial output. There are different approaches used by NBS of China to compute GDP, e.g., the industrial approach, the expenditure approach. GDP data selected in the research uses the industrial approach (National Bureau of Statistics of China, 2024d). There is consumption data provided by the NBS of China, but it uses the expenditure approach. To maintain the coherence in the data collecting and processing method, all the data used in this section is collected through an industrial approach. The consumption data is used later when combined with the analysis of investment and net export. Total retail sales is recorded by the NBS of China, and also reflects certain levels of consumption. The unemployment rate and wage growth rate are used as the indicators of employment.

Therefore, this section will use GDP, retail sales, the unemployment rate, and the disposable income growth rate as indicators of recession. Starting from Figure 4.1, the GDP growth rate, retail sales growth rate, unemployment rate, and wage growth rate since 2000 will be presented in an annual period respectively.

In Figure 4.1, the growth rate of GDP in China from 2000 to 2024 is drawn. Despite that by the end of the year 2024 China still enjoyed a growth rate of 5.0% (index in 2024 is 105.0), a declining trend in GDP growth is observed and illustrated in the dotted line. Before the pandemic, there was an average 9.0% GDP growth (2000 to 2019), and even the least was still a 6.1% in 2019. However, after the

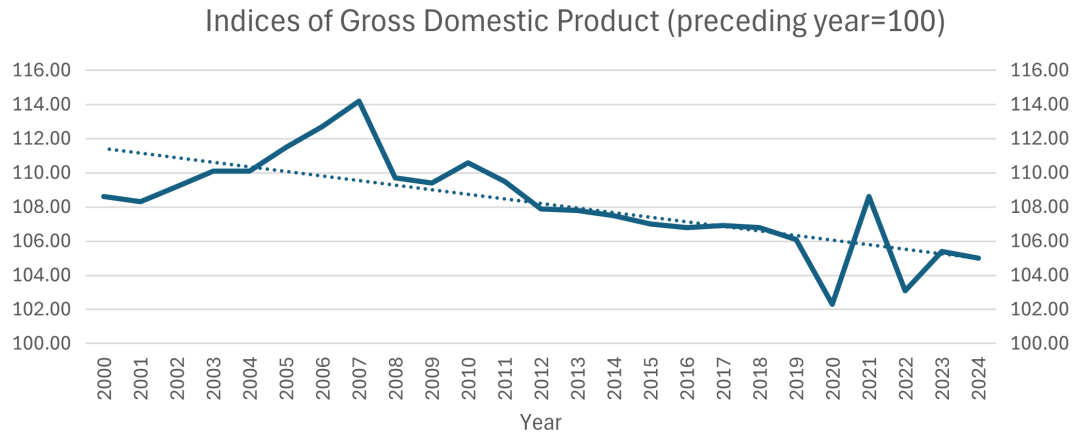


Figure 4.1: Annual GDP growth of China from 2000 to 2024, using the previous year as the base, which equals 100. Source: NBS of China.

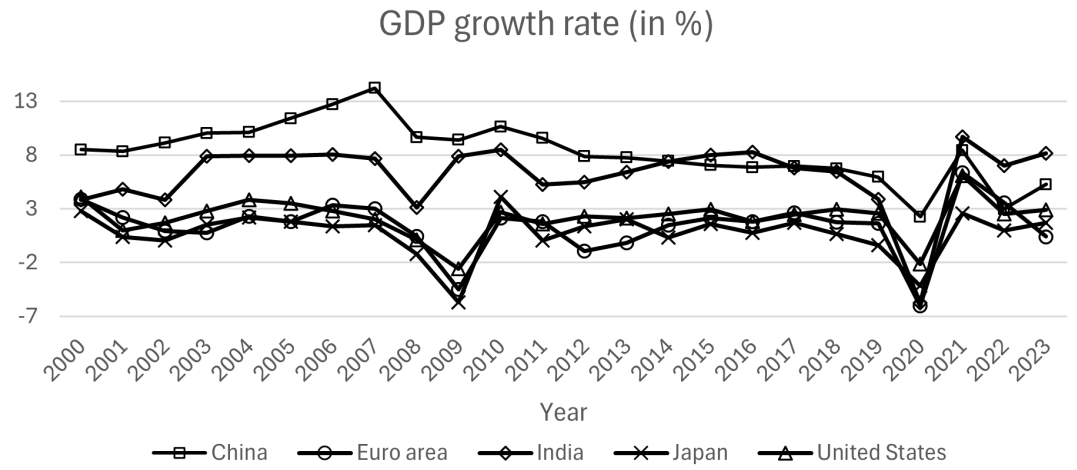


Figure 4.2: Annual GDP growth rate in China, Euro area, India, Japan, and the U.S. Source: World Bank Open Data.

pandemic, the average growth rate declined to 4.9% (2020 to 2024) and only the year 2021 exceeds 6%. The exceptional 8.6% growth rate in 2021 is due to the low base in 2020 that was caused by the pandemic.

Also, compared to other countries (Figure 4.2), the GDP growth rate before 2020 in China and India far exceeded countries and regions like Japan, the U.S., and the Eurozone. However, after the pandemic, the growth rate in China didn't show a distinct surplus over those areas. In comparison, the growth rate in India has already resumed (since 2022) back to the level it used to be before the pandemic.

Therefore, the GDP growth rate, which has neither returned back to the average level it was before the pandemic, nor recovered back to 6% (except for 2021) since the pandemic, makes people believe that China is facing some problems in its economy. Combined with other indicators of recession, the sayings and questions that China is facing the recession seems reasonable.

Figure 4.3 illustrates the retail sales growth rates from 2001 to 2024. A downward trend in the growth rate is observed and illustrated in the dotted line. It to some extend reflects that the consumption during this period is also growing slower. Taking one step further, it can be reasoned that the aggregate demand from households and firms is also growing slower.

Figure 4.4 and 4.5 illustrate the unemployment rate and the growth rate of disposable income respectively. An upward trend in the unemployment rate and a downward trend in the growth rate of income are observed. Together, they reflect the worsened employment environment - the increasing unemployment combined with a slowdowned increase in the salary.

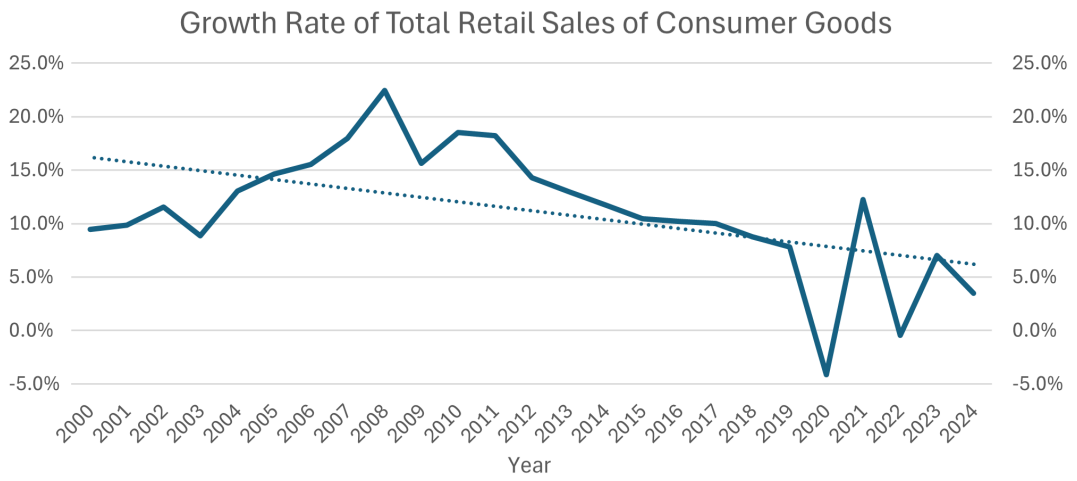


Figure 4.3: Annual growth rate of total retail sales of consumer goods in China from 2001 to 2024. Source: NBS of China.

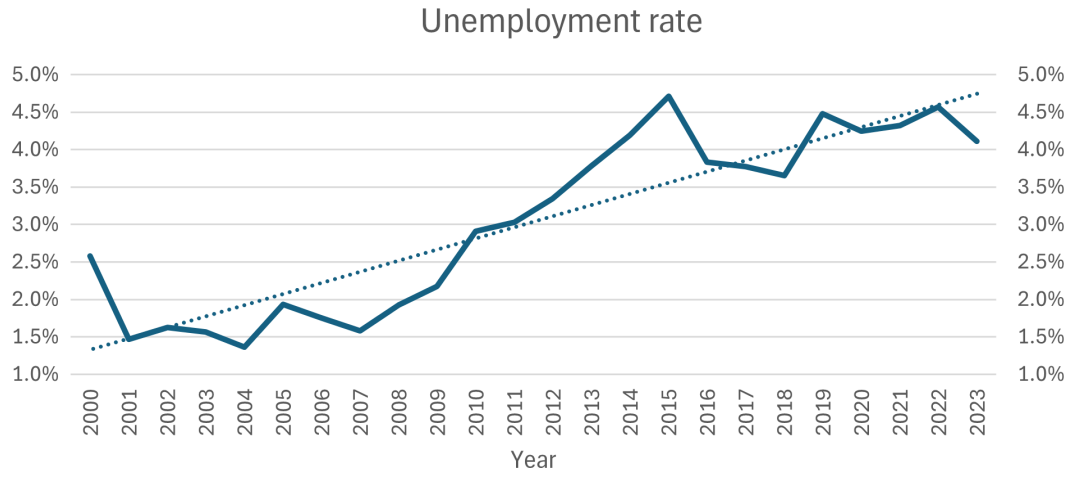


Figure 4.4: Annual unemployment rate in China from 2000 to 2023. Source: NBS of China.

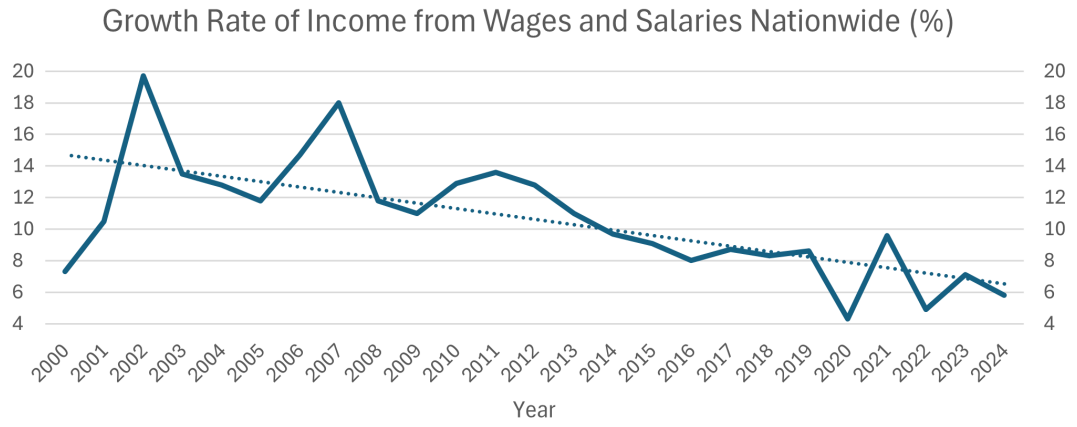


Figure 4.5: Annual wage growth rate from 2000 to 2024. Source: NBS of China.

From Figure 4.1 to 4.5, it can be seen that the growth rates of GDP, retail sales, and disposable income all show a downward trend, combined with the increasing upward trend of unemployment rates. Those trends are summerised in Table 4.1

Table 4.1: Economic trend in China for the key indicators of recession.

	GDP growth	Retail sales growth	Unemployment rate	Wage growth rate
Trend	Decrease	Decrease	Increase	Decrease

Despite different definitions of recession, a generally accepted one is that a recession is indicated by two consecutive quarters of negative GDP growth (The Investopedia Team, 2025). As a result, some would argue that China has not experienced a recession yet, since its GDP growth rate is still positive - more than 5% and even higher than that of Western countries. However, it cannot be denied that a downward trend is happening in China's economy. In other words, the slowdown in China's economy is clear.

Furthermore, if we investigate the inflation in China, the sign of economic slow down is more obvious. Higher inflation is not good for price stability. But low inflation is also not favourable. Low inflation can weaken the economy. If inflation keeps being low, people will have low expectations for inflation in the future. The lower inflation expectation can pull actual inflation even lower, forming a negative feedback looop between the low inflation and the low inflation expectation (The Federal Reserve, n.d.). Therefore, anchoring inflation to a certain level is the main job for many countries' and regions' central banks. Many regions have set their inflation target at 2% (European Central Bank, 2024; The Federal Reserve, n.d.).

The most commonly used indicator of inflation is the consumer price index (CPI) (OECD, 2025). Figure 4.6 sketches the CPI in China from 2000 to 2024, the 2% inflation rate (the index where equals 102) is highlighted with a bold line. Start from 2020, inflation in China has barely returned up to 2%. Even in 2023 and 2024, the inflation in China was nearly approaching 0%. Once the inflation rate turns negative for only a period of one quarter, it can be called that an economy is in deflation in a narrow term of definition (European Central Bank, 2014). A low inflation level can already cause problems to the economy, not to mention the negative inflation. Deflation influences the real economy through the price level, which will create negative feedback loops with the real economy in many ways.

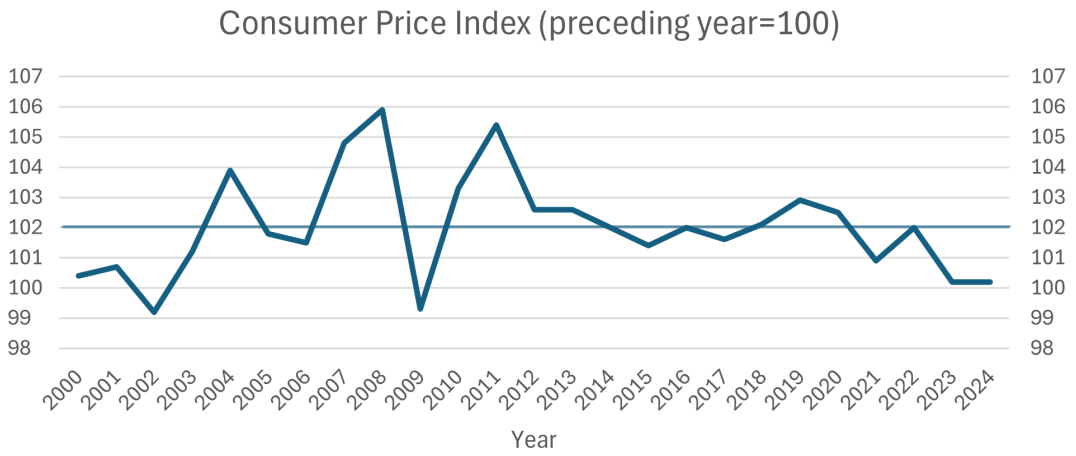


Figure 4.6: Annual CPI of China from 2000 to 2024, using the previous year as the base, which equals 100. The target 2% inflation rate is highlighted by a bold line. Source: NBS of China.

In conclusion, due to different explanations and definitions of the recession, it is hard to say whether China is already in the phase of recession. But it is for sure that China is facing an economic slowdown. If the economy keeps slowing down, the tipping point for the recession will come one day. Using Figure 4.7 to illustrate China's current economic stage, it is almost at the peak of one economic cycle.

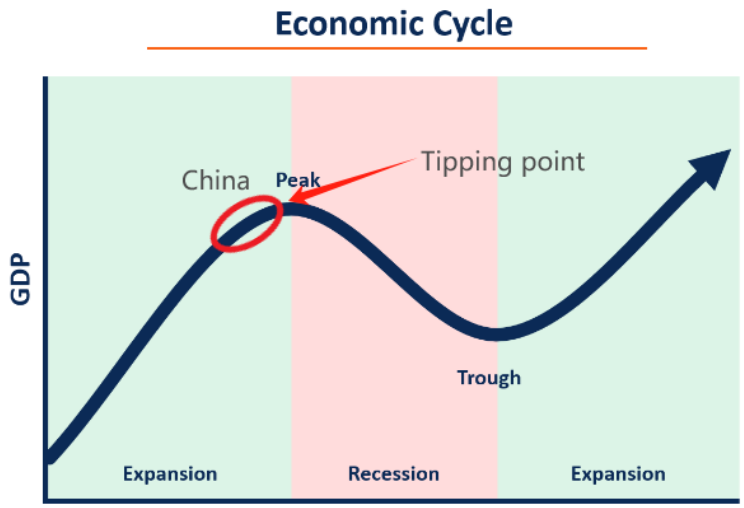


Figure 4.7: An illustration of China's current stage in an economic cycle.

4.2. Trend of balance sheet recession remains unknown

It is clear that China's economic growth has an obvious slowdown and is on the trend of a recession. The following question is - whether this slowdown is caused by cyclical factors that drive the normal recession, or it is driven by the balance sheet problem.

To answer this question and in accordance with the research question, several key indicators of a balance sheet recession need to be tested. Recall from Chapter 2, the cause of the balance sheet recession is the drastic drop in asset prices. It affects the asset side of the balance sheet for households and firms, damping the asset values hence increasing the debt burden. If they are heavily leveraged, they would face the risk of insolvency. In the fear of being insolvent, they would collectively cut spending and prioritise repaying debts. Thus forming a doom loop between the low asset prices, low consumption, low borrowing, and weakened economy as illustrated in Figure 2.13. Therefore, this section will focus on the asset prices, consumption, credit demand, and other key symptoms and patterns during a balance sheet recession.

4.2.1. The years 2021 and 2022 require additional attention for being the possible tipping points as China's real estate market encountered problems

The year 2021 requires attention when studying different indicators. 2021 is a generally accepted tipping point for the real estate market in China. The fall of the China Evergrande Group, used to be the second-largest property developer in China, showed liquidity problems and inability to repay debts since 2020. It officially defaulted on its interest payment in late 2021. At that time, the company already had insufficient assets to cover its liabilities. In total, the company defaulted on an amount of over 2 trillion RMB (Chinese Yuan), which equals over 300 billion dollars. With tries to liquidate and restructure debts, Evergrande was finally issued a liquidation order by a court in Hong Kong. The crisis of Evergrande has created a series of shockwaves in the real estate market in China. With the spread crisis, other large property developers in China, such as Country Garden and Kaisa Group, have also shown liquidity problems and the debt crisis, hence further increasing the influences and shocks to the real estate market (Crystal Capital Partners, 2021; The Global Treasurer, 2024).

The real estate crisis also indirectly impacted the upstream and downstream industrial chains and financial markets. The crisis in real estate companies has caused a large number of real estate projects to be postponed, and related owners have also begun to stop paying loans in 2022, further affecting financial and social stability, making people worry about the possible sectoral or even systemic risks triggered by it (Crystal Capital Partners, 2021; The Global Treasurer, 2024). Therefore, when studying China's economic indicators related to the balance sheet recession theory, 2021 and 2022 could be the probable tipping points.

4.2.2. Households and non-financial private firms being two sectors require additional attention

Recall from the previous Chapter, the Chinese government can intervene in the market. Some typical patterns of the balance sheet recession might be influenced under China's context. In order to figure out different sectors that are prone to and partly free from government intervention, different actors or sectors in China's economy are categorised.

The first level is either domestic or international. The international sector is mostly free from government intervention. However, it can have little influence in China's economic market since the state has a strict international capital flow scheme (Shi, 2023).

In domestic settings, households, corporations, and the government are the different sectors. The government consists of the central government and local governments. Corporation is divided into the financial and non-financial sectors. Recall that the financial system in China is still bank-based, and SOEs or state-owned banks occupy much of the financial system, the government still can have much influence in the financial sector. Among non-financial firms, separations are still the private corporations and the SOEs.

After the division, households and non-financial private firms, as categorised in Figure 4.8, are the remaining two actors that seem to be partly free from government intervention, and perform partly free-market-like behaviours.

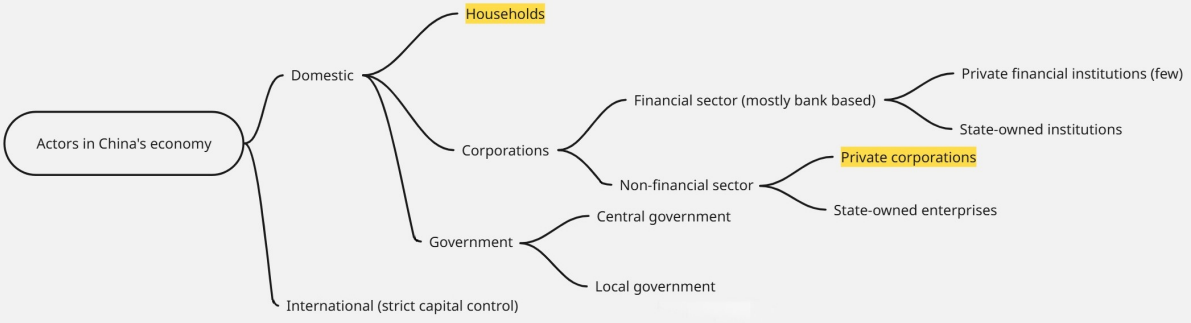


Figure 4.8: Different actors in China's economic market. The highlighted households and private firms in non-financial sectors are the two actors that can be less influenced by the state interventions, while still contributing much to the market.

Therefore, if China is facing a balance sheet recession, the households and the non-financial private firms are the only two sectors that could possibly exhibit the typical patterns of the balance sheet recession, hence, require additional attention.

4.2.3. Drop but not drastic drop in asset prices

Following the mechanisms of a balance sheet recession, the trigger is the drastic drop in asset prices. Similar to Koo's study, this section will also focus on the house prices and the stock price index as indicators for asset prices.

Drop but still not a drastic drop in housing prices

Figure 4.9 indicates the annual housing price changes from 2000 to 2024. It can be seen that the year 2021 is a tipping point. The housing price increased steadily before 2021. However, after 2021, the housing price in China barely increased. Figure 4.10 zoom in on the trend of housing prices since 2018. It can be seen that, in four-year time, the housing price in China has dropped 12% from the second-highest historical price in 2021. If we count the drop using the highest point in 2023, the price has dropped 16% in two years. From statistics, there is an obvious drop in the housing price in China. However, if we compare with other countries, the depth and pace of the housing price drop are far from drastic.

Koo (2015) believes the balance sheet recession theory explains well the recessions in Japan since the 1990s and in the U.S. after the 2008 global financial crisis. He used Figure 4.11 to illustrate the magnitude and duration of the decline in housing prices in Japan and the U.S. From the figure, both Japan and the U.S. have experienced a 35% drop in 2 years and a 33% drop in 3 years respectively.

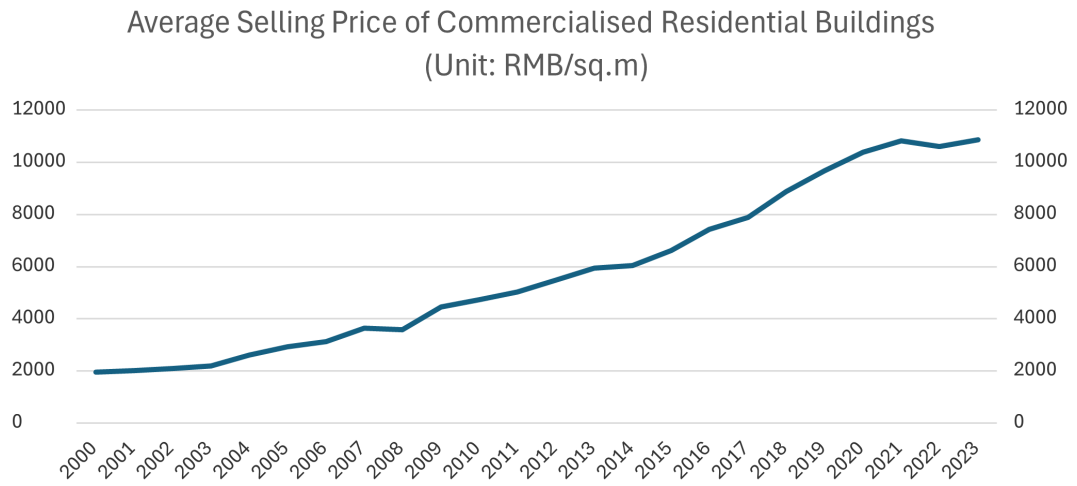


Figure 4.9: Average selling price of commercial residential buildings from 2000 to 2024. Unit in RMB (Chinese yuan) per square meter. Source: NBS of China.

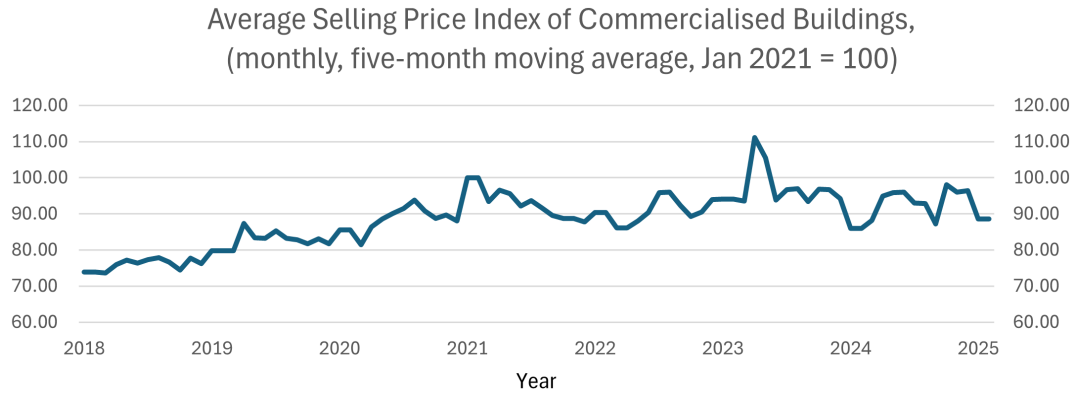


Figure 4.10: Average selling price of housing based on monthly data with five-month smoothing. Use January 2021 as the base which equals 100. Source: NBS of China.

Table 4.2 compares the magnitudes and durations of the decline in housing prices between Japan, the U.S., and China. It still remains unknown whether the housing price in China will drop to a 30% decline, or how long it will take to drop to that low price. At least from its depth and speed, the drop in housing price in China cannot be called 'drastic', despite the drop is truly happening.

Table 4.2: Magnitudes and durations of the decline in housing prices in Japan, the U.S., and China.

	Japan	The U.S.	China
Drop in housing price (from the highest point)	35%	33%	16%
Time duration	2 years	2-3 years	2 years (ongoing)

In short, the decline in housing price in China is observed but can barely be called drastic. Recall from Section 3.6.2, the Chinese government has intervened in the concurrent overheated housing market. Nowadays, the Chinese government can also intervene in the housing market again to prevent a drastic drop. However, with the impression that the Chinese government could intervene, it is hard to tell whether the moderate drop in housing price is already the result of the implicit interventions, or it is due to the common belief and confidence in the housing market that the government will not let it collapse. At the current stage, there are few empirical studies to predict the extent and duration of the housing price drop, and the efficiency of the government intervention. It can be said that the typical symptom of the drastic drop in housing prices during a balance sheet recession has (partly) failed in China's context (government intervention).

FIGURE 1.1 The U.S. Housing Bubble Comparable to the Japanese Housing Bubble 15 Years Earlier

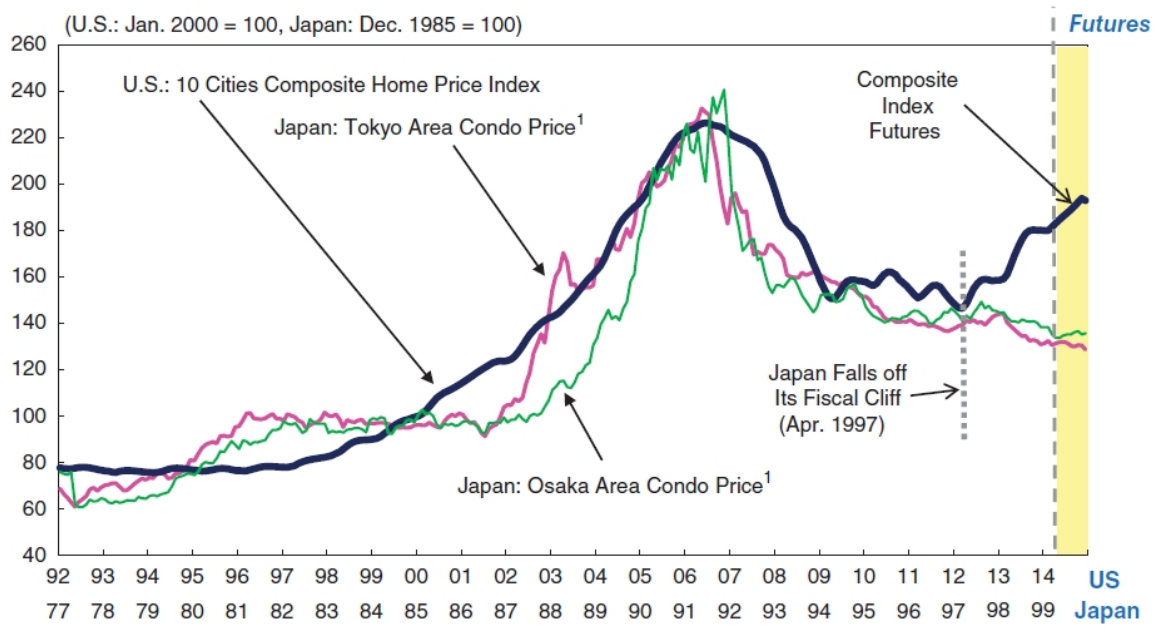


Figure 4.11: The drop in housing prices in Japan (starting from 1990) and the U.S. (starting from 2008). Source: Koo (2015, p. 2).

Drop but still not a drastic drop in stock prices

A similar situation also happened with the stock prices in China as well. Figure 4.12 is the change in the stock index in China, Shanghai Stock Exchange Composite Index, or SSE index, during the past five years. China experienced a 27% drop in stock prices from its highest point in 3 years. And the drop has been reversed since September 2024, due to a series of announcements from the People's Bank of China (PBoC, the central bank of China), including the launch of new monetary policy instruments that are designed to support the mainland stock markets. Despite the detailed planning has no been made public, the investors are cheered up and believe in the support measures and the country's determination to revive equity markets. Therefore, the stock index soared and barely shows any sign of dropping again.

Figure 4.12: SSE index from 2018 to 2025. Source: Trading Economics.

The nearly 30% drop in stock prices in China might sound huge. However, if compared with Japan, the drop in stock prices could also not be called drastic. According to Koo (2015, Figure 1.12), the stock

index of Japan, Tokyo Stock Price Index (TOPIX), dropped 53% in three years from its highest point in around 1990. And the price index fluctuated yet still kept the declining trend. At the lowest, TOPIX has dropped 73% from the highest point after 20 years (in 2012) of the collapse of asset prices.

Table 4.3 compares the magnitudes and durations of the decline in stock prices between Japan and China. It also remains unknown whether the stock prices in China will continue to drop or not.

Table 4.3: Magnitudes and durations of the decline in stock prices in Japan and China.

	Japan		China
Drop in stock price (from the highest point)	53%	73%	27%
Time duration	3 years	21 years	2-3 years (ongoing but fluctuating)

The decline of the SSE index in China has also proved a partly failed symptom during a balance sheet recession - also due to the government intervention. Moreover, the behaviour of investors in China's stock market is an example of the power of expectation and confidence. Even without any actual actions in the market, the stock prices have already been stimulated and soared.

In short, the housing price and the stock price, being indicators of the asset prices in China, have been studied. The prices for houses and stocks showed that the years 2021 and 2022 do performed as tipping points as analysed in Section 4.2.1. However, the magnitude and duration of the drop have shown that the typical symptom of the drastic drop in asset prices during a balance sheet recession is partly failed, due to the possible Chinese government intervention. There is a drop, but the extent and pace depend on how much and how fast the Chinese government want to intervene.

4.2.4. Slowed down growth in consumption yet stronger than investment

Besides the abstract drop in asset prices, another important mechanism of the balance sheet recession is the collective behaviour of reducing expenditure, less borrowing and repaying debt. Expenditure can be reflected through consumption. This section will study the consumption patterns in China.

Section 4.1 mentioned two different approaches of data computation used by the NBS of China. The data used here uses the expenditure approach, including consumption, capital formation and net export. These three concepts are similar to the model introduced through equation 3.2 in Section 3.1.1. In that model, GDP is composed of consumption, investment, government expenditure and net export.

NBS of China uses consumption, capital formation and net export to constitute GDP instead. Capital formation presents the net value (acquisition minus disposal) of fixed assets and inventory (National Bureau of Statistics of China, 2024b). Capital formation reflects, or more specifically, is calculated based on the data of fixed asset investment (National Bureau of Statistics of China, 2025). Therefore, the statistical method used by the NBS of China can be seen as a simplified model which uses consumption, investment, and net export to calculate GDP.

Reminded in Section 3.1 that China has a relatively low share of consumption in GDP (Figure 3.4), the shares of consumption, investment, and net export in GDP are investigated first. Similar to Section 3.1, consumption, investment, and net export discussed here are the relative levels or rates compared to GDP. Figure 4.13 gives the share of GDP for consumption, capital formation, and net export respectively. Since 2010, the shares of consumption, capital formation, and net export have been around 50-60%, 40-50%, and below 5%. It corresponds to Figure 3.4 where China also has a 50-60% share of consumption according to the data of the World Bank.

By cross checking the data, it again confirms that the consumption rate in China is relatively low. Considering that the net export occupies a low share of GDP (2.1% on average in the past 10 years), no matter how huge the growth rate of the net export would be, consumption and capital formation still contribute most of GDP in China for years. Only the growth rates of consumption and capital formation are investigated. Figure 4.14 presents the growth rates of consumption and capital formation from 2001 to 2023.

Both growth rates of consumption and capital formation show a declining trend. Since 2020, the average growth rate of consumption is 6.7% and capital formation has an average of 5.6%. The declining

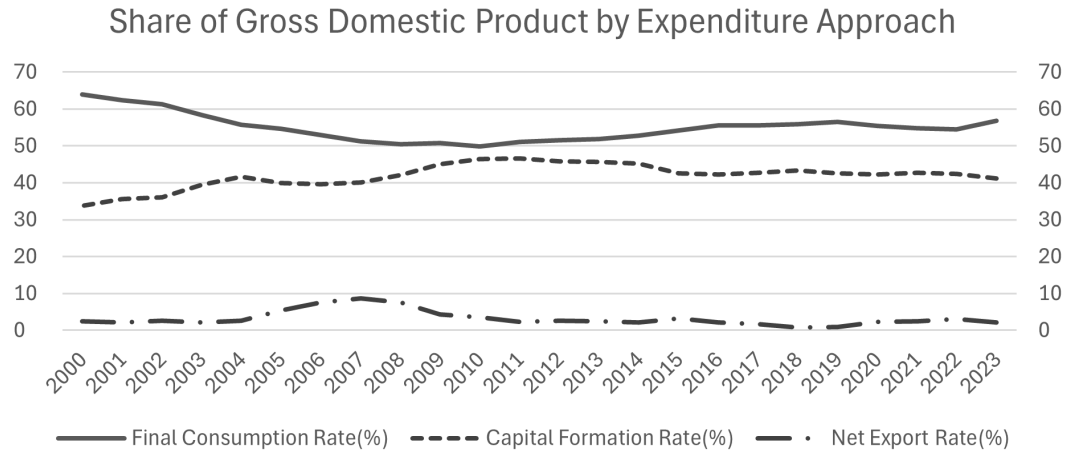


Figure 4.13: Share of GDP for consumption, capital formation, and net exports from 2000 to 2023. Source: NBS of China.

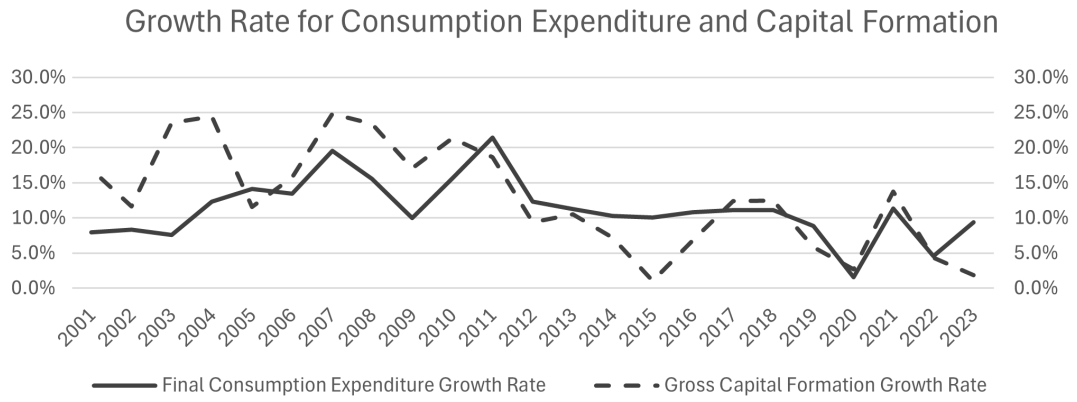


Figure 4.14: Annual growth rates of consumption and capital formation from 2001 to 2023. Source: NBS of China.

trend of growth shows a slowdown in China's economic activities. But on average still the higher growth rate of consumption than capital formation shows a stronger consumption than capital formation. Compared to capital formation, it is hard to conclude that consumption has weakened much.

In short, it is obvious that the consumption shows a trend of slowdown in its growth. However, with comparison to investment, consumption is more resilient than investment in China.

4.2.5. Slowed down growth in credit demand especially among households

The collective behaviours that occurred during a balance sheet recession include a decrease in credit demand. This section will focus on the credit demand in China.

People's Bank of China (PBoC) collects data of aggregate financing to the real economy (AFRE). AFRE refers to the total volume of financing provided by the financial system to the real economy during a period of time, including loans in RMB (Chinese Yuan), loans in foreign currencies, entrusted loans and trusted loans (being credit intermediations in China's shadow banking system, Section 3.5.3), corporate bonds, government bonds, and other types of finaning. The data used here is AFRE flow. Flow can be understood as the net increase. If the flow is positive, AFRE increases. If negative, AFRE decreases. Figure 4.15 presents the flow of AFRE from 2018 to 2025. The highlighted dashed line uses a 5-month moving average value since the original data has glitches due to periodic reasons. No obvious decreasing trend is observed in the AFRE flow. On the contrary, there is a slowly increasing trend instead.

Among the different sources of financing that contribute to AFRE, credit funds in RMB are the focus. PBoC collected the credit funds of (banking) financial institutions in China monthly. Institutions include

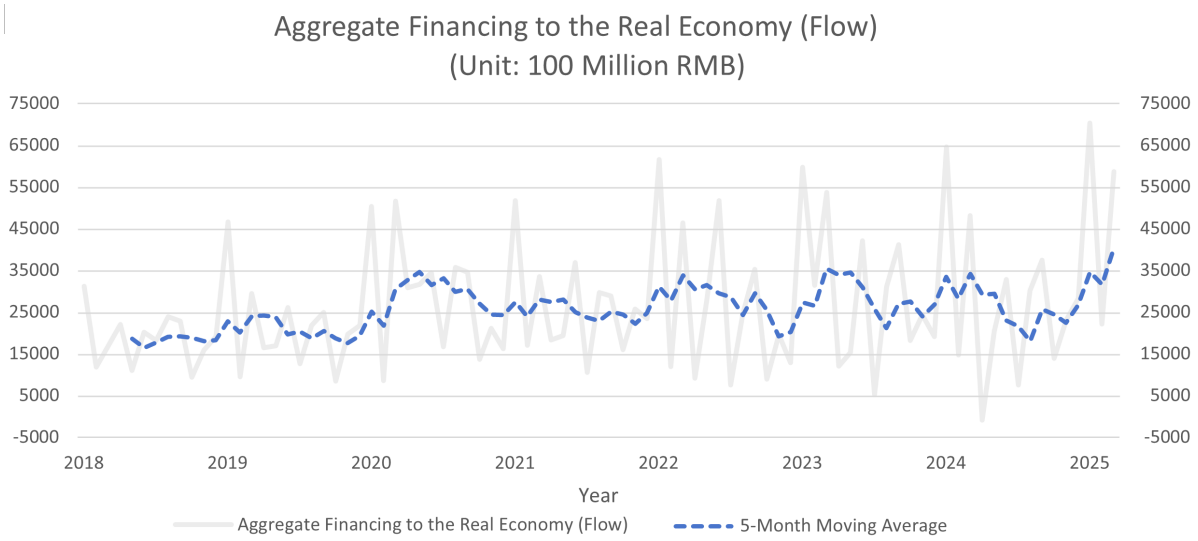


Figure 4.15: Monthly flow (increase) of aggregate financing to the real economy from 2018 to 2023. Source: PBoC.

PBoC, banking depository financial institutions, and banking non-depository financial institutions. Figure 4.16 illustrates the growth rate of RMB credit funds of financial institutions from 2018 to 2025. Similar to AFRE, glitches also occurred and a 5-month moving average is used and highlighted in a dashed line. It also did not observe an obvious increase or decrease of the growth rate of credit funds.

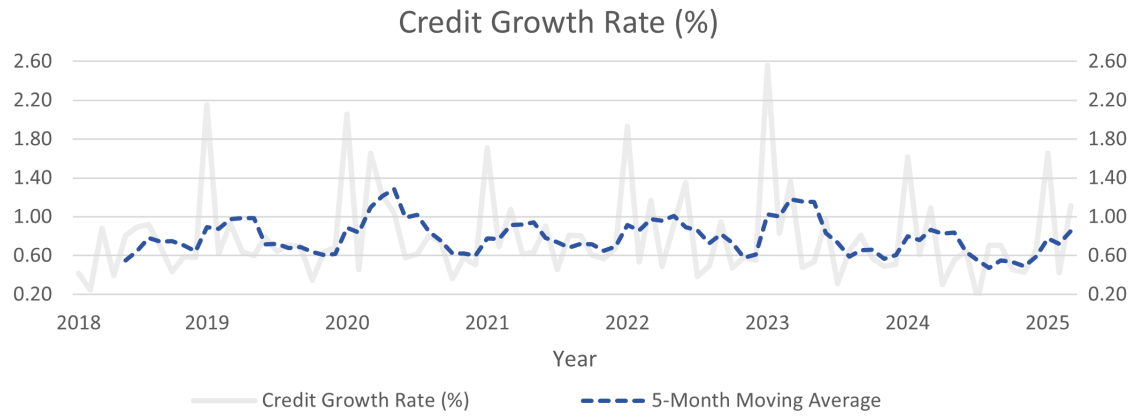


Figure 4.16: Growth rate of credit funds raised in banking institutions from 2018 to 2025. Unit in percentage. Source: PBoC.

However, PBoC stated out the different credit usages such as loans, portfolio investments, shares and other investments, and foreign exchange. Among loans, there are domestic and foreign loans. And in domestic loans, PBoC makes separations between the loans to households, to non-financial enterprises and organisations, and to non-banking financial organisations. Figure 4.17 presents the shares of domestic loans for each type of debtor. It can be seen that domestic loans are issued mostly to households and the non-financial sector. In the figure, 2022 seems to be a tipping point where household loans start to occupy a decreasing share among the domestic loans, while the share of non-financial corporate loans starts to increase. This observation corresponds to the background introduced in Section 4.2.1 that the real estate in China faced problems which started from late 2021.

The decrease in shares does not necessarily mean that the absolute value of household loans declines. Figure 4.18 draws the growth rates of household loans and loans to the non-financial sector. Because the loans of non-banking financial organisations occupy less than 1% of the share among domestic loans, its growth rate is not drawn. The growth rates of both household and non-financial sector loans show glitches, therefore, the 5-month moving average value is used and highlighted. Starting from late 2021 or the beginning of 2022, there is an obvious trend that the loans to the non-financial sector grow

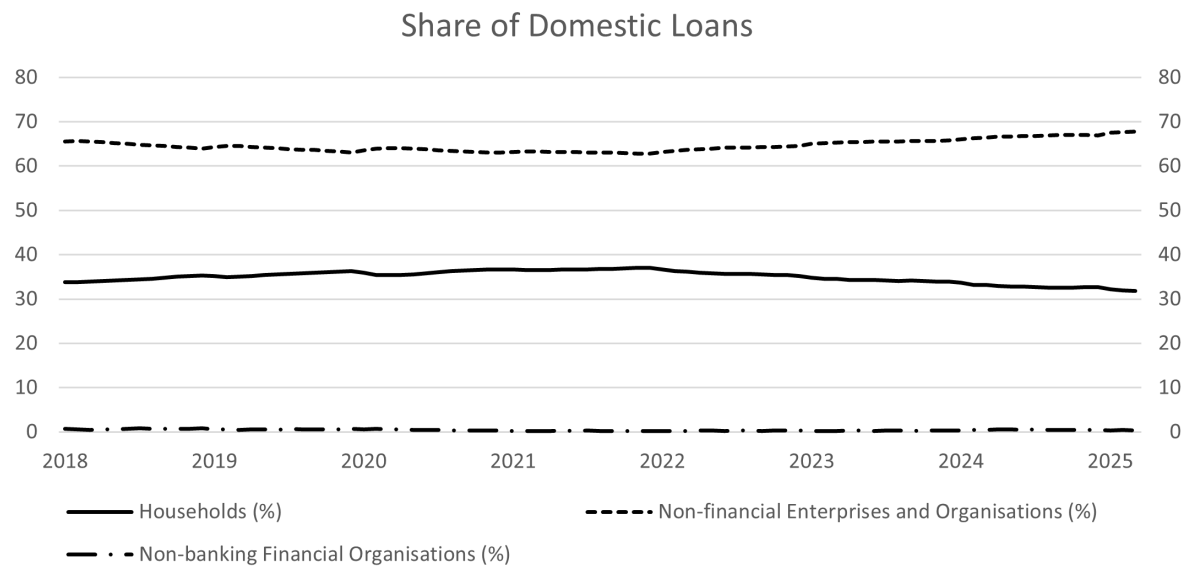


Figure 4.17: Shares of domestic loans of households, non-financial enterprises and organisations, and non-banking financial organisations. Unit in percentage. Source: PBoC.

faster than household loans. It explains why the shares of household loans have started to decrease since 2021 and the shares of non-financial sector loans have started to increase. It again proves that the debt crisis in the real estate sector in China has caused shockwaves to households as well.

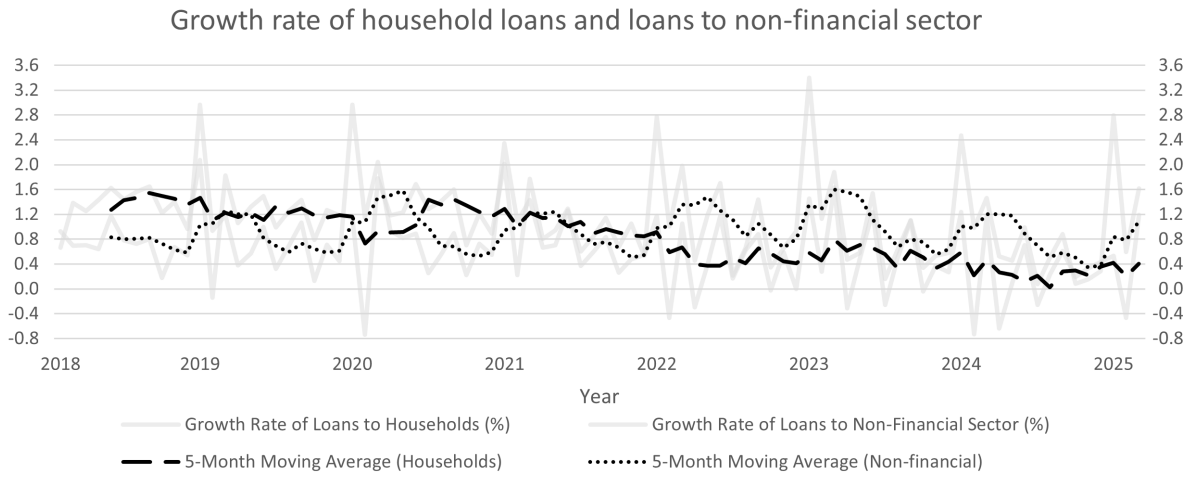


Figure 4.18: Growth rate of household loans and the loans to the non-financial sector from 2018 to 2025. The 5-month moving average value for the growth rate of household loans is drawn and highlighted. Source: PBoC.

In short, there is no obvious slowdown in the aggregate financing to the real economy, meaning that the overall credit demand in the whole society remains. However, if we investigate different sectors, the credit demand among households decreases. It shows that the 2021 debt crisis in China's real estate sector has influenced the behaviour of households (debt demand), despite the causality remaining unrevealed.

On the other hand, it is still unclear what the behaviours are for private enterprises since they are freer from government intervention compared to SOEs (Figure 4.8). However, due to the availability of data, investigations of private firms are still lacking.

4.2.6. ICBC and CMB being examples of the banking sector reflect some debt issues among households and corporations

The previous section has noticed a declining trend in the growth of the household credit demand. Further investigations are needed. Among the different data, the People's Bank of China (PBoC) has also recorded the assets and liabilities statistics of the financial institutions in China. Figure 4.19 interprets the quarterly balance sheet of overall financial institutions in China, where the earliest and latest data are 2019 and 2024. Since 2021 is a possible tipping point, the balance sheet for the fourth quarter of 2021 is also presented.

Assets and Liabilities Statistics of Financial Institutions (end of 2019 Q1)					
Assets of Banking Institutions	275.82	91.12%	Liabilities of Banking Institutions	253.41	91.87%
Assets of Securities Institutions	7.78	2.57%	Liabilities of Securities Institutions	5.58	2.02%
Assets of Insurance Institutions	19.11	6.31%	Liabilities of Insurance Institutions	16.85	6.11%
Total Assets		302.71	Total Liabilities of Financial Institutions		275.85
			Owner's Equities of Financial Institutions		26.87
			Debt ratio (Total liabilities/Total assets)		91.13%

(a) Balance sheet by the end of the first quarter of 2019.

Assets and Liabilities Statistics of Financial Institutions (end of 2021 Q4)					
Assets of Banking Institutions	344.76	90.26%	Liabilities of Banking Institutions	315.28	90.97%
Assets of Securities Institutions	12.3	3.22%	Liabilities of Securities Institutions	9.35	2.70%
Assets of Insurance Institutions	24.89	6.52%	Liabilities of Insurance Institutions	21.96	6.34%
Total Assets		381.95	Total Liabilities of Financial Institutions		346.58
			Owner's Equities of Financial Institutions		35.37
			Debt ratio (Total liabilities/Total assets)		90.74%

(b) Balance sheet by the end of the fourth quarter of 2021.

Assets and Liabilities Statistics of Financial Institutions (end of 2024 Q4)					
Assets of Banking Institutions	444.57	89.71%	Liabilities of Banking Institutions	408.11	90.26%
Assets of Securities Institutions	15.11	3.05%	Liabilities of Securities Institutions	11.48	2.54%
Assets of Insurance Institutions	35.91	7.25%	Liabilities of Insurance Institutions	32.58	7.21%
Total Assets		495.59	Total Liabilities of Financial Institutions		452.17
			Owner's Equities of Financial Institutions		43.42
			Debt ratio (Total liabilities/Total assets)		91.24%

(c) Balance sheet by the end of the fourth quarter of 2024.

Figure 4.19: Balance sheet for overall financial institutions at different times. Unit in Trillion RMB. Highlighted parts show the high proportion of banking institutions in the financial system in China. Source: PBoC.

In Figure 4.19, PBoC separates the financial institutions into banking, securities, and insurance institutions. Despite that securities and insurance institutions occupy an increasing proportion of the assets and liabilities among the overall financial institutions, the banking sector still possesses on average more than 90% of the assets and liabilities, even though it has dropped from more than 91% in 2019 to less than 90% in 2024. The large proportion of banking institutions also proves the characteristic that China has a bank-based financial system (in Section 3.6.1).

Considering that credit-requiring and issuing activities mainly occur in the banking system (banking and shadow banking), the loans and the balance sheets of the banks are the focus. However, PBoC did not have the data for the detailed composition of the assets in banking institutions. But the annual reports from each bank give its annual balance sheet and the composition of assets, liabilities, and equities. Considering the data volume, only a few banks are selected and presented as examples.

According to (Saroha et al., 2024), S&P Global published a rank listing 50 largest banks (by assets) in Asia-Pacific. Among the list, Industrial and Commercial Bank of China (ICBC), public ownership, state-owned, has assets of more than 6688 billion dollars and stands at the first of the list. China Merchants Bank (CMB), private-owned, share-holding commercial bank, occupies more than 1664 billion dollars

Balance Sheet of ICBC (end of 2024)					
Loans	26,789,370	57.35%	Deposits	33,425,710	77.84%
Financial investment	13,184,522	28.22%	Other types of liabilities	9,513,795	22.16%
Other types of assets	6,738,830	14.43%			
Total Assets	46,712,722		Total Liabilities	42,939,505	
			Owner's Equities	3,773,217	
			Debt ratio (Total liabilities/Total assets)	91.92%	

(a) Balance sheet of ICBC (state-owned).

Balance Sheet of CMB (end of 2024)					
Loans	6,300,684	55.37%	Deposits	8,874,817	86.71%
Financial investment	3,389,906	29.79%	Other types of liabilities	1,360,712	13.29%
Other types of assets	1,688,024	14.84%			
Total Assets	11,378,614		Total Liabilities	10,235,529	
			Owner's Equities	1,143,085	
			Debt ratio (Total liabilities/Total assets)	89.95%	

(b) Balance sheet of CMB (private).

Figure 4.20: Balance sheets of ICBC and CMB by the end of 2024. Unit in Million RMB. Source: ICBC, CMB.

worth of assets and stands at the eleventh of the list.

Therefore, being the largest banks among the state-owned banks and private banks respectively, ICBC and CMB are used as examples to study their balance sheet structure and loan compositions. The data is retrieved from their annual reports.

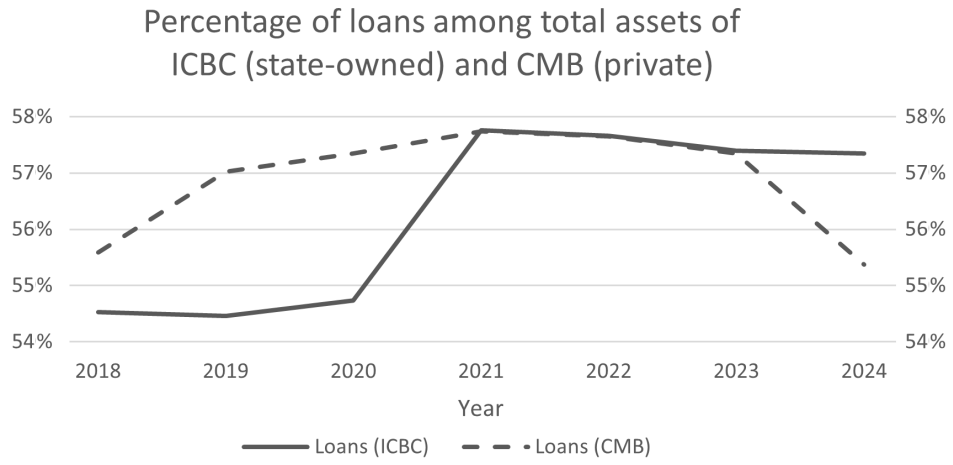
Figure 4.20 interprets the balance sheets and their structures of ICBC and CMB by the end of 2024. There are many types of assets and liabilities, only the largest parts are presented, i.e., loans and financial investments on the asset side, deposits on the liability side. For both ICBC and CMB, loans occupy more than 50% of the total assets and financial investments has nearly 30%. More than half of the assets for banks are still loans. It proves the characteristic that the banking system in China is still credit-centric, as stated in Section 3.5.4.

Figure 4.21 draws the percentages of loans and investments among total assets from 2018 to 2024 in ICBC and CMB separately. In Figure 4.21a where the percentages of loans are given, 2021 is the turning point at which the percentage of loans started to change from an increasing trend to a decreasing trend. For the percentage of investment in Figure 4.21b, the turning point of 2021 is clearer in CMB, where the share of investment among total assets starts to increase obviously. While in ICBC, it remains a relatively steady growth in the share of investments.

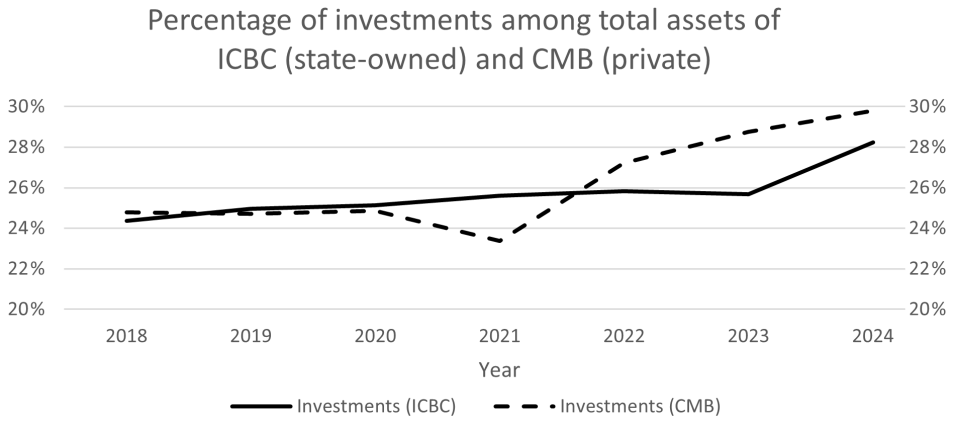
The changes in the share of loans and investments do not mean that the net value of them will surely decrease. Figure 4.22 gives the growth rates of loans and investments from 2018 to 2024 in ICBC and CMB respectively. For both banks, since 2022, the growth of investments has exceeded loans. It explains the obvious trends in Figure 4.21 that the shares of loans start to decrease while the shares of investments start to increase from 2021. This trend is more obvious in CMB because the difference between the growth rate of investments and loans (Figure 4.22b) is larger than that of ICBC (Figure 4.22a).

The declining growth rate of loans in both banks to some extent reflects that the credit demand is being slowed down. Despite that the credit demand is still increasing (since its growth rate is still positive), the credit demand is not increasing as much as in previous years. Besides the slowed down increase in credit demand, the trend of non-performing loans also needs attention.

The non-performing loans can be regarded as the loans that are overdue or unable to be repaid. It reflects the debtors' liquidity problems and their risks of insolvency. The National Financial Regulatory Administration (NFRA) of China published the main regulatory indicators of banks quarterly. Among

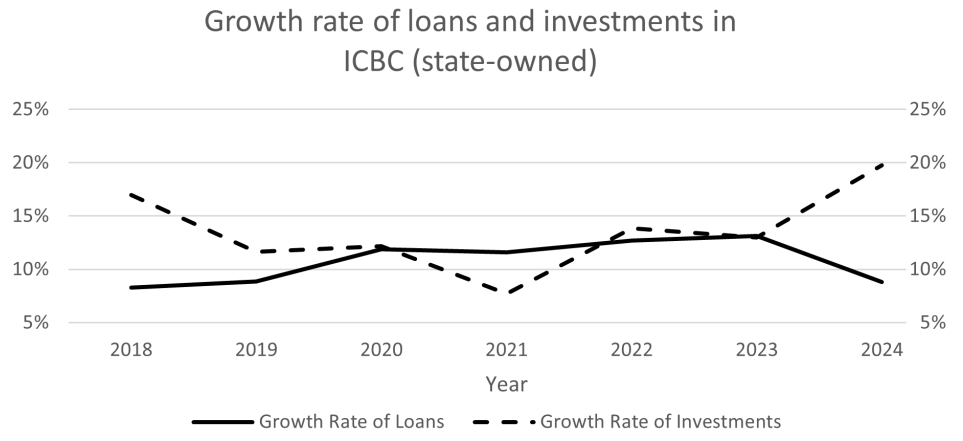


(a) Percentage of loans.

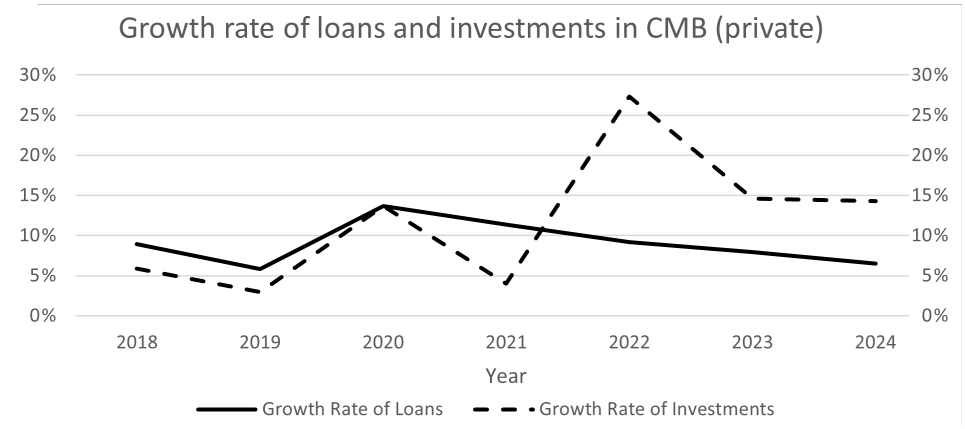


(b) Percentage of investments.

Figure 4.21: Percentage of loans and investments in ICBC and CMB from 2018 to 2024. Source: ICBC, CMB.



(a) Percentage of loans.



(b) Percentage of investments.

Figure 4.22: Growth rate of loans and investments in ICBC and CMB from 2018 to 2024. Source: ICBC, CMB.

different credit risk indicators, NFRA of China published the non-performing loan ratio as well. The ratio equals the value of non-performing loans divided by the total value of all loans. Similarly, ICBC and CMB have also published the non-performing loan ratio with more details in their annual reports. Figure 4.23 gives the ratio of non-performing loans of overall commercial banks, ICBC, and CMB from 2018 to 2024. It gives an obvious trend that the ratio of non-performing loans is declining, either among the overall banks or in ICBC. However, in CMB, the declining trend of the non-performing loans ratio seems to end in 2021, while afterwards the ratios remain mostly the same at around 0.95%.

Moreover, the detailed compositions of non-performing loans reflect different and unsynchronised situations among households and corporations. In the annual reports, ICBC and CMB gave the non-performing loan ratios by different business types. Figure 4.24 presents the non-performing loan ratios in corporate loans and individual loans separately from 2018 to 2024 in ICBC and CMB. Overall, there is a declining trend in the ratio of non-performing loans among corporations, combined with a slightly increasing trend in the ratio of individual non-performing loans. More specifically, the year 2021 again performed as a turning point for ICBC, as the individual non-performing loan ratio turned from decreasing to increasing since this year.

This section has presented many statistics and graphs. Overall, the large proportion of assets from banking institutions proves that China's financial system is bank-based. Moreover, loans being the largest proportion of assets among banks shows the credit-centric characteristic of China's banking system. To investigate more details of the loan structure, ICBC and CMB are used as examples. 2021 performs as the tipping point of the following:

- The shares of loans among the bank assets start to decrease, and the shares of investments start to increase.

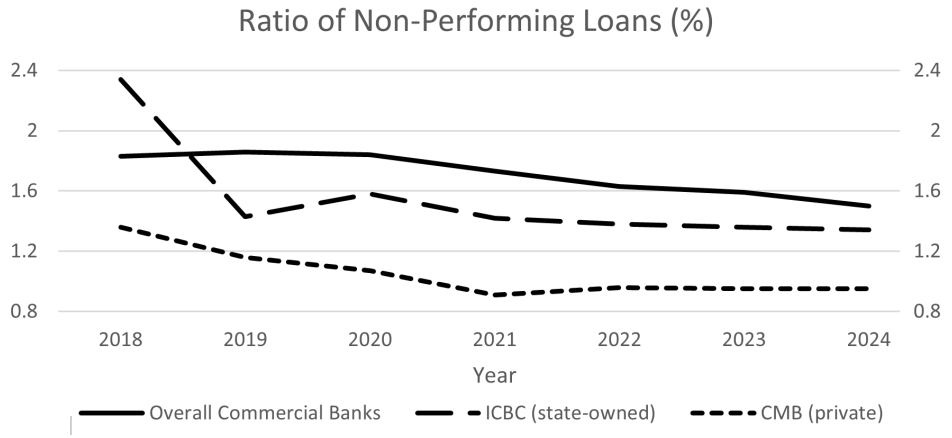


Figure 4.23: Ratio of non-performing loans from 2018 to 2024. Source: NFRA of China, ICBC, CMB.

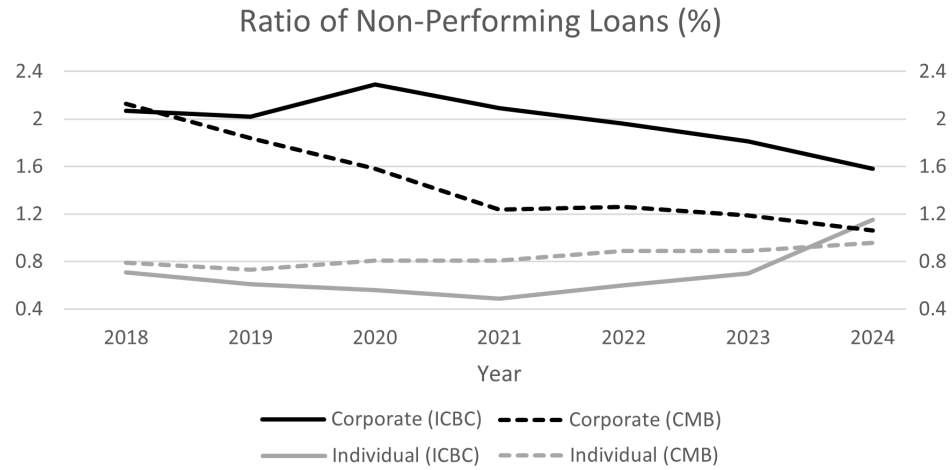


Figure 4.24: Ratio of non-performing loans by different business types (individual and corporate) from 2018 to 2024. Source: ICBC, CMB.

- The growth rate of loans begins to be lower than the growth rate of investments. It to some extent reflects the slowdown in the increase in credit demand.
- The ratio of individual non-performing loans start to increase.

Even though ICBC and CMB cannot present the overall banking system in China, the trends among these two banks still reflect some problems. The increase in non-performing loan ratios among individuals requires attention. Recall from Figure 4.8 that the household sector is the only few that could be less influenced by the state intervention, its increasing risks of insolvency reflect the emerging problems in their balance sheets. However, due to the validity of data, the debt structure and behaviours of the private firms remain unknown.

4.2.7. Summary of the trends that might reflect the balance sheet recession

This section analysed the statistics of asset prices, consumption, and credit demands of China, tried to find indicators that perform typical patterns of a balance sheet recession. Table 4.4 summerises the trends of the mentioned indicators and compares with the typical patterns of the balance sheet recession which uses Japan as an example.

Overall, the drop in asset prices and the declining growth of consumption show that society as a whole partly fits the trend towards the balance sheet recession. However, when separating into different sectors (Figure 4.8), only the households sector shows an obvious trend towards the balance sheet recession - slowed down increase in credit demand, a rising ratio of non-performing loans. While the

Table 4.4: Economic trend in China for the key indicators of the balance sheet recession and compare with balance sheet recession patterns.

<table>
<tr><th colspan="2"></th><th>Pattern of balance sheet recession (Japan as example)</th><th colspan="2">China's situation</th></tr>
<tr><td rowspan="2">Drop in asset prices</td><td>Housing prices</td><td>Drastic drop (35%)</td><td colspan="2">Drop but not drastic drop (16%)</td></tr>
<tr><td>Stock prices</td><td>Drastic drop (53%)</td><td colspan="2">Drop but not drastic drop (27%)</td></tr>
<tr><td rowspan="5">Drop in demand</td><td>Consumption</td><td>Decline</td><td colspan="2">Still increase (growth rate decline)</td></tr>
<tr><td rowspan="4">Credit</td><td rowspan="4">Demand decline (both households and corporations)</td><td rowspan="2">Households</td><td>Demand still increase (growth rate decline)</td></tr>
<tr><td>Ratio of non-performing loans increase</td></tr>
<tr><td rowspan="2">Corporations (state-owned and private)</td><td>Demand increase (steady growth rate)</td></tr>
<tr><td>Ratio of non-performing loans decrease</td></tr>
</table>

corporate sector seemly presents both the expanding demand for credit as well as the decreasing non-performing loan ratio.

Considering China's characteristics that the government can intervene in the market through state-owned enterprises, it is hard to identify whether the expanding credit demand reflects a truly healthy market or is the result of the implicit government intervention. Also, due to the lack of data that distinguishes state-owned enterprises and private enterpises, the private firms cannot be studies seperately.

In short, despite China showing a trend towards a recession, the current available data can only prove that the household sector is currently in the trend of facing balance sheet problems, hence performing typical patterns of the balance sheet recession. The remaining sectors, such as private firms and state-owned enterprises, cannot conclude whether they are in the face of the balance sheet recession. Their economic statistics are collected as a whole, and together they still perform healthy economic activities according to the statistics.

4.3. China performs symptoms that do not only happen during the balance sheet recession

4.3.1. Money supply indicating low liquidity

Section 2.6.2 summarised one of the patterns of the balance sheet recession that the monetary base and money supply are decoupled. China shows a similar decoupling of the money supply, but with different indicators and definitions.

The People's Bank of China (PBoC) collects monetary supply statistics monthly. The indicators collected are M0, M1, and M2. According to the definitions of PBoC, M0 is the currency in circulation. M1 is the narrow money supply. It consists of M0 plus the demand deposits (relatively short-term deposits). M2 is the broad money supply. It consists of M1 plus the quasi-money (such as savings and time deposits, relatively long-term).

The ratio of M1 and M2 reflects the liquidity level. M1 represents the flexible money that can be used in a short time, while M2 includes more long-term money that is more rigid and cannot be used instantly. Therefore, the higher the ratio of M1/M2, the higher the liquidity. A higher liquidity means more money is being spent or consumed, instead of being saved and becoming deposits in the banks.

Figure 4.25 illustrates the different monthly money supplies between 2018 to 2025. Starting from 2025, M1 presents a big jump. It is because the PBoC uses a revised measurement for narrow money (M1) since January 2025. However, from 2018 to 2024, it still presents the trend that M2 grows faster than M1, indicating a decreasing trend of liquidity.

The increasing difference between M1 and M2 leads to a lower ratio of M1/M2, indicating a less liquid money supply. This trend is more obvious through the growth rate of M1 and M2. Despite the measure-

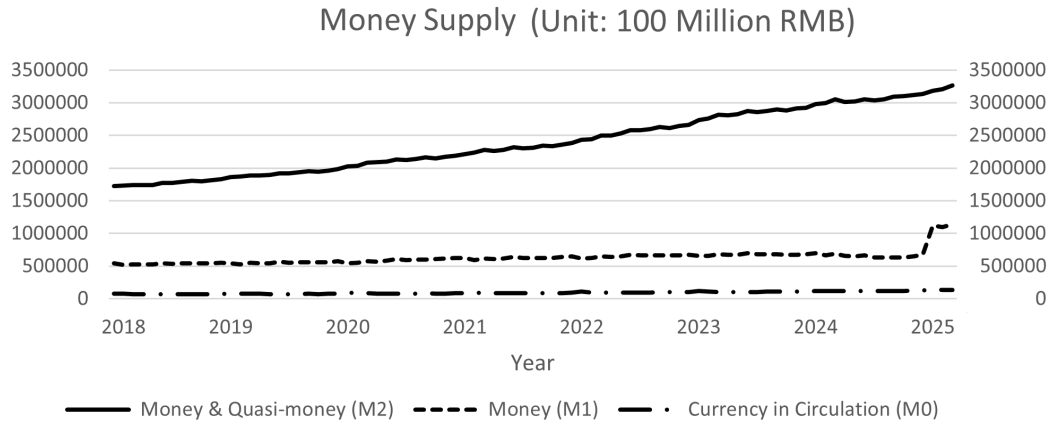


Figure 4.25: Monthly money supply of M0, M1, and M2 from 2018 to 2025. Unite in 100 Million RMB. Source: PBoC.

ment of M1 having been revised since January 2025, PBoC gives the monthly data for 2024 with the revised measurement. Therefore, the growth rate is calculated through a year-over-year (YoY) method. The YoY method compares the growth rate on an annual basis. For example, a 5% YoY growth rate means that the indicator this year is 5% more than the same indicator at the same time last year. With the provided 2024 money supply data measured by the revised method, the consecutive comparison of money supply growth rates is possible on a YoY basis. Figure 4.26 sketches the growth rate of M1 and M2 from 2018 to 2025. To remove glitches in the graph, 5-month moving average values for both indicators are used and highlighted.

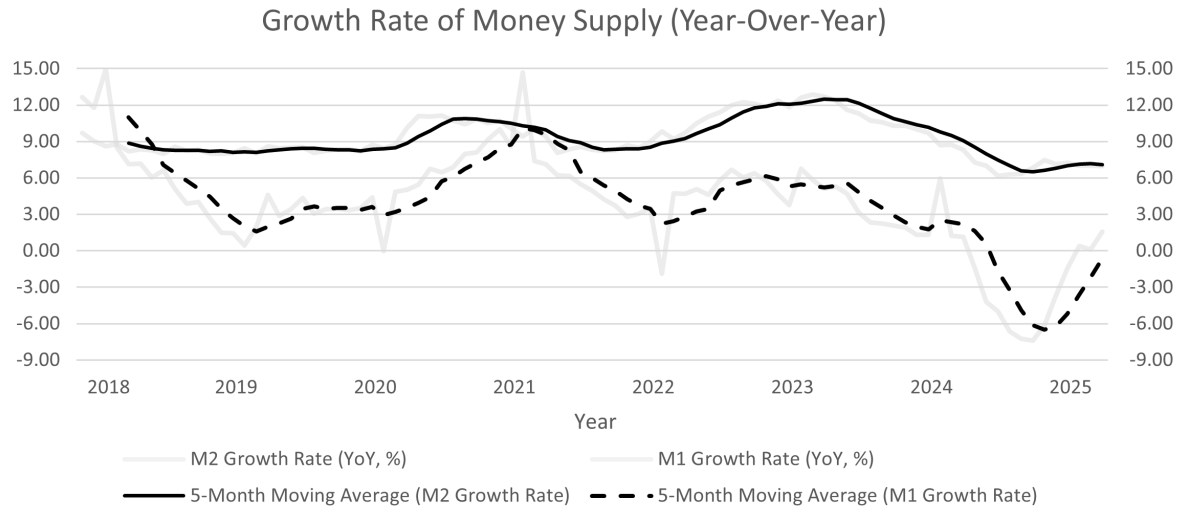


Figure 4.26: Monthly money supply of M1 and M2 from 2018 to 2025 on a Year-Over-Year method. Source: PBoC.

The year 2021 again performed as the turning point. Before 2021, the difference between the growth rate of M1 and M2 was decreasing, indicating that the decrease in liquidity became less severe. However, starting from 2021, the increase in M2 again exceeded that of M1, indicating the accelerating decrease in liquidity. But since late 2024, the growth rate of M1 has started to catch up with the growth rate of M2 significantly. It again shows the sign of improvement in the liquidity problems.

Therefore, the differences between the growth rates of M1 and M2 show that people tend to save more than to spend, especially after 2021. But the recently reversed differences between the growth rates of M1 and M2 since late 2024 indicate that people have started to save less and consume more.

4.3.2. Increasing saving and slowed down increase in credit demand despite low interest rates

Section 2.6.3 provides another pattern during the balance sheet recession - despite low interest rates, the credit demand decreases and the savings are high. China also experiences a similar situation recently.

PBoC publishes the loan prime rate (LPR) monthly. LPR is the interest rate that serves as the pricing reference for bank lending (People's Bank of China, 2023). It can reflect the interest rates because LPR is one of the monetary policy tools that the PBoC can use to adjust the money supply, playing the role of the central bank in China. Figure 4.27 draws the one-year LPR published by PBoC during the last five years. It shows the declining trend in interest rates, dropping from 4.2% to 3.1%.

However, compared with the U.S., the Eurozone, and the UK, the interest rates in China are still relatively high. According to Koo (2015) that those countries and regions all experienced a balance sheet recession after the 2008 global financial crisi, the interest rates have fallen from 5.23% to 0.25%, 4.25% to 1%, and 5% to 0.5% respectively in only one year (from 2008 to 2009) (Koo, 2015, Figure 1.3).

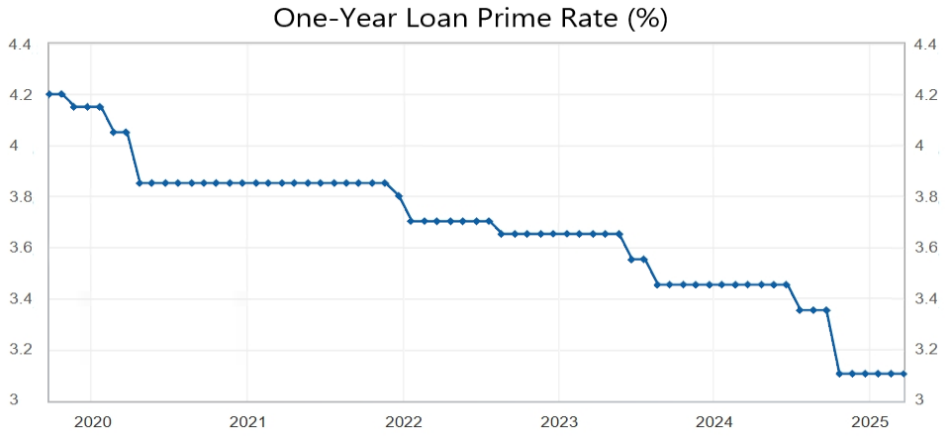


Figure 4.27: One-year loan prime rate in China during the past five years. Source: PBoC.

Despite the decreases in interest rates, the growth rate of credit demand still declines at the same period in China (Section 4.2.5). Meanwhile, the savings in China also increase at an accelerating pace. PBoC recorded the annual flow of fund statements of the financial accounts. Deposits and currency are recorded and their compositions are given. Figure 4.28 interprets the data of the flow of currency and deposits in the financial account by different sectors. Similar to the previous section where the flow of aggregate financing to the real economy (AFRE) was used (Section 4.2.5), the flow represents the net increase in value.

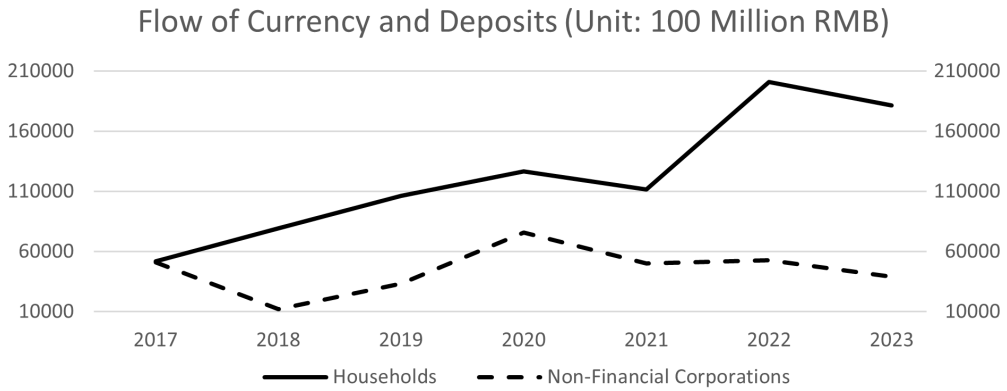


Figure 4.28: Flow of currency and deposits in the financial accounts from 2017 to 2023. Unit in 100 Million RMB. Source: PBoC.

It can be seen that both the currency and deposits among households and non-financial corporations have increased. And the increase of currency and deposits among households is faster than the increase among corporations. It shows that households increase savings at a faster rate compared to non-financial corporations.

Overall, despite the decrease in interest rates, the growth rate of credit demand has dropped and the savings has increased fast. It does not indicate the liquidity trap that, even with low or near-zero interest rates, the net value of credit demand is decreasing and the savings are still increasing. However, it shows the trend of declining liquidity that people tend to save more than to borrow money and consume. It is similar to the finding in the previous section, where M2 grows faster than M1, also indicating the weakened circulation of money.

4.3.3. Summary of the symptoms

In this section, different forms of the money supply, interest rates, and savings are studied. The difference between the growth rates of M2 and M1 indicates less liquidity in China's economy. Less liquidity means the trend that people tend to save more than to consume. On the other hand, interest rates have decreased, but the savings have kept increasing and the growth rate of credit demand has decreased. It reflects the slowdown in economic activities - people are saving more.

These two symptoms all indicate the same thing - low liquidity in the economy. As analysed in Section 3.1, China has especially high saving rates and low consumption compared to other countries. It can already contribute to the patterns that the savings keep increasing despite the decrease in interest rates.

Furthermore, according to Section 2.6.3, a balance sheet recession can lead to the liquidity trap, where the traditional monetary policy of lowering interest rates is inefficient and can hardly boost credit demand and investments. However, an economy experiencing the liquidity trap cannot conclude that it is undergoing a balance sheet recession. Not to mention that China is not in a liquidity trap, instead, it currently only shows a sign of decreasing liquidity while the interest rates are still far from being lowered to zero.

In conclusion, China shows signs of decreased liquidity - money circulates less and is saved more instead. However, those signs can occur not only in the balance sheet recession. China's characteristics of high savings and low consumption can also contribute to this.

4.4. Balance sheet recession theory can only partly explain China's current economy

This chapter analysed China's economic data, trying to find patterns that can be explained by the balance sheet recession.

Firstly, by analysing key economic indicators of China, the trend is clear that China is approaching the peak of its current economic cycle (Figure 4.7). In the current stage, despite the still growing GDP, retail sales, and wages, their growth rates are declining (see Table 4.1).

After acknowledging the recession trend, the analysis is then focused on the cause of recession - whether this trend is triggered by the balance sheet problems. With the separations of different sectors in China's economy (Figure 4.8), the current available data can only prove that the household sector is probably in a trend of encountering balance sheet problems. Little is known about the non-financial private firms due to the unavailability of data.

Later on, the trend of declining liquidity is studied. It is possible that the balance sheet recession can lead to the liquidity trap and the inefficiency of the monetary policy. But it cannot prove on the contrary that liquidity means the economy in the face of a balance sheet recession. Moreover, China shows the trend of lower liquidity, but not yet in the liquidity trap.

In conclusion, it is clear that China is trending towards a recession, based on the symptoms of economic slowdown. However, the balance sheet recession theory only explains the economic patterns in the household sector according to the current statistics. There is no detailed data that distinguishes between non-financial SOEs and non-financial private firms. They as a whole perform healthy and show

few signs towards the balance sheet recession. Therefore, the overall economy in China faces the trend of a recession, but only the household sector can be claimed to have a trend towards a balance sheet recession.

5

Actionable policies for China's economic recovery

The conclusion from the previous chapter is that the balance sheet recession theory can only partly explain China's current economy - the household sector shows the trends towards a balance sheet recession. Considering China's specific features that the state can intervene largely, there are two possible explanations for this result: (1) It is true that only the household sector faces the trends of a balance sheet recession; (2) The private firms also face the trends towards a balance sheet recession, however, due to the unavailability of data, this trend has not been revealed. Furthermore, there are implicit subsidies or stimulus given to state-owned enterprises, making the data of non-financial enterprises as a whole (including SOEs and private firms) show merely no signs of a balance sheet recession.

Following the first possible explanation, questions can be asked. Why has the steady growth in the corporate sector not been spread and transmitted to the household sector through channels such as wages and income? Are there any policies that can be used to stimulate or give subsidies to the household sector? To the second explanation, since the state has implicit subsidies or stimulations given to SOEs, the economic activities in the non-financial sector (including SOEs and private firms) still perform as normal. Is it possible that the state carries out such similar stimulations or implicit subsidies, helping the household sector to recover?

Considering the research range as well as time and resource limitations, detailed research regarding both explanations cannot be delivered, and it still remains unclear which explanation is more reasonable. No matter which explanation holds true, they all lead to the same ultimate solution - the state needs to stimulate or give subsidies to the household sector to rejuvenate its economic activities. Therefore, under the general background of the slowdown in China's economic activities, this chapter will focus on the possible solutions and policies that (1) can reverse or ease its trend towards a recession; and (2) can help the household sector recover.

The discussions and analysis of the possible effective policy will be given through the following steps. First, China is not a sole economy, it has internal (domestic) economic activities as well as external (international) economic activities. Therefore, the current global environment that could influence China's economy will be discussed. After acknowledging China's current economic environment, policy solutions that are targeted to its specific economic structure and slowdown will be discussed.

5.1. Trend of deglobalisation being an uncertainty accelerates the reform in China

The data used to analyse China's current economy in the last Chapter is mostly only up to 2024. However, the global environment, or the geopolitical environment, has and will be changed a lot following the unstoppable trend of deglobaliastion, while the trend is becoming more obvious and accelerated

since 2025.

Take the current president of the U.S., Donald Trump, for example. Since his first presidency in 2017, the Trump administration has announced many policies that have influenced China, such as the Huawei ban that restrict Huawei from using the U.S. techonology (especially chip and semiconductor) to produce its products (O'Brien, 2020), and the tariffs that focus on certain global goods like steel, aluminum, and solar panels which especially targets at the imports from China (C. Deng, 2025). Now in 2025, Trump begins his second presidency, uncertainties are again imposed and even enlarged. Focuses are mainly in two aspects: exports that are affected by the tariffs; and the high-tech sector in which the U.S. has advantages and China tries to improve its competitiveness (Oxford Economics, 2024).

Trump is teased as the 'chief pressure officer' of China, forcing China to carry out reforms to diversify its global supply chain, rely less on foreign technologies, as well as focus more on domestic demand (Yuan, 2019). Considering the potential risks posed by the Trump presidency and the economic problems China are facing, the policy aim becomes clear - China has to take actions to reverse its economic slowdown, especially focusing on stimulating domestic demand.

Therefore, the following sections will discuss the possible policies that help rejuvenate China's economy under the uncertainties posed by the deglobalisation trend (where international trade will be influenced profoundly), and assess their efficiency.

5.2. Tariffs influence exports and increase the importance of domestic demand

According to Nathan et al. (2025) from Goldman Sachs Global Investment Research Group, tariffs will have negative impacts on China. Goldman Sachs (GS) has lowered the forecasts of China's real GDP growth by 0.5%, from the previous 4.5% to 4.0%. Also, they have also lowered the CPI forecasts from the previous 0.4% to 0%. Several reacting policies are also predicted by GS: monetary easing (interest rate cut), augmented fiscal deficit, increased total social financing, supportive housing policies, targeted social relief, and ensuring employment stability.

Recall from Section 2.5, solutions for recovering from the balance sheet recession are given and discussed. The discussed policies are divided by monetary and fiscal policies. Therefore, the following discussions will make separations between different types of policy and focus on the ones that are more relevant to China's current situation.

5.2.1. Monetary policy as an aid is necessary but insufficient

Monetary policies are the tools that the central bank can use to adjust the money supply in an economy. Typical monetary policies are interest rate adjustments and buying or selling bonds to investors in the open market (Mathai, 2021).

Lowering interest rates will be useful but insufficient

Low interest rates make the credit cheaper. It can stimulate both households and corporations to borrow. However, recall from the results in Section 4.2.5 and Section 4.3.2, the interest rates in China have dropped for years, but the growth rates of credit demand have dropped in the household sector and become steady in the corporate sector.

In theory, decreasing interest rates will increase credit demand. In reality, the credit demand in China has increased, but the growth rate has decreased. It shows the limited usefulness of decreasing interest rates in stimulating the credit demand. But the current interest rates in China are still at 2-3%, compared to some Western countries as well as Japan, where interest rates are below 2%. Interest rates in China still have space to drop. In other words, there is still potential for the credit demand to increase. However, once the interest rates become low and near zero, the increase in credit demand boosted by the decreased interest rates will reach its limit.

Liquidity injections can partly restore confidence but timeliness and effectiveness of money flowing into the real economy remain questionable

Similar to quantitative easing (QE), liquidity injection is the method by which the state or the central bank provides money to the financial system. It is one form of monetary policy. Recently, China has

announced an injection plan to provide liquidity worth $72 billion to the four biggest banks in China (Hale, 2024). The Ministry of Finance in China will be the main capital provider to these four banks, indicating the central government's decision. The injection is expected to support the policy-promoted area to cope with the upcoming tariffs and boost the country's growth.

The government's action expresses the state's determination to mitigate the negative impacts caused by tariffs, to stabilise the economy. It will help to relieve the market's worries that extreme tariffs could possibly distort the global market, help restore confidence, and reduce precautionary savings. However, if the injection is still circulated only within the financial market and has not flowed into the real market, the household and corporation sectors (especially the private firms) won't benefit from it. Moreover, money needs time to circulate. If the circulation takes too long, it will delay the recovery and even miss the efficient time.

Therefore, liquidity injection can restore part of the confidence of households and corporations. But its effectiveness in rejuvenating the economy will depend on how fast and how much the money can flow to the real economy.

Overall, monetary policies are necessary tools to stimulate domestic demand. But they have limited effects and need to be combined with more proactive fiscal policies.

5.2.2. Proactive and supportive fiscal policy is the key and is urgent

Fiscal policy is usually implemented by the government through government spending and taxation to stabilise the economy and promote growth (Horton & El-Ganainy, 2019). Considering China's urgency of boosting domestic demand, several fiscal policies related to it will be discussed.

Consumption stimulus can have instant and short-term effects

By issuing targeted vouchers, e.g., to retail, dining, and electronics, consumption can be stimulated directly and instantly. However, products have a life cycle to be replaced and repurchased, such stimulation cannot be effective continuously. After the first tide of stimulation, the consumption will return to the original level, which depends on people's income and the expectations of the future. Therefore, consumption stimulus can be effective but rather short-term. To increase consumption from the root, people's income and future expectations need to be improved.

Tax reduction, debt relief and restructuring will be useful, but how to locate the targeted group is a challenge

Section 4.2.5 and 4.2.6 reflect a symptom that the household sector has less credit demand growth and the non-performing loan ratio has increased. Generally, mid- and low-income families have a higher potential to consume, since their daily needs are suppressed by their income level. Targeted tax reduction, debt relief or restructuring can help those households, but the policy cannot be delivered to a universal level. Once the policy or subsidy is made explicit, it generates a moral hazard - some households that are actually solvent pretend or lie to be insolvent, leaving the truly in need households unable to get the subsidy. Therefore, despite the targeted subsidies being effective, the question remains of how to locate the target households, and how to filter out the muddling households.

Increasing support for specific industries helps smooth the shocks caused by tariffs

According to the prediction by Oxford Economics (2024), sectors such as electronics, construction, and vehicles will be affected by the tariffs most. Supportive policies, such as retaining and training programmes for the displaced workers, tax waivers to buffer tariff shocks, can be given to these export-oriented manufacturing sectors (Nathan et al., 2025). The more support given to these industries, the more robust they can cope with the distortions caused by tariffs. On the other hand, it is also important to expand the potential traders in developing countries and regions. Adjustments to the export layout help create a more diverse global supply chain and less reliance on only a few countries. Therefore, quick responses and policies to certain industries are necessary. It helps the economy grow steadily and restores confidence.

Improving social welfare helps anchor people's expectations about the future

If people lower their expectations about the future, they will increase precautionary savings and cut unnecessary spending. Improving social welfare will help increase households' confidence in the future

and fear less about the uncertainties. There are policies such as expanding unemployment insurance, increasing healthcare and pension coverage. With more supportive funds, households are expected to be more affordable in the face of undesired situations such as unemployment and illness. Hence, they will decrease their precautionary savings and have confidence to spend more concurrently. By increasing social welfare, people's confidence is restored and domestic demand is stimulated accordingly.

In short, fiscal policies are necessary to boost China's economy for the upcoming years. Short-term policies such as consumption stimulation can boost the domestic demand instantly but unsustainably. To obtain continuous stimulation, people's income and expectations about the future need to be increased through giving direct support to targeted groups and industries, as well as improving social welfare. Table 5.1 summarises and compares the solutions for a usual balance sheet recession and the current China-specific situation.

Table 5.1: Policy solutions for recovery from a usual balance sheet recession (in Section 2.5) and boosting economic growth under China's current economic slowdown.

	Balance sheet recession	China current economic slowdown (under uncertainty of deglobalisation)
Monetary policy	Decrease interest rates (insufficient but necessary)	Decrease interest rates (insufficient but necessary)
	Quantitative easing or liquidity injection (insufficient but necessary)	Liquidity injection (timeliness and effectiveness are the key)
Fiscal policy	Government spending	Support most tariff-influenced industires
		Improve social welfare system
	Consumption stimulus	Consumption stimulus
	Debt relief and restructuring	Debt relief and restructuring (targeted) (low and mid-income households)
	Tax reduction	Tax reduction (targeted) (low and mid-income households)

5.3. The reform is unavoidable in the long run and technology innovation is the priority which fuels the reform

Both monetary and fiscal policies discussed in the previous section can boost domestic demand, according to the typical solutions that are aimed at a usual balance sheet recession. However, according to the current China-specific situation that differs from a usual balance sheet recession, for example, its high saving rates and low consumption rates, some targeted policies might be introduced. To obtain steady and sustainable growth for longer terms (more than 5 to 10 years), structural and sectoral reforms are needed. Especially that recall from Section 3.1.2, where some reasons for China have high saving rates are rooted in its social and economic structure, such as the undeveloped social safety net and income inequality, the reforms seem more important. To better buffer the external shocks such as tariffs and wars, a robust internal structure of China's economy is the key. It requires that China has a domestic demand-driven economy, builds a more resilient supply chain system, and makes breakthroughs in innovation bottlenecks and hence realises self-reliance in technologies.

Similar concept has already been created in China. Domestic-international dual circulation propose a new economic structure in China that prioritises domestic consumption while still remaining open to the international market (Jin, 2023, p. 250-251). Through dual circulation, the internal (domestic) circulation helps create a more self-reliant economic market in key sectors, and reduce the dependencies on foreign markets. Meanwhile, its international circulation still functions well, which helps develop a more multilateral and open trade, solidate its global trade network and the supply chain system.

5.3.1. The switch from export-led to domestic demand-driven economic structure is long-lasting and challenging

In the face of uncertainties posed by deglobalisation such as tariffs, China has experienced huge losses due to its large proportion of exports. High reliance on exports is because of its relatively low share

of consumption to GDP. As discussed in Section 3.1, China has relatively high saving rates and low consumption rates. It is a long-lasting question that how China can balance its high saving rates and low consumption rates, hence switch its structure from an export-led economy to a more domestic demand-driven economy. Moreover, compared to some of the East Asian countries, China still has far higher saving rates even though its average income is higher than those countries (Yang et al., 2012). Section 3.1.2 has discussed some main reasons why China has such high saving rates and low consumption. The relative mechanisms or psychological motivations will be discussed here, with the focus on the mechanisms that can effectively boost consumption, aiming to give more effective and targeted policies and methods.

The reasons given in Section 3.1.2 for the high saving rates and low consumption are the ageing population, an imperfect social safety network, and income inequality. Despite varied and comprehensive reasons, they all refer to some common root causes - people's low expectations of the future, the burden and precautionary savings due to the undeveloped social welfare system, and income inequality due to the inefficient social transfer. Therefore, some general pathways can still be adopted. Those methods will be discussed next.

To make people consume more and save less, people's income and expectations about the future need to be improved. If people have very low income, they can only consume few, which is limited by the boundary of their income. Also, if people have a negative expectation of the future, for example, they expect that they are likely in the face of unemployment in the near future, or they redeem they need much money for their treatment of illness, they will save part of their income as the precautionary saving and reduce the consumption at the same time. Therefore, a general pathway for the Chinese government is to increase the average income and better well-establish the social welfare system.

A faster and more effective way is focus on low and middle-income households. As discussed in the previous section, by increasing the income in those households, they can have a higher marginal increase in consumption. However, it is challenging to locate the true households without generating explicit moral hazard for speculation and arbitrage. Otherwise, the targeted policy or subsidy will on the contrary, become a waste of resources, generate more burdens to the low and mid-income families, and dampen the income rebalance.

Besides increasing the income, social welfare needs to be improved to increase people's confidence in the future. Precautionary saving is generated due to the fear of the future. Therefore, several welfare systems, such as unemployment insurance, healthcare and pension coverage, need to be improved. Similar to the discussion in the previous section, increasing social welfare can help anchor people's expectations of the future. Even in the face of unemployment and illness, people won't be worried much since they know they will have enough insurance and welfare to cope with the shock and survive the uncertainties.

Therefore, to change from an export-led to a consumption-led economy, it requires Chinese government to increase people's income and social welfare. However, considering China-specific characteristics of the high saving rates and low consumption, the reform of the economic structure will take a long duration and remain challenging.

5.3.2. Keeping international trading open helps generate a more balanced external trading network and a more resilient supply chain system

The concept of dual circulation means the internal circulation of products on a nationwide scale, as well as the external circulation of products internationally. International trading is one of the paths to realise the external circulation.

Being one symptoms of the deglobalisation trend, the already imposed and possible tariffs carried out by the Trump administration reflect China's unstable and unsustainable international trade, which is highly reliant on only a few countries. To dampen the tariff shocks, China need to expand its scale of export diversification. It can be done by not only fastening the cooperation with the mature market in the developed countries, but also exploring the potential trading markets in the developing countries. Through varied cooperation with different regions and countries, China's export regional layout can be adjusted, which helps to increase the comprehensiveness and competitiveness of exports. It can make sure that even if a few trading routes and supply chains have been blocked (e.g., by tariffs or wars),

China still have a robust export network and its economy won't be affected by the external shocks deeply.

The open environment for international trading is not enough. To increase China's competitiveness in trade, the exported products also need to have advantages. Otherwise, there are no benefits for other countries to buy the products from China. The two most common advantages are the low prices and high technology. The reason for Western countries to import goods from China is that the products in China are relatively low compared to their own countries. However, with the increase in people's living standard and the deepening of the reform from export-led to a consumption-led economy, the advantage of lower prices in China has gradually diminished. Generally, the cost of a product includes its cost of raw materials, labour, and other properties. With the increase in people's income, the cost of labour will increase, which further leads to an increase in the overall cost of the products. It will ultimately make the price advantages of the products made in China disappear.

Therefore, in the longer run, the key and priority for China to maintain its advantages in global trading is to keep developing technology.

5.3.3. Technology innovation is the priority in the long run and fuels the reform

As mentioned in the previous section, technology will be the key advantage in China for its exported goods. Keeping technology innovation not only helps increase China's export advantages, but also helps China stand out from external shocks such as technology and supply chain blockage.

China has experienced blocks of technology previously. During Trump's first presidency, some technologies and high-tech products (such as chips and semiconductors) were banned from exporting to China, making the productions that rely on those key components face disruption. In a short time, it is hard for companies to find replacements that provide similar technologies and functions. As a result, the relevant industries suffer huge losses and are forced to develop the technology from the start. However, a coin has two sides. On the one hand, the companies endured losses due to the blockage in technology. On the other hand, they are forced to conduct research and invest in technology innovation, gaining new and profound insights into the importance of technology.

It is frequently mentioned in China that technological innovation is the primary production. Without the restriction in technology, the understanding wouldn't be so impressive and lively. The past experiences have shown that the weaknesses in key technologies will become the weapons for others to curb and leave an increasing gap. Therefore, it is crucial for China to keep and increase investments in technology, focus on tackling the core technologies, and strengthen basic research and development. Only with a self-sufficient technology can China sustain a steady economic growth in the long term, keeping its advantages in global trading, making breakthroughs in technological bottlenecks, and being free from technological limitations posed by other countries.

5.4. The recovery encourages enormous fiscal policies, but whether the government is capable of or sustainable with a large amount of spending still remains a question

Most of the previously discussed policies require the state to carry out active fiscal policies to underwrite the private sector's balance sheet repair. However, all the fiscal policies require government spending. Giving consumption vouchers is through giving subsidies to merchants. Providing subsidies and support to targeted households and industries, improving the social welfare system, encouraging and investing in technological innovation, these policies all require direct government spending. In fact, how much the state can sustain support is ultimately bounded by its own fiscal capacity. In other words, the headroom for China's fiscal policy is not unlimited. To figure out how much support China can still give to the private sector for debt repairing, it is necessary to find out China's current government debt level. The discussion will first focus on countries with different levels of the government debt-to-GDP ratio. Figure 5.1 illustrates the government debt in percentage of GDP in Japan, Italy, the U.S., and the United Kingdom respectively. It can be seen that in the year 2023, they have debt-to-GDP ratios of around 200%, 130%, 110%, and 100%.

The current U.S. federal debt level is being heatedly discussed, and many hold the opinion that if the

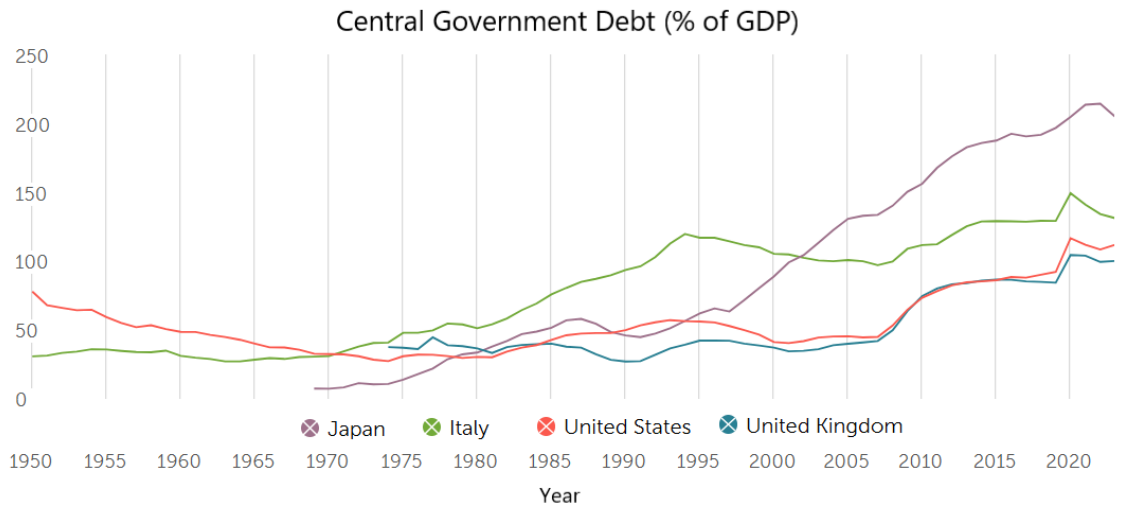


Figure 5.1: Central government's debt level in percent of GDP. Countries are Japan, Italy, the U.S., and the United Kingdom. Source: International Monetary Fund (IMF).

fed keeps raising its debt, it will be problematic and generate risks as follows (Edelberg et al., 2025a, 2025b):

- **Crowding out of private investment and the resulting slowdown in the productivity growth**
  Government debt means the government borrowing from the private sector. It will push up the interest rates, making credit more expensive for businesses and households. This process is called crowding out. The crowding out of private investment leads to fewer investments, hence the productivity growth will be slower.
- **Increased risk of government debt sustainability**
  As debt grows, the share of government revenue devoted to interest payments increases. In other words, with the same amount of government revenue, higher debts mean higher interest to be paid. If the government revenue grows more slowly than the growth of government debts, the government may even raise more debts in order to pay the interest. If the situation were not been solved, it would form a vicious cycle of higher debts leading to higher interest payments, ultimately causing the government to raise more debts.
- **Public's confidence in the government and the potential default risk**
  As stated previously, if the government's debt ratio keeps rising, the interest payments will be higher, and interest rates will also rise. Ultimately, when the debts increase to an unsustainable level, the public will doubt whether the government is still solvent for its debts. For example, rating agencies may downgrade sovereign debt, leading to the raising borrowing costs. Investors may also refuse to buy new debt except that the interest rates have increased. But it on the contrary increases the government's pressure to repay debts. Greece is one example of a country facing a sovereign debt crisis. The crisis was caused by unsustainable government spending and the slowdown in economic growth, making the government's debt-to-GDP ratio high and finally triggering the crisis. For Greece, it will take more than half a century to fully repay its debts (Picardo, 2024). The consequences for a country to face a solvency problem are serious and unaffordable.

With the current U.S. government debt level, discussions have been made as unsustainable and problematic. Gokhale and Smetters (2023) have predicted that the U.S. will reach its tipping point of default if no future tax increases or spending cuts are taken place. It to some extent shows that the debt-to-GDP ratio of around 110% is already high and actions must be made to reduce the debt level to avoid a sovereign debt crisis. Currently, few discussions have been made on the sustainability or the risks of China's current government debt level. But comparison can still be made by investigating China's government debt-to-GDP ratio.

In Figure 5.2, the government's debt-to-GDP ratio in China in the past 20 years is given. Till 2024, China has a government debt-to-GDP ratio of around 90% according to Federal Reserve Economic Data (FRED). Figure 5.3 predicts China's government debt level in the next 5 years. The debt level will reach around 110% in 2028, which is approximated at the same debt level as the U.S. in 2023.

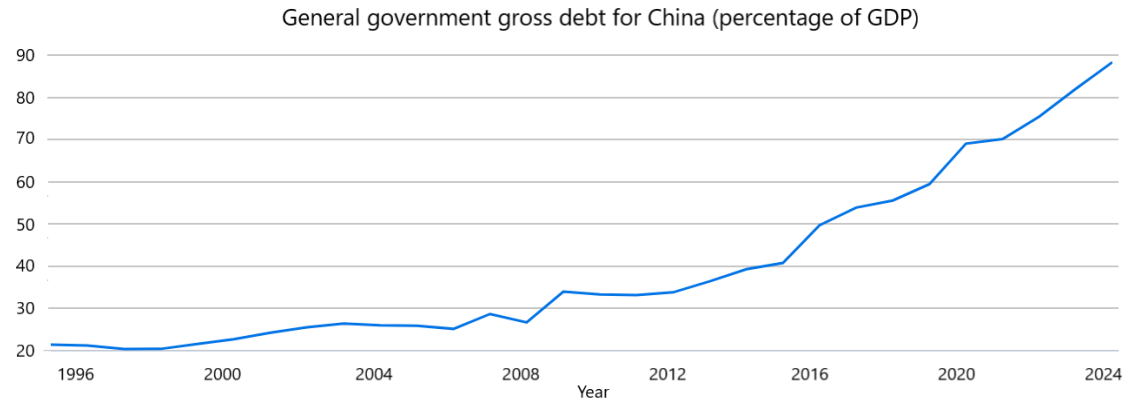


Figure 5.2: Central government's debt level for China, in percent of GDP, from the year 1995 to 2024. Source: Federal Reserve Economic Data (FRED).

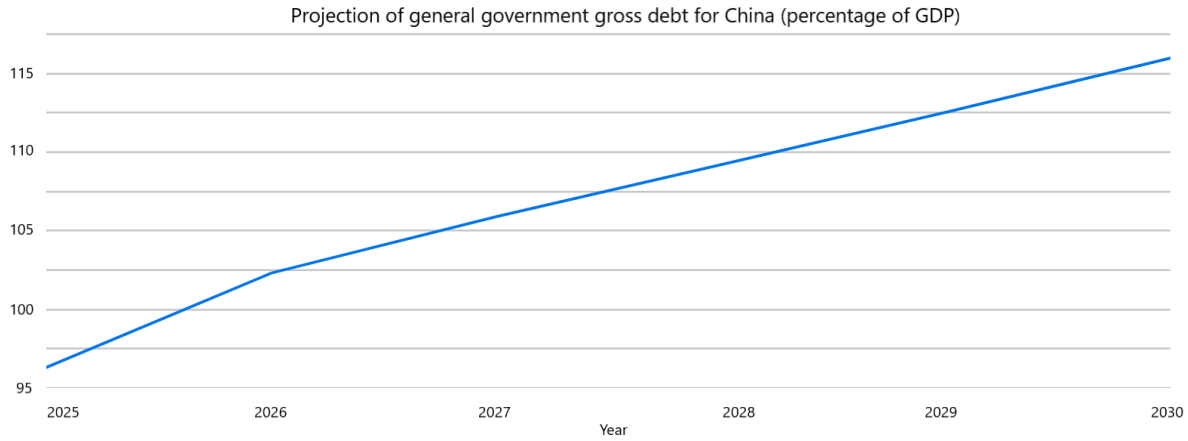


Figure 5.3: The prediction of the central government's debt level for China, in percent of GDP, from the year 2025 to 2030. Source: Federal Reserve Economic Data (FRED).

Recall from the discussions or concerns about the current U.S. government debt level, despite few discussions on China's government debt level, it can still be said that the current China's government debt ratio is also unsustainable. Considering China's problem of economic slowdown, many proactive fiscal policies are necessary for boosting the economy, especially domestic consumption. The tipping point for China to face a solvency debt crisis may be even sooner, since proactive fiscal policies, such as debt restructuring and support to targeted groups, improving the social welfare system, require even more government spending. Moreover, the current economic growth model in China has a low consumption share of GDP, compared to other countries. Therefore, the economic growth in China relies on either the growth in its share of global manufacturing, in other words, the trade surplus, or the investments, which require the government's debt (Pettis, 2025).

The interconnections between consumption, trade surplus, and investment in China form a fragile triangle. Each faces its own challenges. Consumption desperately needs to be boosted, which requires proactive fiscal policies. However, fiscal policies require more government spending, but China's current government debt ratio is gradually reaching an unsustainable range. The only option left for increasing its trade surplus faces blockage due to the overall trend of deglobalisation. Therefore, timing is extremely important for China now. In the face of deglobalisation, how China can restructure its

economy and boost domestic demand becomes the key. It again urges the reform of China's economic system. In other words, China is in a race against time, whether it has successfully reformed its economy to a consumption-led economy first, or its government debt reaches a tipping point when the debt crisis occurs first.

5.5. Monetary and fiscal policy can support short-term stimulation, but structural reform and technology innovation are the keys to a steady economic growth in the long run

This chapter focuses on the core question - how can China stabilise its economy under the uncertainties following the trend of deglobalisation, e.g., the ongoing tariffs which could dampen China's global trade. Following the question, the focus is more on boosting domestic demand in the face of shockwaves in exports caused by tariffs. To stimulate domestic demand and sustain a steady economic growth in the long run, this chapter then analyses the possible policies. Several monetary policies, such as lowering interest rates and increasing liquidity in the market, are necessary but insufficient. More fiscal policies, including direct consumption stimulation, supportive subsidies to targeted groups and industries, and improving social welfare, are urgent and crucial. In the longer run (more than 5 years), China needs to reform its economic structure (from export-led to domestic demand-driven) and keep technological innovations. Only in such ways can China be more robust to external shocks and maintain its internal (domestic) steady growth of the economy.

However, it remains a question of how much fiscal policy China can still support before reaching its headroom. By investigating the government's debt-to-GDP ratio in different countries, it is alarming that China might reach its fiscal policy limitations in less than two decades. Therefore, China has to fasten its actions in the reform of economic structure, to build a more domestically-led economic growth model, before its government debt reaches a problematic level and runs a solvency debt crisis.

In short, different policies have their own timeliness and effectiveness. In the short term, monetary and fiscal policies can help boost domestic demand. However, in the long run, timely and continuous structural reform and technological innovations are required for steady economic growth.

6

Conclusion and discussion

This research studied the balance sheet recession theory and China's current economic performance, trying to find out the applicability of the balance sheet recession theory to China's economy under its specific institutional features and providing accessible policy recommendations for the economic recovery. This chapter will return to the research question, answer each sub-question, and discuss the limitations and further improvements of this research.

6.1. Answering the research questions

The research tries to answer the main question:

To what extent does the theory of balance sheet recession explain China's current economic challenges? Which policy implementations are effective in facilitating economic recovery?

To make the research more deliverable and detailed, sub-questions are asked. The following sections answer each sub-question according to the research results:

1. **What are the core characteristics and mechanisms of balance sheet recessions?**

   The premises for a balance sheet recession are the high leverage ratio and the collapse of asset prices. The drastic drop in asset prices impedes the health of individuals' balance sheets, diminishing the value of assets while the value of liabilities remaining stable. It increases the risk for households and firms to be insolvent. Under the pressure of being insolvent, individuals will prioritise repaying debts instead of consuming and borrowing. The high average leverage ratio in society will turn the individual behaviours of repaying debts into a collective behaviour, leading to the formation of the doom loop between repaying debts, low consumption, low credit demand, weak economic activities, further drop in asset prices, and further damaged balance sheets.

   During a balance sheet recession, typical patterns, such as a deflationary spiral, a liquidity trap where low interest rates could barely boost consumption and credit demand, could occur. Once the balance sheet recession occurs, it might take more than 10 years to recover from the recession, since the repair of balance sheets takes a long time.

2. **What are the core characteristics of China's economy?**

   Being a socialist country, China has developed its specific economic structure - the socialist market economy. The key features that most relate to the balance sheet recession theory and economic activities are its state-owned enterprises and the financial system. The state can carry out its strategic development plans through SOEs. The resulting policy burdens given to SOEs can make them highly leveraged since SOEs are expected to deliver the state's goals even though they might not be market efficient. However, the special roles of SOEs imply soft budget constraints for them. They can have easier credit and making profits is not the priority for them.

Therefore, the soft budget constraints make SOEs less nervous about insolvency. Even in the face of the drop in asset prices and the possible insolvency problems, they would not prioritise repaying debts because they are assigned to deliver the state's development goals.

On the other hand, being one of the sectors of China's economy, the financial system in China is also characterised by China-specific features. Different from other countries, the financial system in China is still bank-based, with more credit-centric and less securitisation. SOEs, more specifically, state-owned banks, have also occupied and predominantly control the financial sector in China. There are examples that the Chinese government tries to cool down the overheated housing market through the banking system with adjusted interest rates and down-payment ratios, and the state helps SOEs with debt restructuring through several financial institutions and regulatory institutions. With the government's intervention, the typical patterns of a balance sheet recession might change. The debt structures and the prioritisation of repaying debts could be affected.

Besides the features that are highly related to China's socialist characteristics, China has high saving rates and relatively low consumption compared to other countries. This mysterious feature remains unexplained and the mechanisms behind this remain uncovered. With especially high saving rates and low consumption, the deflationary spiral characterised by low consumption could occur sooner and have a longer duration. Also, in a liquidity trap where low interest rates can poorly stimulate consumption, the features of high saving rates and low consumption can trigger the liquidity trap more easily and make the monetary policy of adjusting interest rates even less efficient.

3. **To what extent can the balance sheet recession theory explain China's current economic performance, taking China-specific characteristics into account?**

   Through investigations of China's economic statistics, it is clear that China is in a trend towards a recession. It does not mean China is currently in a recession, since it still has a positive growth rate in GDP, retail sales, and wages. However, the growth rates of GDP, retail sales and wages have decreased, and the unemployment rates have increased. They all show that China's economic growth is slowing down.

   Considering China's specific features which the government can intervene much in the market, several economic sectors have been divided. Among all the sectors, the household sector and the non-financial private sector are the only two that can be limited affected by the government intervention, hence more likely to perform the typical patterns of the balance sheet recession. However, due to the availability of data, only the behaviours and economic activities in the household sector can be found and explored. The data has shown that the household sector also has a trend towards balance sheet problems, with the decreasing growth rate in the credit demand as well as the increasing ratio of non-performing loans.

   There is a lack of separation of the data between the non-financial SOEs and the private enterprises. Non-financial corporations as a whole perform healthy economic activities, with the decreasing non-performing loan ratio and the steady increase in the credit demand (near constant growth rate). Therefore, according to the current investigation, China shows a clear sign towards recession, while the balance sheet recession theory can only partly explain its economy. Only the household sector has shown a trend in the balance sheet problems, which has not necessarily experienced a balance sheet recession.

4. **Based on China's current economy, which policy interventions are likely to be effective for recovery while facing increasing uncertainties?**

   Despite the unavailability of data and only the partial explanation of China's economy using the balance sheet recession, the economic slowdown is clear in China and there are some debt problems in the household sector. With the ongoing trend of deglobalisation, e.g., the already implemented and the possible tariffs during Trump's second presidency, it imposes uncertainties on China's economy. In the face of largely affected exports, domestic demand in China becomes the key to its economic recovery. Therefore, in order to reverse the economic slowdown, the key focus is on how to effectively stimulate the domestic demand.

   The possible and actionable policies are discussed. Monetary policies such as lowering interest

rates and providing liquidity to the financial market are necessary but insufficient. Recall that one of the China-specific characteristics is that the saving rates are high and the consumption is relatively low, such monetary policies can discourage savings and stimulate consumption and credit demand, but the efficiency of those policies will be affected by China's features.

Moreover, to encourage people to spend more and save less, the root cause must be solved - the income and the expectation of the future need to be improved. Therefore, fiscal policies such as consumption stimulus by giving vouchers will have instant stimulation but are short-term and unsustainable. Targeted subsidies and supportive fiscal policies given to low and mid-income households will be efficient in stimulating their consumption. They have a larger margin of the consumption potential by increasing their income. However, the targeted policy can be challenging. It is hard to locate the households that are truly in need. Carrying out a general subsidy at a universal level is not favourable, which will lead to a moral hazard. It generates speculation and arbitrage that the actual solvent households pretend and lie to get the subsidy, leaving the real targeted households ineligible for the subsidy. Besides, improving the social welfare system can help households have better expectations of the future. By increasing unemployment insurance, the coverage of healthcare and pension, people are less fear of the uncertainties, hence decreasing precautionary savings and consuming more.

In the face of the tariffs, supportive policies given to the industries that are most affected by the tariffs are necessary. It is still unclear how large the shockwaves could be generated by the resulting reduced exports. By carrying out supportive policies and subsidies, the relevant industries can dampen the distortion and the confidence could be partly restored.

Besides giving support to the relevant tariff-affected industries, the ultimate solution for China is the reform of its economic structure - to build a more robust internal economic system that can be mostly free from external shocks such as tariffs and wars. China has a concept called 'dual circulation' after the pandemic. It aims to build a well-developed internal (domestic) circulation system of the products by prioritising domestic demand (consumption) and relying less on exports. On the other hand, the external (international) circulation needs to be complete and diverse. By consolidating the existing mature markets as well as exploring more potential markets in the developing countries, the international trading and supply chain system in China can be more robust and diverse. A few blockages in the routing and export can affect only a few of China's overall international trading. Focusing on building up a well-functioning 'dual circulation' system will make China robust to external shocks while maintaining its internal economic growth steady.

Last but not least, in order to keep its advantages in exports and have a steady economic growth in the long run (more than 10 years), technology innovation is the priority and the fuel. With the increase in household income, the price advantage of the export will diminish eventually and be replaced by other lower-income countries where the costs of production are low. Technology will be the ultimate advantage in its export products. Moreover, take the sanctions during Trump's first presidency as an example, it has proved that technological innovation is the key to maintaining a country's independency. A self-sufficient technology will ensure that China is less prone to technological limitations, and hence get a more sustainable and steady economic growth in the long run.

In conclusion, being a theory that was originally developed and mostly applied to Western and other developed capitalist countries, the balance sheet recession theory can only partly apply to China's current economic performance due to its specific socialist market economy. Due to the availability of data and the possible affected economic patterns, only the household sector in China can be explained using the balance sheet recession theory, as its behaviours and economic activities reflect some debt problems among the households.

6.1.1. Policy implications concluded by the research

Even though the balance sheet recession theory cannot fully be used and explain China's current economy, the economic slowdown has already been a problem for the Chinese government to solve. Moreover, with the deglobalisation trend, uncertainties in the external environment are amplified and could affect and even worsen China's economy. Therefore, in the face of uncertainties, the urgency

and priority for the Chinese government is to boost domestic demand while building a more robust economic system to maintain a more sustainable and steady economic growth in the long run.

With this aim, the policy recommendations are given as the following. Monetary policies such as lowering interest rates and providing liquidity in the financial market are necessary but far from sufficient. Combining with fiscal policies such as consumption stimulus can have an instant and effective influence in the short run. To boost consumption continuously, people's income and expectations about the future need to be improved. Targeted subsidies given to low and mid-income households can be useful but is challenging. Improving the social welfare system can have more general positive effects by improving people's expectations about the future.

In the longer run, to have a more robust economic structure that is resilient to external (international) shocks, the timely reform of China's economic structure is unavoidable, and technological innovation is the priority. The term 'timely' is mentioned here due to the limitations of China's fiscal efficiency. One of the limitations is the government debt-to-GDP ratio. Once the debts have reached an unsustainable high level, it is risky for a country which might run a sovereign debt crisis. There have already been some concepts for a similar reform in China. With the emergence of the concept of 'dual circulation', China has realised the importance of building its own internal (domestic) circulation of products by prioritising domestic consumption, as well as building a more robust external circulation which has diverse and comprehensive international trading and supply chain network, so that a few disruption of the routings and trading will have little effects to its economic performance. Besides building its dual circulation structure, technology also requires attention and high priority, as it is the root of a country's development.

Therefore, to reverse the slowdown in China's economy, different monetary and fiscal policies are necessary in the short run. In the long run, timely structural reform is needed, and technological innovation has high priority.

6.1.2. Possible modifications of the balance sheet recession theory

By investigating the research question, the conclusion is that the balance sheet recession can only partly explain China's current economic slowdown, due to its specific economic structure. It does not mean that the theory is wrong. Instead, it shows the limited applicability of the theory. Therefore, this section tries to extend the applicability of the balance sheet recession theory, making it not only adoptable to typical Western countries where the free market dominates, but also applicable to countries where the state can have a large impact on the whole society and economy.

First, the key differences between China and other countries which performed typical balance sheet recession patterns are the state-led economy and the dominant role of SOEs. Therefore, the dynamics of balance sheet repair and recessionary behaviour can differ. For example, the state can delay or disguise the symptoms of the drastic drops in asset prices, as well as the deleveraging pressures, through fiscal subsidies, directed lending, or implicit guarantees. Also, SOEs may not behave similarly to private firms, where the private firms need to be profit-maximising. Instead, SOEs may not engage in balance sheet repair as expected, due to soft budget constraints.

Then, after acknowledging the possible differences, the main mechanisms of a balance sheet recession could incorporate the state intervention mechanisms. The results show that the balance sheet recession theory needs to be integrated with theories of state capitalism to adequately describe economies like China. For example, soft budget constraint theory is considered useful to explain SOEs' behaviours (of not prioritising repaying debts).

With those known differences and the possible modifications of the current balance sheet recession theory, the theory is possible to be extended and applied to more countries which are also (partly) state-led, or also in a socialist system. The 'modified' theory could globalise and diversify the relevance of the balance sheet recession theory, not only restricted to advanced market economies where the economy is mostly free-market.

6.2. Limitations of the research

While the research has provided valuable insights into China's current economy, some limitations are exposed as well. Limitations are generated from methodology, data availability, and the dynamic nature of the political (external) environment. This section will discuss and make the limitations in detail.

6.2.1. Simplification of the China-specific characteristics

Through institutional analysis, the China-specific model may oversimplify the complex economic relationships. It is a common limitation among qualitative methods that they are exploratory and cannot provide definitive answers about causation or explanation of complex social and economic questions (Knight, 2001). A typical limitation of this type in the research is the general division of the government sector among different actors in China's economy. There are different levels of the government - the central government and the local governments. Different governments have different methods of revenue and government spending. The local governments in China have local government financing vehicles (LGFVs) to finance themselves (Kozhevnikov, 2019). Through LGFVs, local governments indirectly involved in shadow banking activities in China constantly (Shi, 2023). Therefore, the local governments also have their own balance sheets. But the research has omitted the distinctions between the central government and the local governments, and made an implicit assumption that the government can hardly be insolvent. The research used the government as a whole instead, to carry out the country's development plans and intervene SOEs and the market.

Besides, the research has also simplified the influence that the external (international) environment could have on the internal (domestic) economy in China. Despite strict control of the international capital flow, it can still influence China's economy. An et al. (2025) have studied that the changes in monetary policy of other core countries will influence the capital inflow and outflow in China, through investments and bank loans. However, the relationships between the currency, exchange rate, and capital flow are not addressed in this research. How the international sector can influence China's internal economy has also not been discussed.

6.2.2. Data limitation

As mentioned largely in Section 4.2.5 and 4.2.6, the data of the private firms is unavailable. The most detailed data is the non-financial enterprises which include SOEs and private firms. From the data, the non-financial sector as a whole performs functional economic activities. Due to the lack of separate data, it cannot be concluded whether the non-financial private firm sector is in, or towards, or not in a balance sheet recession. Besides, it cannot make further derivation of this phenomenon - (1) only the household sector has a trend towards a balance sheet recession while other sectors perform well; or (2) non-financial private sector has also faced a trend towards a balance sheet recession, but SOEs have occupied large proportion of the sector and covered the unhealthy economy due to implicit subsidies and support from the government.

Once the data for different sectors is made available, the analysis of China's economy will be more complete and comprehensive. It will not only help find the applicability of the balance sheet recession theory to China's current economy, but also reveal statistically how much influence the Chinese government can have on the overall economy through SOEs. However, it is intangible at the current stage due to the limitation of data.

6.2.3. Adjustment in policy due to the dynamic environment

Even though the actionable policies are analysed and given after incorporating the uncertainties, it should be highlighted that the external environment is dynamic and fast-changing, so the policies cannot remain unchanged and need adjustments accordingly. One of the most profound changes in the upcoming years for China is its ageing population. It is estimated that the elders in China will double to 30.1% by 2050. The ageing population will influence the number of labourers, hence influencing and gradually undermining productivity (Zhai & Lee, 2024). The research has not addressed this demographic trend in China, and the policy recommendations are given under the current demographic structure. However, China will face a gradually impaired economy with the ageing of the population. Under these circumstances, the priority of the policy could possibly focus mainly on both boosting domestic demand and boosting births.

Another omitted changing factor is the government's debt. All the policies recommended in the previous chapter are under the implicit assumption that the government has the potential to finance its policy. However, all the fiscal policies are actually forms of government spending. Therefore, it is rational to ask the realistic question - how does the government's balance sheet look like, is its balance sheet healthy enough to support loads of fiscal support, how can the government finance itself? Once the government becomes insolvent, not only will the policy delivery face a problem, but the country can also face a nationwide systemic crisis. As discussed briefly in Section 5.4, China is developing towards a more and more unsustainable government debt level. Through comparison with the U.S., China will reach its fiscal policy limitation in less than two decades. It is only a rough estimation, and it is also possible that China actually reaches its tipping point earlier. Therefore, it is uncertain how much time is left for China to complete its economic structure reform before running out of its headroom for fiscal policy.

In short, despite the research having answered the question of how applicable the balance sheet recession theory is to China's current economy and giving policy recommendations accordingly, the research still has limitations with the simplified China-specific characteristics, unavailable data, and the provided policies that didn't consider the long-term environmental and structural change. It is important to acknowledge those limitations, and the accuracy of the results can be affected accordingly.

6.3. Future research for the unaddressed problems

This research tries to investigate the applicability of balance sheet recession theory to China's economy under its specific institutional context and gives policy recommendations for economic recovery accordingly. After answering the research questions, limitations are acknowledged and several unaddressed questions are left. Therefore, further research can be conducted based on them.

The first direction is the more detailed investigation of the debt structure in China. Despite the working mechanisms of shadow banking in China have been investigated, how interconnected the financial institutions are has not been studied in the research. Also, the debt structure lent through the shadow banking is also unclear - what are the percentages of households, corporations (SOEs and private firms), and the local government respectively. Implicit debts and hidden debt structure won't be reflected through the balance sheets, but they will impede economic activities. Only the hidden debts and debt structure are made explicit, can the balance sheet be studied more completely and give solutions to insolvency or recession accordingly.

Another future investigation can be carried out in China's government debt sustainability. The limitations of China's fiscal policy are well acknowledged, but the exact room and time before China reaches its limitations have not been made clear in the research. It will be helpful to make clear since the margin for potential growth in government debt will have a significant impact on boosting domestic consumption. The more government debts China are still capable of rising, the more consumption it can boost and the more structural reform it can complete. With the policy priority of boosting domestic demand and structural reform, the government budget can be spent more efficiently and targetedly without running out of its fiscal space.

Furthermore, since there is a gap in the private firm sector data, it will contribute directly to the research question once the data is complemented. More time can be given to finding the specific data that studies the private firm and SOEs separately. It is also possible that no data is published through official institutions, instead, private databases or corporations have relevant data. Such data is usable, but biases could be generated. It is important to acknowledge how the data is collected and processed, and which institutions or companies have published the data, are they subject to sponsors or are neutral with the aim of research.

Last but not least, the policy recommendations are all given qualitatively and are subject to the dynamic external environment. To have more robust results, quantitative analysis can be carried out in the future. Provided with China-specific features, it is feasible to build a China-specific economic model. The model can be used to simulate China's economy under different scenarios (uncertainties), and the results of the model can be further analysed to examine the effects of policy. Therefore, with the qualitative features studied in the research, a quantitative model can be built and hence deliver a more quantitative analysis.

In conclusion, this research has concluded that the balance sheet recession can partly explain China's current economic slowdown - the household sector shows debt problems and exhibits a trend towards balance sheet problems. To reverse the economic slowdown, it is recommended to focus more on domestic demand with multiple policies that are effective for different time durations. Despite several acknowledged limitations, the research still provides valuable insights into China-specific features and how they could distinguish China's economy from other typical economic patterns.

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Use of AI

During the thesis research and writing process, artificial intelligence (AI) was used. Grammarly was used to correct the grammar and improve the fluency of the text, considering that the author is not a native English speaker. Besides, two generative AI tools, ChatGPT and DeepSeek, were used to provide supplementary information, get inspiration, organise thoughts and improve the logic flow of the thesis report. Two AI tools were asked with identical questions by the author to cross-check, and the provided answer that best fit the academic context of the research and the author's idea was selected. It needs to be clear that the output of generative AI was always critically and extensively checked. No output of generative AI was directly and fully copied and added to the thesis report. All the adopted sections were reviewed and modified to match the research context and to make the thesis report coherent.

Examples of using generative AI tools are the following:

Example 1

In Section 4.2.1, the year 2021 was considered the tipping point of China's real estate market due to the fall of the China Evergrande Group. In order to organise the timeline of this event, the following question was asked to both ChatGPT and DeepSeek:

What happened to the China Evergrande Group and how did it cause shocks to real estate market?

Two generative tools gave answers listing the different stages of the event, and gave different references to support their answers. Among the references, several news pieces were provided and adopted in the thesis report as well. Crystal Capital Partners (2021) and The Global Treasurer (2024) are the two provided references that were used in the report. Ultimately in the report, the storyline was written based on the references, not the answers given by the generative AI tools.

Example 2

In the preliminary research stage, two China-specific characteristics, the enormous existence of state-owned enterprises (SOEs) and the banking sector dominating the financial system in China, were recognised and would be implemented into the thesis report. However, the sequence of introducing these two characteristics was unclear. To get a more logical and fluent flow of the report, the following question was asked:

In the chapter discussing China-specific characteristics, two characteristics are recognised - the enormous existence of SOEs and the banking sector dominating the financial system in China. What will be the order to introduce these two characteristics, to make the report more logical and coherent?

Interestingly, ChatGPT said that the bank-based financial system needs to be introduced before the SOEs. While DeepSeek said that SOEs need to be introduced first. The reason given by ChatGPT was that 'The financial system is the enabler, and the SOEs are the primary actors within that system'. DeepSeek said that 'SOEs are the bedrock of China's economic model, and China's banking system is functionally interwoven with SOEs'. It also gave an alternative option that introduces banking sector dominance first as the symptom, and then discusses SOEs as the root cause.

With the research progressing, the author gradually had an inclination to introduce SOEs first. Since this characteristic is inherent in the China-specific socialist system. SOEs can dominate in many sectors in China, and the financial sector is only one of the many sectors in China. It

performs in a way that the banking sector plays a huge role in the financial system, and within the banking sector, state-owned banks have a huge influence. Therefore, the ultimate report discussed the China-specific characteristics following the sequence that the socialist system was introduced, then SOEs, being one of the forms of the state's intervene, were discussed, finally, among different sectors in China, the bank-based financial system, which relates most to the balance sheet recession, was discussed.