

Bachelor's Thesis

---

# China's Economic Liberalisation and the Impossible Trinity

---

Zurich University of Applied Sciences  
School of Management and Law  
BSc in International Management

Max A. Dörrer  
Matriculation Number: 17-680-653  
Zürich

Submitted to Dr. Markus Braun  
Winterthur, 27 May 2020

## **Management Summary**

China's global economic and political ascent, as well as its unique mix of state control and free market principles, has been unprecedented and attracted foreign interest as well as criticism to its economic system. Although China pledged towards increasing economic openness, its progress is ambiguous and difficult to assess. Due to China's economic power, it is necessary to understand and evaluate its macroeconomic policy-making in order to analyse its strengths and weaknesses, as well as to predict future developments.

The main objective of this thesis was to research China's policy stance and its relationship in line with the Impossible Trinity, and to outline the respective reforms in regard to the country's capital accounts, exchange rate regime and monetary sovereignty. Moreover, this thesis aimed to evaluate if the model of the Impossible Trinity can be applied to China and lastly, to evaluate potential areas of future reforms.

A literature review and expert interviews were conducted to answer the aforementioned objectives. The literature review elucidated the liberalisation reforms and the Impossible Trinity, and its particular applicability to China. The expert interviews supported a holistic interpretation of the results and provided insights into potential future liberalisation steps.

In particular, China measurably decreased its exchange rate control through wider trading bandwidths and market-based pricing mechanisms. Secondly, the country reformed its capital accounts through special investment channels and by connecting its stock exchanges together. However, the country's assumed progress towards capital account openness has not been quantifiably reflected. China's level of capital account openness remained at constant levels since the year of 2000. Lastly, China's monetary independence had dropped in 2008 and resurged by 2016, which may be attributed to the global financial crisis and the emergence of the shadow-banking sector. Taken together, China has applied a middle-ground configuration of the Impossible Trinity with relative monetary sovereignty, a relatively controlled exchanged rate and minimally open capital accounts. Accordingly, the model of the Impossible Trinity is assumed to be applicable

to China despite the country's rejection of this. Lastly, future reforms are difficult to assess and must be considered within a political and economic context. However, an increase in China's monetary independence, balanced through a more freely floating exchange rate, whilst maintaining its capital account openness, appears to be likely.

This study contributed to the existing literature on China's economic liberalisation reforms and its macroeconomic policy stance in line with the Impossible Trinity. Moreover, this thesis has established grounds for future research on China's application and interpretation of the Impossible Trinity.

This thesis provided a basis to understand China's macroeconomic framework. Further research is needed to clearly distinguish China's economic advantages and risks, and to deduce potential implications for other economies.

## Implications of COVID-19

The current global pandemic caused by Covid-19 has resulted in draconian quarantine and economic lock-down measures to halt the rise of the new infections. China, where the disease first appeared in December, has been at the economic and political forefront of this global crisis. The economic impact of the virus has caused China's GDP to shrink by 6.8 percent in the first quarter of 2020, resulting in the largest economic contraction since 1976 (Zenglein & Kärnfelt, 2020). With that, China's rate of credit growth has surpassed its rate of economic growth and hence contributed to a further erosion of the country's financial stability (Zenglein & Kärnfelt, 2020). In particular, the country's economic problems, of which chapter 3 further elaborates on, in the form of its growing debt rate, surging non-performing loans and its shadow-banking market are likely to become more severe by Covid-19.

By the end of March 2020, over half a million Chinese companies have permanently closed due to the effects of the current pandemic (Zenglein & Kärnfelt, 2020). In particular, China's small and medium sized enterprises are seen to be at elevated risk of bankruptcy, as they have already struggled to access funding before the Covid-19 outbreak. As a macroeconomic response, China has increased market liquidity, lowered lending costs and reduced fees and taxes. Overall, China has dedicated RMB 2.6 trillion (or 2.5 percent of GDP) to combat the economic consequences of the virus by May, 2020 (IMF, 2020). Yet, global growth expectations are dim and the risk of further company defaults is likely to result in a higher unemployment rate and could therefore threaten social stability. Contrary to the previous financial crisis of 2008, China is likely to no longer buoy the world economy and serve as the global engine of economic growth (Zenglein & Kärnfelt, 2020).

Considering the rise of domestic economic- and social problems, the Communist Party of China is expected to primarily focus on maintaining political and economic stability in the country. Therefore, the country's liberalisation reforms, which are outlined in chapter 7, towards a more market-based economy can be expected to be halted or terminated for the foreseeable future until economic growth and social stability has been fully restored.

## Table of Contents

<b>I. Abbreviations</b>	<b>VI</b>
<b>II. List of Tables</b>	<b>VII</b>
<b>III. List of Figures</b>	<b>VII</b>
<b>1 Introduction</b>	<b>1</b>
1.1 Research Question .....	2
1.2 Relevancy .....	3
1.3 Current Research.....	4
1.4 Methodology .....	4
<b>2 Historical Background</b>	<b>6</b>
2.1 Economic Plan Model, 1930 – 1978.....	6
2.2 Reform and Opening Up, 1978 – 1997 .....	8
2.3 Transformational Period, 1997 – 2008.....	11
<b>3 Recent Economic Developments (2008 – 2016)</b>	<b>14</b>
3.1 China’s Credit Boom .....	15
3.2 Shadow-Banking in China .....	17
3.2.1 Growth of China’s Shadow-Banking Industry.....	17
3.2.2 Risk Factors.....	18
3.2.3 Suppression of the Chinese Shadow-Banking Market.....	19
<b>4 The Impossible Trinity</b>	<b>21</b>
4.1 Currency Exchange Rate .....	22
4.1.1 Freely Floating Exchange Rate .....	22
4.1.2 Fixed Exchange Rate.....	22
4.2 Capital Mobility .....	23
4.2.1 Unrestricted Capital Mobility .....	23
4.2.2 Restricted Capital Mobility .....	24
4.3 Monetary Policy .....	24
4.3.1 Sovereign Monetary Policy .....	24
4.3.2 Non-Independent Monetary Policy .....	25
4.4 Limitations and Proof of the Impossible Trinity .....	26
<b>5 Application of the Impossible Trinity</b>	<b>27</b>
5.1 Loss of Monetary Independence.....	27
5.2 Loss over Exchange Rate Control .....	29
5.3 Loss of Financial Openness .....	30
5.4 Mismanagement of the Impossible Trinity.....	31
<b>6 China’s Interpretation of the Impossible Trinity</b>	<b>32</b>
<b>7 Application of the Impossible Trinity to China</b>	<b>35</b>

<b>7.1</b>	<b>China's Exchange Rate Regime.....</b>	<b>35</b>
<b>7.2</b>	<b>China's Capital Mobility .....</b>	<b>38</b>
<b>7.3</b>	<b>China's Monetary Independence.....</b>	<b>40</b>
<b>8</b>	<b>Findings on China's Impossible Trinity Configuration .....</b>	<b>41</b>
<b>8.1</b>	<b>China's Middle Ground Configuration .....</b>	<b>42</b>
<b>8.2</b>	<b>Discussion on the Development of China's Impossible Trinity .....</b>	<b>43</b>
8.2.1	Exchange Rate Stability .....	44
8.2.2	Monetary Sovereignty .....	44
8.2.3	Capital Mobility .....	45
<b>9</b>	<b>China's Impossible Trinity Outlook .....</b>	<b>47</b>
<b>10</b>	<b>Conclusion .....</b>	<b>50</b>
<b>10.1</b>	<b>Contribution .....</b>	<b>52</b>
<b>10.2</b>	<b>Limitations and Further Research .....</b>	<b>52</b>
<b>11</b>	<b>Sources .....</b>	<b>54</b>
<b>12</b>	<b>Appendix .....</b>	<b>60</b>
<b>12.1</b>	<b>RMB / USD Exchange Rate.....</b>	<b>60</b>
<b>12.2</b>	<b>Interview transcript with Dr. Oliver Adler .....</b>	<b>61</b>
<b>12.3</b>	<b>Interview transcript with Dr. Beat Affolter.....</b>	<b>67</b>

## I. Abbreviations

ABC	Agricultural Bank of China
AREAER	Annual Report on Exchange Arrangements and Exchange Restrictions
BIS	Bank of International Settlements
BOC	Bank of China
CCB	China Construction Bank
CCP	Chinese Communist Party
ERS Index	Exchange Rate Stability Index
EU	European Union
FDI	Foreign Direct Investments
GDP	Gross Domestic Product
GFC	Global Financial Crisis
HKD	Hong Kong Dollar
ICBC	Industrial and Commercial Bank of China
MI Index	Monetary Independence Index
NPL	Non-performing loans
P2P	Peer-to-Peer
PBoC	People's Bank of China
PWC	Pricewaterhouse Coopers International
QDII	Qualified Domestic Institutional Investors
QFII	Qualified Foreign Institutional Investors
RMB	Renminbi
SEZ	Special Economic Zone
SGD	Singapore Dollar
SME	Small to medium sized enterprises
SOE	State Owned Enterprises
SSE	Shanghai Stock Exchange
SZSE	Shenzhen Stock Exchange
UIP	Uncovered Interest Rate Parity
US	United States
WTO	World Trade Organization

## II. List of Tables

Table 1: Interview experts .....	5
Table 2: Percent structure of Chinese GDP, at constant prices, 1890 – 2003 (adapted from Maddison, 2007, p.60) .....	7
Table 3: Major changes in China's exchange rate system (Zenglein & Kärnfelt, 2019; Kawai & Liu, 2015, own illustration).....	36

## III. List of Figures

Figure 1: Chinese annual percent change in real GDP growth (IMF Data Mapper, 2020, own illustration).....	10
Figure 2: Percentage share of world GDP (measured at purchasing power parity) (IMF Data Mapper, 2019, own illustration).....	13
Figure 3: China's core debt (percentage of total GDP) (BIS, 2020, own illustration) ...	15
Figure 4: Impossible Trinity (own illustration) .....	21
Figure 5: Loss of monetary independence (own illustration).....	27
Figure 6: Loss over exchange rate control (own illustration).....	29
Figure 7: Loss of capital account openness (own illustration) .....	30
Figure 8: The Impossible Trinity versus the Scalene Triangle under financial autarky (own illustration) .....	33
Figure 9: The Impossible Trinity versus the Scalene Triangle under open financial markets (own illustration).....	34
Figure 10: China's Impossible Trinity configuration in 2016 (Aizenman et al., 2010, own illustration).....	41
Figure 11: Mean value of Kaopen Index 2016 (Chinn & Ito, 2008, own illustration)...	42
Figure 12: China's Impossible Trinity configuration for the years of 2000, 2008 and 2016 (Aizenman et al., 2010, own illustration) .....	43
Figure 13: RMB/USD Exchange Rate (Zenglein & Kärnfelt, 2019) .....	60



## 1 Introduction

This thesis focuses on the economic liberalisation of China and its management of the Impossible Trinity model since the global financial crisis (GFC) of 2008. China's rampant economic growth from 1978 onwards has turned the country from a mismanaged and poverty ridden nation into a global superpower. In 2010, China amplified its global standpoint and overtook Japan to become the world's second largest economy by measurement of nominal gross domestic product (GDP) in USD (World Bank, 2019). The country's economic rise has been unprecedented and changed the political as well as economic world order. This ascent has led to a global interest into China's economic model, which considerably differs to the more liberal economies of the United States, Japan, Germany, and many other countries. Although China's economic model has been undoubtedly successful in the past, recent steps towards greater economic openness raise questions of its long-term applicability.

Until the early 2000's China has had closed capital accounts, a sovereign monetary policy and a pegged exchange rate to the USD. Due to its closed economic system, the macroeconomic policy dilemma imposed by the Impossible Trinity did not constrain China's policy-making. As such, China was able to control its foreign exchange rate and keep a sovereign monetary policy at the same time (Lo, 2015)

The Impossible Trinity model is a key model in international macroeconomics that was originally developed by the economists Robert Mundell (Mundell, 1963) and Marcus Fleming (Fleming, 1962). This model helps to explain a commonly faced dilemma by policy makers such as national banks and governments (Rieber, 2018). Also referred to as the 'Financial Trinity' or the 'Holy Trinity', the model states that a country cannot simultaneously sustain (I) an independent monetary policy, (II) freely flowing capital flows, and (III) a controlled foreign exchange rate (Guorui Sun & Payette, 2016). As such, policy makers can only sustain two of the three goals at any given time (Rieber, 2018).

Since the early 2000's, China has announced to gradually ease restrictions on capital flows and to move the Renminbi's (RMB) hard-peg to a more flexible crawling-peg arrangement. As per the theory of the Impossible Trinity, China should, with increasing

progress towards greater capital account openness, be exposed to the policy constraint imposed by the trilemma. However, China's government has stated that the Impossible Trinity is not applicable to the country and that it has been able to calculate the optimal equilibrium of capital controls, exchange rate flexibility and monetary sovereignty. Furthermore, China argues that a certain level of capital control is always required, even if a country opts for a freely floating exchange rate and a dependent monetary policy, thus contradicting the model of the Impossible Trinity (Sun & Li, 2017).

## 1.1 Research Question

Since the founding of the People's Republic of China in 1949, and up until the political power change in 1978, China followed an autarkic economic model which heavily restricted imports, private ownership and foreign business activities (Morrison, 2019b). Since 1978 however, China gradually liberalised its economy by phasing out of collectivised agriculture, establishing special economic regions and granting more ownership rights to individuals (Morrison, 2019b). China has reached a crucial milestone in its economic development upon accession to the World Trade Organisation (WTO) in 2001 (Halverson, 2004). For many economists and politicians alike, this marked the beginning of a new area since the WTO advocates for greater transparency, liberalised capital accounts and freely floating exchange rates (Perkins, 2018). However, financial liberalisation has been slower than anticipated and major reforms are yet to be implemented. Moreover, the country's high debt ratio, its growing number of non-performing loans and pressure on the RMB have led to new economic issues. With China's place among the economic superpowers, the question begs as to if the Impossible Trinity actually applies to the country's economy. This coupled with its recent economic liberalisation asks further how its relationship to this model will be affected in the future. As such, the subject of this thesis is *China's Economic Liberalisation and the Impossible Trinity*.

The main objective of this thesis is to evaluate China's economic liberalisation since the GFC of 2008 and to configure and analyse China's policy goal configuration in line with the Impossible Trinity. Furthermore, this thesis looks at China's interpretation of the model and additionally aims to conclude whether, and in which areas, further liberalisation steps could be expected in the future.

The following further specified questions will be answered throughout this thesis:

1. What steps were taken by China in order to liberalise its economy?
2. Can the model of the Impossible Trinity be applied to China?
3. What is China's current configuration in line with the Impossible Trinity?
4. Can further progress towards greater economic liberalisation be expected?

## 1.2 Relevancy

China has transformed itself into a key-driver of global growth, as such, China was the world's largest merchandise trader and manufacturer, the third-largest export market for the United States (US) and, at the same time, the largest foreign holder of US debt in 2018 (Morrison, 2019b). Likewise, the European Union (EU) displays an equal dependence on China, with China being the EU's largest source of imports and the second-biggest export market (*China - Trade - European Commission*, n.d.).

China has become an integral contributor of global economic growth and advanced as well as developing countries are equally reliant on China's economic expansion. On the other hand, economic downturns in China create global spill-over effects and have major implications on global economic growth. Such spill-over effects were seen during the "China Scare" in 2015 and 2016, where concerns about sluggish Chinese economic growth has led to global asset price corrections (Shaghil et al., 2019).

Considering China's economic importance and the potential of spill-over effects on the world economy, it has become paramount to understand China's economic system and its liberalisation reforms. Moreover, the prudent management of the Impossible Trinity has proven to be vital from a macroeconomic perspective. As the disregard of the model has led to severe economic distortions in the past as seen during the Asian financial crisis in 1997 (Guorui Sun & Payette, 2016). Hence, understanding China's current Impossible Trinity configuration and its respective development is a crucial objective to understand the country's liberalisation process as well as its potential risks and benefits imposed to the global economy. Lastly, only by knowing China's current macroeconomic policy configuration, one can potentially predict future liberalisation steps.

### 1.3 Current Research

Current academic research on China's economic system is vast and many scholars highlight the unprecedented liberalisation pace of China. Whereas most research looks at a specific area to track reforms, a holistic approach to evaluate the country's economic liberalisation has not yet been widely applied. In congruence to this, only a limited number of researchers have looked into China's relationship with the Impossible Trinity and have analysed its development over time. Moreover, China's own research and its different interpretation of the Impossible Trinity has so far not received any academic attention. Additionally, many agree on the fact that further steps towards economic liberalisation are needed, yet most papers focus only on the external environment and do not take China's internal economic distortions into account.

### 1.4 Methodology

This section provides an outline of the research methodology applied to answer the aforementioned topics of research. This thesis primarily deduced its information and results from an extensive literature and study review. Particular focus was put on peer-reviewed journal articles, scientific books, working papers as well as reports from international organisations. For this, research platforms including Business Source Premier, Elsevier, Springer, ABI/Inform and Google Scholar were consulted.

Additionally, two expert interviews were conducted to receive further insights and background information into the topic. A semi-structured interview form has been chosen in which the pre-defined questions were sent out to the interview partners beforehand. As outlined by Fylan (2005), this form allows the interviewees to prepare for the questions asked and offers a structural guidance for the interviewer, whilst providing room for additional follow-up and clarification questions. Furthermore, the interviews provided a deeper understanding and a holistic interpretation of the Impossible Trinity and the potential future liberalisation steps of China. Table 1 provides a summary of the interviewees and their respective professional positions. Due to the rather complex nature of this topic, interviewees were given a written introduction to the topic beforehand and the interviews were recorded and transcribed as found in appendix 12.2 and 12.3.

*Table 1: Interview experts*

<b>Name</b>	<b>Position</b>	<b>Interview Type</b>	<b>Length</b>
Dr. Oliver Adler	Chief Economist Switzerland at Credit Suisse (Schweiz) AG	Phone Call	45min
Dr. Beat Affolter	Senior Lecturer at ZHAW (SML)	Video Call	40min

The remaining sections of this thesis are organised as follows. Chapter 2 gives a brief overview and introduction into China's economic transformation since the founding of the republic in 1949. This aims to support the reader in understanding the source of the country's economic model and its initial reforms which have led to China's current economic system. Chapter 3 outlines the recent economic developments in line with China's response to the GFC of 2008. Chapter 4 covers the model of the Impossible Trinity in detail and evaluates the benefits and risks associated with each policy goal. Chapter 5 introduces the different policy goal configurations based on several examples and highlights the reason behind the forgoing of one goal. Chapter 6 evaluates China's interpretation of the Impossible Trinity and compares the key findings of its own research with the Impossible Trinity. Chapter 7 applies the Impossible Trinity to China and provides an overview over the country's economic liberalisation reforms in each policy goal. Chapter 8 presents the respective findings on China's current policy configuration and evaluates its changes over three time periods. Chapter 9 aims to shed light on potential future liberalisation steps and highlights the associated benefits and risks. Lastly, chapter 10 summarises this thesis and reports on its limitations and further research opportunities.

## 2 Historical Background

The following chapter examines the history and background of China's economic system, starting from 1930 until the GFC in 2008. Moreover, this chapter outlines the reforms and policies undertaken, as well as key historical events that have transformed China's economic system into a more open and globally integrated one.

### 2.1 Economic Plan Model, 1930 – 1978

In October 1949, after twelve years of devastating internal conflicts between the Kuomintang and the Chinese Communist Party (CCP), the People's Republic of China was founded under communist rule (Brandt & Rawski, 2008). The CCP adopted a Soviet-style command economy based on centrally planned five-year plans (Morrison, 2019). The government controlled almost every single production factor and dictated prices, resource allocation and production capacities as well as clamped down on free market principles (Morrison, 2019). The newly ruling government, under the leadership of Chairman Mao Zedong, faced a weak economy deprived of crucial resources. With a lack of raw materials, machinery and access to finance, economic growth was stagnant (Magnus, 2018). Within the first year of communist leadership, all formerly privately held corporations and institutions were nationalised and brought under government control (Franklin et al., 2006). Likewise, formerly small and mid-sized agricultural businesses were organised into large communes, whereas industrial production was shifted to state-owned enterprises (SOEs). By 1978, this country-wide nationalisation resulted in three-fourths of the total industrial output being produced by SOEs (Morrison, 2019).

With the aim to become self-sufficient, the CCP strictly minimised international trading activities and banned foreign firms from conducting business in the country. Simultaneously, imports were restricted to only those products which the country was not able to produce itself (Morrison, 2019). In order to accelerate the rapid industrialisation of the economy, the central government undertook large-scale investments into physical and human capital (Morrison, 2019). As a result, the industrial share of China's GDP increased from 8.3 percent in 1952, to more than one third of total GDP in 1978 (Maddison, 2006). To illustrate the fast-moving industrialisation of the country, table 2 provides a breakdown of the Chinese GDP per sector, reflecting the shift from an

agriculturally to an industrially based economy, in which the previously largest and low-value-adding sector of farming, fishery and forestry steadily declined; and only contributed 34.4 percent to total GDP in 1978 (Maddison, 2006).

*Table 2: Percent structure of Chinese GDP, at constant prices, 1890 – 2003 (adapted from Maddison, 2007, p.60)*

	<b>1890</b>	<b>1952</b>	<b>1978</b>	<b>2003</b>
<b>Farming, Fishery &amp; Forestry</b>	68.5	59.7	34.4	15.7
<b>Industry</b>	8.1	8.3	33.5	51.8
<b>Construction</b>	1.7	1.7	3.4	5.3
<b>Transport &amp; Communications</b>	5.5	2.4	3.6	7.0
<b>Commerce &amp; Restaurants</b>	8.2	6.7	5.1	8.2
<b>Other Services</b>	8.0	21.2	20.1	11.9

Under Mao’s rulership, the financial system of China was dominated by a single bank (Franklin et al., 2006). The People’s Bank of China (PBoC) was the only officially operating commercial bank and functioned simultaneously as the nation’s central bank. The PBoC was controlled by the Ministry of Finance and was fully state-owned (Franklin et al., 2006). With its main role being to finance production plans, the bank owned 93 percent of China’s total financial assets and was responsible for almost every individual financial transaction in the country (Franklin et al., 2006).

The Chinese economic plan model, which lasted approximately from 1950 until 1978, resulted in fairly mixed outcomes. As such, Magnus (2018) reported that Mao’s China struggled in three key economic areas. Firstly, the country suffered from insufficient food production related to the Malthusian problem, where population growth offshoots agricultural outputs (Magnus, 2018). Secondly, the country faced the Keynesian issue by not creating sufficient job opportunities to generate sustainable demand (Magnus, 2018). Thirdly, the country lacked in efficient resource allocation due to absent market mechanisms and centrally set production quotas (Magnus, 2018).

On the other hand, economic performance under Mao was considerably higher than before, which is mostly attributed to the large increase in physical and human capital (Brandt & Rawski, 2008). This argument is further supported by Chinese governmental statistics, which measured annual GDP growth at 7.9 percent annually between 1952 and 1978 (Morrison, 2019b). Yet, this growth rate has been questioned by many analysts and

historians alike, who expect the number to be artificially elevated for political reasons. Besides this, severe reporting deficiencies as well as the abolishment of the Statistical Bureau during the Cultural Revolution cast additional doubt on the growth rate posted by the Chinese government (Maddison, 2007). For the same time period, economist Maddison (2007) expected that the actual GDP growth was closer to 4.7 percent per annum. Moreover, even though economic growth drastically increased under communist rule, it still lagged behind a number of Western nations. Likewise, living conditions did not equally improve and remained well below developed countries (Maddison, 2007). Lastly, Mao's Great Leap Forward (1958-1960) as well as the Cultural Revolution (1966 – 1976) resulted in drastic economic, social and institutional disorder and in the loss of up to forty million lives (Brandt & Rawski, 2008).

## 2.2 Reform and Opening Up, 1978 – 1997

With the death of party Chairman Mao in 1976, the country commenced to reform its economic and political system. The country gradually moved away from its Soviet-based and autarchic economic model with the aim to promote greater economic growth and improve living conditions for its citizens (Brandt & Rawski, 2008). These reforms are mostly attributed to Deng Xiaoping, who headed the country from 1978 to 1992, and is seen as the architect behind China's economic development and global ascent (Brandt & Rawski, 2008). Deng institutionalised reforms, established political structures to avoid power concentration in one single person and implemented reforms based on rule of law rather than by discretion (Magnus, 2018). This process of experimental liberalisation was described by Deng Xiaoping as "crossing the river by feeling the stones" (Chow, 2018, p. 107). In other words, as no blueprint of similar market liberalisation existed, China implemented and tested their reforms first on a small scale in rural areas. When the policies proved to be successful, they were rolled out to larger coastal cities and only then became applicable on a nationwide scale to China (Chow, 2018). One of the first key reforms eased restrictions on agricultural prices and farmer collectives were given the permission to sell excess capacity at free market prices (Magnus, 2018). By 1983, this initial reform was rolled out to the whole country (Magnus, 2018).

In order to attract foreign investments and capital, a further major reform included the creation of four special economic zones (SEZs) in 1980. As such, Shenzhen (bordering



Hong Kong), Zuhai (close to Macau), Shantou and Xiamen (adjacent to Taiwan) were granted special legal characteristics (Maddison, 2007). These included duty-free imports and exports, tax cuts for foreign and domestic investors as well as special tariff incentives (Maddison, 2007). The system proved to be successful and by 1985, 14 additional coastal cities were awarded SEZ characteristics (Maddison, 2007). These SEZs were paramount in facilitating international trade and integrating China into the world economy.

Furthermore, the gradual reforms facilitated the transfer over control of enterprises from the central government to local and provincial municipalities (Morrison, 2019). As outlined by Morrison (2019), these reforms boosted production and increased efficient resource allocation especially in the sectors of agriculture, services and trade. The decentralisation of the economy also led to a growing number of smaller, privately owned enterprises which became exposed to greater market forces and supported growth in the exporting industry (Morrison, 2019b).

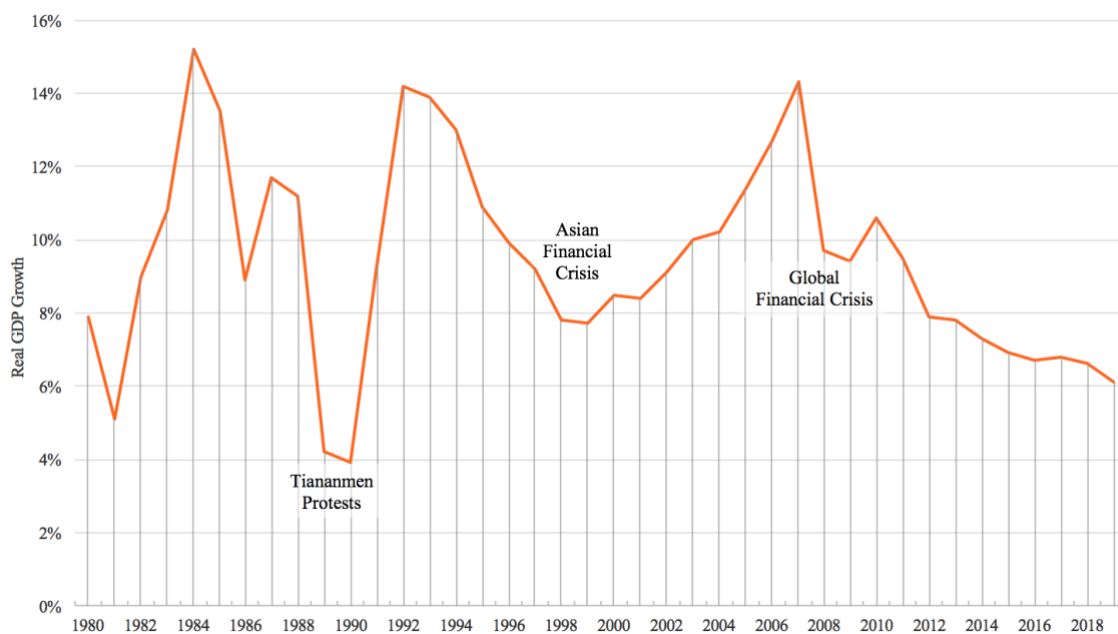
The economic reforms under Deng Xiaoping similarly disrupted the financial sector; By 1979, three additional state-owned banks were formed and given the mandate to take over specific parts of the PBoC's commercial business (Franklin et al., 2006). As such, the Bank of China (BOC) specialised on foreign trade and investment transactions, the China Construction Bank (CCB) took over the business of fixed investments in manufacturing whereas the Agricultural Bank of China (ABC) was given the mandate to focus on all banking activities in rural China (Franklin et al., 2006). Lastly, the Industrial and Commercial bank of China (ICBC) was established in 1984, with the purpose to take over the remaining commercial activities from the PBoC. In 2020, the four banks of ICBC, CCB, ABC and BOC, were not only the four dominating banks in China, but also ranked as the four largest banks globally in terms of total assets (Ali, 2020).

In 1988, a further financial reform granted permission to certain SOEs to sell up to 30 percent of the companies' share to employees (Magnus, 2018). This primary easing on ownership restrictions provided a new institutionalised framework which further enabled the grounds for the reopening of the Shenzhen stock exchange (SZSE) in 1990 and the Shanghai stock exchange (SSE) in 1991 (Magnus, 2018).

Despite China's strong economic growth and a corresponding rise in living standards, the country still struggled with a corruption ridden system and nepotism, as well as a high

inflation rate in the late 1980s (Chow, 2018). With the death of former party secretary Hu Yaobang, student protests erupted on the Tiananmen Square in Beijing and were forcefully shut down by the military on June, 4<sup>th</sup> 1989 (Garnaut et al., 2018). The violent reaction to the student protests led to party internal conflicts as well as to heavy criticism from abroad (Garnaut et al., 2018). Several countries, such as US, imposed trade sanctions against China, resulting in a sharp decline of GDP growth in the following two years. As illustrated in figure 1, GDP growth declined from 11.2 percent in 1988 to 4.2 percent in 1989 (IMF Data Mapper, 2020). After a further drop to 3.9 percent in the following year, the sanctions were lifted in 1991 and economic reforms commenced (IMF Data Mapper, 2020). Congruent with this, GDP growth bounced back to more than 14 percent in 1992 (Morrison, 2019b).

*Figure 1: Chinese annual percent change in real GDP growth (IMF Data Mapper, 2020, own illustration)*



In lieu with growing international trade and increasing demand for foreign currency transactions, the CCP abolished its stringent currency controls in 1986 (Magnus, 2018). A dual exchange rate system was introduced which allowed exporters to sell foreign currencies in a slightly less regulated secondary market at better rates (Magnus, 2018). By 1996, a further reform allowed the RMB to become fully convertible against foreign currencies when used for current account transactions (Magnus, 2018).

### 2.3 Transformational Period, 1997 – 2008

In 1997, the 15<sup>th</sup> party congress of the CCP unfolded new reforms which focused on the modernisation of inefficient and unprofitable SOEs (Liew, 1994). The party remained in control of 500 to 1000 large SOEs, converted some into stock corporations and sold off smaller and less profitable SOEs to domestic investors (Magnus, 2018). Within four years, 86 percent of all SOEs underwent restructuring and approximately 70 percent of all former SOEs were privatised (Magnus, 2018).

The Asian financial crisis, which unravelled simultaneously in 1997, hit financial markets and policymakers with great surprise (Liew, 1994). The crisis, which most severely affected Thailand, Malaysia, South Korea and Indonesia had however only limited impact on China (Liew, 1994). Nonetheless, China's GDP growth slowed down to 7.8 percent in 1998 as reflected in figure 1 (IMF, 2019). As pointed out by Liew (1994), the four aforementioned countries all displayed strong GDP growth rates, relatively healthy fiscal accounts as well as outstandingly high saving rates previous to the crisis. The IMF (1998) attributed the crisis to the countries' rapid growth rates which attracted large-scale foreign investments ignoring underlying risks and policy weaknesses. Moreover, the institutional policies failed to keep up with the rapidly changing environment and the countries maintained their domestic currencies pegged to the USD even at unsustainable levels (IMF, 1998). With the beginning of the crisis, fear among investors led to a rapid acceleration of capital outflows causing large devaluations of the local currencies (Liew, 1994). The devaluations made it impossible for the central banks to keep the hard-pegs vis-à-vis the USD in place, and Thailand was the first country to unpeg its currency from the USD in July 1997 (Magnus, 2018). Yet, the newly floating exchange rate regime caused further currency devaluation and capital flights which eventually led to a deep recession (Magnus, 2018).

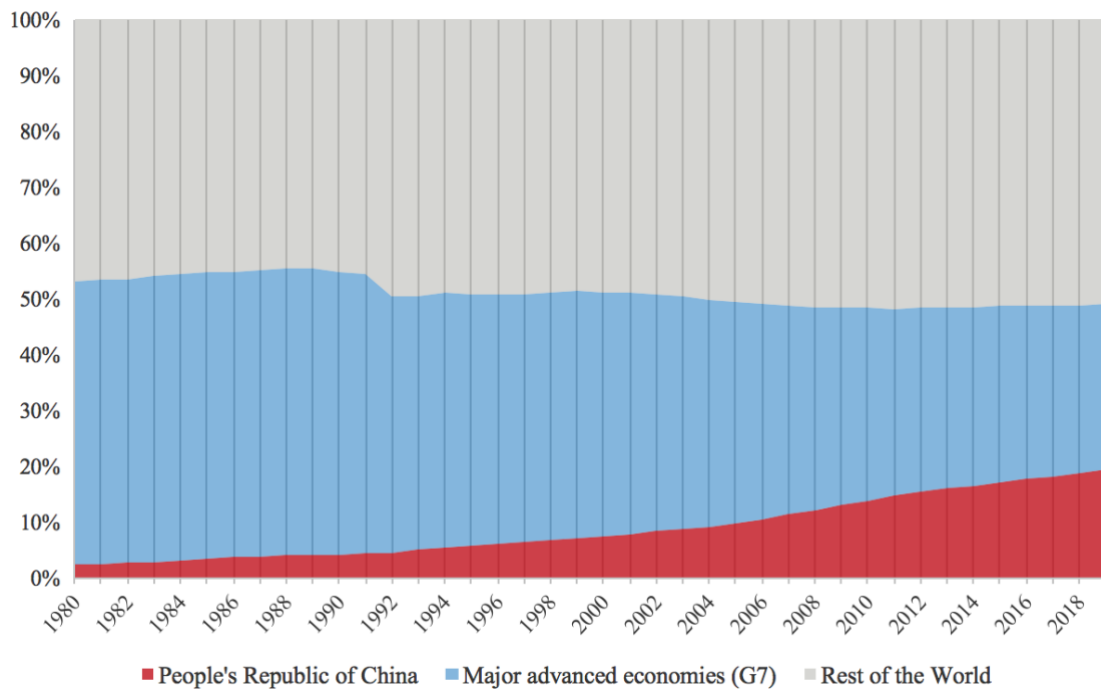
Hence, rather than being caused by reckless spending or sluggish growth, the crisis is mainly attributed to have been triggered by incompatible macroeconomic policy configurations (Liew, 1994). As such, it is argued that the countries most affected were ignoring the policy constraints imposed by the Impossible Trinity (Aizenman & Ito, 2014).

Although China was not as severely affected as other Asian economies, Magnus (2018) argues that the financial crisis has led the CCP to rethink China's monetary policy objectives. As such, Magnus (2018) states that the crisis was taken as a warning by Chinese authorities to maintain its tight control over the country's capital accounts in order to prevent a similar crisis.

In 2001, China joined the WTO, which is seen by many as a crucial milestone in the country's opening-up process (Magnus, 2018). In line with its accession, the country moved away from selective liberalisation policies and committed to structural reforms (Magnus, 2018). This included the lifting of tariffs and taxes on agricultural and manufacturing goods, as well as a reduction on foreign investment restrictions (Chow, 2018). The reason for China's WTO accession has often been linked to the country's need for greater domestic competition. In fact, Chow (2019) outlines that reforms in the agricultural and service sector slowed down in the 1990s, likewise, the transformation of SOEs into shareholding companies did often not result in the expected outcomes. Hence, an increase in foreign competition was seen as a vital element to modernise and increase efficiency in China's domestic industries (Chow, 2018).

Furthermore, the WTO membership underpinned China's growing importance in the world economy, which is reflected in figure 2 by the country's rising percent share of the world's GDP. By 1997, China's share of the world's GDP amounted to 6.5 percent, which nearly doubled to 12 percent by 2008 (IMF Data Mapper, 2019).

Figure 2: Percentage share of world GDP (measured at purchasing power parity) (IMF Data Mapper, 2019, own illustration)



In short, after the Asian financial crisis, the new millennium brought deeper economic, political and financial integration for China amplified through the country’s accession to the WTO and its gradual economic reforms. China was able to maintain its remarkable growth and the nation achieved double-digit GDP growth rates for most years, up until the GFC in 2008. This growth was achieved through an increasingly sophisticated export industry, a high saving rate, which supported large-scale investments, as well as the influx of new workers from the countryside to the cities’ (Garnaut et al., 2018).

The years before the GFC have been significant in transforming China into the world’s largest exporter and trader, as well as into a nation with immense surplus savings for foreign investments (Garnaut et al., 2018). Yet, the country’s growth heavily relied on the creation of debt and resulted in excessive lending practices to SOEs in addition to an overall decrease in credit quality (Garnaut et al., 2018).

### **3 Recent Economic Developments (2008 – 2016)**

This chapter reports on the recent economic developments of China and on its resulting side-effects. In particular, focus is put on China's monetary stimuli response in the wake of the GFC in 2008 and the corresponding developments in the credit and the shadow-banking market. A further assessment of China's liberalisation steps in regard to its foreign exchange rate, capital account mobility and monetary sovereignty is outlined in chapter 7 of this thesis.

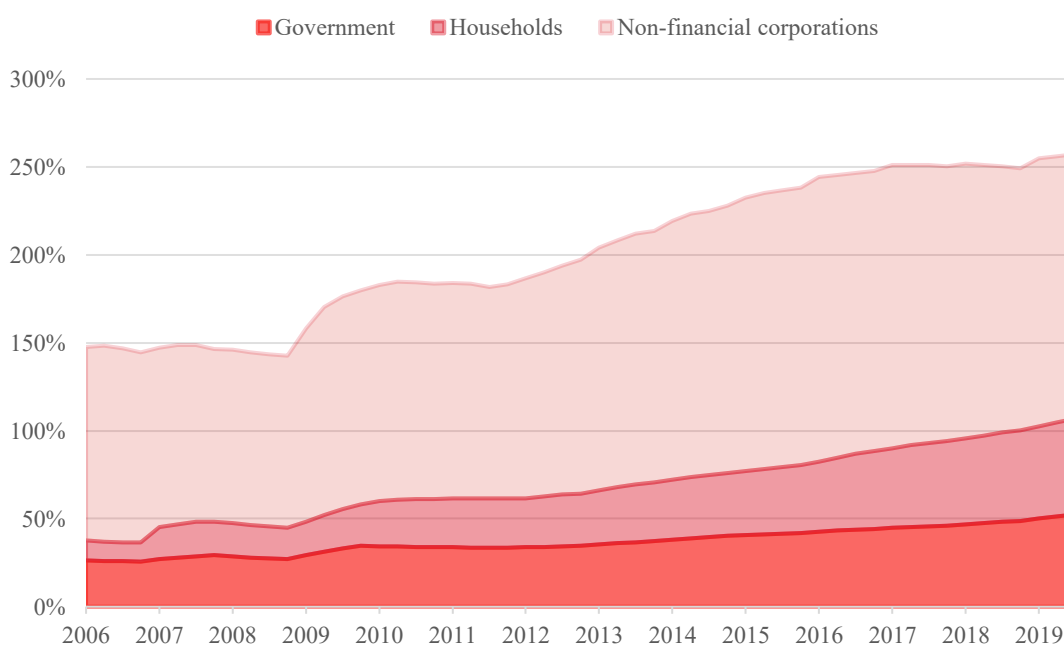
China's debt funded expansion and accumulated trade surpluses were generally accepted by its trading partners until the GFC changed the economic and political landscape in 2007 (Garnaut et al., 2018). Similar to the Asian financial crisis of 1997, the GFC hit the world economy with surprise and led to an economic slow-down across the world. With this, Chinese exports to Europe and North America experienced a sharp decline and the Chinese economic expansion was once again jeopardised by an external financial crisis (Garnaut et al., 2018). In 2008, China countered the GFC with enormous fiscal stimuli programmes, totalling USD 600 Billion, or approximately 20 percent of the Chinese GDP (Burdekin et al., 2012). These stimuli packages were combined with a government request directed to the country's banks to support the economy by increasing borrowing to private and commercial clients (Burdekin et al., 2012). Through these means, among others, the country was able to stimulate demand and largely insulate its economy from the economic recessions experienced in the US and Europe (Burdekin et al., 2012).

Notwithstanding, Luo (2016) reports that the large stimuli packages and the push in lending growth has further increased the widespread concern over the country's overall loan quality and its rate of non-performing loans (NPL). Additionally, unwanted side-effects have arisen in form of a shadow-banking market which will be further elucidated in section 3.2.

### 3.1 China's Credit Boom

China's economic rebound after the GFC was accompanied by a corresponding increase in the country's debt level (Chen & Kang, 2018). China's total debt rate of the non-financial sector (core debt), consisting of government, corporate and household debt, stagnated at around 135 percent of total GDP in the years preceding the GFC (Chen & Kang, 2018). As a result of the PBoC's fiscal easing to combat the GFC, China's core debt rate has been sharply increasing in the preceding years (Chen & Kang, 2018). As such, the country's core debt level rose to over 170 percent in 2011, and by 2017, to a staggering 257 percent of GDP, making it the world's most indebted emerging market economy (BIS, 2020; Ma, 2019).

Figure 3: China's core debt (percentage of total GDP) (BIS, 2020, own illustration)



Surprisingly however, and as reflected in figure 3, China's government debt ratio is unusually small. Between 2008 and 2019, government borrowing in relation to GDP rose by 25 percentage points to 52.5 percent of total GDP in 2019, as per the data from the Bank of International Settlements (BIS, 2020). Likewise, China's household borrowings have been steadily increasing, yet remain at modest levels, totalling 54.4 percent of GDP in 2019 (BIS, 2020). Hence, the increase in China's non-financial debt rate stems largely from the corresponding growth in the country's rate of corporate borrowings to SOEs and private enterprises (Ma, 2019).

As such, China's corporate debt ratio rose from 97 percent in 2008 to 150 percent of total GDP in 2019, making it likewise to one of the highest corporate debt rates globally (BIS, 2020; Ma, 2019). This debt growth, particularly the rise of corporate borrowings, has fuelled growing concern over China's credit trajectory. In the past, international experiences have shown that rapidly rising debt levels are often unsustainable in the long run and typically end with a financial crisis or an economic slow-down (Chen & Kang, 2018). Yet, some argue that China's debt level is manageable as a large share of it is owned by SOEs, which facilitates governmental control and enhances the likelihood of a bail-out (Magnus, 2018). Additionally, the country's official NPL ratio of 1.59 percent in 2015 indicates no sign of market distress (PwC, 2015). Especially when put into comparison with the World Bank's global NPL average of 4.2 percent in 2015, concern over China's rapid credit growth seem unfounded (PwC, 2015).

Yet, the Chinese calculation of the NPL ratio poses several difficulties. Firstly, China has a unique way to recognize NPLs. In particular, banks are given discretion such that they only have to classify a loan as NPL when an actual loss on the banks' side is expected (PwC, 2015). Even if an outstanding debtor has filed for bankruptcy and lags more than 90 days behind the repayment's due date, the loan does not necessarily have to be reported as a NPL, as long as the bank does not expect to occur a loss on it (PwC, 2015). This is contrary to European and American banks, which follow stricter reporting rules where a loan is classified as a NPL once the debtor is more than 90 days in arrears of interest or principal repayment (PwC, 2015). Secondly, a large share of lending occurs in the shadow-banking market in which the number of NPLs is difficult to assess.

Hence, scholars and international institutions alike remain cautious over China's official NPL ratio, as it is assumed to understate the actual scale of the problem (Magnus, 2018). Some estimates assume China's NPL rate to be up to 22 percent (Zhong, 2016), whereas a more conservative analysis by the IMF's Global Financial Stability Report (2016) estimated China's NPL ratio to be around 15.5 percent of all lending. If the IMF's estimate holds, the country would face up to USD 1.3 trillion in bad debt, making its high debt rate to a systematic threat (Daniel, 2016). Even though the actual scale of NPLs is difficult to assess, the problem is bound to become more severe when the economy faces a slow-down or an interest rate hike (Ma, 2019).



## 3.2 Shadow-Banking in China

The shadow-banking industry, also referred to as the informal financial sector, consists of bank-like institutions which offer the same core service of credit intermediation and investment solutions as their traditional counterparts (Kodres, 2013). Yet, shadow banks are not subject to the same supervision and regulatory scrutiny as traditional banks (Kawai & Liu, 2015; Kodres, 2013). Shadow banks operate in an informal, mostly under-regulated area, and offer their services primarily to firms and individuals whose needs have been under-served by the traditional financial sector (Tsai, 2015).

Shadow-banking activities are found in every financial system and are particularly prominent in advanced economies (IMF, 2014). Although its form, offering and size varies between the individual economies, a common denominator for growth is related to increasing governmental restrictions and ample market liquidity (IMF, 2014).

### 3.2.1 Growth of China's Shadow-Banking Industry

The rapid development of the Chinese shadow-banking market is based on several factors. Firstly, growth was spurred by the financial repressions of the government which favours SOEs over privately-owned companies (Tsai, 2015). This is further explained by Tsai (2015), who highlights that over 85 percent of all loans granted by state-owned banks are extended to state-affiliated enterprises. This development has caused a massive misallocation of funds to often inefficient state-owned enterprises and away from more market-driven private enterprises (Lo, 2015). Hence, private firms are, since the early years of financial reforms, largely relying on the shadow-banking industry to finance their operations (Tsai, 2015).

Secondly, and according to the IMF's Global Financial Stability Report of 2014, the tighter restrictions imposed by the Chinese government on lending practices have further fuelled growth in the shadow-banking market. Resulting from the monetary easing and stimuli programmes of 2008, bank lending rapidly increased and concerns about inflation and the high debt rate became more prominent in 2010 (IMF, 2014). In order to curb-down on excessive loan taking, the government imposed more conservative lending quotas and reference rates which successfully slowed-down bank lending in the official sector (IMF, 2014). Yet, the increasing regulations were unable to significantly reduce

the over-all credit demand (Kawai & Liu, 2015). In order to meet the remaining high demand for credit, and as clients were no longer able to refinance their loans in the official sector, China's commercial banks engaged in off-balance-sheet lending in the informal banking sector (Kawai & Liu, 2015). This led to an unprecedented influx of borrowers and lenders into the shadow-banking sector.

Thirdly, the rapid growth of the Chinese shadow-banking market was related to the growing number of Chinese internet users and the development of new technologies. Early on, the shadow-banking industry digitalised its offerings and therefore became easier to access and available to a larger share of consumers (Tsai, 2015). By 2014, more than 60 percent of the Chinese population had used online-based financing and investment products (Tsai, 2015). As further outlined by Tsai (2015), internet finance in China is considered to be a part of the shadow-banking industry due to its unregulated character. In this segment, Peer-to-Peer (P2P) lending platforms, which match borrowers and lenders together in return for a small fee, have become the fastest growing service (Tsai, 2015). At its height in 2015, more than 6'000 individual P2P lending networks operated in China and eased credit facilitation between lender and borrowers (Leng & Tham, 2019).

Although a proper market size evaluation poses difficulty to assess due to the sector's unregulated nature, the IMF (2014) states that "As of March 2014, shadow-banking social financing had risen to 35 percent of GDP and is expanding at twice the rate of bank credit." (p.77). Other estimates have assessed the size of China's shadow-banking market between 29 to 69 percent of total GDP (Tsai, 2015).

### 3.2.2 Risk Factors

The shadow-banking industry brings benefits to the financial system by complementing and expanding the offerings of traditional banks (Luo, 2016). As such, the informal banking sector has generated greater credit accessibility, improved market liquidity and increased risk-sharing (IMF, 2014). Furthermore, the informal banking sector in China is paramount to the funding of small and medium sized privately-held enterprises (Luo, 2016).

Nonetheless, risks associated with the shadow-banking sector are substantial. As such, Luo (2016) outlines that the industry faces a high liquidity risk resulting from poor cash flow management and the financing of long-term illiquid investments through short-term funds. This poses a substantial threat especially during financial crises, when a large number of investors want to withdraw their capital at once and therefore force shadow institutions to sell assets at well-below market prices (Kodres, 2013). Moreover, the unregulated nature of the business makes a thorough assessment and evaluation of the industry impossible (Tsai, 2015). Although this lack of disclosure obligation provides the firms with greater flexibility compared to the traditional banks, its unregulated characteristics are often related to improper risk management, low redemption reserves and a misvaluation of asset prices (Kodres, 2013). Furthermore, Kawai and Liu (2015) point out that the spread of shadow-banking activities can lead to a less autonomous and effective monetary policy, and in general, the shadow-banking sector is assumed to have a destabilising effect on financial markets.

### 3.2.3 Suppression of the Chinese Shadow-Banking Market

The aforementioned risks have had severe impact on the Chinese shadow-banking market and its regulations. By 2013, first signs of market distress emerged and several smaller P2P platforms became insolvent (Rabinovitch, 2014). The CCP has acknowledged these risks and has since then taken several steps to extend greater control over the informal banking sector. By 2014, the State Council ensured that each specific form of the shadow-banking sector was subject to regulation by a dedicated agency (Tsai, 2015).

Yet, further problems amounted with a rising number of fraudulent platforms related to asset theft and disappearing P2P platform owners (Wildau, 2017). As further reported by Wildau (2017), these developments led to increased governmental scrutiny which rigorously started to inspect and shut down on fraudulent platforms. Additionally, P2P platforms were required to place assets with a custodian bank to prevent the theft of client funds (Wildau, 2017). In line with these restrictions, the number of P2P networks dropped from more than 6,000 platforms in 2015, to a mere 427 platforms by the end of October, 2019 (Leng & Tham, 2019).

By 2019, the government ordered still existing P2P lending platforms to exit the industry and transform their business into regulated loan providers within two years (Leng &

Tham, 2019). To do so, the firms are required to adhere to capital requirements of no less than RMB 50 million, this reform is described by the government as a crucial step to reduce credit risks, maintain social stability and to develop an inclusive financial market. (Leng & Tham, 2019).

In summation, P2P lending and other shadow-banking activities were on an unprecedented growth path since the GFC and attracted large sums of capital. However, the once booming industry was overshadowed by concern over credit stability, capital reserves and trustworthiness since 2013. The tighter governmental restrictions on the once unregulated platforms has led to a massive reduction of operating platforms. Additionally, the latest actions taken by the CCP in 2019 imply a complete shut-down of the P2P lending business in China.

Overall, the government seems to be well aware of the issues that China's contemporary economic system faces. In 2016, The 13th Five-year plan of the CCP outlined the need to rebalance the economy and move away from unbalanced and unsustainable growth. Furthermore, the five-year plan provided detailed insights on the country's economic and social problems which have previously often been unreported on. In detail, the five-year plan raises attention to the following points:

“[...] we must be soberly aware that China's development model is inefficient; uneven, uncoordinated, and unsustainable development continues to be a prominent problem; the change of pace in economic growth, structural adjustments, and the transformation of the drivers of growth present interwoven problems; and we face a host of challenges, such as ensuring steady growth, carrying out structural adjustments, guarding against risks, and bringing benefit to the people. Weak effective demand exists alongside insufficient effective supply; structural problems are becoming more evident; traditional comparative strengths are growing less effective; the capacity for innovation is not strong enough; downward pressure on the economy is growing; imbalances between government revenue and expenditures have become more marked, and latent risks are mounting in the financial sector.”

(Central Compilation and Translation Press & Central Committee of the Communist Party of China, 2016, p. 6)

## 4 The Impossible Trinity

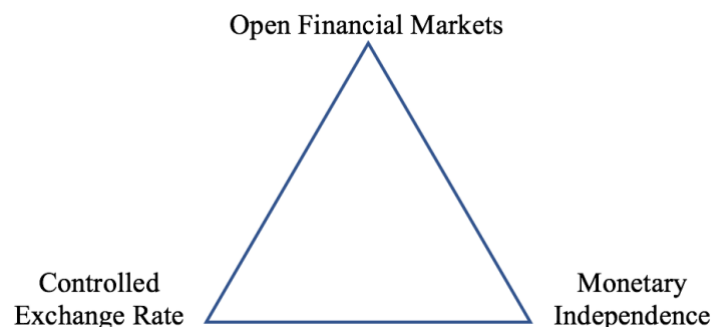
The forthcoming chapter introduces the macroeconomic model of the Impossible Trinity and highlights each policy goal individually. Moreover, the benefits and disadvantages of each are outlined and compared with each other.

The model of the Impossible Trinity helps to explain a commonly faced dilemma by policy makers such as national banks and governments (Rieber, 2018). The model states that a country can only sustain two out of the three following macroeconomic policy goals at the same time:

- I. Monetary autonomy
- II. Freely flowing capital flows
- III. Controlled foreign exchange rate

The model gives equal weight to all three attributes and is therefore commonly displayed as an equilateral triangle as illustrated in figure 4 (Sun & Li, 2017). In line with the model, there are three potential policy-goal configurations. Firstly, a country may opt for a controlled exchange rate with fully liberalised capital accounts but forgo its monetary autonomy (Guorui Sun & Payette, 2016). Secondly, a country may maintain its independent monetary authority and open capital accounts by adopting a freely floating currency exchange rate (Guorui Sun & Payette, 2016). Lastly, a country may chose a controlled exchange rate combined with an independent monetary policy by restricting capital mobility (Guorui Sun & Payette, 2016).

*Figure 4: Impossible Trinity (own illustration)*



## 4.1 Currency Exchange Rate

A currency exchange rate is the price at which one currency can get exchanged into another currency. According to Nelson (2018); “exchange rates are among the most important prices in the global economy. They affect the price of every country’s imports and exports, as well as the value of every overseas investment.” (p. 2). Due to the exchange rate’s direct impact on international trade, the value of a country’s currency is equally paramount to exporting- as well as importing economies. Hence, monetary authorities aim to create a stable exchange rate environment in order to foster economic stability and to reduce financial volatility (Kawai & Liu, 2015). Countries apply several different exchange rate regimes which are defined by their degree of flexibility and which can be mapped along a continuum, ranging from most to least flexible (James et al., 2011). For ease of understanding, this thesis henceforth will focus on the two regimes at both extremities of the continuum, namely the freely floating and the fixed exchange rate regime.

### 4.1.1 Freely Floating Exchange Rate

A freely floating exchange rate exists when the price of a currency is allowed to fluctuate and is solely determined by the forces of demand and supply (Krugman, 2002). The monetary authority of a country does not intervene in the forex market which can lead to highly volatile exchange rates (Krugman, 2002). Such price fluctuations are connected with high costs and uncertainty for importers and exporters as well as to those who borrow and lend money in different currencies (Frankel, 2008). On the other hand, advantages of a freely floating exchange rate are the ability to maintain monetary independence, its automatic adjustment to trade shocks as well as its ability in avoiding speculative shocks (James et al., 2011).

### 4.1.2 Fixed Exchange Rate

Contrary to the freely floating exchange rate, a fixed exchange rate is pegged to an underlying value. Such values can be another currency, as the likes of the USD or EUR, a basket of currencies, or a commodity such as gold or oil (Nelson, 2018). Under a fixed exchange rate regime, a central bank actively intervenes in the forex market to maintain the value of its own currency within the pre-defined levels towards another currency or asset (Frankel, 2008). Compared to the freely floating exchange rate, the fixed exchange

rate displays considerably less volatility due to the central bank's interventions in the market. In times of economic downturns however, a central bank's ability to adequately respond is hindered, as its monetary policy is focused on maintaining exchange rate stability (James et al., 2011). This ability to respond is further hindered in combination with open capital accounts, in which a central bank's adjustment of the money supply becomes completely powerless (Guorui Sun & Payette, 2016). On the other hand, a fixed exchange rate has five distinct advantages according to James et al. (2011): "providing a nominal anchor to monetary policy, facilitating trade, facilitating investment, precluding competitive depreciation, and avoiding speculative bubbles." (p. 16). In other words, a fixed exchange rate reduces foreign exchange costs and risks, and therefore facilitates investments and trade.

## 4.2 Capital Mobility

Capital mobility refers to the degree of which capital can flow unhindered between two regions. Accordingly, capital mobility is measured by the volume of inter-regional capital flows and by the extent to which they are restricted in the form of taxes, costs and governmental regulations (Obstfeld, 1985). Capital flows include a wide number of financial transactions such as foreign direct investments (FDI), portfolio flows (including equity investments) as well as bank borrowings (Kose & Prasad, 2020).

### 4.2.1 Unrestricted Capital Mobility

In a country with open capital accounts, capital can flow freely in and out of the country without restrictions. Allowing capital to flow at will has several advantages, Palley (2009) states that open capital accounts lead to more investment opportunities and therefore enhance risk diversification as well as investment returns. Furthermore, Kawai and Liu (2015) report that financial openness increases domestic efficiency as firms compete for a limited amount of funding and resources. Correspondingly, increased efficiency also leads to a better allocation of household savings as they search for the most attractive investment opportunities (Kawai & Liu, 2015). Lastly, capital mobility leads to increased national savings and capital accumulation and hence is seen to foster economic growth (Palley, 2009).

### 4.2.2 Restricted Capital Mobility

Restricted capital mobility exists when capital flows are restricted by governmental policies and therefore cannot freely flow in out of a country. Xiao and Kimball (2006) list two methods through which governments can restrict capital mobility; Firstly, direct or administrative controls limit capital mobility through prohibitions, quantitative limits or formal approval requirements (Xiao & Kimball, 2006). Secondly, a government can limit capital mobility through indirect or market-based controls, through which capital in- and outflows are made less attractive using taxation or unfavourable exchange rate regimes (Xiao & Kimball, 2006). A major benefit of capital controls can be deduced from the Impossible Trinity, as capital controls allow a country to focus on its domestic economy through an independent monetary policy whilst maintaining a controlled exchange rate regime. Furthermore, limited financial market openness makes an economy less exposed to external financial shocks, and can therefore have stabilising effect on the domestic economy (Kawai & Liu, 2015).

## 4.3 Monetary Policy

A Central bank carries out a country's monetary policy decisions which have effect on the cost and availability of money with the aim to enhance the overall performance of the economy (Greenlaw et al., 2017). The primary objectives of monetary authorities are to manage the inflation rate, the unemployment rate and the currency exchange rates (Greenlaw et al., 2017).

### 4.3.1 Sovereign Monetary Policy

A sovereign monetary policy refers to a country's ability to independently set its own fiscal policy agenda as well as the ability to choose its adequate degree of exchange rate flexibility (Mundell, 2002). Central banks aim for monetary independence in order to quickly respond to changing economic cycles and to mitigate intra-economic shocks by adjusting money supply and the short-term interest rate (Aizenman, 2013). By doing so, an expansive fiscal policy with low interest rates, is applied in times of economic downturns in order to support economic growth. Whereas a more restrictive fiscal policy, with a decrease in the supply of money and higher interest rates, ensures that the inflation rate does not outgrow income growth (Kawai & Liu, 2015). Therefore, an independent monetary agenda aims to provide economic stability by achieving a stable inflation rate



whilst not being limited by the choice of exchange rate regime (Kawai & Liu, 2015). In addition to this, a country with an independent monetary policy can set the interest rate at below-market rates in order to provide its citizens and firms with funding at below market-based rates (Aizenman & Ito, 2011). However, abusing one's own fiscal independence to monetise on fiscal debt can lead to adverse impacts on the economy and create unwanted volatility (Aizenman & Ito, 2011).

#### 4.3.2 Non-Independent Monetary Policy

On the other hand, a country's monetary policy can be dependent and linked to a foreign anchor economy. In such cases, the set interest rate by the central bank is tied to the interest rate of the anchor country (Guorui Sun & Payette, 2016). This however, limits a central bank's ability to respond to intra-economic shock as it cannot adjust its national interest rate to the needs of the economy (Kawai & Liu, 2015). Often times, countries which are part of a greater currency or political union have to forsake their monetary sovereignty on behalf of a centrally coordinated institution, in which the member countries expect the gains generated through the union to outweigh the loss of one's individual monetary independence (Robert A. Mundell, 2002).

In summation, exchange rate stability through a fixed currency regime, open capital accounts and the pursuit of an independent monetary policy each depict a favourable policy goal to any monetary authority (Kawai & Liu, 2015). Nonetheless, the simultaneous pursuit of all three attributes is not possible as per the theory of the Impossible Trinity. Therefore, central banks face the predicament of choosing two out of the three aforementioned policy goals.

#### 4.4 Limitations and Proof of the Impossible Trinity

The sharp and intuitive interpretation of the Impossible Trinity has made the model self-evident for most academics and economists alike (Aizenman, 2013). Although the model is seen as a key paradigm of international economics, it faces certain limitations.

One of limitations is concerned with the model's application to practice, as described by Aizenman (2013) “[The] analysis is considerably simplified by focusing on polarized binary choices, i.e. credibly fixed exchange rate or pure float, and perfect capital mobility or financial autarky.” (p.3). In other words, countries usually do not follow a strictly flexible exchange rate regime, as many central banks have been seen to intervene in the currency market despite their labelling of having a freely floating exchange rate. Likewise, complete financial autarky as well as completely unrestricted capital mobility is hardly observed in reality. As most countries restrict capital flows in some, even in very limited ways. At the same time, countries that impose tight capital regulations usually do not operate in a zone of complete financial autarky, but rather operate between a mix of isolation and openness (Aizenman, 2013).

In contrast, Aizenman and Ito (2014) found a linear relationship between the three policy goals. However, they also highlight that the Trinity has been found to be not binding in certain periods. Nonetheless, the Impossible Trinity has been seen to impose a binding policy predicament for monetary authorities in most circumstances, in which “an increase in any one of the three indices has to be balanced by a corresponding decrease in one or two of the other indices, so that the constraint can be a binding one” (Aizenman & Sengupta, 2013, p. 8).

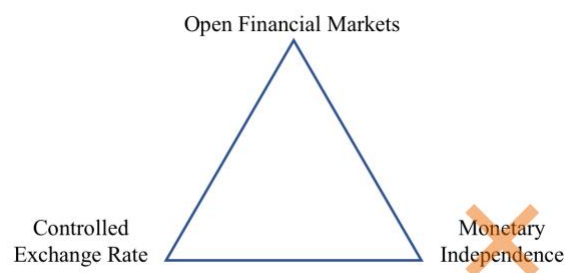
Lastly, the accurate measuring of the degree of exchange rate stability, monetary autonomy and capital mobility in practice poses a further challenge on which chapter 7 elaborates on. Comparatively, research conducted by Obstfeld, Shambaugh, and Taylor (2004), revealed that over 130 years since 1870, the hypotheses of the Impossible Trinity appears to be binding, and it is therefore seen as a valid guiding framework for policymakers.

## 5 Application of the Impossible Trinity

Countries have set different monetary objectives and opted for different configurations of the three goals relating to the Impossible Trinity. The following chapter provides an overview of the different adaptations of the Impossible Trinity in practice. Furthermore, each section explains the “impossible” characteristic of the model and the reasoning behind the automatic elimination of one policy goal.

### 5.1 Loss of Monetary Independence

Figure 5: Loss of monetary independence (own illustration)



The policy combination reflected in figure 5 is seen to be adopted by smaller economies such as Hong Kong and Singapore (C. Zhang & Choi, 2016). Exemplarily, Hong Kong offers unrestricted capital mobility in which the country’s financial markets are open to domestic- as well as foreign investors (Guorui Sun & Payette, 2016). At the same time, the Hong Kong Dollar (HKD) is pegged within a narrow bandwidth to the USD at a rate of approximately 7.8 HKD per USD (Sin & Westbrook, 2019). On behalf of its pegged exchange rate and its open financial markets, Hong Kong has forsaken its monetary policy autonomy. As such, Hong Kong’s interest rate benchmark tightly follows the one of the US (Guorui Sun & Payette, 2016). As put in the words of Nanovsky and Kim: “The case of Hong Kong suggests that a fixed exchange rate and high capital mobility are a perfect duo that achieves a complete loss of MI [monetary independence]” (2018, p.181).

Likewise, this policy configuration is adopted by the member states of the European Union (Aizenman, 2013). The individual countries have given up their monetary independence on behalf of the centrally governed European Central bank in return for greater financial integration, as well as a joint currency across the monetary union (Aizenman, 2013).

The loss of monetary independence is imminent under a policy combination of open capital accounts and a fixed exchange rate, its inevitable characteristic will be illustrated with the forthcoming example.

If a central bank was to increase its money supply, the domestic currency would depreciate in value as per the basic theory of supply and demand (Aizenman, 2013). All things equal, an increase in money supply leads to a larger amount of loanable funds and hence reduces a country's interest rate (Schwartz, n.d.). The interest rate decrease would correspondingly trigger the sale of domestic bonds and encourage investors to shift money abroad on the search for higher returns (Aizenman, 2013). These asset outflows would lead to an additional rise in money supply and result in a similar increased demand for foreign currencies (Schwartz, n.d.). This shift in the supply and demand curve further enhances pressure on the domestic currency, and under a fixed exchange rate regime, the central bank would have to intervene in the forex market in order to retain the fixed exchange rate (Aizenman, 2013). In particular, the central bank would have to buy back its own currency in the market to counter the downward pressure resulting from its initial increase in money supply.

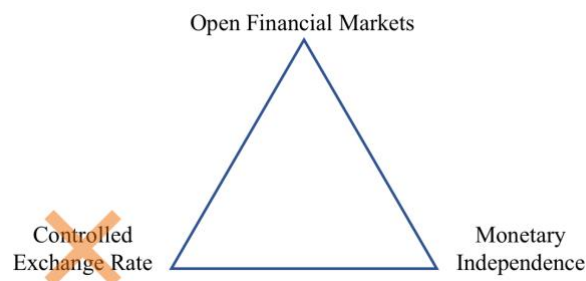
In short, the initial increase in money supply by the central bank would be offset again through its own actions to sustain the fixed exchange rate (Aizenman, 2013). In particular, a country's interest rate must follow the interest rate of the anchor country to which its exchange rate is fixed to (Aizenman, 2013). As a result, a fixed exchange rate and perfect capital mobility therefore leads to the loss of a country's monetary independence.

This idea is based on the theory of uncovered interest rate parity (UIP) (Acocella & Pasimeni, 2018). As reported by Acocella and Pasimeni (2018), the UIP theory states that "in the absence of a risk premium, the difference in interest rates between two countries is equal to the expected change in the exchange rate between the countries' currencies" (p. 3). In other words, in cases where the foreign asset pays a higher interest rate than the domestic one, the UIP theory expects the foreign currency to decrease in value. This currency depreciation is expected to be equal to the interest rate differential, and therefore, neutralises the higher yield of the foreign investment. In the absence of interest rate parity, the differential between the rates would lead to arbitrage opportunities (C. Zhang & Choi, 2016). However, freely moving capital and the respective adjustment of

the exchange rate almost immediately ensures that this condition is respected (Acocella & Pasimeni, 2018). Under a fixed exchange rate, the currency cannot freely adjust its value to reflect the interest rate differential and therefore, the UIP theory implies that the interest rate of the foreign and the domestic country must be equal (Acocella & Pasimeni, 2018). As otherwise, the exploitation of these arbitrage opportunities would lead to capital outflows, resulting in substantial downward pressure on the domestic currency exchange rate, making the sustainable management of a fixed exchange rate unbearable for any central bank (Acocella & Pasimeni, 2018).

## 5.2 Loss over Exchange Rate Control

*Figure 6: Loss over exchange rate control (own illustration)*

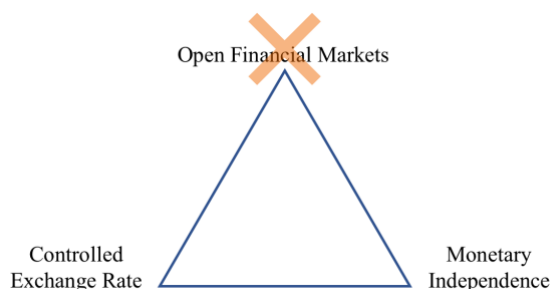


A second policy configuration, as illustrated in figure 6, is associated with countries that choose open financial markets and monetary independence by forgoing a controlled exchange rate. This policy choice has been notably adopted by the US, Canada, Australia and Japan (Aizenman, 2013; Kawai & Liu, 2015).

Under a flexible exchange rate regime, as outlined by Aizenman (2013), an increase in money supply by the central bank results in a decline of the exchange rate as well as that of the domestic interest rate. As a consequence of the interest rate decline, assets will flow abroad on the search for higher yields and therefore further depreciate the value of the domestic currency (Aizenman, 2013). Hence, monetary policy actions are seen to be potent under a flexible exchange rate regime, as it effectively results in a value adjustment of the domestic currency (Aizenman, 2013). This is in line with the theory of the UIP, as a country can adjust its interest rate at will due to the value adjusting effects of the freely floating exchange rate, which will neutralize the interest rate differential between the domestic and foreign country (Acocella & Pasimeni, 2018).

### 5.3 Loss of Financial Openness

Figure 7: Loss of capital account openness (own illustration)



Lastly, countries being placed at the bottom of the Trinity, as illustrated in figure 7, reflect the choice of retaining monetary independence and a fixed exchange rate whilst forsaking their financial openness. In such cases, a country must restrict capital flows for foreign- and domestic investors in order to maintain the two other goals. This configuration, reflecting financial autarky, has been applied during the Bretton Woods system as well as by a majority of developing countries prior to 1990s (Acocella & Pasimeni, 2018).

By fully restricting capital mobility, investors are unable to benefit from higher interest rates abroad (Acocella & Pasimeni, 2018). Therefore, a country can adjust its monetary policy without having to fear large capital in- and outflows. At the same time, as these capital flows would have impacted the value of the domestic currency, a country is able to maintain a fixed exchange rate regime (Aizenman, 2013).

With regard to the UIP theory, the fixed currency exchange rate cannot adjust in value and therefore an arbitrage opportunity for investors is created (Acocella & Pasimeni, 2018). In order to prevent the corresponding capital in- and outflows resulting from such arbitrage opportunities, the country has to implement capital restrictions. By doing so, the country can reduce the pressure on its currency and maintain a fixed exchange rate.

#### 5.4 Mismanagement of the Impossible Trinity

The simultaneous pursuit of all three policy goals has led to severe economic distortions and proven to be unsuccessful in the long run. As per Glick and Hutchison (2008), Mexico opted for a pegged exchange rate to the USD, capital account openness and monetary independence in the mid-1990s. With ceding resources to support the fixed currency regime, the country tumbled into a severe financial crisis with resonating effects up until today (Glick & Hutchison, 2008). As further reported by Glick and Hutchison (2008), the Asian financial crisis of 1998, as well as the Argentinian crisis of 2001 have, among many others, rooted from a mismanagement and a disregard of the policy constraint imposed by the Impossible Trinity.

Undoubtedly, the Impossible Trinity is an intuitive model. The before mentioned examples serve to demonstrate the practical implications of the Impossible Trinity as a model and its unavoidable nature for monetary authorities (Guorui Sun & Payette, 2016). As further highlighted by Riedel, Jin and Gao (2007):

“it is therefore impossible to avoid the force of the impossible trinity indefinitely. The validity of this proposition has been proven time and time again throughout history, as one country after another has been forced to abandon fixed exchange rates in order to preserve monetary policy as a tool of macroeconomic management.” (p. 172).

## 6 China's Interpretation of the Impossible Trinity

Although the Impossible Trinity faces certain limitations as outlined in section 4.4, the model is nonetheless a generally agreed upon macroeconomic framework which has proven its viability over several decades. However, the PBoC has rejected the Impossible Trinity's applicability to the country, and instead, has introduced a new interpretation of the model on which this chapter further elaborates on.

In an official working paper of 2017, The PBoC introduced its own interpretation of the Impossible Trinity and established a new analytical framework called the "Scalene Triangle". This model, which is based on the traditional Mundell-Fleming framework, aims to provide a more general and wider applicable policy tool (Sun & Li, 2017). Furthermore, the Scalene Triangle enables, as per Sun and Li, the calculation of "[...] the optimal level of macro-prudential management regarding cross-border capital flow and optimal level of international monetary policy coordination within different foreign exchange rate regimes." (2017, p.1).

The traditional Impossible Trinity framework gives equal importance to all three policy goals, namely: Monetary independence, open capital accounts and a controlled exchange rate. On the other hand, the new model by the PBoC emphasises the fact that in macroeconomic policy-making, the management of one's capital accounts should receive greater importance over monetary independence and a controlled exchange rate (Sun & Li, 2017). Hence, the PBoC's model is based on a scalene triangle, in which a country's capital accounts receive greater importance over the other two goals (Sun & Li, 2017).

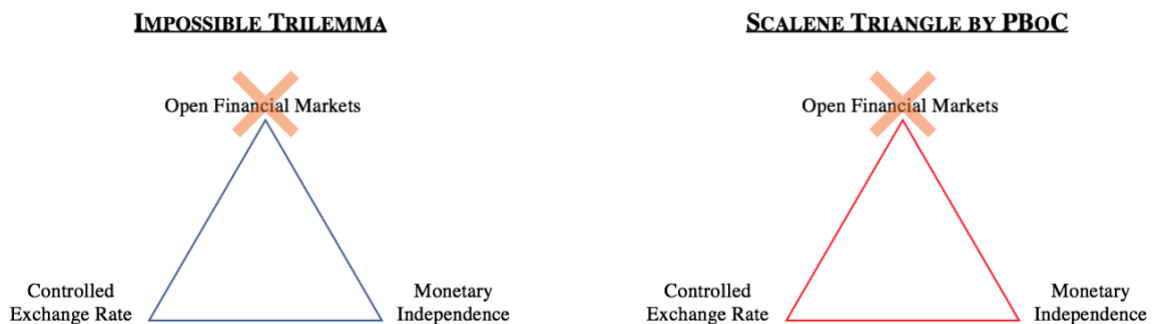
This idea is based on the fact that since the GFC in 2008, major central banks such as the US Fed and the European Central Bank, have been flooding the market with liquidity through quantitative easing and negative interest rates (Sun & Li, 2017). Therefore, the PBoC argues that financial flows have become more substantial, as well as more volatile than before (Sun & Li, 2017). Due to this development, a freely floating exchange rate is seen to be no longer sufficient to control the effects of quickly moving capital flows (Sun & Li, 2017). Taking this even further, Sun and Li (2017) outline that in an extreme form, the Scalene Triangle could in itself become a dilemma, in which the exchange rate regime would disappear altogether from the model. Therefore, the authors argue that due to the



increasing importance of capital flows, the macro-prudential policies of a central bank must always control capital flows to a certain extent in order to reach the optimal state of an economic equilibrium (Sun & Li, 2017).

In one aspect, as illustrated in figure 8, both frameworks, the Mundell-Fleming Trinity (left), and the PBoC’s Scalene Triangle (right), are in consent under financial autarky. In this case, capital accounts are completely closed, and foreign capital in- and outflows are restricted. Both the Impossible Trinity and the Scalene Triangle, are congruent with each other and state that financial autarky enables a country to maintain a fixed exchange rate and monetary independence simultaneously (Sun & Li, 2017).

*Figure 8: The Impossible Trinity versus the Scalene Triangle under financial autarky (own illustration)*



On the other hand, in the case of figure 9, the Impossible Trinity (left) states that under a freely floating exchange rate, open financial markets and monetary independence can in fact co-exist. However, the PBoC’s Scalene Triangle (on the right in red) is said to verify that even in the case of a freely floating exchange rate, capital flows must be restricted in some way (Sun & Li, 2017). Hence, the PBoC argues that only limited financial market openness can be achieved in combination with a freely floating exchange rate and monetary sovereignty.

As such, Sun and Li state “that even if [the] foreign-exchange rate could float freely, the central bank should conduct a certain level of macro-prudential management of cross-border capital flow.” (2017, p.1). Based on this, the paper proposes its new macro-financial policy framework of “Macro-prudential management + Exchange rate flexibility

+ International monetary policy coordination.” to achieve the equilibrium state of any economy (Sun & Li, 2017, p. 33).

Figure 9: The Impossible Trinity versus the Scalene Triangle under open financial markets (own illustration)



Although the PBoC’s paper was the first to introduce the concept of the Scalene Triangle in 2007, no other research has, to the best knowledge, further supported this thesis thus far. The lack of research on the Scalene Trinity casts doubt on its importance and applicability to other countries. As described in chapter 2, the PBoC functions as China’s central bank and therefore executes the monetary decisions of the country. As such, the findings of the PBoC’s own research is congruent with China’s macroeconomic policy stance and further stresses and justifies the country’s need for capital controls. In a blog post of the Wall Street Journal, Qi and Deng (2017) interpreted the PBoC’s research paper as an acknowledgment and new justification of China’s need for capital controls, as previously, capital controls were argued as needed to crack-down on speculative outflows (Qi & Deng, 2017).

In summation, sub-question 2 of this thesis on the applicability of the Impossible Trinity to China cannot conclusively be answered. Moreover, despite China’s rejection of the Impossible Trinity to the country, most scholars seem in agreement over the model’s applicability to it (Aizenman & Ito, 2014; Aizenman & Sengupta, 2013; Kawai & Liu, 2015; Guorui Sun & Payette, 2016). Furthermore, The PBoC’s Scalene Triangle must be taken with caution before it has been further researched and tested, especially given the close relationship between the PBoC and the CCP.

## 7 Application of the Impossible Trinity to China

This chapter covers the country's respective economic reforms in the three goals of the Impossible Trinity and therefore aims to answer sub-question 1 of this thesis. Firstly, the country's exchange rate regime will be assessed. Secondly, the degree of China's capital account openness will be analysed and lastly, the PBoC's level of monetary independence is evaluated. In order to measure the respective goals, each section introduces the latest data available to quantifiably measure the respective extent of China's policy goal application.

### 7.1 China's Exchange Rate Regime

The forthcoming outlined changes in the RMB's exchange rate regime are summarised in table 3, further, figure 13 in appendix 12.1 provides a graphic overview over the RMB/USD exchange rate.

Since 1994, and lasting for more than ten years, the RMB traded at a tight peg of RMB 8.28 per USD (Kawai & Liu, 2015). The RMB's fixed exchange rate peg to the USD was eased in January 2005 for the first time (Zenglein & Kärnfelt, 2019). Afterwards, the RMB was managed in a crawling-peg arrangement with reference to a basket of currencies rather than just the USD (Das, 2019). In this setting, and as outlined by Das (2019), the RMB gradually gained in value against the USD until 2008. With the height of the GFC, the PBoC put a stop to the value appreciation of the RMB and reintroduced its hard-peg regime towards the USD in January 2008. (Morrison, 2019a). This time, the RMB was fixed at an exchange rate of RMB 6.83 per USD, and the peg aimed to limit the impact on China's exporting industry from weaker global demand caused by the GFC (Morrison, 2019b; Zenglein & Kärnfelt, 2019).

In June 2010, the PBoC resumed the RMB's crawling-peg arrangement and the currency continued its appreciation trend against the USD (Kawai & Liu, 2015). In order to soften the rapid value appreciation of the RMB, the PBoC substantially intervened in the forex market, as reflected in the country's forex reserve holdings (Das, 2019). As such, China's foreign currency reserves more than quintupled from 733 billion in June 2014 to USD 3.99 trillion in July 2015 (Das, 2019). This managed appreciation trend resulted in a 44

percent nominal value increase in the RMB vis-à-vis the USD from July 2005 to June 2015 (Das, 2019).

In August 2015, the PBoC took a surprising liberalisation step towards greater price range flexibility of the RMB. Through the increase in the currency's market based pricing, the currency started a depreciation trend against the USD in the months preceding the announcement (Das, 2019). Contrary to the previous period between 2005 and 2014, the PBoC this time intervened in the forex market to ease the downward pressure on the RMB (Das, 2019).

*Table 3: Major changes in China's exchange rate system (Zenglein & Kärnfelt, 2019; Kawai & Liu, 2015, own illustration)*

<b>Date</b>	<b>Event</b>
1994 - 2005	RMB hard-peg of 8.28 per USD
2005, January	Currency regime changed from hard peg to crawling-peg
2007, May	Daily trading band width expanded to 0.5%
2008, January	RMB re-pegged to 6.83 USD
2010, June	Termination of the RMB's hard-peg to the USD and re-installment of crawling-peg arrangement
2012, April	Daily trading band width expanded to 1%
2014, March	Daily trading band width expanded to 2%

In addition to the PBoC's market intervention, rules on capital outflows were tightened and reserve requirements on forward transactions for banks increased (Das, 2019). Through these measures, a gradual stabilisation of the RMB/USD exchange rate was achieved by December 2016 (Das, 2019). Until the end of 2017, the RMB/USD exchange rate remained relatively stable. However, with sluggish GDP growth rates and increasing trade tensions between the USA and China, downward pressure on the RMB increased once more mid-2018 (Das, 2019). Amidst a reintroduction of forward reserve requirements for banks, as well as several additional counter-cyclical measures, the RMB managed to stabilise again vis-à-vis the USD in 2019 (Das, 2019).

The liberalisation process of the RMB is further underlined by its gradually widened trading bandwidth vis-à-vis the USD. As reflected in table 3, the RMB initially fluctuated within a range of  $\pm 0.3\%$  towards the USD (Kawai & Liu, 2015). In 2007, the trading bandwidth was widened to  $\pm 0.5\%$  and further expanded to  $\pm 1\%$  in 2012. In 2015, the RMB's exchange rate flexibility was further enlarged to  $\pm 2\%$  towards the USD (Kawai & Liu, 2015; Zenglein & Kärnfelt, 2019).

Furthermore, the internationalisation of the RMB has equally led to an increase in capital mobility. Firms have been given permission to settle merchandise trade in RMB, non-residents are nowadays allowed to hold offshore RMB deposits, and both, residents and non-residents have been granted rights to issue RMB denoted equities and bonds (Kawai & Liu, 2015).

In 2019, China's currency regime has been classified by the IMF as a "crawling-like arrangement" (IMF, 2019, p. 6). In line with the IMF's classification, Zenglein and Kärnfelt (2019) argue that China's regulators pursue an RMB exchange-band of 6.2 – 7.0 RMB per USD, whilst keeping at least USD 3 trillion in foreign reserves. These reserves provide a financial cushion and strengthen the PBoC's ability for forex market interventions in order to maintain its exchange rate within the pre-defined band (Zenglein & Kärnfelt, 2019).

To quantify this, Aizenman, Chinn and Ito (2010) introduced a measurement for exchange rate stability which is based on "[The] annual standard deviations of the monthly log-change in the exchange rate between the home country and the base country [...]" (p.4). A higher value in the Exchange Rate Stability (ERS) index, which ranges from 0 – 1, indicates greater exchange rate stability. In this ranking, Hong Kong with its narrow trading band vis-à-vis the USD scores the highest level of 1. In regard to China, the RMB's exchange rate stability was measured at 0.526 in 2016, being placed at the centre between a fixed and a freely moving exchange rate (Aizenman et al., 2010).

## 7.2 China's Capital Mobility

Capital controls, which restrict the unhindered in- and outflow of money, have been present in China's financial system since the founding of the Republic in 1949. Most steps towards capital account liberalisation have been aimed at easing restrictions on FDIs (Glick & Hutchison, 2008). In 2006 however, the Chinese government eased restrictions on portfolio investments under two official channels (Glick & Hutchison, 2008). Firstly, the Qualified Foreign Institutional Investors (QFII) programme eased restrictions on inward portfolio investments, whereas the Qualified Domestic Institutional Investors (QDII) programme allowed greater outward portfolio investments of Chinese firms and households (Glick & Hutchison, 2008). Through these programmes, China increased the number of investors and the type of investment classes permissible for cross-border transactions (Kawai & Liu, 2015).

An additional step towards greater capital account openness has been taken in 2014 with the linking of the Shanghai and Hong Kong stock exchanges (Kawai & Liu, 2015). The Shanghai-Hong Kong Stock Connect programme connects both exchanges and allows mainland Chinese as well as foreign investors to trade shares on both platforms (Shi, 2017). This structure has made investments into Chinese securities more accessible and efficient and further eased asset repatriation for foreign investors (Shi, 2017).

Although China gradually eased capital account regulations, it also imposed tighter restrictions on certain types of capital transfers to further reduce unwanted capital flights. As such, the CCP imposed and re-introduced several regulations on cross-border transactions and FDIs of SOEs in 2016 and 2017 (Zenglein & Kärnfelt, 2019). Moreover, the reporting threshold for financial institutions to flag suspicious transactions was lowered from RMB 200,000 to RMB 50,000 (Zenglein & Kärnfelt, 2019). Additionally, the government introduced tighter rules on overseas ATM cash-withdrawals for Chinese citizens and increased regulations on jewellery purchases in Hong Kong, which were often used as a loophole to transfer capital abroad (Zenglein & Kärnfelt, 2019).

Although an abundance of literature highlights the varying degrees of financial market openness and their impact on economic growth, it remains a major challenge to quantifiably measure the different levels of capital account openness (Chinn & Ito, 2008).

So far, only a limited number of measurements exists to analyse and compare the different levels of capital account openness.

As such, the Wang-Jahan capital account openness index analyses the openness across twelve different types of asset categories for 168 countries between the years of 1996 and 2013 (IMF, 2016). The index provides an overall measure of capital account openness for each country based on the value of its twelve sub-categories (IMF, 2016). The index compiles data from the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) and offers a reliable measurement across the countries in scope (IMF, 2016). Fully liberalised capital accounts are reflected by the index with a number of 1, whereas completely restricted capital accounts are expressed with a value of 0. In the index's most recent ranking of 2013, China reached an overall value of 0.09, implying an environment of almost complete financial isolation (IMF, 2016).

A further index, compiled by Chinn and Ito (2008), incorporates the degree and intensity of capital controls and provides comparable data-sets for 181 countries. The index, titled "Kaopen", is likewise based on the information provided in the IMF's AREAER report (Chinn & Ito, 2008). A major advantage compared to the Wang-Jahan index is the Kaopen's larger time span, which covers the years from 1970 until 2017, with ongoing annual updates (Chinn & Ito, 2008). For the year of 2016, the degree of highest financial openness is attributed with a value of 2.36, whereas the least financially open countries display a value of -1.91 (Chinn & Ito, 2008). With regard to China, Chinn and Ito (2008) calculated the country's level of financial openness with a value of -1.20 in 2016.

### 7.3 China's Monetary Independence

A widely accepted measurement of monetary independence was developed by Obstfeld et al. (2004), which measures the deviation between the nominal short-term market interest rate of two countries. This is based on the idea that when the anchor economy, for example the US with its federal funds rate, adjusts its short-term interest rate, a dependent economy would have to follow suit (Obstfeld et al., 2004). On the other hand, a country with an independent monetary agenda would not have to adjust its short-term interest rate in line with the one of the anchor economy (Obstfeld et al., 2004). However, the research of Obstfeld et al. (2004) captures monetary independence only up until 2004, and is therefore seen as unsuitable for this thesis to evaluate China's current monetary policy independence.

Similar to the research of Obstfeld et al., Aizenman, Chinn and Ito (2010) have calculated monetary independence as “the reciprocal of the annual correlation of monthly money market interest rate in home country  $j$  and base country  $i$ .” (p.3). The index, which ranges between the values of 0 and 1, reflects greater levels of monetary independence with a higher value (Aizenman et al., 2010). As such, China's monetary independence was valued at 0.606 in 2016 (Aizenman et al., 2010).

Other academics seem to be in agreement with the country's high level of monetary independence. As such, Nanovsky and Kim (2018), further developed the equation of Obstfeld et al. (2004), and adjusted the index by including the optimal interest and using different representations of the relationship. Their quantitative assessment of ten Asian countries in regard to their degree of monetary independence concludes that China, with its tight capital controls, has been able to maintain one of the highest levels of monetary independence among the countries in scope (Nanovsky & Kim, 2018).

Likewise, research by Glick and Hutchinson (2008), confirmed the high level of monetary autonomy of China. However, they also highlight that the massive accumulation of foreign reserves starting from 2007, has compromised the country's ability of monetary control to a certain degree (Glick & Hutchison, 2008).



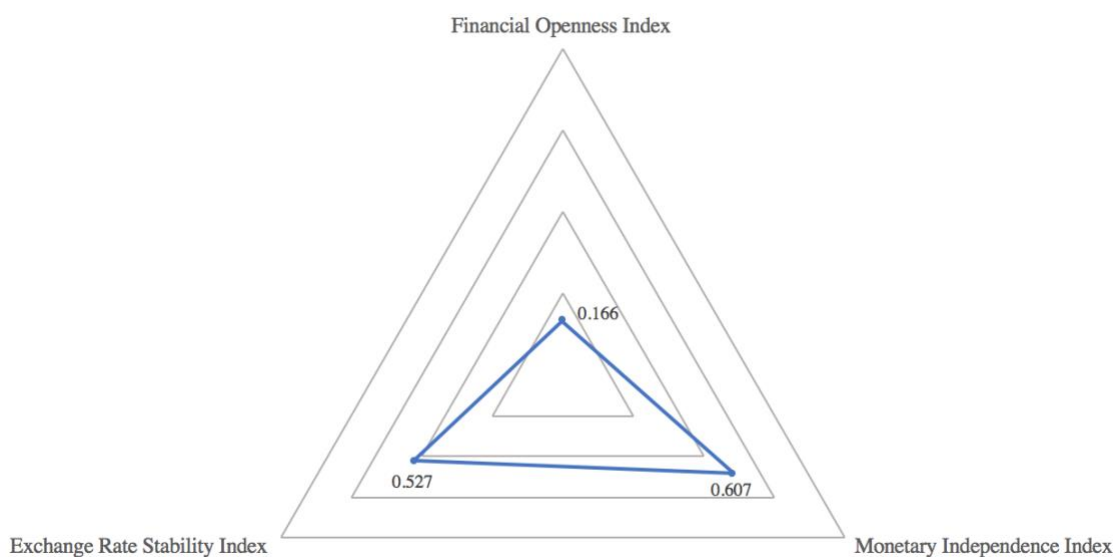
## 8 Findings on China's Impossible Trinity Configuration

This chapter reports on the findings of China's Impossible Trinity set-up and therefore aims to provide an answer to sub-question 3 of this thesis, regarding China's current policy-goal configuration.

Based on the aforementioned quantitative measurements, namely the Kaopan index, the Exchange Rate Stability (ERS) Index and the Monetary Independence (MI) Index, Aizenman et al. (2010), calculated the Impossible Trinity configuration for more than 170 countries based on the value of each policy goal index. For this, the respective values of each index have been normalized between one and zero, in which a value of one represents the complete achievement-, and zero the complete forgoing of the respective goal (Aizenman et al., 2010).

The normalized values for China measure the country's degree of financial openness with a value of 0.166, exchange rate stability at 0.527 and monetary independence at 0.607 in 2016 (Aizenman et al., 2010). This data is mapped in figure 10 and reflects China's Impossible Trinity configuration for the year of 2016.

*Figure 10: China's Impossible Trinity configuration in 2016 (Aizenman et al., 2010, own illustration)*



## 8.1 China's Middle Ground Configuration

This application of the Impossible Trinity allows for the assessment that China, rather than opting for binary choices, has applied a middle-ground configuration of the Impossible Trinity. This means that China is partially achieving the objectives of each goal whilst not forgoing one goal completely (P. Zhang, 2018). The so-called “middle-ground convergence”, in which countries opt for intermediate levels of each policy goal, has been associated with various emerging market countries (Aizenman & Ito, 2014). By doing so, Aizenman and Ito (2014) outline that countries might be able to minimize certain negative aspects of the respective policy goals by choosing a moderate application of each goal.

Nonetheless, China's policy goal combination is seen as unique when put into comparison with other emerging market, and advanced economies (Aizenman & Sengupta, 2013). Especially China's tight control over capital mobility differs from the more liberalised capital accounts of its peers. To compare this, the Kaopen index which is illustrated in figure 11, calculated the mean value for industrialised countries in 2016 at 1.31, for developing countries at -0.23 and for emerging market economies at -0.18 (Ito & Chinn, 2018).

Figure 11: Mean value of Kaopen Index 2016 (Chinn & Ito, 2008, own illustration)

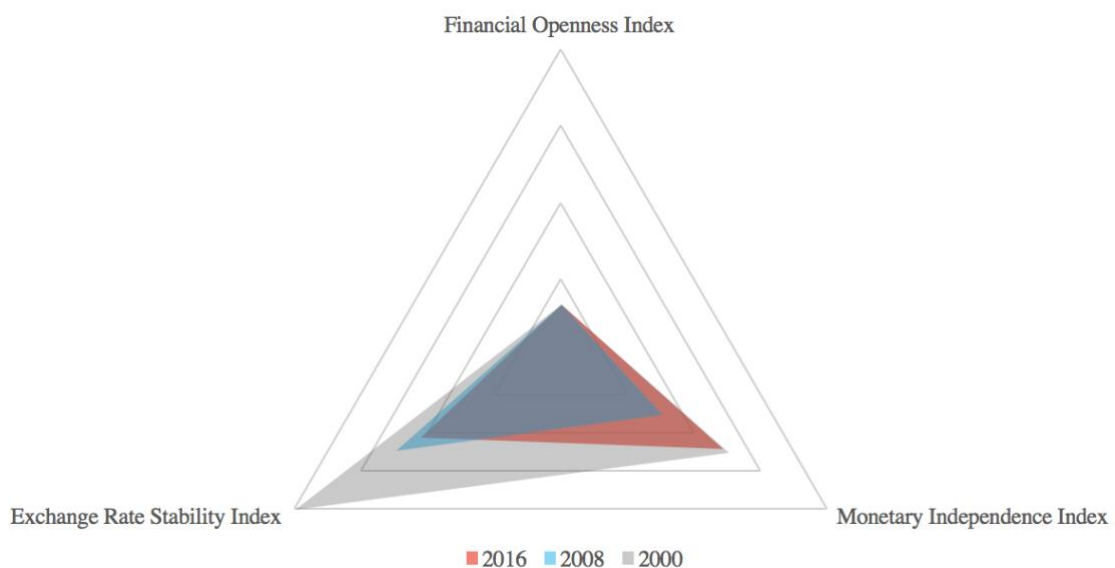


A further distinct feature of China's policy-making is related to the country's accumulation of international reserves. As outlined in section 7.2, China owns more than USD 3 trillion in forex reserves, making it the world's largest holder of such (Zenglein & Kärnfelt, 2019). As outlined by Aizenman (2013), the hoarding of international reserves is seen as an insurance against the high volatility of financial flows resulting from growing financial integration with the world economy. Furthermore, the reserves support China in keeping the RMB in its predefined trading range towards the USD. Hence, China's policy goals configuration, in particular the crawling-like arrangement of the RMB, are dependent on the country's active interventions enabled through its currency reserves.

## 8.2 Discussion on the Development of China's Impossible Trinity

Figure 12 illustrates China's policy configuration for the years of 2016 (orange), 2008 (blue) and 2000 (grey). This data provides a quantitative means of comparison in order to analyse China's policy goal development over a time span of 16 years. Additionally, this comparison allows an interpretation of the effectiveness of China's liberalisation approach in the areas of exchange rate flexibility, monetary independence and capital account openness. Lastly, by evaluating its past developments, this overview might provide a starting-point to anticipate future liberalisation trends of China.

*Figure 12: China's Impossible Trinity configuration for the years of 2000, 2008 and 2016 (Aizenman et al., 2010, own illustration)*



### 8.2.1 Exchange Rate Stability

The liberalisation of the RMB and its move towards a crawling-like arrangement is well captured in academic literature and likewise reflected in the change of the ERS index. In 2000, the RMB was managed with a hard-peg towards the USD and the policy goal of exchange rate stability was fully achieved with a value of 1, as measured by the ERS index (Aizenman et al., 2010). By 2008, China's ERS index dropped to 0.617, incorporating the substantial liberalisation policies of the exchange rate regime and its move towards wider trading bandwidths (Aizenman et al., 2010). The ERS index depicts a further drop to 0.527 in 2016, reflecting the PBoC's continued move towards greater exchange rate liberalisation. Albeit the drop of China's ERS index between 2008 and 2016 was somewhat less significant, the overall trend directs towards a more freely floating exchange rate regime.

Although several steps towards a more fluctuating currency regime have been undertaken by the PBoC, the RMB continues to be a tightly managed currency which only trades within a narrow bandwidth towards the USD. In comparison with freely floating currencies such as the USD and EUR, the RMB depicts considerably less volatility which can be attributed to the PBoC's large market interventions (Das, 2019). Although the PBoC emphasises the goal of a market-based pricing for the RMB in the long-run, it also highlights the importance of exchange rate stability in the short-term (Das, 2019).

In respect to the Impossible Trinity, China's currency regime can be assumed to be on a middle-path between a fixed and a freely floating exchange rate. Moreover, China's liberalisation policies towards a more market determined pricing for the RMB seem to be potent due to the ERS's measurable change in value.

### 8.2.2 Monetary Sovereignty

In contrast, China's MI Index has dropped from 0.63 in 2000 to 0.378 in 2008 (Aizenman et al., 2010). This drop reflects a decrease in the country's level of monetary sovereignty compared to the year of 2000. This loss in monetary independence may be attributed to the GFC in 2008, in which China, as well as most advanced economies, stimulated growth through expansive fiscal interventions. Notably however, the MI index bounced back to 0.607 in 2016, reflecting a resurgence of monetary autonomy compared to 2008

(Aizenman et al., 2010). A further explanation for the drop and resurgence of the country's monetary sovereignty might be given by the emergence of the Chinese shadow-banking sector. As outlined by Kawai and Liu (2015), shadow banking activities can have adverse impact on a country's level of monetary autonomy. The fast growth of the Chinese shadow-banking sector, as outlined in chapter 3, and the respective shut-down of the industry since 2015, may have contributed to the PBoC's eroding and later resurging level of monetary independence.

As outlined in section 7.1, China has heavily intervened in the foreign exchange market to weaken the value of the RMB between 2005 and 2014. Similarly, the PBoC intervened again during 2015 and 2016 to soften the increasing downward pressure. These interventions, combined with the PBoC's independent interest rate setting, further reflect China's relative level of monetary independence with the ability to react and mitigate intra-economic shocks through its monetary policies.

### 8.2.3 Capital Mobility

Interestingly, the Kaopen index reflects no substantial movement towards either side. For all three years of 2000, 2008 and 2016, the index depicts no quantitative progress in China's capital account openness. Although China has partially liberalised its capital accounts through programmes such as the QFII, QDII and the Shanghai-Hong Kong Stock Connect, as outlined in chapter 7.2, the index reflects no corresponding change. As such, the Kaopen's value for China of -1.20 implies a tendency towards financial autarky rather than financial openness (Chinn & Ito, 2008). Furthermore, China's heavily restricted capital accounts reflect an extensive policy divergence to the substantially more open industrialised economies. This implies that China would have to undergo substantial liberalisation reforms in their capital accounts to be at par with industrialised economies. Both, the Kaopen and Wang-Jahan index, display a high degree of restrictions placed onto capital account transfers and rank China in the last quarter of their analyses. With regards to the Impossible Trinity, this number leads to the assumption that China's capital accounts can be considered to be only minimally open.

Nonetheless, China's extent of capital control seems to be viable and necessary for the country. As Calvo and Reinhart (2002) point out, large capital outflows and a stop of international inflows are especially dangerous for emerging market economies. Such

events could lead to severe economic downturns and push emerging market economies to the brink of insolvency (Calvo & Reinhart, 2000). Further justifications for China's capital account closeness were given during the conducted interviews, Oliver Adler mentioned that control over the Chinese economy is paramount to the CCP, and hence a certain level of restriction is needed. On the other hand, Oliver Adler also highlighted the negative side effects resulting from capital controls which include the financial and bureaucratic hurdles imposed by them. More importantly however, these restrictions disincentivise foreign investors from conducting FDIs in China (O. Adler, personal communication, April 15, 2020).

Lastly, the country's capital restrictions have been subject to increasing foreign criticism. In particular, the country's restrictiveness towards foreign capital inflows have been named as unfair trade practices by the US and Europe (Hananmann et al., 2019). In fact, the US and several European countries have passed stricter regulations on Chinese FDIs to limit the acquisition of domestic firms by Chinese companies (Hananmann et al., 2019). The US has further announced the possibility to implement investment restrictions for its citizens to invest in the Chinese financial market and further highlighted a potential de-listing of Chinese companies on the American stock-exchanges (Leonard & Donnan, 2019). Although no formal restrictions have been implemented yet, these developments reflect the growing pressure on China and the demand of advanced economies for a higher degree of investment reciprocity.

## 9 China's Impossible Trinity Outlook

China's middle-ground application of the Impossible Trinity appears to have worked well in the past. Notwithstanding, its recent economic difficulties as discussed in chapter 3, reflected in the country's high debt rate, NPL ratio and its shadow-banking activities, as well as the CCP's own acknowledgment of rising economic distortions, cast doubt on its long-term viability. As such, this chapter highlights potential future liberalisation reforms and proposes a new policy-goal configuration for China.

Lo (2015) highlights the importance of monetary sovereignty for China, as similarly to the US, the large domestic market is key for the country's economic growth. Hence, Lo (2015) argues that China must expand its level of monetary autonomy to successfully counter upcoming intra-economic shocks. As a second policy goal, Lo (2015) suggests open capital accounts for China. Despite the risks associated with further capital account liberalisation, Lo (2015) stresses its potential benefits in the form of international market discipline, greater access to foreign funding sources and a deepening of the Chinese financial system. The combination of open capital accounts and monetary autonomy would require the country to relinquish its controlled exchange rate. Hence, Lo (2015) recommends that China should amend its current policy-goal configuration towards a set-up of full monetary sovereignty, open capital accounts and a freely floating exchange rate.

Kawai and Liu (2015) likewise argue in favour of strengthening the PBoC's level of monetary autonomy. To do so, Kawai and Liu (2015) suggest two options; Firstly, to increase restrictions on capital accounts, or secondly, to allow greater market determined pricing mechanisms of the RMB. In their view however, tightening capital account controls would send out a negative signal to the market and would therefore jeopardise China's growth prospect (Kawai & Liu, 2015). Hence, liberalising the exchange rate regime by introducing wider trading bandwidths of the RMB would assist the country to securely regain full monetary autonomy (Kawai & Liu, 2015).

In line with this, Beat Affolter stated that a sovereign monetary policy is especially paramount for China due to the country's high debt rate, in which an interest rate hike might lead to a dangerous situation of defaulting companies. (B. Affolter, personal

communication, April 22, 2020). Moreover, Beat Affolter outlined that more stringent capital controls are unlikely to be implemented, as China has become interwoven and reliant with the external markets.

The interconnectedness between economic reforms and the political environment has been highlighted by Oliver Adler. In his view, the currency exchange rate is generally no longer massively undervalued, the external trade balance is largely in equilibrium and the risk of sudden capital flight is limited. Therefore, further small steps towards a more open economy would no longer have the same destabilising effects as before. On the other hand, Oliver Adler mentioned that the CCP's current focus is put on the domestic economy. As such, certain liberalisation reforms have been reversed and the overall control over the domestic economy is seen to have become more rigorous under President Xi Jinping (O. Adler, personal communication, April 15, 2020). As domestic economic control is paramount to the CCP, Oliver Adler assumes that further liberalisation reforms of the country's capital accounts are of equal political and economic nature. In addition to that, as long as the CCP is unwilling to let go of its economic control, further steps towards capital account liberalisation are rather unlikely (O. Adler, personal communication, April 15, 2020).

With the CCP's tight economic grip, Oliver Adler questioned whether the current autocratic system of China could even be sustainable with open capital accounts. Before further liberalisation steps are undertaken, Oliver Adler outlined that the CCP must first defuse the country's domestic economic problems. Although certain progress has been made and the country's debt rate has stabilised in the last two years, CCP favoured SOEs are assumed to still impose substantial risks to China's economy (O. Adler, personal communication, April 15, 2020). Therefore, a further liberalisation of China's capital accounts is in Oliver Adler's view, a political as well as an economic question related to the parameters of trust, control and stability.

To sum up, the majority of sources cited seem to agree over the benefits of monetary autonomy for China. This goal is particularly stressed by the country's need to effectively respond to intra-economic shocks as well as being crucial to its high debt and NPL ratio. On the other hand, whether China should adjust its policy configuration towards greater



capital account openness or maintain its exchange rate control, remains a more controversial debate.

Despite this open debate, it appears that the country's domestic economic problems and increased governmental control speak against a substantial opening of its capital accounts. Therefore, an increase in the country's level of monetary autonomy is more likely to be accompanied by greater exchange rate flexibility. Moreover, China's future liberalisation steps should not only be seen from an economic perspective, but likewise be considered in light of the current political context. Predictions on China's potential policy goal configuration are inherently difficult to make due to rapidly changing internal and external market conditions. As such, the ongoing trade war between the US and China, the social and economic impact from the current Covid-19 pandemic, as well as growing criticism from the EU regarding Chinese FDIs will substantially shape China's future policy-making. Furthermore, internal political pressure and power shifts within the CCP might impact the country's economic system and thus, giving an outlook on China's future policy-goal configuration remains a mere assumption. In other words:

“Forecasting a future monetary policy framework for China is an impossible task during this period of transition where the structural parameters in the system are shifting continuously.”(Lo, 2015, p.167).

## 10 Conclusion

This thesis aimed to provide the reader with a holistic overview over China's economic reforms, and its relationship with the Impossible Trinity. Its goal was to outline the liberalisation steps taken by China and to provide an insight into China's application of the Impossible Trinity. A further objective of this thesis was to reflect China's interpretation of the model, and to shed light on the PBoC's Scalene Triangle. Lastly, this thesis outlined potential developments of China's policy goal configuration with the aim to anticipate future changes.

Chapter 1 elucidated the importance and relevancy of this thesis' topic and outlined the research questions, as well as its chosen methodological approach. This thesis made use of a qualitative research approach by researching existing literature. Additionally, two expert interviews were conducted to provide further insights into this topic. Moreover, the interviews validated and complemented the information retrieved through the literature research.

Chapter 2 provided an overview of the key developments of China since the founding of the republic in 1949. China's initial reforms and liberalisation policies which have contributed to the country's current economic position were highlighted in this chapter. Through this, chapter 2 contributed to answer sub-question 1 of this thesis regarding the country's economic liberalisation steps.

Chapter 3 focused on China's recent economic developments since the GFC of 2008. The chapter emphasised the connection between China's economic stimuli measures and its growing corporate debt rate. Focus was put on the issues that have arisen in the form of the country's shadow-banking market and peer-to-peer lending networks. The chapter concluded that China's monetary decisions have caused a significant rate of non-performing loans in the official, as well as in the shadow-banking sector, the extent of which is difficult to fully assess. Further, China's rising corporate debt rate, amounting to 150 percent of total GDP in 2019, is of growing concern and bound to cause economic distortions during periods of weaker economic growth.

Chapter 4 explained the macroeconomic model of the Impossible Trinity in detail and analysed each policy goal based on its benefits and disadvantages. Thereafter, the chapter outlined the model's applicability and relevancy with different examples, and further reported on the model's limitations.

Chapter 5 connected the Impossible Trinity with the UIP theory and explained the reasoning behind the automatic forgoing of one policy goal. Likewise, the chapter reported on the dangers stemming from a mismanagement of the Impossible Trinity, in which the simultaneous pursuit of all three policy goals, can lead to severe economic crises as seen during the Mexican-, Argentinian and Asian financial crises.

Chapter 6 focused on China's interpretation of the Impossible Trinity. In particular, the PBoC's Scalene Triangle was outlined and evaluated. Summarising, the PBoC states that the Impossible Trinity is not applicable to China and that a certain degree of capital control is required under any macroeconomic policy configuration. Yet, lacking additional research supporting the PBoC's standpoint and a potential conflict of interests cast doubt over its newly developed framework. Hence, chapter 6 has not been able to conclusively answer sub-question 2 of this thesis on the Impossible Trinity's application to China.

Chapter 7 applied the Impossible Trinity to China and elucidated the country's liberalisation reforms in each of the three policy goals. Furthermore, different quantifiable indices were introduced, such as the Kaopan, the MI and ERS Index, with the objective being to reliably measure China's policy goal configuration. Based on this, chapter 7 conclusively answered sub-question 1 of this thesis.

Chapter 8 reported on the findings of China's current policy goal configuration. It found that the country followed a middle-ground application amplified through an intermediate level of exchange rate stability and monetary independence, as well as minimally open capital accounts. With this, chapter 8 provided an answer to sub-question 3 of this thesis. Furthermore, this chapter included a discussion over China's policy goal development between the years of 2000, 2008 and 2016.

Lastly, chapter 9 looked at potential future policy goal configurations for China. It concluded that a move towards greater monetary autonomy, balanced through an increase in exchange rate flexibility, whilst maintaining its level of capital controls, appears to be likely. With this, chapter 9 provided an answer to sub-question 4 of this thesis.

## 10.1 Contribution

This thesis contributed to the available research on China's macroeconomic policy configuration in line with the Impossible Trinity and its respective liberalisation reforms in each of the three goals. In particular, this thesis has stressed China's application of a middle-ground approach amplified by relative monetary autonomy, a relatively controlled exchange rate and minimally open capital accounts. Further, this thesis provided a synoptic overview of China's interpretation of the Impossible Trinity and evaluated its own model, the Scalene Triangle, and its global applicability as doubtful. Hence, a basis for further research is provided by this thesis for the Scalene Triangle. Lastly, this thesis has added to the existing literature on China's potential future reforms with emphasis on greater exchange rate flexibility, increased monetary independence and remaining capital account openness.

## 10.2 Limitations and Further Research

This thesis faces several limitations. Firstly, as outlined by many experts and throughout the respective chapters of this thesis, the reliability of China's governmental statistics and data-sets have to be interpreted carefully. In particular, the country's non-performing loan rate, GDP growth rate and the severity of certain domestic problems might be understated for political purposes.

Secondly, due to a lack of research on the PBoC's Scalene Triangle, no final conclusion can be drawn. The PBoC's research needs to pass further critical evaluation and must prove its reliability through empirical testing before it can be considered as a viable alternative to the Impossible Trinity.

Thirdly, the indices used to configure China's Impossible Trinity configuration are based on simplified assumptions and cannot fully reflect the country's effective monetary independence, capital account openness and exchange rate stability. Therefore, the results

presented might deviate from the actual situation and should be considered as a guidance on China's Impossible Trinity configuration rather than as an absolute reflection.

Moreover, several Chinese experts on China's economy were approached for interviews to provide greater insight into this topic. However, no interviews were able to be conducted. Hence, this thesis was unable to fully reflect the viewpoints of Chinese experts on this matter.

Further research to diffuse the aforementioned limitations is recommended. Moreover, further research is needed to deduce and evaluate the potential benefits of China's policy configuration. As only by researching the associated advantages, one can further develop and strengthen a country's policy configuration. This may further support the development of growth strategies for developing countries, which could make use of China's pioneering role and copy the country's most successful economic traits to their own economies. With this, further research may also focus on the negative side effects of China's middle-ground policy convergence. The analysis on the weaknesses of China's policy configuration may likewise be applied to strengthen one's own economic system and further be applied by advanced economies to enhance their bargaining power on China. Lastly, research should further analyse China's Scalene Triangle to conclusively answer whether the model is applicable to China.

## 11 Sources

- Acocella, N., & Pasimeni, P. (2018). *The “Uncovered Inflation Rate Parity” Condition in a Monetary Union* (No.28; FMM Working Paper). IMK at the Hans Boeckler Foundation, Macroeconomic Policy Institute.  
[https://www.boeckler.de/pdf/p\\_fmm\\_imk\\_wp\\_28\\_2018.pdf](https://www.boeckler.de/pdf/p_fmm_imk_wp_28_2018.pdf)
- Aizenman, J. (2013). The Impossible Trinity (aka The Policy Trilemma). In *The Evidence and Impact of Financial Globalization* (pp. 381–390). Elsevier.  
<https://doi.org/10.1016/B978-0-12-397874-5.00041-5>
- Aizenman, J., Chinn, M. D., & Ito, H. (2010). The emerging global financial architecture: Tracing and evaluating new patterns of the trilemma configuration. *Journal of International Money and Finance*, 29(4), 615–641.  
<https://doi.org/10.1016/j.jimonfin.2010.01.005>
- Aizenman, J., & Ito, H. (2011). *The “Impossible Trinity,” the International Monetary Framework, and the Pacific Rim*. University of California and the NBER.  
[http://web.pdx.edu/~ito/handbook\\_aizenman\\_ito.pdf](http://web.pdx.edu/~ito/handbook_aizenman_ito.pdf)
- Aizenman, J., & Ito, H. (2014). The “Impossible Trinity,” The International Monetary Framework, and the Pacific Rim. In I. Kaur & N. Singh (Eds.), *The Oxford Handbook of the Economics of the Pacific Rim*. Oxford University Press.  
<https://doi.org/10.1093/oxfordhb/9780199751990.013.022>
- Aizenman, J., & Sengupta, R. (2013). Financial Trilemma in China and a Comparative Analysis with India: Trilemma in China and India. *Pacific Economic Review*, 18(2), 123–146. <https://doi.org/10.1111/1468-0106.12015>
- BIS. (2020, February 27). *BIS - Locational banking statistics*.  
<https://stats.bis.org/statx/toc/LBS.html>
- Brandt, L., & Rawski, T. G. (2008). *China’s Great Economic Transformation*. Cambridge University Press. <http://site.ebrary.com/id/10229671>
- Burdekin, R. C. K., Barth, J. R., Song, F. M., & Zhou, Z. (2012). China after the Global Financial Crisis. *Economics Research International*, 2012, 1–3.  
<https://doi.org/10.1155/2012/468347>
- Calvo, G., & Reinhart, C. (2000). *Fear of Floating* (No. w7993; p. w7993). National Bureau of Economic Research. <https://doi.org/10.3386/w7993>
- Central Compilation and Translation Press, & Central Committee of the Communist Party of China. (2016). *The 13th five-year plan for economic and social development of the People’s Republic of China*.
- Chen, S., & Kang, J. S. (2018). *Credit Booms-Is China Different?* International Monetary Fund.  
<http://public.ebookcentral.proquest.com/choice/publicfullrecord.aspx?p=5218663>
- China—Trade—European Commission*. (n.d.). Retrieved February 23, 2020, from <https://ec.europa.eu/trade/policy/countries-and-regions/countries/china/>
- Chinn, M. D., & Ito, H. (2008). A New Measure of Financial Openness. *Journal of Comparative Policy Analysis: Research and Practice*, 10(3), 309–322.  
<https://doi.org/10.1080/13876980802231123>

- Chow, G. C. (Ed.). (2018). China's economic transformation. In *China's 40 Years of Reform and Development: 1978–2018* (1st ed.). ANU Press.  
<https://doi.org/10.22459/CYRD.07.2018>
- Daniel, J. (2016). *Debt Equity Conversions and NPL Securitization in China: Some Initial Considerations*. International Monetary Fund.
- Das, S. (2019). *China's Evolving Exchange Rate Regime* (WP/19/50; IMF Working Paper). International Monetary Fund, Asia and Pacific Department.  
<https://www.imf.org/en/Publications/WP/Issues/2019/03/07/Chinas-Evolving-Exchange-Rate-Regime-46649>
- Fleming, J. M. (1962). Domestic Financial Policies under Fixed and under Floating Exchange Rates (Politiques financières intérieures avec un système de taux de change fixe et avec un système de taux de change fluctuant) (Política financiera interna bajo sistemas de tipos de cambio fijos o de tipos de cambio fluctuantes). *Staff Papers - International Monetary Fund*, 9(3), 369.  
<https://doi.org/10.2307/3866091>
- Frankel, J. A. (2008). Foreign Exchange. In *The Library of Economics and Liberty*. Liberty Fund Inc. <https://www.econlib.org/library/Enc/ForeignExchange.html>
- Franklin, A., Jun, Q., & Meijun, Q. (2006). China's Financial System: Past, Present, and Future. In *China's Great Economic Transformation* (pp. 506–568). Cambridge University Press. <http://site.ebrary.com/id/10229671>
- Fylan, F. (2005). Semi-structured interviewing. In J. Miles & P. Gilbert (Eds.), *A Handbook of Research Methods for Clinical and Health Psychology* (pp. 65–77). Oxford University Press.
- Garnaut, R., Song, L., & Fang, C. (Eds.). (2018). *China's 40 Years of Reform and Development: 1978–2018* (1st ed.). ANU Press.  
<https://doi.org/10.22459/CYRD.07.2018>
- Glick, R., & Hutchison, M. (2008). *Navigating the trilemma: Capital flows and monetary policy in China* (Working Paper No. 08-11). University of California, Santa Cruz Institute for International Economics (SCIE).  
<https://www.econstor.eu/bitstream/10419/64118/1/604564236.pdf>
- Greenlaw, S. A., Shapiro, D., Dodge, E. R., Gamez, C., Jauregui, A., Keenan, D., MacDonald, D., Moledina, A., Richardson, C., Sonenshine, R., & OpenStax College. (2017). *Principles of Economics*.  
<https://openstax.org/details/books/principles-economics-2e>
- Halverson, K. (2004). China's WTO Accession: Economic, Legal, and Political Implications. *Boston College International and Comparative Law Review*, Vol. 27(Issue 2).
- Hanenmann, T., Huotari, M., & Kratz, A. (2019). *Chinese FDI in Europe: 2018 trends and impact of new screening policies*. Mercator Institute for China Studies (MERICS) and Rhodium Group. <https://www.merics.org/en/papers-on-china/chinese-fdi-in-europe-2018>
- IMF. (1998). The Asian Crisis: Causes and Cures. *Finance & Development*, Vol. 35(No. 2).

- IMF. (2014). *Global Financial Stability Report, October 2014: Risk Taking, Liquidity, and Shadow Banking: Curbing Excess while Promoting Growth*. International Monetary Fund.
- IMF. (2016, April). Datamapper. [https://www.imf.org/external/datamapper/ka\\_new@CL/SPR\\_HIC/SPR\\_LIDC/SPR\\_FLIDC/CHN](https://www.imf.org/external/datamapper/ka_new@CL/SPR_HIC/SPR_LIDC/SPR_FLIDC/CHN). Overall Openness Index (All Asset Categories). [https://www.imf.org/external/datamapper/ka\\_new@CL/SPR\\_HIC/SPR\\_LIDC/SPR\\_FLIDC/CHN](https://www.imf.org/external/datamapper/ka_new@CL/SPR_HIC/SPR_LIDC/SPR_FLIDC/CHN)
- IMF. (2019). *Annual Report on Exchange Arrangements and Exchange Restrictions 2018*. International Monetary Fund.
- IMF. (2020). *Policy Responses to COVID19*. <https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19#C>
- IMF, Monetary and Capital Markets Department, International Monetary Fund, & Monetary and Capital Markets Department. (2016). *Global Financial Stability Report, October 2016: Fostering Stability in a Low-Growth, Low-Rate Era*. International Monetary Fund. [http://www.elibrary.imf.org/doc/IMF082/23493-9781513559582/23493-9781513559582/Other\\_formats/Source\\_PDF/23493-9781475538793.pdf](http://www.elibrary.imf.org/doc/IMF082/23493-9781513559582/23493-9781513559582/Other_formats/Source_PDF/23493-9781475538793.pdf)
- Ito, H., & Chinn, M. D. (2018). *Notes on The Chinn-Ito Financial Openness Index—2016 Update*. [http://www.web.pdx.edu/~ito/Readme\\_kaopen2016.pdf](http://www.web.pdx.edu/~ito/Readme_kaopen2016.pdf)
- James, J., Marsh, I., & Sarno, L. (2011). *Choosing an Exchange Rate Regime* (No. 2011-16). Harvard Kennedy School.
- Kawai, M., & Liu, L.-G. (2015). Trilemma Challenges for the People's Republic of China. *Asian Development Review*, 32(1), 49–89.
- Kodres, L. (2013). What Is Shadow Banking? *Finance & Development*, Vol. 50(No. 2). <https://www.imf.org/external/pubs/ft/fandd/2013/06/basics.htm>
- Kose, A. M., & Prasad, E. (2020, February). *Capital Accounts: Liberalize or Not? - Back to Basics: Finance & Development*. <https://www.imf.org/external/pubs/ft/fandd/basics/capital.htm>
- Krugman, P. (2002). Exchange Rates. In *Library of Economics and Liberty*. Liberty Fund Inc. <https://www.econlib.org/library/Enc1/ExchangeRates.html>
- Leng, C., & Tham, E. (2019, November 28). China gives P2P lenders two years to exit industry. *Reuters*. <https://www.reuters.com/article/us-china-p2p-idUSKBN1Y2039>
- Leonard, J., & Donnan, S. (2019, November 27). White House Weighs Limits on U.S. Portfolio Flows Into China. *Bloomberg Economics*. <https://www.bloomberg.com/tosv2.html?vid=&uuid=2063a750-7fc8-11ea-b918-778110c7896c&url=L25ld3MvYXJ0aWNsZXMvMjAxOS0wOS0yNy93aGl0ZS1ob3VzZS13ZWlnaHMtbGltaXRzLW9uLXUtcy1wb3J0Zm9saW8tZmxvd3MtaW50by1jaGluYS1rMTJhaGs0Zw==>
- Liew, leong. (1994). The Impact of the Asian Financial Crisis on China: The Macroeconomy and State-owned Enterprise Reform. *MIR: Management International Review*, Vol. 39(No.4), 85–104.



- Lo, C. (2015). *China's impossible trinity: The structural challenges to the "Chinese dream."* <http://www.books24x7.com/marc.asp?bookid=89351>
- Luo, D. (2016). Shadow Banking and Its Development in China. In D. Luo, *The Development of the Chinese Financial System and Reform of Chinese Commercial Banks* (pp. 181–201). Palgrave Macmillan UK. [https://doi.org/10.1057/9781137454669\\_6](https://doi.org/10.1057/9781137454669_6)
- Ma, G. (2019). *China's High and Rising Corporate Debt: Examining Drivers and Risks* (Merics China Monitor). Mercator Institute for China Studies. [https://www.merics.org/sites/default/files/2019-09/merics\\_ChinaMonitor\\_ChinaCorporateLeverage\\_final.pdf](https://www.merics.org/sites/default/files/2019-09/merics_ChinaMonitor_ChinaCorporateLeverage_final.pdf)
- Maddison, A. (2006). *The World Economy*. Development Centre of the Organisation for Economic Co-operation and Development.
- Maddison, A. (2007). *Chinese economic performance in the long run* (2nd ed, rev.updated: 960-2030 A.D). Development Centre of the Organisation for Economic Co-operation and Development.
- Magnus, G. (2018). *Red flags: Why Xi's China is in jeopardy*. Yale University Press.
- Morrison, W. M. (2019a). *China's Currency Policy* (No. IF10139). Congressional Research Service. <https://fas.org/sgp/crs/row/IF10139.pdf>
- Morrison, W. M. (2019b). *China's Economic Rise: History, Trends, Challenges, Implications for the United States*. Congressional Research Service. [https://digitalcommons.ilr.cornell.edu/cgi/viewcontent.cgi?article=2323&context=key\\_workplace](https://digitalcommons.ilr.cornell.edu/cgi/viewcontent.cgi?article=2323&context=key_workplace)
- Mundell, R. A. (1963). Capital Mobility and Stabilization Policy under Fixed and Flexible Exchange Rates. *The Canadian Journal of Economics and Political Science*, 29(4), 475. <https://doi.org/10.2307/139336>
- Mundell, Robert A. (2002). Monetary Unions and the Problem of Sovereignty. *The Annals of the American Academy of Political and Social Science*, 579, 123–152. JSTOR.
- Nanovsky, S., & Kim, Y. (2018). International Capital Movement and Monetary Independence in Asia. *International Advances in Economic Research*, 24(2), 179–198. <https://doi.org/10.1007/s11294-018-9682-z>
- Nelson, R. M. (2018). *Debates over Exchange Rates: Overview and Issues for Congress* (p. 29). Congressional Research Service.
- Obstfeld, M. (1985). *Capital Mobility in the World Economy: Theory and Measurement* (No. 1692). National Bureau of Economic Research. <https://doi.org/10.3386/w1692>
- Obstfeld, M., Shambaugh, J., & Taylor, A. (2004). *The Trilemma in History: Tradeoffs among Exchange Rates, Monetary Policies, and Capital Mobility* (No. w10396; p. w10396). National Bureau of Economic Research. <https://doi.org/10.3386/w10396>
- Palley, T. I. (2009). Rethinking the economics of capital mobility and capital controls. *Revista de Economia Política*, 29(3), 15–34. <https://doi.org/10.1590/S0101-31572009000300002>

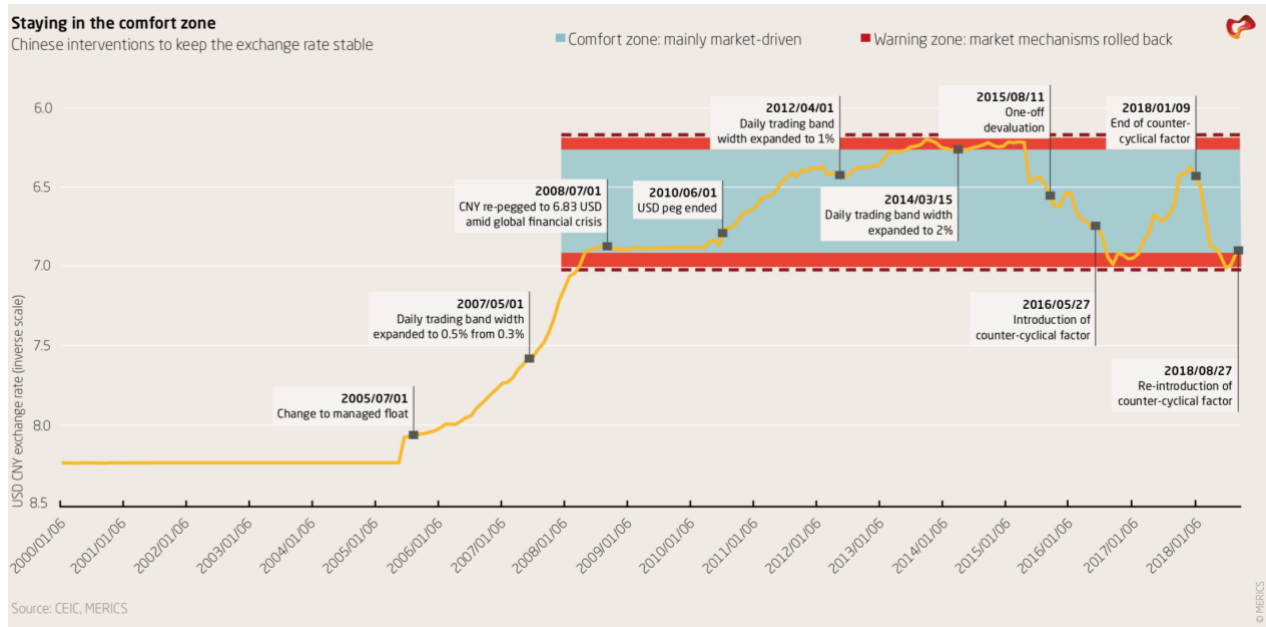
- Perkins, D. H. (2018). The complex task of evaluating China's economic reforms. In R. Garnaut, L. Song, & F. Cai (Eds.), *China's 40 years of reform and development: 1978—2018*. ANU Press.
- PwC. (2015). *China's Non-Performing Loans are rising fast Are there now opportunities for investors?* (Spectrum - Business Recovery Services). <https://www.pwccn.com/en/china/china-npls-opportunities-for-investors-dec2015.pdf>
- Qi, L., & Deng, C. (2017, April 14). The 'Trilemma' According to China's Central Bank. *WSJ*. <https://blogs.wsj.com/chinarealtime/2017/04/14/the-trilemma-according-to-chinas-central-bank/>
- Rabinovitch, S. (2014, January). Reversal of fortune in China's peer-to-peer lending boom. *Financial Times*. <https://www.ft.com/content/6348c35e-79d8-11e3-a3e6-00144feabdc0>
- Rieber, W. J. (2018). A Model To Explain The Monetary Trilemma Using Tools From Principles of Macroeconomics. *Journal of Economics and Economic Education Research*. <https://www.abacademies.org/articles/a-model-to-explain-the-monetary-trilemma-using-tools-from-principles-of-macroeconomics-6814.html>
- Riedel, J., Jin, J., & Gao, J. (2007). *How China grows: Investment, finance, and reform*. Princeton University Press.
- Schwartz, A. J. (n.d.). Money Supply. In *The Library of Economics and Liberty*. Retrieved May 1, 2020, from <https://www.econlib.org/library/Enc/MoneySupply.html>
- Shaghil, A., Correa, R., Dias, D. A., Gornemann, N., Hoek, J., Jain, A., Liu, E., & Wong, A. (2019). Global Spillovers of a China Hard Landing. *International Finance Discussion Paper, 2019(1260)*. <https://doi.org/10.17016/IFDP.2019.1260>
- Shi, B. (2017, November 1). *Shanghai-Hong Kong Stock Connect: What's the impact?* UBS Asset Management. <https://www.ubs.com/global/en/asset-management/insights/china/2017/impact-stock-connect-shanghai-hong-kong-equity.html>
- Sin, N., & Westbrook, T. (2019, August 29). Explainer: Can political unrest in Hong Kong break its currency peg? *Reuters*. <https://www.reuters.com/article/us-hongkong-protests-currency-explainer-idUSKCN1VJ0WA>
- Sun, Guofeng, & Li, W. (2017). *Monetary Policy, Exchange Rate and Capital Flow—From “Equilateral Triangle” to “Scalene Triangle”* (No.2017/3; The People's Bank of China Working Paper Series). The People's Bank of China. <http://www.cff.org.cn/zgjrlt/cffsd/zxsd1/120515/2017033107521635167.pdf>
- Sun, Guorui, & Payette, A. (2016). China and the Impossible Trinity: Economic Transition and the Internationalization of the Renminbi. *Contemporary Chinese Political Economy and Strategic Relations, Vol. 2*(No. 3), 1049–1093.
- Tsai, K. S. (2015). *The Rise of Shadow Banking in China: The Political Economy of Modern Chinese State Capitalism* (No.10; Thought Leadership Brief). HKUST IEMS - Institute for Emerging Market Studies. <https://iems.ust.hk/publications/thought-leadership-briefs/tsai-rise-of-shadow-banking-in-chin>

- Wildau, G. (2017, May 17). China curbs 'Wild West' P2P loan sector. *Financial Times*. <https://www.ft.com/content/b0e40438-fda7-11e6-8d8e-a5e3738f9ae4>
- Xiao, F., & Kimball, D. (2006). *Effectiveness and Effects of China's Capital Controls*. 10.
- Zenglein, M. J., & Kärnfelt, M. (2019). *China's caution about loosening cross-border capital flows* (China Monitor). <https://www.merics.org/en/china-monitor/china-s-caution-about-loosening-cross-border-capital-flows>
- Zenglein, M. J., & Kärnfelt, M. (2020). *China's economy in the Corona crisis: A historic fall* (Quarterly Analysis of Economic Trends in China Q1/2020). Mercator Institute for China Studies (MERCIS). <https://www.merics.org/en/merics-trackers/economic-indicators-q1-2020>
- Zhang, C., & Choi, W. H. (2016). *Hong Kong and Singapore's experience with the Impossible Trinity and its Implications for the Mainland* (Economic Review). Bank of China (Hong Kong) Limited, Economics & Strategic Planning Department. [https://www.bochk.com/dam/investment/bocecon/SY2016005\(en\).pdf](https://www.bochk.com/dam/investment/bocecon/SY2016005(en).pdf)
- Zhang, P. (2018). Exchange Rate and Asset Market: The Trilemma for China's Monetary Policy. *Review of Economics & Finance, Vol.14*(1–16).
- Zhong, I. (2016, April 15). China Banks Guru Warns of Bad Debt Reckoning. *Barron's Online*. <https://www.barrons.com/articles/china-banks-guru-warns-of-bad-debt-reckoning-1460688596>

## 12 Appendix

### 12.1 RMB / USD Exchange Rate

Figure 13: RMB/USD Exchange Rate (Zenglein & Kärnfelt, 2019)



## 12.2 Interview transcript with Dr. Oliver Adler

<b>Date</b>	15.04.2020
<b>Expert</b>	Dr. Oliver Adler, Chief Economist Switzerland at Credit Suisse (Schweiz) AG
<b>Interviewer</b>	Max Dörrer
<b>Length</b>	50 minutes
<b>Form</b>	Telephone call

**Max Dörrer:** Was sehen Sie als Hintergrund für die wirtschaftliche Öffnung von China?

**Oliver Adler:** Einerseits hat dies sicher etwas mit dem negativ behafteten Image von Ländern zu tun, welche stark abgeschottet sind. Wirtschaftlich abgeschottete Länder haben ein Stigma von Unterentwicklung. Andererseits hat dies auch mit effizient Überlegungen zu tun. China hat viele Unternehmen welche global investieren und in diesem Sinne Zugang zu internationalen Devisen benötigen, und wenn man das durch Kapitalverkehrskontrollen erschwert, limitiert man die Möglichkeit für effiziente Auslandsinvestitionen. Und umgekehrt hat China auch immer, seit Jahrzehnten, ausländisches Kapital anziehen wollen. Dies um das Land zu entwickeln und neue Technologien zu erhalten. In diesem Sinne, wenn man Kapitalkontrollen hat und die Rückführung von Gewinnen erschwert, dann fehlen die Anreize für ausländische Investitionen. Daher ist die Integration von China in die Weltwirtschaft mit beidseitigen Investitionsmöglichkeiten sicher einer der Hauptgründe. Nichts desto trotz, auch wenn Kapitalkontrollen relativ liberal gehalten werden, verursachen die Kontrollen unglaubliche Kosten und bürokratische Hürden. Daher ist es (die Liberalisierung von Chinas Wirtschaft) sicher aus zwei Gründen wichtig, aus geopolitischen aber auch gegenüber den lokalen Firmen um aufzuzeigen, dass wir genug Vertrauen in unsere eigene Wirtschaft und Währung haben und dass wir genug stark sind, um uns nicht mehr abzuschotten zu müssen. In diesem Sinne, ist die Öffnung auch ein wichtiges Signal an die binnen Wirtschaft.

**Max Dörrer:** Um nochmals auf die Aussage der PBoC zurückzukommen, dass Kapitalkontrollen eigentlich unabdingbar sind in jedem Land. Haben Sie diesen Blickpunkt bereits gehört und können Sie dem zustimmen?

**Oliver Adler:** Ich denke, Kapitalkontrollen sind immer sehr situationsabhängig. Ich meine, wir haben Situationen, in denen freie Kapitalmärkte sehr destabilisierend sein können und das ist vor allem in Situationen von Unsicherheit, wenn Kapitalabflüsse zunehmen. Wir erleben dies gerade wieder, wo grosse Kapitalabflüsse aus Schwellenländern massiv sind aufgrund der Corona-Krise, und dies kann Länder vollkommen destabilisieren. Und in diesem Sinne, für die langfristige Entwicklung eines Landes sehr schädlich sein kann. Dies führt nicht nur zu (Kapital-)Strömen, die sich exzessiv bewegen, sondern auch die Wechselkurse, welche dann massive überschüssen, Zinsen, welche überschüssen, sowie auch die darauf aufbauenden Risikoprämien. Dies führt dann potenziell zu einem sehr negativen Equilibrium. Wir wissen, in den Finanzmärkten gibt es multiple Equilibriums, in solchen hoch Risiko-Situationen denke ich, ist es vor allem für anfällige Länder durchaus sinnvoll, Kapitalverkehrskontrollen einzuführen. Das berühmteste Beispiel dafür ist eigentlich Malaysia, das sich während

der Asienkrise sich entgegen die Empfehlungen des IMF entschieden und Kapitalverkehrskontrollen eingeführt hat. Wodurch sie (Malaysia) eigentlich viel besser gefahren ist und sich die Wirtschaft stabiler gehalten hat. Ich denke, dass diese Erkenntnis zum Standard geworden ist, und auch der IMF heutzutage nicht mehr sagen würde, dass man auf einem absolut freien Kapitalverkehr und freien Wechselkursen beharren muss. In diesem Sinne sind Kapitalverkehrskontrollen nichts neues, die Frage ist, ob diese immer da sein müssen. Und ob es nicht besser temporäre Massnahmen sein sollten. Es ist jedoch sehr schwer zu beurteilen, es geht um Effizienz und ob man das überhaupt flexibel handhaben kann. Man muss überlegen, ob man diese Kontrollen einfach flexible rauf- und runterfahren kann oder ob man ständig dieses Regime in place haben muss. Ich würde meinen, die USA sind ein Spezialfall, weil sie die Weltwährung haben. Aber auch in Europa, sowie auch in der Schweiz, musste man nie während grossen Krisen Kapitalkontrollen einführen und so sind so wahrscheinlich, wer weiss, nicht schlecht damit gefahren. In diesem Sinne bin ich unsicher, ob dies etwas ist, was ständig präsent sein muss. Oder ob es etwas sein soll, das in gewissen Situationen wie Krisenphasen angewendet werden sollte. In diesem Sinne bin ich auch unsicher, ob dies nicht auch mehr eine Ausrede von der PBoC ist. Aber abschliessend kann ich das nicht genau beurteilen, dafür müsste ich die Standpunkte der PBoC besser verstehen.

**Max Dörrer:** Grundsätzlich würden Sie aber zustimmen, dass vor allem Emerging Markets, welche anfälliger sind für „Hot money flows“, Kapitalkontrollen in Betracht ziehen sollten?

**Oliver Adler:** Ja das würde ich so schon sagen, kommt auch darauf an, wie das Wechselkursregime gehandhabt wird, in der Asienkrise zum Beispiel waren die fixen Wechselkurse ja besonders fatal, da war man vollkommen unflexibel, und dadurch hat man massive spekulative Attacken generiert. Die Frage ist auch, ob man beides braucht, wenn man Kapitalverkehrskontrollen anwendet, stellt sich die Frage, ob man gleichzeitig auch noch den Wechselkurs kontrollieren muss. Man könnte ja auch sagen, wir führen partielle Kapitalverkehrskontrollen ein und hat dafür dann einen schwankenden Wechselkurs. Wie es China handhabt, ist ja eben die Kombination, in dem sie auch den Wechselkurs beeinflussen. Insgesamt habe ich das Gefühl, dass China das recht gut handhabt, jedoch sage ich das ohne grosse Evidenz. Die Frage ist immer, was ist „counterfactual“, wie wären die Finanzmarktstabilität und das Wachstum, wenn sie dies nicht so machen würden?

**Max Dörrer:** Es wird argumentiert, dass China den kontrollierten Wechselkurs und die Kapitalverkehrskontrollen gleichzeitig haben kann, weil sie durch das Anhäufen von FX Reserven einen Buffer haben. Sehen Sie dies als eine Möglichkeit, diese Reserven langfristig für diese Zwecke zu verwenden?

**Oliver Adler:** Der erste Punkt hier ist, dass das Anhäufen von Reserven meistens zustande kommt, weil man einen hohen Überschuss in der Bilanz hat, aber das Kapital nicht mehr abfliessen lässt und so die Notenbank dann Fremdwährungsreserven akkumulieren kann. In diesem Sinne ist die Option für Länder, welche strukturell sehr schwach sind, ist es sehr schwierig überhaupt Devisenreserven zu akkumulieren. Diese müssten dann eigentlich ständig einen massiv unterbewerteten Wechselkurs haben, damit sie Überschüsse generieren können in der Aussenbilanz. Normalerweise sind Länder mit hohen Devisenreserven meistens die Länder, welche dies nicht als Politik betreiben, sondern wo es aus endogenen Faktoren resultiert, wie von hohen strukturellen

Überschüssen in der Aussenbilanz. Die Schweiz ist natürlich auch ein gutes Beispiel dafür. In China war dies auch so, bis vor kurzem. In den letzten Jahren hat die Aussenbilanz eher abgenommen, der Überschuss wurde kleiner. Daher werden, so viel ich weiss, auch weniger Devisen akkumuliert. Daher denke ich, dies Mal so vorausgeschoben, dass es schwierig ist zu sagen, wir müssen jetzt mehr Devisenreserven akkumulieren, denn um dies zu machen, braucht man tendenziell einen Überschuss in der Aussenbilanz.

In diesem Sinne würde ich auch meinen, dass wenn sich die Aussenbilanz Chinas weiterhin ausbaut, also die Differenz zwischen Sparen und Investieren, dann werden sie auch zukünftig fähig sein, Devisen zu akkumulieren. Aber dies als Ziel zu haben, scheint mir nicht besonders sinnvoll zu sein. Das andere ist auch, dass wenn man eine überbewertete Währung hat, und diese halten will, dann werden diese (Reserven) wenn sie eingesetzt werden um den Währungskurs zu verteidigen, auch bei sehr grossen Reserven sehr schnell verschwinden. Das wurde ja auch in China beobachtet, in gewissen Phasen, vor zwei Jahren etwa, sind diese dann plötzlich relativ stark zurückgegangen. Weil man versucht hat, einen Wechselkurs zu stabilisieren auf einem Niveau der nicht unbedingt haltbar war. Von dem her ist eine Politik, die darauf baut, dass man mit Hilfe von Devisenreserven den Währungskurs hält, vor allem auch im Falle von China mit den partiellen Kapitalverkehrskontrollen, langfristig nicht haltbar.

**Max Dörrer:** Sie denken also nicht, dass China die Devisenreserven mit dem Ziel angehäuft hat, den Währungskurs damit zu stützen?

**Oliver Adler:** Ich denke, dass die starke Devisenakkumulation von China seit der Finanzkrise bis ins Jahr 2016 nicht das Ziel der Regierung war, sondern mehr eine Nebenerscheinung des enormen Erfolges im Aussenhandel und von einer tendenziell unterbewerteten Währung. Also per se denke ich nicht, dass China das Ziel hatte diese Devisenreserven anzuhäufen. Am Schluss war man sicher froh, dass man diese hatte als es holprig wurde um die Abschwächung des Yuan zu dämpfen.

**Max Dörrer:** Diese wurde dann ja vor allem im Sommer 2016 notwendig als der RMB stark an Wert verlor.

**Oliver Adler:** Genau, dort hat sich dann auch gezeigt wie schnell sich diese Devisenreserven auflösen.

**Max Dörrer:** Was sehen Sie als weitere Möglichkeit, neben restriktiven Kapitalkontrollen für China, um den Währungskurs im definiert Zielbereich zu halten?

**Oliver Adler:** Ich denke, da gibt es sonst relativ wenig. Eventuell über die Handelspolitik, das haben sie ja geschickt gemacht in diesem Handelskrieg, in dem man Zölle senkt und die Kosten von Importen reduziert. Aber ich denke grundsätzlich einen Wechselkurs zu halten, der nicht unbedingt im Gleichgewicht ist, führt zu einem Verlust in den Devisenreserven und wird wahrscheinlich auf lange Sicht nicht haltbar sein, ausser man verschärft massiv die Kapitalverkehrskontrollen, und das will China vermutlich nicht.

Das ist ja auch interessant, den Yuan haben sie während dem Handelskrieg abwerten lassen und dann hat er sich wieder gefangen. Ich denke, die machen das eigentlich wirklich sehr geschickt, in dem sie keinen vollkommen flexiblen Wechselkurs haben,

aber auch nicht auf einem absoluten Niveau verharren. Der Yuan ist momentan etwas über 7 (per USD), und ist eigentlich momentan auf einem leichten Abwärtstrend. (...) Momentan denke ich nicht, dass massive im Devisenmarkt interveniert werden muss.

**Max Dörrer:** Oft pendelt der Wechselkurs ja zwischen 6.3 – 7 RMB per USD und sobald er einer der Grenzen berührt, wird in den Markt interveniert, um ihn zurück ins Gleichgewicht zu bringen. In letzter Zeit geht man davon aus, dass die PBoC nicht mehr allzu stark intervenieren musste, da ja eine gewisse Trading-Bandbreite geschaffen wurde.

**Oliver Adler:** Genau, ich habe auch die Aussenbilanz jetzt nicht mehr verfolgt, ich denke tendenziell haben sie ja immer noch einen Überschuss in der Aussenbilanz. Ich würde auch meinen, dass gerade jetzt nach dieser Krise (Covid-19), werden sie (China) noch einen grösseren Überschuss generieren, weil wahrscheinlich die Exporte mehr fallen werden als die Importe. Von dort her muss China nicht mehr massiv intervenieren im Devisenmarkt.

**Max Dörrer:** Denken Sie, dies ist ein langfristiger Trend und dass der Wechselkurs weiterhin liberalisiert wird bis hin zu einem freien Wechselkurs Regime?

**Oliver Adler:** Die eine Frage, die sich stellt ist, ob sie weiterhin Devisenmarkt-Interventionen machen werden um den Wechselkurs zu glätten. Die zweite Frage ist, ob sie wirklich langfristig Kapital-Verkehrskontrollen weiter liberalisieren werden und vielleicht in ein paar Jahren sagen werden, nein, das brauchen wir jetzt nicht mehr. Bezüglich des Wechselkurses: Die Schweiz macht das über die SNB ja auch, es ist zwar eine andere Situation, weil wir eine offene Volkswirtschaft sind, man kann sich gut vorstellen, dass China das auch weiterhin machen wird. Bezüglich den Kapitalverkehrskontrollen stellt sich eine andere Frage, ich denke das ist wichtiger.

**Max Dörrer:** Also sehen sie bei den Kapitalverkehrskontrollen grösseres Liberalisierung-Potential?

**Oliver Adler:** Das weiss ich nicht, ich denke das ist eine hoch politische Frage, wenn sie den Yuan zu einer Weltwährung machen wollen, dann müssen sie eine freie Währungskonvertibilität zulassen, falls das wirklich das Ziel ist. Sonst werden sie dies nicht erreichen, ausser sie werden innenpolitisch mehr Kontrolle aufgeben. Da habe ich aber Zweifel, in den letzten Jahren unter Xi Jinping mit ziemlich rigorosen Kontrollen, hat man eher das Gefühl sie wollen mehr kontrollieren. Und eine vollkommene Liberalisierung der Capital Accounts bedeutet dann auch den inländischen Investoren und Unternehmern zu sagen: Falls ihr unserer Politik nicht mehr vertraut, dann könnt ihr frei Yuan in Dollar wechseln oder Kapital abziehen. In diesem Sinne, das ist eine hoch politische Frage, aber ich vermute, dass die chinesische Regierung auf lange Sicht nicht bereit ist dies zu zulassen. Von dort her, ist es nicht eine wirtschaftliche Frage, sondern mehr eine Frage der politischen Kontrollen.

**Max Dörrer:** Um dieses Vertrauen in die Wirtschaft herzustellen wird es aber noch ziemlich lange dauern.

**Oliver Adler:** Da bräuchte es einen fundamentalen politischen Wechsel, ich glaube es gibt innerhalb Chinas verschiedene politische Strömungen zu diesem Thema, mit



liberalen Kreisen, die dies unbedingt wollen. Ob man wirklich eine Diktatur haben kann, welche die Wirtschaft kontrolliert und gleichzeitig freien Kapitalverkehr zulässt, denke ich, ist sehr schwer. Es gab Diktaturen, die dies machten, zum Beispiel Chile unter Pinochet, er hat eine vollkommene wirtschaftliche Liberalisierung vorangetrieben, aber die absolute politische Kontrolle aufrechterhalten. Aber für die chinesische Regierung, für die Kommunistische Partei, ist die Wirtschaft absolut zentral, so lange sie nicht bereit sind dies aufzugeben, können sie die Kapitalverkehrs-Bilanz auch nicht öffnen.

**Max Dörrer:** Sehen Sie Gefahren oder Nachteile, wenn sich China zu schnell liberalisieren würde?

**Oliver Adler:** (...) Ich denke das Risiko eines plötzlichen Absturzes des Yuan und massive Kapitalabflüsse halten sich momentan relativ gering. Der Wechselkurs ist nicht mehr überbewertet und die Aussenbilanz ist mehr oder weniger im Gleichgewicht. Daher würden weitere, aber kleine Liberalisierungsschritte nicht mehr sehr destabilisierend wirken. Ich vermute, die Debatte in China dreht sich momentan mehr um die interne Liberalisierung der Wirtschaft. Wenn man verschiedene Artikel liest, wie z.B. von Elizabeth Economy, zeigte sich, dass sich in den letzten Jahren die Kontrolle der Regierung auf die Binnenwirtschaft verschärft hat. Gewisse Liberalisierungen der Vorgänger wurden sogar eher rückgängig gemacht. In dieser Krise sagen die Chinesen jetzt auch, sie wollen KMUs schützen, weil diese Schwierigkeiten haben. Aber in den letzten Jahren wurden die grossen Staatsunternehmen mit Parteieinfluss systematisch favorisiert und das ist eine grosse Gefahr.

**Max Dörrer:** Genau, dies zeigt sich ja dann vor allem durch die bevorzugte Kredit-Allokation für Staatsunternehmen.

**Oliver Adler:** Genau. Eine Business-Analystin, die aus Shanghai zurückgekehrt ist, hat mir erzählt, dass Donald Trump der populärste Politiker der dortigen Business-Community sei. Weil sie sich erhoffen, dass Trump Liberalisierungsdruck auf die Binnen-Wirtschaft Chinas ausüben wird mit Hilfe des Handelskrieges. Und das zeigt das Kernproblem von China, die angesprochene Fehl-Allokation von Krediten.

**Max Dörrer:** Also sehen Sie die Gefahren für China momentan von eher interner Natur als, wie früher, durch spekulative Investoren von ausserhalb?

**Oliver Adler:** Ja, genau. Das würde ich so schon sagen.

**Max Dörrer:** Das sollte also China, bevor sie weitere Liberalisierungsschritte ausübt, zuerst die interne Wirtschaft stabilisieren?

**Oliver Adler:** Ja, das würde ich so schon sagen. Sie haben schon gewisse Fortschritte erzielt. Ich denke auch, dass durch die Schatten-Banken die übermässige Kreditvergabe im Inland zu einer Überhitzung beigetragen hat. Wenn man sich die Innen-Verschuldung anschaut, welche seit 2008 massiv angestiegen ist, hat sich diese in den letzten zwei Jahren durch die massive interne Verschärfungen der Kreditvergabe stabilisiert. Aber die Staatsunternehmen, welche nahe an der Kommunistischen Partei sind und favorisiert werden, haben sicherlich immer noch Probleme.

**Max Dörrer:** Korrekt, dies zeigt sich ja auch daran, dass noch keine Chinesische Bank Konkurs anmelden musste.

**Oliver Adler:** Genau, sie lassen jedoch langsam Konkurse zu, das sieht man vor allem auch im Bond Market, aber bei Firmen, welche wirtschaftlich und politisch zentral sind, versucht man das zu verhindern. Im Zuge dieser Kredit-Eindämmung hat die Partei jedoch auch vielen vor den Bug geschossen, viele kleinere Firmen und Bond-Emissionen scheiterten. Auch dies deutet darauf hin, dass China versucht die Binnen-Wirtschaft zu stabilisieren und zu kontrollieren und das, was sie als exzessive angeschaut haben, zu stoppen.

## 12.3 Interview transcript with Dr. Beat Affolter

<b>Date</b>	22.04.2020
<b>Expert</b>	Dr. Beat Affolter, Senior Lecturer at ZHAW SML
<b>Interviewer</b>	Max Dörrer
<b>Form:</b>	Video call
<b>Length</b>	40 minutes

**Max Dörrer:** Der Bericht der PBoC sagt aus, dass die Impossible Trinity nicht auf China zutrifft und in jeder wirtschaftlichen Form Kapitalverkehrskontrollen notwendig seien. Was halten Sie von dieser Aussage?

**Beat Affolter:** Dies ist mir auch eine neue Aussage.

**Max Dörrer:** Halten Sie die Impossible Trinity für anwendbar in jedem Land?

**Beat Affolter:** Ja das denke ich im Grundsatz. Wenn ich das Paper der PBoC richtig verstanden habe, befasst sich Chinas Argument stark damit, dass das Trinity keine Eins-zu-eins-Beziehung aufweist, dass es in diesem Sinne keine lineare Beziehung gibt, sondern andere Verhältnisse gelten. Dies ist schon ein Argument, da nicht klar ist, wie sensitiv die einzelnen Aspekte innerhalb dieses Modelles sind und wie sie sich auf die anderen auswirken. Von dem her ist das schon vorstellbar, dass das in Realität komplexer ist. Daher ist diese Ebene des Modelles auf der man sagt, man wählt entweder null oder eins zwischen den drei Zielen und eines muss man aufgeben, schon nicht so. Das sieht man ja auch in China, dass sie einen Mittelweg gefunden haben für sich. Wo sie das eine Ziel ein wenig öffnen und das andere auch, aber doch nicht komplett öffnen, in diesem Sinn hat das Modell mehr Mittelwege. Grundsätzlich aber, dass dieses Modell gilt und dass man sich dem nicht entziehen kann, macht auch Sinn. Letztlich sind es ja Marktkräfte, die wirken. Das sieht man ja auch in der Schweiz, man versucht einen Wechselkurs tief zu halten, was in entsprechenden Kapitalflüssen resultiert und es gibt einen Druck auf die Zinspolitik. In diesem Sinne ist das Model logisch und man kann es grundsätzlich auf jedes Land anwenden.

**Max Dörrer:** Sie würden also auch sagen, dass es sich nicht um binäre Auswahloptionen handelt, sondern dass die Zielerreichung mehr als Summe gesehen werden kann, wobei eine starke Erfüllung eines Zieles zu einer Abnahme in der Summe der beiden anderen führen muss.

**Beat Affolter:** Ja, genau, in der Praxis gibt es Länder, vor allem Emerging Markets, welche einen fixen Peg verfolgen, wo die Währung eins-zu-eins an den Dollar gebunden ist. Das gleiche gilt in Äthiopien, welches einen fixen Währungskurs verfolgt und eine Inflation von über 20% hat, und dort haben sie ganz strikte Kapitalverkehrskontrollen. Weil sonst das Geld vom Land abfließen würde. Letztlich führt dies dann auch zu einem Schwarzmarkt in welchen zu anderen Kursen gehandelt wird. In diesen Ländern sieht man eine sehr strikte Form und Positionierung in einem Eck des Impossible Trinitys. Und in China hat man ja einen Markt für die Währung, es gibt eine gewisse Fluktuation und

eine Bandbreite in dem sich der Yuan bewegt, und es ist ja auch nicht so, dass der Kapitalverkehr vollständig kontrolliert wird. Und das sind genau diese Nuancen, ich würde das bei China immer als einen Drahtseilakt beschreiben. Gleichzeitig muss man verstehen, dass China zu einem gewissen Grad auch Glück hatte und mit seiner Industriestrategie diese Währungsreserven bilden konnte, das hat letztlich in ihre Richtung gespielt, dass sie schrittweise ihre Wirtschaft liberalisieren konnten. In klassischen Emerging Markets sieht man dann typischerweise, dass das System implodiert. Zum Beispiel in Usbekistan, welches einen fixen Peg gehalten hat und dann der Druck so stark zunahm, dass sie diesen über Nacht halbieren mussten und jetzt auch in Richtung vollständige Liberalisierung gehen. In Äthiopien ebenso, das ist ein Land, welches sich stärker öffnen will und muss. Man sieht mit der Abwertungskurve, dass diese dann plötzlich wieder steiler wird. Wenn die Regierung merkt, dass sich die Wirtschaft gerade stabil zeigt, dann wird eine stärkere Abwertung gemacht und man nähert sich dann so schrittweise einem freien Wechselkursregime.

**Max Dörrer:** Man sagt ja, dass China vor allem durch das Anhäufen von Währungsreserven den Yuan in der vordefinierten Bandbreite halten kann. Jedoch schmelzen diese rasch dahin, wenn grössere Interventionen über einen längeren Zeitraum gemacht werden. Sehen Sie noch andere Möglichkeiten den Währungskurs in solchen Bandbreiten zuhalten ohne nur auf die Devisenreserven zuzugreifen?

**Beat Affolter:** Tendenziell nein. In der Schweiz sieht man, dass wenn man den CHF-Kurs schwächen will, dann wirft man Schweizerfranken auf den Markt. China wollte ja seine Währung stärken und das ist langfristig nur durch Devisenreserven möglich. Und wenn diese aufgebraucht sind, dann ist das fertig. Insofern wird das in China auch begrenzt sein ab einem gewissen Punkt. Ausser man würde die inländische Geldmenge kürzen, aber dies wäre dann auch mit einem wirtschaftlichen Abschwung verbunden. Heutzutage gibt es ja noch das Quantitative Easing, aber sobald man mit diesem stoppt, hat das Einfluss auf die Zinsen, und dann sind sie auch wieder in Mitten des Impossible Trinitys. Also wenn sie die Währung stärken wollen, sind sie limitiert durch ihre Devisenreserven in einem freien Markt.

**Max Dörrer:** Also würde das bedeuten, dass sobald China nicht mehr solche massiven Devisenreserven hat, müssten sie eine grössere Wechselkursbandbreite zulassen?

**Beat Affolter:** Genau, ausser sie würden die Geldmenge im Inland anpassen. Dann wären wir bei der Eigenständigkeit der Geldpolitik. Diese würde mit einem Zinsanstieg zu tun haben um die inländische Geldmenge zu verringern. Jedoch haben sie einen sehr hohen Verschuldungsgrad, was gegen einen Zinsanstieg sprechen würde. Daher denke ich, dass eine unabhängige Geldpolitik gerade für China wichtig ist, weil mit einer hohen Verschuldungsrate ist ein Zinsanstieg tendenziell sehr gefährlich. Sie könnten auch die Kapitalverkehrskontrollen noch restriktiver machen.

**Max Dörrer:** Sehen Sie für China in Zukunft weitere Liberalisierungsschritte in Bezug auf die Goals des Impossible Trinity's?

**Beat Affolter:** Da muss man wahrscheinlich noch zwischen der Vor- und Nach- Corona-Zeit unterscheiden. Ich denke, es gibt Erfolgsaussichten und dass sie langsam weiter in Richtung Liberalisierung gehen werden. Jedoch ist es auch so, dass wenn Schulden ein Problem werden und im Land eine starke Inflation auftritt, dann führt das zu einem

stärkeren Abwertungsdruck auf die Währung. Bis jetzt sah man, dass sie an Stabilität und an einer stärkeren Währung interessiert sind. Es kann aber auch sein, dass China plötzlich mehr interessiert ist an einer schwächeren Währung. Vor allem jetzt in dieser Corona-Zeit, wo der Druck auf die internationalen Lieferketten zunimmt. Das kann durchaus dazu führen, dass China mehr Interesse an einem schwächeren Kurs hat. Es ist jedoch sehr schwer zu sagen, China hat selbst interne Probleme, mit dem Verschuldungsgrad, dem Unterbruch von internationalen Lieferketten, welche Aufmerksamkeit benötigen. Ich denke auch jedoch, dass China an einem Punkt ist, wo sie nicht mehr zurückkönnen. Sie sind zu stark vernetzt und auf das Vertrauen des Marktes angewiesen.

**Max Dörrer:** Also erachten Sie Schritte zu mehr Kontrolle als eher unwahrscheinlich?

**Beat Affolter:** Ja, dies ist meine Meinung, ich denke sie können wirklich nicht mehr zu einer restriktiveren Politik zurück. Es kommt aber sehr darauf an, wie sich das realwirtschaftliche Geflecht entwickeln wird.

**Max Dörrer:** Wo sehen Sie die Gefahren der Corona-Situation auf die Wirtschaft Chinas?

**Beat Affolter:** Grundsätzlich haben wir wegen Corona einen Angebots- sowie einen Nachfrage-Rückgang. Was ist, wenn die Restaurants wieder öffnen, werden die Leute überhaupt wieder gehen? In unserer Generation hat man sowas noch nicht erlebt, einen solchen Angebots- und gleichzeitigen Nachfrage-Rückgang. Wahrscheinlich nützen diese traditionellen Stimulus-Programme wenig, diese werden schnell verpuffen, auch bei uns. Daher stellt sich die Frage, wie wird die Wirtschaft aussehen nach dieser ganzen Situation? Es gibt Anzeichen, dass sich diese nicht ganz so schnell normalisieren wird. Die grosse Frage in Bezug auf China ist, wie gross ist die Verunsicherung? Ich denke die Situation ist dort gleich wie hier. Jedoch sind sie wahrscheinlich noch fragiler als wir durch ihre grosse Export-Abhängigkeit. Weil die Nachfrage nach diesen Gütern jetzt eingebrochen ist.