GREEN BOND MARKET IN CHINA

.

Lisa Korteweg|4056116

Bachelor thesis
28-06-2017
Words: 5994
Thesis supervisor: B. Bluemling

ABSTRACT

The Chinese Government wants to make a transition from its high-pollution and energy- intensive growth model towards a green and sustainable economy. It is estimated that the private sector must be the largest source of capital to fuel the green transition, contributing 85% to 90% of the investments. Green bonds have emerged as a tool to mobilise this capital. However, the green bond market (GBM) is a young and emerging market. Therefore, the aim of this research is to evaluate the governance structure of the Chinese GBM and to investigate whether any qualitative changes might be needed to improve the market. It attempts to answer the question: 'To what extent is the GBM provided with a good governance structure?'.

By using the evaluation criteria legitimacy, effectivity and resilience the governance structure is evaluated. The governance structure of the GBM does not meet the requirements of good governance as defined by Termeer *et al.* It can be stated that the governance arrangement still needs to develop, especially on the securitization of the environmental purpose of the GBM. The first step would be to harmonize the regulators' guidelines with the international green bond principles and to establish sanctions for green washing. Another recommendation is to make the environmental impact report mandatory for green bonds projects. Only then it can be investigated whether the two-fold function of the GBM can be realised.

TABLE OF CONTENTS

ABBRIVATIONS

CBI	Climate Bonds Initiative
CICERO	Centre for International Climate and Environmental Research Oslo
CO2	Carbon Dioxide
CPC	Communist Party of China
CSRC	China Securities Regulatory Commission
GBM	Green Bond Market
GBP	Green Bond Principles
GDP	Green Finance Committee
GFC	Gross Domestic Product
GHG	Green House Gases
IBRD	International Bank for Reconstruction and Development
IISD	International Institute for Sustainable Development
NRDC	National Development and Reform Commission
OECD	Economic Co-operation and Development
PBoC	People's Bank of China
UNDEP	United Nations Environment Programme
WCED	World Commission on Environment and Development

1.INTRODUCTION

China is the largest and most rapidly growing 'emerging economy' in the world (Lin and Xu, 2014). This dynamic economic growth of the last decades has been reliant on coal-based energy consumption and a carbon-intensive industrial structure which causes large emissions of carbon dioxide. Therefore, this growth has caused severe environmental issues, including air, water and soil pollution and climate change (Lin and Xu, 2014). The World Bank (2010) estimated that the cost of environmental damages will reach 3% to 6% of China's GDP.

China's Government is recognising its environmental issues. In the 13th Five Year Plan of the Communist Party of China (CPC), China has set targets to reduce its Greenhouse Gases (GHG) emissions and to increase their clean energy development. For instance, China aims to reduce the energy intensity of economic growth of 40% to 45% below 2005 levels by 2020 (Aglietta and Bai, 2016).

To reach these targets, the Chinese Government strives to change China's high-pollution and energy- intensive growth model towards a green and sustainable economy. To finance the transition towards a green and sustainable economy, capital must be redirected from high polluting, energy-intensive sectors to innovative high-tech industries with a low ecological footprint (Aglietta and Bai, 2016).

However, the People's Bank of China (PBoC) estimated that public investment alone will not be sufficient to meet the investment requirements. It is estimated that the private sector must be the largest source of capital to fuel the green transition, contributing 85% to 90% of the investments (CBI, 2016). The Chinese Government has set up a dedicated system to mobilize the foreign and the domestic private sector to invest in green projects. Within this system, green bonds have emerged as a tool to mobilise capital. The proceeds of green bonds can finance technical and innovative solutions to mitigate or adapt climate change (CBI, 2016).

The idea that science and technology can provide solutions for environmental problems fits within the framework of the ecological modernization theory (Mol and Sonnenfeld, 2000). In the ecological modernization theory, the market is considered a more efficient and effective mechanism for the tackling of environmental problems compared to the Chinese Government (Buttel, 2000). In line with this theory, the concept of green growth was developed. Green growth is based on the idea that economic growth can go hand in hand with innovation, more resource-efficiency and less environmental damage (Bleuming and Yun, 2016). However, green growth is guided by financial policies.

There is a lot of criticism about the concept of ecological modernization and green growth. Some scholars argue that degrowth is needed to safeguard environmental integrity (Jakob and Edenhofer, 2014). According to Hoffman (2015), green growth gives false hope and excuses to do nothing fundamental that should bring about a U-turn of global GHG emissions. Hoffman stated that changing technologies is much easier than altering societies and their socio-economic drivers. In this line, green bonds are just another way to finance green growth projects.

These scholars are right to some extent; green growth is still growth and this may include resource depletion. However, Chinese Government wants economic growth to fuel the development and to reduce poverty (Li and Xu, 2014). The projects of green bonds can contribute to the sustainable development of China by investing in renewable energy, CO2 neutral buildings etc. (CBI, 2017). So, the concept of green growth financed by green bonds, could be a step towards the right direction to achieve sustainable development.

However, the Chinese GBM is a relatively young market. The first green bond was issued in 2015. It is also a fast-growing market, as shown in figure 1. In 2016, China became the world's largest GBM (CBI, 2017).

It is essential that this rapid growth is balanced with the environmental purpose of green bonds (CBI, 2016). The Chinese Government and investors need to be certain that the green bonds will finance projects and assets which have a significant environmental impact. This has led the Chinese Government to develop a green financial system as a market-based institutional arrangement which provides regulations relating to green bonds.

Figure 1. Growth of China's GBM. Source: Bloomberg, 2016

Furthermore, according to The United Nations Environment Programme (UNEP) there is a need for more market regulations. Because of the financial and economic crisis in 2008, caused by market failures (Brand, 2012). It is therefore interesting to timely evaluate the design and development of the governance structure of the GBM as an emerging market and to investigate whether any qualitative changes might be needed to improve the market. This led to the research question:

To what extent is the GBM provided with a good governance structure?

By answering this question, recommendations for the future of GBM can be made to increase the benefits for both the environmental and the financial sector of China.
To answer the research question, this research is divided in five sub-questions:

- What is the ecological modernization theory and the concept of green growth?
- What is good governance and how can it be evaluated?
- What is the governance structure of a green bond?
  - To what extent is governance arrangement of the Chinese GBM legitimate?
  - To what extent is governance arrangement the Chinese GBM effective?
  - To what extent is governance arrangement of the Chinese GBM resilient?

To answer the sub-questions; first, the history of the ecological modernization theory will be discussed, followed by the concept of green growth. These two concepts will provide the framework in which the GBM will be introduced. The governance structure of the GBM is explained and illustrated by a conceptual model. Next, a theoretical framework is discussed to define good governance and to set criteria to evaluate good governance. After all the relevant information is provided, the governance structure of the GBM can be evaluated. The method section illustrates how this research is conducted, while the result-section show the insights of the evaluation of the governance structure. These insights are reviewed in the discussion and will provide an answer to the research question in the conclusion.

2. CONCEPTUAL FRAMEWORK

In this chapter, the theories and concepts of ecological modernization, green growth and green bonds are explained. These theories and concepts provide the framework on which this research is based on and presents the information to understand the governance of green bonds.

2.1 ECOLOGICAL MODERNIZATION THEORY

In 1998, the ecological modernization theory is introduced to provide co-benefits both for the economy and ecology by using technology, innovation and resource efficiency (Mol and Janicke, 2009).

This theory is built on the principle of sustainable development as defined by Brundtland: "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987). According to some environmental scientists, sustainable development has shortcomings in providing guidance and vision for the creation of environmental policies. Therefore, ecological modernization theory provides a template for a new way of thinking about the environmental problems (Buttel, 2000).

An important aspect of the ecological modernization theory is that market dynamics and economic actors are carriers of ecological restructuring and reforming. The role of the state is more decentralised, flexible and less top down.

Thus, within the ecological modernization theory, the market is considered a more efficient and effective mechanism for the tackling of environmental problems than the state (Buttel, 2000). By means of technology and innovations there will be less environmental damage. The market mechanisms and the importance of technology and innovation are also two essential components of the Chinese GBM. It is therefore interesting to investigated whether the GBM can rely on market mechanisms to obtain the environmental and financial goals of the Chinese GBM.

2.2 GREEN GROWTH

The concept of green growth was introduced at the Rio+20 Conference in June 2012 to mitigate and adapt climate change (Hoffman, 2015; Lorek and Spangenberg, 2014). To some extent, green growth is a new terminology for the ecological modernization theory. Green growth is also about economic growth, focussing on resource efficiency and innovation to reduce environmental damage. Green growth also builds on the concept of sustainable development.

However, green growth is adapted by the influential international organizations, such as the Organisation for Economic Co-operation and Development (OECD) and the World Bank (Jakob and Edenhofer, 2014). This makes green growth a policy discourse (Bleuming and Yun, 2016), which includes policies incentives to encourage the private sector to finance green growth. With this, green growth is more a state regulated strategy, which contradicts with the ecological modernization theory.

Whereas the modernization theory is often presented as a social theory, the focus for green growth is mostly on economic growth and neglects ecological and social concerns (Bleuming and Yun, 2016).

In short, green growth is a more technocratic concept regulated by the state. As mentioned before, green bonds are instrument to achieve green growth. Therefore, it is interesting to investigate to what extent market regulations are required, to obtain the environmental and financial goals of the Chinese GBM.

2.3 GREEN BONDS IN GENERAL

Green bonds are regular ***bonds*** with a distinguished feature. Their proceeds are earmarked for environmental benefits, primarily climate change mitigation and adaption. A green bond is attractive for investors; it enables the identification of climate-aligned investments (CBI, 2017; Reeds Smith, LLP, 2016). The process of issuing a green bond is like normal bonds. As shown in figure 2, a green bond is issued by an entity ***(issuer)*** that seeks finance for a green project. An investor can invest in the bond and will become a creditor of the issuing entity.

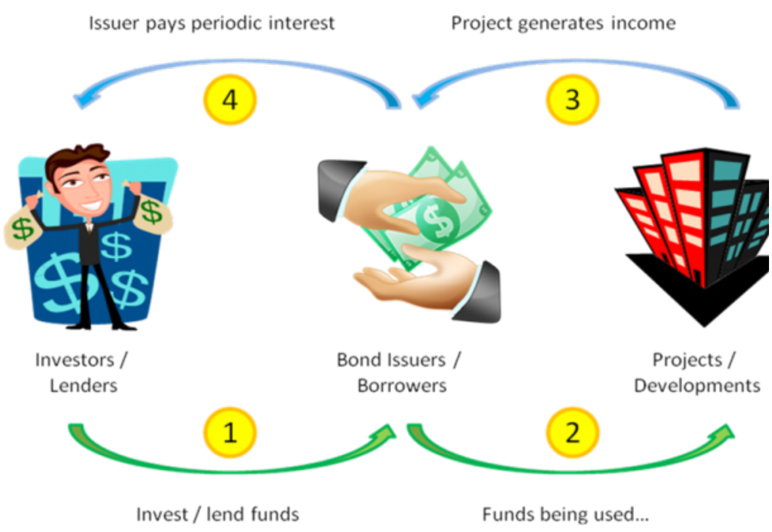

Figure 2. Proces of issuing a bond. Source: Invest Smart, 2017

2.3.2 GREEN BOND PRINCIPLES

In 2014, a group of banks initiated the Green Bond Principles (GBP); a set of voluntary guidelines setting standards for the issuance of green bonds (CBI and IISD, 2014). The GBP encourages transparency, disclosure and integrity. These guidelines are about the use of an independent review and management and reporting on the proceeds of the green bond. The GBP also include a broad set of standards to qualify which projects and assets are green.

2.3 GREEN BONDS IN CHINA: HOW TO GET APPROVAL FROM THE REGULATOR?

Above, the international practise was outlined. The next section explains how a green bond must be issued in China.

Before a green bond can be issued, it requires approval by a regulator. Depending on the issuer, a different regulator must give approval. For instance, government bonds need to get approval from the ministry of Finance or PBoC, Enterprise bonds must be approved by the National Development and Reform Commission (NDRC), etc. In China, a regulator's approval requires: 1) eligible green projects, 2) management of proceeds and 3) disclosure requirement and external review (CBI, 2017).

The first step when issuing a green bond, is identifying whether a project and assets qualify as green. In figure 3, six categories to qualify for green projects in China are illustrated (CBI, 2017). More about the eligible projects is discussed in chapter 5.

Figure 3. Projects eligible for green bonds. Source: CBI, 2017.

2.4 HOW TO ISSUE A GREEN BOND?

Before the regulator gives its approval, a few more aspects must be covered. To issue a green bond, the issuers must arrange an ***independent review***. Both policymakers and green investors want the assurance that green investments are green. The review also protects the reputation of the issuer and increases the investor confidence in the credentials of projects funded by green bonds (CBI and IISD, 2014). The independent reviewer also checks the processes established for tracking funds and for reporting. There must be full disclosure on the allocation of proceeds.

After covering these aspects, the green bond can be issued like a normal bond. This involves getting approval from regulator. Then, the bond must be structured; getting ***credit rating*** from an investment bank or advisor. They also help to market the green bond. The last step of the green bond is that an issuer must report annually whether the funds are still properly allocated to green projects (CBI and IISD, 2014). Below, the different steps are illustrated in figure 4.

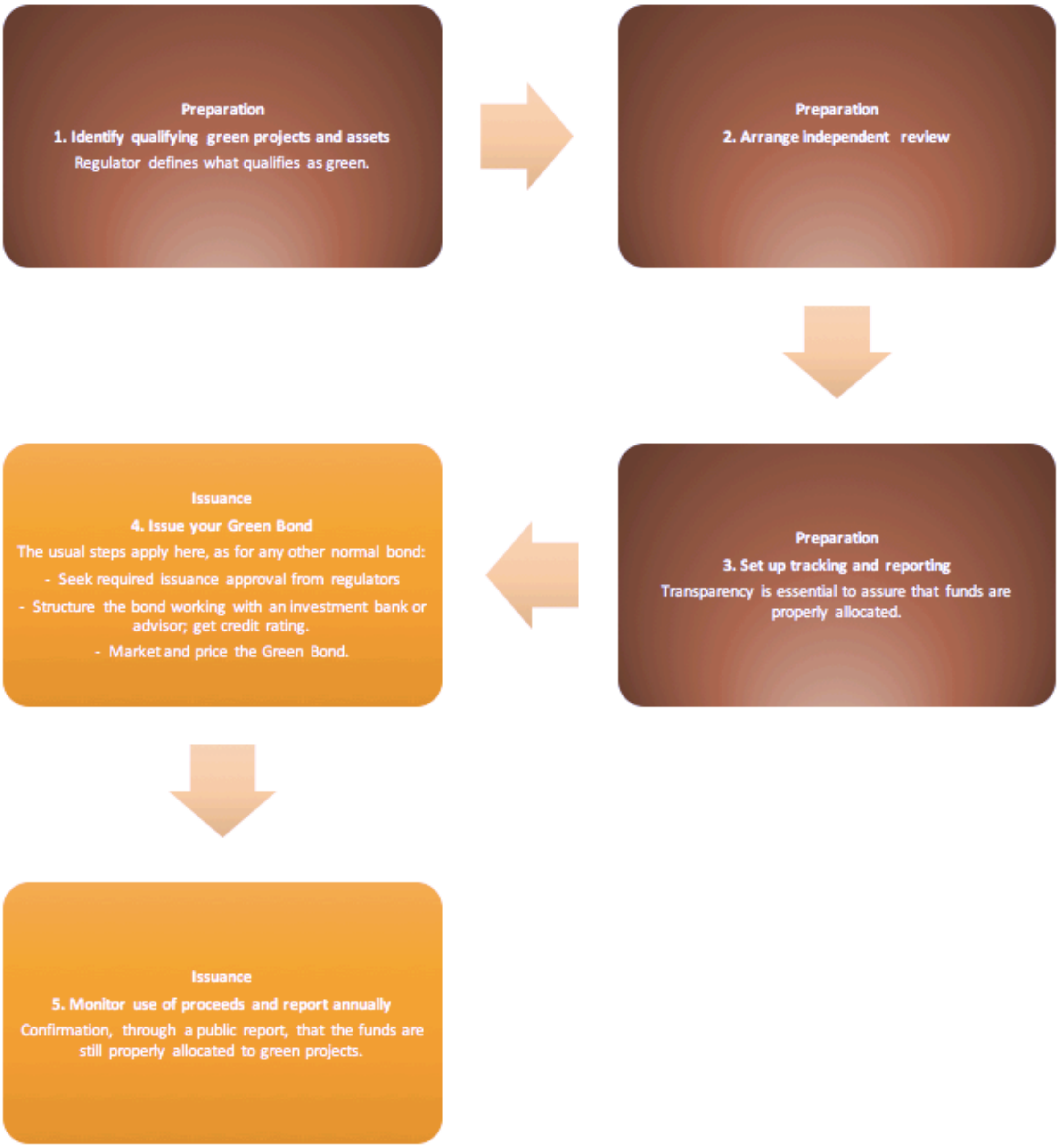

Figure 4. Step-by-step guide for issuing a green bond. Source: CBI and IISD, 2014.

3.THEORETICAL FRAMEWORK

In this research, the governance structure of the green bonds will be evaluated, to investigate whether the GBM can contribute to the environmental and financial goals of the Chinese Government. The evaluation will mostly be an 'ex ante' evaluation because policies around green bonds are still developing (Runhaar and Cörvers, 2008).

As described above, the governance structure of the GBM is a complex structure involving intricate relations between government, private companies and financial institutions. This is also called; a governance arrangement. According to Arts and Leroy (2006), a governance arrangement is the ensemble of rules, processes, and instruments that structure the interactions between public and/or private entities to realize collective goals for a specific domain or issue. In this research, the GBM is evaluated as a governance arrangement.

To evaluate the governance arrangement for GBM several criteria are important. Termeer *et al.* (2011) developed three principles for the evaluation of governance arrangements of climate adaptation. The principles from Termeer *et al.* can also be applied to green bonds, since the governance structure of green bonds fit within the definitions of governance arrangements.

According to Termeer *et al.* good governance is defined as being be (a) legitimate, that is, ensure transparency, accountability, fairness, and equity; (b) effective, that is, address the mitigation and adaptation task decisively and efficiently through the right mix of strategies and tools; and (c) resilient, that is, enabling both autonomous adaptation and constructive, long-term capacity.

Why did Termeer and colleagues chose for these criteria for good governance? First, they stated that adaptation to climate change is in the public interest. Therefore, Termeer *et al.* assumes that legitimacy is a basic condition without which the pursuit of public good is plagued by deadlock, resistance, and even collapse. The same accounts for the governance arrangement of the GBM since the environmental purpose of the GBM is in the public interest. Likewise, for the investor and for the Government of China, legitimacy is important to reduce the chance of ***greenwashing*** by the issuer.

The criterion of effectiveness answers the basic question: "Does it work?". Connected to effectiveness is efficiency: Is the right mix of strategies used to achieve the desired effect as economically as possible, with the minimum of governmental resources and minimal burden? (Termeer *et al.*, 2011). For the governance arrangement GBM this is an important question as the Government of China has set ambitious environmental targets and it is uncertain to what extent the GBM can contribute in reaching these targets.

The last criterion of good governance, resilience, implies that the arrangements should enable short-term interventions and autonomous adaptation and build long-term adaptive capacity without diminishing traditional legality and legitimacy. According to *Termeer et al* (P.179) "it requires governance arrangements to be both robust and flexible at the same time". For the governance arrangement of the GBM resilience is essential to maintain the two-fold function.

4. METHOD

The governance arrangement of GBM is evaluated by means of the criteria; legitimacy, effectiveness and resilience.

To evaluate the legitimacy of the governance arrangement it is investigated whether the GBM is transparent and accountable. To test this criterion, information about the rules, instruments and processes must be gathered. This information derives from reports of the Chinese GBM. These reports are mainly written by the Green Bond Initiative (CBI) and financial institutes. The information derived from the reports will be analysed by means of the ADICO model (Crawford and Ostrom, 1995). ADICO consist of five components: **A**ttributes, **D**eontic, a**I**m, **C**ondition and **O**r else. The **A**ttributes defines to whom the rules apply for. **D**eontic applies to action and outcomes; are they permitted (may), obliged (must) or forbidden (must not). A**I**m stands for the action or outcome to which a the deontic refers. **C**onditions answers the question; when, where and how are the rules applied? **O**r else stands for the sanction to be imposed for not following the rules (Crawford and Ostrom, 1995). The ADICO model will help to evaluate the rules of the GBM. By using this information conclusion can be drawn on the legitimacy of the GBM in China.

The second criterion is effectiveness. To operationalize the criteria of effectiveness it is investigated whether the goals of the GBM are achieved. First, it is discussed what the financial and environmental goals are and how they can be measured. Then, it is examined whether the right policies incentives are used to achieve the goals. Information about the right policies incentives for green finance are provided by the reports from the CBI and other financial institutions. The recommendations made in the reports, on the right tools and strategies, are compared with literature on the governance of bonds and green finance. This literature is found by using the search term 'Green Finance AND Policies' or 'Green Finance AND financial tools'.

With the last criterion, resilience, it is investigated whether the market can maintain its two-fold function when adaptations are made. Termeer *et al.* stated that resilience is about two important manifestations: it is about the ability of adaptation without diminishing traditional legality and legitimacy, called resistance. For the GBM, both manifestations are important, namely whether adjustments and adaptations within the governance structure of the Chinese GBM served to two-fold function and whether there is a 'bounce back' mechanism within the GBM to maintain the two-fold function whenever there is a disbalance.

So, both the adaptations and the resistance are investigated. The adaptations are examined by evaluating the development of the market from 2015 till 2017. What kind of adjustments were made and what were the effects? For the resistance, it is investigated whether the market has any kind of bounce back mechanism to protect to twofold function. By answering these questions, conclusions can be drawn on the resilience of the GBM in China.

In the following chapter, the findings of the three criteria tested are discussed.

5. FINDINGS

5.1 LEGITIMACY

To test whether GBM of China is legitimate, it is interesting to take a closer look at process and rules of the GBM. In chapter 2.3 and 2.4 this was outlined roughly. Here, a short recap is provided by means of the ADICO model, as described in the method section: If the issuer (**A**) choses to issue a green bond (**C**), the issuer must (**D**) make sure that all assets and proceeds will be beneficial to the green project that contributes to the environmental goals (**I**) of China.

The **C**onditions of the GBM can be answered with the question: How are green bonds issued and is this process transparent and accountable? In chapter 2.4 this was shortly discussed. However, it is interesting to look in more detail into the component of Conditions to fully evaluated the legitimacy of the GBM. Also, the last component, the **O**r else component, of the ADICO model has not been discussed. Therefore, this section will take a closer look in these two components of the ADICO model to evaluate the legitimacy of the GBM.

5.1.1 CONDITIONS

GUIDELINES

When the first green bond was issued in 2015, there were no guidelines or regulatory systems set by the regulators to secure the twofold function of the GBM. Therefore, the PoBC established in December 2015 guidelines to strengthen the transparency and the accountability of the green bonds. These guidelines included, among other things, the external reviews and reporting. For this research, these guidelines of the PBoC will be further investigated, because the PBoC is responsible for the largest amount of outstanding green bonds.

Some aspects of the guidelines of the PoBC align with the international GBP as described in section 2.3.2. However, guidelines about external reviews and reporting do not align with the GBP. It is important to further investigate the differences between the Chinese and international standards to evaluate the legitimacy of the Chinese GBM.

- #### EXTERNAL REVIEWS

The PBoC encourages it issuers to make use of the independent review (CBI, 2017). However, this is not mandatory. The PBoC does not make a distinction between ***second-party review*** and ***third-party certification***. Also, the guidelines of the NDRC are different from the PBoC, since they do not provide criteria for managements of proceeds and reporting. Other regulators are still developing their guidelines (CBI, 2016).

So, it can be stated that there is no standardised procedure for providing external review on green bonds in China, because each regulator and each reviewer uses its own criteria and procedure. Although the use of a second-party reviewer on international GBM is more common, it is also not standardised. Therefore, the external review and assurance do not fully guarantee transparency and accountability.

- #### REPORTING

Reporting on the green bond is important because it provides investors with information on their investment and can provide information beyond the financial performance of the bond. This will strengthen the transparency and accountability of the green bonds.

In China, reporting on the use of the proceeds is required by the PBoC, but the environmental impact report is optional. So, for the environmental impact of the GBM there is no guarantee of transparency and accountability (CBI, 2017).

The international GMB has a more comprehensive recommendation for reporting on use of proceeds, management of proceeds and environmental impacts, moving to standardisation conform the GBP (CBI, 2016). So, it can be stated that the guidelines for reporting and disclosure in China has not reached their potential yet.

5.1.2 OR ELSE

The conditions, as described above, ensure that proceeds of green bonds are used to invest in the right projects. What happens when these proceeds are used for other purposes, when rules are not followed? Now, there are no formal measurements or sanctions to be imposed (Reed Smith LLP, 2016). The management and the reporting on the proceeds should be sufficient to make sure that proceeds are right allocated. Also, the independent review will help the issuer to align with the environmental ambitions. If rules are not obeyed, its harms the trust of the investors which is bad for the reliability of the issuer.

In this chapter the legitimacy, that is transparency and accountability of the GBM was examined by using the ADICO framework. The regulators set up guidelines for the external review, the management of the proceeds and the reporting. Although these guidelines should strengthen the legitimacy, they have not yet reached its potential, since the guidelines are not standardized and aligned with the international GBP. Also, there is no sanction to be imposed when these guidelines are not followed. This all weakens the legitimacy of the governance arrangement of the Chinese GBM.
In the next two chapters, it is investigated whether the GBM is effective and resilience.

5.2 EFFECTIVENESS

According to Termeer *et al*., effectiveness answers the basic question: "Does it work?". To answer such a question, targets are needed. The annual target of green bond issuance is RMB 300 billion (Reed Smith LLP, 2016). This target has not been reached (CBI, 2017). However, there is no 'environmental target' set by the government that the GBM must reach. Therefore, only the economic effectiveness can be measured.

Part of effectiveness is also efficiency: Is the right mix of strategies used to accelerate the growth of the GBM? Now, the investors demand is outstripping supply (CBI, 2017). This is mainly because many investors want to invest in green bonds, however, there are not enough suitable green bonds to invest in. This is mainly because the GBM is a young market with a new feature that makes the investment risk high: unknown ***credit risks*** associated with new technology

To close the gap, banks and the government have set up policies to increase supply. Such as ***tax incentives***, ***credit enhancement*** *and* ***green securitization*** (Dai, Kidney and Sonerud, 2016).

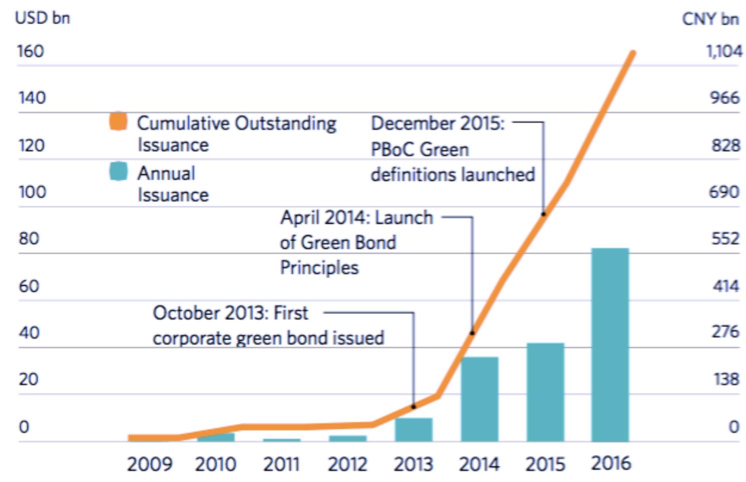

Figure 5. Annual and cumulative green bond issuance. Source: CBI, 2017

The policies incentives and the financial instruments accelerated growth of the GBM. As shown in figure 5, the market has grown rapidly, led by large issuers such as Shanghai Pudong Development Bank, Industrial Bank and Bank of Communications (Dai, Kidney, and Sonerud, 2016). However, what strategies and tools are used to improve also the environmental function of the GBM?

As shown in figure 5, in 2015 the PBoC set up the Catalogue. The Catalogue exists of six categories with 31 sub- categories of projects that are eligible for financing via green bonds (CBI, 2016). These categories are in line with China's environmental policies. The guidelines from the NDRC mostly aligned with the Catalogue, except that the NDRC also includes projects with nuclear energy production.

In 2016, one third of the green bonds issued did not meet the global standards, as shown in figure 6. For instance, within the GBP there is no difference between clean coal and dirty coal; coal is coal. However, China also includes clean coal projects in the Catalogue (Cheng, 2017).

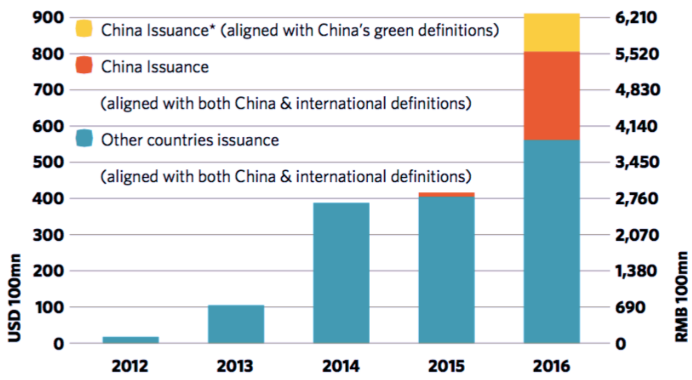

Figure 6. The growth of the Chinese GBM. Source: CBI, 2017

To strengthen the efficiency of the GBM, China could harmonize its guidelines, including the categories, with the international market. Without a standardized procedure, the investor must evaluate the green credentials of each individual green bond issuance, which keeps their transaction costs relatively high. Harmonizing the guidelines makes it easier for international investors to invest in a green bond in China. This will facilitate international capital to flow at a greater scale into China's domestic green bond market (CBI, 2016). Furthermore, it will also be easier for an investor to compare green bonds from different issuers.

Thus, it can be concluded that the banks and government are using the right mix of tools as policies incentives and financial instruments, to reach its economic targets.

Since there is no environmental target, no conclusions can be drawn on the ecological effectiveness of the GBM. However, the establishment of the guidelines, including the Catalogue, did help to secure the environmental purpose of the GBM. Nevertheless, these guidelines have not reached its potential since it would be more effective and efficient if they harmonized and standardized with the international GBP. Therefore, the economic effectiveness of the governance arrangement of the GBM is sufficient, while the environmental effectiveness of the governance arrangement of the GBM is weak.

5.3 RESILIENCE

As mentioned before, resilience is about the capability of the GBM to adapt without diminishing the original two-fold function of the Chinese GBM. In the previous chapters, several adaptations were discussed. It was stated that the GBM is more focused on accelerating economic growth than greening the economy, because of absent environmental targets for the GBM and environmental impact reports of the green bond projects. In the previous chapters, it was also stated that the danger for greenwashing is real, since the legitimacy of GBM is weak. Thus, it could be stated that the environmental function of the GBM is not as strongly preserved as the economic function. Therefore, the first manifestation of resilience, the ability of adaptation regarding to the environmental function of the GBM, is not strong.

The other manifestation, that is resistance, is not yet discussed. Therefore, it is investigated whether the governance arrangement of the Chinese GBM can rebalance its market.

Unlike other countries where green bonds are unregulated, China has chosen to regulate its GBM (Leeds Smith, LLP, 2016). For this reason, the government makes use if the regulators. They also set up the Green Finance Committee (GFC) of the China Society of Finance and Banking (GFMA, 2017). The committee was set up to promote the development of green finance in China by organizing policy research, facilitating policy implementation and disseminating the best practices of green finance among Chinese financial institutions (GFMA, 2017). This committee is led by China's central bank and includes an elite group from China's financial community. The elite status of this group demonstrates the political will behind the green finance initiative in China.

The political will to achieve the environmental targets is increasing in strength. Even when the U.S. withdrew from the Paris Agreement, China decided to continue with the agreement. Chinese President Xi Jinping said: "All signatories should stick to it instead of walking away from it, as this is a responsibility we must assume for future generations". With this statement, China can be seen as the new leader on Climate Change (Nunez, 2016).

As Termeer *et al.* stated, climate change is in the interest of the public. The people of China have their concern about climate change, especially about air pollution (Lin and Xu, 2014). The Chinese premier, Li Keqiang, promised to make "the skies blue again" (Clark, 2017).

The social and political will to achieve the environmental targets is very important for the Chinese GBM. Especially the political will is important since in the past the Chinese Government has proven its capability to adapt the Chinese financial system. In 1997, several bank scandals, such as fraudulent issues, occurred after which the government took back control by regulating the Chinese stock market and making institutional changes (Green, 2004).

So, it could be stated that the Chinese Government can act as the 'bounce back' mechanism. At this moment, the government is working on policies and regulatory systems to harmonize its standards more closely with global ones (Economist, 2017) to secure the environmental function of the GBM.

In short, for the criteria of resilience it was investigated that the adaptations made were insufficient to balance the two-fold function of the Chinese GBM. However, it was also found that the state regulates its GBM closely and that they are capable of making interventions in the GBM to strengthen the environmental function.

6. DISCUSSION

6.1 FINDINGS

6.1.1 LEGITIMACY

The legitimacy of the GBM was evaluated as weak. To strengthen the legitimacy, the Government of China should harmonize its guidelines with the international GPB. However, even the international standards are not totally legitimate. For instance, 15 percent of the green bonds issued in 2017 did not undergo an external review. The WWF, a conservation NGO, warned that the lack of a global standard opens up the risk of “greenwashing” (Economist, 2017).

And even more, as long as no sanctions can be imposed for greenwashing, the GBM relies on good intentions of the issuer and the investor. However, some financial experts stated that investors won’t look too closely at how green bond is (Cheng, 2017). Some experts even say that not all issuers are focussed on the environmental credentials, some issuers are just seeking for a quicker channel for fundraising (Cheng, 2017).

So, with the current governance structure of the Chinese GBM both the investor and the issuer must have good intentions, because there is no independent authority to monitor whether the guidelines are followed. There is also not an independent monitoring system that monitors the external reviewer etc. So, fraud is easily committed.

6.1.2 EFFECTIVENESS

Since there were no environmental targets, no conclusions could be drawn on the environmental effectiveness of the GBM. However, the question whether the concept of green bonds works, is an important question. Especially, to evaluate the concept of green growth, mentioned in the beginning of this research. To prove that the GBM can be fruitful, it is important that the environmental impact assessment is required when issuing a green bond. Only then the ecological effectiveness can be measured.

Another interesting aspect of the Chinese GBM is that it includes coal within the definition of green. a major part of China’s environmental problems is air pollution (Cheng, 2017). With the green investments strategy, the Chinese Government wants to make a transition to renewable energy. However, it is questionable whether this transition will be possible when clean coal is still eligible.

6.1.3. RESILIENCE

For the evaluation criteria of resilience, it was investigated that the adaptations made were insufficient to balance the two-fold function of the Chinese GBM. The Chinese Government was considered as a possible agent to rebalance the market to its original two-fold functions.

At the moment, the Chinese Government has high environmental ambitions and endorse the concepts of green growth. However, it is more beneficial and sustainable for the governance structure of the GBM when there are other laws of regulations that could work as a bounce back mechanism. For instance, imposing sanctions for greenwashing. The independence of the good intentions from both the investor and issuer as the governance will not only weaken the legitimacy, but also the resilience of the Chinese GBM.

6.2 METHOD

In this research, the governance structure has been evaluated. This was done with information from several sources, such as reports from banks or articles from journals. These reports and journals were often about the Chinese GBM in general. Precise information on how China regulates its GBM was only found in the reports of the Climate Bonds Initiative. It could be stated that much information was derived from one source, which can make the information less reliable. However, the information was confirmed and double checked by other sources like reports from the regulators as PBoC or other financial institutions as the IBRD and World Bank. Unfortunately, sometimes the double check was not possible as documents were written in Mandarin.

With the evaluation criterion of effectivity, several financial instruments were discussed. However, these financial instruments are complex and in this research the potential could not fully be investigated. Due to time and word restrictions, only the basics of these instruments were discussed.

Moreover, some elements of the governance structure have been left out due to time and word restrictions. For instance, it would have been interesting to further investigate the practices of the second and third reviewer: Which criteria do they use? However, the information used in this research was sufficient to answer the research question.

7. CONCLUSION

This research attempted to answer the question: 'To what extent is the GBM provided with a good governance structure?'. The governance structure of the GBM was investigated by means of the three evaluation criteria from Termeer *et al.*, namely legitimacy, effectiveness and resilience.

The legitimacy of the Chinese GBM is evaluated as weak, since the external review and the reporting are not standardized and do not align with the international GBP. There is also no independent authority body to monitor and impose sanctions when guidelines are not followed.

The last two years several financial policies and tools were successfully introduced to accelerate the growth of the GBM. The economic effectiveness of the governance arrangement of the GBM is seen as sufficient. Since there are no environmental targets, no conclusions could be drawn on the environmental effectiveness of the GBM. However, the establishment of the guidelines, including the Catalogue, did help to secure the environmental purpose of the GBM. Nevertheless, these guidelines have not reached its potential. Thus, the environmental effectiveness of the governance arrangement is evaluated as weak.

The resilience of the governance arrangement of Chinese GBM is evaluated by looking at adaptions that serve the twofold function of the GBM. Several adaptations, like using policy incentives and financial instruments, have yield their benefits. However, the position of the second function of the GBM, that is reducing environmental impact, is still weak. It was found that as the Chinese Government closely regulates the GBM and also endorse the environmental goals, the government can act as a 'bounce back mechanism' to restore the balance between the two functions of the market.

Thus, the governance arrangement of the GBM does not meet the requirements of good governance as defined by Termeer *et al.* It can be stated that the governance arrangement still needs to develop, especially on the securitization of the environmental purpose of the GBM. The first step would be to harmonize the guidelines with the GBP and to establish sanctions for green washing.
Another recommendation is to make the environmental impact report mandatory for green bonds projects. Only then it can be investigated whether the two-fold function of the GBM can be realised.

GLOSSARY

- ***Asset backed or securitised bonds***

Similar to ordinary bonds but have specific assets whose revenues pay the interest and principal. An ordinary bond's payments are generally guaranteed by the company that issues them. In asset backed or securitised bonds a set of revenue generating assets are put into a special purpose company and these assets pay the bond holder their interest and principal.

- ***Bond***

A financial debt instrument issued to investors for a predetermined duration of time and ***interest rate***. Investors in the bond market are typically paid a fixed interest rate (coupon) for the duration of their loan and returned their initial investment upon maturity. As such, bonds are often referred to as fixed-income securities. Bond issuers can take the form of private companies, supranational institutions, or public entities (municipal, state, or federal).

- ***Credit enhancement***

Use of personal property as a collateral, or of third-party guaranties (such as that of a co-maker or a standby letter of credit) to augment one's qualification as a bidder or a borrower.

- ***Credit ratings***

A rating of the likelihood of credit default (credit-worthiness) of an investment, used by most investors to assess the comparative risk of investment opportunities. Most ratings are provided an "independent" agency, usually one of the three major rating agencies, Moody's, Standard and Poor's (S&P) and Fitch. The three agencies all have similar rating categories.

- ***Credit risk***

The risk that a bond will default on its payments

- ***External review/independent review:***

External reviews of green bonds are intended to provide investors with confidence in the issuer's claims on the environmental credentials of the bond. There are two types of external reviews: second party opinion and third party verification.

- ***Green bonds assessments***

In early 2016, the international rating agency Moody's announced a Green Bond assessment framework for public consultation. The Green Bond assessment does not set out specific criteria for what is green, but provides a framework to assess issuers' management, administration and reporting on environmental projects financed through green bonds.

- ***Green Bond Principles***

The Green Bond principles are a set of voluntary guidelines developed around the design and reporting characteristics of green bonds. The principles promote the idea of green bonds being about the use of

proceeds for green assets rather than for green “issuers”. They cover establishing sound management processes for the use of proceeds and the use of independent reviewers for both environmental credentials and robust reporting practices.
The GBP also include a broad set of categories to qualify which projects and assets are green. These categories are: Renewable energy, energy efficiency (including efficient buildings), sustainable waste management, sustainable land use (including sustainable forestry and agriculture), biodiversity conservation, clean transportation, sustainable water management (including clean and/or drinking water), climate change adaptation.

- ***Green ratings***

Green ratings address an emerging demand for a graduated approach to ‘greenness’ where light green indicates minimal environmental benefits and dark green represents significant benefits.

- ***Green securitisation***

Works in the same way as normal ***securitisation***, where various cash flow generating assets are pooled together and transferred to a ***‘special purpose vehicle’ (SPV).***

- ***Green washing***

When a corporation supports the efforts of going green but, in turn, damages the ecosystem by manufacturing harmful products or providing detrimental services.

- ***Interest rate***

The annualized cost of credit or debt-capital computed as the percentage ratio of interest to the principal. Each bank can determine its own interest rate on loans but, in practice, local rates are about the same from bank to bank. In general, interest rates rise in times of inflation, greater demand for credit, tight money supply, or due to higher reserve requirements for banks. A rise in interest rates for any reason tends to dampen business activity (because credit becomes more expensive) and the stock market (because investors can get better returns from bank deposits or newly issued bonds than from buying shares).

- ***Issuer***

The issuer of the bond (i.e. borrower of the money) defines the ***credit risk*** of the bond. That is, the likelihood that the investor will be repaid their initial loan. For example, governments are generally considered to have a low credit risk, although this generally varies between rich countries and developing countries.

- ***Second party reviewer***

An assessment of the green credentials of a bond provided by an organisation with environmental expertise and commissioned by the issuer. Often the second party is engaged early in the process, and works with the issuer to develop a green bond framework and then evaluates that framework.

- ***Special Purpose Vehicle (SPV)***

A discrete renewable energy business created around a project, in a legal form, to permit lending and equity investments, disconnected from other obligations or activities of a company. For example, a utility forming a joint venture with a partner will use an SPV as a clean legal structure for the enterprise. From a bank perspective providing project finance into an SPV can ensure it has uncontested rights over the assets, an equity investor will invest into an SPV often restricting its obligations to that SPV company and not linking it to the ownership of other activities of the investor.

- ***Tax incentives***

Deduction, exclusion, or exemption from a tax liability, offered as an enticement to engage in a specified activity (such as investment in capital goods) for a certain period.

- ***Third party certification***

Can be used to certify a bond against an existing standard using an approved verifier.

REFERENCES

Aglietta, M. and Bai, B. (2016). China's 13th Five-Year Plan. In Pursuit of a "Moderately Prosperous Society"

Bleuming, B., & Yun, S. (2016). Given green teeth to the tiger? A Critique of 'green growth' in South Korea. In G. Dale, M. Mathai, & J. Puppim de Oliveira, Green Growth: Ideology, political economy and the alternatives (pp. 114-130). London: Zed Books Ltd.

Bloomberg. (2016, 11 07). In China, Black Is the New Green. (C. Langner, Producer). Retrieved on 06 04, 2017, from Bloomberg Gadfly: https://www.bloomberg.com/gadfly/articles/2016-09 08/china-s-green-bond-market-is-still-getting-black-marks.

Brand, U. (2012). Green economy–the next oxymoron? No lessons learned from failures of implementing sustainable development. GAIA-Ecological Perspectives for Science and Society, 21(1), 28-32.

Buttel, F. H. (2000). Ecological modernization as social theory. Geoforum, 31(1), 57-65.

Cheng, L. (2017, May 09). Colour of money: What's green and what's not? Shanghai Daily.

Clark, A. (2017, 05 22). China's environmental clean-up to have big impact on industry. Financial Times.

Climate Bonds Initiative and International Institute for Sustainable Development. (2014). How to issue a green bond; a step to step guide. Climate Bonds Initiative.

Climate Bonds Initiative. (2016). Roadmap for China: Green Bonds Guidelines for the next stage of Market Growth. Climate Bonds Initiative.

Climate Bonds Initiative. (2017). China Green Bond Market 2016. Jointly by the Climate Bonds Initiative and the China Central Depository & Clearing Company (CCDC).

Crawford, S. E., & Ostrom, E. (1995). A grammar of institutions. American Political Science Review, 89(03), 582-600.

Dai, W., Kidney, S. and Sonerud, B. (2016). Roadmap for China: Scaling up the green bond market issuance. Climate Bonds Initiative.

Economist. (2017, 08 06). Green bonds channel private-sector funding to the climate. But questions persist about the proliferation of "green" standards. Bounding Alone. Economics and Finance. Retrieved on 06 11, 2017, from: http://www.economist.com/news/finance-and economics/21723138-questions-persist-about-proliferation-green-standards-greenbonds

Galaz, V., Gars, J., Moberg, F., Nykvist, B., & Repinski, C. (2015). Why ecologists should care about financial markets. *Trends in ecology & evolution*, *30*(10), 571-580.

GFMA. (2017). Greening the Financial System. Retrieved on 06 23, 2017, from: Global Finance Markets Associations: http://www.gfma.org/green2016/

Green, S. (2004). The development of China's stock market, 1984-2002: equity politics and market institutions. Routledge.

Green Bond Catalogue (2015). Green Finance Committee of China Society of Finance and Banking.

Hoffmann, U. (2015). Can green growth really work and what are the true (socio-) economics of Climate Change? United Nations Conference on Trade and Development (UNCTAD), CH Geneva.

International Bank for Reconstruction and Development and World Bank. (2015). What are Green Bonds

Invest Smart (2017). Investment product: bonds. Retrieved on 06 23, 2017 from: https://www.investsmartsc.my/investment-product/bonds

Jakob, M., & Edenhofer, O. (2014). Green growth, degrowth, and the commons. Oxford Review of Economic Policy, 30(3), 447-468.

Leroy, P., & Arts, B. (2006). Institutional dynamics in environmental governance. In Institutional dynamics in environmental governance (pp. 1-19). Springer Netherlands.

Levidow, L. (2014). What green economy? Diverse agendas, their tensions and potential futures.

Li, Keqiang. “Report on the work of the government.” March 5, 2014. Retrieved on 04 28, 2017, from:

Lin, J. Y., & Xu, J. (2014). The potential for green growth and structural transformation in China. Oxford Review of Economic Policy, 30(3), 550-568.

Lorek, S., & Spangenberg, J. H. (2014). Sustainable consumption within a sustainable economy beyond green growth and green economies. *Journal of cleaner production*, *63*, 33-44.

Mol, A. P., & Sonnenfeld, D. A. (2000). Ecological modernisation around the world: an introduction.

Mol, A. P., & Janicke, M. (2009). The origins and theoretical foundations of ecological modernisation theory. In *The Ecological Modernisation Reader. Environmental Reform in Theory and Practice.* (pp. 17-27). Routledge.

NDRC. (2016). The Road from Paris: China’s progress towards its climate pledge. Retrieved on 06 01, 2017, from: https://www.nrdc.org/sites/default/files/paris-climate-conference-ChinaIB.pdf.

Nunez, C. (2016, 03 28). China Poised for Leadership on Climate Change After U.S. Reversal. Retrieved on 06 14, 2017, from: National Geographic: http://news.nationalgeographic.com/2017/03/china-takes-leadership-climate-change trump-clean-power-plan-paris-agreement/

Reed Smith LLP. (2016). Navigating the Green Bonds Markets in China.

Runhaar, H.A.C.& Cörvers R.J.M. (2008). Omgevingsbeleid: analyse, evaluatie en ontwerp. Open Universiteit Nederland.

Termeer, C., Dewulf, A., van Rijswick, H., van Buuren, A., Huitema, D., Meijerink, S., & Wiering, M. (2011). The regional governance of climate adaptation: a framework for developing legitimate, effective, and resilient governance arrangements. Climate law, 2(2), 159-179.

World Bank (2007). Cost of pollution in China; Economic estimates of physical damage. Retrieved 05 07, 2017, from:

https://siteresources.worldbank.org/INTEAPREGTOPENVIRONMENT/Resources/China_Cos of_Pollution.pdf

World Commission on Environment and Development (1987): Our Common Future. Oxford University Press.