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Out of the Window? Green Monetary Policy in China: Window Guidance and the Promotion of Sustainable Lending and Investment*

Simon Dikau Ulrich Volz

Abstract

Chinese monetary and financial authorities have been among the pioneers in promoting green finance. This paper investigates the use of one specific monetary policy tool, namely window guidance, by the People's Bank of China (PBC) and the China Banking Regulatory Commission (CBRC) to encourage financial institutions to expand credit to sustainable activities and curb lending to heavy-polluting industries. We investigate window guidance targets for the period 2001-2020 and find that 'green window guidance' was used by the CBRC from at least 2006 and by the PBC from 2007 to discourage lending to carbon-intensive and polluting industries and/or to increase support to sustainable activities. Both authorities stopped discouraging lending to carbon-intensive/polluting industries in 2014. Sustainable objectives were subsequently also removed from the PBC's list of priority sectors at the start of 2019, ending the practice of green window guidance in China. Sustainability-enhancing window guidance targets were replaced and formalised through new 'Guidelines for Establishing the Green Financial System', reflecting efforts to move away from controls-based towards market-based policy instruments. Based on this analysis, the paper draws four lessons for the design of green finance policies for other countries that seek to enhance sustainable finance and mitigate climate change and related risks.

Keywords: sustainable finance, central banking and financial supervision, China JEL classification: G1, G2, G3, Q01, Q5

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Key policy insights

- The Chinese experience suggests that directed lending through window guidance can be a useful instrument to help align the financial system with climate and other sustainability goals, but that such policies need to be fitted to the specific context in which they are used.
- The efficacy of window guidance and other directed lending policies diminishes as financial markets mature and direct monetary policy instruments become less powerful.
- When window guidance is used, it should be linked to clear criteria of success, the achievement of which should be monitored.
- Green window guidance should be embedded in a broader framework of green finance policies, as well as climate and environmental policies.
- While today's focus of sustainable finance policy in China lies primarily on the development of
 market-based instruments, the Chinese experience offers valuable lessons for other emerging
 market and developing economies.

1. Introduction

China has been one of the pioneers in developing green finance. Greening growth and steering the Chinese economy towards a more sustainable development path has been an important objective for Chinese government agencies for almost two decades. Achieving this goal necessitates a shift of investment away from carbon- and resource-intensive and highly polluting industries towards more sustainable, greener industries. China's leadership has made clear that it expects the financial sector to play a central role in financing and supporting this transition. China's green financial governance policies, including prudential supervisory and green finance guidelines, have received considerable attention in China and internationally over the last decade. However, little is known about how Chinese monetary and financial regulatory agencies have informally guided credit towards more sustainable investment. This informal process of credit allocation, known as window guidance, became a central policy instrument of the People's Bank of China (PBC), the country's central bank, since its initial adoption in the late 1990s (Geiger, 2008). Window guidance has also been employed by the China Banking Regulatory Commission (CBRC) (Ma and Spencer, 2004), the primary banking regulator. ¹ The use of window guidance to promote green lending while discouraging investment in environmentally harmful activities played an important role in the PBC and CBRC's set of policy instruments employed to contribute to the Chinese government's objective of greening the economy. A thorough understanding of this 'green window guidance' is important for deriving lessons for the design of green finance policies in China and elsewhere.

Previous research on the promotion of green finance and sustainable development in China has primarily focused on the green regulatory policies and credit guidelines that Chinese financial authorities have

¹ The CBRC was merged with the China Insurance Regulatory Commission (CIRC) in 2018 to form the China Banking and Insurance Regulatory Commission (CBIRC).

rolled out (e.g. Zadek and Chenghui, 2014; Yao, 2018; Volz, 2019), but has largely overlooked how informal guidance has been used for the same objective. The literature discussing window guidance in China, on the other hand, has focused on its effectiveness in controlling the growth of lending by commercial banks (Geiger, 2008; Fukumoto et al., 2010; Bell and Feng, 2013; He, 2014; Angrick and Yoshino, 2018; Beggs and Deer, 2019), but it has not addressed the sustainable finance dimension of window guidance. Moreover, the role of the CBRC as the country's primary banking regulator has been largely ignored by the literature on window guidance in China, even though it has been involved in various credit-guiding policies, as shown by this paper.

Against this backdrop, this paper investigates how the PBC and the CBRC used window guidance to guide credit towards green investment and away from harmful activities in order to promote sustainable investment and growth. Based on a detailed analysis of the PBC's quarterly monetary policy reports and the CBRC's annual reports, we examine window guidance targets for the period 2001-2020. The changes of sustainable window guidance targets are discussed against the background of bigger economic policy trends and developments in China. To the best of our knowledge, this paper is the first that examines the role of window guidance in greening bank lending in China.

The principle finding of this paper is that both institutions, the PBC and the CBRC, utilised qualitative window guidance to encourage banks to lend to specific priority sectors and refrain from extending credit to others. The qualitative targets of both institutions' window guidance policies are diverse and include a large and changing variety of national, social and economic priority industries and regions over the last decades. Importantly, between 2006 and 2019, targets included different sustainability-related objectives, confirming that both institutions actively pursued what we call 'green window guidance'. In 2014, however, the PBC and CBRC stopped discouraging lending to high energy-consuming and polluting industries. Subsequently, at the start of 2019, green finance was removed from the list of PBC targets and priority sectors, and green window guidance was effectively closed.

The phasing out of green window guidance targets occurred against the backdrop of a push towards the formalisation of comprehensive sustainable finance and climate risk-related financial policy in China. In September 2016, the PBC, along with the CBRC and five other governmental agencies, issued the Guidelines for Establishing the Green Financial System, which provide a comprehensive policy framework that has the aim of mobilising and incentivising investment in green sectors, while restricting credit flows to polluting industries. The guidelines also include greening 're-lending' operations (referred to as 'refinancing operations' by most central banks) by the PBC, specialised guarantee mechanisms as well as other prudential measures (PBC et al., 2016). While some of the proposed instruments are technically direct monetary policy tools employed to affect the allocation of credit, the implementation of the new guidelines, along with the phasing out of green window guidance targets, reflect a transition towards the formalisation of 'green monetary policy'. A greater emphasis on financial markets in financing green investments is also in line with the general shift from controls- to market-based monetary policy since the 2010s (Beggs and Deer, 2019).

Moreover, we show that the calibration of window guidance targets reflected the major economic, structural and environmental trends in China. While the maintenance of guidance targets to allocate credit away from heavy, energy-consuming and polluting industries was accompanied by a constant reduction of air pollution, the abandoning of these targets in 2014 coincided with (delayed) stagnation or even slight increases of pollution from 2016 to 2017. Furthermore, the consistent emphasis on renewable energy, energy saving and the low carbon economy as a qualitative target for credit flows accompanied an unprecedented rise in new investment in clean energy that transformed China's energy mix. In contrast, abandoning the targets coincided with a significant decline of investment in renewable energy.

Based on the analysis of China's experience with green window guidance, the paper draws four lessons for the use of these instruments and the design of green finance policies for other countries that seek to enhance sustainable finance and mitigate climate change and related risks. First, the Chinese experience suggests that directed lending through window guidance can be effective in reallocating capital towards green economic activities, even though it is difficult to isolate the effect. Second, the efficacy of window guidance and other directed controls-based lending policies diminishes as financial markets mature. Third, when window guidance is used, it should be linked to clear criteria of success, the achievement of which should be monitored. Authorities should also monitor potential distorting, unwanted side effects. Forth, green window guidance should be embedded in a broader set of green finance policies, prudential risk-focused frameworks, as well as general climate and environmental policies. Overall, the Chinese experience suggests that green window guidance can be a useful tool in a policy effort to align the financial system with climate and other sustainability goals, but that such policies need to be adapted to the specific context in which they are used.

The paper is structured as follows. Section 2 outlines the methodology and data that we use. Section 3 provides an overview of the broader sustainable finance policy landscape in China. Subsequently, Section 4 presents the empirical investigation of window guidance as a tool for greening the lending of Chinese banks, and an assessment of the development of green window guidance targets. Section 5 discusses policy implications for the promotion of sustainable finance and mitigation of climate change-related and environmental risks through direct instruments. Section 6 concludes.

2. Methodology and data

The article is based on an in-depth analysis of government documents, including regulations, policy reports and sustainable finance action plans. The empirical analysis is based on the review of the Annual Reports of the CBRC from 2006 to 2016 and the Quarterly Monetary Policy Reports of the PBC from Q1 2001 to Q3 2020. We then conducted a comprehensive desk-study and content analysis of the slected reports to identify and analyse the PBC and CBRC's account of 'window' or 'credit guidance' with regard to the inclusion or exclusion of factors relevant for directly supporting green sectors or restricting credit to heavy-polluting and energy intensive industries. The collected data sets were analysed using

qualitative methods of content analysis, grounded theory and discourse analysis (Hajer and Versteeg, 2005). The data were coded and analysed to identify emerging themes and key ideas (Tavory and Timmermans, 2014). We also conducted anonymous interviews with several policy makers from the PBC and the CBRC/CBIRC as well as experts in this area to verify our findings and interpretation. Any study of this kind comes with limitations: First, while the findings on the inclusion, and later exclusion, of sustainability window guidance targets from the policy reports of the CBRC and PBC do reflect the broader developments of the Chinese economy and sustainability agenda, they provide an imperfect account of policy action. This study therefore does not allow for an assessment of policy impact or a quantitative evaluation of the effect of the changing calibration of window guidance on green and non-green financial flows. Instead, we conduct a stock-take and investigate the overall changing calibration, framing and role that window guidance has played in the instrument toolbox of the PBC and CBRC, as well as in the context of China's evolving sustainable finance policy agenda. Secondly, the focus of the study is on window guidance by the PBC and CBRC. There are potentially other policies with a similar effect implemented by the same or other financial authorities in China that are not described in this study, making it difficult to isolate the effect of green window guidance. Finally, the study investigates 'window' or 'credit guidance' activities that are labelled as such by the PBC and CBRC. We do not consider other indirect policies and instruments that are not explicitly labelled as 'window' or 'credit guidance'. Therefore, the analysis and results of this paper are based on the PBC and CBRC's identification and description of relevant policies, leaving open the possibility that the annual and quarterly policy reports that the study is based on omitted or overemphasised certain aspects of actual policy implementation.

3. Sustainable finance policy in China

Efforts in China to introduce sustainability objectives into the financial system, as well as the first policy initiatives by the PBC and other financial authorities date back to the 1980s (Zadek and Chenghui, 2014). Table A1 in the Annex provides an overview of green finance policies since the 1990s. Important milestones include the joint issuance of the 'Opinions on Implementing Environmental Protection Policies and Regulations to Prevent Credit Risks', along with the Green Credit Policy in 2007 by the PBC, the CBRC and the Ministry of Environmental Protection (MEP), which also foreshadowed the wider inter-agency cooperation that was to come. In line with the objectives of window guidance at the time – the reduction of credit flows to high polluting and energy-intensive firms and the guidance of credit towards greener projects – the Green Credit Policy aimed at setting similar incentives by asking banks to include environmental compliance, as well as environmental and social (E&S) risk assessment as criteria to be considered in the loan origination process (IISD and FRI DRC, 2015). Furthermore, banks were required to cease lending to firms blacklisted by the MEP for environmental violations, as well as to projects that violate other green regulation (Shen et al., 2013), which also served to strengthen the cooperation between environmental protection and the allocation of credit. China's approach to enhancing sustainable finance has thereby centrally relied on the close cooperation between different

governmental agencies, including the MEP, the CBRC, the China Securities & Regulatory Commission (CSRC) and the CIRC. Yao (2018) has characterised this overall approach of Chinese authorities, among them the PBC and the CBRC, as a 'top-down' approach, in which macroprudential and monetary policy play key roles and which differs from the Western 'bottom-up' approach in which a central role is attributed to the private sector.

Over the past decade, a focus of authorities has been the development of classifications and a range of policies to define 'green' or 'sustainable' investments that have been introduced to encourage the development of green financial products and to enhance financial supervisory and regulatory mechanisms. Building on the 2007 Green Credit Policy ("Opinions on Enforcing Policies and Regulations on Environmental Protection to Prevent Credit Risk"), the CBRC published its Green Credit Guidelines in 2012 (CBRC, 2012), thereby introducing a first definition of green loans, which included 12 sectors and activities, including renewable energy, green transportation and green building (NGFS, 2019). These categories were further refined in 2014 through the publication of the Opinions on Green Credit Implementation (CBRC, 2014a) and the establishment of provisions for credit data in a CBRC notice on Submission of Green Credit Statistics Form, which requires banks to report the volume of its green loan portfolio and the associated environmental benefits bi-annually (CBRC, 2013). In 2015, the PBC was the first central bank to establish a green bond standard by issuing the Green Bond Endorsed Project Catalogue – guidelines defining criteria and categories for green bond projects, also covering green financial bonds within the inter-bank market (PBC, 2015).

The PBC played a central role in developing a green financial information system, a taxonomy of sustainable activities and the development of new green financial products, providing financial institutions with channels for debt financing to support green projects (PBC, 2016). Overall, the PBC has played a central role in mainstreaming green finance in China. Its mandate also tasks it to support orders given by the State Council (People's Republic of China, 2003), the paragraph on which is widely interpreted as enabling the government to issue legislation with far-reaching policy initiatives that can also involve the central bank (UNEP Inquiry, 2015). Apart from a recent focus on classifications, the incorporation of climate-related and environmental risks on the prudential, individual bank- and loan-based level, as well as the assessment through the development of environmental stress testing for the banking sector has been the target of policy initiatives, supported through the Green Finance Committee, which was established by the PBC in 2015 (Volz, 2017). In this context, the PBC has also incorporated green finance into its macroprudential framework in order to incentivise the scaling up of green finance (ibid.). The aim of these prudential policies by the PBC and the CBRC is to impose tighter regulatory oversight of financial institutions and to direct them to undertake environmental due diligence and monitoring of their clients' and prospective clients' exposure to environmental risk (Ho, 2018).

The CBRC, on the other hand, has been active in guiding banks towards assessing environmental standards in the credit review process and is furthermore tasked with enhancing E&S risk management practices (Aizawa and Yang, 2010). In 2012, the CBRC (2012), through the issuance of its 'Green Credit

Guidelines' and a monitoring framework for its implementation, introduced voluntary recommendations with the aim of encouraging banks to adopt E&S risk governance standards and to increase support for green and low-carbon projects by asking banks to identify priority areas for green credit. The guidelines also require banks to customise the loan origination process and to develop criteria for the dynamic assessment and classification of client E&S risk and to use this information for, among other areas, credit ratings (CBRC, 2012).

Apart from a prudential view of climate change and related risks, Chinese sustainable finance polices have not only focused on enabling the financial system to mitigate financial risks, but considerable effort has also been invested in the scaling up of green finance. These policy initiatives of the last decades can also be attributed to the central government's economic development goals with sustainability objectives and low-carbon development having been included in China's Twelfth (2011-2015) and Thirteenth (2016-2020) Five-Year Plans (Ho, 2018). In this context, the instrument of window guidance has played a key role in guiding financial flows away from heavily polluting industries and towards greener, more sustainable sectors.

The Guidelines for Establishing the Green Financial System, which were released by the PBC, along with the CBRC and five other governmental agencies in 2016, describe a comprehensive plan that utilises market- as well as controls-based policy instrument to further scale up sustainable investment (PBC et al., 2016). A strong emphasis lies on the establishment of a formal framework to enable green lending, including provisions for a 'green credit statistics system' and a 'green banking evaluation mechanism' to strengthen the monitoring of the use of credit. Furthermore, the guidelines stress the role and development of securities markets and other market-based instruments for supporting green investment. Nonetheless, the use of direct monetary policy instruments in the form of green refinancing operations for green loans are also included in the guidelines.

Internationally, China played an important role in promoting sustainable finance, not least during its G20 Presidency through the establishment of the G20 Green Finance Study Group, which was cochaired by the PBC and the Bank of England. The group was renamed into G20 Study Group on Sustainable Finance in 2018, but disbanded the same year. In March 2021, the PBC and the US Treasury were appointed co-chairs of the revived Sustainable Finance Study Group. The PBC also played a central role in the establishment of the Network for Greening the Financial System (NGFS) in December 2017 as one the eight founding members. The NGFS has since grown to 89 members and 13 observer central banks and supervisors (as of April 2021). The PBC is leading the network's Research Workstream.

4. Window guidance and the promotion of green finance

Despite its importance as a central element of Chinese monetary policy, there has been little analysis of the qualitative targets of window guidance in general, and on how these targets have been continuously changed in line with national priorities, including the aim of enhancing sustainable growth, in particular.

To fill this gap, we conduct a detailed analysis of the PBC's and the CBRC's policy reports for the periods 2001-2020 and 2006-2016, respectively. In the following, we review the use of window guidance by the PBC and CBRC, respectively, and examine how sustainability targets were included.

The PBC's window guidance targets

To analyse the qualitative targets of the PBC's window guidance, and specifically the role of window guidance in promoting green finance, we investigate the central banks' *Quarterly China Monetary Policy Report* since 2001. The reports offer insights into how window guidance targets have been communicated by the PBC, and how the PBC values window guidance relative to other instruments. They also list the qualitative guidance targets the PBC has provided to financial institutions. The qualitative targets of the PBC's window guidance are referred to in the reports both as 'window guidance' and as 'credit guidance'. Independently of how its guidance efforts are labelled and translated, all investigated quarterly reports by the PBC provide a similar level of detail on the targets of its positive and negative credit guidance. Section Two of each *Quarterly China Monetary Policy Report* lists and discusses the PBC's monetary policy operations and instruments, and their targets and application. Window guidance has been one of the major instruments of monetary policy for the PBC in the last decade and is therefore also discussed as a separate instrument in Section Two of each report.

Figure 1 illustrates the qualitative targets of the PBC's window guidance. The green bars in the upper part of the figure denote an inclusion of positive targets, while the red bars in the lower part of the figure denote the inclusion of a negative target in a quarterly report. From the first quarter of 2007 until the first quarter of 2019, the PBC regularly included positive targets for green lending. Negative targets were included almost regularly between the first quarter of 2007 and the third quarter of 2014, with the exemption of only five quarters.

Figure 1. Inclusion of positive green and negative non-green window guidance targets in the PBC's quarterly reports', 2005 Q1-2020 Q2



The third column of Table A2 in the Annex shows under which title and in which position window or credit guidance is discussed as a separate instrument in the reports, signifying the relative importance of window or credit guidance relative to other instruments. Over time, the discussion of window or credit guidance has moved further back in the listing of instruments. While window guidance was discussed as the PBC's third or fourth instrument until 2014, it has since moved to position seven, indicating a loss of priority or emphasis of the PBC's guidance operations. Figure 2 illustrates that window guidance has been continuously de-emphasised in the quarterly reports since 2013, reflecting the decreasing importance of the instrument in the PBC's monetary policy toolbox.

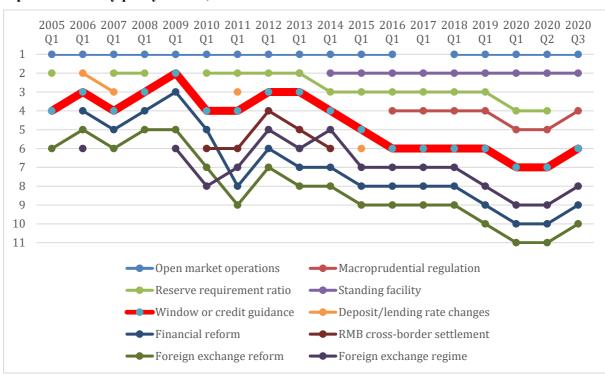


Figure 2. Relative position of the section on window or credit guidance in the PBC's quarterly reports' monetary policy section, 2005-2020

Note: Policy instruments that occurred irregularly are not included. Where instruments are missing in the ranking, the PBC has often used this section of the quarterly report to generally describe the use of certain instruments for specific goals (e.g. in Q1 2020, the PBC referred to COVID-19 as a third item and discussed 'structural monetary policy' in position 7).

Source: Compiled by authors based on the PBC's quarterly monetary policy reports.

Columns 4 and 5 of Table A2 list the positive and negative qualitative targets of the PBC's window guidance based on the description of its operations. A central finding is that the PBC utilised its credit and window guidance policy to enhance sustainable investment and discourage credit towards environmentally harmful activities. The targets of the PBC's positive green guidance have varied since 2010. From Q1 2007 until Q1 2013, the PBC usually included one or two specific sustainability targets, such as "efforts for energy savings", "emissions reduction" or "environmental protection". In Q2, Q3

and Q4 of 2013, the PBC did not list positive green window guidance targets, but began in Q1 2014 to include a more general "green" category in its guidance targets in the form of "green and environment-friendly areas" or simply "green finance". A more general green target continued to be included until Q4 2018, although with several disruptions (Q4 2014-Q4 2015, Q2 2016, Q4 2016-Q1 2017, Q1 2018), With regard to utilising negative qualitative window guidance, the PBC discouraged lending to "heavy energy-consuming and highly polluting industries" from Q1 2007 until Q2 2014 and included the goal in almost every quarter, but stopped including a negative target in its quarterly reports in the fourth quarter of 2014. In the quarterly reports since Q4 2018, the PBC has not included any positive green or negative heavily polluting targets in the outline of its window guidance operations.

Although it is no longer used in a green calibration, our empirical investigation shows that for the time being window guidance remains a central qualitative instrument for the allocation of credit to priority sectors and regions to date – at least for the PBC – with little indication for its abandonment. Despite the rapid development of financial markets in China since the 1990s, bank lending continues to dominate the Chinese financial system (Tobin and Volz, 2019), as shown in Figure 3. Yet, the experience with window guidance in Japan suggests that this instrument may become less effective in China going forward (Rhodes and Yoshino, 1999; Fukumoto et al., 2010; Angrick and Yoshino, 2018). The operations of the PBC, as well the financial system in which it operates today, are comparable to the environment in which the Bank of Japan effectively operated in the late 1980s and 1990s. Generally, the process of financial market development and liberalisation in China has already started to undermine the effectiveness of window guidance as a credit control instrument by opening up alternative channels for companies to obtain funds.

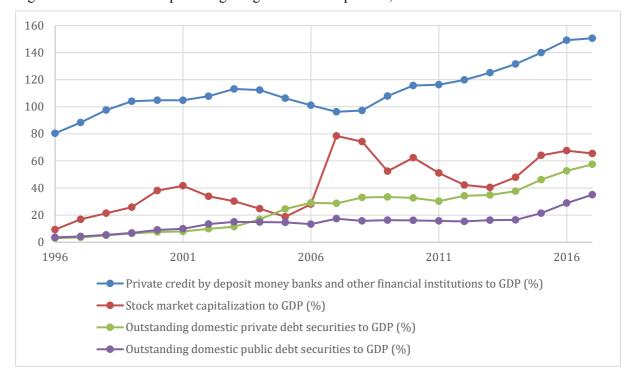


Figure 3. Total finance as percentage of gross domestic product, 1996-2017

Source: Compiled by authors with data from the World Bank Financial Development Index database.

The CBRC's window guidance targets

Similar to the account of the PBC's policy practice, the CBRC Annual Reports give insights into the institution's qualitative credit and window guidance targets. We investigate these targets for the period from 2006 to 2016 (around the time of the merger with CSRC, CBRC stopped publishing annual reports), with regard to the role that this guidance has played promoting green finance. While the CBRC issues a large number of official guidelines, guidance documents and supervisory notes, addressing a variety of issues, including risk management and credit allocation, the focus of this analysis lies on the activities through which the CBRC aims to allocate bank credit by "encouraging", "guiding" or "urging" banks to allocate credit according to its targets. While prudential instruments are also employed by the CBRC to create incentives that guide the allocation of credit, the CBRC is also engaged in an informal process of moral suasion that falls under the definition of window guidance established previously. However, the language used by the CBRC in its reports on its window guidance activities is often vague. Our analysis of the window or credit guidance targets in the English annual reports of the CBRC therefore includes all accounts of guidance targets that are not associated with formal policy instruments, are informal and can hence be characterised as providing window guidance. Nonetheless, the CBRC's ambition to informally guide credit can be clearly identified in the reports. For example, CBRC chairman Shang Fulin stated in 2014 that "we [the CBRC] further strengthened the incentive and restraint mechanism, guiding banking institutions to implement differentiated credit policies and strengthen credit support for key industries and projects" (CBRC, 2014b, p. 7), essentially describing the process

of window guidance as defined above, but without referring to the term itself and leaving no doubt about the far-reaching nature of its intervention into the portfolios of banks.

Table A3 in the Annex lists the targets of the CBRC's window and credit guiding activities and indicates whether the CBRC annual report directly mentions 'window guidance', and if so, with which aim and target it was employed. In what could be a result of the translation, in only five of the 11 reports under review does the CBRC refer to its credit guiding activities directly under the label 'window guidance'. However, all 11 reports list detailed qualitative lending targets, regions and sectors for informal credit guidance. Columns 3 and 4 list the qualitative positive and negative target industries, sectors, and regions of the CBRC's credit and window guidance operations. With regard to green guidance and the overall effort to enhance sustainable investment, it is possible to identify trends in the CBRC's guidance practice. First, from 2006 until 2013, the CBRC remained committed to employing negative window guidance in order to encourage banks to extend less credit to "high pollution, energy consuming and resource dependent industries" and sectors. However, mirroring similar observed patterns in the PBC's guidance targets, after 2013, the CBRC stopped its negative guidance through which it had induced banks to ease lending to polluting industries. Secondly, the CBRC's negative guidance preceded its positive guidance and promotion of green credit. While no positive green target sectors were yet included in 2006, the CBRC began in 2007 to list "green credit" as a positive target for bank lending for the first time. Between 2007 and 2016, the CBRC's positive green guidance became more complex and detailed. Until 2011, it focused mainly on "environmentally-friendly activities", the "low carbon economy" and "energy-saving and emission reduction projects", but included more detailed sectors from 2012 onwards and encouraged financial institutions to increase lending for "new energy vehicles" and renewable energy in general.

Interpretation and economic contextualisation of the development of green window guidance targets

The analysis shows that both the PBC and the CBRC made extensive use of informal credit or window guidance to allocate credit to sustainable priority sectors and away from heavy polluting industries. The start of green window guidance by the CBRC in 2006 and by the PBC in 2010 occurred against the backdrop of continuously rapid growth and severe and worsening environmental problems. While China's growth model since the late 1970s had been highly successful, it was also highly carbon intensive and polluting, and the positive effects on welfare from strong GDP growth were partially offset by the increase in air pollution and environmental damages (Day, 2005; Edmonds, 1998; World Bank, 2007, 2001, 1997). The short-term trade-off between growth and environmental protection that many developing and emerging markets are confronted with is well known, and it can be argued that China, in the context of an initially limited ability to achieve growth at low environmental costs, paid a significant environmental price for achieving rapid growth. The welfare reducing side-effects of rapid growth were taken increasingly seriously in the late 1980s and 1990s and led to the elevation of the National Environmental Protection Bureau to the status of a ministry in 1998 (Bramall, 2008). By the

mid-2000s, when China achieved GDP per capita growth rates well above 10% (Figure 4), growth was deemed sufficiently high and the adverse environmental impacts threatening enough to public health and political stability to justify interventions such as the introduction of negative window guidance targets by the CBRC to restrict financial flows to highly polluting sectors. However, the unwillingness of policymakers to sacrifice too much growth for carbon emission reductions and environmental protection continued. In the 12th Five Year Plan for the period 2010–2015, the Chinese government made a reduction in carbon intensity dependent on achieving at least 8% annual GDP growth during the time period in question (Qiu, 2011).

While high economic growth rates arguably provided the CBRC and the PBC with the room to introduce and then expand positive and negative window guidance targets, in 2014 both the PBC and the CBRC abandoned their negative window guidance targets. This adjustment coincided with a decline of GDP per capita growth below 7% for the first time since 1999 (Figure 4). Furthermore, the Chinese economy increasingly relied again on a more carbon-intensive economic structure between 2002-2009 (Guan et al., 2014) and, in the context of slowing economic growth after 2007 and sub-8% growth after 2012, window guidance targets that could have been perceived as impeding rapid economic growth were abandoned.

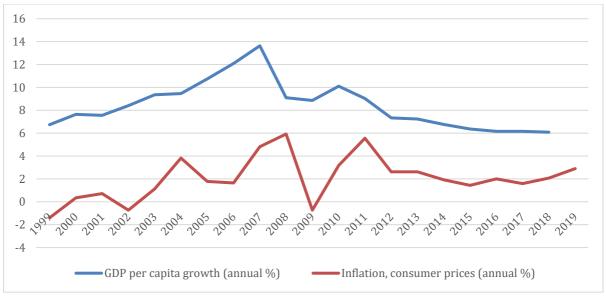


Figure 4. Inflation, consumer prices and GDP per capita growth (annual %) in China, 1999-2019

Sources: Compiled by authors with World Bank national accounts data, and OECD National Accounts data files, International Monetary Fund, International Financial Statistics and data files.

While the last published report of the CBRC from 2016 still included positive green window guidance targets, the PBC included these for the last time in Q4 2018 and has since refrained from using window guidance to allocate credit to green sectors. Although the PBC's positive targets had included the 'transformation of the energy mix' and 'clean energy' in its positive window guidance, the shift in focus first away from the mitigation of credit flows to carbon intensive industries and later the termination of

positive guidance is correlated with a broader policy change that negatively affected the renewable energy sector in China. In June 2018, the Chinese government began to phase out subsidies for most of its solar projects and subsequently reduced feed-in tariffs and limited subsidies for new solar generation, a sector that had boomed under extensive subsidies (Hook and Hornby, 2018). Furthermore, reflecting the halt of credit guidance in favour of clean energy, Chinese new investment in clean energy shrank considerably to US\$ 110.1bn in 2018 and decreased further to US\$ 100bn in 2019 from the peak of US\$ 162bn in 2017 (Figure 5). This 38% decline of investment from the peak occurred in the context of an economy with the highest wind and solar power capacities worldwide which at the same time is the most polluting one that remains the world's biggest builder of new coal-fired power stations (Hook, 2019).

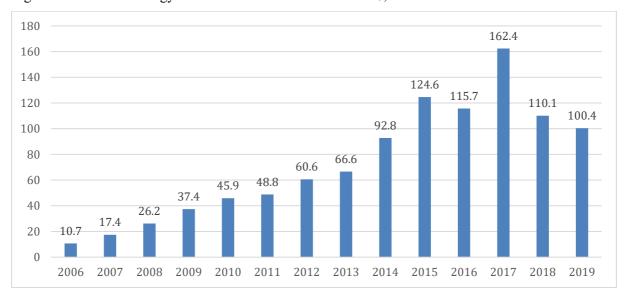


Figure 5: New clean energy investment in China in billion US\$, 2006-2019

Data: Compiled by authors with data from Bloomberg New Energy Finance.

Prior to the COVID-19-related economic slowdown in 2020, there had already been signs of a renewed and increasing interest in coal in China – the world's biggest producer and consumer of coal – and policymakers had begun prioritising low costs for power as a stimulus measure in response to overall slower economic growth, as reflected in lower coal prices and the building of new coal-fired power stations that challenged the credit guidance-deprived renewable energy sector (Hook, 2019). In the context of the COVID-19 crisis, stabilising the economy became the highest political priority and with some indications for environmental protection, climate change and a transition towards cleaner energy to be further deprioritised in face of the economic shock and pressure to stimulate the economy. Importantly, the emphasis of the central government on decarbonising the economy – which recently culminated in President Xi Jinping's commitment for China to hit peak emissions before 2030 and achieve carbon neutrality by 2060 – stands in contrast to the determination of provincial governments to prop up growth by all means. It has been noted that China's local governments are currently approving

plans for new coal power plant capacity at the fastest rate since 2015 and the construction of new coal power plant capacity that had been approved in the first half of 2020 has exceeded the one from 2018 and 2019 combined (Hale and Hook, 2020). While the new coal plants are used by regional and provincial governments as a means to stimulate their economies, the policy change follows a five-year period in which China tried to reduce its dependence on the heavily polluting commodity (ibid.). China's energy mix continues to be heavily dominated by coal, making up over 60% in 2017 (Figure 6). The announcement in June 2020 by the PBC, the CSRC and the National Development and Reform Commission (NDRC) of an updated "Green Bonds Endorsed Projects Catalogue" which excludes "clean coal" from the universe of eligible financing projects can be seen as an important counter-effort to dry up funding for new coal-fired powerplants.

Figure 6. Total primary energy supply (TPES) by source in kilotonnes of oil equivalent (ktoe), People's Republic of China 1990-2018

Source: IEA, World Energy Balances 2020

Another important explanation for the phasing out of green window guidance by both the PBC and the CBRC is the increasing formalisation of green finance policies and efforts to move away from controls-based towards market-based financial policy instruments. While green window guidance was partly abandoned, financial authorities introduced new policies that restricted lending to polluting industries. For instance, in 2016, the PBC, the CBRC, the CIRC and the China Securities Regulatory Commission released a circular asking China's banks to stop lending to 'zombie' steel and coal firms. Importantly, in September 2016, the PBC, along with the CBRC and five other governmental agencies, issued the Guidelines for Establishing the Green Financial System, which provide a comprehensive policy framework that has the aim of mobilising and incentivising more investment in green sectors, while

restricting investment in polluting sectors. After the launch of the Guidelines, green credit policies proliferated across several ministries and regulators. The guidelines also include greening re-lending operations by the PBC, specialised guarantee mechanisms and other measures (PBC et al., 2016). While some of these measures are technically direct monetary policy instruments employed to affect the allocation of credit, the implementation of the new guidelines, along with the phasing out of green window guidance targets, indicate a transition towards the formalisation of green monetary policy. A greater emphasis on financial markets in financing green investments is also in line with the general shift from controls- to market-based monetary policy since the 2010s (Beggs and Deer, 2019).

In summary, the changes in window guidance targets are reflected by broader environmental and economic developments in China, as well as a formalisation of green finance policies that have replaced direct credit allocation tools. While the exact contribution of the policy is difficult to single out, it shows that window guidance is well-embedded in the changing calibration of the broader policy sphere in China along with national economic priorities.

5. Policy lessons

Direct monetary policy instruments as well as general credit controls have dominated financial policy in many developing and emerging market economies in the past. While there has been a trend towards financial liberalisation over the last decades, some central banks and supervisors continue to rely on controls and direct instruments – especially when financial market development is at an early stage and does not permit the effective use of market-based instruments. In the context of implementing the Paris Agreement and promoting sustainable finance, controls-based financial policy frameworks have been extended by some to include sustainability objectives. The Chinese window guidance framework provides an example for this as it was originally introduced to control bank lending and credit growth, and to direct credit towards priority sectors, but had been augmented to also include sustainability considerations.

The Chinese use of financial controls offers several policy implications and lessons. First, the Chinese experience shows that directed lending through window guidance can play a key role in reallocating capital towards green economic activities. While it is difficult to comprehensively assess the efficacy and scale of impact of green window guidance in China, there is indication that it contributed to a scaling up of green lending. The timing and calibration of the instrument coincides with enhanced investment in renewable energy and some improvements in air pollution. Window guidance, together with other investment-shaping policy measures, can be considered to have played a central role in implementing the high-level economic policy objectives of the government. However, the effectiveness of the tool in allocating credit towards sustainable industries and away from heavy, energy-consuming and polluting industries is difficult to assess due to the plethora of other policies, financial guidelines and regulations that have been introduced to also affect these flows over the past two decades. Nonetheless, the calibration of window guidance targets can be shown to have reflected the major economic, structural and environmental trends in China. While the maintenance of guidance targets to allocate credit away

from heavy, energy-consuming and polluting industries was accompanied by a constant reduction of air pollution, the abandoning of these targets in 2014 coincides with (delayed) stagnation (or slightly increasing) of pollution from 2016 to 2017 (Figure 7). Furthermore, the consistent emphasis on renewable energy, energy saving and the low carbon economy as a window guidance target for credit flows accompanied an unprecedented rise in new investment in clean energy that transformed China's energy mix (Figure 6), and that, once the targets were abandoned, was and is correlated with a significant decline of investment in renewable energy (Figure 5). Overall, the Chinese experience suggest that window guidance in conjunction with other green finance policies may have had a positive effect on greening investment and promoting specific sustainable sectors of the economy.

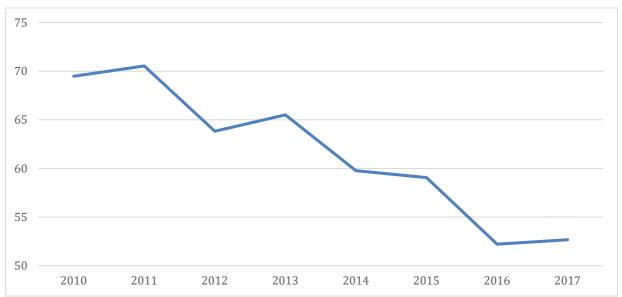


Figure 7. PM2.5 air pollution, mean annual exposure (micrograms per cubic meter) in China, 2005-2017

Data: Compiled with data from Brauer et al. (2017).

Second, the efficacy of window guidance and other directed lending policies necessarily diminishes as financial markets mature. The effectiveness and impact of window guidance tends to decline over time, proportional to the transition from bank-dominated to market-facilitated lending as the primary channel for credit flows. The experience with window guidance in Japan (Cargill et al., 1997; Fukumoto et al., 2010) shows the processes that will render this instrument less effective in the future in China, and the process of financial market development and liberalisation in China has already started to undermine the effectiveness of window guidance as a credit control instrument by opening up alternative channels for companies to obtain funds. As the financial system evolves, a system of controls needs to be supplemented with more market-based instruments. Window guidance and other directed lending tools are relatively blunt tools and may be most appropriate for central banks and supervisors who oversee less developed financial markets and have less sophisticated monetary and prudential policy frameworks. This is reflected by the use of comparable direct monetary policy instruments by other

Asian central banks, including Bangladesh Bank, the State Bank of Vietnam and the Reserve Bank of India, to enhance sustainable finance (Dikau and Volz, 2019).

Third, when window guidance is used, it should be linked to clear criteria of success, the achievement of which should be monitored. In particular, it is vital to also monitor the impact of the instrument on the financial, and specifically credit market, where it could potentially lead to distorting side effects if banks extend credit based on guidance targets instead of solely based on an underlying credit analysis. Forth, green window guidance will have to be embedded in a broader set of green finance policies (as well as climate and environmental policies). Green window guidance should be complemented, as done in China, by other tools to enhance sustainable finance. The 2016 'Guidelines for Establishing the Green Financial System', which do not explicitly include window guidance, outline a plethora of tools and instruments, some which have worked along window guidance for years, while others are being newly implemented. It will be necessary to adjust window guidance to the specific context and changes in financial markets as other instruments, such as a green refinancing instruments, become more relevant. Furthermore, as the international debate shows, the adjustment of central bank collateral frameworks to take climate and environmental risks or broader sustainability criteria into account can be a useful tool for central banks that rely primarily on indirect monetary policy instruments (Dikau et al., 2020). On the financial risk side, prudential policy and risk management tools have to play a key role in addressing and mitigating climate and environmental risks. Pricing-in these risks will also contribute to the greening of financial flows when, for example, transitions risks in assets connected to heavily polluting and or fossil fuel industries, are accounted for. The Guidelines, as described above, have a particular focus on the risk channel and include various proposals for prudential instruments as well as risk management practices of financial institutions, including for stress testing, green bond definitions and disclosure requirements.

6. Conclusions

In conclusion, our empirical investigation has revealed that both the PBC and the CBRC have extensively used window and credit guidance as an informal instrument to encourage financial institutions to structure their portfolios according to national priorities. Furthermore, this research shows that green positive guidance, as well as sustainability-enhancing negative guidance have played a central and constant role among the comprehensive targets that are outlined by the PBC quarterly, and, in the past, by the CBRC annually. The positive guidance of both institutions became more detailed over the past decade and evolved from only encouraging lending for few general sustainability categories, to include detailed targets, such as electric cars and green consumption. With regard to negative guidance, both the PBC and the CBRC ceased their long-practiced tradition of discouraging financial institutions to lend to high-energy, high-pollution industries by 2014, while positive sustainability targets were phased-out by the PBC at the start of 2019.

Overall, our analysis of the changing nature of window guidance targets and findings on the termination of green window guidance reflect a transition in Chinese financial policy away from controls-based towards market-based instruments. The end of negative informal window guidance as well as of positive guidance coincide with the introduction of numerous formal green regulations and guidelines since at least 2010, in a process that can be interpreted as the mainstreaming of green finance policies in prudential policies.

The Chinese experience offers important lessons for central banks and supervisors in countries with less developed financial systems and strong reliance on banking lending, which may utilise or therefore even rely primarily on direct monetary policy instruments and controls. First, the Chinese experience suggests that directed lending through window guidance can play a key role in reallocating capital towards green economic activities and away from unsustainable sectors. Second, the efficacy of window guidance and other directed lending policies diminishes as financial markets mature. Third, when window guidance is used, it should be linked to clear criteria of success, the achievement of which should be monitored. Authorities should also monitor potential distorting, unwanted side effects. Fourth, green window guidance should be embedded in a broader framework of green finance policies, as well as climate and environmental policies. Overall, the Chinese experience suggests that green window guidance can be a useful instrument to help align the financial system with climate and other sustainability goals, but that such policies need to be fitted to the specific context in which they are used.

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Table A1: Green finance policies in China

People's Bank of China (PBC): Notice on Issues Relating to Improving Environmental Prin Credit Policy Ministry of Environmental Protection (MEP): Circular on Doing Well in Environmental Prince Verification of Listed Companies MEP: Circular on Environmental Protection Verification of Enterprises Applying for List Listed Enterprises Applying for Refinancing	otection ing and					
 2001 Ministry of Environmental Protection (MEP): Circular on Doing Well in Environmental Proverification of Listed Companies 2003 MEP: Circular on Environmental Protection Verification of Enterprises Applying for List 	ing and					
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2003 MEP: Circular on Environmental Protection Verification of Enterprises Applying for List						
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State Council: Implementing the Scientific Outlook on Development and Enhancing Enviro						
Protection						
China Banking Regulatory Commission (CBRC), PBC, and MEP: Green Credit Policy (*C	-					
on Implementing Environmental Protection Policies and Rules and Preventing Credit Risks)					
CBRC: Opinions on Energy Efficiency and Emission Reductions in Credit Extension	~					
MEP and China Insurance Regulatory Commission (CIRC): Green Insurance Policy (Juiding					
Opinions on Environmental Pollution Liability Insurance')						
China Securities Regulatory Commission (CSRC) and MEP: Green Securities Policy ('G	aidance					
Opinions on Strengthening the Oversight of Public Companies')						
Shanghai Stock Exchange: Shanghai CSR Notice and Shanghai Environmental Di	closure					
Guidelines						
	Shenzhen Stock Exchange: Social Responsibility Instructions to Listed Companies					
2012 CBRC: Notice on Issuing Green Credit Guidelines						
2013 CBRC: Notice of Submission of Green Credit Statistics, requiring the 21 'main banks' in C	hina to					
report their green credit statistics						
MEP and CIRC: Guiding Opinions on Implementing the Pilot Programs of Com	pulsory					
Environmental Pollution Liability						
2014 CBRC: Green Credit Monitoring & Evaluation mechanism and Notice of the Key Perfo	rmance					
Indicators of Green Credit Implementation						
MEP and CIRC: Guiding Opinions on Pilot Scheme for Compulsory Environmental P	ollution					
Liability Insurance						
2015 PBC: Establishment of Green Finance Committee to develop green finance practices, enviro						
stress testing for the banking sector, and guidelines on greening China's overseas investment						
2016 CBRC, PBC, MEP, CSRC, CIRC, NDRC, MOF: Guidelines for Establishing the Green F	nancial					
System						
NDRC and Shanghai Stock Exchange: Green Bond Guidelines						
2017 PBC: Notice Regarding Promoting Credit Asset and Collateral in Central Bank Evaluation						
State Council: Establishment of five green finance pilot zones in Zhejiang, Jiangxi, Gua	ıgdong,					
Guizhou and Xinjiang						
MEP and CSRC: Environmental Disclosure for Listed Companies						
CSRC: Guidelines for Green Bond Issuance by Listed Companies						
MEP and CIRC: Draft Guideline on Environmental Pollution Liability Insurance						
Shanghai's Lujiazui Financial City: Lujiazui Standard of Green Finance						

2018	PBC: Inclusion of banks' green performance into macroprudential assessment (Chinese Monetary
	Policy Implementation Report Q4 2017)
	CSRC and MEP: Mandatory ESG disclosures for listed companies and bond issuers by 2020
2019	CBIRC: Guidelines on High Quality Development of the Banking and Insurance Industries:
	Instructions on how to include environmental, social, and governance factors in credit
2020	PBC, CSRC and NDRC: Updated Green Bonds Endorsed Projects Catalogue
	PBC: Public consultation draft of 'Notification on Evaluation of Green Finance Performance of
	Deposit-Type Financial Institutions in the Banking Industry'

Source: Compiled by authors.

Table A2: The qualitative targets of PBC window guidance, 2010-2020

Quarter, Year	WG mentioned directly in the in the Quarterly Monetary Policy report	Position of WG in the Quarterly Monetary Policy report	Target industries, sectors, and regions of positive window guidance	Target industries, sectors, and regions of negative window guidance
Q1, 2001	N/A			
Q2, 2001	N/A			
Q3, 2001	No			
Q4, 2001	N/A			
Q1, 2002	No			
Q2, 2002	N/A			
Q3, 2002	No			
Q4, 2002	N/A			
Q1, 2003	No			
Q2, 2003	No Yes	F		
Q3, 2003 Q4, 2003	Yes	Executive Summary Executive Summary		
Q4, 2003 Q1, 2004	Yes	Executive Summary		
Q1, 2004 Q2, 2004	N/A	Executive Summary		
Q3, 2004	Yes	Executive Summary		
Q4, 2004	Yes	Executive Summary		
Q1, 2005	Yes	2 (Monetary Policy Conduct) IV. Strengthening window guidance and credit policy guidance for commercial banks	-rural economy, non-public sector or SMEs -non-public sectors -student loans	
Q2, 2005	Yes	2 (Monetary Policy Conduct) IV. Window guidance and credit policy guidance for commercial banks were strengthened	-rural economy -agriculture-support central bank lending -crop-planting activities -rural economy, non-public sector, and the SMEs -credit support for the re-employment of laid-off workers -boost job creation and re-employment of laid-off workers	
Q3, 2005	Yes	2 (Monetary Policy Conduct) III. Use "window guidance" and credit policy to promote economic structural adjustment	??	
Q4, 2005	Yes	2 (Monetary Policy Conduct) III. Make Use of Credit Policy in Economic Structural Adjustment	-agricultural sector, job creation, student loans, the non-public sector, and SMEs. -agricultural sector in the west regions and major grain-producing regions -development of the real estate market	
Q1, 2006	Yes	2 (Monetary Policy Conduct) III. "Window guidance" and credit policy guidance were strengthened to promote improvement of the credit structure by commercial banks	-rural economy -job creation, education, the non-public sector, and the SMEs	
Q2, 2006	Yes	2 (Monetary Policy Conduct) V. Intensified window guidance and credit policy guidance	-rural areas, farmers, job creation, education, rural workers, and the non- public economy.	-industries with excessive investment in line with the government's macro management and industrial policies -mortgage loans -local governments
Q3, 2006	Yes	2 (Monetary Policy Conduct)	-rural migrant workers	-infrastructure and other medium- and long-term loans

		IV. Strengthening of 'Window Guidance' and Guidance on Credit Policy	-promote economic structural adjustments and industrial upgrading -student loans -support job creation, the non-public economy, small- and medium-sized enterprises, the development of poor and ethnic minority areas, and so on	
Q4, 2006	Yes	2 (Monetary Policy Conduct) III. Strengthen window guidance and credit policy guidance	- small and medium-sized enterprises, job creation, student loans, migrant workers, and non-public sectors	- over-invested sectors, - local governments
Q1, 2007	Yes	2 (Monetary Policy Conduct) IV. Strengthen window guidance and credit policy guidance	- small and medium-sized enterprises, autonomous innovation, natural resource conservation and environmental protection, job creation, and weak economic sectors -agricultural economy -rural migrant workers	-reasonably control medium- and long- term lending such as infrastructure construction loans -high energy-consuming or heavily polluted enterprises
Q2, 2007	Yes	2 (Monetary Policy Conduct) III. Window and credit policy guidance was strengthened	- energy conservation and environmental protection -rural economy, job creation, students, small and medium-sized enterprises, consumption, and other weak sectors	- weak enterprises in industries with high energy consumption, heavy pollution, or excess production capacity
Q3, 2007	Yes	2 (Monetary Policy Conduct) III. Window and credit policy guidance was strengthened	- rural economy, job creation, students, small and medium-sized enterprises, energy conservation and environmental protection, and self-initiated innovation, expand their feebased businesses, strengthen financial product innovation, and transform profit-generating modes -borrowing needs of customers to purchase their first owner-occupied residential housing, and to increase the down payment ratio and interest rate for second housing loans	- weak enterprises in industries with high energy consumption, heavy pollution, or excess production capacity
Q4, 2007	Yes	2 (Monetary Policy Conduct) III. Window and credit policy guidance was strengthened	- rural economy, job creation, students, small and medium-sized enterprises, energy conservation and environmental protection, - self-initiated innovation, expand their fee-based businesses, strengthen financial product innovation, and improve financial services	- weak enterprises in industries with high energy consumption, heavy pollution, or excess production capacity
Q1, 2008	Yes	2 (Monetary Policy Conduct) III. Window and credit policy guidance was strengthened	- rural economy, job creation, students, the service sector, small and medium-sized enterprises, self-initiated innovation, energy conservation and environmental protection - snow disaster relief - production of necessities such as grain, edible oil and meat, and other commodities in short supply.	- low-quality enterprises in industries with high energy consumption, heavy pollution, or excess production capacity
Q2, 2008	Yes	2 (Monetary Policy Conduct) III. Window and credit policy guidance was strengthened	- rural economy, earthquake disaster relief, small and medium-sized enterprises, the services sector, self-initiated innovation, energy conservation and environmental protection -agricultural sector -according to the agricultural production cycleproduction of grain, edible oil, meat, and other necessities	- low-quality enterprises in industries with high energy consumption, heavy pollution, or overcapacity
Q3, 2008	Yes	2 (Monetary Policy Conduct) ->IV. Window guidance and credit	- agriculture, rural areas, and farmers, small- and medium-sized enterprises, and reconstruction in the disaster-hit regions - small- and medium-sized enterprises	

		policy guidance was strengthened		
Q4, 2008	Yes	2 (Monetary Policy Conduct) ->V. Window guidance and credit policy guidance were strengthened	- appropriately control loans to medium- and long-term projects including basic construction projects - agricultural sector, small- and medium- sized enterprises - post-disaster reconstruction - civil well-being projects, the agricultural sector, major project construction, small- and medium-sized enterprises, the services industry, energy- conservation and emission-reduction, scientific and technological innovation, increased employment, technological upgrading, mergers and acquisitions, coordinated regional development and so forth - construction of ordinary housing, affordable housing, and low-rent housing	- high-energy consumption, high emissions, and excess capacity
Q1, 2009	No	2 (Monetary Policy Conduct) ->II. Credit policy guidance was enhanced	- eligible central government-invested projects - agricultural sector, the countryside, and the farmers, SMEs, employment creation, students in need, post-disaster reconstruction, domestic consumption, and independent innovation, - healthy development of the housing market	
Q2, 2009	Yes	2 (Monetary Policy Conduct) ->II. Window guidance and credit policy guidance was enhanced	- projects with central government investments - restructuring of ten key industries - household electrical appliances to the countryside and automobiles to the countryside - agricultural sector, the countryside, and farmers, SMEs, employment, student loans, post-disaster reconstruction, and consumer credit - industrial relocation, independent innovation, and balanced regional development	- high-energy consuming, heavily polluting industries and industries with excess capacity
Q3, 2009	Yes	2 (Monetary Policy Conduct) ->II. Window guidance and credit policy guidance were enhanced	- SMEs, the agricultural sector, the countryside, and farmers, employment creation, students in need, out-sourcing of services, post-disaster reconstruction, and other projects to improve the people's well-being - economic restructuring, independent innovation, M&As, industry relocation, and concerted economic development in ethnic regions	- weak enterprises in high energy consuming, heavily polluting industries with excessive production capacity
Q4, 2009	Yes	2 (Monetary Policy Conduct) ->II. Guide financial institutions to pace credit extensions and to optimize the credit structure	-central government-invested projects -welfare programs such as electronic home appliances to the countryside and automobiles to the countryside - agriculture - farmers and rural areas, SMEs, western development, energy conservation and emission reduction, job creation, students in need, and post-disaster reconstruction - agro-linked industries and SMEs	- enterprises in high energy-consuming or heavily-polluting industries with excessive production capacities
Q1, 2010	Yes	4 (Monetary Policy Conduct -> IV. Window guidance and credit policy guidance were enhanced)	- projects under construction - spring farming activities, drought relief in SW - small enterprises - agriculture - rural areas - farmers - revitalization of key industries - culture industry, - outsourcing services,	- heavy, energy-consuming and polluting industries

			- strategic emerging industries - low-carbon economy - affordable housing	
Q2, 2010	Yes	3 (Monetary Policy Conduct -> III. Window guidance and credit policy guidance were strengthened)	- key industries - projects under construction, - efforts for energy savings, - emission reductions, - technological upgrading, (elimination of inefficient capacity, financial services to small enterprises) - culture industry - outsourcing services - logistics - emerging industries of strategic importance - earthquake relief efforts - agro-linked credit	- high energy-consuming and polluting industries - industries with overcapacity
Q3, 2010	Yes	3 (Monetary Policy Conduct -> III. Window guidance and credit policy guidance were strengthened)	- weak links in the economy and society - employment - energy savings - environmental protection - develop the West - strategic new industries - industrial shifts - key projects under construction	- heavily energy-consuming industries, - highly polluting industries, - industries at overcapacity
Q4, 2010	Yes	4 (Monetary Policy Conduct -> IV. Improved Credit Structure)	- local government financing platforms - support to economic restructuring - key industries, areas, and regions, key industrial rejuvenation programs, - energy conservation and environmental protection, - emerging strategic industries, - services sector - weak links in the economy, - employment, - consumption, - disaster response and reconstruction - key projects under construction	- high energy-consuming and polluting industries - industries with excessive capacity, - unauthorized lending to local government financing platforms
Q1, 2011	Yes	Monetary Policy Conduct -> IV. Credit structure improvements to support shifts in the development pattern and strategic economic restructuring	- reinvigoration of key industries - energy conservation - out-dated capacity elimination - low-carbon development - agriculture, - rural areas, - farmers, - spring farming activities, - drought relief, - grain production, - SMEs - quake-hit zones and to Zhouqu	- haphazard investment - inefficient and duplicated construction
Q2, 2011	Yes	Monetary Policy Operations -> IV. Strengthened window guidance and credit policy guidance	- economic restructuring - agriculture, - rural areas, - farmers, - SMEs - weak links in the economy - energy conservation - emission reduction, - strategic emerging industries, - catastrophes and reconstruction - employment - students with financial difficulties	- heavily energy-consuming and polluting industries - industries with excess capacity
Q3, 2011	Yes	Monetary Policy Operations -> IV. Strengthened window guidance and credit policy guidance	- SMEs - 10 energy-conservation and emission-reduction projects, - strategic emerging industries, - cultural industries, - other key areas, - employment programs for women, university graduates, people with disabilities, migrant workers - old revolutionary base areas, ethnic minority areas, border regions, and impoverished areas	- heavily energy-consuming and polluting industries - industries with excess capacity
Q4, 2011	Yes	Monetary Policy Operations	- real economy - areas that are key to the people's livelihood	

		-> IV. Strengthened window guidance and credit policy guidance	- irrigation reforms, including farmland irrigation and water conservancy programs, - cultural industry, - services outsourcing, - logistics and tourism, - environmental protection industry, - energy conservation and emission reductions - technology upgrading	
Q1, 2012	Yes	Monetary Policy Operations -> IV. Strengthened window guidance and credit policy guidance	- services sector, including the cultural industry, - services outsourcing, - logistics - small and micro-sized enterprises, - agriculture, rural areas, and farmers, - affordable housing projects, - strategic emerging industries - other key areas and weak links in the economy	- heavily energy-consuming and polluting industries - industries with excess capacity.
Q2, 2012	Yes	Monetary Policy Operations -> IV. Strengthened window guidance and credit policy guidance	- key projects - SMEs - agriculture, rural areas and farmers - emerging strategic industries, - tourism, - cultural industry, - services outsourcing and logistics, - energy conservation and environmental protection programs - affordable housing	- speculative house purchase - local government financing platforms - industries with heavy energy consumption, high emissions, and excessive capacity.
Q3, 2012	Yes	Monetary Policy Operations -> III. Strengthened window guidance and credit policy guidance	- agriculture, rural areas, farmers, modern agricultural production - SMEs - railway projects and key national projects - employment and poverty reduction - scientific and technological innovation - cultural industry - strategic emerging industries, - low-carbon financing - regional economic restructuring - affordable housing	- speculative trading - heavy energy consumption, high emissions, and excessive capacity.
Q4, 2012	Yes	Monetary Policy Operations -> IV. Strengthened window guidance and credit policy guidance	- agriculture, rural areas and farmers, - SMEs - energy conservation - environmental protection - key national projects - industrial restructuring - scientific and technological innovation - strategic emerging industries - tourism industry - cultural industries - employment creation and poverty reduction - affordable housing	
Q1, 2013	Yes	Monetary Policy Operations -> III. Strengthened window guidance and credit policy guidance	- structural adjustments - sectors crucial for economic and social development - agricultural sector, - rural areas, - SMEs - strategic emerging industries, - energy conservation and emission reductions, - key national projects, - upgrading of the industrial structure - transformation of the economic growth pattern - affordable housing and ordinary commercial residential property - purchases by first-time home buyers	- high energy consumption and high emissions - industries with an overcapacity - speculative real estate investments
Q2, 2013	Yes	Monetary Policy Operations -> IV. Strengthened window guidance and credit policy guidance	- SMEs - agricultural sector, rural areas, and farmers - national key projects - advanced manufacturing - strategic emerging industries,	- heavily energy-consuming and polluting industries as well as to industries with excess capacity

			- labour-intensive industries	
			the Going Global initiatives upgrading of the service sector and traditional industries	
Q3, 2013	Yes	Monetary Policy Operations -> IV. Strengthened window guidance and credit policy guidance	- SMEs - agricultural sector, rural areas, and farmers - national key projects - service sector - science and technology innovations, - strategic emerging industries, - welfare housing projects, shantytown renovation	- highly polluting and high energy- consuming industries
Q4, 2013	No	Monetary Policy Operations -> IV. A mix of measures was taken to optimize the credit structure and improve the financial sector's efficiency in serving the real economy	- national key projects - service sector - science and technology innovations, - strategic emerging industries, - poverty reduction	- highly polluting and high energy- consuming industries - overcapacity sectors
Q1, 2014	No	Monetary Policy Operations ->IV. A mix of measures was taken to optimize the credit structure	- agriculture, family farms - advanced manufacturing industries - strategic emerging industries, - modern IT industries for information utilization, - labour-intensive industries, - services sector, transformation - upgrading of traditional industries, - green and environment-friendly areas - major infrastructure programs	 heavy energy-consuming and highly polluting industries, overcapacity industries
Q2, 2014	Yes	Monetary Policy Operations ->V. Strengthening window guidance and credit policy guidance	- SMEs - agriculture, family farms - people's livelihood (consumer finance) - balanced regional development - advanced manufacturing industries - strategic emerging industries, - modern IT industries - labour-intensive industries, - services industry, - transformation of traditional industries, - industry promoting green and environmental-friendly growth - major infrastructure programs	heavy energy-consuming and highly polluting industries those burdened with overcapacity
Q3, 2014	Yes	Monetary Policy Operations ->V. Strengthening window guidance and credit policy guidance.	- SMEs - modern agriculture, family farms - people's livelihood (consumer finance) - poverty alleviation, economic development, and balanced regional development advanced manufacturing industries - strategic emerging industries, - modern IT industries - cultural industry - service industry, - the transformation and upgrading of traditional industries - industries promoting green and environmentally friendly growth - major infrastructure and livelihood projects - M&As	- differentiated approach: profit-making enterprises in industries with excess capacity
Q4, 2014	Yes	Monetary Policy Operations -> VI. Window guidance and credit policy guidance were strengthened	- agriculture-related sector - SMFs - family farms and big specialized farming households - people's livelihood	
Q1, 2015	No	Monetary Policy Operations -> V. Multiple measures were taken to guide financial institutions to optimize their loan structures	- investment projects in seven large categories - consumption programs in six areas - three kinds of key projects with strategic importance - "going global" projects	

Q2, 2015	No	Monetary Policy Operations -> V. Multiple measures were taken to guide financial institutions to optimize their loan structures		
Q3, 2015	No	Monetary Policy Operations -> V. Comprehensive measures were taken to guide financial institutions to optimize their loan structures		
Q4, 2015	Yes	Monetary Policy Operations ->VI. Window guidance and credit policies have played an important role in structural guidance	- strategic adjustments to the industrial structure - infrastructure construction, - development and reform of shipbuilding, - railways, - logistics - energy industries, - care of the elderly - healthcare industries, - agricultural sector - SMEs	
Q1, 2016	Yes	Monetary Policy Operations -> VI. Window guidance and credit policies for structural guidance	- growth - structural adjustment - performance improvements industrial sector - industrial upgrading (steel and coal industries) - innovative development of foreign trade - infrastructure - export and import enterprises - comprehensive service companies in external trade - consumption (services, information, a green environment, fashions, high quality, agriculture, and other new consumption areas) - service industries so as to promote retirement services - SMEs	
Q2, 2016	Yes	Monetary Policy Operations -> VI. Window guidance and credit policies for structural guidance		
Q3, 2016	Yes	Monetary Policy Operations -> VI. Window guidance and credit policies for structural guidance	- structural adjustments, industrial transformation, and upgrading - manufacturing - industrial restructuring, - infrastructure development - reform and development in key areas (shantytown renovations, underground utility tunnels, ship-building, railways, logistics, and energy) - service sector (retirement services and healthcare) - agriculture - SMEs - addressing overcapacity issues - green finance - Beijing, Tianjin, and Hebei, Belt and Road Initiative, Yangtze Economic Belt, the Western China Development Drive, - poverty reduction	
Q4, 2016	Yes	Monetary Policy Operations -> VI. Window guidance and credit policies for structural guidance	- structural adjustments, industrial transformation, and upgrading - manufacturing - industrial restructuring, - infrastructure development - reform and development in key areas (shantytown renovations, underground utility tunnels, ship-building, railways, logistics, and energy)	

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			- industrial transformation (expanding	
			service consumption) - consumption (retirement services and	
			healthcare)	
			- agriculture	
			- SMEs	
			- Beijing, Tianjin, and Hebei, Belt and	
			Road Initiative, Yangtze Economic Belt,	
			the Western China Development Drive,	
			- poverty reduction	
			(- addressing overcapacity issues in the coal and steel sectors)	
Q1, 2017	Yes	Monetary Policy	- key areas	
Q1, 2017	1 03	Operations	- weak sectors	
		-> VI. Window guidance	- manufacturing	
		and credit policies for	- industrial restructuring,	
		structural guidance	- infrastructure development	
			- reform and development in key areas	
			(shantytown renovations, underground	
			utility tunnels, ship-building, railways, logistics, and energy)	
			- industrial transformation (expanding	
			service consumption)	
			- consumption (retirement services and	
			healthcare)	
			(- addressing overcapacity issues in the	
Q2, 2017	No	Manatary Daliar	coal and steel sectors)	
Q2, 201/	110	Monetary Policy Operations	economic restructuring industrial transformation and upgrading	
		-> V. The Structural	- manufacturing	
		Guidance Role of	- industrial restructuring, infrastructure	
		Credit Policies	development (shanty town renovations,	
			underground utility tunnels, ship-	
			building, railways, logistics, and energy)	
			- consumption (retirement services and healthcare.)	
			- agriculture and SMEs	
			- green financing	
			- Beijing, Tianjin, and Hebei, Belt and	
			Road Initiative, Yangtze Economic Belt,	
			the Western China Development Drive,	
			- poverty reduction	
			(- addressing overcapacity issues in the coal and steel sectors)	
Q3, 2017	No	Monetary Policy	- economic restructuring	
		Operations	- industrial transformation and upgrading	
		-> VI. Playing a	- manufacturing	
		Leading Role in the	- industrial restructuring, infrastructure	
		Structure of the Credit	development (shanty town renovations,	
		Policy	underground utility tunnels, ship- building, railways, logistics, and energy)	
			- consumption (retirement services and	
			healthcare.)	
			- green financing	
			- Beijing, Tianjin, and Hebei, Belt and	
			Road Initiative, Yangtze Economic Belt,	
			the Western China Development Drive, - poverty reduction	
			- SMEs	
			(- addressing overcapacity issues in the	
			coal and steel sectors)	
Q4, 2017	No	Monetary Policy	- industrial upgrading	
		Operations	- energy mix transformation	
		-> VI. The Role of Credit Policy in	- key areas of social and economic development	
		Leading Structural	- manufacturing	
		Adjustments	- marine economy and connectivity	
		-	- science, technological defence	
			- urbanization, underground utility	
			tunnels, new materials, ship-building,	
			railways, logistics, energy - green and sustainable development	
			- ecological conservation,	
			- clean energy	
			- circular economy	
		1	- poverty alleviation	

			- Beijing, Tianjin, and Hebei, Belt and Road Initiative, Yangtze Economic Belt, the Western China Development Drive, - SMEs (- addressing overcapacity issues in the coal and steel sectors)	
Q1, 2018	Yes	Monetary Policy Operations -> VI. Window Guidance and Credit Policies for Structural Guidance	- key fields for economic and social development, - priority areas - advanced and hi-tech manufacturing industries - poverty alleviation (- industries suffering from overcapacity (iron, steel and coal))	
Q2, 2018	Yes	Monetary Policy Operations -> VI. Window guidance and credit policies for structural guidance	- optimization of the economic structure and upgrading of the industrial structure, - transformation of the energy mix, - financial inclusiveness - social development - poverty reduction and alleviation, deeply impoverished areas - small and micro businesses - students from impoverished families, migrant workers, and ethnic minority regions - major national strategic areas: Beijing, Tianjin, and Hebei, the Belt and Road Initiative, the development of the Yangtze Economic Belt, the Western China Development Drive, and development of the maritime economy - transition, upgrading and structural adjustments to the manufacturing industry - green financing	
Q3, 2018	Yes	Monetary Policy Operations -> VI. Window guidance and credit policies for structural guidance	- optimization of the economic structure and upgrading of the industrial structure, - transformation of the energy mix, - financial inclusiveness, - economic and social development - poverty reduction and alleviation, deeply impoverished areas - rural revitalization - weak sectors in rural economic and social development - small and micro businesses, small and micro loans - students from impoverished families, migrant workers, and ethnic minority regions - major national strategic areas: Beijing, Tianjin, and Hebei, the Belt and Road Initiative, the development of the Yangtze Economic Belt, the Western China Development Drive, and the development of the maritime economy - structural upgrading and adjustments to the manufacturing industry - green financing	
Q4, 2018	Yes	Monetary Policy Operations -> VI. Giving full play to window guidance and credit policies for structural guidance	- improving the economic structure, upgrading the industrial structure, - transforming the energy mix - poverty alleviation, especially in deeply impoverished areas - rural areas - major national strategic areas: Beijing, Tianjin, and Hebei, the Belt and Road Initiative, the development of the Yangtze Economic Belt, the Western China Development Drive, and the development of the maritime economy quality manufacturing and sci-tech innovation - key manufacturing areas underprivileged groups, such as students from impoverished families, migrant workers, and ethnic minority regions - green financing	

Q1, 2019	Yes	Monetary Policy Operations -> VI. Window guidance and credit policies playing a larger role in structural guidance	- high-quality manufacturing industry - infrastructure building, - shantytown rebuilding, - underground pipelines, - railways, - energy - brick-and-mortar retailing, - logistics, - software, - digital and electronic commerce - consumption (elderly care, medical care, culture, tourism, and housekeeping.) - major national strategies: Beijing- Tianjin-Hebei area, the Belt and Road Initiative, the Yangtze Economic Belt, the Guangdong-Hong Kong-Macao Greater Bay Area, and civil-military integration poverty alleviation, highly impoverished areas - rural revitalization small and micro businesses (SMBs) - vulnerable groups and regions, such as students, migrant workers, and ethnic areas	
Q2, 2019	No	Monetary Policy Operations -> VI. Leveraging the Structural Guidance Role of Credit Policies	- poverty alleviation - rural revitalization - micro and small businesses (MSBs) - employment and business start-ups - advanced and high-tech manufacturing industries - infrastructure construction, - shantytown rebuilding, - underground pipelines, - railways, - energy - major national strategies: Beijing-Tianjin-Hebei area, the Belt and Road Initiative, the Yangtze River Economic Belt, the Western Development Strategy, and civil-military integration.	
Q3, 2019	No	Monetary Policy Operations -> VII. Leveraging the structural guidance role of credit policies	- poverty alleviation - rural revitalisation - micro and small enterprises (MSEs) - employment and business start-ups - manufacturing industry and the modern service industry - national strategies	
Q4, 2019	No	Monetary Policy Operations -> VII. Leveraging the structural guidance role of credit policies	- poverty alleviation - rural revitalisation - MSEs and private firms - employment and business start-ups - industrial transformation and upgrading - epidemic prevention and control (enterprises for the production, transportation, and sales of important medical and daily supplies were given increased credit support)	
Q1, 2020	No	Monetary Policy Operations -> VII. Leveraging the structural guidance role of credit policies	- poverty alleviation - rural revitalisation - micro and small businesses (MSBs)/ small and medium-sized enterprises (MSMEs), - high-quality development of manufacturing, high-tech manufacturing - employment and entrepreneurship	
Q2, 2020	No	Monetary Policy Operations -> VII. Leveraging the structural guidance role of credit policies	- stabilizing businesses and securing employment by the financial sector - poverty alleviation - rural revitalisation - regional development (Xiongan New Area, Beijing-Tianjin-Hebei, Yangtze River Economic Belt, Guangdong-Hong Kong-Macao Greater Bay Area, Yangtze River Delta, Hainan Pilot Free Trade Zone and Free Trade Port)	
Q3, 2020	No	Monetary Policy Operations	- Small and medium-sized enterprises (MSMEs)	
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-> VI. Bringing play the role of policy in guide structural reference.	of credit - basic financial services in p stricken areas	overty-
Structural Force	- new-type rural business ent small rural households	ities and

Source: Compiled by authors based on PBC quarterly China Monetary Policy Report Q1 2010 – Q2 2020.

Table A3: The qualitative targets of CBIRC credit and window guidance, 2006-2016

Year	WG mentio ned?	Target industries, sectors, and regions of positive window guidance by the CBRC	Target industries, sectors, and regions of negative window guidance by the CBRC
2006	no	General guidance: - under-banked sectors (agriculture, small enterprises, consumer lending) - syndicated loans (for agricultural and rural development, rural infrastructure development) - SMEs	General guidance: - overheated sectors (pay attention to: high energy and resource consumption, high pollution emitting industries)
2007	yes	Window guidance: - SMEs General guidance: - environmental sustainability - "green credit" - rural development	Window guidance: - real estate, - (monitoring) high pollution, energy consuming and resource dependent industries General guidance: - "bubble asset market" - heavy polluting, energy consuming and excessive capacity industries - "inferior quality loans" - low utilisation capacity
2008	no	General guidance: - increase of overall lending activities (to implement state's macro policies) - cutting-edge technology - national key construction or infrastructure (urban power grid, railway, airport, highways) - SMEs - technology upgrading - M&A - ecological and environmental-friendly projects (wind power and solar power projects) - rural infrastructure - affordable housing - post-disaster reconstruction - energy-saving and emission reduction projects	General guidance: - high energy consuming, high emission, resource-intensive, over-capacity industries
2009	yes	General guidance: - agriculture - SMEs - green credit - energy-saving - consumer credit (first homes, household appliances, automobiles, agric. equipment) - national key industrial projects - rural development - affordable housing - major science and technology projects - pollution reduction - low-carbon economy - post-earthquake reconstruction	Window guidance: - LGFP (credit risk assessment) General guidance: - real estate market - projects that failed to comply with industrial policies or environmental requirements - stock market
2010	no	- post-carinquake reconstruction General guidance: - rural development - SMEs - sectors and regions promoted by national development strategies - energy-saving and emission-reduction projects - industrial upgrading - green industries - cultural industries - shanty-town renovation - affordable housing - agriculture - post-disaster reconstruction - less developed regions - Western China (infrastructure, agric. And rural development, SMEs, etc.) - green credit	General guidance: - high-polluting, energy-intensive sectors - over-capacity sectors - redundant capacity sectors
2011	no	General guidance: - emerging industries - energy conservation - environmental protection - technological innovation - modern services	General guidance: - highly polluting, energy-intensive and over-capacity sectors -

		- industrial upgrading	
		- optimisation of export-mix	
		- agriculture	
		- affordable housing - renewable energy	
		- renewable energy - emission reduction	
		- technological upgrading	
		- SMEs	
2012	no	General guidance:	General guidance:
		- SMEs	- high pollution and high energy consumption
		- agriculture	industries
		- environmental-friendly activities	- overcapacity industries
		- consumption (affordable housing, consumer durables)	
		- national key construction projects	
		- green projects/credit (low-carbon economy) - energy-saving	
		- energy-saving - emission reduction	
		- industrial upgrading and transformation	
		- environmental protection	
		- industrial upgrading	
		- foreign trade	
		- disaster recovery	
		- underdeveloped regions	
2013	yes	Window guidance:	General guidance:
		(- strengthened with regard to micro-credit activities)	- high pollution and energy-intensive sectors
		General guidance:	- redundant-/over- capacity sectors
		- emerging industries (high-end newly- emerged electronics, new energy autos , biology, high-end	
		equipment manufacturing, energy conservation,	
		environmental protection, new energy)	
		- consumption	
		- social welfare	
		- green credit	
		- green and low-carbon industries	
		- energy conservation	
		- environmental protection	
		- industrial upgrading/ restructuring	
		- M&A - agriculture, framers	
		- rural areas	
		- MSEs	
		- urbanisation (infrastructure construction)	
2014	no	General guidance:	General guidance:
		- manufacturing industries	
		- strategic emerging industries	
		- modern IT industry	
		- industrial upgrading/ transformation	
		- service industries - green and environmental protection industries	
		- MSEs (high-tech, innovative companies and start-ups)	
		- farmers, agriculture modernisation	
		- consumption	
		- major infrastructure projects	
		- urban infrastructure	
		- low-income housing	
		- green credit	
		- key national energy-efficient projects - energy conservation, emission reduction	
		- energy conservation, emission reduction - Northeast China	
		- disaster relief and post-disaster reconstruction	
2015	yes	Window guidance:	General guidance:
	_	- M&A	
		- restructuring, transformation and technical renovation	
		projects in overcapacity industries	
		- advanced technology industries	
		General guidance:	
		- national strategies (Belt and Road Initiative,	
		Development of the Beijing-Tianjin-Hebei Region, Yangtze River Economic Belt Initiative)	
		- low-income housing	
		- ecological and environmental protection projects	
		- agriculture	
		- forestry	
		- water conservation	
		- Western China (railways, highways and urban	
i	Ì	infrastructure)	

		- strategic emerging industries (energy conservation, environmental protection, new-generation information technologies, biology, advanced equipment manufacturing, new energies, new materials, new energy vehicles) - emission reduction - industrial restructuring - technological upgrading	
		- disaster relief and post-disaster reconstruction	
2016	yes	Window guidance: (- to improve risk prevention and control mechanisms, and to minimise potential risks in key areas) General guidance: - weak growth areas - MSEs - agriculture, farmers - rural areas - green credit - national initiatives (Belt and Road Initiative, Development of the Beijing-Tianjin-Hebei Region, Yangtze River Economic Belt Initiative) - shanty town redevelopment - water conservancy - Western regions (highway and railway projects) - consumption (elderly care, domestic services, health services, information and online consumption, green consumption, tourism and recreation, education, culture and sport, rural consumption) - new energy vehicles	General guidance:

Source: Compiled by authors based on CBRC Annual Reports 2006-2016.