

March 2015

Shadow banking in China: A primer

Douglas Elliott, The Brookings Institution, Economic Studies

Arthur Kroeber, The Brookings-Tsinghua Center

Yu Qiao, The Brookings-Tsinghua Center

The rapid development of China's shadow banking sector since 2010 has attracted a great amount of commentary both inside and outside the country. Haunted by the severe crisis in the US financial system in 2008, which was caused in part by the previously unsuspected fragility of a large network of non-bank financial activities, many analysts wonder if China might be headed for a similar meltdown. The concern is especially acute given China's very rapid rate of credit creation since 2010 and the lack of transparency in much off balance sheet or non-bank activity.

This paper will address the following questions:

- What is shadow banking?
- Why does the sector matter?
- What was the Chinese credit system like before shadow banking?
- What is the nature of shadow banking in China now?
- How big is shadow banking in China?
- Why has Chinese shadow banking grown so fast?
- How does Chinese shadow banking relate to the formal banking sector?
- Why has the Chinese sector developed as it has?
- How does the size and structure of shadow banking in China compare to other countries?
- Will there be a major shadow banking crisis in China?
- How do Chinese authorities intend to reform shadow banking?

The authors would like to acknowledge the assistance of a number of experts, including Jason Bedford, Darrell Duffie, Stephen Green, Wei Hou, Dinny McMahon, Logan Wright, and Kai Yan. In addition, several reviewers chose to remain anonymous. The authors, of course, are solely responsible for any errors in this paper.

Executive Summary

Shadow banks are financial firms that perform similar functions and assume similar risks to banks. Being outside the formal banking sector generally means they lack a strong safety net, such as publicly guaranteed deposit insurance or lender of last resort facilities from central banks, and operate with a different, and usually lesser, level of regulatory oversight. These characteristics increase the risks for financial stability, which is the main reason there is a focus on shadow banks today.

Shadow banks can help spur economic growth by making financial services cheaper and more widely available, but there is usually a trade-off in terms of reduced financial stability. One reason for the trade-off is that shadow bank's flexibility and price competitiveness often comes at the expense of safety margins. Banks, for example, are generally required to have significantly more capital and liquidity than shadow banks may choose to carry. Shadow banks are also less regulated. This combination forces policymakers into difficult balancing acts to try to maximize the benefits while minimizing the risks.

Shadow banking in China must be viewed in the context of a system which remains dominated by banks, especially large state-controlled banks, and in which the state provides a great deal of direction to banks, through a variety of regulations and formal and informal guidance. In the last few years, those constraints have become sufficiently binding that business has flowed to shadow banks.

There are a number of pressures pushing business away from banks towards shadow banks, including the fact that:

- There are caps on bank lending volumes imposed by the People's Bank of China (PBOC).
- The limit of bank loans to deposits of 75% is constraining.
- Regulators discourage lending to certain industries.
- Most non-bank channels have lower capital and liquidity requirements.
- Shadow banks are not subject to bank limits on loan or deposit rates.
- Shadow banking avoids costly PBOC reserve requirements.

Perhaps two-thirds of the flow of business into shadow banking is effectively "bank loans in disguise," where a bank is at the core of the transaction and takes the great bulk of the risks and rewards, but pays non-banks

to participate in order to avoid regulatory constraints and costs. The other third or so of the business that has moved results from a combination of competitive advantages for the non-banks, many due to looser regulation, and a willingness and ability to reach out to smaller, private sector businesses that are not well-served by the banks.

Shadow banking transactions generally make use of one or more of the following techniques and instruments:

Loans and leases by trust companies. Trust companies are financial firms in China that have a quite flexible charter and combine elements of banks and asset managers.

Entrusted loans. These are loans made on behalf of large corporations, using banks or finance companies as intermediaries. They are most commonly to other companies in the same group or to suppliers or customers. There is also an interbank version, where one bank will act on behalf of another.

Bankers' Acceptances. These are notes issued by banks that promise to pay a fixed amount a few months in the future. Generally these are supposed to be issued in connection with a non-financial transaction, such as a purchase of goods, but reports suggest they are often used more loosely.

Microfinance companies. These are separately regulated financial firms that are licensed to lend in small amounts to help encourage credit access for small and rural borrowers.

Financial leasing. This represents leasing of all kinds that is not already on a bank or trust company balance sheet and is not a short-term operating lease.

Guarantees. Guarantee companies in China provide financial guarantees, including to facilitate shadow banking transactions. Many guarantee companies have branched out to make direct loans, even though they do not have legal licenses to do so.

Pawn shops and various unofficial lenders. Pawn shops are important lenders to some households and small businesses. In addition, there are other types of lenders that operate informally or even clearly illegally.

Trust Beneficiary Rights (TBRs). TBRs are effectively a simple form of derivative transaction whereby the purchaser of the TBR receives all or a stated proportion of the returns accruing to a trust. Banks sometimes use

TBRs as part of complex shadow banking transactions to keep the economic benefits of a loan without showing it as a loan on their balance sheets, but moving it to a more favorably treated investment category.

Wealth management products. These are investment products that provide a return based on the performance of a pool of underlying assets. Typically the underlying investment is a single large loan or a pool of loans. WMPs are generally offered by banks or trust companies, although securities firms offer similar products known as Directional Asset Management Products. WMPs are included in discussions of shadow banking in large part because they are a close substitute for bank deposits. WMP investors generally assume that the target return of these products is effectively guaranteed by any bank or trust associated with the product. WMPs are usually purchased by relatively wealthy investors as substitutes for bank deposits, with the benefit of higher yields than banks are allowed to offer on formal deposits.

Inter-bank market activities. Another substitute for formal deposits is created using the inter-bank market. Despite its name, many participants in this market are not banks but are large corporations using finance company subsidiaries to participate. They can lend money to banks in deposit-like arrangements without being subject to caps on deposit rates and without forcing banks to incur many of the regulatory costs of deposits, such as triggering the minimum reserve requirements.

There is a range of estimates of the size of shadow banking in China, depending on the definition of shadow banking and estimates of some important statistics. Six reasonable estimates in the recent past produced figures ranging from about RMB 5 trillion to RMB 46 trillion, or roughly 8 to 80 percent of the size of China's Gross Domestic Product (GDP). Dr. Yu, one of our co-authors, estimated the size at RMB 25 trillion, or 43% of GDP, in 2013. This compares to an estimate from the Financial Stability Board (FSB) that global shadow banking assets were equivalent to 120% of GDP. On the same basis, the US was at 150%. Thus, China's shadow banking sector is relatively small compared with advanced economies. Further, it is not especially large in comparison with other emerging market countries as a percent of national GDP.

Using figures from the PBOC's measure of Total Social Finance (TSF), shadow banking accounted for about 18%¹

1. Calculated as the share of total net flows of TSF accounted for by trust loans, entrusted loans, and undiscounted bankers' acceptances. People's Bank of China, "All-system Financing Aggregate Statistics in 2014," People's Bank of China News, January, 29, 2015, available at http://www.pbc.gov.cn/publish/english/955/2015/20150129085803713420369/20150129085803713420369_.html.

of net flows of TSF in 2014. Despite the rapid growth of shadow banking, it remains substantially less important than formal banking as a source of credit in China.

One of the key questions is whether China could be subject to a severe crisis in shadow banking and how bad the damage might be in such an event. There is certainly significant risk that a crisis could develop in shadow banking, for multiple reasons; among others: the business is inherently riskier than regular banking and operates with smaller safety margins; China is going through some difficult adjustments economically that could trigger loan losses; and there is too little transparency in shadow banking and too much reliance on implicit guarantees.

However, the financial system and the central government appear to be well positioned to deal with such a crisis. First, shadow banking is small enough compared to the size of the total financial sector to be handled without disaster. Second, most of the shadow banking is closely enough tied to banks that they are likely to end up honoring their implicit guarantees and dealing with most of the mess on their own. Third, the authorities have more than enough fiscal capacity to deal with even a large shadow banking crisis, given quite low central government debt to GDP ratios, even when adjusted for off-balance sheet obligations, such as the need to rescue some local and regional governments.

If this optimistic view is wrong, it is likely to be because the lack of clarity about shadow banking has hidden larger problems than appear to exist and also slows down and muddies a government response. A possible contributing factor would be if the anti-corruption campaign makes it too hard for authorities to make the necessary decisions with the information available to them. The financial system is much more complicated now than the last time the government rescued it, when the major banks were completely owned by the government and financial relationships were simpler all around. Now there would be questions about how the government chose to allocate costs and benefits across a much wider range of players, many in the private sector.

In sum, China's shadow banking sector is not especially large by international standards, is relatively simple (with low levels of instruments such as securitized assets and derivatives), and is overseen by regulators who have so far shown themselves alive to the most important risks (namely funding risk and lack of transparency) and have taken prudent steps to minimize these risks. The authorities take seriously their mandate to maintain financial stability, and have acted pre-emptively (for instance in the inter-bank squeeze of June 2013) to nip in the bud practices that might threaten that stability.

The problem for China's financial authorities is that the very large traditional banking sector is not fully serving the increasingly complex financial needs of an economy transitioning from a focus on industry and infrastructure to one based mainly on consumer services and also moving from state ownership and control to a greater level of private enterprise.

The balancing act between encouraging shadow banks to supply needed credit to sectors that are not well served by traditional banks and at the same time protecting financial stability and investors is a very difficult one. A companion paper will present our recommendations for reforming shadow banking and implementing related changes in the wider financial sector.

What is shadow banking?

Shadow banking is not a new phenomenon, but the term only recently came into widespread use,² and there is no single agreed definition. The Financial Stability Board (FSB) broadly describes shadow banking as “credit intermediation involving entities and activities outside the regular banking system”³. The People’s Bank of China (PBOC) uses a definition of shadow banking that seeks to take the particulars of their own “national situation into full account.” They define “China’s shadow banking [system] as credit intermediation involving entities and activities outside the regular banking system” that serves to provide “liquidity and credit transformation” and “which could potentially” be a source of “systemic risk or regulatory arbitrage.”⁴ Some additional definitions of shadow banking by various researchers are included in Appendix A.

Whatever the precise definition, shadow banks perform similar functions and assume similar risks to banks, namely those associated with maturity, credit, and liquidity transformation. Being outside the formal banking sector generally means they lack a strong safety net, such as publicly guaranteed deposit insurance or lender of last resort facilities from central banks. They also operate with a different, and usually lesser, level of regulatory oversight. All of these characteristics increase the risks for financial stability, which is the main reason there is a focus on shadow banks today.

We would like to acknowledge that “shadow banking” often has negative implications and sets banks as the appropriate comparison for institutions that sometimes share only a few characteristics with banks (for instance, insurers or funds managers). We would prefer to use a more neutral term; however, the phrase has become so ingrained in public policy discussions that we feel compelled to use it in this paper.

All definitions of shadow banking pose practical difficulties, both in their precise definition and in their usefulness for describing the real world. For example, it is difficult to draw the line between those institutions and activities that are guaranteed by the government and those that are not. Formal definitions often prove deceptive when a financial crisis develops. For example, U.S. investment banks were suddenly swept into the safety net previously available only to commercial banks, once the Lehman insolvency occurred. In China, there is no guarantee system for bank deposits, but

virtually everyone assumed, we believe correctly, that the government would in practice protect bank deposits. (Thus, the promised creation of an explicit deposit guarantee system may actually *reduce* the level of public guarantees, since it will have coverage limits, similar to those in most nations.)

It is also harder than it may seem to determine if an institution is providing a banking-like service, such as maturity transformation. Life insurers may issue long-term policies, but allow early withdrawal of funds under certain conditions. Is this sufficient to view them as offering maturity transformation in a significant way?

For all of these reasons, varying definitions of shadow banking can produce quite different estimates of the size of that system. Further, “shadow banking” is more of a catch-all than a category, encompassing a very broad range of heterogeneous activities ranging from well-established, simple and normally low-risk practices (such as money market mutual funds) to new, exotic and poorly understood transactions involving one or more layers of complex derivatives. This can make broad generalizations about shadow banks misleading.

Why does the sector matter?

Shadow banking has significant economic benefits and costs. On the positive side, shadow banks can help fuel economic growth by making financial services cheaper and more widely available. They can often operate more cheaply than formal banks and therefore provide lower cost loans and other financial services. They may also be able to offer services that banks cannot or cater to customers that banks cannot or will not serve.

However, this flexibility and price competitiveness often comes at the expense of safety margins. Banks, for example, are generally required to have significantly more capital and liquidity than shadow banks may choose to carry. This can be expensive⁵, but it makes the banks safer. Further, shadow banks often lend to riskier customers or in riskier forms, such as by foregoing collateral protection that a bank would require. They also generally operate with much less regulatory supervision, which is designed to curb excessively risky behavior. As a result of all this, shadow banks tend to be substantially less stable than banks. Further, they fall outside the public safety nets of deposit guarantees and lender of

5. In the first instance, capital is more expensive than debt and deposits because funders demand higher returns to compensate for their greater risk from investing in equity and other capital instruments. As described by Modigliani and Miller in their classic work, this can be offset by the increased safety of a firm that holds more equity. In practice, this is only a partial offset, as described further in Elliott (2013). There is a similar logic with liquidity requirements.

2. Paul McCulley, an economist and investment manager at PIMCO, is widely credited with coining the term in 2007.

3. Financial Stability Board (2013).

4. People’s Bank of China (2013).

last resort facilities that protect banks, so instability at these institutions can spread and accelerate faster than with banks. Panic is more likely to occur in relation to shadow banks and the public mechanisms to halt such panics are *ad hoc* in nature and therefore have lesser credibility and more risk of failure.

In sum, shadow banks can help spur economic growth, but usually do so at the expense of financial stability. This forces policymakers into difficult balancing acts to try to maximize the benefits while minimizing the risks.

In China's case there is an added factor to the balancing act. The authorities recognize that the financial sector needs to be liberalized with a range of important reforms that will reduce State control of banking decisions. The incomplete nature of current reforms leaves banks much more constrained than in advanced economies, as described below. This creates many favorable opportunities for non-bank channels to compete with banks through "regulatory arbitrage." In policy circles, this term is virtually always meant as a strong negative. However, in an over-regulated economy with too large a State role, there can be societal benefits from such regulatory arbitrage. It can diminish the deadweight costs of inappropriate or excessive regulation and it can help force the pace of more comprehensive reforms.

What was the Chinese credit system like before shadow banking?

Banks completely dominated China's credit system from the start of the era of "reform and opening up" in 1978 until shadow banking began to take off in the 2000's. Even as recently as the end of 2008, banks loans represented almost 7/8th of outstanding credit in China. (Those readers interested in a broader overview of the Chinese Financial System can see Elliott and Yan (2013)).

Banks inherited a privileged position as reform began in China, including:

Customer base. Almost all lending under the state controlled system was done through banks, giving them a huge existing customer base, especially with the State-Owned Enterprises (SOEs) that dominated the economy.

Legal protections against competition. There were few legal alternatives to bank deposits or bank loans in China's highly controlled economy.

Implicit guarantees. Banks benefitted from a free implicit guarantee on their deposits, since it was inconceivable that the State would allow any significant loss for depositors, despite the lack of formal guarantees. This

safety allowed banks to gather large deposit volumes despite paying low rates.

Regulatory controls on deposit and loan rates. Banks had the advantage of a system of regulatory limits on the maximum deposit rate they could pay and the minimum loan rate they could charge. These were intended in large part to ensure that they had healthy profit margins.

These major advantages were partially offset by a number of significant burdens imposed by the State:

Controls on loan volumes. Chinese monetary policy was largely run by controlling the volume of bank loans, which produced a similar effect to controlling overall money supply, given the dominance of the banks. The PBOC set limits for total loan volume by banks in aggregate and these limits were then apportioned out to individual banks. In recent years this has left banks unable to make the full volume of loans they would have liked.

Micromanagement of lending. In the initial period of reform, many bank loans were still made on the basis of direction from important government or party officials. This type of direction is much rarer now, although it still appears to happen at smaller banks that are closely tied to government entities at the regional or local level. However, even the largest banks receive broader-based instructions to avoid or limit lending to certain industries that the government feels need to shrink, such as coal mining. This may conflict with the banks' preferred strategies and may even make it difficult for them to continue supporting firms to whom they have existing loans that could be endangered by a sudden pullback of credit.

Strict loan to deposit ratios. Banks are not allowed to lend funds equal to more than 75% of their deposit volumes. Recently, this has been a serious constraint on loan growth, especially as conventional deposit growth has slowed sharply in the face of competing products, usually from the shadow banking realm. Regulators recently began allowing some non-traditional deposits, such as from the inter-bank market, to be counted in this figure in order to provide more leeway.

High reserve requirements. Banks are required to hold substantial reserves as deposits at the PBOC, earning rates far below what banks could earn on their normal business and even below their own cost of funds. This level varies, but currently about 19.5%⁶ of deposits must

6. The PBOC cut the required reserve ratio by 50 basis points for most small and medium sized and rural banks in June 2014. It followed up this loosening in February 2015 by cutting the ratio by 50 basis points for the larger banks as well. As of February 6, 2015, rural credit cooperatives and small financial institutions face a required reserve ratio of 16.0%, small and medium sized banks 17.5%, and large depository institutions 19.5%.

be placed with the PBOC. This is a considerable economic burden. For instance, an opportunity cost of 3 percentage points a year on 20% of deposits would be 0.60% on total deposits. Deposits remain the major source of bank funding, so the reserve requirements represent a substantial cost in aggregate.

Until recent years, the positives of being a bank overwhelmed the negatives and helped account for the dominance of banks as credit providers. However, as described in the next section, this balance has swung considerably and created large opportunities for shadow banking.

There were other important features of the credit system at the beginning of the 2000's and prior:

Bond markets were tiny. Financial markets tend to be important providers of funds to large corporations in advanced economies and China is slowly moving in this direction. However, it is only recently that this became a significant source of funds for businesses. Even now, much of the bond purchases are made by banks for their own accounts, overstating the importance of the bond markets' 15%⁷ share of total credit provision.

Banks were state-owned. Until 2004⁸ all of the major banks in China were 100% owned by the State. Even now, majority shareholdings give the government effective control of all major banks. Along with State ownership has come a strong role for the Communist Party of China ("CPC" or "Party"), particularly in personnel decisions. The top positions at the biggest banks are filled by the Organization Department of the CPC and those chosen executives often move to senior State positions over the course of their career. This presumably produces a different outlook and set of choices by senior bank executives than if they were competing in a free labor market and focused on private sector careers.

Banks favored SOEs in their lending policies. Banks in China have a strong tendency to lend to SOEs and this bias was even greater in the past. SOEs are favored for a variety of reasons, including: implicit State guarantees; favored market positions for some SOEs that make them better credit risks; internal reward and punishment systems that mean a failed loan to an SOE is unlikely to be punished severely while bad loans to the private sector can lead to job loss; social/career considerations that make lending to entities run by powerful Party members attractive; and even direct pressure from

Party or State officials. The last factor is of decreasing importance, but has not vanished.

Conversely, banks failed to fully serve small and medium-sized enterprises (SMEs) in the private sector. The bias towards SOEs is exacerbated by a clear bias against private sector entities, especially SMEs. This is unfortunate, since much of China's economic growth has come from these firms, which are reported to have provided 70% of employment and 60% of China's GDP in 2012, while receiving only 20% of bank loans⁹. (The disparity may be less than this, although still large. Different sources provide varying figures, partly because there is no authoritative definition of SME in China and the numbers can be quite different depending on which firms are included, which makes it particularly hard to compare shares of bank loans with shares of employment or GDP, for example. Lardy (2014) does a particularly thorough job of trying to capture all SMEs and estimates that 36% of total business loans in 2012 went to SMEs¹⁰.)

It must be noted that most nations find it difficult to channel sufficient credit to SMEs, but this problem is substantially more severe in China because of the structure of the banking sector and the many incentives and constraints they face that over-ride pure profit considerations.

In addition to a specific bias towards SOEs, and therefore away from everyone else, there are further reasons that banks neglect SMEs. First, SMEs lack high-quality collateral and long credit histories and are associated with higher risk. This is particularly problematic in a banking system that relies heavily on collateral, as China's does. Second, under the current commercial bank credit manager responsibility system, the punishment for private enterprise loan default is much higher than is the punishment for SOE loan default¹¹.

There has been some improvement in the ability and willingness of banks to lend to SMEs, due to a combination of government and market pressures. One analyst argues that this is happening faster than generally appreciated, writing in a private communication that "joint stock banks in particular operate in a semi-liberalized environment by virtue of the fact that they historically played the role of corporate banker - and more and more corporate deposits are appearing as inter-bank deposits where rates are not capped.

9. Sheng (2015). Please note that it is unclear from the report in what year the 20% of bank loans figure is for. Some other sources suggest figures closer to 30% for SME loans in 2012.

10. See Lardy (2014), Appendix A, particularly Table A.2.

11. For example, in a private communication, Elliott was told that the head of SME lending at one provincial bank has a firm cap of 3% for the level of non-performing loans, above which he has been told he would lose his job.

7. Calculated as the proportion of total social financing accounted for by net financing of corporate bonds.

8. Starting in 2004, China began transforming the wholly state-owned banks into joint-stock corporations in a process called "equitization." See Martin (2012).

Consequently, these banks need to achieve risk-efficient returns thereby forcing them to lend to the private sector. Similarly, for city and rural commercial lenders they often are locked out of most SOE lending opportunities and must lend to the private sector.” The same analyst argues that more and more banks are setting up specialized risk assessment processes and procedures for SMEs.

Nonetheless, despite progress that has undoubtedly been made, even optimistic analysts generally agree that SMEs remain at a considerable disadvantage with banks, over and above those confronted in other countries.

What is the nature of shadow banking in China now?

As noted at the beginning, there are multiple definitions of shadow banking, and therefore no consensus on which activities are included and how large the aggregate volume is. Typically, the following types of lending or other financial activities would be included:

Trust loans and leases. Financial transactions undertaken by trust companies, a separately regulated type of firm that combines elements of banks and fund managers in Western financial systems. Trust companies have wide latitude to operate across the financial sector, although regulations are increasingly tightening constraints on their activities.

Entrusted loans. These are loans made by firms in the non-financial economy that are run through banks for legal reasons, but with the banks indemnified from the credit risk of the borrower by the non-financial firm. Some entrusted loans are funded by SOEs as a way of profiting from their ability to borrow cheaply and in large volume by on-lending the funds they obtain. However, the majority of entrusted loans appear to be lent within a corporate group, with HKMA (2014) showing 74% of this lending was to subsidiaries and 7% to other affiliates. Lending within a corporate group would not be considered shadow banking under standard definitions, but it is difficult to separate this out from loans to unrelated parties. For example, even lending within one “group” in China may still be between entities that are only loosely connected and where the borrower may be allowed to fail without the failure of other members of the group. This analytical problem leads to most calculations treating all entrusted loans as shadow banking, even though this doubtless exaggerates the size of shadow banking in China.

Bankers’ acceptances (BA). These are certificates issued by banks that promise unconditionally to make a future

payment, usually within 6 months, and are generally backed in part by a deposit from the party desiring the bankers’ acceptance to be issued. These are normally used to back commercial transactions such as purchases of inventory, where the seller receives a BA obtained by the purchaser from its bank, generally with a deposit as collateral. BAs may be sold by the holders at a discount rate prior to the maturity date, often back to the issuing bank. If not traded in this manner, they are known as undiscounted bankers’ acceptances. One reason these instruments are often included in shadow banking calculations is that borrowers can use them as a way of leveraging a modest deposit into a large, off-balance sheet loan from a bank. There are even reports of borrowers creating a spiral whereby they take the BA, obtain a loan based on the discounted value of the BA, and use these funds to make a new deposit to back a further, larger BA. Since BAs can be used as quasi-money, on a discounted basis, this can create very considerable leverage. Nonetheless, counting all BAs as shadow banking clearly exaggerates the size of shadow banking on standard definitions.

Interbank entrusted loan payment. This is a loan that one bank makes to another bank’s client on the second bank’s behalf. As the entrusted payment matures, the first bank will receive principal and interest paid by the second bank.

Microfinance companies. These are separately regulated financial firms that are licensed to lend in small amounts to help encourage credit access for small and rural borrowers.

Financial leasing. This represents leasing of all kinds that is not already on a bank or trust company balance sheet and is not a short-term operating lease.

Special purpose finance companies associated with e-commerce. There is an increasing level of activity in the e-commerce realm where SMEs are financed by affiliates of the e-commerce platforms, such as through Ant, an entity associated with Alibaba.

Guarantees. Guarantee companies in China participate in shadow banking in two ways. First, their core business of providing financial guarantees can facilitate shadow banking transactions by transferring the credit risk to the guarantee firm, which generally also reduces capital requirements for banks making such guaranteed loans. Second, many guarantee companies have branched out to make direct loans, even though they do not have legal licenses to do so.

Pawn shops and unofficial lenders. Pawn shops are important lenders to some households and small businesses. In addition, there are other types of lenders

that operate informally, including relatives, friends, and neighborhood associations. Further, there are illegal lending activities as well. It is difficult to obtain data on total lending from informal or illegal channels, for obvious reasons, but it is not believed to be a high percentage of shadow banking.

Bond markets. The corporate bond market is sometimes included in calculations of shadow banking volumes, even though standard definitions globally would not support such a choice.

Trust Beneficiary Rights (TBRs). TBRs are effectively a simple form of derivative transaction whereby the purchaser of the TBR receives all or a stated proportion of the returns accruing to a trust. Banks sometimes use TBRs as part of complex shadow banking transactions to keep the economic benefits of a loan without retaining it as a loan on their balance sheets. Instead, it would be shown as an “investment” with a much lower risk weight for purposes of calculating required capital and where it would have no impact on loan to deposit ratios or other limits on loan volumes. Owning TBRs that provide 100% of the returns to a trust that owns only a single loan is economically equivalent to having made the loan and retained it on the bank’s balance sheet as a loan, minus any fees to the trust company or other party involved in the trust holding the loan. However, the regulatory constraints and costs can be quite different. Bank regulators in 2014 moved to discourage this particular use of TBRs.

Wealth management products. These are investment products that provide a return based on the performance of a pool of underlying assets. Typically the underlying investment was a single large loan or a pool of loans, although WMPs increasingly have at least a small portion of equity in their underlying investments. Regulators moved in 2013 to require that no more than 35% of the assets of new WMPs at each bank be in non-standard products, generally those that are not traded on exchanges, which limits the ability to include bank loans.

WMPs are generally offered by banks or trust companies, although securities firms and asset managers offer similar products under different names and with fewer constraints that are increasingly used in place of bank WMPs that face more restrictions. WMPs are included in discussions of shadow banking in large part because they are a close substitute for bank deposits. Anecdotal evidence, and polling results, demonstrate that WMP investors strongly assume that the target return of these products is effectively guaranteed by any bank or trust associated with the product. In practice, sponsors have apparently rescued a number of failed WMPs, although this has been done with little transparency. WMPs are

generally purchased by relatively wealthy investors, including some salaried professionals, as substitutes for bank deposits, with the benefit of higher yields than banks are allowed to offer on formal deposits. Although it is reasonable to include WMP in calculations of shadow banking activity, it is important to avoid double counting, whereby the WMP as a funding source is added to the underlying loans in the product.

Inter-bank market activities. Another substitute for formal deposits is created using the inter-bank market. Despite its name, many participants in this market are not banks but are large corporations using finance company subsidiaries to participate. They can lend money to banks in deposit-like arrangements without being subject to the caps on deposit rates and without forcing banks to incur many of the regulatory costs of deposits, such as triggering the minimum reserve requirements. It may not be appropriate to label these as shadow banking activities, but they share characteristics of WMPs. In addition, other shadow banking activities may benefit from using the inter-bank market to facilitate their operations, for example, the purchase of TBRs.

How big is shadow banking in China?

There is a range of estimates from different analysts on the size of shadow banking in China. Differences stem from important variations in the definitions of shadow banking, worsened by the necessity of estimating important statistics. Table 1 shows six recent estimates of its size. (Appendix B shows a longer list of estimates with more details.) As can be seen, the figures range from a low of about RMB 5 trillion to RMB 46 trillion.

One of the co-authors of this paper, Yu Qiao, estimates the scale of shadow banking at RMB 25 trillion as of the end of 2013, or about 43% of China’s GDP. This falls broadly in the middle of the range of estimates in the table above. Table 2 (page after next) provides more details on his calculations.

Virtually all estimates of the size of shadow banking in China start with figures provided by the PBOC on the level of “Total Social Financing” (TSF). The PBOC provides these figures for the year 2002 and onwards, in recognition that banks ceased to be the only finance sources that mattered and it became necessary to examine a fuller range of financial activity. There are some idiosyncrasies in these calculations as compared to standard global calculations of credit volumes. In particular, some non-credit financial activities are included, such as equity raising and venture capital.

Table 1.

Estimates of the Size of China's Shadow Banking Sector

	Estimate Period	RMB (trillion)	USD (trillion)	% of GDP
IMF	March-2014	19.9	3.2	35% of 2014 GDP
UBS	YE-2013	28.4 - 39.8	4.6 - 6.5	50 - 70% of 2013 GDP
Standard Chartered	YE-2013	4.5 - 12.5	0.7 - 2.0	8 - 22% of 2013 GDP
Bangkok Bank	YE-2013	36.4	6.0	70% of 2012 GDP
JP Morgan	YE-2013	46	7.5	81.2% of 2013 GDP
Financial Stability Board	YE-2013	18.2	3.0	31% of 2013 GDP

Note: Some of the figures have been derived by the authors; for example, if a source only provided an estimate in dollars for a given period, then the authors used exchange rate and GDP figures to estimate the other columns

It would be better for our purposes to focus solely on credit, but analysts of China are very accustomed to examining figures for TSF and the non-credit components are relatively small. Therefore we will generally quote TSF figures without trying to back out the non-credit activities.

Since shadow banking comprises much of the non-bank TSF activities, it is useful to look at the pattern of growth of TSF. Exhibit 1 shows the level of TSF since 2006, broken down by its principal components.

Exhibit 2 (page after next) shows the same components as percentages of TSF.

Finally, Exhibit 3 (also page after next), from IMF (2014b) shows the accumulated stock of credit provided by the different components of TSF.

Why has Chinese shadow banking grown so fast?

Although it is difficult to be precise, it appears that about two-thirds of shadow banking lending in China can be characterized as “bank loans in disguise” that result from regulatory arbitrage. That is, this portion of

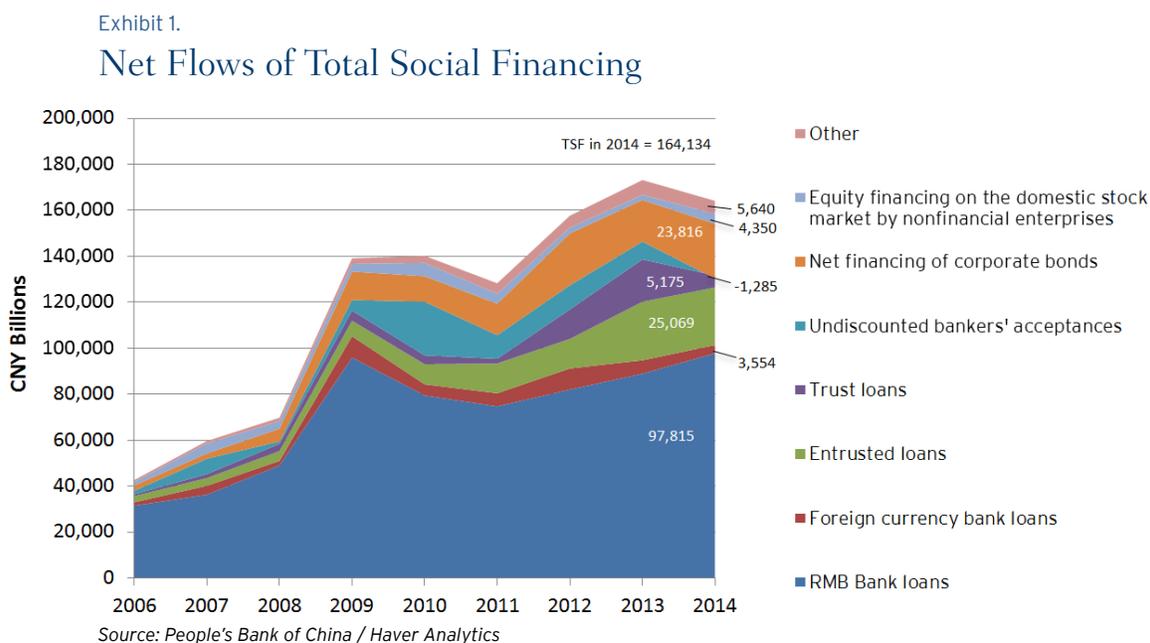


Table 2.

Size and composition of China's shadow banking (unit: RMB 1 billion)

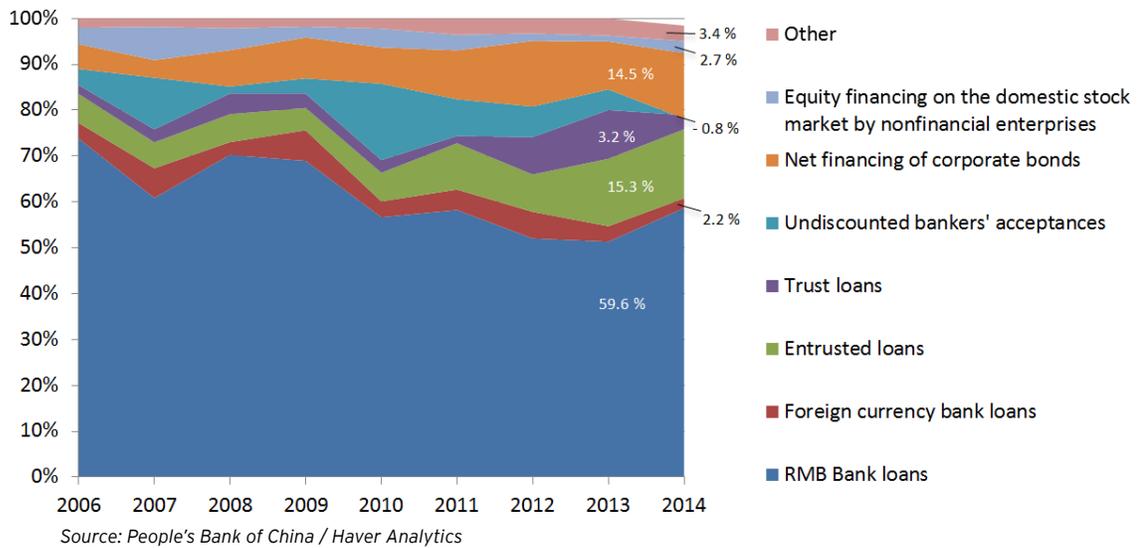
	Entrusted loans	Trust loans	Bankers' acceptances	Interbank entrusted loan payments	Financial leasing	Small loan companies	Total
2002	267	0	256				523
2003	328	0	457				784
2004	639	0	428				1067
2005	836	0	430				1266
2006	1105	172	580	444			2212
2007	1442	342	1250	558			3503
2008	1868	657	1357	738			4530
2009	2546	1093	1818	628			5995
2010	3421	1480	4152	1680	270	198	11111
2011	4717	1683	5179	1872	426	391	14180
2012	6001	2972	6229	2894	608	592	19207
2013	8551	4812	7004	3000	766	819	24952

表1 中国影子银行的规模及构成 (单位: 10亿人民币)

	委托贷款	信托贷款	未贴现银行承兑汇票	同业代付	融资租赁	小额贷款公司	影子银行
2002	267	0	256				523
2003	328	0	457				784
2004	639	0	428				1067
2005	836	0	430				1266
2006	1105	172	580	444			2212
2007	1442	342	1250	558			3503
2008	1868	657	1357	738			4530
2009	2546	1093	1818	628			5995
2010	3421	1480	4152	1680	270	198	11111
2011	4717	1683	5179	1872	426	391	14180
2012	6001	2972	6229	2894	608	592	19207
2013	8551	4812	7004	3000	766	819	24952

Exhibit 2.

Component Shares of Net TSF



shadow banking consists of loans that are originated by the banks and would have been made directly by them and retained on their books were it not for regulatory constraints or outright prohibitions. This segment has grown very quickly because the relative advantages of being organized as a bank are declining for many of their activities.

Non-bank channels have a number of key advantages over banks and these are encouraging the growth of shadow banking:

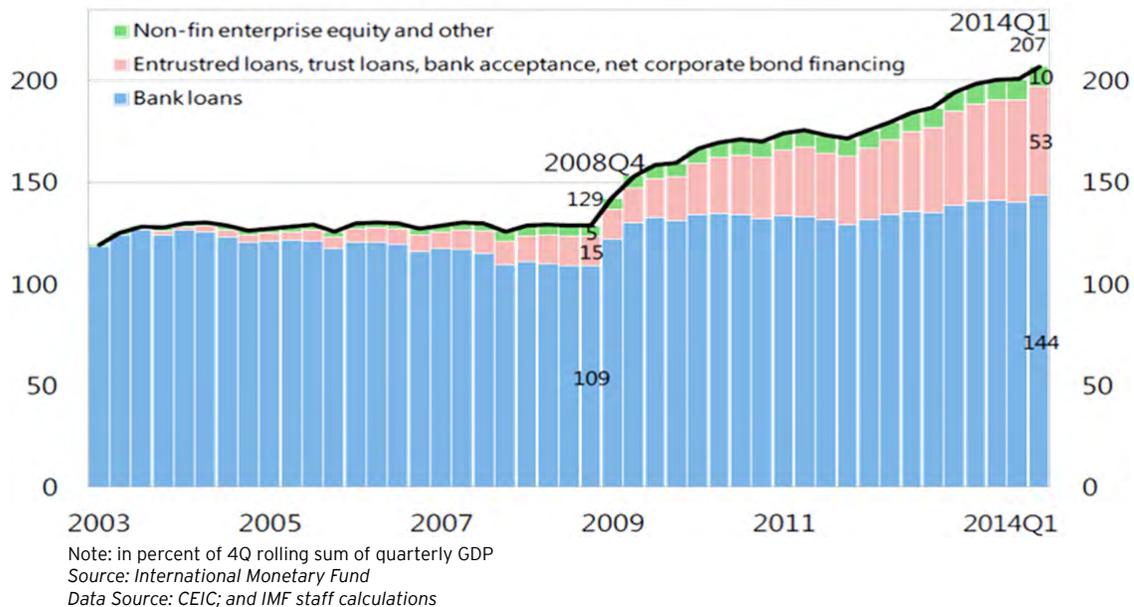
Banks run into absolute caps on their lending volumes. PBOC loan quotas are constraining the ability of

most banks to lend as much as they would otherwise choose to do. This factor varies over time. In 2009, the government's stimulus program largely ran through the banks and resulted in loan quotas that were very generous, along with clear encouragement to lend up to their quota levels. However, in recent years the quotas have been a significant constraint.

The loan to deposit cap of 75% is constraining. Even if the loan quotas would allow, most banks are finding it difficult to raise inexpensive deposits sufficient to fund their loan growth while meeting the 75% cap. The limitation on deposit rates has led many depositors

Exhibit 3.

China: Social Financing Stock (in % GDP)



to search for higher yields through the purchase of wealth management products or real estate or stocks or other instruments. Corporate depositors in particular have often found it easy and attractive to channel their money to banks through the inter-bank market or wealth management products, rather than traditional deposits. Regulators recently moved to include more of these non-traditional deposits and quasi-deposits in the 75% calculation in order to loosen the practical effect of this constraint.

Regulators discourage lending to certain industries.

At any given time, bank supervisors push banks away from loans to certain types of borrowers. Currently that includes local government financing vehicles, coal miners, ship builders, real estate developers, and some other groups. Banks, however, may still wish to make such loans, in which case they may need, or desire, to keep them off their own books and therefore to run them through other channels.

For example, the real estate sector was struck at the beginning of 2010 by a new round of macro-controls including home-buying restrictions, designed to counter the rapid increase in Chinese housing prices from the second half of 2009 to the first half of 2010. After bank lending to the real estate industry peaked at ¥2.05 trillion in 2009 and ¥2.09 trillion in 2010, it shrank to only ¥1.32 trillion and ¥1.37 trillion in 2011 and 2012. The tightening of bank lending placed enormous financial pressure on developers, thus spurring the industry's strong demand for external financing which has been an important driving force behind the rapid growth of shadow banking since 2010.

Similarly, in 2009, at the beginning of the credit boom, infrastructure investment led by local government investment platforms played a particularly significant role in the surge of investment in China. However, some local financing platforms struggled with issues such as overstated equity capital, unduly high leverage, and poor financial management, as well as extremely low rates of return. Therefore, after the State Council promulgated Article 19 in 2010 ("State Council's notice on issues related to strengthening local government financing unit management"), the CBRC and the PBOC began to restrict commercial bank loans to local government financing units. Further, in October 2014, the State Council issued Document 43, which limited the ability of local and regional governments to support loans made to companies, apparently including local government financing vehicles. This caused many lenders to pull back from such loans.

However, the investment projects carried out under the local financing system are mostly long-term construction

projects, which are likely to go unfinished unless additional financing is obtained. To avoid this, local government financing units turned to shadow banks to obtain additional financing, mainly through infrastructure trusts (construction trusts) or brokering special asset management schemes.

Most non-bank channels have lower capital requirements.

When a loan is retained on the books of a bank, it must hold equity equal to about a tenth of the loan value. Equity is expensive and banks prefer to minimize the need to raise it. Keeping a loan off of the balance sheet of a bank, or carrying it in a form that does not require as much capital as a loan, is therefore attractive. For example, it was possible to have the economics of a loan passed back to a bank as Trust Beneficiary Right payments and to carry this on the balance sheet as an investment in the securities of a financial institution, which required less capital than holding a loan. This loophole has largely been closed, but others like it continue to account for some of the attraction of shadow banking.

Greater pricing flexibility. This has become less important as the regulation of interest rates on loans has been liberalized, but was one factor in encouraging the use of non-bank channels.

Avoidance of PBOC reserve requirements. Banks are burdened by the need to hold about a fifth of their deposits at the PBOC, earning low interest rates. Wealth management products that are close substitutes for actual deposits do not have this burden.

Banks have chosen to create their own shadow banking products, such as wealth management products, and to cooperate with shadow banks in order to escape the constraints and disadvantages described above. For example, banks started to team up with trust companies to make loans to bank customers. A trust company might borrow from the bank and use the funds to make a loan that the bank would otherwise have made on its own. It could then package this loan into a trust vehicle and sell back to the bank the rights to receive all the payments from the trust, which would consist of the principal and interest payments from the borrower. Thus, the bank would have satisfied the customer's need for funding while obtaining for itself the economic benefits, and risks, of the loan, with the exception of a modest fee retained by the trust company. Regulators have largely eliminated this simple version of such transactions, but banks and shadow banks have continued to evolve more complex ways of accomplishing the same ends.

The other one-third of shadow banking appears to arise from a reluctance or inability of banks to effectively lend

money to certain segments, plus a natural tendency for some business to be won by non-bank competitors even when competing on a level playing field. As noted earlier, the major Chinese banks are not structured well to provide loans to SMEs and they do not have much credit experience in this area to allow them to adequately judge the level of risk. They have been pushed by the authorities to raise their lending in this area, but much of that increase appears to have been achieved through gaming the system, such as by lending to smaller affiliates of large SOEs and categorizing that as an SME loan.

Chinese banks also face some subtle, and likely unintended, regulatory pressures not to lend to SMEs. For example, it has been reported that bank regulators are pushing banks hard to keep their non-performing loans below one percent of their total loans. This is an unrealistic goal for any bank with a large proportion of loans to SMEs, since, in the down part of a credit cycle, average losses should be substantially higher than that. This is not of itself a sign of bad lending, since the loan pricing for SMEs should be substantially higher precisely to compensate for higher average credit losses.

In addition, as noted earlier, the authorities discourage bank lending to various sectors such as coal mining or real estate development. Some of their loan demand is met by bank use of shadow banking channels, but other portions end up moving entirely to non-bank institutions with no connection to banks.

Finally, well-run non-bank financial institutions should have competitive advantages of their own, including close client relationships, and would be expected to win some share of credit business even without specific

structural weaknesses or limitations for the banks. Some of the non-bank financial institutions are more entrepreneurial than the relatively bureaucratic banks and do a better job of meeting customer needs at a reasonable cost.

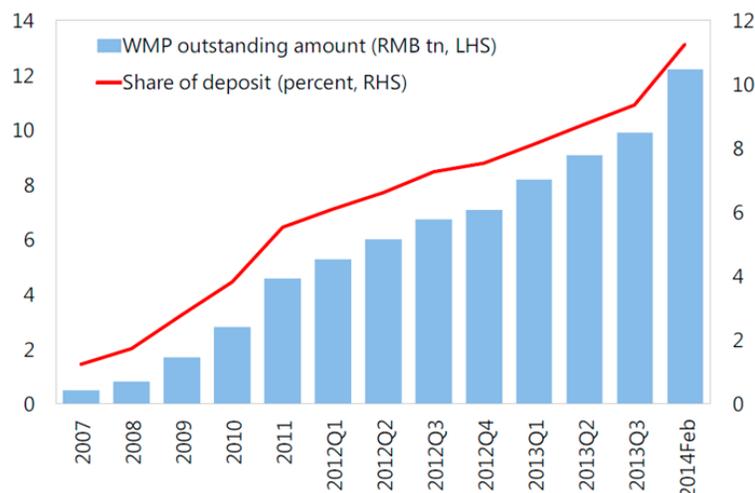
So far, this section has focused only on lending. The other side of shadow banking is the use of non-bank or non-traditional products as funding sources. Investors in shadow banking products are primarily domestic households but also include corporate and financial institutions. Traditionally, household investment options were largely limited to bank deposits, equities, real estate, and foreign exchange. Shadow banking products, principally WMPs were devised with superior appeal for many investors compared to these traditional investments, as shown by strong fund flows into all kinds of shadow banking products.

Previously, the only safe asset was a bank deposit, but deposit rates are constrained by a rate cap, which for some years now has been held below the rate of inflation, although this dynamic has changed recently, on at least a temporary basis, as inflation has fallen sharply. Compared to this, shadow banking products associated with the banks and trusts had much more attractive yields while being seen as essentially equally safe by many savers. However, the majority of potential depositors either prefer the unambiguous safety of bank deposits or have difficulty accessing WMPs.

The other higher return investment options, primarily equities, real estate, and foreign currencies, carried substantial risk. In contrast, shadow banking products were generally perceived as guaranteed by the banks and trusts involved in their origination.

Exhibit 4.

WMP Outstanding Amount and Share of Deposits



Source: International Monetary Fund
Data Sources: CRBC, CEIC, local media, and IMF staff calculations

Thus, a search for safe, yet higher yielding, investments spurred households and businesses to snatch up wealth management products as they came to be offered.

As shown in Exhibit 4¹², WMPs have grown to be a significant portion of total deposits and quasi-deposits, although still only about a tenth of the total. Corporate deposit substitutes, usually invested via the inter-bank market, would need to be added as well. However, the great bulk of the funding is still in the form of traditional bank deposits.

How does Chinese shadow banking relate to the formal banking sector?

There are multiple ways in which the formal banking sector has a stake in the health of the shadow banking sector. These are summarized well in a Sanford Bernstein report by Hou, Gao, and Zhou (2014). Exhibit 5¹³ below is taken from that report:

The exhibit leaves out two other forms of exposure. First, banks do make on-balance sheet loans directly to non-bank financial institutions. These would be transparently shown on the banks' balance sheets, which is why they were not listed in the exhibit. Second, banks or their

12. See IMF (2014b), p. 29.

13. Hou (2014), Exhibit 53 (p. 34).

affiliates sometimes have ownership stakes in trust companies or other non-bank financial institutions. On the whole, such stakes are not large for the banking system as a whole.

Two of the relationships shown in Exhibit 5 are worth further explanation. Trust Beneficiary Rights have already been described above. A trust company may make a loan to a bank client, with the agreement that the bank will essentially buy the loan back by purchasing a TBR. Even more straightforwardly, banks may enter into repurchase agreements using loans or WMPs as collateral, so that the trust company knows that the ultimate economic risk will fall on the bank. The trust company's own risk is therefore simply the counterparty risk of the bank.

Hou, Gao, and Zhou (2014) provide an estimate of the shadow banking exposures of eight banks that comprise the bulk of the banking system in China. Tables 3¹⁴ and 4¹⁵ (next two pages) below is taken from their report.

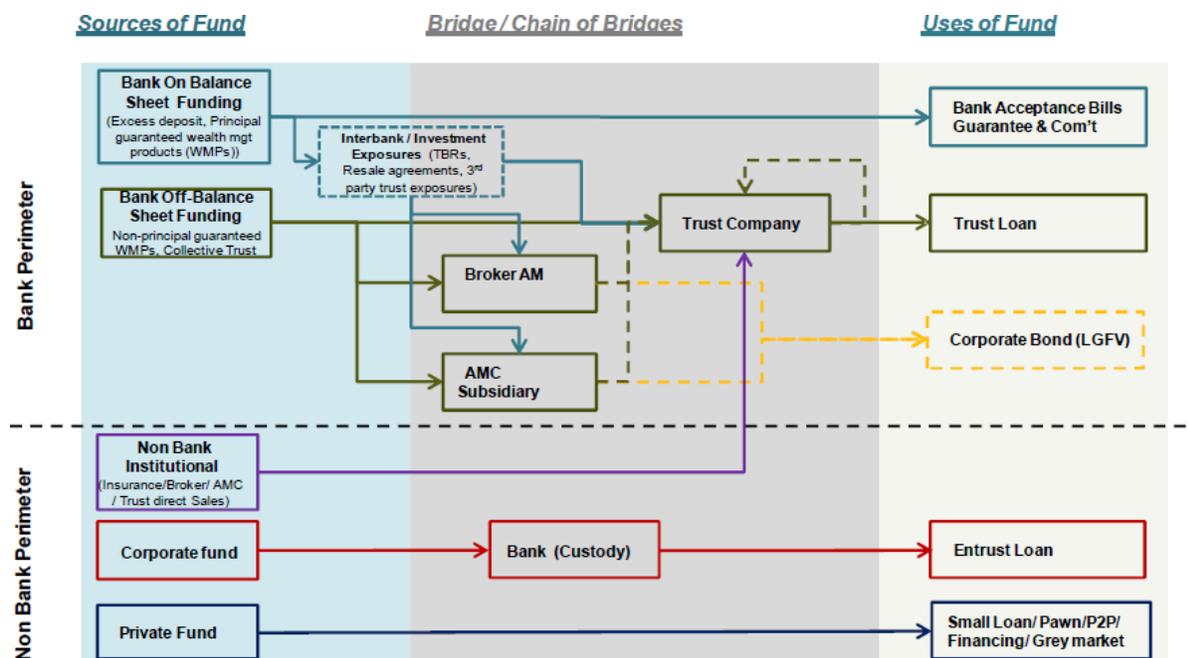
The report further quantifies the potential loss of annual earnings from 2014-18 for these banks, depending on the cumulative rate of non-performing loans and the portion of losses borne by the banks. The authors of that report believe the best estimate is of a 15% non-performing loan rate and a 40% share of the resulting losses for

14. Ibid, Exhibit 57 (p. 37)

15. Ibid, Exhibit 60 (p. 28)

Exhibit 5.

Linkages between the formal and shadow banking sectors



Source: Sanford Bernstein research

Table 3.

Shadow banking exposures of eight major banks

	On-balance sheet quasi-credit exposures	Off-balance sheet wealth management products	Off-balance sheet contingent liabilities
Estimated size	RMB 4.3 trillion	RMB 3.1 trillion	RMB 8.4 trillion
Exposure profile	Investment with trust related underlying: e.g. Direct investment in Trust beneficiary rights (TBRs), Third party trust exposures, Resale agreements backed by TBRs	Non-principal guaranteed wealth management products (WMPs) with non-standard credit assets (e.g. trust loans) as investment targets	Mainly bank acceptances bills which are used by corporate for payment and short-term financing purposes
Bank linkage	On bank balance sheet but under inter-bank / investments / receivables	WMPs sold by banks as agents and not consolidated onto balance sheet	Contingent liabilities off bank balance sheet until the bills are discounted
Underlying risk profile	HIGH Typically trust loans extended to high risk borrowers such as real estate developers, local government financing vehicle (LGFVs) and manufacturing firms	HIGH Also typically high risk corporates or LGFVs, which cannot obtain loans through traditional bank lending directly	LOW With short-duration (typically 3-6 months), acceptance bills are mostly used in working capital management by corporates and are low risk compared to standard corporate loans
Estimated cumulative NPL formation (2014-'18)	8-10% (similar to on-balance sheet high risk sectors total NPL formation through the cycle)	10-15% (about 1.5-2x that of on-balance sheet high risk sectors total NPL formation during the same period)	0-0.5% (Historically very low NPL formation rate in discounted bills, at 0-10bps per year)
Loss contingency	As these are on-balance sheet exposures, banks will have to take 100% of losses if borrowers default	Contractually no obligation for banks to take part in the losses However, 'implicit guarantees' for investors persist in the market, which put banks at risk of being forced to share some of the losses during the work-out process	100% losses will be absorbed by the bank as the product consolidated onto balance sheet once discounted
Bank treatment	Under-provisioning for these exposure by classifying them as interbank / investment assets	No provisioning for these exposures as they are off balance sheet	Counted towards risk assets and thus capital calculation but are not provisioned until overdue

Source: Bank reports, Bank IR teams, Sanford Bernstein analysis and research

Table 4.

Bank risk due to shadow banking

Cumulative NPL formation		5%	10%	15%	20%	25%	30%
Cumulative loss formation (NPL formation * LGD @ 80%)		4%	8%	12%	16%	20%	24%
Banks' share of Loss in off-balance sheet WMPs	10%	-0.1%	-0.3%	-0.4%	-0.6%	-0.7%	-0.8%
	20%	-0.3%	-0.6%	-0.8%	-1.1%	-1.4%	-1.7%
	30%	-0.4%	-0.8%	-1.3%	-1.7%	-2.1%	-2.5%
	40%	-0.6%	-1.1%	-1.7%	-2.2%	-2.8%	-3.3%
	50%	-0.7%	-1.4%	-2.1%	-2.8%	-3.5%	-4.2%
	60%	-0.8%	-1.7%	-2.5%	-3.3%	-4.2%	-5.0%

Source: Bank reports, Sanford Bernstein analysis and estimates

the banks. The other 60% of the losses would be shared in some manner between investors in WMPs, the trust companies and securities companies that were also involved, local and national governments, etc.

Bearing in mind that these estimates of the size of exposure and ultimate losses are merely estimates by one well-informed set of equity analysts, the relatively small size of the calculated potential direct impacts on the major banks strongly suggests that if a crisis were to spread in a major way from shadow banking to the formal banking sector it would have to be through some indirect manner, such as a loss of confidence in the financial system that led to runs. Such possibilities are discussed further below.

How does the size and structure of shadow banking in China compare to other countries?

Bearing in mind the considerable uncertainty and disagreement about definitions of shadow banking, this section compares China's shadow finance sector with those in other countries, on the dimensions of: scale; types of actors; types of instruments; and degree of systemic risk created.

Scale

Under the broadest definition of shadow banking adopted by the FSB and the IMF, China's shadow banking sector is much smaller, relative to the size of its economy, than those of the US, the UK and the Eurozone. The FSB estimates that, at the end of 2013, global assets held by "other financial intermediaries" (OFIs, that is financial institutions other than central banks, banks, pension

funds and insurance companies) were US\$75 trillion, accounting for 24% of all financial assets and 120% of GDP. For China, the comparable figures were roughly 9% of financial assets and 31% of GDP in 2013; total OFI assets were thus less than one-eighth of total banking system assets. (Note that for consistency of comparison we use the FSB's estimate of China's shadow sector rather than our own; the FSB's estimate of 31% of GDP in 2013 is somewhat lower than our calculation of 43% of GDP in 2013, but not by enough to invalidate our broad conclusions about the size of China's shadow sector compared to those of other countries.)

In the United States, by contrast, the FSB estimates that OFI assets were around 150% of GDP (US\$25 trn), about a quarter more than the assets of the U.S. banking system (120% of GDP). Three European countries whose banking systems are all substantially larger, relative to GDP, than China's, also have gigantic OFI systems: Netherlands (760% of GDP), the UK (348%) and Switzerland (261%).¹⁶ (See Table 5 next page)

Another way of expressing the same data is to note that, of global assets controlled by OFIs in 2013, 33% were in the US, 34% in the Eurozone and 12% in the UK. Whichever way one looks at it, it appears that China's shadow financial system is relatively small in both the global and the domestic context.

The broad FSB estimates are not without their problems, however. Some critics object that by focusing on non-bank *entities*, the FSB ignores shadow-banking activities carried out by banks themselves. As a result, the size of China's shadow banking sector may well

16. Financial Stability Board, Global Shadow Banking Monitoring Report 2014, November 4, 2014 (<http://www.financialstabilityboard.org/2014/11/global-shadow-banking-monitoring-report-2014/>).

Table 5.

Shadow banking size comparison

Shadow Banking Assets as % of 2013 GDP	
Netherlands	760%
United Kingdom	648%
Switzerland	261%
United States	150%
China	31%

be underestimated.¹⁷ This critique is just, but on close inspection it is unlikely to really affect the overall conclusion that China's shadow finance sector is substantially smaller than those of financially advanced countries such as the U.S. and the UK.

First, the same objection applies to all countries, not just China, so to make a fair comparison one would have to estimate the shadow-banking activities of banks in all countries. Such an exercise would raise the estimates for the volume of shadow activity everywhere, not only in China.

Second, the biggest "shadow banking" activity of banks is the issuance of WMPs, but these are *liabilities* of financial institutions, whereas the FSB's shadow banking estimates involve *assets*. Lumping together liabilities and assets results in double counting. The FSB's estimates almost certainly involve a fair amount of double counting anyway, since a chain of transactions among a series of financial institutions means that an equivalent asset is held on multiple balance sheets. But, in the absence of clarity on how much double counting exists in the FSB numbers, it does not seem appropriate to adjust China's figure upward by including instruments that are unambiguously liabilities, not assets, of financial intermediaries.

Some may argue that although China's shadow sector is clearly smaller than that of financially advanced countries, it is larger than that of other developing countries. This is not really borne out by the FSB's figures, which show that South Korea, South Africa, Brazil and Chile all have non-bank financial sectors larger (relative to GDP) than China's. But the gap is much smaller than with the advanced economies of North America and Europe, and if one accepts the claim that China's gross shadow activities are uniquely underestimated because of an unusually large proportion

of shadow activities undertaken by the banks themselves, it is plausible that China's shadow sector could be the largest (relative to GDP) in the developing world. Certainly it is unambiguous that China's *formal banking sector*, at 272% of GDP at end-2014 is the developing world's largest.¹⁸

By the broad definition, therefore, China's shadow finance sector is much smaller - relative to both GDP and the formal banking system - than in financially advanced countries. It may possibly be on the large side for a developing country. Further, and perhaps most important, it was by far the fastest growing shadow system in the world, with assets increasing by 34 percent in 2013 compared to a worldwide average of 7%.¹⁹

Moreover, on the *narrow* definition of shadow banking introduced by the FSB in its latest monitoring report, the relative size of China's shadow sector becomes larger. This narrower measure tries to strip out equity financing and self-securitization activity. These functions comprise a large share of OFI activity in the US, UK, the Netherlands and some other countries, but are relatively inconsequential in China. By this metric, China's shadow banking system, while only one sixth the size of the U.S. system, is in absolute terms the third largest in the world²⁰. The general point still holds that China's shadow banking system is smaller relative to GDP and total financial assets than in most advanced countries. But its large absolute size, and rapid growth, are legitimate causes of concern.

Types of Institutions

The FSB divides the universe of non-bank financial institutions into the following categories²¹:

18. China Banking Regulatory Commission and the National Bureau of Statistics of China, accessed via Haver Analytics, up to date as of March 9, 2015.

19. FSB 2014, p. 12.

20. FSB 2014, p.23, Exhibit 5-2

21. FSB 2014, pp. 13-14

17. Borst (2014), pp. 12-13,71.

- Investment funds, excluding pension funds and insurance companies (accounting for 38% of global NBF assets in 2013, of which a bit under half were equity funds and a third were bond funds)
- Securities broker-dealers (15% of NBF assets)
- Structured finance vehicles (8%, concentrated heavily in the U.S. and the UK)
- Finance companies (6%)
- Money market funds (6%)
- Nation-specific institutions (such as U.S. financial holding companies and Dutch special finance institutions; 12%)
- Others including hedge funds, real-estate investment trusts (REITs), trust companies, and others (15%)

The IMF provides useful schematic diagrams of how the shadow finance sector relates to the traditional banking sector (IMF 2014, Figure 2.3, p. 69), and how the various actors in the U.S. shadow banking universe interact with each other. (IMF 2014, Figure 2.1.1, p. 70).

The institutional universe in China is, by contrast, far less diverse. Hedge funds, REITs, specialized finance companies and structured finance vehicles are negligible in size, and domestic money market funds have until recently been very small (although one can argue that many WMPs issued by banks and trust companies are in essence money-market funds, see Borst 2013). Securities firms do exist, but their assets are modest (about one-twentieth of bank assets), and for the most part they do not extend credit. (These firms do engage in significant

margin lending to equity investors, although regulators have taken steps to limit this.) See Exhibits 7²² and 8²³.

The most notable vehicles for the provision of shadow credit in China—aside from the banks themselves—are the trust companies. These firms collect funds from wealthy individuals and companies and invest them in a range of credit instruments, generally bearing higher interest rates and carrying higher risk than normal bank loans. They are separate from but often cooperate closely with banks and in a few cases are partially or fully owned by them, although banks are not major investors in trust companies on the whole. At various points trust companies have been sanctioned by regulators for providing conduits for banks to park loans off-balance sheet.²⁴ At the end of 2012, total trust company assets were about 12% of GDP, roughly the same as for securities companies.

Types of Activities and Systemic Risk

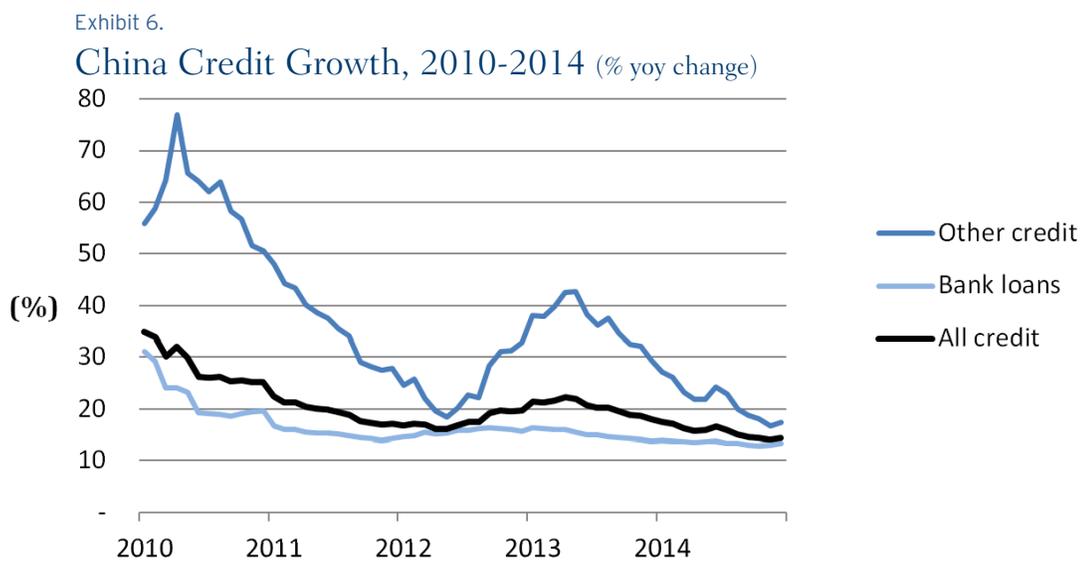
It may be more useful to employ an activity-based estimate of shadow financing, rather than the entity-based method used by the FSB in its global survey, particularly given the large role of banks in Chinese shadow banking. This also has the merit of being the approach favored by the People's Bank of China, which monitors shadow banking activity through its Total Social Finance measurements.

On a stock basis, the TSF numbers ratify the FSB's conclusion about the relatively small size of the shadow

22. IMF, Global Financial Stability Report 2014, Figure 2.3 (p 69).

23. Ibid., Figure 2.1.1 (p.70).

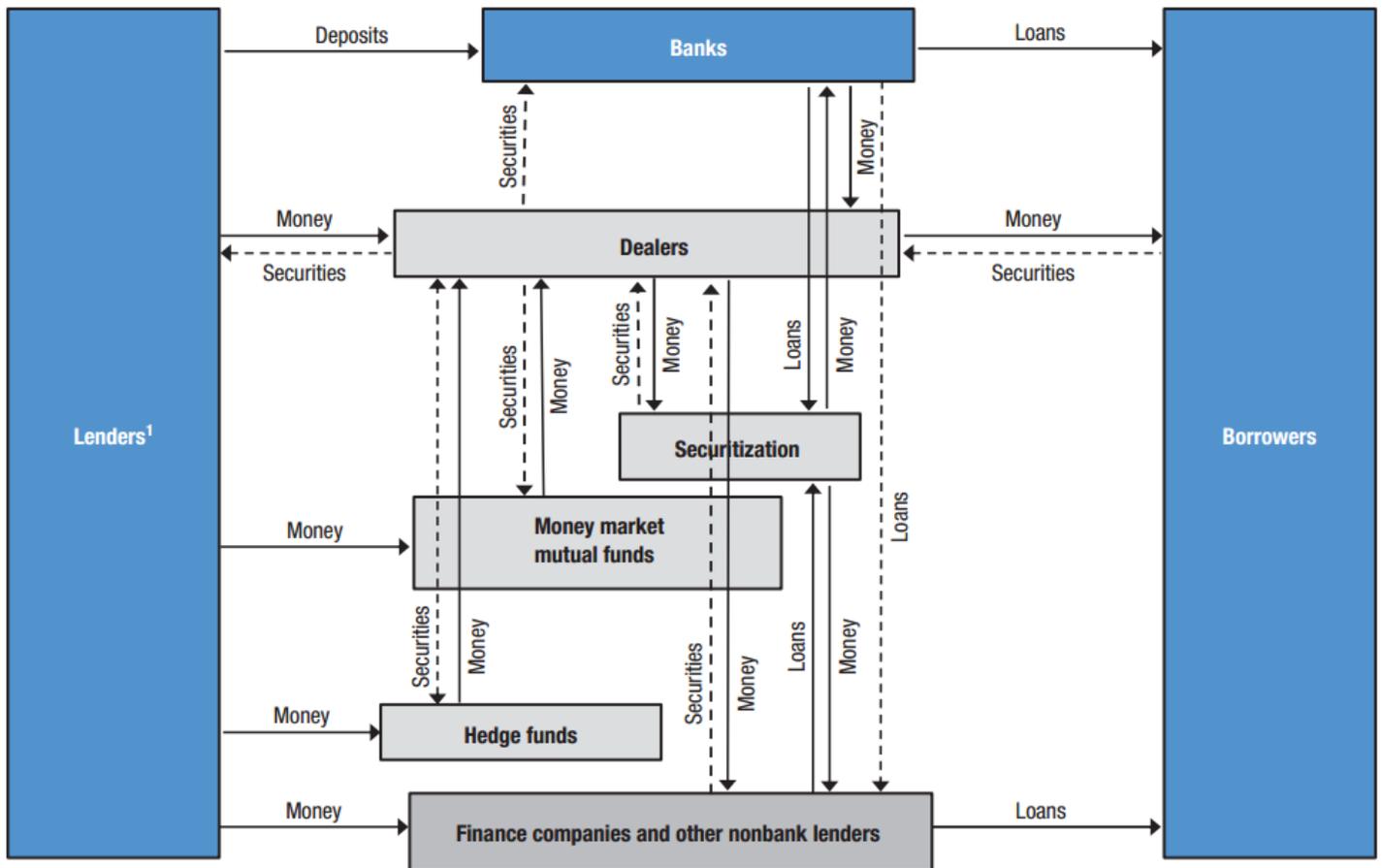
24. Borst (2013).



Source: Sanford Bernstein research

Exhibit 7.

Traditional vs. Shadow Banking Intermediation



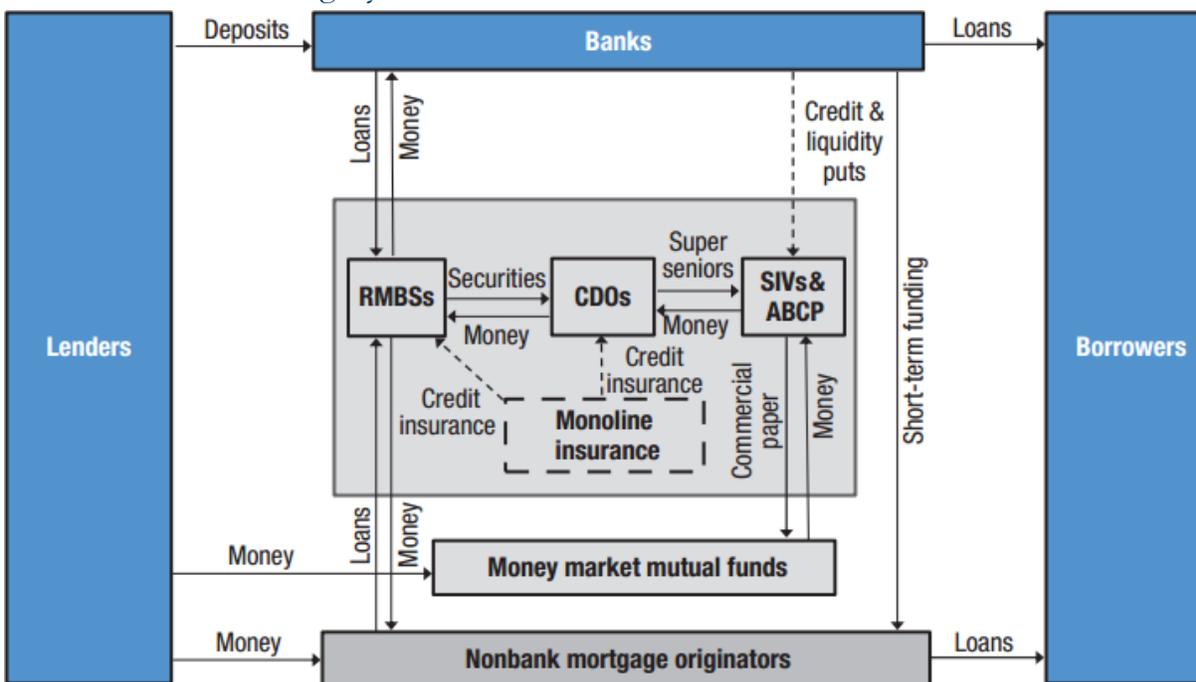
Source: IMF staff illustration.

Note: This simplified representation of the financial sector shows the flow of funds from lenders to borrowers. It does not show the reverse flows, such as bank deposit withdrawals and money market mutual fund redemptions. The blue boxes represent the components of a bank-based economy, with the rest representing the shadow banking sector. The boxes on the outside characterize a simple shadow banking system as might be found in a less developed economy. The lighter colored boxes in the middle reflect the kinds of shadow banking activities and entities usually associated with more advanced economies, with dealers as the hub of most activity. This activity comprises issuing securities on behalf of borrowers (including securitization vehicles, finance companies, and other nonbank lenders), providing prime broker services to hedge funds, and conducting repurchase agreements and securities lending. Securitization vehicles do not generally involve borrowers directly. Securitized assets generally come from banks and nonbank lenders, and securities from dealers. See Annex 2.2 for details on the role of securitization.

¹The lenders category includes institutional investors (such as insurance companies and pension funds) and official sector institutions (such as central banks and sovereign wealth funds).

Exhibit 8.

U.S. Shadow Banking System



Source: IMF staff.

Note: This is a simplified schematic of the precrisis U.S. financial sector showing the flow of funds from lenders to borrowers and the interlinkages between them and shadow banks. Securitization vehicles include asset-backed commercial paper (ABCP) conduits, collateralized debt obligations (CDOs), residential mortgage-backed securities (RMBSs), and structured investment vehicles (SIVs). See notes to Figure 2.3 for further explanations.

sector in China, relative to conventional bank loans. At the end of 2013, domestic and foreign currency bank loans accounted for 71% of the TSF stock. Loans by trust companies accounted for another 4%, and “entrusted loans” 7%. Bankers’ acceptances accounted for 6%, and corporate bond issues another 3%.

How much of this activity reasonably qualifies as “shadow finance” according to international definitions is debatable. Trust loans clearly do, since they are a form of credit extended by a non-bank institution. One could argue that virtually nothing else does, either because it is credit extended by banks (for example, bankers acceptances), intercompany lending (entrusted loans) or direct fundraising by corporates (bond issues), which are not counted as shadow finance anywhere else in the world. On this basis, the widely respected China banking system analyst Stephen Green suggests that China’s true shadow banking was only 8-14% of GDP in 2013.²⁵ This extremely low estimate is perhaps defensible, but

25. Green (2014).

given the opacity of financial activity in China, and its extremely rapid growth, using a broader definition of shadow activity (as we have done above by including trust loans, bankers acceptances, and refinancing in the inter-bank market) is probably prudent. The central observation is that even using this broader definition, China’s shadow sector is not unusually large.

Leaving aside the basically definitional question of just how big China’s shadow sector is, what is the *nature* of these shadow activities? Most Chinese shadow banking consists of straightforward lending, sometimes thinly disguised. Banks would likely provide the great bulk of this lending directly and hold it on their balance sheets were there not a series of regulatory constraints on the amount and pricing of their loans, as described earlier.

These limits, and other constraints and incentives, hold down total bank lending and divert credit to other channels. Further, various distortions in the economy have made it profitable for SOEs to borrow from banks and on-lend to other borrowers, which accounts for

part of the “entrusted loans” category. This reduces the volume of potential bank lending for all other forms of credit, given the limits, and directly raises the level of shadow banking, if one includes entrusted loans in that category, as we do in this paper.

Will there be a major shadow banking crisis in China?

To summarize our conclusions so far:

- China’s shadow banking sector, however defined, is substantially smaller (relative to GDP) than those of financially advanced countries in North America and Europe, and towards the middle of the range for major developing countries.
- China’s shadow banking sector has been, however, by a wide margin the fastest-growing in the world, and sits alongside a formal banking sector which, at 272% of GDP, is very large by developing-country standards.
- Trust companies are the dominant type of non-bank financial institution engaging in shadow lending. Most other shadow banking activities are undertaken by the banks themselves, or by SOEs which use banks or trust companies as conduits for their loans.
- There is less use than in the West of practices or instruments such as securitization, derivatives, CDOs or CDS, although securitization is growing. However, WMPs and instruments such as Trust Beneficiary Rights and repurchase agreements using loans as collateral bring some of the same risks and can be opaque. Fortunately, they are generally unleveraged and therefore less dangerous in a financial crisis than was true of many products used in the West. They would also likely be brought back onto the books as “loans”, which would not require that they be “marked to market” and therefore they may produce a lower hit to capital in the midst of a crisis.
- Most shadow credit is straightforward lending; the major purpose of shadow finance is simply to satisfy normal demand for credit that cannot be met by banks under their existing mandated loan-to-deposit ratios, reserves, capital ratios, and other regulatory and supervisory constraints.
- Funding risk is lessened by the fact that, in aggregate, financial sector exposures are more or less fully covered by bank deposits. This does not preclude funding problems at the shadow banks, but means that aggregate resources are available that could be readily deployed under the right policy regime.

These conclusions suggest that the near-term risk to the financial sector and the wider economy from a shadow banking crisis in China is low. There is certainly a real risk of a crisis *within* the shadow banking sector. However, if such a crisis did occur, say via the serial bankruptcy of several trust lenders, it is likely that the impact of the crisis could be contained and would not lead to serious contagion in the rest of the financial system. Banks would likely share in some of the losses, but are large enough to handle the potential damage. This said, there remains the potential for a number of the shadow banks themselves to face insolvency in a crisis.

The major risk in the shadow sector is that some trust company lending—for instance to real estate developers or companies in financially stressed industries such as coal mining—is intrinsically risky, and moreover suffers from a maturity mismatch, with loans of two years or more in duration often funded by WMPs with a maturity of 6 months or less. One can easily imagine a severe downturn in the property market and the heavy industrial sectors that depend on construction demand leading to a wave of defaults on trust loans, which would then cause trusts to default on their WMPs. This would be unpleasant, but it is unlikely to produce the cascade effect seen in the U.S. in 2008.

First, trust companies do not provide liquidity to the financial system, except by facilitating WMPs issuance that could be replaced by deposit issuance. So while a buildup of bad assets on their balance sheets would be a headache for them (and for any banks that lent to them), it would have little direct impact on the financial system’s ability to fund itself, beyond the trust companies themselves. Second, the indirect effect of stress in the trust sector would most likely be to *improve* the liquidity position of the banks. This is because a crisis of confidence in trust-issued WMPs would lead individual investors to fly to the safety of state-guaranteed bank deposits.

In its present form, therefore, China’s shadow banking sector presents relatively low risk of triggering a panic or financial crisis similar to those experienced by the U.S. in 2008, or by other Asian economies and Russia in 1998. The fundamental reason for this is that liquidity is abundant, due to the high levels of deposits from households and businesses, and reliance on fragile wholesale funding sources is minimal. Bad events such as a property market crash, a dramatic heavy-industry slowdown, or defaults in the trust companies would certainly increase banks’ non-performing assets, but they would not imperil banks’ funding.

The bigger financial system risk in China is not crisis but sclerosis: if an ever greater share of lending (whether by banks or shadow entities) goes to unproductive projects,

then economic growth will continue to decelerate. This is in essence what occurred in Japan in the 1990s. A serious shrinkage of the shadow banking sector would exacerbate this risk, by reducing the available volume of credit, increasing its price, and pushing more of the lending that does occur back into a banking sector that is still somewhat limited in its ability to effectively lend outside of the SOE realm.

How do Chinese authorities intend to reform shadow banking?

Since the emergence of wealth management products and trust loans on a large scale in 2010, the principal financial regulators, the PBOC and the CBRC, have taken a cautiously welcoming view of the shadow sector. The basic idea was that shadow activities help satisfy the demand of investors and depositors for a wider range of financial instruments, beyond the low-yielding regulated deposits and the illiquid real-estate investments that until recently were the principal investment options for most Chinese. Trust loans were also a useful mechanism for financing higher-risk borrowers, at appropriately higher interest rates.

At the same time, however, regulators had two broad concerns: first, that an unregulated shadow finance sector could create excessive credit growth; and second, that the lack of transparency in the sources and uses of funds could create hidden risks, much as occurred in the U.S. before 2008. Regulatory efforts since 2013 therefore focused on:

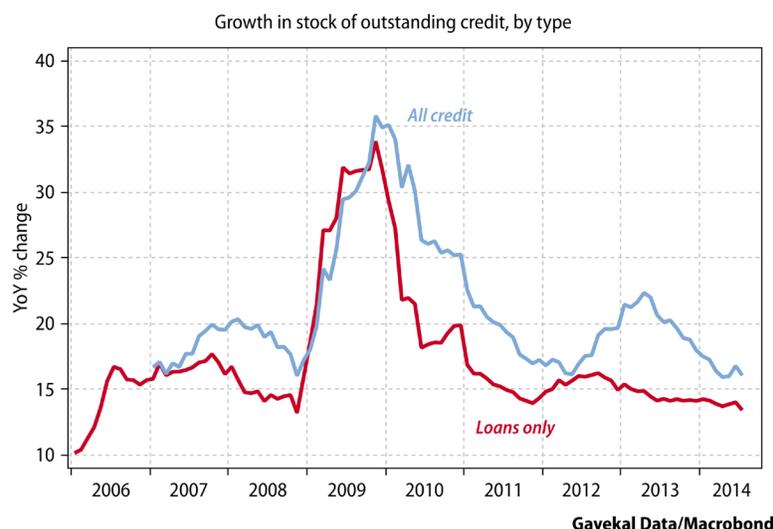
- Slowing down the pace of non-bank credit growth.
- Disciplining the use of the inter-bank market for funding.
- Requiring the composition of shadow assets and liabilities to be made more transparent.

As the chart below indicates, virtually all of the credit expansion in 2012 and early 2013 came from sources other than bank lending. Year on year growth in the stock of traditional bank loans rose only from 14% to 16% during 2012, and then drifted gradually back down to around 14%. Growth in the *total* credit stock, meanwhile, accelerated from 16% in early 2012 to nearly 23% in the first quarter of 2013. The monetary tightening imposed by the new government beginning in May 2013 came almost exclusively through a slowing in the pace of non-bank lending, which brought growth in total credit down to below 15% despite virtually no change in the pace of bank lending.

Discipline on the inter-bank market began in June 2013, when the PBOC engineered a liquidity squeeze that briefly drove overnight interest rates to nearly 30%. The mini-panic that ensued in financial markets forced the PBOC to backtrack temporarily, but over the rest of the year inter-bank and other short-term funding rates gradually rose, ending the year 2-3 percentage points higher than they had begun it. One of the main purposes of this exercise was to curb the enthusiasm of smaller banks that had been borrowing heavily on the interbank market to fund higher risk lending activity, often routed through shadow banking. The PBOC did not adequately communicate its intentions, and markets were temporarily unsettled as a result, but the regulatory

Exhibit 9.

Credit growth has accelerated from the bottom



intent was straightforward and sensible: to prevent the rise of shadow finance from creating a systemic funding risk.

Efforts to make shadow activities more transparent are embodied in a series of regulatory documents: the State Council's "Notice on Some Issues of Strengthening the Regulation of Shadow Banks" (Document No. 107, January 2013); the multi-agency "Notice on Regulating Financial Institutions' Interbank Business" (State Council document no. 127, May 2014), and the CBRC's "Notice on Regulating Commercial Banking Interbank Business" (document no. 140, May 2014). Document 107 essentially banned the practice of "fund pools," under which trust companies and other WMP issuers could move money indiscriminately from one investment to another. This had made it impossible for buyers of a given WMP to know what exactly they were investing in. The other two notices proposed new rules for financial institutions' management of interbank liquidity. Among other things, institutions are required to place limits on their exposures to individual counterparties and meet capital requirements for off-balance sheet transactions (such as repurchase agreements) that previously did not need to be backed by capital.

Conclusions

China's shadow banking sector is not especially large by international standards, is relatively simple, and is overseen by regulators who have so far shown themselves alive to the most important risks (namely funding risk and lack of transparency) and have taken prudent steps to minimize these risks. The authorities take seriously their mandate to maintain financial stability, and have acted pre-emptively (for instance in the interbank squeeze of June 2013) to nip practices in the bud that might threaten that stability.

The problem for China's financial authorities is that the very large traditional banking sector is not fully serving the increasingly complex financial needs of an economy transitioning from a focus on industry and infrastructure to one based mainly on consumer services and also moving from state ownership and control to a greater level of private enterprise.

The balancing act between encouraging shadow banks to supply needed credit to sectors that are not well served by traditional banks and at the same time protecting financial stability and investors is a very difficult one. We will shortly be issuing a companion paper that provides recommendations for policy actions by the Chinese authorities.

Appendix A

Pozsar (2012) provide a more refined description of shadow banks, defining them as “financial intermediaries that conduct maturity, credit, and liquidity transformation without explicit access to central bank liquidity or public sector credit guarantees.”²⁶ This definition hinges on the notion that only those forms of credit intermediation that receive *direct* and *explicit* public sector guarantees against losses and access to central bank liquidity may be considered part of the formal banking sector. Therefore, off-balance sheet activities that occur at bank holding companies, such as special purpose vehicles (SPVs) with privately provided backstops, are considered shadow banking since they only receive indirect public guarantees. Similarly, intermediation activities that occur at money market mutual funds (MMMFs) are considered part of the shadow banking system since they, at best, receive only indirect or implicit public sector credit enhancement.

Claessens (2014) describe it as “all financial activities, except traditional banking, which require a private or public backstop to operate.”²⁷ Private backstops generally come in the form of the franchise value of another financial institution, while public backstops tend to be public guarantees on debt securities, public deposit insurance, or explicit access to central bank liquidity.

26. Pozsar (2012).

27. Claessens (2014).

Appendix B

Estimates of the Size of the Chinese Shadow Banking System

Source	Estimate Period	RMB (trillion)	USD (trillion)	% of GDP	Description of Components
IMF (Oct-14)	Mar-2014	19.9 ²	3.3 ²	35% of 2014 GDP	Total social financing less bank loans, equity-like items, and bond issuance. Entrusted loans and trust loans account for a "large share of shadow bank social financing."
UBS (Mar-14)	YE-2013	28.4 - 39.8	4.7 - 6.6	50-70% of 2013 GDP	Range based on three different definitions of shadow banking. All definitions include trust and entrusted loans, commercial bills, other trust assets, and "Other" items. Definitions vary based on inclusion of informal lending and corporate bonds not held by banks.
Financial Stability Board (Oct-14)	YE-2013	18.2	3.0	31.2% of 2013 GDP	Intermediation conducted by non-bank financial institutions excluding insurance companies, pension funds, and public financial institutions.
Standard Chartered (Mar-14)	YE-2013	4.6 - 12.5	0.7 - 2.1	8-22% of 2013 GDP	Defined as "credit intermediation by non-bank institutions" and excluding inter-company lending and bond issuance, shadow banking would consist of trust loans, estimated at 8% of YE-2013 GDP; if under-reporting of trust activity is assumed, that figure may be closer to 12-14%; if peer-to-peer lending, which is estimated at approximately 8% of GDP, is also included then the previous figure ranges from 20-22%
Bangkok Bank (Mar-14)	YE-2012	36.4	6.0	70% of 2012 GDP	"Shadow banking is high-yield lending outside normal bank lending channels."
JP Morgan (Jan-14)	YE-2013	46	7.5	80.9% of 2013 GDP	N/A
Chinese Academy of Social Sciences (CASS) (Oct-13)	YE-2012	16.9	3.0	36% of 2012 GDP	Used "narrow definition" with only banks' wealth management products and trust companies' trust products
JP Morgan (May-13)	YE-2012	36.0	5.8	69% of 2012 GDP	Broad definition of all 'non-bank credit intermediation' applied. This definition includes investments made by trust companies, entrusted loans, bankers acceptances, wealth management products, intermediation by other financial institutions (OFIs), and underground lending.
China International Capital Corporation (Apr-13)	Apr-2013	27.0	4.4	52% of 2012 GDP	N/A

Fitch Ratings (Apr-13)	YE-2012	31.2	5.0	60% of 2012 GDP	Main components include peer-to-peer lending, trust loans and bankers acceptances
Standard & Poor's (Apr-13)	YE-2012	22.9	3.7	44.4% of 2012 GDP	Wealth management products, trust company products, entrusted loans, and private loans
Emerging Advisors Group (Feb-13)	Sep-2013	22.8³	3.7³	40% of 2013 GDP	Using "standard international definition of shadow banks" as "formal non-bank entities that carry out bank-like credit activities," including credit from trusts and direct credit from financial companies other than banks.
Deutsche Bank (Jan-13)	Jan-2013	20.0	3.2	38% of 2012 GDP	N/A
UBS (Oct-12)	Q3-2012	24.4	3.8	46.5% of 2012 GDP	Based on broad definition, including outstanding commercial bills, trust and entrusted loans included in TSF, trust assets not included in TSF, informal lending, and corporate bonds not held by banks
GaveKal Drogonomics (Apr -12)	YE-2012	19	3.0	36.6% of 2012 GDP	Includes microfinance, private lending, trust loans, designated loans, letters of credit, and bankers' acceptances (net)
UBS (Oct-11)	H1 - 2011	10.0	1.5	23.6% of 2010 GDP	"Shadow banking refers to non-bank loans such as entrusted loans, trust loans, credit guarantees, and private lending."
GaveKal Drogonomics (Sep-11)	H1-2011	17	2.5	35.9% of 2011 GDP	Includes microfinance, private lending, trust loans, designated loans, letters of credit, and bankers' acceptances (net)

Note 1: Primary sources did not necessarily provide enough information to fill in each column of the table. For example, a source may have only provided an estimate of the size of the shadow banking system as a percentage of GDP in a particular year. For readers' convenience, the authors used the economic indicators below to fill in the table so that source estimates could be more easily compared. All authors' estimates are bolded and italicized and are intended for illustrative purposes only.

Note 2: Estimates based on GDP at YE-2013 though IMF estimates are for March 2014.

Note 3: Estimates based on GDP at YE-2013 though Emerging Advisors estimates are for September 2013.

Economic Indicators Used to Derive Authors' Estimates:

GDP of China (¥ '000)

2013 - 56,884,521

2012 - 51,947,010

2011 - 47,310,400

Exchange Rates Used in Various Estimates (CNY/USD)

YE-2013 - 6.0753

Mar-2013 - 6.1429

YE-2012 - 6.2330

Q3-2012 - 6.3625

YE-2011 = 6.3505

H1-2011 - 6.8229

YE-2010 - 6.6486

Source: Federal Reserve Board / National Bureau of Statistics of China / Haver Analytics

References

- Borst, Nicholas. "The Role of Trust Companies in China's Recent Credit Growth." Peterson Institute for International Economics - China Economic Watch, May 31, 2013. Available at <http://blogs.piie.com/china/?p=2658>.
- Borst, Nicholas. "Flying Blind." *The International Economy*. Winter 2014.
- Claessens, Stijn and Lev Ratnovski. "What Is Shadow Banking?" *IMF Working Paper 14/25* (February 2014).
- Deloitte. "2012 China Banking Industry Top Ten Trends and Outlook; Enhancing Capital Management, Meeting New Challenges." Deloitte China Financial Services Industry Center of Excellence Report, 2012.
- Financial Stability Board. *Global Shadow Banking Monitoring Report 2014*. (November 2014).
- Financial Stability Board. *Global Shadow Banking Monitoring Report 2013*. (November 2013).
- Elliott, Douglas. "Higher Bank Capital Requirements Would Come at a Price." The Brookings Institution, February 2013, available at <http://www.brookings.edu/research/papers/2013/02/20-bank-capital-requirements-elliott>.
- Elliott, Douglas and Kai Yan. "The Chinese Financial System: An Introduction and Overview." John L. Thornton China Center at the Brookings Institution Monograph Series No. 6 (July 2013).
- Green, Stephen, Wei Li, and Lan Shen. "Your map of the expanding credit universe." Standard Chartered Global Research, March 3, 2014.
- Hong Kong Monetary Authority. *Half-Yearly Monetary and Financial Stability Report*. September 2014.
- Hou, Wei, Gaye Gao, and Min Zhou. "Chinese Banks - Initiating coverage; Deleveraging, De-risking and (finally) Diverging?" Sanford Bernstein Research, September 16, 2014.
- International Monetary Fund. (2014a), *Global Financial Stability Report 2014*. Washington, D.C.: IMF Publication Services, April 2014.
- International Monetary Fund. (2014b), *People's Republic of China: 2014 Article IV Consultation - Staff Report*. IMF Country Report No. 14/235, Washington, D.C.: IMF Publication Services, July 2014.
- Kwan, Chi Hung. "Shadow Banking in China: Current situation and challenges." Research Institute of Economy, Trade, and Industry - China in Transition, August 6, 2013.
- Lardy, Nicholas R., *Markets Over Mao: The Rise of Private Business in China*, Peterson Institute for International Economics, Washington, DC, September 2014.
- Luo, Jun and Yidi Zhao. "Shadow Banks on Trial as China's Rich Sister Faces Death." *Bloomberg News*, April 11, 2012.
- Ma, Maria. "China: Shadow Banking and the Global Economy." SEI Commentary, September 2013.
- Martin, Michael. "China's Banking System: Issues for Congress." Congressional Research Service Report for Congress 7-5700 (February 20, 2012), p. 2-3.
- Panigirtzoglou, Nikolaos, Matthew Lehmann, and Jigar Vakharia. "How scary are China's shadow banks?" JP Morgan Global Asset Allocation - Flows and Liquidity, January 31, 2014.
- People's Bank of China. "All-system Financing Aggregate Statistics in 2014." People's Bank of China News, January, 29, 2015.
- People's Bank of China Financial Statistics, accessed March 2015. Available at <http://www.pbc.gov.cn/publish/english/955/index.html>.
- People's Bank of China, *China: Financial Stability Report 2013* (June 2013).
- Poon, Joyce. "Unregulated Finance Moves Out of the Shadows." Gavekal Dragonomics, April 26, 2012.
- Poon, Joyce. "The Shadow - China's Hidden Financial System." Gavekal Dragonomics Asset Allocation and Economic

Research - Ad Hoc Comment, September 29, 2011.

- Pozsar, Zoltan, Tobias Adrian, Adam Ashcraft, and Hayley Boesky. "Shadow Banking." *Federal Reserve Bank of New York Staff Report No. 458* (2012).
- Research Institute of Economy, Trade, and Industry. "Shadow Banking in China: Current situation and challenges." RIETI - China in Transition Column. Japan, August, 6, 2013.
- Reuters. "Fitch warns on risks from shadow banking in China." June 10, 2013.
- Roberts, Dexter. "China's Shadow Banking Sector Tops \$5.8 Trillion, Report Says." *Bloomberg Business - Asia*, May 8, 2013.
- Songwanich, Suwatchai. "Shadow Banking poses problems for China." *The Nation*, March 17, 2014.
- Sha, Yu, Chen Gang, Zhaowei and Sun Fu, "Shadow banking, categories, estimation and effects", the Oriental Securities, 2014-01-08.
- Sheng, Andrew, Chow Soon Ng, and Christian Edelmann. "Asia Finance 2020: Framing a New Asian Financial Architecture." Oliver Wyman - Fung Global Institute, 2013.
- Thomson Reuters Accelus. "Chinese Shadow Banking: Understanding KFI and Risk Scenarios." January 2014.
- Wang, Tao, Donna Kwok, Harrison Hu, and Ning Zhang. "Why China Is Not Facing a Lehman Moment." UBS Global Research - China Weekly Economic Focus, March 2014.
- Wang, Tao. "Risks in China's Shadow Banking." UBS Global Investment Research - Macro Keys, October 16, 2013.
- Xiang, Nina. "Fears of China's Shadow Banking Implosion Are Overblown." *Forbes - Asia Outlook*, February 18, 2014.
- Yu, Glenda and Patrick Ho. "Shadow banking: stress, not threats." UBS Wealth Management Research - China economics, October 10, 2011.
- Zhu, Grace. "Chinese Think Tank Puts Shadow Banking at 40% of GDP." *Wall Street Journal - China Real Time Blog*, October, 9, 2013.
- Zhu, Haibin, Grace Ng, and Lu Jiang. "Shadow banking in China." J.P. Morgan Chase Bank - Economic Research Note, May 3, 2013.
- Zhang, Ming, "China's shadow banking, definition, causes, risks and policies", Chinese Academy of Social Sciences, 2013

