



The China credit conundrum: Risks, paths and implications

Portfolio Strategy Research

Key concerns around China's rapid credit buildup

Chinese policymakers' historical emphasis on high growth, alongside efforts to diversify the financial system, has led to a large credit buildup – China's total debt is now c. 210% of GDP, well above emerging-market peers. While a high absolute level of debt does not by itself presage a crisis, reasons for concern include: 1) the very rapid credit growth in recent years; 2) the diminishing links between credit and GDP growth; and 3) the brisk expansion of the "shadow banking" sector.

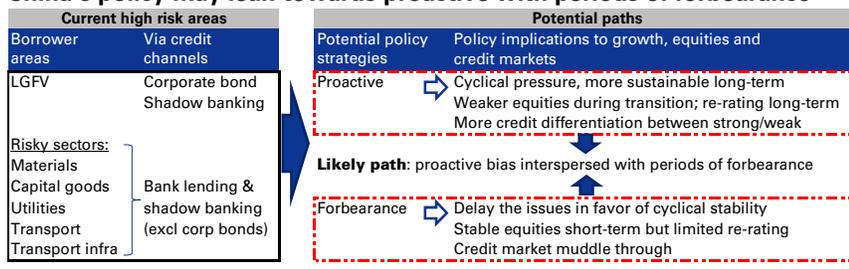
How it stands: Pressure points from unsustainable leverage growth

We analyzed available public sources of data on Chinese credit from a top-down and bottom-up basis. Our credit quality triangulation suggests that the highest-risk areas are: 1) lending to local government financing vehicles (LGFVs) via bonds or other shadow banking channels; 2) lending to overcapacity industries via banks or shadow banking (excl. corporate bonds). Some aspects of corporate credit stress are nearing 2008 peaks, which is concerning, as a sharp 2009/10 style recovery (via higher margins and lower interest rates) does not look imminent, in our view.

Looking ahead: A more proactive stance and higher pain threshold

The previous leadership instigated a large stimulus in 2009 and accommodated rapid credit growth in recent years. The new leadership has so far leaned towards a "proactive" reform strategy (to address existing problems and pre-empt further risks) but in our view is likely to interweave this with periods of "forbearance" at times when growth appears seriously threatened. In our view, more proactive reform may be less supportive for near-term growth, but should help to contain potential credit losses and reduce systemic risks. This will mean: 1) headwinds to equities near-term (esp. for cyclicals) but more market re-rating potential in time; and 2) greater differentiation between stronger and weaker credits.

China's policy may lean towards proactive with periods of forbearance



Source: GS Global ECS Research.

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What's new/different in this report?

- We look at the origins of China's recent credit boom, and compare China's leverage to global peers.
- We use all available corporate credit data sources (including corporate bonds, LGFV bonds, listed companies, NBS industrial data, etc) to identify and analyze current high credit risk areas.
- We conduct sensitivity analysis for potential changes in margins/returns/interest rates to credit stress.
- We lay out two potential policy paths that China may follow, quantify their potential loss sizes (and as % of GDP), explore potential resolutions, and discuss the growth, equity, and credit implications for each pathway.
- We analyze global precedents in terms of credit crisis risks and cleanup costs to assess potential implications for China.

Glossary: **CBRC:** China Banking Regulatory Commission; **CSRC:** China Securities Regulatory; **LGFV:** Local government financing vehicle; **MOF:** Ministry of Finance; **NDRC:** National Development & Reform Commission; **NPL:** Non performing loans; **PBOC:** People's Bank of China Commission; **SAFE:** State Association of Foreign Exchange; **TSF:** Total Social Financing; **WMP:** Wealth management product.

Notes on authorship: This report has been jointly authored by our China Equity strategy team, our Asia Credit strategy team, and our Asia economists. The views of the individual analysts, and their areas of expertise, are identified within; no other analyst is responsible.

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Overview: China's credit boom – yesterday, today and tomorrow

China's leverage buildup rightfully concerns investors and policymakers

- China's total debt-to-GDP ratio has risen by c. 60 percentage points since the global financial crisis, reaching c. 210% now (well above emerging-market peers).
- While a high *level* of leverage is not necessarily a precursor of a credit crisis, historical evidence suggests countries with rapid credit *growth* are at higher risk.
- The burgeoning shadow banking system and the apparently diminished effectiveness of credit in generating GDP growth are also causes for concern.

Credit stresses are already fairly high in certain areas of the Chinese corporate sector

- Corporate debt is the fastest growing segment and in our view entails the highest risk.
- Our analysis of various types of credit and products concludes that high-risk areas include: credit to overcapacity sectors (via bank lending and shadow banking excl. corporate bonds) and to LGFV (via corporate bonds & other shadow banking channels).
- Some aspects of credit stress data are approaching 2008 levels. However, prospects for rapid relief of credit stress via large fiscal stimulus, sharp external recovery, and lower funding costs as in 2009/2010 appear unlikely.

Credit problems are more likely to manifest in slower growth than in financial crisis

- Slowing leverage growth may pose headwinds for investment & overall GDP growth.
- Banking sector leverage is moderate, the system as a whole is not reliant on external funding, and regulators are unlikely to force banks to "mark to market" NPLs, all of which should help mitigate risks of an acute banking crisis.
- Sovereign concerns appear remote: central government borrowing is moderate and in local currency, and liquid assets (especially forex reserves) are considerable.

The new Chinese leadership has shifted towards more proactive regulation

- Previous policymakers tended to prioritize cyclical growth and financial diversification.
- New leadership appears more focused on a "proactive" approach via a myriad of reforms — fiscal, monetary, and regulatory. When and if this approach appears too threatening to near-term economic growth, policymakers may compromise with periods of "forbearance" (delay addressing the problems, but not exacerbate them).
- We estimate maximum potential credit losses of Rmb 8.6tn with a purely "proactive" policy approach and Rmb 18.6tn with "forbearance" (10% and 21% of 2016E GDP respectively), though in practice, policymakers are likely to balance these two approaches, in our view. Actual credit losses are likely to be significantly lower than these worst-case figures. Furthermore, credit losses are likely to emerge gradually, and can be partially absorbed by bank earnings or other avenues (there is ample room on the sovereign balance sheet to provide support, if required).

More proactive reform incurs some near-term costs in exchange for longer-term gains

- **Growth:** More proactive reform slows credit and potentially GDP growth in the near term, but fosters more sustainable growth over time.
- **Equities:** Lower returns during transition; over time more earnings visibility and thus better re-rating potential. Near-term, cyclicals are not well positioned. Banks are pricing in cyclical earnings/NIM deregulation risks, but the overhang of possible responsibility for covering shadow banking credits in a crisis is difficult to quantify and may linger.
- **Credit:** Reforms will improve credit allocation and reduce moral hazard. We expect clearer differentiation between stronger and weaker credits.

Origins and context: Putting China’s credit boom into perspective

This section was authored by Andrew Tilton, our Chief Asia Economist

China’s high and rising leverage has generated significant attention and concern from the markets in the past few years, and more so in recent weeks as the short-term liquidity crunch in late June served as a reminder of the stresses in the financial system.

With a debt-to-GDP ratio of over 200%, China is more indebted than most EM peers, reflecting the 2009-2010 stimulus, previous leadership’s emphasis on high economic growth, and low real interest rates. While a high absolute level of leverage by itself is not necessarily a cause for worry, other aspects of the credit boom are more concerning:

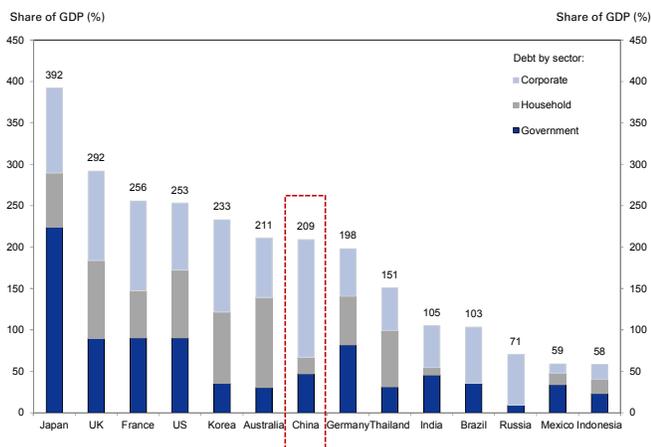
- the pace of leverage increase in recent years
- the weakening linkage between credit and growth
- the rapid expansion of the shadow banking sector

Since the leadership transition in early 2013, policymakers have made clear efforts to tackle the existing issues and prevent the rise of new problems, marking what appears to be the start of a more proactive policy strategy.

Chinese leverage in an international context

Although the debt-to-GDP ratio is below the most indebted developed economies such as Japan and the United Kingdom, it is well above those of comparable developing economies, including the other BRIC nations (Exhibit 1).

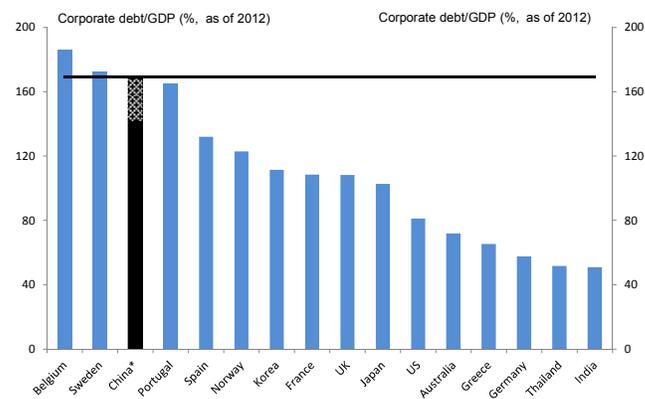
Exhibit 1: Less leverage than many developed countries, but more indebted than EM peers
Total debt-to-GDP ratio, 2012



Note: “Corporate” includes all private debt for Brazil and Russia.

Source: BIS, IMF, National statistical offices, World Bank.

Exhibit 2: China’s corporate sector leverage is high compared with other major economies
Corporate debt to GDP (%), 2012 (incl. LGFV debt– dotted portion of bar graph – for China)



Note: *Partly shaded portion represents LGFV debt

Source: BIS, CEIC, GS Global ECS Research.

One distinguishing feature about the rise in leverage in China is the high concentration in the corporate sector. If we include loans in the shadow banking sector and borrowings by LGFVs, we estimate that China's corporate credit-to-GDP ratio was 164% at the end of 2012. As shown in Exhibit 2, this is amongst the highest in the world.

A function of aggressive post-GFC stimulus and efforts to diversify the system.

Mechanically, the causes of the rise in leverage were a large increase in bank financing in 2009-10, followed by a sustained rise in nonbank financing since then. The bank lending surge occurred as part of the Chinese government's crisis response to the rapidly deteriorating global economic outlook in late 2008 and early 2009. With perfect hindsight, such an aggressive stimulus might not have been ideal, but at the time the global economy appeared to be in free fall with no obvious catalyst for a turnaround. In contrast, the rapid expansion in nonbank financing was in part the result of a longer-term policy effort to diversify the financial system away from a few large banks, combined with the previous leadership's policy emphasis on economic growth.

Fundamentally, China's relatively high private sector leverage ratio (for an emerging economy) at least partly stems from the often low level of onshore real borrowing rates. Private sector debt-to-GDP ratios across countries can be largely explained by two factors: the level in per capita income (with richer economies generally having more developed financial systems and consequently greater leverage) and the level of real interest rates (with lower interest rates associated with more borrowing).¹ In China's case, the real prime lending rate (net of inflation) has averaged about 3% over the past five years. In an economy boasting real growth of 7%-10% per year, it's not difficult to see why there was demand for credit at these rates.

In our view, the buildup in credit risk largely resides in the corporate sector. Consumer and direct government leverage are both very low, at 20% and 24% of GDP as at December 2012, respectively. If we also include some implicit liabilities of the central government (i.e. local government debt, borrowing through policy banks, the Ministry of Railways, and debt issued by the government to finance bank restructuring costs during the 2003-2005 period), we estimate that total public debt stands between 60% and 70% of GDP. Reliance on external debt is minimal, and we estimate that over 95% of total system credits are denominated in RMB.

The banking system has relatively low gearing, with a core Capital Adequacy Ratio (CAR) of 10.6% at the end of 2012, and is well funded by deposits with the loan/deposit ratio at 71%. The central bank requires domestic banks to retain a 20.5% deposit reserve requirement and a cap of 75% for the loan/deposit ratio, which are conservative measures to maintain banking sector liquidity. We also think that regulators are unlikely to force banks to aggressively "mark-to-market" any potential NPLs, which should help to mitigate an acute banking crisis. As noted later in this study, however, we do believe shadow banking credit represents an area of greater risk than traditional bank lending.

For these reasons, we believe the credit issues in China are predominantly a domestic corporate sector problem, and any stresses are more likely to originate in that sector than from over-borrowing by consumers, external debt reliance, sovereign debt strain, or over-levered banks.

¹ See "Why is leverage so strong and growth so soft, and can China afford the debt?", Li Cui, *Emerging Markets Macro Daily*, April 16.

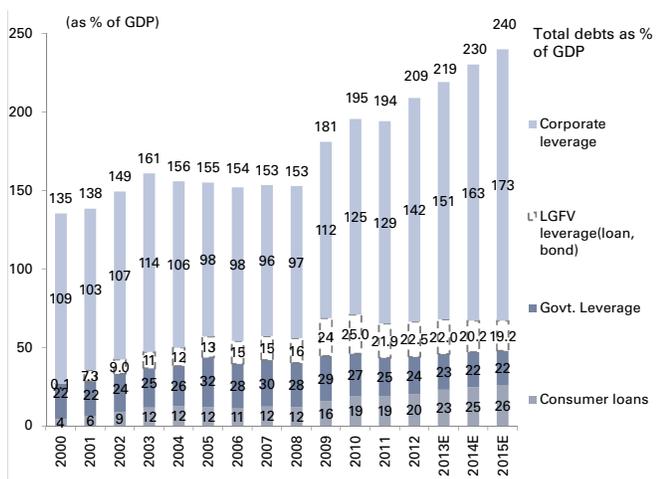
Three macro reasons why investors worry about credit in China

Leverage has been increasing rapidly. As noted, research on past credit buildups suggest that *growth* in leverage is a more important predictor of future problems than the *level* of leverage². Rapid credit growth tends to be associated with rapidly easing credit standards, and often entry of new and less experienced lenders. Thus, it can be a signal of increasing credit risk, though that depends greatly on the specific structure and regulation of the local financial sector.

The recent buildup in leverage in China has been quite rapid, particularly in the corporate sector (Exhibit 3). Over the past five years, the debt-to-GDP ratio has increased by 56pp (2007-2012), among the fastest increases in the world (Exhibit 4). This compares to 66pp in Thailand and 40pp in Malaysia in the five years prior to the Asian crisis, or 46 points in the United States in 2002-2007.³ For a more detailed historical perspective on credit booms and crises in other countries, please see the box on page 29 of this report.

Exhibit 3: Leverage has surged since the global financial crisis

Chinese debt by type (percent of GDP)

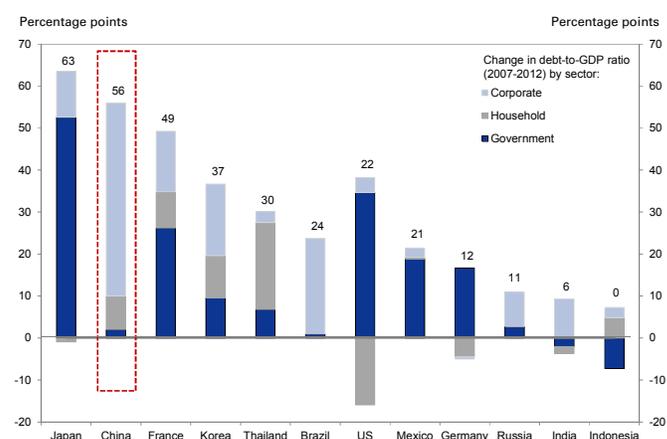


Note: 1) financial institutions credit is excluded from this calculation 2) only half of entrust loans outstanding is tallied to avoid double counting 3) trust loan are wholly classified to corporate loans category.

Source: People’s Bank of China, GS Global ECS Research estimates.

Exhibit 4: The pace of leverage growth has been very high in recent years

5-year change in total debt-to-GDP ratio (%)



Source: BIS, National Statistical Offices, IMF, World Bank.

² For a sample of the large literature on credit growth and financial crises, see for example Reinhart and Rogoff, “Banking Crises: An Equal Opportunity Menace” (2008) and other papers; Gourinchas and Obstfeld “Stories of the Twentieth Century for the Twenty-First” (2012), and Schularick and Taylor, “Credit Booms Gone Bust: Monetary Policy, Leverage Cycles, and Financial Crises, 1870-2008” (2009)

³ It is important to note that while these figures represent our best estimates, they do come from different data sources. The numbers for China are based on detailed analysis by our China banks team; see “China: Banks—Tightening & leverage overhang”, June 13, 2013” for the latest update. Figures for the other countries are based on the Federal Reserve’s Flow of Funds data (for the United States) and domestic credit to the private sector from the World Bank’s World Development Indicators database (for other countries).

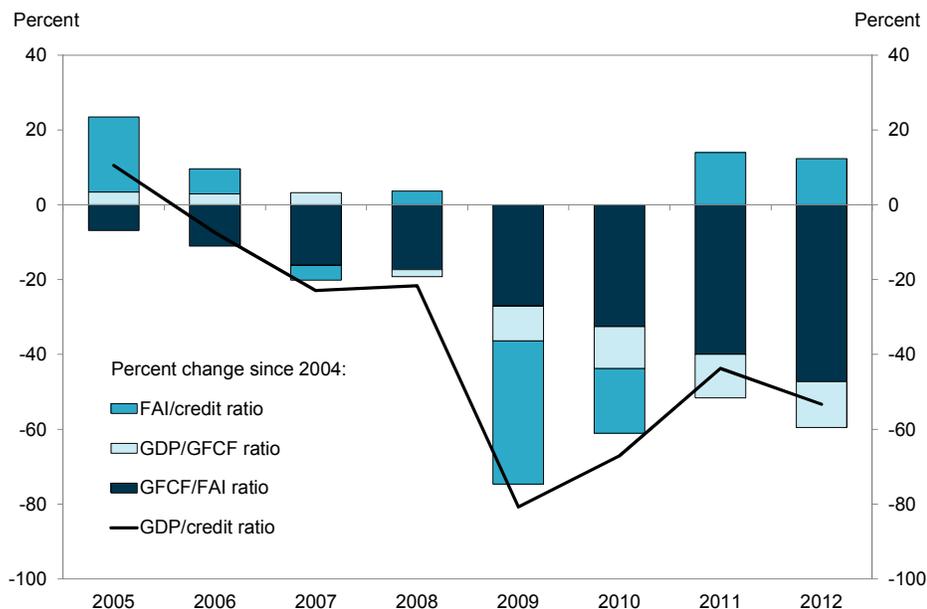
Credit’s effect on growth appears to be diminishing.

Increased leverage appears to have become less effective at boosting growth over time. Although we do find a short-run impact of sharp changes in credit availability on growth, the amount of GDP generated per yuan of credit appears to have declined.⁴

There are two main reasons for this declining impact of credit, in our view, shown in Exhibit 5 (note each bar represents a comparison with 2004). The most important is that a given amount of nominal capex (fixed asset investment, or FAI, which includes the purchase of existing land and buildings) is buying less real new capital formation (gross fixed capital formation, or GFCF); the changing relationship between the two is represented by the dark shaded bars. Put in plainer terms, an increasing amount of new credit is spent on land and existing assets rather than the creation of new assets. This could reflect either the rising relative price of land and existing assets, or a shift in capex towards more speculative activities.

The second reason for a declining impact of credit on growth is that GFCF is becoming a larger share of GDP. Other sources of growth that are less credit-intensive (in particular, exports) have slowed. While we expect external demand to improve over the coming year, this effect will be modest, and in any event would not overturn the broader trend depicted in Exhibit 5.

Exhibit 5: A smaller share of credit is going towards new capital formation



Note: FAI refers to fixed asset investment; and GFCF refers to gross fixed capital formation.

Source: China National Bureau of Statistics, GS Global ECS Research.

⁴ For an analysis of the short-run impact of changes in credit growth on real GDP growth, see “The ‘credit impulse’ to Chinese growth”, *Asia Economics Analyst 13/11*, April 11, 2013. For analysis on the weakening effect of credit on growth, please see our Emerging Market Macro Daily publications on “Is credit losing its cyclical growth impact?” (MK Tang, May 20) as well as “Explaining strong credit and weak growth in China” (April 30) and “Investment efficiency in China—what does provincial differentiation suggest” (June 12).

Shadow banking growing fast, taking market share from traditional bank financing

Non-bank financing channels (often referred to collectively as “shadow banking”, see box on page 10 for a more extensive description) have grown from just over 20% of new credit extension (total social financing, or TSF) five years ago to roughly half today (Exhibit 6). These nonbank channels include “entrust” loans (on-lending from the corporate, often state-owned enterprises with easy access to credit), trusts (essentially private placements of loans and bonds), bank acceptances, corporate bonds, and other sources of financing (including informal lending).

Although the term “shadow banking” implies that these activities operate completely outside regulatory supervision, this is not accurate and at least some elements (the corporate bond market in particular) are inherent to a diversified financial system. Nonetheless, the rapid growth of this sector, the relatively low experience of some of the lenders, the lack of transparency in many parts of the system, and implicit government guarantees to some borrowers raise questions about the quality of lending that has occurred, which we will explore further in the second section of this paper.

Exhibit 6: “Shadow banking” now represents almost half of new credit creation

Net new credit extension (total social financing), 2008-20113 ytd (annualized)

Rmb bn	2008	2009	2010	2011	2012	2013YTD (Jan-Jun)	YTD as % of 2012
Rmb loans	4,170	9,629	7,951	7,470	8,200	5,080	62%
Forex loans	52	933	415	571	916	579	63%
Entrusted loans	362	679	1,130	1,300	1,280	1,110	87%
Trust loans	268	438	386	201	1,290	1,230	95%
Bank acceptances	93	467	2,331	1,030	1,050	516	49%
Corporate bonds issue	472	1,301	1,201	1,370	2,250	1,220	54%
Non-FI equities	286	452	586	438	251	125	50%
Others	-	71	100	450	523	280	53%
Total financing(new addition)	5,839	14,154	14,300	12,830	15,760	10,140	64%
yoy (%)	-2%	142%	1%	-10%	23%	70%	
L-t loan+trust loans+corp bond	2,726	6,731	6,011	3,652	5,322	3,931	
yoy (%)	37%	147%	-11%	-39%	46%	174%	
Debt financing*	5,419	13,447	13,414	11,943	14,986	9,736	65%
Medium term to long term loans	1,985	4,992	4,424	2,081	1,782	1,481	
Shadow banking as % of total debt financing	22.1%	21.5%	37.6%	32.7%	39.2%	41.9%	

*Debt financing includes loans, bank acceptances and corporate bond issuances.

Source: People's Bank of China, GS Global ECS Research.

A brief primer on the “shadow banking” system and its potential risks (by Kenneth Ho)

Historically, the supply of credit in China has been channeled mostly via the banking system. But over the past five years, we have seen rapid growth in credit from the non-bank sector, or the so-called “shadow banking” sector. Shadow banking credits in 2012 accounted for 24% of the total credit balance to corporates and consumers (but 39% of the flow of new credit that year). In comparison, the liabilities in the US shadow banking sector are similar in size to liabilities of US commercial banks. However, the pace of shadow banking growth in China and the opacity of the products means that it provides a source of latent risk. For more details, please see Ning Ma’s February 26, 2013 report titled ‘Casting a light on shadow banking.’

Defining shadow banking in China

There is no formal definition of shadow banking in China, but a common understanding is that this encompasses credit exposures that are sourced from outside of the formal banking system. This does not mean that these types of lending are unregulated or uncontrolled, although some segments do carry higher risk. Adopting this definition means that shadow banking incorporates the following types of lending:

- **Corporate Bonds** – While this is often included in the classification of shadow banking, it is relatively speaking a better regulated and more transparent area, with positive selection bias in that only the better credit quality companies (non-LGFV) are able to issue corporate bonds with low funding costs. Three regulators (NDRC, CSRC and PBOC) each regulate a sub segment of the corporate bond market.
- **Trust Loans** – Trust companies can use trust funds to extend a loan to a corporate (LGFV or non-LGFV). The corporate provides a guarantee on the trust loan and/or collateral to the trust. This is regulated by the CBRC. There is no recourse to the issuing trust company. Trust products are typically sold to high net worth individuals and professional investors; the incentive for participating is an interest rate that has been historically 100-200 bps above the regulated bank deposit rate.
- **Entrust Loans** – Entrust loans allow for corporates to lend to each other. If Corporate A wants to lend to Corporate B, then can do this through a bank by using an entrust loan structure. The bank acts purely as a book entry entity, and Corporate A will bear all credit risk from lending to Corporate B. Regulated by CBRC.
- **Micro lending and pawn shops** – Micro lenders and pawn shops are smaller, regulated parts of shadow banking. The outstanding amount is comparatively small, and they target individuals/small businesses.
- **Informal Lending** – This is an unregulated sector, and often used for SME lending, and they do not have financial institutions acting as intermediaries or as book entry entities.

Layering on the wealth management products

Wealth management products (WMP) are often described as parts of shadow banking, but WMPs are in reality a distribution channel. WMPs are retail products sold to individuals with certain minimum deposit balances, either through bank branches or through securities brokers. The WMPs invest in a range of underlying products, which typically provide a fixed income return. These products include corporate bonds, trust loans, interbank assets, securitized loan from the banks’ loan book, and discounted bills, amongst other assets. The WMPs are managed by the banks/brokers, and the banks/brokers typically do not provide guarantee for the payment of interest or principal. Any WMPs that are not principal guaranteed are off balance sheet for the banks/brokers. WMPs issued by the banks fall under CBRC regulation, and WMPs issued by the brokers fall under CSRC regulation.

Often times, a bank may purchase a corporate bond or other product, and inject it as one of numerous products that comprise a WMP to resell to the individual. This has resulted in lack of transparency on WMP underlying products and some mismatch of tenor issues. WMPs’ recent popularity has been underpinned by both attractive return yields vs. bank deposits, and some perception of implicit guarantee by their sellers (banks or brokers), partly due to the lack of significant prior default precedent (as the sellers did indeed cover some prior losses voluntarily) and partly as the sellers often tend to be state owned businesses.

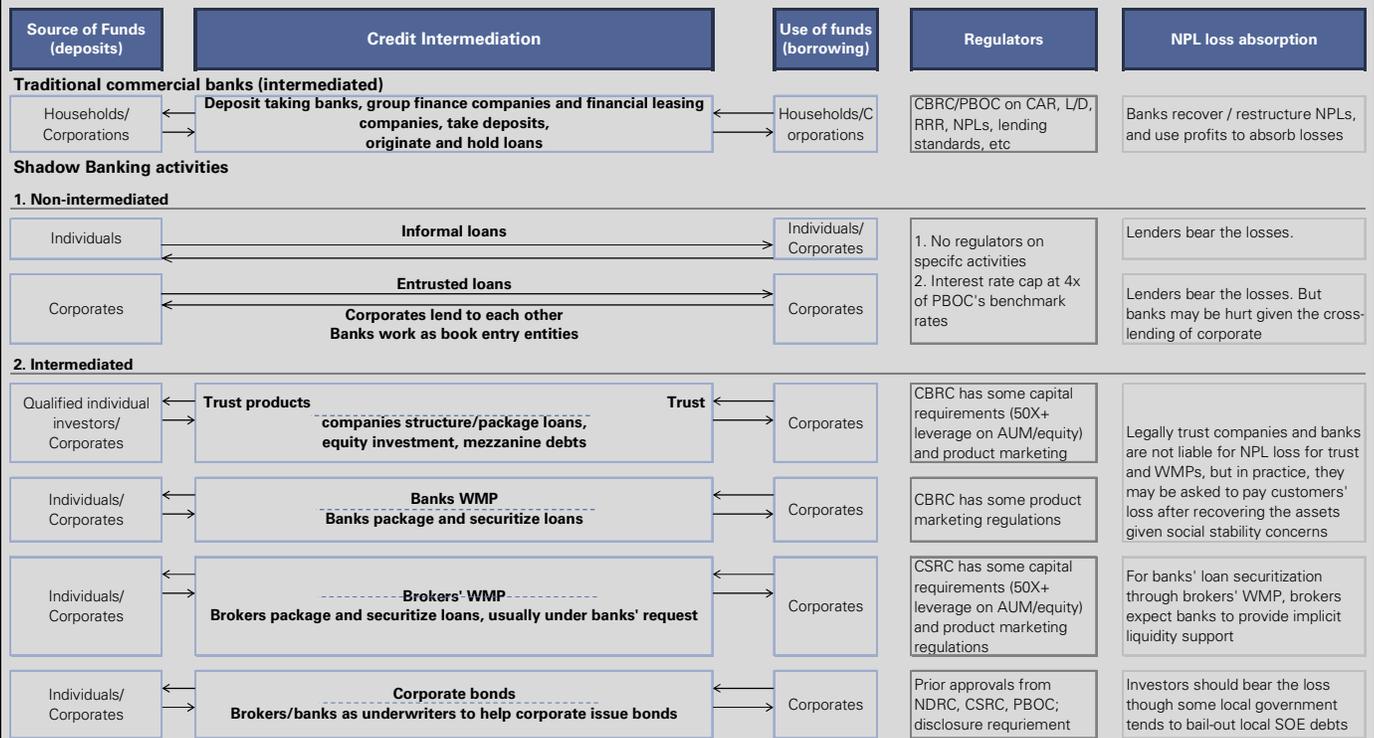
Latent risk in the banking system?

The high proportion of retail investors involved in the WMP product highlights the risk that banks may be required to provide liquidity support to troubled corporate borrowers in the event of a credit default, even though CBRC is keen to

emphasize that these products are mostly non-recourse. There are potential social stability implications if large scale defaults were to take place, and other risks such as reputation risks and bank staff mis-selling of WMPs to retail customers unsuited to buying such products.

In addition, we are concerned that there may be some negative selection bias amongst shadow banking products. Stronger, larger companies are able to access the formal banking sector, and corporates that need to tap the trust loan or informal lending sectors are typically smaller, weaker credits. In our view, the fact that most of the shadow banking sector is regulated suggests that there is an element of risk control, though the information disclosures on areas like trust borrowers or informal lending are limited, which creates a source of latent risk in the system.

Exhibit 7: Overview of shadow banking activities in China



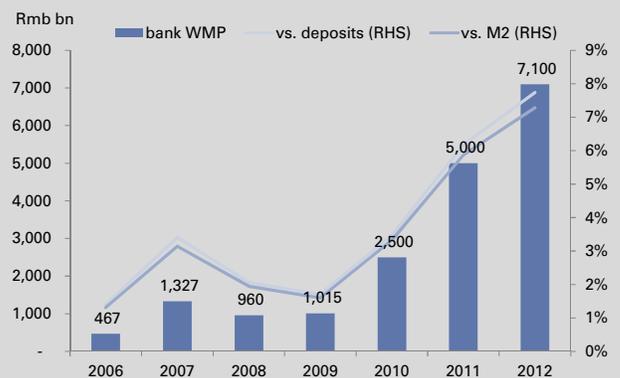
Source: Goldman Sachs Research.

Exhibit 8: WMPs' yield has been competitive vs. fixed deposits, and many buyers assume implicit guarantees...



Source: CEIC.

Exhibit 9: ...thus, in recent years, WMP as a % of deposits and M2 has risen rapidly



Source: CBRC, PBOC.

Policymakers recognize the risks and have begun to take action

The new Chinese leadership is well aware of the risks of letting rampant credit growth go unchecked, from painful experiences both at home and abroad. The Asian financial crisis in 1997-98 provided a regional example of the costs of excessive debt, and came alongside a significant bad lending problem and debt cleanup in China itself (discussed more fully in the last section of this paper). And of course, the past five years have seen major debt crises in China's two largest trading partners – the EU and the US.

Perhaps with these experiences in mind, Chinese policymakers have taken several actions within the past few months to curtail excesses in various parts of the nonbank financing system⁵:

- An investigation of trading and off-balance-sheet activities in the corporate bond market by the People's Bank of China (PBOC) and China Securities Regulatory Commission (CSRC), which appears to have slowed issuance in recent months.
- New rules by the State Association of Foreign Exchange (SAFE) to curb over-invoicing and "round-tripping" abuses. These techniques allowed exporters to bring in cheap offshore funds to invest in higher-yielding local products.
- New rules on wealth management products, including the prohibition of banks trading with their own treasury books.
- Rules by the China Banking Regulatory Commission (CBRC) which make securitization of discount loans/repos by rural banks more difficult.
- Most dramatically, a gradual (in May and early June) and then sharp (in late June) increase in short-term interbank interest rates (Exhibit 10). While some of the increase in rates appears to have reflected intentional policy tightening, rate volatility was likely exacerbated by the above regulatory changes as well as seasonal factors (including the Duan Wu or "dragon boat" holiday and the half-year end).

At the end of June, a statement by the PBOC suggesting the intention to maintain sufficient interbank liquidity helped to calm markets, and longer-term interest rate swaps retraced part of their sharp climb (Exhibit 10).⁶ Nonetheless, we expect monetary conditions to remain somewhat tighter than before. This should slow credit and broad money growth (TSF and M2 respectively) at least somewhat. It should also have consequences for GDP growth—we revised down our China macroeconomic forecasts recently, largely due to tighter financial conditions.⁷

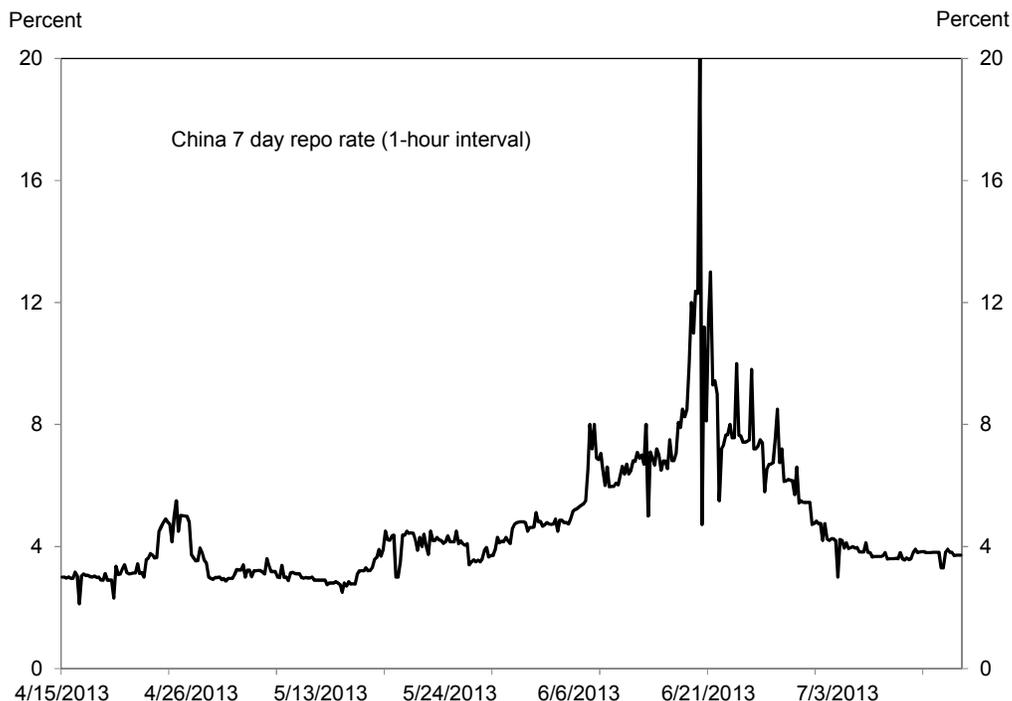
⁵ See "China: Banks – Tightening and leverage overhang", Ning Ma, June 13, 2013.

⁶ See "China: The People's Bank of China stated its intention to maintain sufficient interbank liquidity, but tightening bias is likely to stay in the near future", Yu Song, Li Cui, and MK Tang, June 26, 2013.

⁷ See "China's growth headwinds through the lens of a new FCI," Li Cui and MK Tang, *Asia Economics Analyst 13/21*, June 21, 2013 and "China: Downgrade 2013/14 growth on tighter financial conditions", Li Cui, MK Tang, and Yu Song, *Asia in Focus*, June 24, 2013.

Exhibit 10: Short-term interbank rates spiked in June

Very dramatic spikes in 7-day repo rate late last week



Source: Bloomberg.

Proactive reform approach likely to continue

The credit boom— and how China’s policymakers deal with it— is in our view the single most important issue for the Chinese economic outlook over the next few years, as well as for the performance of its listed equity and credit markets. Alongside the expected unwind of unconventional monetary easing policies by the US Federal Reserve and eventually other central banks, it ranks as one of the most important economic issues globally.

As opposed to the largely pro-cyclical approach of the previous leadership, the new leadership’s early track record suggests a bias towards proactively addressing existing financial risks and pre-empting new ones, while at the same time deepening the financial markets and encouraging the development of a risk culture. We believe that this proactive bias will likely continue, although interspersed with periods of forbearance (delaying resolution of problems, but not exacerbating them) as needed, to maintain sufficient growth upon which to advance reforms.

Put differently, the “new normal” for policymakers is likely to be a balance of proactive reform efforts (and the short-term growth costs they sometimes entail) and periods of forbearance to stabilize activity and growth (temporarily slowing reform progress). Recent comments by senior leadership suggesting their “bottom line” is 7% economic growth seem to fall in the latter category. In the subsequent sections of this report, we analyze where the outstanding credit risks lie today, try to quantify potential credit losses for different policy paths, identify possible reforms and resolutions, and draw implications for growth, equities and credit markets.

Where has the credit gone, and where do the risks lie?

This section was authored by Helen Zhu and Ben Bei of our Equity Strategy team and by Kenneth Ho of our Asia Credit Strategy team.

Corporate leverage (including LGFV⁸) is the largest and fastest growing segment of the Chinese credit markets. Our analysis of various types of credit and products concludes that high risk areas include: credits to overcapacity sectors (via bank lending and non-bond shadow banking) and to LGFV (via corporate bonds and shadow banking, where regulation is weaker, products are less transparent, and selection bias unfavorable). Our analysis of various types of credits shows that some key credit risk metrics are back to 2008 peak levels, which is worrisome as we do not expect an imminent repeat of the sharp rebound in margins or decline in interest expenses that we witnessed in 2009. Stress testing of various types of credits shows that LGFV bonds are most sensitive, followed by listed companies in certain high-risk sectors. Non-LGFV corporate bonds appear relatively safe. In short, credit risks have built up and policymaking needs to address these issues to ensure more sustainable further development.

Identifying where the credit stands – at a glance

We estimate that, including LGFVs, the total Chinese corporate debt outstanding reached Rmb 87tn by the end of 2012, equivalent to 160%+ of GDP. The growth in leverage has been multi-dimensional. For borrowers, we have seen rapid increases in LGFV borrowings, in addition to funding needs by corporations. In terms of products, the fastest growth has not been from bank loans, but from the shadow banking sector such as trust financings. The picture is sharply in contrast to how corporate leverage has built up in the past, which prior to the global financial crisis was predominantly a bank lending credit market, with the borrowers mostly the larger corporations or state-owned enterprises (SOEs).

With a more complicated credit picture, we constructed a “credit matrix” to reconcile the various borrower categories with the types of financing used, and reviewed each point on the matrix to identify where risks may be highest. For clarity, local government financing vehicles are termed LGFV, and non-LGFV corporates are simply termed “corporates”. Exhibit 11 shows the breakdown of the various categories of debt, split by borrower type. We note the following (all data as of end 2012 unless otherwise noted):

1. **By financing type, traditional bank financing is still the largest source of funding.** We estimate that around 56% of total credit outstanding at end 2012 was bank loans. Although shadow banking and bond financing have grown more rapidly, they started from a smaller base. The percentage of total credit outstanding from corporate bonds and trust financings were 5.7% and 4.5%, respectively.
2. **By borrower type, the largest exposure remains the corporate sector, although risks from LGFV have increased.** Corporate borrowing accounted for 60% of total outstanding credit, followed by LGFV at 12%. Together they represent nearly three quarters of China’s total debt stock. The other segments — consumers, central government, local municipal government and financial institutions — are each at about 10% or lower.

⁸ Local government financing vehicles are corporate entities set up usually for municipal public works or other infrastructure projects. As local governments are restricted from issuing municipal bonds in China (outside of the current 6 province limited scope trial), LGFVs circumvent existing regulation and typically finances either via bank loans or more recently, corporate bond issuance. The local government injects some collateral (usually land) to support the borrowing, as the projects typically require a long duration before cash flows or tax revenues kick in. Most LGFV funding investors perceive that the affiliated local government is backing the bonds, although the LGFVs are typically structured so that this is not formally the case, raising moral hazard issues.

Following the structure along the left column of Exhibit 11, we focus our discussion first on the risks to the banking sector, given that this is where the bulk of the credit exposures reside; next on the risks in the corporate bond sector, as this now accounts for over a fifth of total credit; and then on the risks in other parts of the shadow banking space. Finally, we perform a series of “stress tests” in areas that we view as potentially high risk.

Exhibit 11: Corporate segment is still the largest credit destination in China while a bank loan is still the most common route

Credit matrix as of 2012 end (red highlighted segments = highest risk; out of non-LGFV corporate bank loans, we think only lending to overcapacity sectors is highest risk, as described later)

End of 2012, Rmb bn Financing approach	Central govt	Local govt municipal	Financial institution *	Consumers	LGFV	Non-LGFV corporate	Total	As % of total	5-yr CAGR (08-12)
Bank loan	-	-	-	11,398	9,200	46,692	67,290	56%	19%
Bank acceptance bill	-	-	-	-	-	5,895	5,895	5%	45%
Bond	7,810	650	9,017	-	2,543	4,344	24,364	20%	21%
Trust loan	-	-	-	-	1,650	3,774	5,424	4%	85%
Entrust loan	-	-	-	-	1,138	4,551	5,689	5%	43%
Informal lending +micro lending	-	-	-	1,368	-	3,193	4,561	4%	19%
Bank restructuring debt	3,137	-	-	-	-	-	3,137	3%	6%
Others	-	-	-	-	-	4,313	4,313	4%	
Total	10,947	650	9,017	12,766	14,531	72,762	120,673		
As % of total	9%	1%	7%	11%	12%	60%			

Assumptions: 1) Financial institution includes policy banks, commercial banks, insurance and brokers; 2) 'Others' include loan from HK banks etc; 3) to calculate the leverage as % of GDP, financial institution credit is excluded and only half of entrust loan amounts are included due to double counting; 4) split of trust loan, entrust loan and informal lending among consumer, LGFV and non-LGFV is based on GS assumptions; 5) bond here does not include PBOC bills.

Source: PBOC, CBRC, China Trust Association, Wind, CEIC, Gao Hua Securities Research estimates, GS Global ECS Research estimates.

Bank loans: Risks are manageable, but areas of concern emerging

Bank loans remain the largest financing source in China, with a total of Rmb67.3tn loan outstanding at the end of 2012, representing 56% of total credit outstanding. The bulk of the banks loans are corporate loans, which accounts for 69.4% of total bank loans. Compared to other funding approaches, bank loans are most closely regulated and CBRC has been one of the more hawkish agencies with a clear risk control mandate (whereas NDRC, which approves LGFV bonds, has tended to be more pro-growth, for example). Banks, especially listed banks, also have developed various systems to control the credit risk; and are required to abide by cumbersome capital and other requirements that are more stringent than global norms – these make the systemic risks from cyclical factors for bank loans probably more limited than that of other less regulated funding sources.

Consumer lending: Not a significant concern. It is still a small portion of total credit in China (11% as of end 2012), and in our view, the household balance sheet is healthy. NPLs are low even in the consumer micro lending sector. Furthermore, the majority (79%) of consumer loans in China are mortgage loans where LTVs are very low (see box on examining property sector direct loan risk exposures in terms of developers, mortgages, and bank collaterals).

The property sector now poses limited direct credit risks versus history (by Jason Sun)

Although traditionally the property sector has been a credit risk concern, we believe that it poses limited direct systemic risks at this point in the cycle. The industry up-cycle in the past decade has bolstered balance sheets with decent margins, while the nationwide property prices rise is generally in line with disposable income. We expect limited direct financial risks for developer loans, mortgage loans or property/land collaterals over the next few years. The greater threat comes from the impact of a sector slowdown impact on related upstream/downstream sectors and overall economic growth, which we discuss as a potential risk trigger later in this report (albeit unlikely to be imminent).

Banks' overall risk exposure to property seems controllable

As of 2012, c.15% of the Rmb9.7 tn property funding came from loans, a significant decrease from 24% in 1997. In addition, the quarterly track on trust loans also suggests lower exposure to China property. As of 1Q13, approximately 9% of the Rmb8.2 tn trust loans balance is for property industry, vs. 17% in 3Q11 (peak level) or 11% in 1Q10 (earliest period available), although it is possible part of the decrease maybe offset by other credits not classified in property sector, e.g. an entity borrowing money using the name of non-property but actually doing property business (which is subject to the authority regulations).

For developer loans, we estimated 2012 interest expenses was at c. Rmb 296bn assuming interest rate at 7.6%, 1.2X 1-3 years' benchmark rate. Meanwhile, we estimate the industry net profit could be c. Rmb512 bn, assuming 8% net margin (assuming 5ppt lower than the 12.9% actual net margin for the 140+ property listcos in 2012) of the Rmb6.4 tn contract sales. This implies the EBIT/interest coverage at c. 3.3X. To estimate potential high risk segments, we did individual EBIT/interest coverage analysis on 140+ listcos' (c. 20% of nationwide sales). The results show an average of 2.9X in 2012 (is lower than the above 3.3X mainly due to booked revenue lagging contract sales for 1-2 years), and we note only less than 5% of listcos had EBIT/interest coverage of below 1X, indicating limited risks for listcos universe. We lack individual data for the broader industry level, which should be higher than listcos, but we think it should not be extremely exaggerated given the industry liability/asset for 80k+ developers at 76% only slightly higher than listcos' average at 72% (both as of 2011).

For mortgage loans, we think the risk could be even lower as the outstanding mortgage as of 2012 was Rmb7.5 tn, only up 5% yoy and at 1.17X industry 2012 contract sales. Based on kinds of down payment analysis, we estimate the average payback period for the mortgages at no more than 6 years. China has relatively high down payment requirements (c. 30% for first-time home purchases and 60% for the second one), and Vanke's buyers' profile shows 23% of its buyers are with one-off payment, and for the remaining buyers, the average down payment was 39% in 2012. In addition, China's relatively low consumer leverage with high savings also provides downside support.

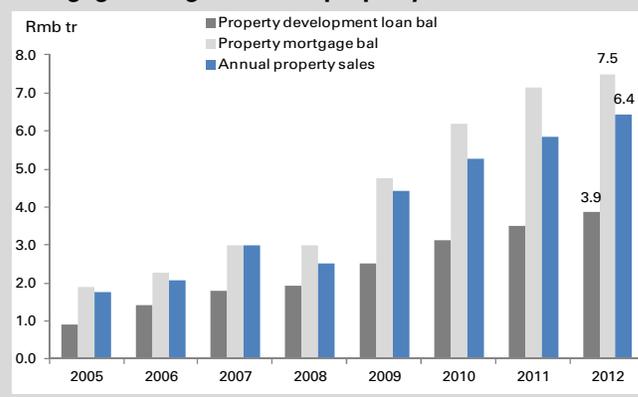
For loans collateralized against land or properties, the land collaterals in China's top 84 cities was around Rmb6.0 tn as of 2012, per Ministry of Land and Resources. We estimate it may contribute c. 50% of the nationwide data, and the risk should be controllable given: 1) Our banks team estimates LTV on land-collateralized loans at about 60% consistently over the past few years; and 2) land prices have been steadily rising since 2000, so even a 40% fall may result in the land price retracing only to early 2008 levels.

Exhibit 12: Loan contribution to property funding decreased from 24% in 1997 to 15% in 2012



Source: NBS, CEIC, GS Global ECS Research.

Exhibit 13: Banks' developer loan growth has lagged mortgage loan growth and property sales



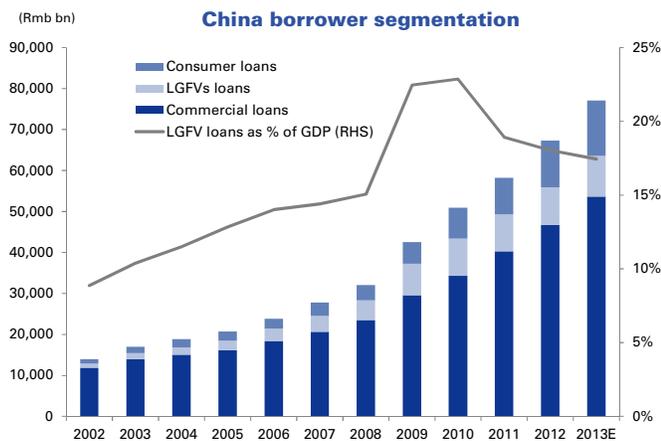
Source: NBS, CEIC, GS Global ECS Research.

LGFV bank loans (14% of bank loans; 8% of total credit) are a high risk class, but largely already restructured: After the LGFV borrowing boom in 2009-2010, CBRC specifically implemented prudential regulations since 2011 to raise the bar on LGFV lending, as well as restructure banks' existing LGFV loan book (by requiring various adjustments like matching cashflow generation and maturities better, injecting more collateral or cashflow producing assets into the LGFVs). As a result, LGFV loan growth for the commercial banks was very limited on an absolute basis in 2011. Growth rate picked up in 2012 but remained lower than nominal GDP growth. We also noticed that some disguised loans that are classified as corporate loans are actually for LGFV type usage (such as popular BT/BOT projects that local governments undertake with some of the SOEs such as construction services companies). But these types of loans appear small in size and are well collateralized at this stage.

But despite the implementation of more prudential measures to contain the banks' exposure to LGFV loans, we think that the risks in this area are still meaningful. As per the National Audit Office report on LGFV lending in 2011, approximately Rmb1.5tn borrowing was used in construction of transport infrastructure, universities and hospitals, which normally have low profitability in China. In addition, according to CBRC in 2010, 20%-25% of LGFV loans are to projects with insufficient cashflow or collateral. This figure should have diminished in the past years thanks to debt restructurings, but is likely to remain significant, in our view.

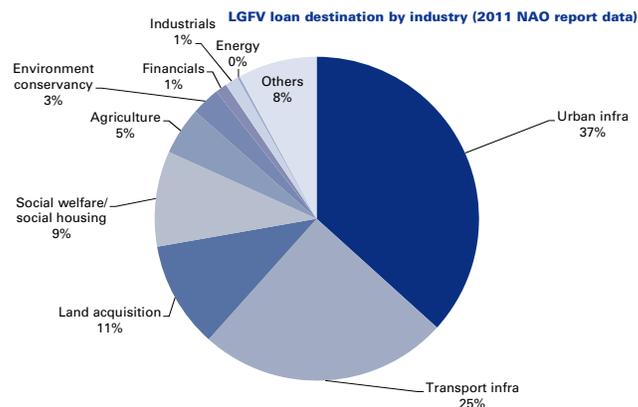
Detailed financial disclosures on LGFV bank loans are not available, but in the following section on corporate bonds, we discuss in depth the risks on LGFV bonds (where public disclosure is available). Our credit risk analysis on LGFV bond issuers shows that credit risks embedded in LGFVs are significantly higher than for corporates.

Exhibit 14: Commercial corporate and LGFV are two major loan borrowers in China



Source: CBRC, Wind, GS Global ECS Research estimates.

Exhibit 15: LGFV loans have been mainly used for infrastructure building and land acquisition



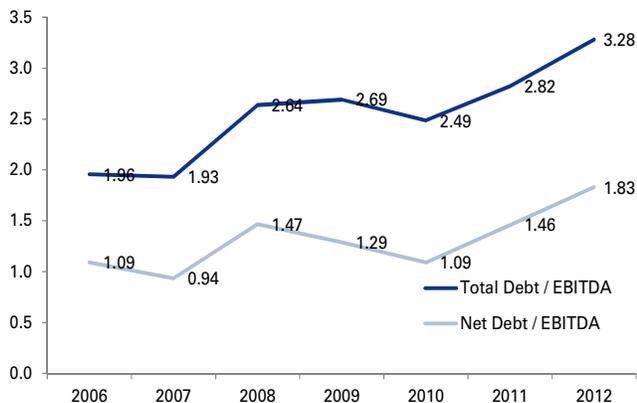
Source: NAO.

Non-LGFV corporates (69% of bank loans): risks are lower, but potential pressure points are emerging. Corporate loans represent the bulk of total banking sector loans, therefore any credit problems in this segment will have a disproportionate impact compared with LGFV and consumer loans. In our estimation, around 70% of bank lending to corporates is to unlisted entities. There is limited information available on unlisted corporates; so to assess the risk in this area, we looked at listed company financials to infer any potential problems amongst corporate lending. Based on our analysis of 3,137 non-financial companies listed in China and overseas (HK, Singapore and the US etc) as of December 2012, we found the following:

- **Debt growth has concentrated in larger companies** – we found that since 2008 most of the increase in leverage has concentrated in larger companies. Prior to 2008, larger companies (as measured by the top quintile of largest listed companies by asset size) were the lowest levered as measured by net debt/EBITDA, whilst the lowest quintile of companies were the highest levered (Exhibit 17). This switched around post 2008, with the highest quintile of companies becoming the most levered and the smallest companies the least levered. In our view, this represents the “crowding out” of smaller companies, as banks prefer lending to larger, often state-owned entities as the pace of leverage increases. Moreover, the state-directed nature of the investment boom in 2009-2010 largely boosted demand and priority to SOEs over smaller companies as well.
- **Gross leverage increased, but net leverage is manageable thanks to a solid cash position** – we estimate that the gross debt/EBITDA for the China listed universe is 3.2x which has risen since 2008, but the net debt/EBITDA is relatively comfortable at 1.8x, as of December 2012. This indicates that listed entities have sizeable cash holdings. If we split up the listed universe between Central SOEs and non-Central SOE corporates, we found that Central SOE had Rmb 5.2tn of debts outstanding (equating to 48% of the listed universe debt), and non-Central SOE corporates had Rmb 5.6tn of debts at the end of 2012. But in terms of cash holdings, Central SOEs had Rmb 1.5tn, and non-Central SOEs had more than double the amount at Rmb 3.2tn at the end of last year. We think that this adds a layer of stability to the credit risk, as Central SOEs are likely to be supported by the central government, and non-Central SOEs, have sizeable amounts of cash on hand.
- **Regional comparison shows Chinese corporate net debt/EBITDA is comparatively low, but high risk segments are getting larger** – we conducted two regional comparisons between Chinese and other Asian listed companies, and found that Chinese listcos’ net debt/EBITDA is lower than most other Asian countries (see Exhibit 18). However, when we screened for high risk segments, namely looking at the percentage of listed company debt with EBITDA/Interest at below 1x, China and India stood out, at 13% and 15%, respectively at the end of 2012 (Exhibit 19). In fact this ratio for China has already surpassed the previous cyclical peak of 12.7% we saw in 2008. As such, we see that risks are clearly emerging.
- **Size of high risk segments from 2008 was reduced via growth and lowering interest cost** – it is worth looking at 2008, when the percentage of debt at below 1x EBITDA/interest was at 12.7%, to see how the proportion of high-risk segments was reduced. To do this, we looked at the listed companies that had interest coverage below 1x, and looked at how their 2008 financials compared with 2009. We identified 361 companies, and when comparing 2008 with 2009, we found that total debt actually increased, so absolute amount of leverage went up. But there was an increase in EBITDA and a lowering of interest cost. Therefore the 2008 high-risk segment reduction came from a combination of earnings growth (thanks to the subsequent stimulus in 2009) and lowering of interest cost. This finding has worrying implications for us at this juncture, given that in absence of any meaningful growth pickup or strong loosening policy bias, we may not easily see the same combination in the coming quarters.
- **Highest risk sectors look to be largely concentrated in some overcapacity areas.** We analyze such trends later in this section of the report, incorporating both listco data as well as other sets of available financials for other types of credits.

Exhibit 16: Since end-2006, debt growth in the highest quintile of listed co. & central SOE was not matched by EBITDA growth

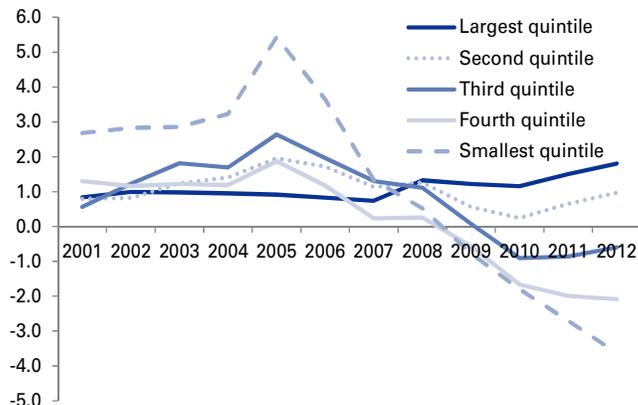
Increase in total debt and total EBITDA since 2006 (%)



Source: CapitalIQ, GS Global ECS Research.

Exhibit 17: Large companies have levered up, whilst smaller companies have delevered

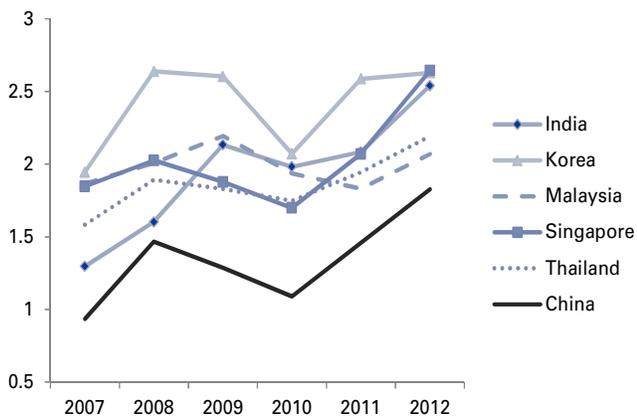
Net debt to EBITDA (x) by size quintile



Source: CapitalIQ, GS Global ECS Research.

Exhibit 18: Net leverage is still low among Asia listco

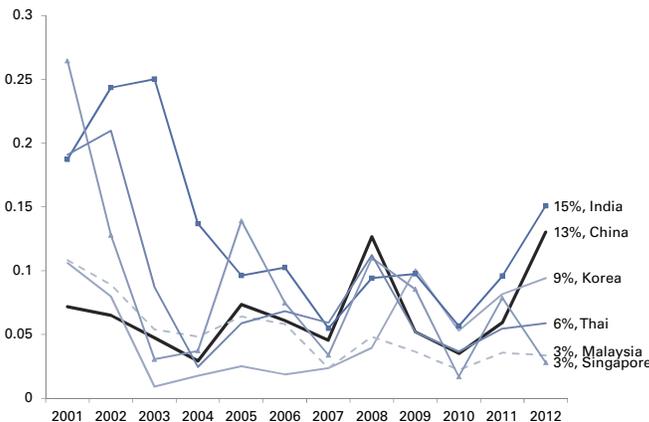
Net Debt/EBITDA by countries (x)



Source: CapitalIQ, GS Global ECS Research.

Exhibit 19: However, the higher risk segment for China is relatively high

% of debt running at EBITDA/Interest < 1x



Source: CapitalIQ, GS Global ECS Research.

Corporate bonds growing fast, risks concentrated in LGFVs

At the end of 2012, we estimate that the total amount of bonds outstanding in China was Rmb 24.4tn, representing around 20% of the total stock of borrowing. The bulk of bonds outstanding belonged to the central government, local government and financial institutions, which together accounted for Rmb17.5tn, or 72% of the bond market. The amount outstanding to LGFVs and corporates was comparatively small, at Rmb 2.5tn and Rmb 4.3tn, respectively. But despite their relatively small size, China’s corporate bond and LGFV bond issuance has grown very briskly in the past two years as a new avenue for corporates to obtain financing (Exhibit 20). LGFV bonds have been especially active in terms of issuance, as bank loan financing became restrictive under CBRC’s supervision.

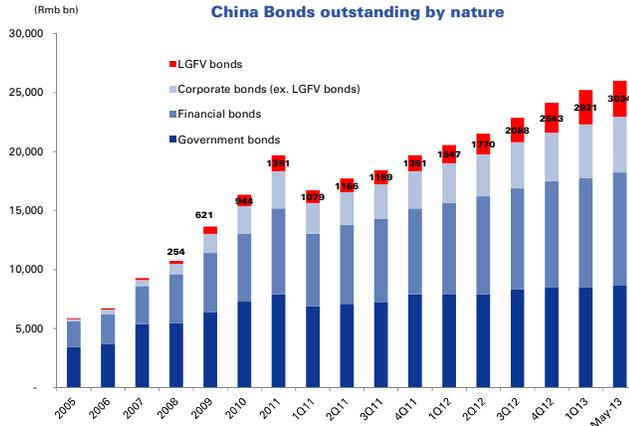
We believe corporate bonds are relatively less risky: The corporate bond market in China is relatively immature, having been in existence for less than ten years. In our view, the credit risk profile for non-LGFV corporate bond issuers is relatively low; without a high yield market, highly levered corporates are not able to tap this market, and the majority of issuers are large corporates. In fact, around 67% of current outstanding corporate bonds were issued by central SOEs, and another 20% by regional SOEs, with only 13% from private enterprises. We think that there is a positive selection bias, as only the stronger companies are able to tap the corporate bond market. This is confirmed when looking at corporate bond issuers with EBITDA/Interest of below 1x, with 7.4% of corporate bond issuers having interest coverage of below 1x, compared with 13% for the listed company universe.

On the flip side, LGFV bonds face a variety of problems. This relatively new class of products is in the early stages of development, and our analysis highlights a few areas of concern. We obtained the financial data for about 470 LGFVs that have released 2012 financial disclosures so far (out of total 859 issuers), and compared their credit metrics with corporate bond issuers and listed companies. Based on our findings, we think that the risk on LGFV bonds is significantly higher than for corporate bonds for the following reasons:

1. **Most LGFVs do not have clearly delineated legal guarantees** from their associated local governments; their interest and principal repayments are usually not incorporated into the governments' fiscal budgeting processes (which are overseen by MOF, while LGFV corporate bond issuance is independently overseen by the NDRC).
2. **The local governments' fiscal outlooks are uncertain as well.** Only 44% of China's local governments' total revenues were from direct local tax collection whereas 33% was from central-government dictated fiscal transfer and 21% from land sales (which may not be recurring) as of 2012.
3. **Many LGFVs on a standalone basis are unable to support the cashflow** requirements to service the bonds, and our analysis show that 42.6% of LGFV bonds in our universe of 470 bond issuers (with FY12 financial information available) had negative free cash flow in 2012 that was over 100% of their revenues. This reflects the fact that many of the LGFV have upfront heavy investment spending. For corporate bond issuers, this ratio was only 1.8% (Exhibit 22).
4. **The rating system for LGFV bonds is not mature** — it relies heavily on the concept of implicit guarantee by the affiliated local government. Rating agencies weigh the fiscal strength of the affiliated government far more in their rating process than assessment of the bottom up entity fundamentals.
5. **There is some degree of risk mispricing for LGFV bonds**, due to their implicit government guarantees. Many LGFV bonds trade at yields that are well below the bank lending rates charged to highest quality credits such as central SOEs. LGFV bond yields are comparable to that of corporate bonds of similar rating, even though the LGFV bonds have much less transparency / legal recourse on debt servicing capabilities for aforementioned reasons (Exhibit 23).

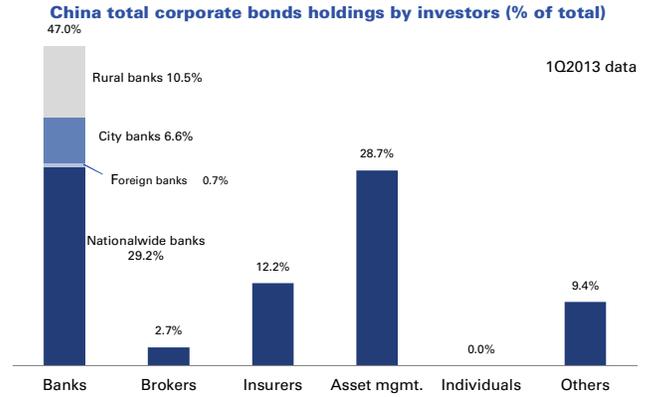
That said, on the positive side, some LGFVs do receive local government fiscal subsidies (for public goods such as water treatment, subways, etc.) to help them service interest payments (although visibility on this cash stream is low), which tend to be booked in the non-operating line. Moreover, as shown in Exhibit 24, given the LGFV bonds are a relatively recent phenomenon, the bulk of the principal repayment pressure is centered on 3-5 years in the future.

Exhibit 20: Bond financing developed quickly in the past several years off a low base



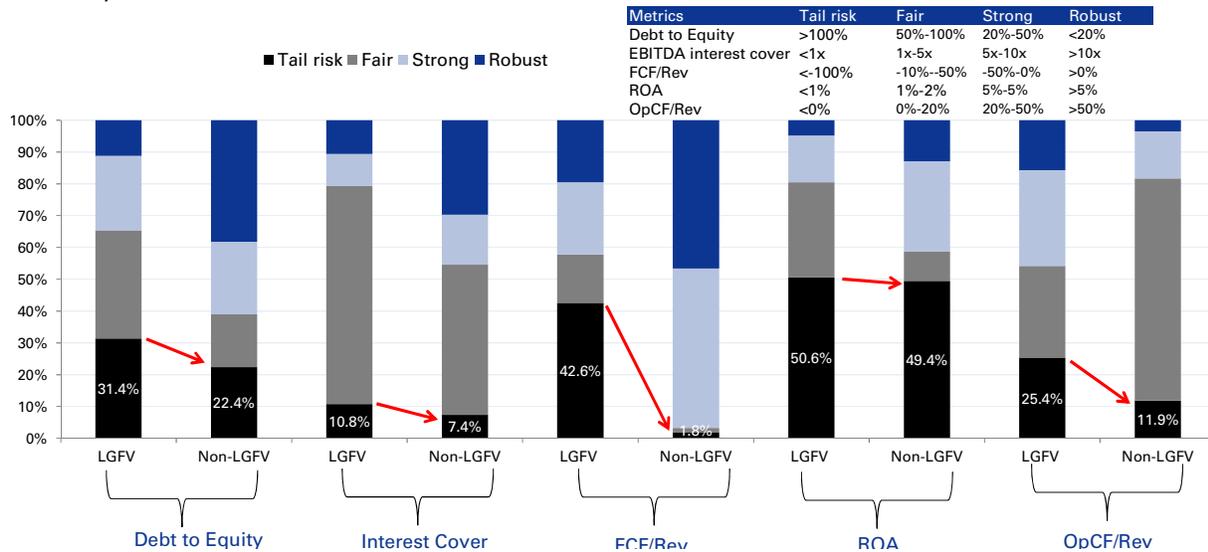
Source: Wind, GS Global ECS Research.

Exhibit 21: About half of corporate bonds are actually held by banks, followed by asset management companies



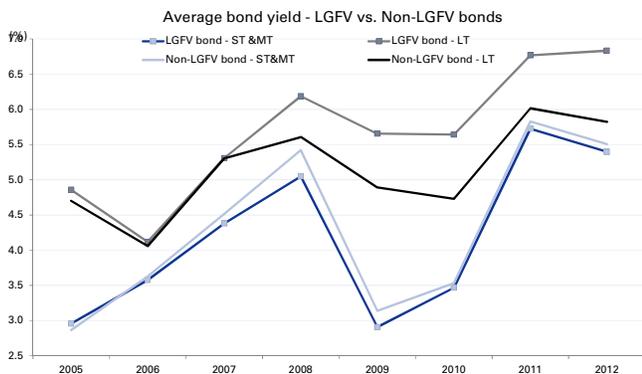
Source: Wind, GS Global ECS Research.

Exhibit 22: LGFVs' financial metrics show much larger high-risk segments on cashflow related criterion
Financial analysis on bond issuers based on different metrics



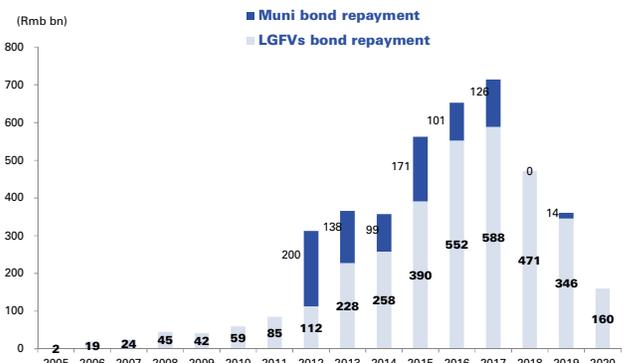
Source: Wind, GS Global ECS Research.

Exhibit 23: Short-term and medium term LGFV bonds enjoy lower yields vs. non-LGFV on average – and lower than benchmark bank lending rates in most cases



Source: Wind, GS Global ECS Research.

Exhibit 24: LGFV bond repayment (excluding the municipal bond trial backed by MOF) obligations are limited near term and peak around 2017



Source: Wind, GS Global ECS Research estimates.

Shadow banking risks high; current risks manageable but beware of future expansion

There are significant concerns with shadow banking. As mentioned above, we think that many of the smaller companies have been crowded out of the bank loan market, and this led to the rapid development of shadow banking as companies seek out alternative funding routes. We estimate that by the end of 2012, the total amount of shadow banking financing, which includes trust and entrust loans, informal lending and micro lending, total around Rmb15.7 tn. This equates to around 13% of total lending in China, and around 16% of corporate borrowings are from the shadow banking sector. Note that this section's discussion of shadow banking excludes the previously discussed corporate bond sector.

The shadow banking segment poses risks in some of the same areas as other forms of lending, but to a greater degree. Our China banks team believes the key risks to shadow banking activities include: 1) relatively weak credit underwriting standards vs. bank loans; 2) fast rising leverage in the non-bank corporate and financial system, 3) higher liquidity risks vs. banks loans, and 4) investors' perception of the implicit guarantees provided by banks and government and related moral hazard issues. Unfortunately we do not have enough data to analyze specific high-risk areas of major shadow banking products like trust and WMPs. Nonetheless, we believe that due to selection bias, the risks and stress test issues presented in the subsequent portion of this note are likely to apply in an amplified manner to the shadow banking sector. Any cyclical slowdown or liquidity crunch may show its credit stress in the shadow banking space earlier and to a greater degree. In addition, some shadow banking products have been purchased by financial institutions and many of these resold to retail investors, whose relatively limited investment sophistication and reliance on implicit guarantees further heightens risks such as social instability or potential collapse in product demand, which may lead to refinancing crises. We particularly emphasize that the shadow banking credits linked to borrowers previously mentioned as high risk in the other channels (LGFV and overcapacity sectors etc.) are particularly high risk, in our view.

However, the current shadow banking base is still relatively manageable in terms of size. Our banks team estimates that if, in a bear case scenario, the banks are required to move their entire off-balance sheet WMP credit exposure back to their balance sheet (and take 1.5% provision of total credits or put 8.5%/7.5% required tier I CAR on these for big/small banks), the impacts would reduce banks' CAR by a manageable 34bp in 2013E. Note that we estimated that around 25% of trust products are packaged into bank distributed WMPs; therefore the potential impact of 34bp to banks' CAR is assuming around a quarter of the existing trust products goes onto the banks' balance sheet. See our banks team's report of February 26, 2013 report titled 'Casting a light on shadow banking' for details.

Looking forward, the risk is that these products continue to grow rapidly with limited oversight of credit quality and weak transparency. However, we see positive trends that regulators are making efforts to pre-empt such risk and adopting more stringent stance toward shadow banking. In recent months, as previously mentioned, this has translated into numerous new regulatory policies towards banks issuance of WMP, among others; and more may be on the way. We discuss potential new policies in greater detail in the next section of our report.

Overcapacity sectors and LGFV bonds: Two areas posing higher risk

We conducted further analysis across a broader array of companies by patching together various groups of 2012 data as available (LGFV bond issuers, corporate bond issuers, bank loans, industrial enterprises and listed companies) to evaluate risk metrics such as interest cover, free cash flow, leverage, NPL ratio and margin. The conclusions are triangulated given that available data varies by source, and summarized in Exhibits 25 and 26. On a blended basis, materials, properties, utilities, semi-conductor screen out industry-wise, while Ningxia, Hainan, Yunnan, Tianjin, Gansu and Shaanxi screen out province-wise, as areas that on average, hold weaker credit metrics. In addition, we felt that a further study of high risk segments would be more informative than looking at simple averages. Risks are highest in sectors like materials, utilities, capital goods and transport. LGFVs are higher risk than non-LGFVs (particularly in areas like Beijing, Liaoning, Tianjin and Jiangsu which have been aggressive in leveraging up). LGFV bonds appears most sensitive under stress testing, followed by the listed corporates universe, while non-LGFV corporate bonds appear to be least sensitive.

Three criteria used to identify high-risk areas: To identify which areas are seeing the buildup of high-risk segments, we used three criteria to screen for problem areas. We looked at borrowers with EBITDA interest cover below 1x, with FCF/Revenues < -100%, and Debt/Equity > 100%. There are some limitations to this study, as the micro level data is not available for many of the unlisted borrowers. Nonetheless, our study does highlight some notable trends that we think are representative of corporate sector leverage in China:

1. **LGFV bonds high risk segments showed comparable interest cover and leverage with corporate bond issuers. However, their FCF metrics are far weaker.** The gap of the two groups' interest cover shrank in recent years thanks to improvement of financials status of LGFV since 2008. But, if we do bear case stress tests on interest cover by varying EBITDA or interest rates, it becomes clear that LGFV financials are much more fragile than non-LGFV in a stretched environment. (Exhibit 27). We do caveat this analysis by adding that the sample size for 2012 is more limited (around 470 issuers' financial available so far vs. c. 800 for prior years) due to late disclosure, thus sampling bias influences cannot be ruled out. Although LGFV loan data is not available, we would assume that LGFV bank loans may share some of the characteristics/risks similar to LGFV bonds.

Specific to LGFVs, Beijing, Tianjin and Jiangsu look like the most risky provinces in terms of standalone LGFV exposure size and bottom up financials. This counter-intuitive result is mainly due to: 1) more bonds issued by corporate based in developed regions, and 2) the corporates (incl. LGFV) may have larger asset base, making profitability and cash generation less important when they were issuing bonds. These well-developed regions have been more aggressive in LGFV funding, and derive a smaller percentage of their total revenue from direct local taxation collection. On the other hand, however, these regions also have more assets and greater pricing power / visibility in terms of land sales and other potential downside risk protection channels.

2. **Raw materials and LGFV related industries like utilities, capital goods, construction, and transport are exposed to the most interest cover/repayment risk.** Not surprisingly, many of these are overcapacity sectors. We note the majority of overcapacity industries like steel, coal, nonferrous metals etc have seen noticeable decline in utilization rate in the past years given the significant supply ramp-up (Exhibit 28). We also observed that within the industrial enterprises universe, materials, utilities and energy are industries where financing cost is even higher than EBIT return on asset, posting higher potential risk to these industries (Exhibits 29 and 30). The listed universe, where many of these industries are better represented vs. the bond universe, does show that high-risk segments are now approaching 2008 levels, and could worsen under stress testing (although credit metrics sensitivity is not as high as that

for LGFV bonds). Stress testing shows that non-LGFV corporate bonds are least sensitive/at risk, likely due to their positive selection bias and the previously mentioned fact that a vast majority of outstanding value is issued by Central SOEs.

Exhibit 25: Average credit metrics show that certain sectors are not as well positioned
Risk matrix by sector

Metrics	LGFV bonds				Non-LGFV bonds				Bank loans		Industrial companies			Listed companies		
	Interest cover	FCF	leverage	% of total	Interest cover	FCF	leverage	% of total	NPL ratio	% of total loan	Interest cover	Net margin	leverage	Interest cover	FCF	leverage
By sector	EBITDA cover (2012)	FCF/Rev (2012)	Debt/ equity (2012)	(2012)	EBITDA cover (2012)	FCF/Rev (2012)	Debt/ equity (2012)	(2012)	NPL ratio (2012)	(2012)	EBIT cover (2012)	Net margin (2012)	Liability/ equity (2012)	EBITDA cover (2012)	FCF/Rev (2012)	Debt/ equity (2012)
Raw materials	8.6	69.9%	16.5%	0.1%	3	-5.4%	100%	13.1%	0.2%	3.6%	6	5%	136%	3	-39%	105%
Diversified financials	6.2	-19.2%	68.7%	22.6%	7	1.9%	14%	3.0%	NA	NA	N/A	N/A	N/A	NA	NA	NA
Property	6.3	-38.8%	81.0%	4.2%	14	-7.2%	76%	1.2%	0.7%	9.9%	N/A	N/A	N/A	3	-4%	98%
Utilities	5.7	5.7%	66.3%	7.2%	3	0.9%	182%	17.8%	0.5%	12.0%	6	5%	135%	3	-9%	173%
Retailing	21.3	-107.9%	74.8%	0.2%	12	-1.4%	48%	1.4%	1.6%	16.8%	N/A	N/A	N/A	6	0%	82%
Consumer durables	27.4	-2.9%	62.1%	0.2%	9	4.3%	51%	0.9%	1.6%	14.0%	5	5%	124%	8	3%	49%
Energy	6.3	-8.0%	63.9%	0.3%	18	-0.9%	28%	18.0%	NA	NA	8	9%	141%	15	-1%	43%
Business services	NA	NA	NA	N/A	9	-39.8%	123%	0.4%	0.5%	6.3%	N/A	N/A	N/A	5	-4%	56%
Food and beverage	NA	NA	NA	N/A	11	0.6%	51%	1.2%	2.4%	2.2%	9	8%	95%	12	1%	38%
Consumer services	NA	NA	NA	N/A	11	4.1%	55%	0.9%	1.3%	3.6%	N/A	N/A	N/A	12	2%	39%
Transportation	2.7	-55.8%	118.8%	23.3%	8	-1.1%	26%	17.4%	0.8%	11.1%	N/A	N/A	N/A	5	-2%	87%
Health Care	NA	NA	NA	N/A	12	-1.0%	33%	0.8%	0.5%	0.5%	2	2%	206%	6	1%	45%
Capital goods	6.1	-62.3%	71.3%	41.0%	8	-1.0%	67%	18.3%	1.3%	19.3%	10	5%	135%	4	-4%	95%
Semiconductor	N/A	N/A	N/A	N/A	0	-12.0%	35%	0.3%	NA	NA	N/A	N/A	N/A	0	-14%	106%
Telecom	N/A	N/A	N/A	N/A	73	18.1%	13%	1.9%	NA	NA	N/A	N/A	N/A	39	7%	26%
Hardware/ Equipment	N/A	N/A	N/A	N/A	3	3.3%	62%	0.9%	NA	NA	2	5%	124%	4	-3%	47%
Household products	N/A	N/A	N/A	N/A	5	12.9%	46%	0.0%	NA	NA	N/A	N/A	N/A	10	-1%	48%
Media	N/A	N/A	N/A	N/A	13	3.2%	33%	0.4%	NA	NA	N/A	N/A	N/A	11	3%	25%
Auto & parts	N/A	N/A	N/A	N/A	27	1.9%	22%	1.8%	NA	NA	8	5%	193%	11	0%	42%
Software	N/A	N/A	N/A	N/A	14	-0.1%	21%	0.1%	1.4%	0.6%	N/A	N/A	N/A	37	15%	16%

Note: Gray highlights indicate sector in the worst quartile within that particular metric. Red boxes indicate the sector in the worst quartile category.

Source: CEIC, Wind, Bloomberg, GS Global ECS Research.

Exhibit 26: High risk segment analysis may be more indicative than averages, and the least well positioned are some overcapacity cyclical areas

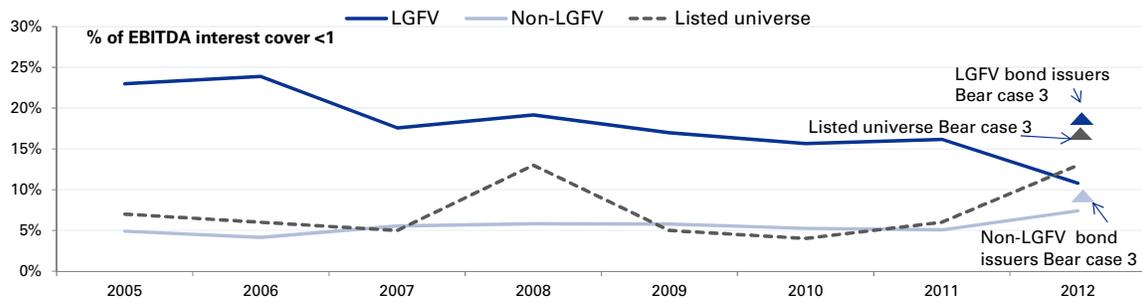
By sector	LGFV bonds issuers			Non-LGFV bonds issuers			Listed universe			Total score
	Interest Cover <1x	FCF/Rev < -100%	Debt/Equity > 100%	Interest Cover <1x	FCF/Rev < -100%	Debt/Equity > 100%	Interest Cover <1x	FCF/Rev < -100%	Debt/Equity > 100%	
Capital goods	X	X	X	X		X	X		X	7
Raw materials				X	X	X	X	X	X	6
Transportation		X	X	X	X					5
Utilities	X		X						X	4
Diversified financials	X	X								2
Property					X			X		2
Hardware/ Equipment								X		1
By provinces										
Jiangsu	X	X	X							3
Beijing		X	X							2
Tianjin			X							1
Hunan	X									1
Anhui	X									1
Chongqing		X								1

Note: We assign an 'x' to top three exposed sectors/provinces in each category.

Source: Wind, CEIC, GS Global ECS Research estimates.

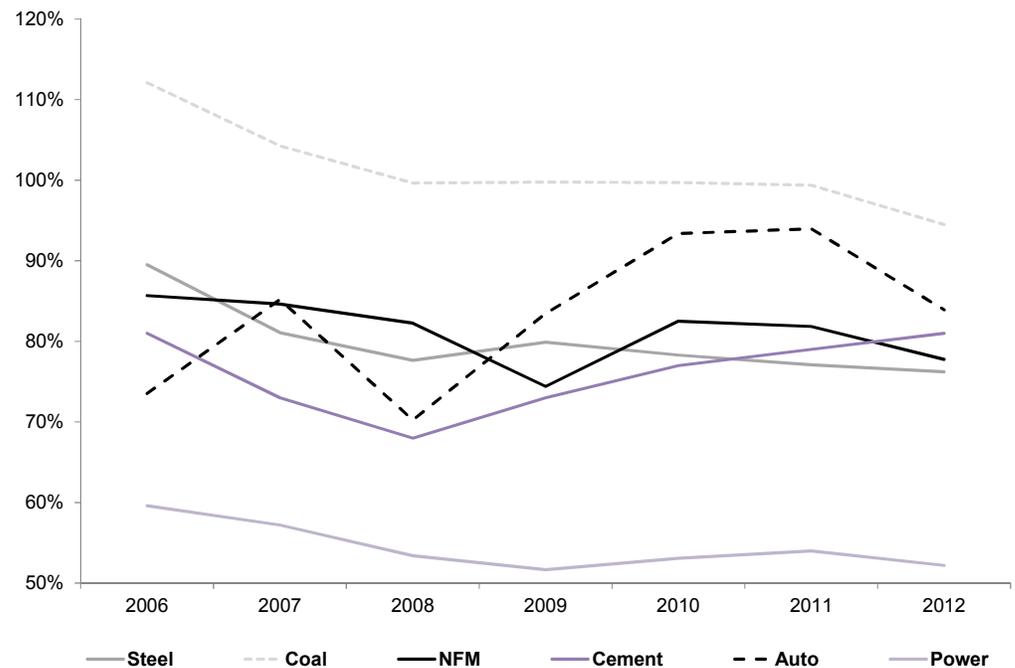
Exhibit 27: LGFV bond issuers' financials are more sensitive to stress test vs. non-LGFV; LGFV bond issuers' high-risk segment composition is lower than historical range while listcos' data suggest a 2008-like level
 High-risk segments analysis – EBITDA interest cover; sensitivity test based on 2012 data

EBITDA Fin exp	LGFV bond issuers				Non- LGFV bond issuers				China listed companies (onshore and offshore)			
	% of total outstanding bond with EBITDA interest cover <1											
	Actual	Bear case 1: -5%	Bear case 2: -10%	Bear case 3: -20%	Actual	Bear case 1: -5%	Bear case 2: -10%	Bear case 3: -20%	Actual	Bear case 1: -5%	Bear case 2: -10%	Bear case 3: -20%
Actual	10.8%	11.3%	11.8%	13.6%	7.4%	7.4%	7.7%	7.9%	13.0%	13.4%	13.8%	15.2%
Bear case 1: +5%	11.3%	11.9%	13.8%	14.5%	7.5%	7.5%	7.9%	8.2%	13.4%	13.8%	14.3%	15.5%
Bear case 2: +10%	11.9%	13.7%	13.9%	15.9%	7.6%	7.7%	8.3%	8.5%	13.7%	14.2%	15.1%	16.5%
Bear case 3: +20%	13.9%	14.2%	14.8%	18.3%	7.9%	8.2%	8.5%	8.9%	14.3%	15.2%	15.6%	16.9%



Source: Wind, GS Global ECS Research estimates.

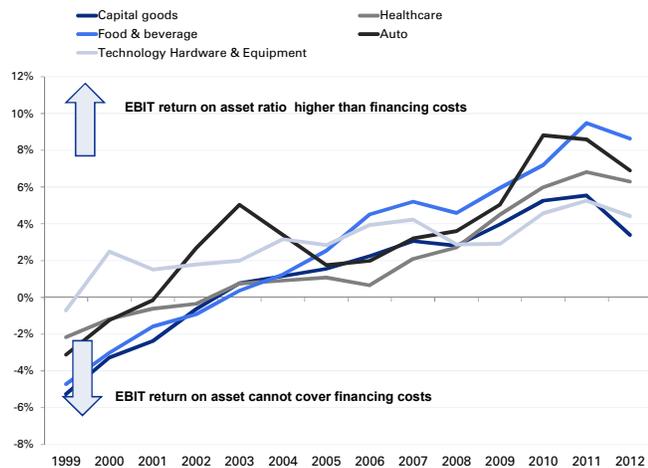
Exhibit 28: We have seen capacity utilization rates in many cyclical industries decline over the past years, with cement being one notable exception
 Utilization rate of over capacity industries in China



Note: 1) Coal industry utilization rate was over 100% in past years because many coal mines' production were over their respective designed production capacity. 2) NFM stands for non-ferrous metals

Source: Company data, Goldman Sachs Research, GS Global ECS Research.

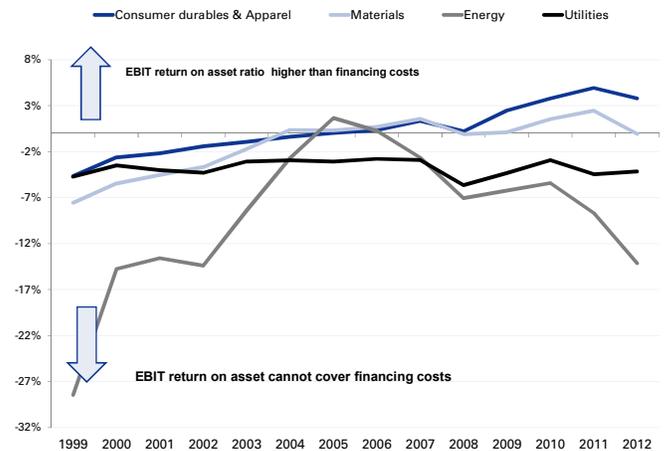
Exhibit 29: Within industrial enterprises universe, EBIT/asset of auto, F&B, healthcare and IT are higher than financing cost...



Note: For financing cost, we used disclosed financial expense divided by debt. For debt, we used A-share sectoral debt to equity ratios as these are not directly disclosed by NBS.

Source: NBS, CEIC, GS Global ECS Research.

Exhibit 30: ...while utilities and energy etc are not generating enough return to cover financing cost



Source: NBS, CEIC, GS Global ECS Research.

Bottom line: Bottom-up analysis reinforces top-down concerns

Our bottom up analysis in this section echoes the conclusions of the previous section’s top down analysis – that credit risks in China have risen alongside leverage itself in the past few years, and certain higher risk areas could be exposed to significant losses if certain risk triggers appear. This underscores the importance for policymakers to identify and implement appropriate policy strategies to manage existing risks and avert future problems, while continuing to deepen and develop China’s financial system. We discuss the potential policy paths and their implications in the final section of this report.

Risks, strategies and outcomes: Earlier action averts costlier results

This section was authored by Kenneth Ho of our Asia Credit Strategy team and Helen Zhu of our Equity Strategy team.

We characterize the broad choices for policymakers going forward as “proactive” and “forbearance” strategies. We expect the new leadership to be more biased towards the former, although we think they are likely to opt for periods of forbearance to balance structural improvements with cyclical stability. Our analysis shows maximum potential credit losses of Rmb 8.6tn and Rmb 18.6tn, or around 10 and 21% of GDP for the “proactive” and “forbearance” cases respectively. Actual losses are likely to be noticeably lower than these estimates, which incorporate conservative default and loss assumptions. Furthermore, any credit losses are likely to emerge over time, and can be partially absorbed by bank earnings or other avenues. We would not expect the sovereign to shoulder potential credit losses in their entirety, though there is ample room on the sovereign balance sheet to provide support if required.

In terms of credit market implications, we advise a focus on firms with safer balance sheets and to avoid weaker SOE credits. As for equities, we believe the reform process will put pressure on performance during the adjustment process but lead to better prospects in the longer-term. Banks (particularly large banks) may offer a better risk/reward than cyclical sectors, if they do not end up bearing significant responsibility for non-bank credit cleanup costs – although the risk overhang may linger.

Two policy paths: Proactive vs. Forbearance

The interaction of economic realities (cyclical demand factors and the state of the property sector) and policy choices (prudential tightening, the willingness of the government to guarantee others’ liabilities) will be the key determinants of how China’s credit situation develops. Policymakers face the challenge of adopting a policy strategy that balances the control of existing/future risks against the desire to avoid too much of a cyclical slowdown.

Fundamentally, policymakers face four broad challenges related to credit and the financial system.

- First, they must bring credit growth down to a more sustainable speed and to the extent possible, better control risks in the shadow banking area.
- Second, they will have to manage the existing stock of nonperforming loans in a way that does not greatly impair the economy’s growth potential.
- Third, they will want to continue the broadening and deepening of China’s financial architecture.
- Finally, policymakers need to encourage the development of a “risk culture” that minimizes moral hazard and the buildup of future credit risks.

Broadly speaking, policymakers can choose from two basic policy strategies:

1. **Proactive:** This approach prioritizes structural advancement and risk control and sacrifices near-term growth to some extent. It aims to not only prevent problems from getting bigger, but also to rectify existing shortcomings and pre-empt any potential risk triggers from setting off unfavorable chain reactions.

Specific policies associated with this approach could include cautious monetary policy (perhaps even tighter than inflation control alone would require) to prudential regulation (i.e. instituting or tightening capital requirements or underwriting standards such as loan-to-value ratios), gradual interest rate deregulation (to direct credit to under-supported areas) to deeper changes such as potentially overhauling the current fiscal revenue and expenditure allocations between central and local government.

While it is difficult to identify a country that has stuck consistently to a proactive approach across all dimensions, some of the actions taken by the Canadian central bank and financial regulators in recent years could be classified as proactive.

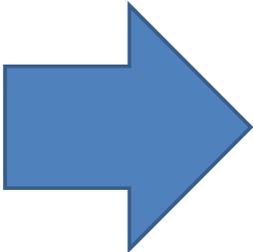
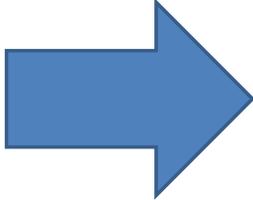
2. **Forbearance:** This approach explicitly tries to “buy time” for the financial system through forbearance and easy monetary policy.

Rather than force banks to recognize nonperforming assets and raise capital, evergreening is actively encouraged by regulators. The central bank lowers interest rates and provides the liquidity needed to avoid credit crunches. The idea is for banks to eventually “earn their way out” from credit problems.

Examples are the US approach to dealing with the Latin American debt crisis, or (some of the time) the Japanese approach post the credit bubble in the 1980s – banks continued lending to unviable companies to keep them afloat, but did not proactively restructure or reform. Postponing the problem eventually led to NPLs and significant recapitalization of the banking sector years later.

As discussed in the following sections, we think that policymakers will adopt a more proactive approach, but with periods of forbearance. However, there is still a (smaller) risk that policymakers continue to allow credit growth well in excess of nominal GDP and take a laissez-faire approach to risk control. Presumably the key reason for adopting such a policy and accepting the consequential risks (other than complete ignorance of those risks, which clearly is not the case) would be to strongly support cyclical growth. Such cases could eventually lead to systemic events of sizeable magnitude, unintended consequences and a vicious feedback cycle ensues, resulting in a crisis with large scale bailout / cleanup required (government-directed). We do not think that the new leaders will follow such an approach.

Exhibit 31: We envision two different approaches to addressing four sets of challenges

		Policy Strategy		
		Proactive	Forbearance	
Policy Challenge	Reining in excessive and under-regulated credit growth	General monetary stance Controlling risks in shadow banking products LGFV SOE Directing to targeted areas	Monetary policy more prudent than inflation alone would suggest Further prudential measures to plug potential loopholes in various areas Restructure local govt revenue/expenditure balance; restructure bonds/loans that cannot be repaid; stricter regulations on local government borrowings Restructuring SOEs in poor financial health or overcapacity industries; limit their access to additional capital for new low return projects Interest rate deregulation and other moves to encourage credit flow to SME/private enterprises; policy preference for supported areas; curb credit to unfavorable areas	Monetary policy stays focused on near-term inflation outlook only Focus on better enforcement of existing rules; keep an eye on developments and deal with problems as they arise Allowing moral hazard to go unchecked; keep credit flowing to LGFVs within some size limitations Limit access to capital for new low return projects Focus on better enforcement of existing rules; periodically cool down certain sectors like property as needed
	Managing legacy / outstanding NPL risks		Stress tests to expose balance sheet problems at financial institutions Selectively set up provincial AMCs and transfer in some assets as appropriate Prudential measures to restructure existing WMP/ shadow banking instruments Establish a proper framework for dealing with potentially systemic events in the future	Unpublished regulatory guidance to banks to evergreen loans Continuous rollover of other outstanding products as necessary Lower interest rates to alleviate near-term pressures Provide banks liquidity but not capital
	Deepening the financial system		Introducing new debt products/diversification with appropriate regulation Introducing other fundraising avenues (equity, other) like the third board Fiscal reforms (muni bonds, aligning local govt expenditures and revenues, etc.)	Introduction of new products only where deeper structural adjustments are not needed
	Developing a risk culture / pricing credit appropriately	Moral hazard Market pricing Credit rating Corporate bankruptcy framework	Allow selective defaults in WMP, trust, LGFV bonds to prevent moral hazard and improve awareness Further interest rate deregulation; improve credit underwriting at banks Further mature and develop credit rating system; move to bottom-up approach over time for LGFV bonds Set up specialized corporate bankruptcy court to facilitate restructuring of bankruptcies	Restructure quietly when default risks appear Widening of interest rate bands very gradually Maintain current system; LGFV ratings remain top down Current practice - local govt led corporate restructuring

Source: GS Global ECS Research.

China's strategy may lean towards more proactive, with periods of forbearance as needed

In our view, China has navigated through phases of different credit policy strategies over the past half decade:

- **The period during and immediately after the GFC was reflective of a more pro-cyclical approach**, with rapid excess credit growth and less focus on risk control and structural discipline. (Although the stimulus during the financial crisis was clearly an active policy choice, it clearly represented a prioritization of cyclical growth concerns over reform and longer-term financial sector health, which is why we feel it was unfavorable with regard to financial sector risks.)
- **From 2011 to mid-2012, a partial shift towards proactive was apparent.** Risks in certain areas (namely LGFV loans) were prominent and policymakers adopted a combination of pre-emptive restructuring and evergreening to address the issues before widespread defaults emerged. LGFV lending was more strictly controlled, with clear de-leveraging progress made in 2011. In other less pressing areas, however, such as trust lending, limited structural improvements were made and borrowers started to exploit policy gray zones and loopholes.
- **From 2H12 until 1Q13, policy shifted back towards a more pro-cyclical approach.** Weak economic growth in mid-2012 prompted Premier Wen to declare stabilizing growth a higher priority than inflation control or structural rebalancing. Project approvals were expedited and credit to support such activity was loosened in the official channels in the fall-winter and through 1Q13, while shadow finance also gained momentum.
- **Starting 2Q13, we are seeing a bias towards more proactive again, under the new leadership.** In April, Premier Li added 'risk control' as a fourth policy target in addition to the original three mentioned by his predecessor Wen. The 2013 reform objectives set by the State Council in May explicitly included reforms and local government risk controls. Prudential measures towards a variety of areas were also passed to block certain policy loopholes. Credit growth rates plateaued in April/May, and decelerated slightly in June. The 2H June liquidity crunch was further proof of policymakers' intention to take a more prudent stance, and Premier Li reiterated the desire to better utilize the existing and abundant money stock, implying no desire to further accelerate the flow.

We expect policymakers to continue to advance reforms with largely a 'proactive' strategy, but to take a step back and settle into 'forbearance' once in a while as needed if the cyclical picture is trending below the growth tolerance level. The global economy remains fragile and China's own macro trends remain lackluster. We believe that the reform directions may be clarified at the Third Plenary Session in October (where we expect many of the policies included in Exhibit 31 to be mentioned), but the pace of execution may vary depending on a variety of interrelated factors. Certainly, periods of cyclical strengths may be good windows to accelerate the proactive reforms. To the extent that these windows are not frequent, the process of diffusing credit risks may be prolonged. We also emphasize that the complexity and interlinked nature of the various areas of reforms to be attempted (many in parallel) also makes for a significant and unprecedented policy challenge – one that could very much lead to cyclical volatility. Policy missteps certainly cannot be ruled out.

Why not a purely proactive approach? Policymakers need to avert potential triggers of credit crisis

We believe the aforementioned proactive strategy may be more effective in resolving existing challenges and pre-empting future issues – but it is unlikely to be the sole approach in the coming years. Instead, we believe the actual path chosen by policymakers will likely be a combination of proactive, interwoven with periods of forbearance as needed to keep the cyclical picture broadly stable (a necessary foundation for reforms) and avert any potential credit crisis on the horizon, that could blow China further off the reform course.

We see **four potential triggers** for a significant credit event (Exhibit 32)

1. Weakness in cyclical demand (from exports or domestic overcapacity)
 2. Intentional policy tightening
 3. Loss of confidence in implicit guarantees
 4. A property sector collapse.
- Of these, further demand weakness could exert unintended cyclical pressure on the economy and hurt cashflow generation capability, leading to a sharp rise in NPLs. The GFC would be a key example of an export-linked system shock that threatened the viability of much of the manufacturing sector. While external demand and exports growth have weakened considerably over the last two years and undoubtedly have contributed to credit pressures in some of the aforementioned areas of the corporate sector, our global economics team expects a **moderate reacceleration in growth in major developed economies in 2014**. Looking ahead, **domestic manufacturing overcapacity is more of a concern**, and poses some risk to investment and growth over the coming quarters in our view.
 - In addition to overcapacity, we think that the second and third risks – intentional policy tightening and potential dissolution of implicit guarantees (particularly the banks' implicit guarantee of shadow banking products it distributes, such as WMP or trusts) – are more likely and more imminent. Such moves are more likely to be outcomes of intentional policymaking. For example, policymakers may ban banks or trust companies from absorbing trust or WMP NPLs quietly, in order to better instill understanding and awareness of risks amongst buyers. This may be a fairly high likelihood policy decision, in our view, but if implemented too aggressively and at a time coinciding with weak demand, could trigger a credit crisis or other undesired side effects. Comparatively, deliberately breaking down the implicit guarantees from the local government to LGFVs appears less likely near-term, given that reforms have not yet advanced to the stage of providing sufficient alternative financing solutions (like widespread adoption of municipal bonds).
 - The fourth risk, a property sector collapse, would be potentially quite damaging particularly if broad price expectations weaken substantially (either due to direct leadership guidance, oversupply crisis in some locations, or unintended consequences from property tax or asset disclosure requirements). Such reversal of price expectation could negatively impact not only investment/speculative demand, but also regular recurring upgrade or even first time buyer demand. Nonetheless, we do not expect such policy shifts to be imminent and believe policymakers would tread lightly to minimize downside risks not only to the economy and financial system, but also to social stability.

Intentional tightening and prudential reforms toward a more orderly market may carry higher, more imminent risks.

As the second half of June liquidity crunch episode reminded us all too clearly, abrupt tightening of financial conditions can lead to unexpected results (such as a surge in short-term rates or difficulties in fundraising even by the MOF due to loss of confidence), particularly in a financial system that is increasingly complex, with regulation that has been more reactive than pre-emptive in the recent past.

At the current juncture, it looks increasingly likely that policymakers intend to, in the coming quarters:

- Intentionally slow down the pace of M2/TSF growth, in spite of limited inflationary pressures; via tools such as window guidance/loan quota.
- Implement more prudential measures (esp. in the shadow banking space) to pre-empt further structural risks, which would likely have the side effect of slowing down associated products growth.
- Gently move towards the direction of installing risk culture / understanding by allowing some NPLs and defaults to materialize, particularly in the WMP and trusts space.

The challenge for policymakers is being proactive enough to “get ahead of the curve” and curtail credit growth and medium-term risks, while not moving so fast that it precipitates the very credit event they seek to avoid. Some of the natural outcomes of policy tightening may include more corporate stress/NPLs/higher funding costs (especially in the SME space that is more reliant on shadow banking and short-term products), inability to refinance in some cases, and at least a modest potential fall in overall activity and growth. If some of these impacts are prolonged, they could also trigger other related risks such as exacerbating overcapacity, reducing property sector confidence, etc. Such a vicious feedback cycle would set back the reform progress, and periods of forbearance may be needed to avert such an outcome.

Exhibit 32: A variety of triggers could result in credit risks – intentional tightening and weakening implicit guarantees are the more imminent items to monitor

	Potential causes/measures	Potential implications	Risk timing	Risk magnitude	Risk likelihood
Weak demand	Weak exports due to weak external growth or strong fx	Higher NPLs from high-risk areas, slower growth	...	.	..
	Manufacturing overcapacity due to overbuild	Higher NPLs from high-risk areas, slower growth	...	...	...
Intentional tightening	Monetary tightening via credit quota; interest rates, etc (due to inflation or other concerns)	Weak economy, corporate stress; NPLs	...	..	...
	Prudential regulations to slow credit growth	Inability to refinance/ credit crunch	...	..	...
	Fiscal tightening via less expenditures	Higher funding costs for all	..	..	.
	Intentional Fx appreciation/tightening		...	..	.
Loss of confidence in implicit guarantees	Allowing NPLs on WMP/trusts etc - no bank guarantee	Inability to refinance/liquidity crunch	...	..	...
	Allowing NPLs on LGFV instruments - no local govt guarantee	Sharp investment activity fall	.	...	..
Property sector collapse	Aggressive/broad property tax	Sharp drop in upgrade/investment demand	..	..	..
	Anti-corruption/asset disclosure	Sharp rise in secondary supply	..	.	..
	Sharp price appreciation followed by sharp collapse	Confidence loss, demand correction	.	..	.
	Proactive price expectation management downward	Demand correction for upstream/downstream	.	...	.
	Severe oversupply in lower tier cities	Sharp correction in asset prices putting collaterals/ equity at risk	...	..	..

Note: On the risk timing column, three dots means potentially imminent, two dots means medium term, one dot means longer term.

Source: GS Global ECS Research.

Quantifying the potential losses

Our analysis (Exhibit 33) shows the maximum potential credit loss in the financial system of Rmb 8.6tn and Rmb18.6tn, or 10% and 21% of GDP⁹ for the 'proactive' and 'forbearance' cases respectively, assuming credit events occur and significant increases in default rates. Exhibit 34 shows a sensitivity analysis for these two cases' maximum potential credit losses under different credit growth and nominal GDP growth assumptions. It is important to clarify that the maximum potential credit loss figures do not represent an estimation of government fiscal costs, for two main reasons. First, these figures represent worst-case scenarios rather than expected outcomes. Second, to the extent credit losses occur gradually they can be absorbed by bank earnings or other avenues. Therefore any fiscal burden is likely to be considerably lower than the 10% or 21% of GDP boundaries.

Estimating potential credit costs involves considerable uncertainty. It requires the projection of future credit and nominal GDP growth, potential default rate and loss ratios, the timing of the emergence of credit events, and the default resolution path the authorities choose. And the interplay of these factors makes the job of quantifying the potential losses more difficult. Adopting the two cases outlined above – proactive and forbearance – provides us with a framework to establish a range of results under different policy choices. We also leverage off the micro analysis we have done in the previous sections, as well as the considerable amount of work our China banks team have done in estimating the potential NPL problem in the banking system. Finally, we look at past episodes of bank recap and NPL carve outs to provide a guide on potential remedies.

- 1. Proactive: Lowest potential cost but requires structural reforms to prevent problems from recurring.** Under this case, we maintain the credit and nominal GDP growth in line with our macro forecasts and assume that LGFV debts will see default rate of 20% and loss rate of 70% (meaning that recovery on defaulted LGFV debts will be 30 cents on the dollar), and that non-LGFV corporate debts will see default rate of 5% and loss rate of 60%. The default assumptions are in line with our China banks team's total potential NPL in the Chinese banking system, which they estimate at 4% to 6% for 2013. We assume that policy makers take proactive steps in the near term to identify and resolve any potential non-performing assets in the banking sector, and shadow banking defaults are resolved by debt restructuring or corporate restructurings. The maximum potential credit loss on this approach is estimated at Rmb 8.6tn, or 10% of GDP; in practice this cost would be spread over more than one year. Although the costs are relatively low, the challenge here is to ensure reforms are followed through such that non-performing assets do not build up again.
- 2. Forbearance: Problems are delayed and the outcome more difficult to predict.** Under forbearance, we assume that credit growth will be 18.2% pa for the next four years, and nominal GDP growth will be at 11.1% pa. We assume that LGFV defaults will be at 25%, and non-LGFV corporate defaults at 12%, significantly higher than the proactive approach, because proactive steps to tackle credit growth are not put in place, leading to bigger issues further into the future unless growth recovers. Under this case, we estimate that the cost will be Rmb18.6tn, or 21% of GDP. In our view the estimated cost of this case is the more difficult to predict, as credit problems are unlikely to manifest in the near term, and it could be some years before credit losses are recognized. This approach also assumes limited structural reforms are put into place, and nominal GDP growth remains at a steady pace. Any changes to the pace of credit growth and/or nominal GDP growth can have a meaningful impact on the estimates.

⁹ Estimating the potential losses as a percentage of GDP requires us to project nominal GDP and credit growth going forward, and also an estimation of when credit losses will be recognized. In reality, credit losses are likely to be recognized over a number of years. In order to arrive at our loss estimates, we assume that credit problems will be recognized in the medium term, and the losses are expressed as a percentage of 2016E nominal GDP.

Exhibit 33: Our estimated maximum potential losses under proactive and forbearance cases. Actual outcomes are likely to be below our estimates, which used conservative default and loss rate assumptions

	Case 1 - Proactive		Case 2 - Forbearance	
Credit growth rate assumption (% pa)	12.5%		18.2%	
Nominal GDP growth rate assumption (% pa)	10.0%		11.1%	
	Default Rate	Loss Ratio	Default Rate	Loss Ratio
LGFV Bonds & Loan Default and Loss rates (%)	20.0%	70.0%	25.0%	75.0%
Non-LGFV Corporate Bonds & Loan Default and Loss Rates (%)	5.0%	60.0%	12.5%	65.0%
Trust & Entrust Loans, Informal Loans Default and Loss Rates (%)	20.0%	70.0%	25.0%	75.0%
Estimation of Maximum Potential Credit Loss				
Maximum Potential Credit Loss for LGFV (Rmb bn)	3,259		5,318	
Maximum Potential Credit Loss for Non-LGFV (Rmb bn)	5,319		13,245	
Maximum Potential Credit Loss (Rmb bn)	8,577		18,563	
Maximum Potential Credit Loss as % of GDP	10.3%		21.4%	

Source: GS Global ECS Research.

Exhibit 34: Sensitivity analysis of maximum potential credit loss as a % of GDP under different credit and nominal growth assumptions. Note that we have kept the default rates and loss ratios unchanged.

Sensitivity analysis for Case 1 - Proactive							
Maximum potential loss		Credit growth rate assumption (% pa)					
		8.0%	10.0%	12.0%	14.0%	16.0%	18.0%
Nominal GDP growth assumption (% pa)	6.0%	10.1%	10.9%	11.7%	12.6%	13.5%	14.4%
	7.0%	9.8%	10.5%	11.3%	12.1%	13.0%	13.9%
	8.0%	9.4%	10.1%	10.9%	11.7%	12.5%	13.4%
	9.0%	9.1%	9.7%	10.5%	11.2%	12.1%	12.9%
	10.0%	8.7%	9.4%	10.1%	10.8%	11.6%	12.4%
	11.0%	8.4%	9.1%	9.7%	10.5%	11.2%	12.0%

Sensitivity analysis for Case 2 - Forbearance							
Maximum potential loss		Credit growth rate assumption (% pa)					
		12.0%	14.0%	16.0%	18.0%	20.0%	22.0%
Nominal GDP growth assumption (% pa)	8.0%	19.3%	20.7%	22.2%	23.8%	25.4%	27.2%
	9.0%	18.6%	20.0%	21.4%	22.9%	24.5%	26.2%
	10.0%	17.9%	19.3%	20.6%	22.1%	23.6%	25.3%
	11.0%	17.3%	18.6%	19.9%	21.3%	22.8%	24.4%
	12.0%	16.7%	17.9%	19.2%	20.6%	22.0%	23.5%
	13.0%	16.1%	17.3%	18.5%	19.8%	21.2%	22.7%

Source: GS Global ECS Research.

Actual fiscal costs are likely to be noticeably lower than the maximum potential credit loss estimates. Although the estimated maximum potential credit losses for the “proactive” and “forbearance” cases are 10% and 21% of GDP respectively, these should be viewed as worst-case rather than expected value, as our default rate and loss ratio assumptions are conservative. Furthermore, any credit losses are likely to be spread out over a number of years, especially for the “forbearance” approach. Similarly, any solution to contain the credit losses is also likely to take a number of years, as we saw during the 1998 to 2005 period when the Chinese banking system was recapitalized. This will allow time for some of the potential losses to be absorbed by banks’ excess provisioning (average c.18% of total loans in FY13E for listed banks), bank earnings or other avenues (individual lender-borne losses, other AMC’s being set up, etc.). The sovereign balance sheet has relatively low gearing, so there is ample room to provide support, if required.

What can we learn from credit booms and banking crises in other countries (by Kenneth Ho)

There are a plethora of studies looking at credit booms and banking crises, and these can provide useful points of reference when analyzing the current credit situation in China.

Not all credit booms lead to crisis

Credit booms are a source of concern, because they can often lead to systemic problems, where the negative impact on the economy can be substantial. But whether or not a credit boom leads to a crisis depends on a number of factors, including the quality of lending standards, to which areas the credit growth has been directed, whether the credit boom accompanies an asset bubble (say in real estate), how levered was the economy when the credit boom began, and the policies undertaken to curb the growth in lending, amongst other factors.

In general, the academic research suggests that rapid credit growth increases the probability of, but by no means indicates, a banking crisis. A recent study by the IMF¹⁰, for example, took a sample of 170 countries with data between 1960s and 2010, and identified 175 episodes of credit boom. The median boom lasts for three years, with the credit-to-GDP ratio growing at around 13% annually, or about five times its median growth in the non-boom years. They found that about a third of the episodes resulted in financial crises, and other cases where the boom did not lead to a bust but is followed by an extended period of below-trend economic growth. Yet they also found many cases where the boom resulted in permanent financial deepening which benefited long-term economic growth (Exhibit 35).

Exhibit 35: Around 1/3rd of credit booms resulted in a financial crisis

Result of 175 credit booms under IMF study

Followed by financial crisis?	Followed by economic underperformance?				Total	
	No		Yes		Total	
	Number	Percent of total cases	Number	Percent of total cases	Number	Percent of total cases
No	54	31%	64	37%	118	67%
Yes	16	9%	41	23%	57	33%
Total	70	40%	105	60%	175	

Source: IMF.

As noted by the authors of the study, it is difficult to tell “bad” from “good” booms in real time, though they found that **around half of the “bad” booms had one of the following three characteristics:** (1) credit boom lasting longer than six years, (2) annual increase in credit-to-GDP ratio exceeded 25% in the credit booming period, or (3) initial credit-to-GDP ratio higher than 60%. For China, the credit boom started in 2008/09, therefore we are in year 5 of the boom, and the average annual rate of change in corporate leverage-to-GDP (defined as including corporate and LGFV leverage) was around 9.8% (and average annual increase in leverage is 15%) from the end of 2008 to the end of 2012. However, the starting point of the credit-to-GDP ratio was above 60%, with corporate and LGFV leverage together accounting for 113% of GDP at the end of 2008. Although these indicators do not signify that the credit boom in China is a “bad” boom, it does highlight the need for the policymakers to rein in leverage growth in preventing a systemic problem from emerging.

External borrowing makes crises more likely and more costly

Other studies have noted that “bad” credit booms—those that end in crises—tend to be associated with large foreign capital inflows.¹¹ Foreign capital is less stable and its withdrawal can have additional consequences for macro stability. In a floating exchange rate regime, depreciation results; in a fixed rate regime (such as that pursued by many of the

¹⁰ Dell’Ariccia, Igan, Laeven and Tong, “Policies for Macrofinancial Stability: Dealing with Credit Booms and Busts”, IMF Staff Discussion Note 12/06, June 2012

¹¹ See for example Reinhart, Rogoff (2008), “Banking Crises: An Equal Opportunity Menace” and Calderon and, Kubota “Gross Inflows Gone Wild: Gross Capital Inflows, Credit Booms and Crises” (World Bank Policy Research Paper 6270, November 2012.

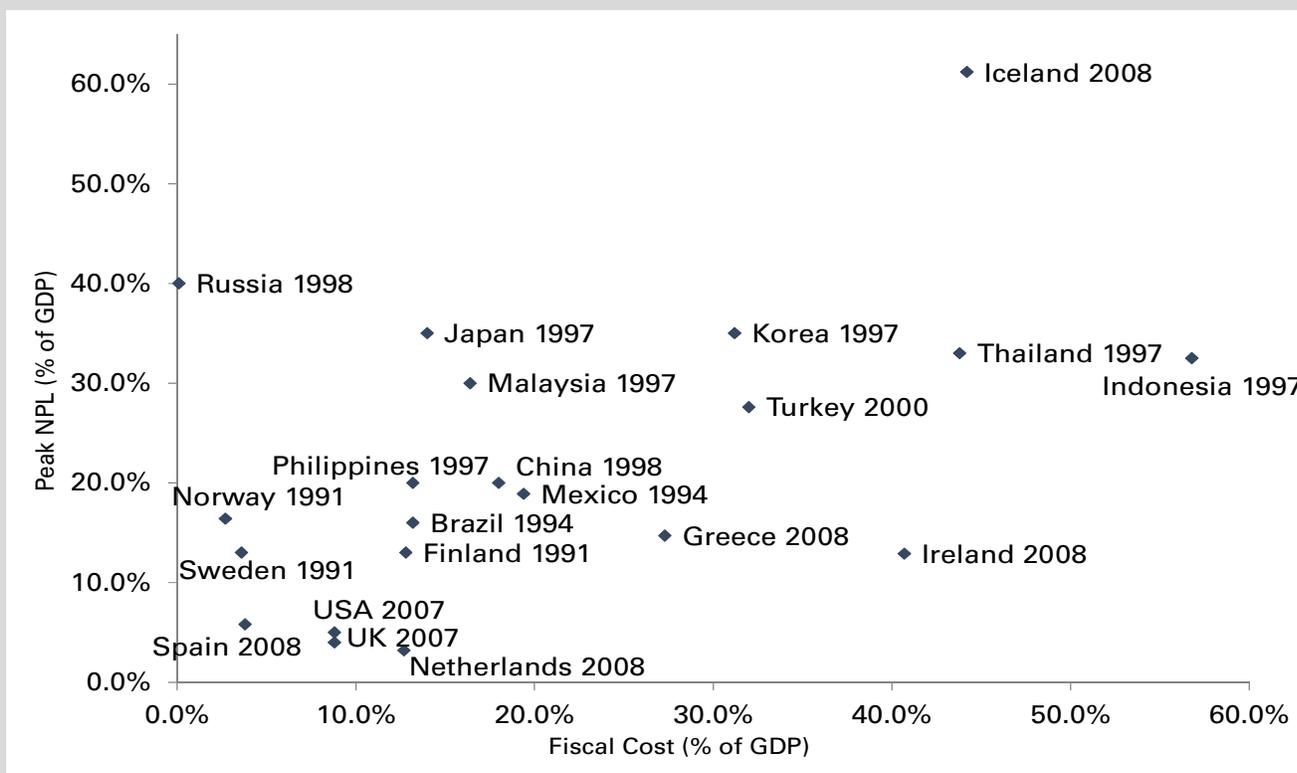
Asian countries before the Asia Financial Crisis), reserve depletion can be rapid and result in large and abrupt exchange rate devaluations. If sovereigns or corporates have borrowed in foreign currency, the debt problem is compounded as repayment becomes more expensive in local currency terms. China seems well insulated from these issues – it runs a current account surplus and has accumulated gargantuan foreign reserves – so policymakers should be able to focus on domestic credit problems without worrying about external funding.

When they occur, banking crises can be expensive to clean up...

Policymakers, after the onset of a banking crisis, have a range of options on how to contain and remedy the situation. This includes liquidity support, bank recapitalization, nationalization, NPL carve outs and sovereign guarantees (on bank liabilities and/or deposits). Typically policymakers will adopt a combination of measures, aiming to stabilize the crisis. There are costs associated with each of these actions, and the total costs are typically expressed as a percentage of GDP.

The costs involved in resolving banking crises over the past 25 years show a wide range of outcomes. According to the IMF’s comprehensive database on systemic banking crises¹², it ranges from as high as 56.8% of GDP in Indonesia in the late 1990s to as low as a low single digit percentage of GDP in the Norwegian and Swedish banking crises of the early 1990s.

Exhibit 36: Examples of Peak NPL and Fiscal Costs in banking crises over the past 25 years (% of GDP)



Source: IMF, GS Global ECS Research.

It is interesting to note that the study found that monetary and fiscal policies are used more extensively during banking crises in advanced economies than in emerging or developing economies. One possible explanation put forward by the authors is that advanced economies have better financing options to fund for countercyclical fiscal policies, and generally more room to use monetary tools. They also found that fiscal costs in advanced economies are about half that in emerging or developing countries, consistent with the greater reliance on macroeconomic policies. China’s relatively

¹² Laeven and Valencia, “Systemic Banking Crises Database: An Update”, IMF Working Paper, June 2012

strong central government fiscal position and very large foreign reserves give policymakers considerable flexibility for applying macro stabilization policies, and in this respect make China's policy options more comparable to an advanced economy's.

...and result in collateral damage to output and public finances

The effects of a banking crisis are not only fiscal, but also include output loss and potential increase in public debt. The IMF study on banking crises estimates output losses as the cumulative loss in GDP relative to the pre-crisis trend. They found that the median output loss from their sample of 147 banking crises was 23%. The losses were bigger in advanced economies, in part because with deeper financial systems, a banking crisis is more disruptive.

In many cases, there was a corresponding increase in public sector debt, with the median increase being 12.1% of GDP. The study found that increases in public debt during banking crises for emerging and developing countries are mostly due to fiscal costs associated with financial sector intervention policies. For advanced economies, the fiscal costs explain only a small proportion of the increase in debt, with the use of macroeconomic policy, such as fiscal stimulus, a more important factor.

Exhibit 37: Median output loss, increase in public debt, fiscal cost and peak NPL for systemic banking crises between 1970 and 2011

Country	Median			
	Output loss (% of GDP)	Increase in public debt (% of GDP)	Fiscal costs (% of GDP)	Peak NPLs (% of total loans)
All	23.0%	12.1%	6.8%	25.0%
Advanced	32.9%	21.4%	3.8%	4.0%
Emerging	26.0%	9.1%	10.0%	30.0%
Developing	1.8%	10.9%	10.0%	37.5%

Source: IMF.

China banking sector recaps show different options are available

It is worth bearing in mind that the Chinese banking system has undertaken a series of reforms, recapitalization and NPL carve outs over the past 15 years, and a look back at the measures undertaken could provide some context that policymakers may also reference if needed in the case of another crisis. By the late 1990s, strong growth in lending to SOEs in the '80s and '90s had resulted in a sizeable buildup of NPLs in the banking sector. The total NPLs at the big four banks, including all the carved out NPL, were estimated at 42% of total loans by the end of 2011¹³. The government undertook a series of steps to reform the banking sector and clean up the stock of NPLs, including:

- 1. Recapitalizations of the banking sector** (Exhibit 38). A Rmb 270bn bank recapitalization took place in 1998, boosting the capital position of the Big 4 banks, achieved by lowering the legal reserve from 13% to 8%. This was followed by a total of US\$60bn injected into China Construction Bank and Bank of China in 2003 and into ICBC in 2005, which was funded by forex reserves. An estimated Rmb 336bn was used

¹³ Guonan Ma and Ben Fung, "China's asset management corporations", BIS Working Papers No. 115, August 2002

to recapitalize rural credit co-operatives through to 2005, mainly via the issuance of PBoC bills¹⁴.

- 2. Establishment of four asset management corporations.** Post the 1998 recapitalization of the Big 4 banks, four asset management corporations (AMCs) were set up to deal with the disposals of NPLs. The equity capital for the AMCs was injected by the MOF, with additional funding provided by PBoC borrowing or with the issuance of AMC bonds.
- 3. Carve out of the NPLs to the AMCs.** The transfers of the NPLs were either conducted via the PBoC (whereby the PBoC acquires the NPLs and disposes them to the AMCs) or directly sold to the AMCs. The first tranche of NPL carve outs took place in 1999/2000, where Rmb 1.4tn were carved out at par value from the banks. A second tranche occurred in 2003 to 2005, with around Rmb 1.3tn carved out, and estimated that some were at par value and some around 50% of face value¹⁵.

Based on our estimation, the amount of capital injected into the banking system between 1998 and 2005 totals approximately Rmb 3.6tn, consisting of Rmb 1.2tn in banking sector recapitalization and Rmb 2.4tn in NPL carve outs. This equates to around 19.5% of GDP at the beginning of 2005 having been injected into the banking system. It is worth noting that the government efforts to recap and dispose of the NPLs in the banking system did not result in a growth slowdown during that period, and it did result in significant improvements in bank NPL ratios. Post the first set of NPL carve outs in 1999/2000, NPL ratio was still elevated at 24.3% at the end of 2001. This fell to 8.6% by the end of 2005, following the second set of NPL transfers from 2003 to 2005. And as the larger commercial banks become listed entities, NPL ratio fell further following the infusion of new capital, better risk management and fast loan growth, to reach the current reported sector NPL ratio of 1%.

¹⁴ Estimated cost of Rural Credit Co-operatives recapitalization was taken from Guonan Ma, "Sharing China's Bank Restructuring Bill", China & World Economy Journal, Volume 14, Issue 3, 2006

¹⁵ Garcia-Herrero, Gavila and Santabarbara, "China's Banking Reform: An Assessment of its Evolution and Possible Impact", CESifo Economic Studies, Volume 52, 2/2006, 304-363

Exhibit 38: An estimated Rmb 1.2tn was used to recapitalize the banking sector between 1998 and 2005 and Rmb2.7bn of NPLs carved out

China Bank Recapitalization and NPL carve outs, 1998 to 2005

Bank Recapitalizations		
Actions taken	Estimated Amount	Description
1998 Big 4 Bank Recap	Rmb 270bn	No cash was injected. PBoC reduced the legal reserve requirement from 13% to 8% to free around Rmb270bn reserve money for the four state banks, releasing Rmb270bn.
2003 CCB/BOC Recap	US\$45bn	Central Huijin Investment Ltd (CHIL) was established by the Chinese government, and CHIL then injected US\$22.5bn each into CCB and BOC from forex reserves.
2005 ICBC Recap	US\$15bn	Similar process as above, with ICBC receiving US\$15bn in forex reserves to recapitalize.
Rural Credit Co-operatives Recap	Rmb 336bn	An estimated Rmb 336bn were financed by the PBoC to recapitalize the Rural Credit Co-Operatives, mainly through the issuance of PBoC bills.
Total	Rmb1,210bn	

NPL Disposals				
Actions taken	Estimated face Value of NPLs transferred	Estimated amount received by the banks on NPL transfer	Estimated cost of NPL carve out at 80% loss rate	Description
1999/2000 NPL Carve Out	Rmb 1.4tn	Rmb 1.4tn	Rmb 1.12tn	Rmb 1.4tn of NPL were transferred at face value from the four state banks to four asset management corporations (AMC) between 1999 and 2000.
2003/2004 NPL Carve Out	Rmb 568bn	Rmb 303bn	Rmb 150bn	Approximately Rmb 515bn of NPLs and other assets were carved out of CCB and BOC and Rmb 53bn from BoCom. The NPLs were purchased by PBoC at around half the book value, and auctioned to the AMCs for around 30% of face value.
2005 NPL Carve Out	Rmb 700bn	Rmb 700bn	Rmb 560bn	Around Rmb 700bn of NPLs were carved out of ICBC at par value, purchased by PBoC and auctioned to the AMCs.
Total	Rmb 2.67tn	Rmb 2.4tn	Rmb 1.83tn	

Source: Company reports, CBRC, BIS, GS Global ECS Research.

Different remedies and implications on fiscal costs, output loss, and public debt increases

There is a multitude of remedies that policymakers can use to contain any potential credit issues, ranging from the use of foreign exchange to recapitalize the banking sector, to the use of monetary stimulus via lowering of interest rates, to setting up asset management companies to carve out NPLs. Each remedy has its advantages and potential issues. These are listed in Exhibit 39. A combination approach, in our view, is the most likely should credit issues arise. Note also that the banking sector and economy have evolved over the past 15 years, and it is unlikely that we will see future potential cleanups following the same path as in 1998-2005. In that period, banks were unlisted and wholly owned by the government, and the cleanup, which included carving out bad debts at par value, helped to prepare the banks for their listing. Looking forward, we think that the government will want to try and adopt a more commercial approach in dealing with any potential issues.

If our estimation of the maximum potential credit loss is correct, with the upper boundary estimate being 21% of GDP for the forbearance case, we think that the costs are manageable, as described. However, we do see other possible macro impacts. A prolonged period of excess credit could lead to the buildup of excess investments in some areas, which may need to be worked off, and result in a period of weaker investment and growth. In response, the government might adopt macro policies to boost growth, such as fiscal

and monetary stimulus, which could lead to an increase in public sector debts. This highlights why it is important for the credit boom to be proactively tackled, not only to prevent a systemic crisis, but also to limit the potential output loss and additional strain on government finances, which could occur even if the credit boom does not result in a systemic crisis.

Exhibit 39: Potential remedies should credit issues arise, and the pros and cons for each measure

Potential Remedies	Advantages to the approach	Potential Issues
Utilization of foreign exchange reserves to recapitalize banking sector	This has been conducted before, and will provide an immediate boost to bank capital position	Potential fx impact if reserves are converted to RMB Reduces the country's buffer to external shocks
Setting up AMC to carve out non-performing assets	Will remove non-performing assets from banks, and should speed up NPL resolution	At what price will NPLs be sold to the AMCs, and what impact would this have on the banks? Will equity holders of the banks be diluted? How will the AMCs be capitalized and funded?
Issuance of government or government backed bonds to support banking institutions	Shores up balance sheet strength for the banking sector	Additional burden taken on by the state
Absorbing shadow banking risks onto banks' balance sheets	Removes uncertainties regarding shadow banking risks	How will the banks fund for the transfer? What impact will this have on banks' capital position?
Monetary stimulus via lowering of interest rates	Helps highly levered borrowers to repay their debts	Will this have macro implications, such as higher inflation? The impact of cutting interest rates may not have a direct impact on amount of non-performing assets
Recapitalization of banking sector with private sector involvement	Recapitalization takes place according to market price, and reduces government involvement	Will the government stake be diluted? At what price will the private sector be willing to recapitalize the banking sector?
Government orchestrated bailout to SOE/LGFV	Removes uncertainties regarding SOE/LGFV credit risks	Moral hazard issues How will the government fund for this? What impact would this have on government finances?

Source: GS Global ECS Research.

By Kenneth Ho of our Asia Credit Strategy team

Credit market: Stick with stronger balance sheets, avoid weak SOE credits

For the credit markets, it is important to watch the reforms the policymakers will undertake, and how the problem of moral hazard is addressed. For the statement of the State Council meeting in June, it was clear that a more efficient financial system, with better allocation of credit, is a priority. There should be less funding available to overcapacity sectors, more support to strategic industries, and a better oversight of shadow banking activities. We believe that the government is intent on reducing the economy's reliance on state-owned enterprises, and how the government tackles the issue of moral hazard – whereby highly levered SOEs have easy access to funding due to their government-owned status – remains to be seen. Should policymakers adopt an approach tilted more towards forbearance, this would mean that needed reforms are not put in place and the issue of moral hazard perpetuates, which in our view would increase the risk of a significant credit dislocation in the future.

We think the implications of adopting a more proactive approach are twofold. **First, stronger companies with better balance sheets** will continue to have a competitive advantage. They will be able to ride out of the period of tight credit, and will likely be net beneficiaries on any consolidation activities. This is reflected in our preferences for the China real estate HY bonds, where we have consistently favored credits that are strong, rather than credits that provide a high yield. **Second, any efforts to tackle the moral hazard issue could lead to a repricing of SOE credit risk.** We have avoided recommending credits for highly levered SOEs, especially investment grade rated credits, which in our view provide insufficient return to compensate for their high underlying credit risk.

**By Helen Zhu of our
China Equity Strategy
team**

Equity market: Earnings/valuation uncertain during adjustment process; tipping point visibility low

For the equity markets, we believe investors are well aware that a more proactive approach than before to dealing with the leverage issues can be positive for medium to longer-term returns in terms of both higher earnings growth and better valuation. However, concerns lie with the shorter-term cyclical costs that may be associated, particularly if any form of policy error occurs in the effort to balance the proactive reforms and the cyclical stability. Our views are threefold:

- 1. A more proactive approach is a headwind for equities** for the foreseeable term, but can change into a tailwind over time. However, the adjustment process could be long and volatile. The market may not wait for the entire process to complete before rewarding the structural improvements, but when the ‘tipping point’ of market returns is reached is uncertain and dependent on any given policy’s cyclical implications, its consistency and effect. For example, the equity markets reacted with confidence to the US post-GFC policy response, with the markets bottoming in 1Q09 as QE kicked off, followed by solid performance since (a doubling of the SPX off its troughs within four years) – thanks to consistent policy that was cyclically favorable, and positive growth response (even though we are not yet back to ‘above trend’ growth levels). In contrast, some of the peripheral European equities markets have posted some recovery post the troughs of the crisis in 2011, but have shown more lackluster/spotty performance (including false starts) due to some unfavorable cyclical implications near-term, inconsistent reform progress, uncertain results outlook, and in some cases, ad hoc political/policy disruptions. An earlier tipping point depends on a lower valuation / expectation starting point, consistent policy delivery and less than feared cyclical costs. At this point, we estimate that China equities are pricing in forward EPS growth of -2%, which would imply some combination of a meaningful GDP deceleration impact on non-banks and greater cyclical NPLs for banks (banks comprise c. 40% of MXCN earnings).
- 2. Potential risks to banks** from purely a cyclical slowdown perspective or near term interest rate deregulation are probably largely priced in. However, whether the banks eventually are used as direct instruments to bail out other products in a potential credit restructuring scenario is key to whether earnings/equity destruction are significant risks or not, over time. In this regard, we see a declining likelihood of directly using banks to bail out non-banks credit risks vs. the past rounds of credit cleanup, given that banks are now listed with significant minority participation, the government has taken explicit pains to build up a track record of minority interest protection in the past (for example injecting assets into the listco from parentco only after it becomes profit accretive, etc.) and many risks lie outside the banking system. That said, this potential risk is likely to linger for some time in our view and the overhang is unlikely to be removed in the foreseeable term. Moreover, we have seen in the past that such risk overhangs can be highly negative to valuation as potential equity destruction becomes

more imminent (for example European banks in mid-2012 traded to <0.6x fPB before the ECB OMT announcements reduced the banks' likelihood of having to absorb dramatic sovereign risks). Our banks team prefers the larger systemically important banks given their stronger capital positioning, lower exposure to the more stressed credit areas like WMP/trusts and SMEs.

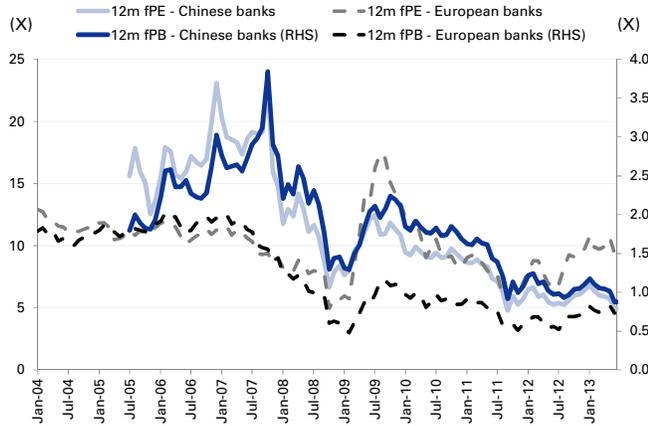
- 3. **Cyclicals are probably the worst-positioned** near-term, in our view, with significant earnings risks during the deleveraging process. In addition, their medium term upside is also more limited as China intends to structurally move towards a more consumption oriented economy, and to reduce overcapacity/pollutive impacts.

Exhibit 40: Equities may suffer during a more proactive de-leveraging process; longer-term, banks (if not utilized to clean up non-bank bad credits) and market may be the key beneficiaries

		Foreseeable term			Comment
		Equity returns			
		Banks	Cyclicals	Market	
Scenario 1: Proactive		↓	↓↓	↓	Negative for growth/earnings also valuation pressure due to uncertainties
Scenario 2: Forbearance		↓	→	→	Muddling through, limited re-rating potential
		Mid-long term			
		Equity returns			
		Banks	Cyclicals	Market	
Scenario 1: Proactive		↑↑	↑	↑↑	More sustainable growth, higher valuation
Scenario 2: Forbearance		↓↓	↓	↓	Negative for banks' valuations - may need to participate in credit crisis bailout

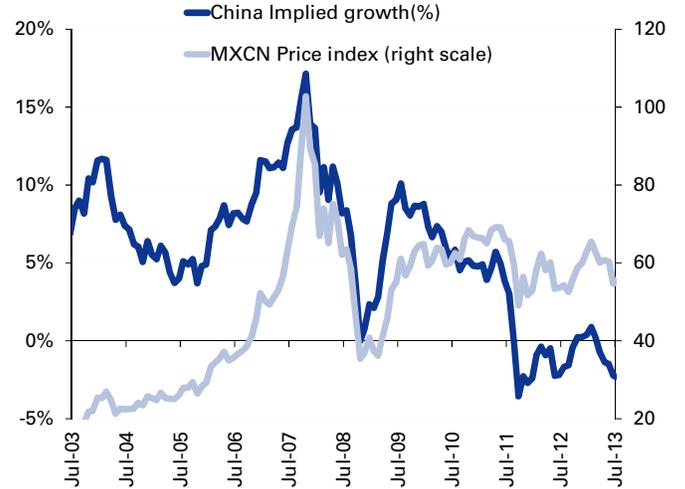
Source: GS Global ECS Research estimates.

Exhibit 41: Chinese banks are trading at around 0.8x P/B. European banks traded to <0.6x P/B when equity destruction risks were highest during the sovereign debt crisis



Source: FactSet, GS Global ECS Research.

Exhibit 42: China equities are pricing in around -2% earnings growth medium term



Note: Implied growth is a 'reverse-DCF' style analysis to calculate medium to long term growth implied by market valuation.

Source: MSCI, FactSet, GS Global ECS Research.

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