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Understanding China's gold market

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In 2013 China became the world's largest gold market, accounting for around a third of global gold demand. By the end of 2017, we expect demand to have grown by at least a further 20%. Because of its sheer size and impact on the global gold market, China is firmly in the spotlight.

In *Gold Demand Trends* – our quarterly overview of market fundamentals – we publish data for China's bar and coin and jewellery demand, and in its annual Gold Survey, GFMS, Thomson Reuters publish data on technology demand. Beyond this, the market becomes a little more difficult to piece together. This note, which follows on from our report *China's gold market: progress and prospects*, aims to shed light on China's gold flows and explain how they relate to end-user demand. It is broken down into two sections: the first provides an overview of the supply chain and gold flows, highlighting the complexities surrounding imports, recycling and SGE delivery data. Section two builds on these insights to present a view on China's aggregate demand.

Key messages

Because of the complexity of the market, assessing China's gold flows and using them to infer end-user demand is challenging. Two issues stand out to us:

- **Trade data are incomplete:** China does not report gold imports or exports so, in order to build a picture of trade flows, information from other sources is required.[1] Additionally, because these data can include scrap, doré and concentrates, they require careful interpretation and should not necessarily be taken at face value.
- **The Shanghai Gold Exchange (SGE) delivery figure captures more than just end-user demand:**[2] Because of the structure of China's gold market, the majority of gold flows through the SGE. A large portion of the gold delivered via the SGE relates to jewellery, bar and coin, and technology demand. But it also captures gold flowing to other parts of the market, and some of the gold flowing through the SGE relates to the circulation of gold within China rather than end-user demand at a particular point in time.

But one fact is clear: consumer appetite for gold has soared and represents a sustainable source of ongoing gold demand. Beyond jewellery, bar and coin, and technology demand, analysing data since 2009[3] suggests that gold demand has come from:

- **Jewellery sector inventory growth:** As jewellery consumption has boomed, the supply chain has expanded and, in aggregate, increased the sector's inventory level, thereby absorbing some gold.
- **Banking sector product innovation:** In China gold is synonymous with money so it is not surprising that its banking system has increased its exposure to gold and developed a range of banking and investment products and services, such as gold accumulation plans, gold trading, gold pledging and gold leasing.
- **Official sector purchases:** It is likely that China's authorities have increased their gold holdings in line with past activity, consistent with the trend of other emerging market central banks adding to their gold holdings.

1 For example, Global Trade Information Services, UN Comtrade, Hong Kong Census and Statistics department.

2 The SGE publish monthly data on the gold withdrawn from its vaults.

3 We have chosen 2009 as the starting point for this analysis as the 2009-2013 time frame captures the recent surge in China's gold demand and 2009 was the last data point we have for China's central bank gold reserves.

Section 1: Assessing China's gold flows and data

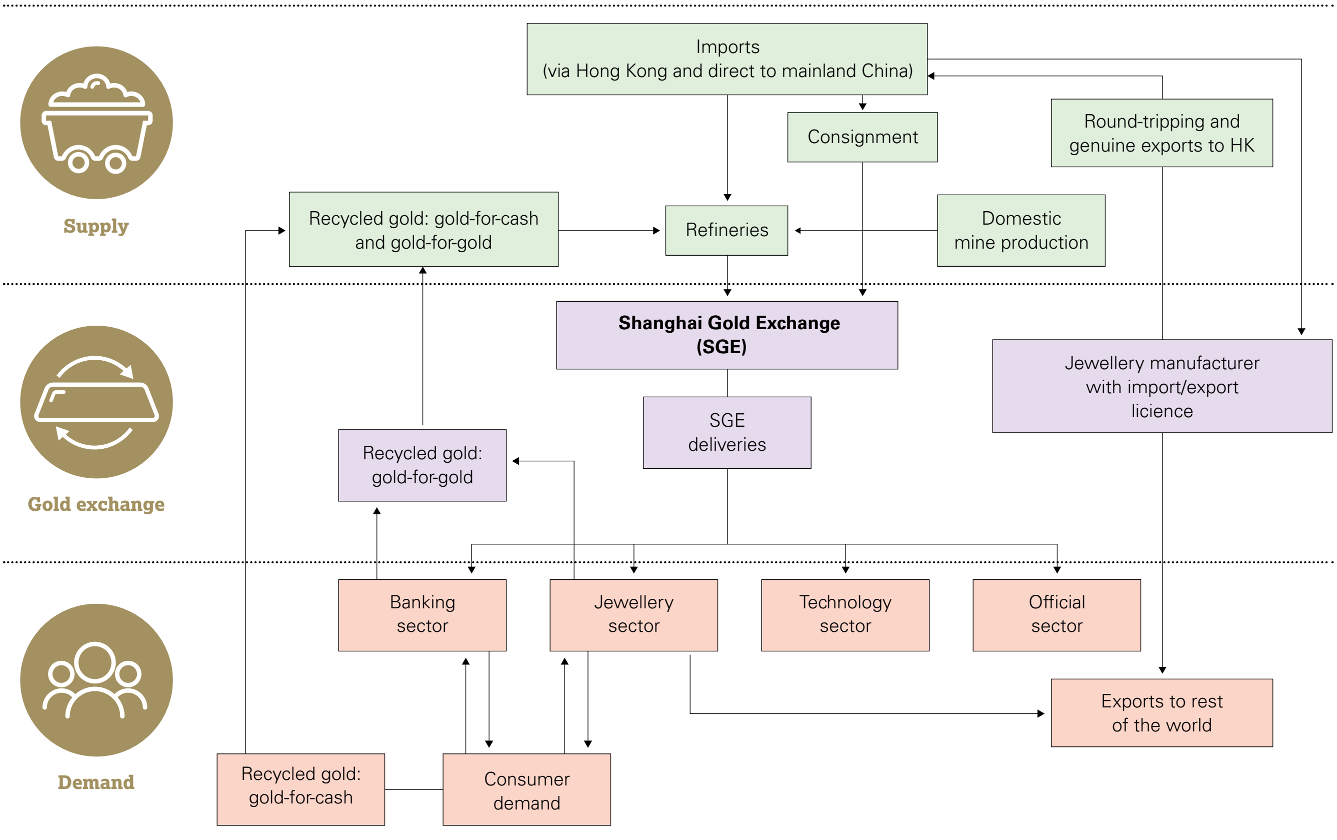
Mapping out China's gold market
In order to visualise gold flows within the Chinese market, the schematic below (Figure 1) maps out gold supply from its various sources, how it flows through the SGE and the sources of end-user demand. We will consider each in turn.

Supply

- **Mine production: Gold produced by China's fragmented gold mining industry reaches end-users via the SGE.** There are over 600 domestic mines, many of them small operations which sell their output to larger producers for refining.[4] Mine output goes to domestic SGE-recognised refiners and to the Exchange for onward sale.
- **Recycling: There are two types of recycled gold:** i) Gold-for-cash and ii) gold-for-gold. At a retail level consumers can sell gold for cash or, especially in the case of jewellery, exchange old pieces of gold for new pieces of gold. It may be that in tonnage terms, gold-for-gold recycling is similar in size to gold-for-cash recycling: we recently surveyed 1,000 consumers and found that 8% of gold owners had sold gold-for-cash, while 10% had exchanged gold-for-gold.[5] At a wholesale level banks and jewellers may also sell or exchange gold stock with other suppliers.

A key point to note is that recycled gold-for-cash increases gold supply, while recycled gold-for-gold increases both supply and demand, i.e. it increases the turnover of gold but does not affect the supply-demand balance. Recycling and demand estimates reported in both *Gold Demand Trends* and GFMS, Thomson Reuters' *Gold Surveys* exclude exchanged gold on both the supply and demand side; although it increases gross measures of supply and demand, the net impact is neutral. Gold flowing through the SGE, however, can include both recycled gold-for-cash and gold-for-gold.

Figure 1: Schematic diagram of gold flows in China



4 Large gold miners and a number of base-metals producers have their own refineries.

5 Kadence, 1,000 Chinese consumers, Q2 2014.

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- **Trade data: There are two issues which cloud the picture of gold flows into China.** The first is that data are limited. Mainland China does not publish its own trade statistics so analysts rely on other sources, such as trade data from the Hong Kong Census and Statistics Department. In addition, there is little publicly available information on direct flows into mainland China, such as to Shanghai and more recently Beijing, although this has improved as other countries have started providing more trade data.[6] The second point is that gold flows are not always pure gold. Trade data includes gold jewellery, semi-manufactured products, scrap, doré, and concentrates. Non-bullion gold imports can be mis-labelled too. Shipments can include other metals recorded under a gold-related Harmonised System (HS) code.[7] So while import data are very useful, they need careful interpretation and should not necessarily be taken at face value.

  The issue of 'round-tripping' is often raised when analysing imports into China. This is where a stock of gold flows in a loop between Hong Kong and mainland China to exploit arbitrage opportunities.[8] These arbitrage opportunities can arise from differences in interest, exchange or tax rates. This is an interesting part of the market, but mostly serves to inflate gross trade figures, rather than affecting China's end-user demand. Analysing net imports from Hong Kong to mainland China helps cut through this issue and provides better guidance on the total supply of gold into mainland China. As reported in *China's gold market: progress and prospects* and in GFMS, Thomson Reuters' *Gold Survey 2014*, 'round-tripping' *may* flow through the SGE and could be captured in the Exchange's delivery figures. While this might happen, we believe there are frictions which would limit it, not least that the costs associated with processing bars through the SGE – for example, transaction, transportation, and insurance fees – would erode some of the arbitrage profit round-trippers are seeking.

  We have purposely excluded smuggling from this schematic. While gold may be smuggled into the country, it is equally likely that it is smuggled out. China's neighbours include India and Vietnam, two large gold markets with porous borders and high domestic premiums over the global gold price. Gold smuggling is especially opaque and beyond the scope of this analysis, but we have previously commented that we believe gold smuggled into India in 2013 was around 150-200 tonnes (t), some of which may have come via China.

- **Gold flowing into China does not automatically go to the SGE:** Importing banks will often store gold on consignment before it is sold on the Exchange, and Shenzhen-based jewellery manufacturers with the necessary import/export licences will typically import and export gold without it going via the SGE.

The SGE plays a key role in China's gold market.
The SGE – a non-profit membership organisation – is the central hub through which the vast majority of gold in China flows, including imports, refined scrap and domestic mine production.[9] It also offers favourable tax treatment: gold sold on the Exchange is not subject to value-added tax (VAT).

Its mandate is broad, including facilitating gold, silver and platinum trades, organising deliveries, supervising and monitoring warehouses, collating and distributing market information and connecting the domestic and international gold markets. Importantly, gold which has been withdrawn from the SGE cannot be sold directly back to the Exchange by private investors or non-SGE members – it first needs to be re-cast into a new bar. This ensures gold on the Exchange maintains its high quality, meeting the rigourous standards set by the Exchange. Because of the SGE's importance in the Chinese gold market, its monthly delivery figures are closely watched.

6 For example, in January 2014 the Swiss Federal Council started publishing gold trade data on a country-by-country basis.

7 The Harmonised System is an international nomenclature for the classification of products. It allows participating countries to classify traded goods on a common basis for customs purposes. At the international level, the Harmonised System (HS) for classifying goods is a six-digit code system.

8 GFMS, Thomson Reuters estimate round-tripping in 2013 was in excess of 360 tonnes, *Gold Survey*, 2014

9 Not all recycled gold goes through the SGE. In some instances large fabricators may refine and recast gold themselves, without passing it on to a refinery.

Data on the supply of gold to China does not paint a clear picture...
The supply side of the market can be viewed from a few angles, including analysing trade flows and domestic supply, or looking at the SGE's delivery figures. Estimating total supply[10] since 2009 provides a figure of 5,150t. This differs from the cumulative SGE deliveries figure of 5,811t. What accounts for this difference?

Given the complexity of the market there could be many reasons, but the most likely explanation is that the SGE delivery figure includes the flow of recycled gold-for-gold as well as gold-for-cash. As explained previously, while recycled gold-for-gold will increase supply and demand, the net effect is market neutral. For this reason, demand and recycling estimates as reported in *Gold Demand Trends* and GFMS, Thomson Reuters' *Gold Surveys* exclude recycled gold-for-gold. But because the structure of the Chinese gold market requires refined and recast recycled gold to be sold through the SGE, it is likely the delivery figure captures this circulation of recycled gold-for-gold.

In addition, as will be explained in the following section, China's banks have developed an innovative range of banking and investment products and services, including providing corporates and individuals the ability to lease gold and pledge gold as collateral. These transactions can be filtered through the Exchange and, if the gold is withdrawn, would be captured by the SGE delivery figure.[11] As an indication of how this market has grown, in April 2014 the SGE reported gold leasing totalled 1,103t in 2013, growing from less than 30t in 2007.[12]

...not least because China exports gold.
It is well documented that mainland China is a net importer of gold. In addition, bullion exports are prohibited. There is, however, scope for mainland China to export gold in other forms, for example jewellery or semi-manufactured products, to destinations other than Hong Kong.

As discussed previously, import and export data should not be taken at face value; rarely do they provide the complete picture and often need to be triangulated with other information to gain a more thorough understanding of their contribution to gold demand. But they can provide useful insights. For example, Global Trade Information Services allows us to review the gold trade balance between mainland China and the rest of the world.[13] These data reveal that since 2009, while mainland China has been a net importer from Hong Kong, Australia and Switzerland, it has been a net exporter to Indonesia, Taiwan and India. That there are gold exports to places other than Hong Kong is something which should be factored in when thinking about gold flows in China.

10 GFMS, Thomson Reuters' mine production and scrap data + Hong Kong Census net exports + an assessment of direct flows into China.

11 For example, ICBC's customers of its Physical Gold Leasing scheme can trade or withdraw gold via the Shanghai Gold Exchange and Gold Pledging customers can register a gold pledge via the SGEs member service or at ICBC repurchase outlets.

12 Metals Focus, *Precious Metals Weekly*, Issue 48.

13 Including HS codes: 710811, 710812, 710813, 710820, 711319, 711890.

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Section 2: Assessing China's end user demand since 2009

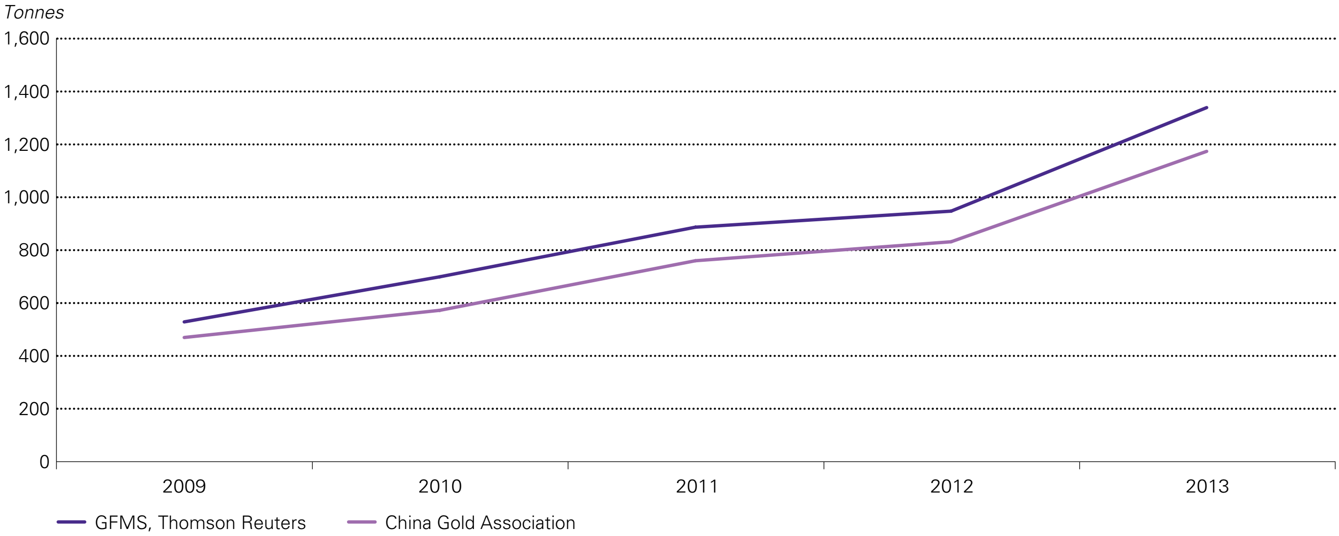
Gold is woven into many parts of Chinese society, so it is not surprising that demand is spread across many sectors. This section assesses private (defined as jewellery, bar and coin, and technology demand), jewellery trade, financial and official sector demand.

Bar and coin, jewellery and technology demand has boomed over recent years...
Jewellery, bar and coin, and technology demand account for around 84% of gold supplied to mainland China's gold market.[14] For a closer look at the estimates that are produced for bar and coin, jewellery, and technology fabrication demand,[15] we will examine two of the most well-known data sources: GFMS, Thomson Reuters and the China Gold Association[16] (CGA) (**Chart 1**).

The data collection methodology used by GFMS, Thomson Reuters and the CGA may differ, giving rise to slightly different estimates. But regardless of the methodology used, the trend is clear: jewellery, bar and coin and technology demand have seen significant growth over recent years. That is the key message that observers of Chinese gold demand have drawn: gold consumption in China has soared and, as explained in *China's gold market: progress and prospects*, is expected be at least 20% higher by 2017.

...and as jewellery demand has soared, the jewellery supply chain has expanded.
As consumers have become wealthier, jewellery demand in China has increased; between 2009 and 2013 the nominal value of gold purchased increased from RMB80bn to RMB228bn (**Chart 2**). As a result the jewellery sector has expanded.

Chart 1: Gold demand has soared*



*Including jewellery, bar and coin, and technology fabrication demand.
Source: China Gold Association; GFMS, Thomson Reuters

14 Cumulative GFMS, Thomson Reuters' demand since 2009 (4,334t) as a percent of cumulative Thomson Reuters' mine production and scrap data + Hong Kong Census net exports + an assessment of direct flows into China (5,150t).

15 Fabrication is the first transformation of gold bullion into a semi-finished or finished product. Consumption demand is equal to fabrication plus or minus imports or exports and stocking or de-stocking in the supply chain.

16 Established in November 2001 the CGA plays an active role in China's gold industry. It acts as a bridge between the Chinese government and gold producers in protecting business interests and providing information, consultancy, co-ordination and intermediary services.

New retail outlets have been rolled out across China's more than 600 Tier 3 and Tier 4 cities and there are now over 100,000 jewellery stores. The supply chain feeding the industry has grown too. Shenzhen, China's major gold fabrication hub, now has around 3,600 jewellery corporations and another 5,000 registered self-employed individual jewellers.[17]

As the supply chain expanded, so did the amount of gold being demanded at the wholesale level, as each additional retail outlet or manufacturer held a small level of inventory to meet demand. As indicative analysis, we have considered the change in gold inventory at Luk Fook and Chow Sang Sang, two of China's largest publicly listed jewellery retailers.[18] Assuming all of their stock by value is gold, their gold inventories increased by about 30t between 2009-2013.

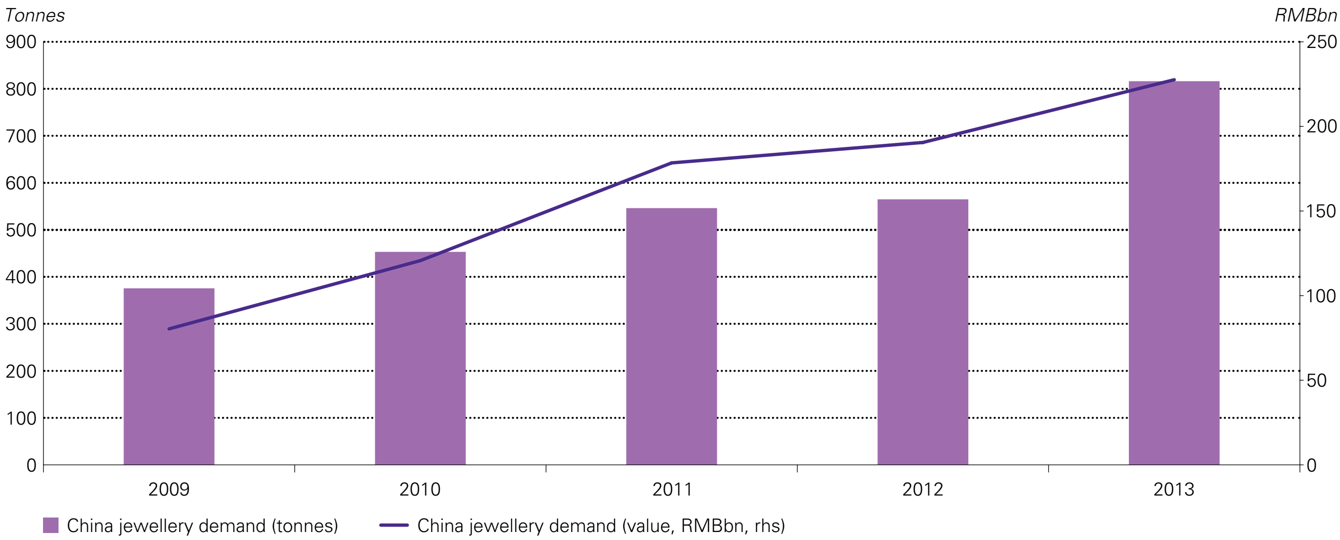
Inventories will, however, include other high-value materials, such as platinum, silver, diamonds and other gem stones. Some items in jewellers' inventories may also include a mark-up. The sample we have looked at is small – less than 5% of the entire jewellery industry by value[19] – and may not be representative of the entire industry. It is, however, indicative that as jewellers expanded, so too did their inventory levels and it is our judgement that across the industry between 75t to 125t may have been absorbed in the supply chain since 2009.

Gold as an investment asset and the expanding fabrication industry has resulted in China's banking system increasing the provision of gold-related investment and banking products.

Gold is synonymous with money in Chinese culture and has been a preferred form of savings for generations, so it is not surprising that it has become an increasingly important part of the financial system. Most large banks in China offer savers the opportunity to buy gold bars and coins. Agricultural Bank of China promotes its *Chuan Shi Zhi Bao* bars, Industrial and Commercial Bank of China (ICBC) has its *Ruyi Gold* brand and the Bank of China has sold bars depicting the animals representing the Chinese years of the Zodiac.

Inspired by GaveKal Dragonomics research,[20] we have analysed the changes in the amount of precious metals on the balance sheets of seven of the largest banks in China between 2009 and 2013.

Chart 2: China's jewellery demand trebled in value between 2009-2013



Source: GFMS, Thomson Reuters; The London Gold Market Fixing Ltd; Thomson Reuters Datastream; World Gold Council

17 Shenzhen Gold and Jewelry Association.

18 Although Luk Fook and Chow Sang Sang are headquartered and listed in Hong Kong, they have a significant presence in mainland China.

19 Euromonitor, *Jewellery in China*, December 2013.

20 China Update, *Identity of mystery gold buyer revealed*, April 2014.

Over this period the value of precious metals on banks' balance sheets grew. In the sample we examined the total value increased by RMB 268bn, mostly driven by expanding precious metals business lines (**Chart 3**).

How much of this is gold? If the entire amount were gold, banks would hold around 1,455t on their balance sheets, an increase of around 1,150t over this period, with the largest spurt of growth coming in between 2012 and 2013. It is, however, unlikely to be all gold. We know, for example, that since 2009 silver has also become popular with investors. Using the ratio of SGE and Shanghai Futures Exchange trading values of gold and silver as a proxy for the split of precious metals exposure on banks' balance sheets, the amount of gold could be closer to 500t and the growth would have been 200t since 2009. It is also worth noting that gold held on banks' balance sheets need not represent physical gold based in China; it could include gold positions held in the London over-the-counter market or positions in the paper market.[21]

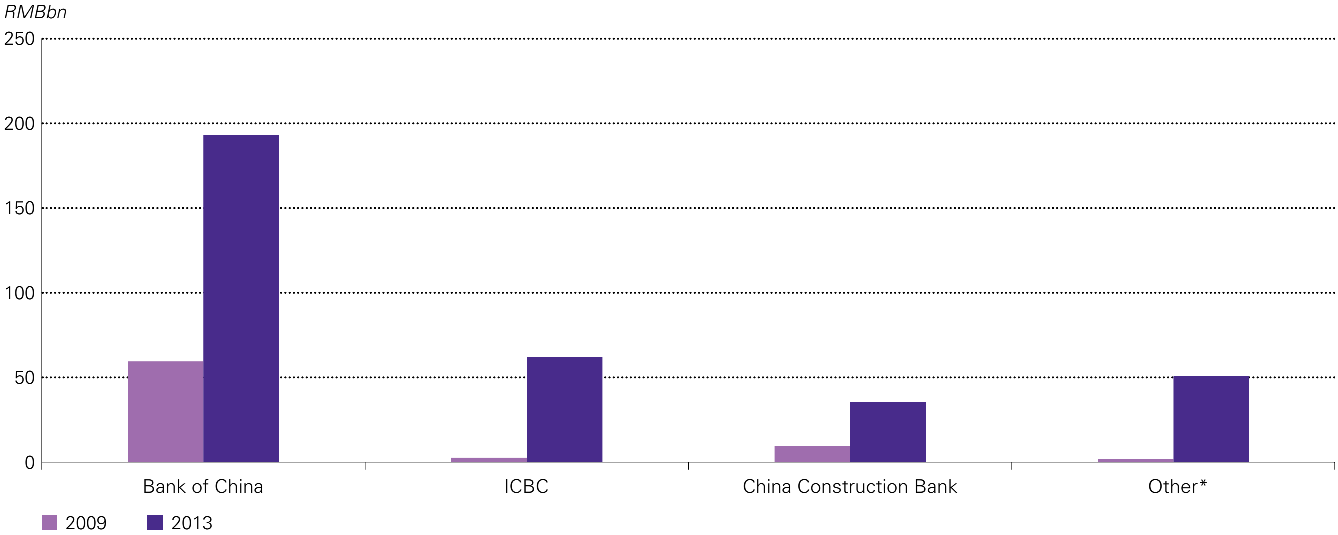
These methods of estimating the amount of gold on China's banks' balance sheets are fallible, but given the lack of granular information, they are helpful in providing a range estimate. It is our judgement that the amount of gold on China's banks' balance sheets has increased between 400t and 600t since 2009.

The next question is how is gold used in China's banking system? Following the authorities decision allowing private investors to buy gold bullion in 2004, the Chinese banking industry has developed the supply side infrastructure to support gold demand and created an innovative range of gold products.

- **Inventory:** Banks with import licences are responsible for most of the imports into China, and they use their balance sheets to fund a certain level of inventory to meet demand.
- **Gold Accumulation Plans:** We know that banks have been active in developing gold-related products to tap into Chinese investors' appetite for gold, the most prominent example being Gold Accumulation Plans (GAP). ICBC launched China's first GAP in 2010, and over recent years others have followed suit. Four other banks now offer gold accumulation plans: Bank of China, Agricultural Bank of China, Guangfa, and Bank of Communications.

  Data on the tonnage accounted for by GAP accounts are not publicly available, but it is our judgement that they could hold between 100t and 200t. These data are not captured in GFMS, Thomson Reuters estimates of Chinese investment demand. Rather, they fall into its Net Balance estimate, or the *OTC investment and stock flows* estimate as reported in *Gold Demand Trends*.

Chart 3: China's banks have innovated and gold exposure has increased



*Other comprises Agricultural Bank of China, Pudong Development Bank, Ping An Bank and China Merchants Bank.

Source: Bloomberg; Company Reports; Gavekal Dragonomics; The London Gold Market Fixing Ltd; World Gold Council

21 For example, page 57 of *Agricultural Bank of China's 2013 annual report* states that it "fulfilled the demand of customers... [on the]... Shanghai Gold Exchange, Shanghai Futures Exchange and London precious metals market."

- **Structured products:** Banks' treasury departments have developed structured products related to physical gold. These have been marketed to both high net worth investors and companies.[22]
- **Gold trading:** Most of China's banks trade gold on a proprietary basis on the SGE and, via Agency Gold Trading, banks offer access to the SGE trading platform to retail investors and fabricators.
- **Custody:** Banks vault gold on a custodian basis for customers with physical gold holdings, including fabricators and investors.
- **Gold as collateral:** Banks take gold as collateral for loans. This service is designed to increase the liquidity of precious metals. Gold, platinum and silver are all eligible to be pledged as collateral, providing they meet minimum criteria. For example, the metal needs to be delivered to the SGE and pass key quality standards. These are often marketed to companies and individuals and typically have a term of one year.
- **Gold leasing:** Banks also lend gold. The borrowers tend to be fabricators, as borrowing ensures they have immediate access to gold to meet demand and it is an effective way for firms to leverage banks' balance sheets to fund their businesses.

  Importantly, this facility is not open to all customers. Prospective borrowers are typically a business in the gold industry, such as a jewellery fabricator. The rules identifying eligible borrowers were tightened in 2013 as the authorities looked to rein in credit expansion.

It is clear that China's banks have been active in developing a wide range of gold-related businesses – both for private individuals and companies – and the breadth of products and services they offer has grown over recent years. This has increased the level of liquidity in the market which is a necessity for any sophisticated financial market. This is not unique to China. Gold plays an important role in other countries financial sectors too, for example Turkey.[23]

22 For example, ICBC's "Ruyi Gold" Compounded Wealth Management Product.

23 In Turkey the central bank allows commercial banks to use gold to satisfy part of their reserve requirements. This has resulted in commercial banks developing an impressive array of gold products, such as gold deposit schemes, gold backed credit cards, gold-linked structured products and gold loans.

The growth of gold demand in China has been supported by policy decisions...

China's authorities have been instrumental in supporting the growth of the domestic gold market. The creation of key gold market institutions – such as the CGA and SGE – and steady liberalisation of the market has helped support and promote gold demand in China. Recent developments such as the SGE's plans to create a gold trading platform for international institutions in the Shanghai Free Trade Zone indicate the market is well positioned for continued growth and development.

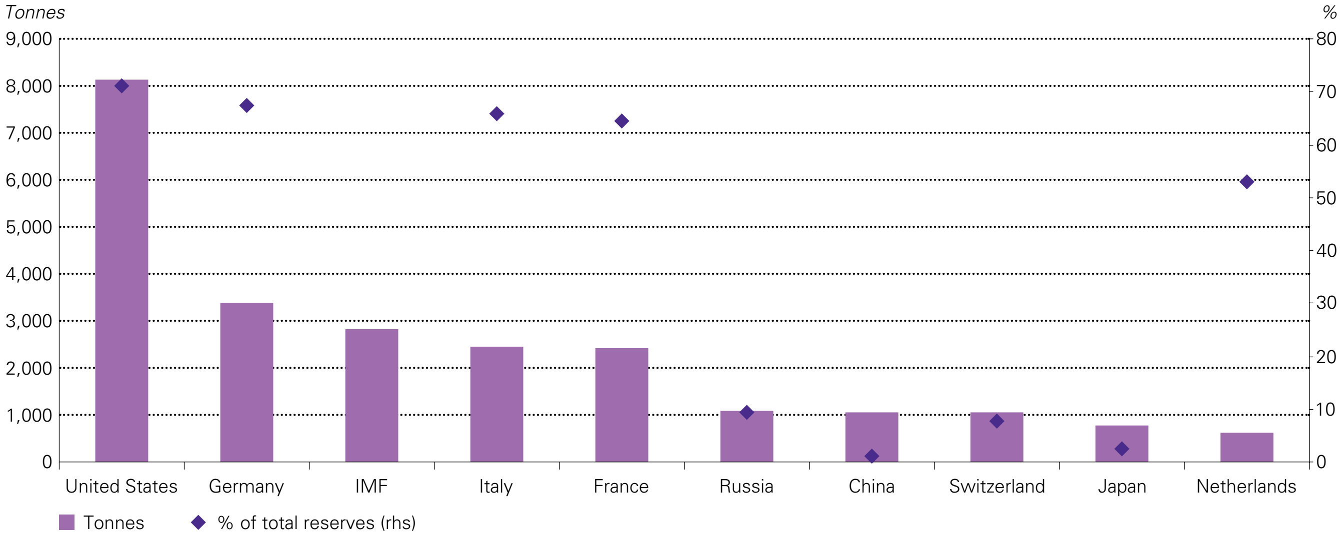
...and probably purchases too.

Beyond that, there has been much speculation that Chinese authorities – including its central bank and other State institutions – may have purchased gold over recent years. For example, the People's Bank of China (PBoC) last announced an increase in its gold reserves in 2009 to 1,054t (**Chart 4**). Since then and, in the absence of any hard data, the combination of Chinese policy makers' gold-positive messages, flows of gold into China, and China's outsized foreign exchange reserves have led many to believe that the Chinese authorities have been adding to the amount of gold they hold.

China's authorities have a range of options when purchasing gold. They may acquire some of the gold which flows into China; there has been no shortage of that. But there are reasons why they may prefer to buy gold on international markets: gold sold on the SGE is priced in yuan and prospective buyers – for example, the PBoC with large multi-currency reserves – may rather use US dollars than purchasing domestically-priced gold. The international market would have a lot more liquidity too.

Analysts' estimates of China's official gold holdings are quite broad, but most expect that if the PBoC makes an announcement its gold holdings will have increased by at least 500t. An increase in its gold holdings would be in line with past activity and consistent with the trend of other emerging market central banks adding to their gold holdings.

Chart 4: As a percentage of total reserves, China's gold holdings are low



Note: Data as of May 2014.

Source: IMF International Financial Statistics; The London Gold Market Fixing Ltd; World Gold Council

Summary

China has become a key driver of global gold demand, and the continued shift of gold from West to East in 2013 propelled it to become the world's leading gold consuming nation, having already become the number one gold producer in 2007.

Because of its size, China is the focus of much attention, but analysis of its gold market has particular challenges: the interaction of gold flows is complex and there are certain nuances which affect data. This note hopefully provides additional context to these issues.

Nonetheless, data from both GFMS, Thomson Reuters and the China Gold Association reinforce the strength of consumer demand. Due to the strong consumer demand for gold, jewellers have expanded their retail networks and increased the volume of stock they hold. Beyond that, gold has become an increasingly significant part of China's financial system. Banks have increased the number of gold products they offer savers, investors and borrowers and many analysts believe that the Chinese authorities have added to their gold holdings too. **Tables 1** and **2** present a summary of our key findings relating to China's gold demand and supply between 2009-2013.

Table 1: Summary of China's cumulative gold demand: 2009-2013

Source of demand	2009-2013 (t)
Jewellery[24]	2,755
Bar and Coin[25]	1,257
Technology[26]	322
Jewellery sector: inventory	75-125
Banking sector: banks' balance sheets	400-600
Official sector	500 plus

Table 2: Summary of China's cumulative gold supply: 2009-2013

Source of supply	2009-2013 (t)
Mine production[27]	1,897
Recycling (gold-for-cash)[28]	666
Net Imports via Hong Kong[29]	2,086
Net Imports via mainland China	500
Total	**5,150**

Note: World Gold Council estimates where no footnote is provided.

24 GFMS, Thomson Reuters.

25 Ibid.

26 Ibid.

27 Ibid.

28 Ibid.

29 Hong Kong Census and Statistics Department.

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About the World Gold Council

The World Gold Council is the market development organisation for the gold industry. Working within the investment, jewellery and technology sectors, as well as engaging with governments and central banks, our purpose is to provide industry leadership, whilst stimulating and sustaining demand for gold.

We develop gold-backed solutions, services and markets based on true market insight. As a result we create structural shifts in demand for gold across key market sectors.

We provide insights into international gold markets, helping people to better understand the wealth preservation qualities of gold and its role in meeting the social and environmental needs of society.

Based in the UK, with operations in India, the Far East, Europe and the US, the World Gold Council is an association whose members comprise the world's leading gold mining companies.

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