

Alchemist

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EDITORIAL

BY ANDY QUINN, NON-EXECUTIVE DIRECTOR, LBMA



If 2018 was a momentous year for LBMA, then 2019

promises to be equally historic on several fronts, even discounting the effect of Brexit which, for good or bad, may have an enormous impact on financial firms operating in London.

Firstly, the Bank of England is celebrating the 325th anniversary of its foundation this year and, secondly, the global OTC gold market will celebrate the centenary of the first London Gold Price. LBMA will be marking this occasion with a number of events during the year which you can read more about on page 22.

When I joined the Board of LBMA in 2016 as one of the first two Non-Executive Directors, I was a director of Randgold Resources and a retired investment banker and mining engineer. I'd heard vaguely of LBMA, of course. Who in the broader gold-mining industry hadn't? But I really knew little about the OTC gold market, or the role and unique position of LBMA within it. Why should I? I'd either dug the stuff up and delivered it to a refiner, or I'd advised gold-mining companies on transactions and, like them, never had to worry about the OTC market. The gold and silver mining industry is unique in that it doesn't have to think about marketing its product. It sells at the mine gate and someone else has to worry about the cost and logistics of marketing the product. What other segment of the mining industry can get away with not investing in the selling process, relying on someone else to do it?

Even the concept of the integrity of the operation of the gold market and responsible sourcing is lost on some miners. However, this is short-sighted. When something goes wrong at any point in the supply chain between mine and necklace or mobile phone, some wrong-doing, scandal or fraud,

the whole industry pays for it – either through increased regulatory oversight, higher costs, lower prices from lower demand, legal action or substitution. And the impact on communities that rely on mining gold responsibly can be catastrophic.

So if the reputation of the gold industry affects everyone in the industry, we need to address these issues together. This is why we launched our Responsible Sourcing Programme in 2012. LBMA Responsible Sourcing provides a credible, industry wide solution to the growing requirements of downstream customers. And these customers range from giant software and hardware consumer companies, to jewellery chains and banks, all of whom are responding to demands to guarantee the integrity and ethical sourcing of their supply chain. Version Eight (V8), which went into effect in January 2019, now extends that programme to Environmental, Social and Governance (ESG) issues.

This should not result in more work for most of the large scale miners as many of them are already going above and beyond these

requirements. For those responsible miners, it is merely providing them with a toolkit which formalises a process that most of them already undertake and report on, and if they don't then they should, as part of their ESG reporting. The artisanal

and small-scale miners toolkit is based on the Responsible Artisanal Gold Solutions Forum Group self-assessment form to ensure it is fit for purpose.

2019 is a year of implementation, so refiners are expected to ensure that the final systems are in place by the end of the year, prior to the first audits which will come in 2020. V8 supports the aims and objectives of LBMA to support our industry as a whole and enable it to demonstrate the integrity which is at the heart of what we do. LBMA cares passionately about everything related to our industry and performs an essential role that no single part of the supply chain can perform on its own. It does this through agreed adherence by the members to its *modus operandi* and rules.

SO IF THE REPUTATION OF THE GOLD INDUSTRY AFFECTS EVERYONE IN THE INDUSTRY, WE NEED TO ADDRESS THESE ISSUES TOGETHER.

LBMA IS SIMULTANEOUSLY THE VOICE, THE LOBBYIST, THE REGULATOR, THE RULE-MAKER AND THE EDUCATOR.

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Front cover - Oesterreichische Nationalbank (OeNB), the Central Bank of Austria.

LBMA is simultaneously the voice, the lobbyist, the regulator, the rule-maker and the educator. And it does what it does on a shoestring budget. I have watched it become a much more outward-facing organisation. It achieves so much, so professionally, on behalf of its members, but also for the whole industry, without a good proportion of that industry, the upstream producers, even knowing about it.

So as a New Year's resolution, let's try and change that. We have encouraged central bank participation and exchange membership. Let's now encourage the mine producers to join LBMA and be part of the process of ensuring

the integrity of our entire industry.

The very largest producers to the very smallest all benefit from the work of LBMA. This is not a call to replace any other producer organisation, each of which plays an important role, but to encourage the development of a membership that would truly allow LBMA to

rightly claim that it represents an entire industry and all its participants.

Andy Quinn



OeNB's Gold Strategy in an Encompassing Reserve Management Context

BY PETER MOOSLECHNER, BOARD MEMBER
AND FRANZ PARTSCH, DIRECTOR OF THE TREASURY DEPARTMENT,
OESTERREICHISCHE NATIONALBANK

*“Toward Gold Throng all,
To Gold Cling all,
Yes, all!”¹*

INTRODUCTION

From a central bank and monetary policy perspective, the role of precious metals, and in particular of gold, is special compared to other traditional reserve assets such as government bonds. This has become particularly visible over the last decade once again, when the financial crisis of 2007/2008 significantly shaped financial market developments and economic policies at the same time. Oesterreichische Nationalbank (OeNB), the Central Bank of Austria, has, like many other central banks, quite recently revisited its gold management strategy. In this article, we will outline some background information regarding gold reserves management and the main aspects of OeNB's current gold management strategy.

OeNB'S GOLD RESERVES IN A HISTORICAL PERSPECTIVE

Gold has always played a very special role for OeNB as part of its reserve assets. Of the 78.2 tons of gold confiscated by the Deutsche Reichsbank in 1938, 50.1 tons were returned after the war. Austria's

official gold reserves have increased significantly since World War Two, due to the country's economic success and the respective current account surpluses the Austrian economy has generated.

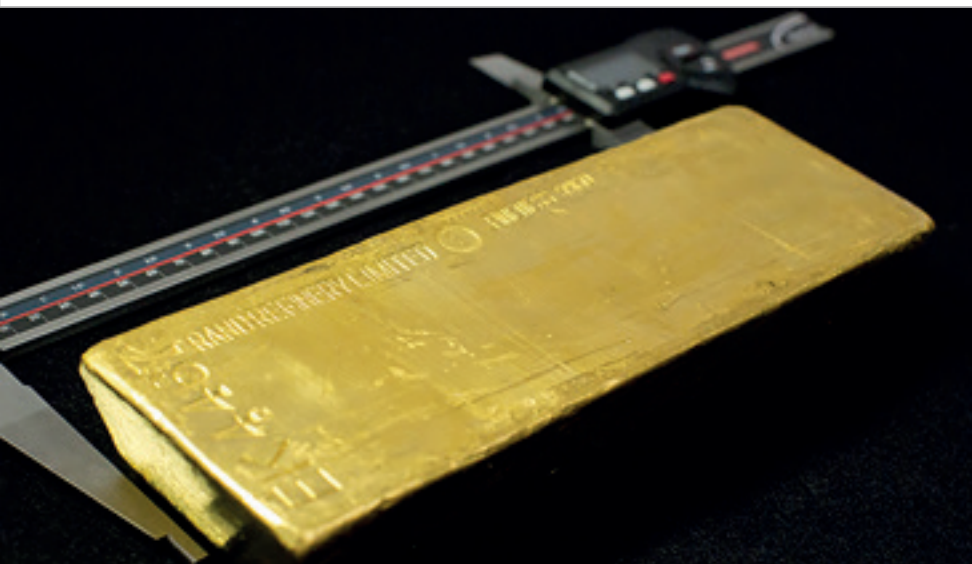
In addition, under the Bretton Woods system, gold reserves played an important economic role as a core element of the International Monetary System. For a small, open economy like Austria, gold reserves became even more important after the breakdown of the Bretton Woods system, when they became essential liquid assets and an economic policy buffer in an increasingly uncertain and liberalised financial market environment. Given Austria's currency peg to the Deutsche mark, which was in place for more than 20 years, effective currency reserve management was one of the cornerstones of Austria's economic policy success during this period. In the 1980s, OeNB's holdings of gold reserves peaked at some 657 tons, providing a significant factor to make this ambitious currency peg sustainable.

This situation fundamentally changed with the creation of the euro and the Eurosystem, with the European Central Bank (ECB) at its centre. For a small country with an open economy, this change not only brought the integration of its monetary policy into a much larger currency area, but at the same time, OeNB no longer had to defend a national exchange rate. In the 1990s, OeNB's gold holdings decreased, as around 22 tons were transferred to the ECB and,



SINCE 2007, OeNB'S
GOLD HOLDINGS HAVE
HELD CONSTANT AT
280 TONS

1. J.W. von Goethe (1808), translated by G. M. Priest (1952)



OeNB'S GOLD MANAGEMENT APPROACH

OeNB reviews its gold management strategy on a regular basis. The main drivers of former reviews were OeNB's overall risk management framework, gold market conditions (e.g. gold lease rate), OeNB's corporate strategy regarding the transparency of its reserve management, public interest in OeNB's management of its gold reserves and geopolitical considerations.

OeNB's gold management strategy covers two interlinked areas: firstly, OeNB's gold management approach covering the principles of gold management (liquidity, security and profitability), approved gold transaction types, as well as risk management guidelines, and secondly, OeNB's gold storage policy.

OeNB'S GOLD MANAGEMENT STRATEGY

Central bank reserve asset management traditionally follows a multi-objective approach including liquidity, security and profitability. Amongst central banks, there is a variation in the relative importance of these three principles depending on their gold management strategy and the macroeconomic environment they operate in. Similar to the majority of the other reserve assets, OeNB's gold reserves are managed based on three principles: liquidity, security and profitability, with liquidity and security being the primary objectives.

Reserve assets such as gold require a high degree of liquidity, i.e. they need to be available quickly and also without restrictions at times when market conditions are difficult. The gold market has proven to be highly liquid, even during periods of severe market stress. Moreover, gold as part of the overall asset allocation can help to reduce balance sheet risk due to its correlation with other traditional reserve assets.

Security represents another important objective in OeNB's gold management strategy.

in addition to that, OeNB sold part of its gold reserves. In parallel with the newly created monetary intervention power of the Eurosystem, the stance of this much larger economic area toward exchange rate developments became less important. Under these conditions, the policy regarding OeNB's gold reserves has significantly changed. Consequently, OeNB, like several other central banks, restructured its foreign exchange reserves as well as its gold holdings in preparation for the entry into monetary union.

Since 2007, OeNB's gold holdings have held constant at 280 tons, currently representing about 48% of OeNB's foreign exchange reserves.

THE CHANGING ROLE OF GOLD AS A RESERVE ASSET

Generally, gold reserves can be held in the form of physical gold or non-physical gold. Central banks tend to hold the majority of their gold reserve assets in physical form, i.e. gold bars. The Good Delivery Rules of London Bullion Market Association (LBMA) define a set of rules for gold and silver bars. These specifications include minimum standards relating to the fine ounce weight, the purity as well as the physical appearance for gold bars.

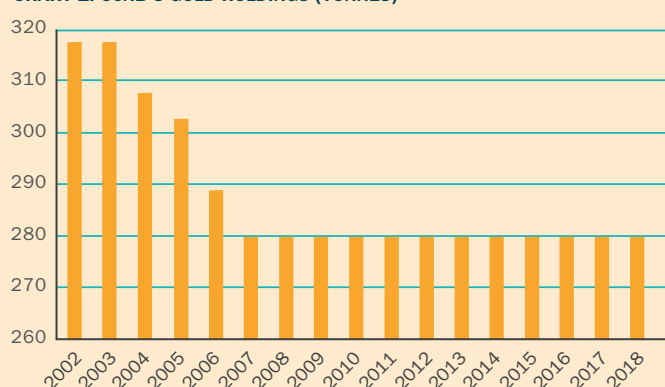
In order to guarantee a high degree of marketability of their gold reserve assets, many central banks hold gold bars which satisfy the Good Delivery Rules, i.e. Good Delivery (GD) bars. However, due to historical developments, some central banks also hold gold reserve assets in the form of non-GD bars, gold coins or other gold assets. In the process of increasing the marketability of their gold holdings, central banks can refine their gold assets, e.g. by using a gold refinery which is on LBMA's Good Delivery List.

Gold has traditionally served, and continues to serve, as an important store of value, allowing central banks to diversify their reserve assets. What makes gold very interesting as a reserve asset is primarily its low correlation with other traditional reserve assets, so it makes a good diversifier in a portfolio of FX reserves.

This feature, we think, is in principle still valid in modern times and, therefore, we think that gold plays an important role in FX reserves today. Hence, gold also represents a key reserve asset for OeNB.

OeNB'S GOLD RESERVES ARE MANAGED BASED ON THREE PRINCIPLES

CHART 1: OeNB'S GOLD HOLDINGS (TONNES)



Traditional gold reserves in the form of bars represent a tangible asset without credit and counterparty risk. Due to its unique reserve asset characteristics, gold reserves require a specific security and risk management framework. OeNB's focus on security is underlined by its detailed gold storage policy described below.

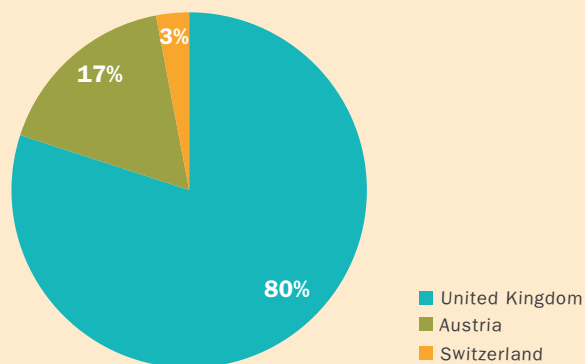
The objective of profitability has a lower relative importance compared to liquidity and security. In general, OeNB aims to implement a cost-effective storage policy without compromising its primary objectives. In a market environment supporting gold-lending transactions, OeNB has the option to use these transactions in order to cover storage costs or even to make a profit.

OeNB'S GOLD STORAGE POLICY

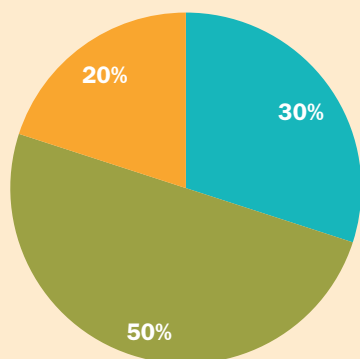
With liquidity and security being OeNB's primary strategic objective within the strategic gold management framework, the gold storage policy plays a central role within OeNB's gold management approach.

CHART 2: OeNB GOLD STORAGE POLICY

FORMER GOLD STORAGE POLICY - 31 DEC 2014



NEW GOLD STORAGE POLICY



OeNB's gold storage policy defines several criteria which have to be fulfilled in order for a central bank to qualify as an eligible storage facility for OeNB's gold reserves. Gold reserves are only stored with central banks located in countries with stable democratic and economic structures. These countries, and consequently their central banks, need to follow the highest legal standards guaranteeing sovereign immunity rights of OeNB's reserve assets. The storage facilities need to apply the highest security standards as OeNB does for domestically stored gold reserves. The selection of countries and partner central banks takes into consideration a sufficient degree of diversification of OeNB's storage facilities. This diversification supports the principles of diligence and prudence in the conduct of business, and the mitigation of



risks from substantial crisis situations, e.g. environmental disasters, radioactive accidents or acts of war, and perhaps most important nowadays, terror attacks. Within the contractual framework, each storage facility has to guarantee access for OeNB's employees and auditors for regular examinations of OeNB's gold holdings. Moreover, the marketability of OeNB's gold reserve assets for monetary policy purposes is a key element of the overall geographic composition of gold storage facilities selected.

For example by the end of 2014, OeNB held around 80% of its gold reserves in the United Kingdom, around 17% in Austria and around 3% in Switzerland (see Chart 2). Following a review of its gold management strategy and storage policy, and given the change in the framework conditions described above, OeNB adopted a new gold storage policy in 2014. By 2020 at the latest, half of OeNB's total gold reserves (280 tons), are to be stored in Austria. The 140 tons remaining in custodian storage abroad will be divided between the United Kingdom (an estimated 84 tons) and Switzerland (an estimated 56 tons). Alongside other strategic considerations, this policy currently represents an optimal trade-off between diversification and liquidity.

The main reasons for changing the gold storage policy were multifaceted. Firstly, OeNB took into account recent developments in the international management of gold reserves. These developments included a shift towards domestic storage of official institutions'

gold reserves, for example by the Bundesbank, and an overall increase in transparency concerning specifically gold reserve assets. In Austria, OeNB also observed a significant increase in public interest in OeNB's management of its gold reserves. Besides numerous media reports, OeNB received more than 50 inquiries from different political parties of the Austrian Parliament. Therefore, OeNB decided to increase the transparency with regard to its gold reserves.



**BY 2020 AT THE LATEST,
HALF OF OeNB'S TOTAL
GOLD RESERVES
(280 TONS), ARE TO
BE STORED IN AUSTRIA.**



Secondly, a significant change in market conditions in recent years, with rates for collateralised gold-lending dropping, led to a phasing out and temporary suspension of this transaction type due to risk-reward considerations. Thirdly, OeNB evaluated the concentration risk of its gold holdings and decided to increase the degree of diversification of its storage facilities.

DE NEDERLANDSCHE BANK, DEUTSCHE BUNDESBANK AND OeNB, PUBLICLY ANNOUNCED THAT THEY HAVE ALREADY IMPLEMENTED OR ARE IN THE PROCESS OF IMPLEMENTING NEW GOLD STORAGE POLICIES.

or are in the process of implementing new gold storage policies. The actual reasons for these adjustments are manifold and include an institutional change in the character of central bank reserves due to the creation of

OUTLOOK

The most recent developments in central banks' gold management included adjustments in their gold storage policies and an increase in transparency. Several central banks, e.g. De Nederlandsche Bank, Deutsche Bundesbank and OeNB, publicly announced that they have already implemented

the Eurosystem, a focus on a balanced mix of storage locations and consideration of an increased public interest in central bank transparency. These transparency initiatives included press releases concerning the progress in storage location adjustments, the publication of detailed gold bar lists, as well as the release of videos showing central banks' gold storage facilities. Going forward, central banks will have to continue to face the challenge of finding the right balance between (1) transparency, in order to sustain confidence in central banks' activities, and (2) confidentiality, in order to safeguard their gold holdings as an essential part of the reserve assets.



Peter Mooslechner became a member of the Governing Board of the Oesterreichische Nationalbank in 2013.

Born in 1954, he studied economics at the Johannes Kepler University (JKU) Linz, where he also received his doctoral degree in 1981. After having worked at the JKU, he held a research

position at the Austrian Institute of Economic Research, before he joined the OeNB in 1996, where he became Director of the Economic Analysis and Research Department in 1999. Peter Mooslechner represents the OeNB in numerous national and international bodies, has taught economics at a number of Austrian universities and has published extensively on a broad spectrum of economic policy issues.



Franz Partsch is director of the treasury department of Oesterreichische Nationalbank (OeNB).

He joined OeNB in 1990 and previously served as head of the treasury strategy division and head of the equity interest management division. He also held positions in the credit division as well as the

monetary statistics division. Before joining OeNB he worked as a credit analyst in a commercial bank. Franz Partsch holds a Master of Business Administration from Vienna University of Economics and Business Administration.

THE GLOBAL MACROECONOMIC OUTLOOK FOR 2019-2020

BY ADAM POSEN, PRESIDENT, PETERSON INSTITUTE FOR INTERNATIONAL ECONOMICS

A truncated and updated version of Adam Posen's keynote speech from the LBMA/LPPM conference in Boston, 28-30 October, 2018.

INTRODUCTION

There are four key developments to keep in mind for the coming two years of global economic developments. The first point is that we are shifting from a world of heavily correlated asset price movements to a world of extremely uncorrelated asset price movements, moving from financial risk to political risk. That is not going to go away. The second point is that this is a world that will likely reinforce a long-term negative productivity trend. I do not mean 'negative' in the sense that it would continue to decline, but in the sense that a low level of productivity would remain. This would have lasting implications, most of which are bad.

The third point is that economics is not a morality play and if you have an irresponsible government that is able to borrow in its own currency, such as the US, you can have a lot of stimulus and it will be effective for several years.

My view is that the risks of inflation are increasing, but the risk of the Fed accelerating rate hikes ahead of the 2020 US elections remains quite low. We are likely to have continued boom and no sharp monetary tightening. The final point is not to worry about emerging markets in general as a class, but to worry specifically about Latin America.

LARGE COMPANIES, MULTINATIONALS OR EVEN MEDIUM-SIZED COMPANIES ENGAGING IN LONG-TERM INVESTMENT IS THE MOST VULNERABLE THING.

THE SHIFT TO POLITICAL RISK

I will begin with the shift from economic risk to political risk. I wrote an article for Foreign Affairs a few months ago that some of you may have seen about the post-American world economy. Fundamentally what happens when the US turns isolationist and nationalist is that you stop getting as much stability provided or as many public goods. Those in emerging markets and those doing business in emerging markets are exposed. You also start seeing that all the very vast deregulatory ambitions and tax cuts that are being executed are more than offset because of the increased political interference in economic decisions.

This tends to show up not so much in the currency or the short-term stock market moves, although it can. This tends to show up not even in trade, because trade, in a sense, always gets through. If we have a world in which the US is withdrawing from the functionality of the World Trade Organization (WTO), and going around China, what you will have instead is a less efficient world. But people will move production elsewhere and countries not including the US will continue to use the WTO.

Where the slow-down comes and where the impact of this politicisation and withdrawal of US stability is first felt is in long-term investment. I forecast months ago, which several reports since have borne out, that foreign direct investment – by which I mean large companies, multinationals or even medium-sized companies engaging in long-term investment in new plants, mergers and acquisitions, creation of R&D facilities and so on – is the most vulnerable thing. That is indeed what we are seeing.

The global amount of foreign direct investment has gone down. The volume on net investment going to the US, meaning the amount flowing into the US minus the amount flowing out, has gone to nearly zero.



This is not a China-driven phenomenon. The balance of flows between the US and China in terms of foreign direct investment had not yet been hit as of the last quarterly data.

It is going to be getting worse on that front, too. It is a bad strategy, but the forecast which is much more important for you to realise is that the China-US trade war is likely to get much worse before it gets better.

Just as with Brexit in the UK, you cannot reverse course if there is not a major party or a major political movement that forces you to. The China-US trade war has backing across a wide range of the political spectrum.

PRODUCTIVITY GROWTH

The second issue is productivity growth. If you look at the data, in the West, which is all the rich countries including Japan, the rate of productivity growth has gone down markedly, not just due to the crisis. It started going down roughly in 2004. Importantly or revealingly, essentially everyone went down by the same amount. If you have a rank ordering of countries by their average annual total factor productivity growth, the ordering has essentially been preserved (with the exception, unfortunately, of the UK, which decided to move to the bottom of the rankings, excluding Italy).

When every advanced economy has a simultaneous productivity decline, that provides very strong prima facie evidence that this is technology driven. A variety of perspectives bring you to the conclusion that we just do not have the next big thing here. It is not idiosyncratic to one country, which means it is not a policy issue to be fixed. It started before the crisis, although the crisis

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made it worse. It started before the current protectionism and anti-investment politics, although that is going to make it worse as well.

This means that if you are thinking about inflation, things are going to be more difficult. Some of you are old enough to remember the mid-1990s. Alan Greenspan argued, wisely and successfully, that the decision-makers should hold off at the Fed raising rates at the time. He argued that they

should do this because there was a boom of technology and productivity underway, and when it slowed up, there would be more room for the economy to run hot. Right now, we are in a situation where we are seeing the reverse. This means that the economy has less room to run hot.

Along with many members of the Federal Open Market Committee (FOMC), I am of the school that wage increases in and of themselves are not necessarily inflationary, especially when there has been a huge build-up of cash reserved in companies. So you should not be certain that just because we see stronger wage increases that it will automatically lead to accelerated Fed action.

I think we have a genuine inflation risk with the coming together of all these short-term factors in the first half of 2019 – tariffs, fiscal push, some wage pressure and the possibility of oil supply interruptions. So there is some risk that there has not been up till now that the Fed could be forced to accelerate its pace in the second half of the year from the stately,

magisterial one-quarter-point rate adjustments. The risk is not huge, but approximately one in three, which is much higher than anything we have seen up until now.

EMERGING MARKETS

A month prior to the LBMA Conference, all the buzz would have been about the emerging markets crisis. Now, of course, that is yesterday's news. I will say that, at the time, I also thought that it was yesterday's news, yesterday. The idea that most emerging markets are in trouble simply because the Fed raises rates is just not well founded in the data. They have some difficulties but they also have some advantages, including having weaker currencies.

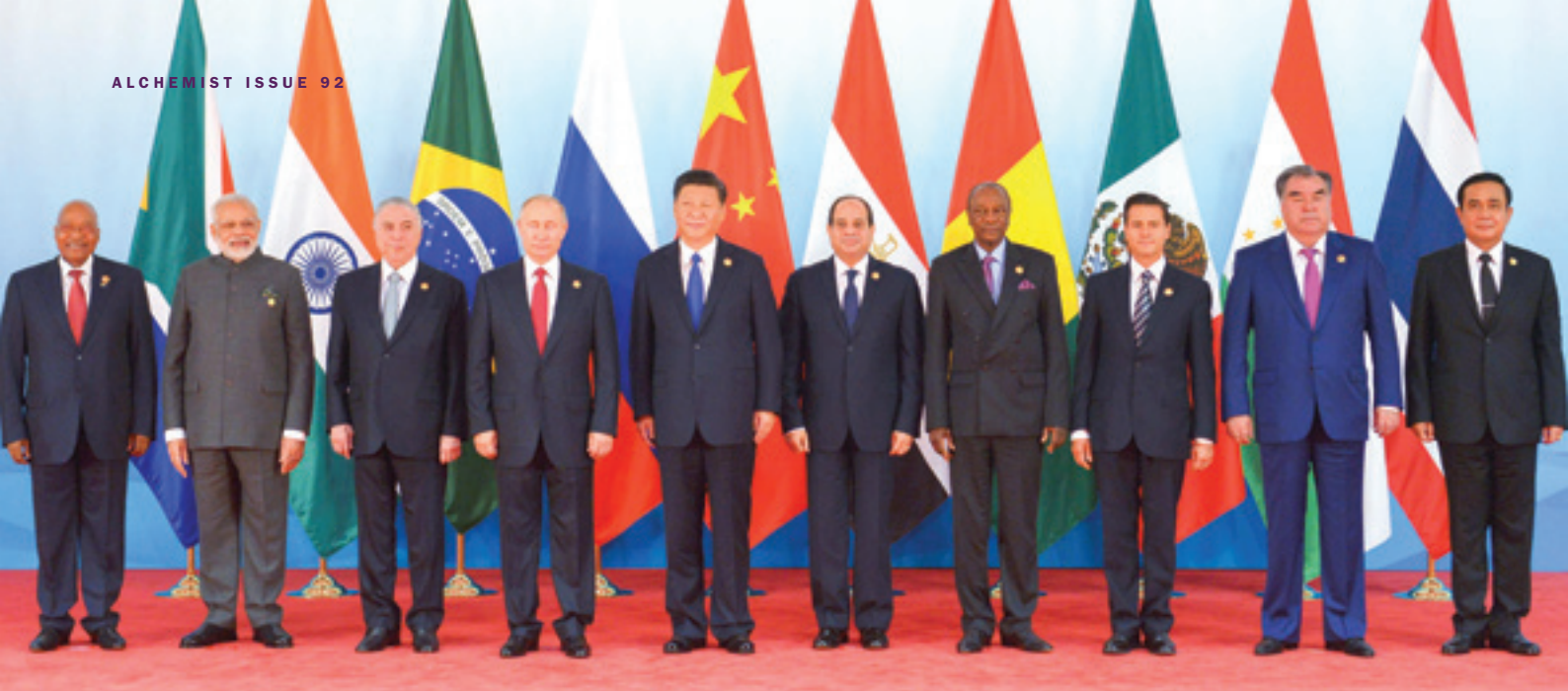
If you looked at the emerging markets that got into trouble in private markets over the past several months, it was the ones you could have predicted. Six or 12 months ago, we pointed out that Argentina and Turkey were in a very bad spot, and all the other emerging markets were in another better space, with Brazil on the border in between. That is effectively what we have seen six to 12 months later. Another way of putting it is that fundamentals are still driving emerging

market valuations. This is not a financial panic or a liquidity crisis of the sort that we encountered 10 years or 20 years ago.

What this means, however, given the results in the Brazilian election, is that one has to take very seriously the risk in Latin America. We at Peterson

Institute of International Economics (PIIE) have been warning for some time that the fundamentals in Brazil on a fiscal and governability basis, as well as in the financial system are much worse than people thought.

**THE IDEA THAT MOST
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We predicted a more persistent and deeper recession in Brazil than the markets had predicted and that is indeed what we had. I have been concerned for some time that because Latin America is so closed a system and so deglobalised (excepting Chile and, in part, Colombia) that the risk is that if something goes wrong in Brazil, it just rattles around inside the region and amplifies.

We have a situation where Venezuela, of course, has been a tragedy and a crisis for years, where Columbia is now starting to feel like Lebanon and Jordan, having enormous refugee flows that they have to cope with. We also have Chile and Argentina, which are trying to do the right thing, but the rewards of doing the right thing are simply avoiding crisis with not anything terribly good resulting. Macri in Argentina has been pulled back in part from getting done the reforms he needed to get done because of the spill-overs from Brazil and Venezuela. Meanwhile, Bolsonaro is thought to be positive for markets, but that is mistaken. The militarist populists in Brazil and elsewhere in Latin America have historically been corrupt, fiscally irresponsible and interventionist – just on behalf of different special interests rather than against the leftist governments.

WHERE DOES THIS LEAVE US?

For the US, China, Japan and Western Europe, fundamentals are actually pretty good. In the US, excessive fiscal policy is not something that is going to break the bank in the near term. As I said before, economics is not a morality play. Similarly, it would be nice if the second you were engaged in trade protectionism, you saw the equity markets crash and the cost come immediately. However, the US is a very large economy. It is not going to be that way. Protectionism and blocking investment is going to erode people's living standards. It is going to further diminish productivity growth. It is going to create a little inflationary pressure, depending on how the Fed handles it. It is not going to be an abrupt break. China and Japan will both grow more strongly and consistently than people expect through use of stimulus as well.

I will bring this back to the topic of this LBMA and LPPM Conference. I am your standard issue macroeconomist, so my expertise on bullion and on precious metals is limited. I know a little bit about macroeconomic history. Speaking at the margin about macroeconomic factors that affect metals, obviously it is supply and demand that is the first determinant. However, speaking about the long-term issues, everything I have mentioned, sad as it is, is basically a bullish signal for gold demand on average and for other precious metals.

A more politically uncertain environment incentivises people to hold their assets in non-currency assets. A more inflationary environment, even one not hugely inflationary but one with more upside risk to inflation, is something that incentivises people to move into gold and other precious metals.

SPEAKING ABOUT THE LONG-TERM ISSUES, EVERYTHING I HAVE MENTIONED IS BASICALLY A BULLISH SIGNAL FOR GOLD DEMAND ON AVERAGE AND FOR OTHER PRECIOUS METALS.

A more politically fragmented system where the risk of large currency swings is high further reinforces this. A low productivity growth environment is one that reduces the relative gains of taking speculative risk in other forms of investment, which should also move you towards gold.

I am not in a position to tell you how large these effects will be, but I am in a position to tell you that the overall political-economic framework that we see ourselves in is one that will be at the margin pushing up values for gold. I do not know whether

that pleases you or not. I assume you are traders and so to some degree you are hedged either way. Some of you are producers and some of you may just like gold going up because then there is more volume of trade. It is not for me to say. However, I will tell you that in contrast to the talk about the importance of gold that such misguided folks as John Paulson made five years ago, this is a period where the fundamentals are moving in that direction for gold and to a lesser degree for other precious metals.



Adam S. Posen has been president of the Peterson Institute for International Economics since January 2013, after first joining in July 1997. The author or editor of seven books, he has contributed to research and public policy in the areas of G20 monetary and fiscal policies, European economic performance

since the euro, Japan's recovery from its Great Recession, and rethinking the path to financial stability. From 2009 to 2012, Posen served as an external voting member of the Bank of England's rate-setting Monetary Policy Committee (MPC), where he was a leading voice globally for active policy response to the economic crisis. Posen received his BA and PhD from Harvard University, and was an economist at the Federal Reserve Bank of New York from 1994-1997. Posen is in his sixth term on the Panel of Economic Advisers to the US Congressional Budget Office.

WINNERS OF THE 2018 PRECIOUS METALS FORECAST SURVEY

BY AELRED CONNELLY, PR OFFICER, LBMA

The Rules of the Competition

The aim of the annual survey is to predict the average, high and low price range for the year ahead in each metal as accurately as possible. The prediction closest to the average price wins a 1oz gold bar. In the event of a tie, the forecast range is taken into account.

The Winners each receive a 1oz gold bar kindly donated by PAMP.



Au

Aakash Doshi, CitiGroup, held off all challenges to claim first prize with his forecast of \$1,270, less than \$2 off the actual average price. Taking the runners up spot was Hans Guenter-Ritter (Heraeus), GFMS with his forecast of \$1,255 with third place going to Jim Steel (HSBC) with his forecast of \$1,284.



Ag

Just ten cents separated first and second. **Robin Bhar, Societe Generale** raised the bar and claimed the bar with his forecast of \$16, just edging out Bernard Dahdah into second (\$16.10), against an actual average price for the year of \$15.71. In third place was Nell Agate (CitiGroup) with his forecast of \$16.70. They booked the top three places by virtue of being the most bearish of all the analysts.

Pt



Claiming first prize was **Ross Norman, Sharps Pixley** with his forecast of \$884 less than \$5 off the actual average price in 2018 (\$879.70). As an avid QPR fan, it is likely that this will be the only prize that Ross will be seeing this year. Back in second was Glyn Stevens (Independent) with his forecast of \$862 followed in third by Bernard Dahdah (Natixis) with his prediction of \$910.

Pd



Suki Cooper, Standard Chartered Bank came out on top in a tight finish with her forecast of \$1,038, less than \$9 off the actual average price for the year (\$1,029.19). She just edged out Bart Melek into second (\$1,019) with Bernard Dahdah grabbing third with his forecast of \$1,040.

Metal	Actual average price in first half Jan 2018 ^(a)	Analysts' 2018 forecast average	Actual 2018 average price	Winning forecast	2018 winning analyst	Company
Gold	\$1,320	\$1,318	\$1,268.41	\$1,270	Aakash Doshi	CitiGroup
Silver	\$17.13	\$17.81	\$15.71	\$16.00	Robin Bhar	Societe Generale
Platinum	\$970	\$1,000	\$879.70	\$884	Ross Norman	Sharps Pixley
Palladium	\$1,097	\$1,080	\$1,029.19	\$1,038	Suki Cooper	Standard Chartered Bank

(a) 2-15 January 2018 inclusive.

AIG, Lehman Shock Hits World Markets

Focus Moves to Fate of Giant Insurer After U.S. Allows Investment Bank to Fail; Barclays in Talks to Buy Core Lehman Unit

The convulsions in the U.S. financial system sent markets across the globe tumbling, as two of Wall Street's biggest firms looked set to exit the scene and insurance titan American In-

By Suzanne Craig,
Jeffrey McCracken,
Jon Hilsenrath and
Deborah Solomon

ternational Group Inc. turned to the Federal Reserve and the state of New York for assistance. The U.S. stock market suffered its worst daily point plunge

in the history of the day, the major U.S. market indexes were down 2%, which, while a good-sized decline, was smaller than many had thought would be the case. But in the final hour of trading, a wave of selling hit, driven by concerns about the fate of AIG. The Dow Jones Industrial Average ended down 504.48 points on Monday, off 4.4%, at its daily low of 12017.51, down 18% on the year. Of the Dow Industrials' 30 components, all but one—Coca-Cola Co.—fell, led by a 60.8% plunge in AIG.

In Europe, London's FTSE



AIG Faces Cash Crisis As Stock Dives 61%

By MATTHEW KARNITZCHING,
LIAM FLAVIN
AND SERENA NG

American International Group Inc. was facing a severe cash crunch last night as ratings agencies cut the firm's credit ratings, forcing the giant insurer to raise \$14.5 billion to cover its obligations.

With AIG now tottering, a crisis that began with falling home prices and waning confidence in Wall Street has reached one of the world's largest insurance companies, threatening to intensify the financial storm and greatly complicate the government's efforts

INSIDE PERSPECTIVE ON THE 2008 FINANCIAL CRISIS AND THE LESSONS LEARNED

BY MIKE SILVA, PARTNER, CHAIR, U.S. FINANCIAL SERVICES REGULATORY PRACTICE,
DLA PIPER

Mike Silva was one of a handful of NY Fed officials tasked with tackling the 2008 financial crisis. *In a truncated and updated version of his keynote speech at the 2018 LBMA/LPPM conference in Boston. Mike offers a unique and fascinating insight into the events leading up to the crisis, explaining how it was tackled and the lessons learned.*

INTRODUCTION

During the financial crisis, I served as Tim Geithner's chief of staff at the New York Fed and, then when Tim became Secretary of the Treasury, I served as chief of staff for the next president, Bill Dudley. My role allowed me to directly observe an impossibly small number of Americans at the New York Fed, the Board of Governors of the Federal Reserve and the Treasury Department fight desperately to save the financial future of all Americans. Thank you for this opportunity to tell their story.

BEAR STEARNS

On the night of Thursday, 13 March 2008, I was one of a small group of NY Fed officials huddled in Tim Geithner's office, listening as several senior SEC officials reported that the investment bank Bear

Stearns would not be able to open in the morning. Like a number of investment banks, Bear had become dependent on short-term financing that was largely secured by sub-prime collateral. The providers of short-term financing (money market funds, pension funds, hedge funds, etc.) had grown sceptical of that collateral and Bear had just become the first investment bank whose collateral overnight lenders had lost confidence in. Consequently, Bear had not been able to borrow enough money to make the payments it owed in the morning.

As an investment bank, Bear was part of the 'shadow banking system' that was completely outside of the Fed's jurisdiction and not subject to any kind of 'prudential supervision' (i.e. supervision to ensure that it was being run in a safe and sound manner). We had no direct insight into Bear. In fact, some of us did not even know where it was located.

We quickly determined where Bear was located and inserted a team to assess the situation. Their assessment was grim. Bear owed \$80 billion to the financial system, had open trading positions with 5,000 counterparties, was a participant in a number of payment systems and, perhaps most worrying, had 750,000 open credit default swap (CDS) contracts.

At this point, Tim and Chairman Bernanke started discussing the possibility of invoking the Fed's emergency lending authority under Section 13(3) of the Federal Reserve Act to lend to a non-bank. Under Section 13(3), the Fed could lend to a non-bank if it determined that "unusual and exigent circumstances" existed and it was "secured to its satisfaction".

Fortunately, our examiners determined that Bear had sufficient collateral for us to be "secured to our satisfaction". Now, the question became whether "unusual and exigent circumstances" existed.

Tim felt that they did. Bear was not a particularly large institution, but it was a highly interconnected one. Its failure could easily result in enough cover selling and collateral calls to trigger a negative asset spiral. Even if it did not trigger a negative asset spiral, Bear's failure would likely result in a run on at least some of the other investment banks. At about 7am, Chairman Bernanke and the other Fed Governors came to the same view and authorised the NY Fed to make a loan that allowed Bear to operate on the Friday, be acquired by JP Morgan over the weekend and open its doors for business on the Monday.

There were many complications during the Bear weekend, the biggest of which was that the Fed ended up bearing the risk for \$30 billion in sub-prime assets that JP Morgan was not willing to acquire but that we were confident would perform in the long run (and did). In the end, an outright failure of Bear was avoided and we felt we had dodged a bullet.

It would turn out that Bear was just batting practice for the fall.

LEHMAN BROTHERS

Spring became summer, and credit conditions continued to tighten for the investment banks. Fortunately, most of them were able to raise more capital and extend the term of their funding. There was one important exception though.

Founded in 1850, Lehman Brothers was the oldest of the investment banks. It had a long and proud history of independence and resilience that was personified by its CEO, Dick Fuld. Fuld worked hard to raise capital and find a strategic partner on terms that he thought were fair. He was fighting an uphill battle though and that battle got tougher on 16 June when Lehman declared a nearly \$3 billion second-quarter loss.

And then time ran out.

On 7 September, Fannie Mae and Freddie Mac were put into receivership, which caused a broad shock to investor confidence. Just three days later, Lehman declared a nearly \$4 billion third-quarter loss – and that was the end of confidence in Lehman. Lenders backed away and Lehman faced a full-blown liquidity crisis. The next day, Tim informed Fuld that Lehman's only options were to either be acquired or file for bankruptcy.

An important reason why Tim was able to make this judgement was that, concurrent with the failure of Bear, the Fed had utilised

its emergency authority to establish a lending facility for the remaining investments banks. As a result, we had first-hand knowledge of their collateral. That in turn meant we already knew that Lehman did not possess adequate

BEAR OWED \$80 BILLION TO THE FINANCIAL SYSTEM, HAD OPEN TRADING POSITIONS WITH 5,000 COUNTERPARTIES, AND, PERHAPS MOST WORRYING, HAD 750,000 OPEN CREDIT DEFAULT SWAP (CDS) CONTRACTS.

ON THE MORNING OF MONDAY 15 SEPTEMBER LEHMAN DECLARED BANKRUPTCY

collateral to satisfy the "secured to its satisfaction" requirement of the Fed's emergency lending authority and that it would not be possible for the Fed, acting alone, to save Lehman.

On Friday, 12 September, we convened leaders from the largest financial institutions. Treasury Secretary Paulson made it clear to the group that they had to find a way to avoid a Lehman failure, most likely by financing any risk that the two potential buyers of Lehman, Barclays and Bank of America, might not be willing to assume.

Plan A fell apart when Bank of America decided to acquire Merrill Lynch rather than Lehman and the UK regulators prevented Barclays from acquiring Lehman. There was no plan B. The consortium had already concluded that

Lehman's capital hole was too large for the consortium to have a realistic chance of funding an LTCM (Long-Term Capital Management) style orderly wind down of Lehman.

The dye was cast. The Fed did not have the legal authority to lend money it knew would not be repaid, there was no buyer for the consortium to support and the consortium knew that Lehman would never be revived regardless of how much rescue breathing the consortium alone applied. Consequently, on the morning of Monday, 15 September, Lehman declared bankruptcy.

FALLOUT

The markets that Monday were ugly. At one point, the NYSE was down 1,000 points, which was a lot back then. However, stocks rebounded and ultimately closed down 500 points. That was bad, but not a meltdown. Importantly, much of the decline was attributable to rumours that AIG was also in trouble. But we already knew about AIG and it was a much easier case for two reasons.

First, as a trillion dollar company operating in 140 countries with 30 million customers, a major insurer of 401k plans and a major issuer of CDSs, its potential failure would clearly traumatise the financial system and thereby clearly constituted "unusual and exigent circumstances".

Second, AIG had plenty of collateral for us to lend against.

That made AIG a very different case from Lehman and a classic opportunity for a central bank to avoid an unnecessary trauma to the financial system by providing temporary liquidity that was certain to be repaid. For those reasons, on Tuesday, the Fed announced that it was providing an \$80 billion credit facility to AIG in return for a 79.9% equity stake in the company.

At that moment, we were cautiously optimistic that a broader panic had been averted. The markets had digested the Lehman bankruptcy and we were on top of the AIG situation.

Then the bottom fell out.



The conference room where the consortium tackling the financial crisis met



Crisis fighters meeting to discuss the next steps

On Tuesday, 16 September, word came that a \$65 billion money market fund called the Primary Reserve Fund had bought \$785 million of Lehman commercial paper, betting that the Fed would bail out Lehman. It bet wrong and that paper became worthless. As a result, the fund was not able to repay \$1 for every \$1 invested and it “broke the buck”. Investors in the fund did not react well to that. Within 24 hours, they had withdrawn almost two-thirds of their money.

Much worse, investors not only began withdrawing funds from money market funds with exposure to the financial system, they began withdrawing money from ALL money market funds.

Money market funds are among the largest purchasers of commercial paper (CP) and CP is how corporate America funds itself. CP is how Boeing, Caterpillar, Microsoft and General Electric meet payroll and pay suppliers. Suddenly, a crisis that had been limited to the financial system had jumped the tracks into the real economy. Over the next 10 days, lending of all types ground to a halt. Complete panic had set in.

FED RESPONSE

This was a terrifying moment. Central banks know how to support individual institutions, but no central bank had ever tried to support entire markets. And that was what we had to find a way to do. It was going to be up to a very small number of Americans sitting in

conference rooms at the New York Fed, Board of Governors and Treasury Department to either figure this out, or not. As I looked out from the NY Fed at all the people walking around Wall Street not knowing how close we were to financial collapse, I silently prayed that my colleagues would find a way to avoid a second Great Depression. Then I got sick to my stomach.

Fortunately, my colleagues came through in a big way, starting with an alphabet soup of creative market back-stop facilities with names like the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF), the Commercial Paper Funding Facility (CPFF), the Term Asset-

Backed Securities Loan Facility (TALF), and others. The mechanics of these facilities varied, but the basic premise was that the Fed, directly or indirectly, would assume enough risk associated with

different types of lending that, over time, the confidence of the traditional liquidity providers (money market funds, pension funds, hedge funds, etc.) would be restored and liquidity, the life blood of the financial system, would begin to flow again.

One of the great untold stories of the financial crisis is how much work went into creating and operating these facilities. A remarkably small number of economists, bank supervisors, lawyers and operations personnel spread across several Reserve

Banks, the Board of Governors and the Treasury Department worked 24/7 for months to make these facilities successful. As I watched them exhaust themselves day in and day out, I often recalled Churchill's assertion that “never have so many owed so much to so few”. Fortunately, this was not the Battle of Britain where the liberty of a nation was at stake. But it was a battle where defeat would likely result in a national, if not global, depression. Those were very serious stakes.

The crisis continued well into 2009 with many dangerous twists and turns. But the tiny army of crisis fighters never gave up. The support for AIG was restructured several times.

After a rocky start, the Troubled Asset Relief Program (TARP) successfully injected capital into the banks. The FDIC used its systemic risk authority to backstop new unsecured bank debt. The Fed instituted the first-ever stress test to instill confidence in the banks. All of these actions involved tough decisions and a tremendous amount of work.

And they worked. By the fall of 2009, the crisis was over.

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FACILITIES SUCCESSFUL.**



WHAT LESSONS WERE LEARNED?

Many people who are immensely smarter, more thoughtful and better informed than I am have done outstanding work on this question. I would refer you to that work for the best answers to the question of what lessons were learned.

For me, some of the most important lessons learned include:

• THE FEDERAL RESERVE DOES NOT GIVE AWAY MONEY.

I have never understood the confusion over why the Fed supported Bear and AIG, but not Lehman. To avoid future confusion, it is only necessary to remember one rule: the Fed does not give away money. It never has and never will. Not a dime.

If the failure of a firm would traumatise the financial system and that firm has adequate collateral for the Fed to lend against, then the Fed will support that firm in order to avoid an unnecessary trauma to the financial system. But if a firm does not have adequate collateral, then the Fed is not allowed to lend to it no matter the trauma that might result. Bear and AIG had adequate collateral to lend against, so the Fed supported them to avoid unnecessary trauma to the financial system. Lehman did not have adequate collateral, so we could not lend to it even though we knew Lehman's failure would be traumatic for the financial system.

It is as simple as that.

• RATIONAL BEHAVIOUR IS OVERRATED.

A lot of economic, market and bank supervisory theory is based on the premise that financial actors are largely rational. The crisis convinced me that they are not. It was not rational for very experienced financial leaders to make their companies hostage to short-term financing that was, in the final analysis, secured by the irrational assumption that house prices will always go up. It was not rational for Dick Fuld to reject offers because their terms offended his pride. It was not rational for money market fund investors to flee all money market funds just because one fund made a bad bet. It was not rational for some lenders, at the height of the crisis, to stop accepting even Treasuries as collateral. The crisis convinced me that greed, ego, fear, short-sightedness, group-think and other human foibles have at least as much, if not more, to do with financial behaviour as rational thinking does.

This presents a tremendous challenge that policy makers, economists and bank supervisors are going to have to come to grips with.

• ONCE PANIC SETS IN, ONLY MASSIVE FINANCIAL FIREPOWER WILL QUELL IT.

This lesson is straight out of Tim Geithner's book, *Stress Test*, and is much better articulated there. Not being burdened with Tim's tremendous intellect, I am at liberty to articulate a simplistic version of this lesson, which is: "Once a financial mob panics, the only thing that will end that panic is for a central bank with a large billy club to show up and announce: 'Break it up everyone. Go home. This crisis is over.'" Unfortunately, the Dodd Frank Act (DFA) has crippled the Fed's ability to play this role.

I guarantee that curbing the Fed's emergency authority will come back to haunt us.

ARE WE SAFER?

Absolutely, up to a point. As a result of hard work by bankers and regulators, the banking system is much better capitalised, more liquid and better risk managed. That hard work has definitely paid off in terms of significantly increasing the degree of financial stress that would be required to put a systemically important financial institution (SIFI) at risk of insolvency.

However, I worry that if market participants ever perceive that a SIFI is even remotely close to triggering the Orderly Liquidation Authority (OLA) established by the DFA, counterparties are going to run from that SIFI sooner than they would have absent the OLA. I say this because many market participants are uncertain that the OLA will work. More importantly, all market participants are certain that even if the OLA works exactly as designed, that just means counterparties will get cents on the dollar and it will take time to get even that. Nobody wants to be the last one out of that pool.

**IT IS ONLY
NECESSARY
TO REMEMBER
ONE RULE: THE
FED DOES NOT
GIVE AWAY
MONEY**

Also importantly, if market conditions ever deteriorate to the point where a SIFI is in danger of insolvency, it is very unlikely that only one SIFI will be at such risk. The only pool that market participants will want out of faster than a pool where one SIFI is clinging to an OLA life ring is a pool where multiple SIFIs are clinging to the same life ring.

WILL THERE BE ANOTHER FINANCIAL CRISIS?

Absolutely. As long as we have a financial system, we will have financial crises. The only question is how often and how severe.

Personally, I think a crisis is likely to happen sooner rather than later because of the large number of possible crisis triggers that are currently being squeezed. A much longer than average economic expansion that must inevitably end. Trade uncertainties. Brexit uncertainties. A slowing global economy. A nearly inverted yield curve. Increasing cyber threats. Record leveraged lending. A shadow banking system that is larger than ever. Financial markets dominated by high frequency and/or algorithmic trading and passive exchange traded funds. Exploding federal debt. A chaotic administration that is increasingly consumed by self-preservation. What could go wrong?

Tim Geithner says that the failure to anticipate the 2008 financial crisis was a "failure of imagination". Given all the crisis triggers that are currently being squeezed, very little imagination is required to anticipate the next crisis.

Fortunately, because of improved capital, liquidity and risk management, the next financial crisis is unlikely to result in a banking crisis. But it could still easily result in sufficiently deep losses across a sufficiently broad range of assets to trigger an extraordinarily painful recession, or worse. The likelihood that the US has seen its last depression is about as high as the likelihood that it has seen its last war.

Just saying.

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Mike Silva is a leading regulatory and compliance professional in the financial services sector.

He joined DLA Piper from GE Capital Corporation, where he led a global staff of 700 in overseeing compliance and regulatory activities across nine countries. Notably, he oversaw all of GECC's interactions with its regulators and advised on all aspects of compliance with the Dodd-Frank Act. Mike also advised on GECC's first-ever successful de-designation as a systemically important financial institution.

Prior to joining GECC in 2013, Mike spent 21 years with the Federal Reserve Bank of New York. There, he served for 10 years as the NY Fed's lead international lawyer and negotiated high-profile government transactions involving Iran, China, Russia and other sensitive counterparties. Mike was a core member of the NY Fed's 9/11 Crisis Management team and, during the second Gulf War, Mike served in Baghdad as the Federal Reserve's advisor to the Central Bank of Iraq. Mike later became Chief of Staff to then-President Timothy Geithner. In this position, Mike played a key role in coordinating the New York Fed's response to the 2008 financial crisis. He subsequently was designated as the NY Fed's senior supervisory officer for the Goldman Sachs Group. Mike's other contributions at the NY Fed include leading the process to set the New York Fed's annual strategic objectives, fostering a leadership development program and serving as an executive sponsor of several diversity resource networks.

Prior to attending law school, Mike spent seven years on active duty as an officer in the Navy, first as a naval flight officer flying F-14 Tomcats and then as an arms control inspector in the former Soviet Union. Mike is a 1986 graduate of the Navy's Advanced Fighter Weapons School (a.k.a, TOPGUN).

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70 Years of Fachvereinigung Edelmetalle

INTERVIEW WITH WILFRIED HELD, FORMER MANAGING DIRECTOR OF FACHVEREINIGUNG EDELMETALLE, PFORZHEIM, GERMANY

The German precious metals federation, Fachvereinigung Edelmetalle, celebrated its 70th birthday on 25 November 2018. Aelred Connelly caught up with its former Managing Director, Wilfried Held, to ask him about its history and his career.

HOW AND WHY WAS FACHVEREINIGUNG EDELMETALLE SET UP?

After World War II, Europe, and especially Germany, had to recover and to establish political and economic stability by introducing market economy principles. In a market economy, the know-how and experience of the industry are indispensable. At that time, the different industry branches started to organise themselves. Most well-known associations were founded at this time – the second half of the 1940s. Fachvereinigung Edelmetalle was founded in 1948. Since then, this association has represented the interests of the producers and manufacturers of precious metals vis-à-vis the Federal Government, the Parliament, and national or international organisations. Its objectives are to study all problems faced by the industry, for example, in the fields of environmental, trade and raw materials policy.

WHAT IS ITS ROLE AND HAS THIS CHANGED OVER THE YEARS?

Fachvereinigung Edelmetalle represents the economic interests of its member companies vis-à-vis the authorities and the public. Its expertise is highly appreciated by all stakeholders.

Since 2006, Fachvereinigung has been a member of the German Jewellery and Watches Federation in Pforzheim and, therefore, has been represented by the German Industry Federation BDI in Berlin. The European Union is still of growing importance regarding industry regulations and politics. The vast majority of all regulations affecting this industry originate in Brussels. Thus, Fachvereinigung is also a founding member of the European Precious Metals Federation (EPMF) in Brussels. This federation represents the industry vis-à-vis the European Commission and other international stakeholders. It was a great honour for me to run this federation as President from 2014 until 2018.

HAS IT CHANGED IN SIZE?

Today, Fachvereinigung has 35 members, ranging from producers and manufacturers to traders, banks and associations. Seventy years ago, 3,000 employees worked in its member companies, but there are now over 6,000. For many years, the Fachvereinigung offices were located in Düsseldorf, but in 2006, it relocated to Pforzheim, known as the 'Goldstadt' (gold city).

WHAT ROLE HAVE PRECIOUS METALS PLAYED IN THE LAST 70 YEARS?

Increasingly, precious metals have become part of our everyday life. Our modern and technological society would not operate without precious metals: there would be no computers, no smart-phones, no GPS, no medical devices. In the course of the last 70 years, precious metals have played an ever important role in the watch and jewellery industries as well as in investment products. Societies are evolving constantly, economically, socially and technologically. Fachvereinigung Edelmetalle has had to adjust to these ever growing challenges as well as an ever changing political landscape.

SOCIETY WOULD NOT OPERATE WITHOUT PRECIOUS METALS: THERE WOULD BE NO COMPUTERS, NO SMART-PHONES, NO GPS, NO MEDICAL DEVICES.



WHAT WAS IT LIKE IN GERMANY AT THE TIME THAT FACHVEREINIGUNG WAS FOUNDED?

At the time, the Federal Republic of Germany did not exist, either as a German Federal Government never mind as part of a wider European project. At the time, all efforts were focused on rebuilding the manufacturing sectors in Germany and in Europe that had survived World War II. The growing precious metals industry encountered difficulties with the supply of raw materials, particularly because until 1954 precious metals had been allocated exclusively for technical, medical and scientific use.

WHAT DID THE POLITICAL LANDSCAPE LOOK LIKE THEN?

The precious metals industry embraced the economic theories and thoughts of the first Minister of Economics in Germany, Ludwig Erhard, who published a book entitled *Welfare for Everybody*. It expressed the idea at that time that economic welfare should guarantee political stability in Europe. The foundation of the European Economic Community (EEC) in 1957 was a milestone towards increased prosperity and stability. Even then, the European countries had been important customers of precious metals products. The EEC was the beginning of an exceptional success story particularly in terms of delivering peace in Europe.

After having created the basis of a well-functioning economy – supplied with raw materials and benefiting from free trade – new challenges arose in the 1960s and 1970s. This was the result of new economic structures. The emphasis began to shift away from economic policies towards those which were more socially responsible.

AFTER THE WAR RESOURCES WOULD PRESUMABLY HAVE BEEN EXPENSIVE AND SCARCE. HOW DID FACHVEREINIGUNG COPE, PARTICULARLY IN ITS INFANCY?

Except for the supply problems after the end of World War II, raw materials had never been an issue: raw materials were considered to be available in unlimited



supply. But this assumption was challenged in 1972 when the study, *The Limits to Growth*, commissioned by the Club of Rome, was published. The study argued that exponential economic and population growth was limited by a finite supply of global resources.

HOW DID THIS STUDY AND SUBSEQUENT DEBATE IMPACT THE PRECIOUS METALS INDUSTRY IN GERMANY?

Today, environmental policy and attitudes towards raw materials have one common goal: to protect the planet's finite resources. To achieve this, the precious metals industry serves as a shining example. The industry had been implementing a circular economy long before others learned to understand the word 'recycling'. Precious metals refineries all over the world are specialised to produce new products out of the recycling

of scrap containing precious metals. Today, scrap accounts for around 50% of total worldwide supply. This is a real contribution to the environment.

FACHVEREINIGUNG HAS UNDERTAKEN A LOT OF WORK IN TERMS OF ENVIRONMENTAL AWARENESS ISSUES. COULD YOU EXPLAIN A BIT MORE ABOUT WHAT YOU HAVE DONE?

In the 1970s, environmental awareness became an increasingly important concern. At that time, only a few people probably had any idea about the future importance of environmental and health and safety issues. However, within the precious metals industry, companies and their federations had these issues at the top of their agenda. The organisation of the companies evolved to deal with these growing concerns. From an early stage, the precious metals industry had been thinking about sound environmental management.

WHAT ARE THE CURRENT CHALLENGES FACING THE INDUSTRY?

Lately, some more social and compliance topics have been given priority. Today, ethical behaviour in an exemplary manner is a precondition for every company to survive in a competitive market. Any violation of ethical principles will be published in an instant on the Internet. Everybody can imagine that this will have serious consequences for the company regarding its reputation in the market. In 2012, Fachvereinigung Edelmetalle drafted binding rules in a Code of Conduct to encourage all its members to comply with the principles of ethical responsibility in daily business. Parts of

this Code of Conduct cover the fight against money laundering and VAT fraud, against violation of human rights and discrimination, and against exploitation regarding the supply of raw materials.

HOW IS FACHVEREINIGUNG EQUIPPED TO DEAL WITH THESE CHALLENGES?

Over the last 70 years, Fachvereinigung Edelmetalle has always been an open-minded association in respect of adopting best practice and tackling new challenges.

We have undertaken this task with limited changes to the composition of our Board Members and Managing Directors: only 12 Chairmen and five Managing Directors have run the federation since its inception. This demonstrates stability and that people who have something to do with precious metals remain true to these shiny materials throughout their whole professional careers. This is certainly true of myself.

IS STABILITY ALWAYS A GOOD THING?

At least in the world of associations, I think yes! The members of a federation very often find it important to have contacts working there for many years, for example, regarding the handling of confidential information. And even politicians or employees of other associations find it useful to deal with people who they are acquainted with on a fairly long-term basis.

YOU HAVE A WIDE CROSS-SECTION OF MEMBERS. HOW DOES FACHVEREINIGUNG JUGGLE THE CONFLICTING REQUIREMENTS OF THEM?

Though a wide range of companies from small to big are members of Fachvereinigung Edelmetalle, their requirements are more or less the same. So we don't have considerable conflicting areas within our federation. And if a problem should come up, we always find a compromise that is acceptable to everybody.

WHAT IMPACT, IF ANY, WILL THE UK LEAVING THE EUROPEAN UNION HAVE ON THE GERMAN PRECIOUS METALS MARKETS?

There might be an impact on taxes, tariffs and payment transactions. We are afraid of more bureaucracy regarding imports and exports, and rising costs. Maybe, we have to expect regulations in the field of handling dangerous substances that could be more complex than those we have today. Another question that arises is how UK companies themselves will be affected by Brexit, bearing in mind that trade regulations vis-à-vis EU might be similar to those of third countries.



50%

Today, scrap accounts
for around 50% of total
worldwide supply.

IS NSFR A MAJOR ISSUE FOR THE GERMAN PRECIOUS METALS INDUSTRY?

The discussions about the Net Stable Funding Ratio (NSFR) are very important to the German precious metals industry. Together with LBMA, we have made great efforts to convince the national governments, the Commission and the European Parliament to make an exception for the precious metals industry from a ratio of 85% under the NSFR regime. We were proud of a compromise solution of 50%, but at the last minute, the policymakers preferred to stick to the original 85% proposal. Now, the European Banking Authority will be working on a study about the functioning of the precious metals markets within the next two years. Let us hope that the outcome will be the starting point of further discussions regarding an exception for our precious metals.

IF WE COULD NOW TALK A LITTLE ABOUT YOU. YOU RECENTLY ANNOUNCED YOUR RETIREMENT. DID YOU SPEND ALL OF YOUR CAREER AT FACHVEREINIGUNG?

I studied economics. Right from the beginning of my professional career, I have worked in federations. To begin with, I worked for three years at the German newspaper editors association and, then in 1984, I started to explore the world of the non-ferrous metals as advisor for economic policy in the German non-ferrous metals federation in Düsseldorf. At the time, the Managing Director of this association explained to me: "If you really want to join the non-ferrous metals and precious metals industry, there will be two options: you will leave this industry within three days, or you will stay there for the rest of your life!" I have now worked in this industry for more than 25 years, and it's still a fascinating job. In 1994, I became Managing Director of Fachvereinigung Edelmetalle, which was a former member of the non-ferrous metals federation (Wirtschaftsvereinigung Metalle).

WHAT ATTRACTED YOU TO THE PRECIOUS METALS MARKET?

I learned from my activities in the non-ferrous metals industry that precious metals are very special metals with a fascinating history, interesting markets and products that are indispensable for our modern lifestyle. So when the opportunity arose, I was very proud to become a part of this brilliant industry.

WHAT WAS THE HIGHLIGHT OF YOUR CAREER?

When you are working in an industry like ours, you can look back to many different highlights. I think the successful reorganisation of Fachvereinigung Edelmetalle with the relocation to Pforzheim in 2006 is a particular highlight and still has an impact today. Another highlight for sure was the founding of the European Precious Metals Federation in Brussels in 2009. Fachvereinigung Edelmetalle was one of the founding members, and I had the honour to run this federation as President at that time.

WHAT ARE YOUR PLANS NOW THAT YOU HAVE RETIRED?

In the first place, to spend more time with my family, who very often knew my face only from photographs or only heard my voice in telephone calls. But when you have been working in an industry like precious metals for 25 years, you never stop being interested in the industry and in the people working for it. So I will continue to read the *Alchemist* which for me is one of the most important information sources about the wide range of precious metals topics. Furthermore, I hope to devote much more time to my favourite hobbies: English literature and playing tennis!



Wilfried Held holds a degree in economics from the universities of Wuppertal and Duisburg. He started his professional career in a newspaper association before he devoted himself in 1984 to the world of non-ferrous metals. From 1994 until December 2018 he was Managing Director of the German Precious Metals Federation, the Fachvereinigung Edelmetalle in Pforzheim. From 2006 until June 2018 he was a member of the Board of the European Precious Metals Federation in Brussels, acting as President from 2014. He retired in December 2018, although he is still available as advisor to the Fachvereinigung Edelmetalle.

ARE YOU GAME FOR A LAUGH?



LBMA

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WHATS ON STAGE, UL

An evening hosted by
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TOWERS**

Thursday 7 March 2019

Corinthia Hotel, Whitehall Place, London, SW1A 2BD

To register get in touch with your company's official LBMA contact now.

Deadline for registrations: Friday 22 February 2019

EDUCATION ASSISTS ADHERENCE TO THE GLOBAL PRECIOUS METALS CODE

BY RUI CORREIA, DIRECTOR OF EDUCATION,
ACI FINANCIAL MARKETS ASSOCIATION (ACIFMA)

A perspective on how continuous training and certification can help in the adoption and acceptance of the Global Precious Metals Code.

As long-standing proponents and influencers of ethical conduct, ACI Financial Markets Association (ACIFMA) – the global trade association for financial markets professionals with more than 9,000 members

ELAC ALLOWS YOUR ENTITY TO ADAPT THE TRAINING TO THE NEEDS OF YOUR BUSINESS.

worldwide – has always encouraged its members to acknowledge, respect and adhere to the principle of ethical behaviour.

Having participated in the creation of the FX Global Code, ACIFMA has partnered with LBMA to promote adherence to the Global Precious Metals Code (the Code) through its online training platform. ACIFMA believes these initiatives contribute to an improvement in the structure of global financial markets.

GLOBAL PRECIOUS METALS CODE

The Code, published by LBMA in May 2017, sets the standards and best practices expected from market participants in the global OTC wholesale precious metals market. The Code is intended to define a robust, fair, effective and transparent market where all participants are able to transact according to best practice guidelines. It sets out a common set of principles to promote the integrity and effective functioning of the global market, covering ethics, governance, compliance and risk management, information sharing and business conduct.

As Paul Fisher, LBMA Chairman, mentions in the Code's Foreword: "Such Codes are important contributors to developing and establishing the trust on which markets depend. This trust is critical to the maintenance of an effective, fair and transparent market where high standards of behaviour are the norm." For ACIFMA, there is no doubt of the Code's importance to the precious metals market, as all LBMA members have signed their respective Statements of Commitment.

ACIFMA HAS PARTNERED WITH LBMA TO PROMOTE ADHERENCE TO THE GLOBAL PRECIOUS METALS CODE (THE CODE) THROUGH ITS ONLINE TRAINING PLATFORM.



ACIFMA CAN HELP YOUR ENTITY AND YOUR STAFF TO ADOPT AND EMBRACE THE CODE

Most importantly, we can help you demonstrate ongoing adherence through our training platform. Our ELAC (E-Learning, Attestation and Certification) portal, which is available to all market participants, provides subscribers with quick and practical access to a strong and effective sustainable adherence framework for all relevant staff within their entity. This training tool includes access to materials on the available codes, and those completing the module can gain certification as evidence of adherence.

Content for ELAC is key, so the training is built around questions on the wording of the Code and on market practice scenarios which have been created by market participants, allowing the principles of the Code to be linked with 'real-life' cases and concrete examples. It is built by the industry for the industry.

ELAC also allows your entity to adapt the training to the needs of your business, irrespective of whether you are a buy-side or sell-side market participant. As the Code advocates the principles of proportionality, it is adaptable to the specific requirements of each institution.

To request a demo or to subscribe to the portal, please contact Hayley Brooks at ACI hayley.brooks@acifma.com.

The Formerly Missing Gold Price Data: 1919-1925

BY FERGAL O'CONNOR, LECTURER IN FINANCE, CORK UNIVERSITY BUSINESS SCHOOL

12 September 2019 marks the centenary of the first gold price, or what is now known as the LBMA Gold Price. To mark this momentous occasion LBMA are planning a series of celebratory events during 2019. To kick start the year, in this edition of the *Alchemist*, we are featuring the first of four articles from Fergal O'Connor, which draw on his academic analysis of the gold price over the last 100 years. Further articles will feature in subsequent editions of the *Alchemist* in 2019.

INTRODUCTION

In February 2017, I was contacted to see whether I knew if the daily gold price for the London market pre-1968 was available. I assumed that it existed but didn't know where and began contacting the organisations that I thought might have it in some form, if not in a useable datafile. The Fixings Company, LBMA and the Rothschild Archive all said they didn't have it and no obvious leads seemed to be available. The Rothschild Archive website stated: "A complete record of the daily gold prices from the New Court Gold Fixing 1919-2004 has proved surprisingly elusive."

That this data which appeared to me to be so important to financial and economic history research could be missing seemed a fascinating oddity. Without any real plan as to what I would do with it if I found it, I started searching. I started ordering old books and reports as loans to the University Library where I worked, assuming that it couldn't have been completely forgotten.

It was six months before I found the daily price data from 12 September 1919, the first day of the Gold Fixing, at the back of the 1925 Royal Mint annual report. I ordered the annual reports for other years, but this was the only occasion that the Mint published it.

It was a few more months before I took my first trip to the British Library and found, in neat columns in books which never seemed to have been opened in the library before, the daily price running from 1919 all the way to March 1965 – in the Quins Metal Handbook and Statistics.

Here again, the data abruptly stopped as the Handbook changed its format and only reported monthly averages for the Gold Fixings price from there on. It seemed like I had added to what we knew, but the daily gold price would have a gap from 1965 to 1968. Luckily, the annual handbook had an advertisement for a bi-weekly magazine in it – the Metal Bulletin – so I went to look for that. The remaining daily prices were there and, following some more days in the library, I had copies of all the data ready for transcription.

I contacted the Rothschild Archive and it very generously agreed to give me a grant to transcribe the prices. It has also agreed to house the data on its website. The daily price data will be freely available to researchers to use in time for the centenary of the Gold Fixing in 2019. Below is a chart of the daily price from 1919 to 1925, during which gold prices floated freely, and some background about that period. I will write three more pieces this year for the *Alchemist* discussing the other free gold price period (1931 to 1939) and the two periods of fixed gold prices before 1968 when the Fixing continued to operate.

SOME BACKGROUND ON THE EARLY FIXING

The first Gold Fixing took place on 12 September 1919 in the offices of NM Rothschild. The gold price had been freed following pressure from the South African miners who had seen their costs rise during and after WWI, while the sterling price of gold that the Bank of England paid them remained a constant at 84s 10d per fine troy ounce. The fall in sterling's value since floating freely in March 1919 meant that if they had been allowed to sell their gold in New York, they would have been receiving 16% more, but an agreement with the Bank of England obliged them to sell their gold in London.

As the Fixing was set to begin, the Financial Times reported that "much interest" had been taken in gold's new price freedom and The Economist reported that the market for South African Gold Mining shares was "ablaze" with speculative interest. This was in stark contrast to the public discussions of the gold market participants. In bullion broker Samuel Montagu's 1919 annual letter, the new Gold Fixing itself was not mentioned and in its weekly letters covering the newly formed Fixing, it only stated that gold had become exportable under a licence from the Treasury.

**THE FIRST GOLD
FIXING TOOK PLACE
ON 12 SEPTEMBER
1919 IN THE OFFICES
OF NM ROTHSCHILD.**

**THE DAILY PRICE
DATA WILL BE
FREELY AVAILABLE
TO RESEARCHERS TO
USE IN TIME FOR THE
CENTENARY OF THE
GOLD PRICE IN 2019.**



Fergal O'Connor is a lecturer in Finance at Cork University Business School and was previously a lecturer at the University of York. His

research on Precious Metals began when he was awarded the 2011 LBMA PhD Bursary for the study of the London Gold Market and he has gone on to publish a range of research on the topic. Currently, his research focuses on building a clear picture of the operation of London Bullion Market from its inception in 1919, as well as a daily price series for gold and silver.



THE WALL STREET JOURNAL REPORTED THAT ONE OF ITS REPORTERS HAD ATTENDED ONE OF THESE MEETINGS IN 1907 WITH FOUR GOLD BROKERS ATTENDING AND THEIR DESCRIPTION OF THE EVENT CORRESPONDS EXACTLY TO WHAT WE WOULD THINK OF AS THE EARLY GOLD FIXING.

This disconnect between public excitement at the free gold market and the bullion brokers' sober attitude points to the fact that the Gold Fixing as a format to buy and sell gold was not really new. Rachel Harvey (2008)¹, developing on earlier research by Tim Green, shows clearly that this was the formalisation of a meeting which took place once a week prior to the outbreak of war.

The Wall Street Journal reported that one of its reporters had attended one of these meetings in 1907 with four gold brokers attending and their description of the event corresponds exactly to what we would think of as the early Gold Fixing. So while a Gold Fixing was not wholly new, the fact that it was more publicly known about and occurred daily seems to have been a change in the market.

PRICE MOVEMENTS

The new Gold Fixing operated on a pure basis, rather than on the 11/12th fine basis as had been the case before the War. In the final year before the outbreak of WWI, Samuel Montagu's annual letter reports that the price had remained the same on every single day of trading. That was not to be the case in the new market where the primary driving force behind the daily gold price was the pound-dollar exchange rate. On the second day of the Fixing, the sterling price was 98s 6d, while the US gold price was \$20.67 and the pound-dollar exchange rate was £4 17 5d. This meant that the London price was about 6d less than the New York price, a difference reflected entirely by the cost of shipping, which contemporary sources put at between 0.4% and 0.6%.

Samuel Montagu published a weekly letter on the gold and silver market during this period, which was widely republished through the *Financial Times* and *Financial News* newspapers. Each letter had a large amount of detail on the silver market but very little about what was driving gold prices, probably pointing to a market that was primarily serving official buyers

rather than investors and speculators, who made up a large portion of silver demand.

According to Moccatta and Goldsmid's archives, in the first five weeks of the new Fixing, 660,000 ounces of gold were traded, with the India Office being the primary buyer. By the beginning of 1920, the *Financial Times* reported that the bulk of the gold being sold on the Fixing was destined for India and China. Samuel Montagu's 1920 annual letter said that in the first 15 months of the Fixing, 50% of sales had gone to New York buyers, 25% to India and the remainder to the rest of the world. No figures on the daily volume of the Fixing seem to have survived, but from Samuel Montagu's weekly letters in 1920, we are told that London exported between

£350,000 and £6,500,000 worth of gold to New York per week. As only gold sold through the Fixing with an export licence from the Treasury could be sent to New York, these figures give some indication of the weekly liquidity.

On 28 April 1925, Great Britain returned to the Gold Standard at its pre-war parity with the dollar. This ended the first modern historical time period during which all major powers operated under floating exchange rate regimes. At the Fixing, which took place before the announcement, the gold price fixed at 86s – up from 85s 9d the previous day. The new Gold Standard rate was from 29 April 84s 11.5s, indicating that the participants at the Fixing must have been surprised by the reintroduction of the *Gold Standard*, having paid a premium.

This newly collated gold price data for this period will allow academics and market participants an opportunity to investigate how free gold prices and gold markets during a Gold Standard behaved before 1968, for the first time in recent history. Among other things, this will help us to see whether gold's modern role in an investor's portfolio as a diversifier and safe haven for investors is a long-run characteristic or a modern innovation.

LONDON GOLD PRICE IN MODERN £s 1919-1925



¹ Harvey, R. (2008). Duty to firm and market: the subnational and sociocultural constitution of the London Gold Fixing, a global financial market. THE UNIVERSITY OF CHICAGO

2019

THE CENTENARY OF THE FIRST LONDON GOLD PRICE

BY AELRED CONNELLY, PR OFFICER, LBMA

INTRODUCTION

12 September 2019 marks the centenary of the first gold London gold price or what is now known as the LBMA Gold Price. To mark this momentous occasion, LBMA is planning a series of celebratory events during 2019. To kick-start the year, in this edition of the Alchemist, we feature on page 22, the first of four articles by Fergal O'Connor, which draw on his academic analysis of the Gold Price over the last 100 years. Further articles will appear in the other three editions of the Alchemist during 2019.

A BRIEF HISTORY

On 12 September 1919, the Bank of England made arrangements with NM Rothschild & Sons for the formation of a free gold market and the establishment of a daily gold price. The first "fixing" took place at 11am when the price of gold was settled at £4 18 s 9d by the five founding members: NM Rothschild & Sons (chair), Mocatta & Goldsmid, Pixley & Abell, Samuel Montagu & Co. and Sharps Wilkins. The bids were made by telephone for the first few days, but it was then decided to hold a formal meeting at New Court, the London offices of NM Rothschild & Sons.

The original members of the Fixing were all historically linked with the gold market in London. Mocatta & Goldsmid dated back to the early origins of the market in the late 1600s, when it became silver broker to the Bank of England, at a time when London was usurping Amsterdam as the international centre for the gold market.

In the late 18th century and early 19th century, Mayer Amschel Rothschild rose to become one of Europe's most powerful bankers and it was his third son, Nathan Mayer Rothschild, who founded NM Rothschild & Sons in London in 1811. As gold began to pour into London from the gold rushes, first from California and then Australia, Pixley & Abell was set up in 1852, swiftly followed by Samuel Montagu in 1853.

In the intervening years, mergers have seen Pixley & Abell and Sharps & Wilkins in 1957 form Sharps Pixley, which is still in existence to this day, and Samuel Montagu become part of the private banking service of HSBC.

As we reflect on the last 100 years of the gold price, we equally look forward to the next 100 years. Today, it continues to be set in London and remains the international benchmark price for the gold market. However, over the years it has evolved and modernised. One of the most significant changes was on 1 April, 1968 when the price changed from sterling to dollars and took place twice a day.

More recently in 2015 responsibility for the administration and governance of the price was transferred to an independent administrator, ICE Benchmark Administration who have also established an external oversight committee to assist them in ensuring the effective governance of what is a transparent, trusted and tradable process.

The auction provides the opportunity to buy or sell precious metals via a transparent electronic platform. Everyone can see the same, publically available information at the same time - providing a level playing field to all participants. The administrator monitors the benchmark settings before during and after the process to ensure its integrity.

The tradable reference price is used by miners, refiners, central banks, investors, traders and fabricators around the globe. The auction is centrally cleared which allows a broad range of firms to become Direct Participants. Currently there are now 13 direct participants rather than just the original five, including Chinese banks.

We would encourage further participation from all sectors of the precious metals market so if you are interested in doing so please get in touch with us at mail@lbma.org.uk.



WHAT'S PLANNED FOR 2019?

We are planning a series of events to celebrate the centenary - details to be confirmed. Among other things, we are planning:



SEMINAR & COCKTAIL RECEPTION, SEPTEMBER 2019.

City of London.



COIN COMPETITION

We will be inviting our members, associates and all GDL refiners to take part in a competition to design a silver 1oz medallion with selective gold plating to commemorate the celebrations. A full brief will be released soon.



Aelred Connelly, PR Officer, LBMA

Aelred joined the LBMA in September 2011. He provides support to the Chief Executive in the administration and organisation of the Association's Public Affairs. He is responsible for Press enquiries, is the editor of the *Alchemist* as well as contributing to other LBMA publications, provision of the website and support for LBMA events.

Prior to joining the LBMA, he worked at the Bank of England for more than twenty-five years, the last five as an analyst in the Bank's gold bullion department.



GOLD EXHIBITION

We are currently exploring the possibility of holding an exhibition to showcase gold artefacts from the last 100 years, in the form of a digital resource, and maybe also in the shape of a temporary exhibition at one of the events that we have planned in 2019.



ALCHEMIST

As well as Fergal's regular feature in each edition of the *Alchemist* during 2019, we are also planning an article which will feature interviews with leading players in the market to glean their views on the value, history, importance and future of the Gold Price.



UPDATING THE ROTHSCCHILD'S CHART CELEBRATING THE 80TH ANNIVERSARY OF THE PRICE

With the assistance of Rothschild's, we will be looking to update the chart that was produced by Rothschild's to mark the 80th anniversary of the Gold Price back in 1999.



GALA DINNER, DECEMBER 2019



100 YEARS OF THE GOLD PRICE FILM

We are looking to create a short film showcasing the history and importance of the Gold Price, combining interviews, animations and archive images. To emphasise the ongoing value and relevance of the Gold Price, a focus on the future would also be a core theme too. The film will be played at various events attended by the Executive, as well as at the Conference. The film will also appear on a dedicated page on LBMA's website.



AND FINALLY...

We are currently working with key stakeholders in the London gold market, past and present, to assist us with plans to celebrate the centenary. Keep a look out for further updates as we move through 2019. And if you have any great ideas or would like to assist LBMA with any of the proposed events in 2019, please get in touch with the LBMA Executive at: events@lbma.org.uk

Image above: Watercolour of the Rothschild building at New Court, St. Swithin's Lane, in the heart of the City of London. This was the building in which the first gold "fixing" took place. It was known as the second New Court. The fourth, and current building, is on the same site. Reproduced by kind permission of the Rothschild Archive.

FUTURE PROPULSION SYSTEM MIX AND ITS IMPACT ON AUTOMOTIVE PGM USAGE

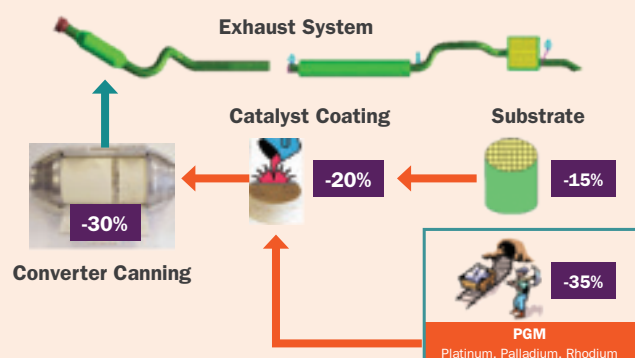
BY RAHUL MITAL, TECHNICAL FELLOW DIESEL AFTERTREATMENT, GENERAL MOTORS

The following is a truncated version of the speech which Rahul Mital delivered at the 2018 LBMA/LPPM Conference in Boston. It focuses on the impact of the auto propulsion system mix on precious metal usage in the future. This article complements the one by Dr Amanda Josey on page 29.

CATALYTIC CONVERTERS

Most cars today use the conventional propulsion systems, which deliver performance, efficiency and durability for their customers. The most common propulsion system is the gasoline internal combustion engine (ICE) in which a fuel and air mixture is injected and ignited with a spark. The other popular propulsion system is the diesel engine, where there is no spark. Fuel and air are compressed to high temperature and pressure, and the mixture self-ignites. These conventional propulsion systems use catalytic converters for emission control. These catalytic converters have platinum group metal (PGM) in them. Precious metals such as platinum, palladium and rhodium constitute about 35% of the cost of the catalytic converter (Figure 1). Gold and silver are not used in the catalytic converters today. The breakdown for the rest of the converter cost is about 15% for the substrate, 20% for the wash coat and 30% for canning. Depending on the vehicle, converter size, sales region and emission level, these numbers will vary from converter to converter.

FIGURE 1: COST OF PGM IN CATALYTIC CONVERTERS



FUTURE GM NORTH AMERICA GASOLINE PGM USAGE

Legislated fleet emissions in North America are reducing every year, so there is increasing pressure on Original Equipment Manufacturers (OEMs) like General Motors (GM) to reduce tailpipe emissions. In addition to this, the OEMs have to comply with Real-Driving Emissions (RDE). GM is also in this performance-enhancement mode, where the focus is to reduce tailpipe emissions from its vehicles. GM's average gasoline vehicle PGM usage is stable in the coming years (see Figure 2). Gasoline converters typically use a lot of palladium, some rhodium and almost no platinum. Globally, most OEMs use palladium and rhodium only in their gasoline converters. Through various engine and catalyst technology advancements, GM projects that it can hold the amount of PGM used in converters constant while achieving lower emissions in the coming years.

FUTURE GM NORTH AMERICA DIESEL PGM USAGE

Figure 3 shows the GM PGM spend on precious metals. Two-thirds of the expenditure is on palladium. This is because GM sells more gasoline vehicles and gasoline catalytic converters use more palladium. GM's diesel converter PGM usage is also holding constant in the coming years (see Figure 4) even though fleet average emissions are decreasing. The platinum to palladium ratio is about 50/50. Diesel converters typically do not use rhodium. As can be seen from the chart, GM diesel converters for model years 18 and 19 have higher palladium than other model years. The reason is that the typical development cycle for any new product is three to four years. When model year 18 and 19 products were being designed, palladium was less expensive than platinum. The shift to use more palladium was intentional at that time to reduce the cost of the system. The strategy did not work perfectly, because by the time these products went into production, the price difference between platinum and palladium had reduced. In fact, today, palladium is more expensive than platinum. Fortunately, GM was able to thrift out palladium for the coming model years.

THE CURRENT PLATINUM AND PALLADIUM PRICE DIFFERENCE AND THE PROJECTED DEFICIT OF PALLADIUM ARE CREATING A LOT OF BUZZ.

The current platinum and palladium price difference and the projected deficit of palladium are creating a lot of buzz. Everybody wants to know whether automotive industries can substitute palladium with platinum or other metals in their catalytic converters. Diesel converters are more prone to using platinum because of their lower temperature

FIGURE 2: GASOLINE CONVERTOR SALES WEIGHTED AVERAGE PGM USAGE

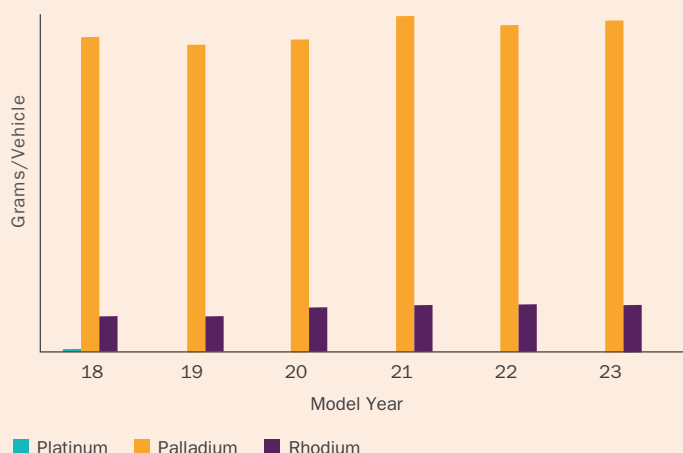
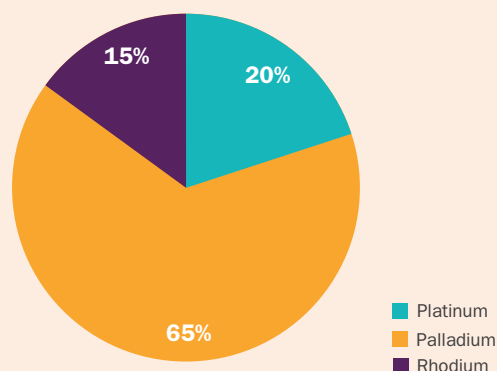


FIGURE 3: GM PRECIOUS METAL SPEND



operation and nitrogen oxides reduction requirements. Gasoline converters on the other hand prefer palladium because it is more stable at the higher temperatures that the gasoline converters operate at. Platinum tends to sinter or coalesce at these temperatures. Nevertheless, platinum can be used in gasoline converters, but it cannot be substituted one for one with palladium and only a fraction of palladium in the catalyst technology can be replaced with platinum. More importantly, this change is not a flick of a switch for an OEM. Anytime GM wants to make a substitution like this, it is a one-and-a-half to two-year cycle. The team has to recalibrate, check for emissions, verify durability and evaluate diagnostics, etc. And while doing all this, there is no guarantee that by the time the vehicle is ready for production, the prices will not have flipped back. So PGM substitutions are possible, but they take time, resources and planning.

GOLD AS AN AUTOMOTIVE CATALYST

Between 2003 and 2008, platinum was 40% more expensive than gold and there was a lot of interest to see if OEMs could substitute platinum with gold in catalytic converters, either partially or completely. Gold has been known as a good catalyst for a long time. But in the automotive industry, it is prone to sulphur poisoning, so efforts to put gold in catalysts have been limited. Gold's melting point is lower as well, so it is less favoured for gasoline vehicles where the operating temperatures are higher. Even though it is not as efficient as platinum for the various oxidation reactions, it is feasible to use gold as a catalyst in diesel converters.

During this period when gold was cheaper than platinum, GM and other OEMs worked with many suppliers and actively looked into gold as an automotive catalyst. Suppliers alloyed gold with palladium to make it more stable. Then they added platinum in the catalyst washcoat to make gold more sulphur-

resistant. Most of the final solutions that could be potentially used by the automotive industry ended up as tri-metals. Either it was a zoned catalyst or a layered catalyst.

In a zoned catalyst, platinum was physically separated from palladium and gold by adding them in different sections of the catalyst. In layered catalysts, zeolite was used to separate the different functions. In all cases, gold was either at the end of the catalyst or as the bottom layer of the catalyst, so it could be

protected from sulphur poisoning, sintering and hydrocarbon inhibition for carbon monoxide oxidation. But in around 2009, the price differential between gold and platinum reduced significantly, and for most OEMs, gold never went into production as an automotive catalyst. Today, gold is much more expensive than platinum, so there is no business case at all, but if gold ever became less expensive than platinum, there are off-the-shelf automotive catalyst technologies that could be used.

OTHER PROPULSION SYSTEMS

For this article, the point of interest is the impact of the automotive propulsion system mix on precious metal usage in the coming years. Electrification of automobiles is expected to grow with time. Already many ICE cars have e-assist or are mild hybrids, which have start/stop technology and regenerative braking. These cars basically assist the vehicle, but do not have an independent electric-only propulsion system. Extended-range or plug-in hybrid electric vehicles have pure electric propulsion systems, which then are supplemented for an extended

range by ICE or some other propulsion system. However, all of these cars have an ICE, so they all use a catalytic converter. In battery electric vehicles (BEV), the engine

is substituted with a battery pack and since there is no ICE, there is no catalytic converter. GM is investing in electrification extensively. It has different teams working on battery management and labs for different battery evaluations. More than half of GM's propulsion system employees are working on alternative or electrified systems. GM is also actively working on fuel cell technology.

Fuel cell vehicles (FCV) do not have catalytic converters, but the fuel cells themselves use precious metals. So except for BEVs, all other cars will continue to use precious metals.

PROJECTIONS FOR PROPULSION SYSTEM MIX

The key question is how will the automotive propulsion system mix change in the future? There are numerous predictions online. Boston Consulting Group (BCG) analysis shows that 93 million cars were sold globally in 2018. Future projections are that 109 million cars will be sold in 2030, out of which 14% will be pure electric or BEVs (see Figure 6). The rest will be either ICE only or mild hybrids and hybrids, which means electrified ICE cars. In summary, the projection is that by 2030, 86% of vehicles will still have an internal combustion (IC) engine in them and hence a catalytic converter. Doing the math, 109 million minus 14% is approximately 93 million, the same number of cars sold in 2018! So at least for the next 10 to 12 years, there will be no reduction in demand for IC engines and, hence, in demand for precious metal-based catalytic converters.

THE PROJECTION IS THAT BY 2030, 86% OF VEHICLES WILL STILL HAVE AN IC ENGINE IN THEM AND HENCE A CATALYTIC CONVERTER.



The growth in BEV sales is basically keeping pace with the growth in car sales and not impacting or cutting into the sale of IC engines.

Bloomberg, IHS Markit and many others give similar projections. The numbers may be marginally different, but the overall conclusions are the same as those of BCG.

Some projections include FCV sales of about one million by 2030. This may seem like a small volume, but since FCVs currently use more precious metal than conventional converters, their contribution to automotive PGM demand is not insignificant.

THE GENERAL CONSENSUS IS THAT MORE THAN 85% OF PASSENGER CARS ARE STILL EXPECTED TO HAVE AN IC ENGINE AND, HENCE, A CATALYTIC CONVERTER BY 2030.

FIGURE 4: DIESEL CONVERTOR SALES WEIGHTED AVERAGE PGM USAGE

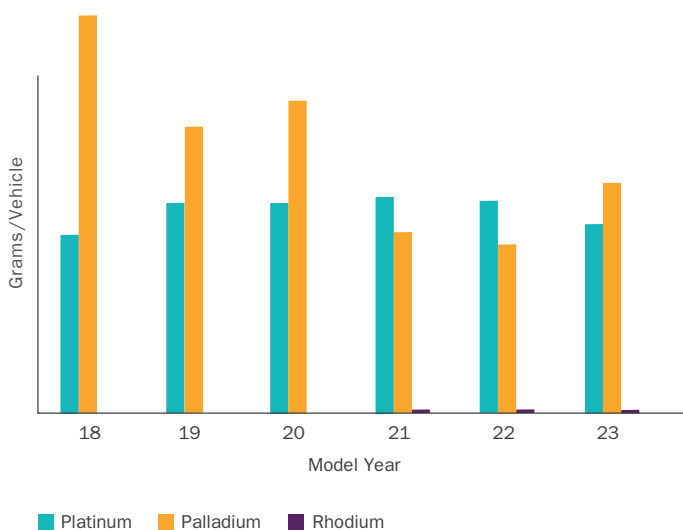


FIGURE 5: ZONED OR TRI-LAYERED GOLD TECHNOLOGY DESIGNS

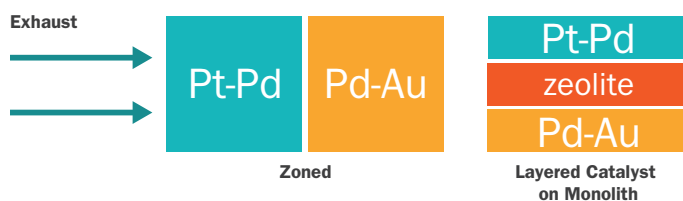
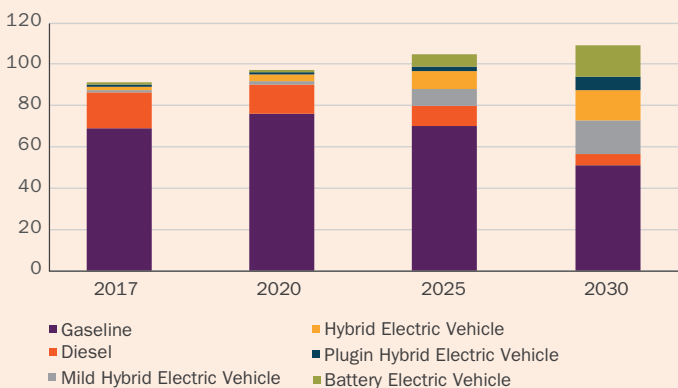


FIGURE 6: GLOBAL CAR SALES BY FUEL SOURCE (VOLUME, MILLIONS)



Source: Boston Consulting Group Analysis

IMPACT ON PGM USAGE

The general consensus is that more than 85% of passenger cars are still expected to have an IC engine and, hence, a catalytic converter by 2030. This implies no drop in demand for converters for the next 10 years. But since a significant portion of the cars will be electrified, will the converters on those cars have less or more PGM than today? Sifting through the available information, data and online publications, cars with electrification will typically be certified to lower emission levels. That means the converters will potentially need

more PGM to achieve those lower emission levels. Even hybrid cars that are certified to the same emission level are expected to have similar or slightly more PGM because the catalysts on hybrids typically run cooler and need more PGM to compensate.

As car sales increase in developing nations where emission regulations are becoming increasingly stringent, more PGMs will be needed for catalytic converters. In summary, PGM demand by the automotive industry is either expected to stay stable or increase marginally from now till 2030. In addition, PGM demand is expected to stay stable for the heavy-duty (HD) truck industry where diesels are prevalent. No propulsion system is expected to displace HD diesels for a long time. The emission regulations are becoming more stringent for the HD industry as well, which implies higher PGM usage. The bottom line is that, in the near term, the automotive propulsion system mix dominated by electrification is not expected to impact the PGM demand of the automotive industry.



Dr. Rahul Mital is the Global Technical Specialist for Diesel Aftertreatment at General Motors.

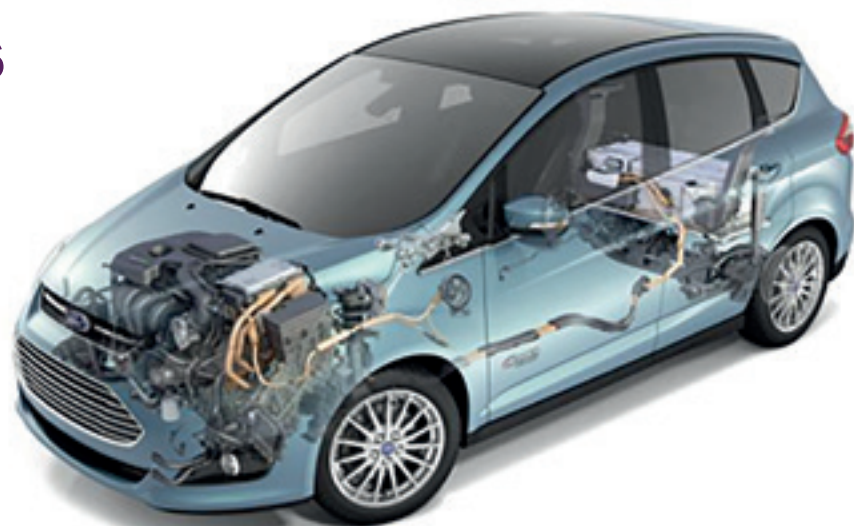
Dr. Mital has a Bachelors from IIT, Delhi and PhD from Purdue University in Mechanical Engineering. As Global Technical Specialist, Dr. Mital is responsible for diesel aftertreatment

system design, development and release for all GM diesel vehicles globally.

Dr. Mital holds 40 U.S. patents. Dr. Mital has received the Boss Kettering award, GM's top honor for technical innovation, twice. He is also the recipient of multiple SAE Awards, Purdue University's "Outstanding Mechanical Engineer" award and ASEI Engineer of the Year Award.

World Emissions Standards: Opportunities & Risks for PGMs in Automotive Catalysis

BY DR AMANDA JOSEY, HEAD OF GLOBAL PRODUCT MANAGEMENT, MOBILE EMISSIONS, BASF CORPORATION



The following is a truncated version of the speech which Dr Josey delivered at the 2018 LBMA/LPPM Conference in Boston. It focuses on world emission standards, and what this means for the future demand for PGMs. This article complements the one by Rahul Mital on page 26.

BASF CORPORATION

BASF is the world's leading automotive supplier in the chemical industry, helping automakers address global automotive trends such as e-mobility, lightweighting, heat management, passenger experience, fuel efficiency and emissions reduction. We have the most extensive product portfolio in the automotive industry from engineering plastics, coatings and fuel additives to catalysts, battery materials and brake fluids to chemicals for leather and textiles. With a strong presence in Europe, Africa, North and South America, as well as Asia, BASF has a truly global network.

I am part of the Mobile Emissions business within the Catalysts division of BASF Corporation. BASF Catalysts division supports several areas across the automotive industry: precious & base metals services, mobile emissions catalysts and battery materials.

FIGURE 1: CONVERTING TOXIC EMISSIONS TO $\text{CO}_2 + \text{H}_2\text{O} + \text{N}_2$
Substrates are coated with a PGM washcoat and canned to produce emissions system

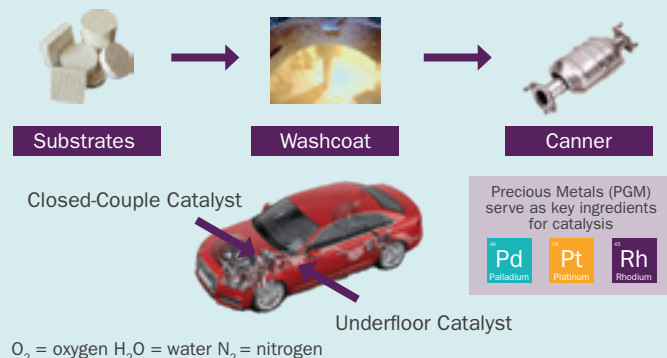


FIGURE 2: BENEFITS OF PGMs TO REDUCE EMISSIONS

PGMs are not fully interchangeable; typically more than one PGM needed per catalyst component

	Platinum	Palladium	Rhodium
Hydrocarbon Oxidation	+	+	+
CO Oxidation	+	+	+
NOx Reduction	+/-	+	++
Thermal Durability	-	+	-/+
SOx Poison Tolerance	+	-	-

++ best performance + good performance - poor performance

Performance can be different under lean conditions/stoichiometric conditions

CATALYTIC CONVERSION

A catalytic converter is produced using a ceramic or metal substrate, coated with a wash coat containing active ingredients such as platinum group metals (PGM) and canned in a metal housing. Catalytic conversion aims to convert all toxic emissions into atmospheric products, for example, carbon dioxide, water and nitrogen. PGM placement and use in our catalytic converters is key for BASF to have the best-performing product (see Figure 1).

The catalytic converter can be located in various spaces underneath the vehicle. The placement, determined by the OEMs, impacts the performance needs of the emissions system. Close-coupled catalysts are closer to the engine, with high temperature outgas and higher pollutants, since it is the first catalyst after the engine. The catalyst can also be placed underfloor in the system, along the trace underneath the vehicle. Underfloor catalysts need to perform at lower temperatures and clean up remaining pollutants

CHEMISTRY

What happens if one type of PGM, for example palladium, becomes prohibitively expensive? Can an alternative (e.g. platinum) be substituted? The metal choices depend on the performance of different chemical reactions that happen on the surface of the catalyst. Remember, the goal is to convert pollutants into products that would be found in the atmosphere. The main chemical reactions happening are (1) hydrocarbon oxidation, converting hydrocarbons into carbon dioxide and water, (2) CO oxidation, converting CO into carbon dioxide, and (3) NOx reduction, converting NOx into water and nitrogen.

OXIDATION

Figure 2 shows a performance comparison, contrasting the different types of PGM, to give an impression whether one PGM is easily replaceable by another. For hydrocarbon and CO oxidation, all three precious metals are good performers. Some would argue that palladium offers a little better performance overall, but at BASF, we can create a PGM for oxidation that meets customer performance requirements at the best cost using any of the three.

NOX REDUCTION

NOx reduction is becoming increasingly important with upcoming world regulations. For that reaction, there is both a plus and a minus for platinum which is related to whether the vehicle is running lean burn, with a higher oxygen/fuel ratio in the outgas (diesel engines), versus stoichiometric burn, which we have in a typical gasoline engine. While in a diesel engine, platinum supports NOx reduction and is a key component, a gasoline engine running under stoichiometric conditions does not favour the use of platinum alone. Rhodium is by far the best performer in NOx reduction, which is why it will be a critical precious metal going forward.

METAL PERFORMANCE – OTHER CRITICAL INDICATORS

In addition to supporting key chemical reactions, thermal durability and sulphur tolerance are critical performance parameters for PGM. Platinum has a poorer thermal durability, so placing that metal in the close-coupled position in gasoline engines can be challenging without another metal to support it. For rhodium, performance also depends on whether you are running gasoline

FIGURE 3: EMISSION STANDARDS AND CHALLENGES

Current status and outlook for light duty → need significant performance improvements



Main challenges are particulate matter (PM), CO₂, and NO_x control

THC = total hydrocarbon CO = carbon monoxide NOx = nitrogen oxides CO₂ = carbon dioxide
Emission regulation Light duty vehicles; Source: UNEP

or diesel (stoichiometric or lean burn). Finally, sometimes our fuels contain sulphur, so some of the precious metals can have their activity poisoned by sulphur. However, platinum has a good record in limiting sulphur poisoning.

EMISSIONS REGULATIONS

EUROPE

Europe has real-driving emissions (RDE) regulations coming on line in the next couple of months, with Euro 6d Full.

This will also require the control of particulate matter (PM) using filters in the after-treatment system. The hypothetical regulation beyond that is Euro 7. It is not known exactly where requirements will be set for Euro 7, but many of the OEMs are already working on performance needs based on hypotheses (see Figure 3).

CHINA

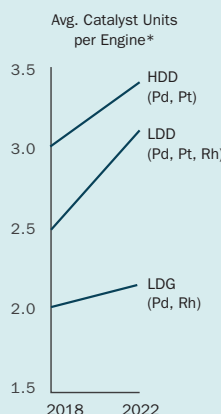
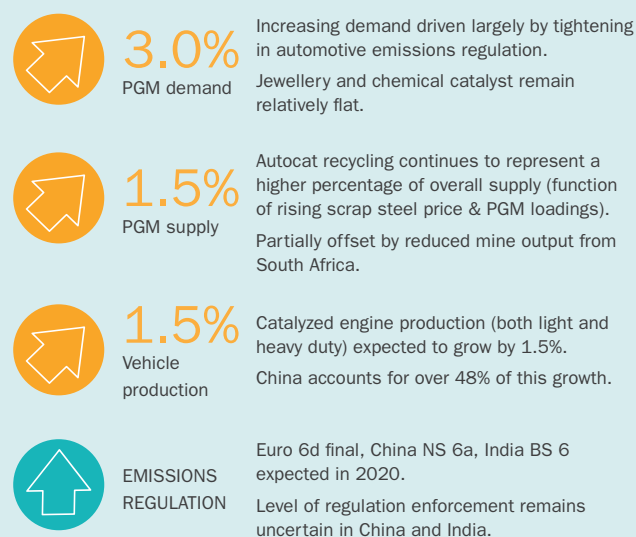
China will be implementing the world's strongest regulations – China 6. Some of the major cities in China will probably move to China 6-type regulations by 2020, but the whole country will comply by 2023. Figure 3 is a representation of the requirements for emissions and a comparison between China and Europe.

2027

**AUTOMOTIVE DEMAND
WILL BE THE MAIN DRIVER
FOR INCREASES IN PGM
NEEDS THROUGH 2027**

FIGURE 4: GLOBAL TRENDS IN PGM USAGE FOR AUTOMOTIVE CATALYSIS

Tightening regulations drive increased catalysts on vehicles and PGM growth overall



Percentages represent CAGR through 2027

*based on LCMA engine data (June 2018) and OEM program data.

HDD: heavy duty Diesel; LDD: light duty Diesel; LDG: light duty gasoline

When it comes to CO and hydrocarbon oxidation, these two parameters are fairly easy to control, based on expected regulations. The main challenges going forward are more on the particulate matter (PM), CO₂ level and NOx control. This again points towards an increasing need for rhodium to control the NOx.

PGM USAGE

MARKET PROJECTIONS

BASF's market model until 2027 shows a projected 3% increase in PGM demand driven by regulation. A 1.5% increase in PGM supply is expected, with the recyclers offering support. Vehicle production has a 1.5% expected CAGR, and the key point here is that 48% of this growth will come from China, so it is the biggest growth region by far. The emission regulations are the main driver (see Figure 4).

GEOGRAPHICAL DIFFERENCES

In Europe and the US, overall internal combustion engine development is expected to be flat or decreasing; however, an increase in the number of catalysts per vehicle is

still expected and therefore catalyst units in the market are growing. In our projections until 2022, in all segments (heavy-duty and light-duty), an increase in the number of catalysts per vehicle is expected.

METAL DEMAND

BASF market insights projects that automotive demand will be the main driver for increases in PGM needs through 2027. As a percentage share of the total annual market demand palladium is expected to increase from 69% to 88%, platinum from 38% to 48% and rhodium from 78% to 91% (see Figure 6).

As a percentage share of total annual demand in the market palladium is expected to increase from 69% to 88%, platinum to 48% and rhodium to 91%.

REAL-WORLD TESTING

CERTIFICATION METHODS

One of the biggest changes to emissions requirements is certification with real-driving conditions. OEMs want to ensure their vehicles will meet the requirements under all conditions and will sometimes require additional PGMs to support this as new technologies are being developed. This may cause demand increases in the short-to-mid-term; however, it is fully expected that after launching new systems to meet RDE, the OEMs will require the catalyst developers to continue work on improvements to maintain the performance of these systems, while using less PGMs.

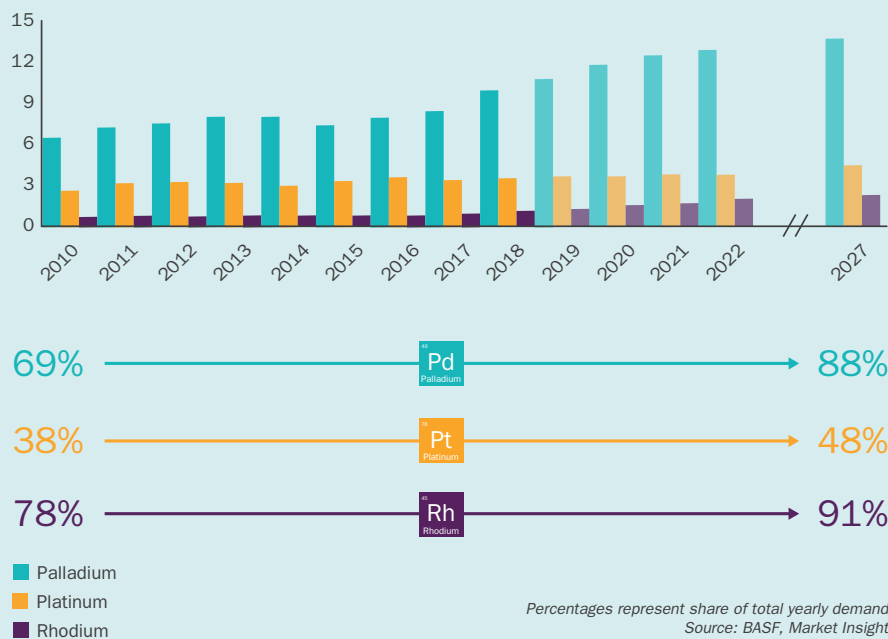
RDE certification requires that OEMs develop a testing cycle where the vehicle runs through an urban, suburban and rural loop and on-board testing is performed. One challenge arising from the need to meet RDE versus previous certification requirements is instead of a steady-state temperature in a controlled testing environment, OEMs need to show performance at temperatures from below freezing to very warm in an on-the-road environment. When it is really cold, it takes longer for the catalyst to warm up and be effective, and lower temperature performance becomes critical.

Lab certification provides a direction in terms of which technologies are best, but may not conclusively indicate which technology should be used until RDE testing is performed. This requires more discussion, work and time to achieve the right requirements for RDE testing, and could also impact the use of additional PGM if there is not enough time to make overall changes to the catalyst.

ELECTRIFICATION

Future CO₂ emissions requirements are a major factor influencing the need for electrification and alternative powertrains, such as hybrid vehicles, mainly because CO₂ can be reduced by improving fuel economy. Europe will have the most challenging CO₂ emissions requirements in the future. However, many consumers in Europe are switching from diesel to gasoline vehicles due to the 'Dieselgate' scandal. This has had a negative impact on fleet average fuel economy and therefore is driving OEMs to promote alternative powertrains and electrification. Additionally, controlling emissions on hybrid vehicles can be even more challenging, because as the vehicles switch from electric to gasoline (or diesel), the engine needs to warm up again for the catalyst to perform. This is partially being solved through additional PGM or heating strategies in the vehicle.

FIGURE 5: AUTOMOTIVE PGM DEMAND (IN MILLION TOZ)



The catalyst manufacturers are also working on low temperature solutions to alleviate the need for more PGM and/or heating.

ALTERNATIVE PROPULSION SYSTEMS

Compressed natural gas is another propulsion system being investigated by the OEMs. It is not believed to be a solution in the US in the future, but for regions such as China and maybe within Europe, where they have natural gas stations, it could be an option. There are other alternative vehicles such as lean GDI, which is a gasoline vehicle running lean similar to diesel, and hybrid vehicles, which present different challenges as well. Most of these alternative systems require more PGM to have the best performance.

CONCLUSIONS

PGM demand is expected to increase, especially with world regulation updates in the mid-term. This is driven by more catalysts per unit, challenges with hybrid vehicles and making sure we have sufficient performance when the engine is colder. We expect to achieve CO₂ reduction through fuel economy improvement, which is driving the need for electrification. However, it is still expected in the next decade that a majority of the engines will continue to be internal combustion engines. Finally, while many of these requirements coming from world emissions support a strong increased demand for PGM, it is expected that once OEMs are able to meet the targets, they will challenge the catalyst manufacturer to improve costs while maintaining performance.



Dr. Amanda Josey has a passion for bringing science and business together.

Dr. Josey earned her Ph.D. in inorganic chemistry from North Carolina State University in 2008. She started her career at BASF the same year doing research & development in Catalysis and has moved through the company in the last 10 years in innovation, business development, and marketing roles. Dr. Josey is currently responsible for the global portfolio management of BASF's Mobile Emissions business. In her talk, she shared her ideas on the risks and opportunities that her customers face with the upcoming world regulations and the very important role precious metals, like rhodium, must play in the success to meet those regulations.

LBMA NEWS

LBMA-i REPORTING

On 20 November, LBMA published trade reporting data to reveal the size of the LBMA membership's share of the loco London and loco Zurich OTC market. Since then the dataset has been published on a weekly basis each Tuesday. The data is reported over a five-day reporting week and is broken down into spot, forward, swaps and loans/leases and deposits.

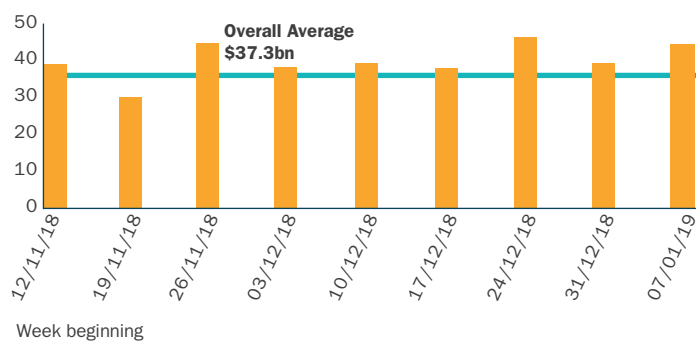
The latest data published on 15 January (for the week beginning 7 January) shows the daily average turnover for gold was \$41.6 billion and silver \$5.8 billion.

The publication of the trade reporting data through LBMA-i meets LBMA's requirement to improve transparency and demonstrates liquidity in the global OTC precious metals market. As the dataset grows it will help us to develop a clearer picture about the true size of the global OTC market. It will also help inform our dialogue with regulators on matters such as Basel III's Net Stable Funding Ratio.

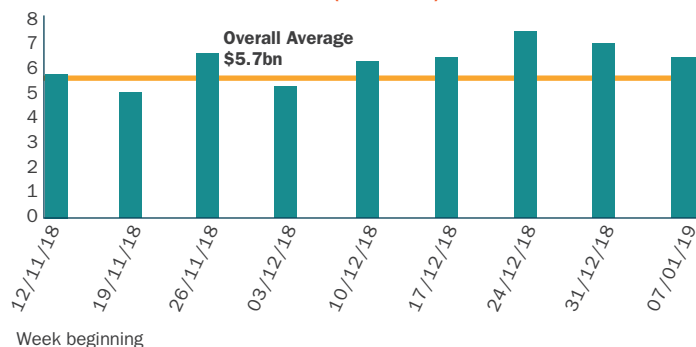
The charts below illustrate the Trade Reporting average daily turnover in US Dollars for gold and silver over the nine weeks since the data was first published. The datasets are calculated by dividing the aggregate weekly volume data by the number of business days in the week and then multiplying by the LBMA \$ price.

For further details, refer to the LBMA-i Trade Reporting page on LBMA's website.

GOLD - AVERAGE DAILY TURNOVER (\$ BILLIONS)



SILVER - AVERAGE DAILY TURNOVER (\$ BILLIONS)



CENTENARY OF THE FIRST GOLD PRICE

On 12 September 2019, we will be celebrating the centenary of the gold price. LBMA is planning a series of events to mark the anniversary. For further details, please see the article on the 100 years of the gold price on page 22.



RESPONSIBLE SOURCING VERSION 8

On 1 January, LBMA launched version 8 of its Responsible Sourcing programme. This extends the scope of the programme to include Environment, Social and Governance issues. For further details, please refer to the Editorial on page 3.

LBMA Launches Chinese Version of Website



In the build-up to the next Precious Metals Conference in Shenzhen in October, a new Chinese version of LBMA's website will be launched in the first quarter of 2019. At launch, the site will contain selected content to provide visitors with information on Membership, Good Delivery, Prices and Data, and with the contact details of our senior advisor in Asia – Jeremy East. It is intended that the site will be extended over time to include further information.

ENHANCED COMMUNICATIONS AND INFORMATION SERVICES



LBMA is developing an improved communications programme for 2019 and beyond. We will be running a regular webinar series, and planning targeted updates and briefings to our contacts, amongst other activities. A brand new secure website will also launch this year – MyLBMA – providing the ability for Member and GDL applications to be submitted online, as well as offering our members and accredited refiners the ability to view and make payments. It will also house a secure Members Resources area which will replace the existing Members Area currently on our main website. Keep an eye out for details about the launch of MyLBMA.



LBMA Charitable Donations

The 2018 charitable fund was divided equally between four charities: £2,500 was donated each to the Alzheimer's Society, Prostrate Cancer UK, St Mungo's Homeless Charity and the Urostomy Association

101 ACCREDITED REFINERS

We now have **101 refiners** on the Good Delivery Lists, with **68** listed for gold, **83** listed for silver and **50** refiners on both lists.



68
GOLD

83
SILVER

CURRENT APPLICATIONS

There are currently **9 active Good Delivery applications.**

LBMA MEMBERS



We currently have **145 member companies** – **86 Full Members** (including **13 Market Making Members**), **3 Exchange Affiliates** and **56 Associates** located in more than **30 countries.**

Finance Committee Vacancies

The Finance Committee is looking for new recruits to join the Committee. For more information, please contact Ed Blight at: ed.blight@lbma.co.uk

BREXIT SEMINAR: WHAT'S GOING ON? – DECEMBER 2018

LBMA Chairman, Dr Paul Fisher, in his capacity as Senior Research Fellow at King's Business School, provided his unique insight into why the Brexit process has proved so difficult, as well as what impact it may have on the future for London as the world's leading financial centre. If you haven't listened to it already, it's available on LBMA's YouTube channel.

GLOBAL PRECIOUS METALS CODE

LBMA has now received Statements of Commitment from 99% of members. In 2019, LBMA will relaunch the Global Precious Metals Code Working Group to review the Code and the compliance oversight. LBMA will also continue its application for recognition of the Code by the FCA.



Gold and Silver Held in London Vaults

As at end September 2018, there were **7,452 tonnes of GOLD**, valued at **\$284.5 billion** and **35,135 tonnes of SILVER** valued (as at end of September 2018) at **\$16.2 billion**. This equates to approximately **596,161** gold bars and **1,171,174** silver bars.



LEON EDERY BECOMES A UK CITIZEN

Leon is a member of the PAC and is pictured here at a recent ceremony where he gained his UK citizenship. He now holds dual French and UK nationality.

LBMA OUTREACH AND INDUSTRY EVENTS 2019

LBMA Executive will be attending the following events

31 JANUARY:

RMI Responsible Sourcing Summit
Berlin, Germany



1-3 FEBRUARY:

World Money Fair
Berlin, Germany



04-07 FEBRUARY:

Mining Indaba
Cape Town, South Africa



18-20 MARCH:

IPMI AML Seminar
Fort Lauderdale, USA



09-11 APRIL:

Denver Gold
European Gold Forum
Zurich, Switzerland



11 APRIL:

SGE Global Summit
Xi'An, China



23-25 APRIL:

OECD Forum Meetings
Paris, France



14 MAY:

LPPM Platinum Week
Cocktail Reception
Guildhall, London, UK



09-11 JUNE:

Asia Pacific
Precious Metals
Conference
Singapore



15-18 JUNE:

IPMI 43rd Annual
Conference
Reno, Nevada, USA



08-11 AUGUST:

IIGC
Amritsar, India



09-13 SEPTEMBER:

LPPM Platinum Week
New York, USA

12 SEPTEMBER:

LPPM/LBMA
Reception
Lotte New York Palace,
New York, USA



02-03 OCTOBER:

Joburg Indaba
Inanda Club,
Sandton, South Africa



13-15 OCTOBER:

LBMA/LPPM
Annual Conference
Shenzhen, China



28-31 OCTOBER:

LME Week
London, UK



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REGULATION UPDATE

For LBMA, 2019 will bring a focus to regulation seeking to increase transparency and accountability to the financial markets.

Bullion Bank Reporting under the Conflict Minerals Regulation, the Global Precious Metals Code, the Net Stable Funding Ratio (NSFR) and the Securities Financing Transactions Regulation (SFTF) will be on our regulatory agenda throughout the year. To promote our work in these areas, LBMA will be circulating monthly updates to its membership.

Contact rachel.hart@lbma.org.uk to join the mailing list.

NET STABLE FUNDING RATIO

Under the Basel III framework to be implemented in 2022, precious metals will require 85% of Required Stable Funding (RSF) as part of NSFR.

This means that 85% of liquid assets must be held against the commodity to achieve the RSF for precious metals financing, and clearing and settlement.

This could have a detrimental impact on the clearing and settlement services provided by LPMCL and also potentially increase the cost of financing and/or lead to market participants exiting the market.

Throughout 2018, LBMA together with LPMCL and the German Precious Metals Federation have been working with Norton Rose Fulbright LLP (NRFLP) to advocate a lower RSF factor. In July, the European Parliament's Committee on Economic and Monetary Affairs (ECON) adopted an amendment lowering the RSF to 50%. However, when put to Member States in November, this proposal was rejected by European Finance Ministers. Instead, the 85% RSF will go ahead for the financing, and the clearing and settlement of precious metals.

BULLION BANK REPORTING, THE GLOBAL PRECIOUS METALS CODE, NSFR AND SFTF WILL BE ON OUR REGULATORY AGENDA THROUGHOUT THE YEAR.



Sakhila Mirza, LBMA General Counsel and Executive Director of the LBMA Board

works very closely with the CEO on the strategic development of the

association, leading on a range of market development initiatives. She also takes responsibility for all the legal work affecting the Association, lobbying on matters affecting the market and building key relationships with governmental officials and regulators around the world.

She previously worked in the energy and commodities industry on compliance, legal and regulatory matters. She read law at the LSE and is a qualified solicitor.

It was also decided that the European Banking Authority (EBA), through a liquidity assessment of the precious metals market, would examine whether a reduction or exemption of the RSF factor could be justified. LBMA, LPMCL and NRFLP will engage with the EBA during its review. Using the LBMA-i trade reporting data, LBMA hopes to demonstrate the levels of liquidity and transparency within the precious metals market. The objective of any upcoming advocacy activities remains to secure a full exemption from the application of the RSF for precious metals clearing and settlement services, and financing transactions.

MARKET MOVES



NEW ARRIVALS AT SCOTIABANK

Scotiabank has recently reaffirmed its commitment to the Americas metals business with a complete restructuring and hiring of key personnel and a platform designed to provide clients with cross asset coverage of precious metals, base metals and energy. Joining the Scotiabank Commodities team are Steve Scalososi, Nicky Shiels, Amaryllis Gryllaki, Elizabeth Scarcello and Teona Lazashvili.

Steve, who joins as Managing Director, has 25 years' experience having worked at Sumitomo Corp., Mitsui Precious Metals, Credit Suisse, and TD Bank, where he was the Global Head of Metals Sales. Nicky Shiels, Director, is the team's new Commodity Strategist, providing base & precious metals content and strategy ideas. She joins with 10 years' experience from JP Morgan and Jefferies Bache. Amaryllis Gryllaki, Director, will focus on precious and base metals sales and has 10 years' market experience having worked at TD Bank, Deutsche Bank and Citibank. Elizabeth Scarcello, Associate Director, will focus on LATAM sales. She joins with 8 years' experience having worked at ING and Societe Generale. Lastly, Teona Lazashvili, joins as a Commodity Analyst, after spending 3 years at Mitsubishi.

NEW CEO AT METALOR

On 1 January 2019 Antoine de Montmollin was appointed the new CEO of Metalor. Antoine, a Swiss national, joined Metalor in June 2005 and has since taken on various roles including business controller, CFO of the Metalor North-American businesses, Head of the European Refining and more recently Group CFO from 2015. He replaces Philippe Royer, who led Metalor for more than 4 years including the acquisition by Tanaka Group.

SID TIPPLES TO LEAVE JP MORGAN

Sid Tipples, Managing Director and Co-Head of Metal Trading at JP Morgan is leaving the firm in the coming weeks. Sid joined the bank during its acquisition of RBS Semptra in 2010. He has been responsible for the clearing, custody and financing side of the metals business. Sid is currently a Board Member of LBMA.



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Gold in India

TRANSFORMATION FROM A NEGATIVE TO A POSITIVE APPROACH

BY RAJESH KHOSLA, CHAIRMAN EMERITUS, MMTC-PAMP INDIA PVT LTD

A truncated version of the speech which Rajesh delivered at the 2018 LBMA/ LPPM Conference in Boston. It focuses on the policies and initiatives introduced, or planned, by the Indian government, to transform the domestic gold market.

BACKGROUND

Those who have been looking at what is happening in India would have noticed that, in the recent past, the Government of India has significantly focused on black money and corruption. A significant contributor to these economic ills was a seriously misguided gold policy. If you recall, we had the Gold Control Act in 1962, with amendments in 1963 and 1968, the net effect of which was to kill the official gold market. Trade moved to smuggled gold and a huge black market for gold developed. This situation continued for close to 30 years.

We saw the beginnings of a transformation when India repealed the Gold Control Act in 1990 and liberalised the import of gold in 1997. Everyone felt that India had finally addressed its fixation on gold, until we walked straight into the global economic slowdown of 2013-14, which led to a massive current account deficit crisis. The Government response included rapid-fire increases in customs duty, a ban on domestic

gold loans and the introduction of the infamous 80-20 rule. These restrictions were withdrawn late in 2014, except for the 10% customs duty, which still applies.

In 2015, we saw the beginning of a structured approach to transforming the gold market.

In his budget speech in 2015, the Finance Minister announced three policy initiatives: a Gold Monetisation Scheme, a Sovereign Gold Bond and an India gold coin. Though well intended, these initiatives have met with limited success – just 7 tonnes of gold have been mobilised under the Gold Monetisation Scheme, 24 tonnes under the Sovereign Gold Bond and 800 kilos of the India gold coin were minted, of which 100 kilos remain unsold.

THE NITI AAYOG COMMITTEE

Undeterred and recognising the criticality and the untapped potential of the gold market, which provides a stimulus for exports, economic growth and, significantly, employment, in 2017, the Government instituted a Commission on Transforming India's Gold Market. This task was given to NITI Aayog, the erstwhile Planning Commission, which produced the NITI Aayog Committee Report.

Continuing with a positive approach, the Finance Minister in his budget speech of 2018-19, the most recent financial year, made three significant statements. First, the Government will formulate a Comprehensive Gold Policy to develop gold as an asset class.

Second, the Gold Monetisation Scheme will be revamped to enable people to open a hassle-free Gold Deposit Account. Finally, the Government will establish a consumer-friendly and trade-efficient system of regulated gold exchanges in India.

**THE GOVERNMENT
WILL ESTABLISH A
CONSUMER-FRIENDLY
AND TRADE-EFFICIENT
SYSTEM OF REGULATED
GOLD EXCHANGES
IN INDIA.**

The NITI Aayog Report of 2018, released at the end of February 2018, provides the foundation for realising the policy intent of the Government. Significantly, it has taken the Government 56 years to publish a comprehensive and integrated document on gold; therefore, its implementation cannot be expected overnight.

A positive approach to gold does not necessarily mean pro-gold or pro-gold business policy, because policy considerations for gold in India grapple with multiple perspectives. Traditionally, jewellery provides safety and security for households as well as liquidity under difficult circumstances. It is significantly non-depreciating

MMTC-PAMP, IN COLLABORATION WITH THE WORLD GOLD COUNCIL, HAS SET UP A PRECIOUS METALS ASSAYER TRAINING INSTITUTE IN INDIA.

in its form. It is considered a safe-haven asset whose value will withstand crisis anywhere and, because of the huge demand for gold jewellery, gold is also a significant industry, with employment potential in a country like India, where unemployment is high.

From a macroeconomic point of view, however, since India does not produce gold domestically, the Indian economy will always have to pay for gold through exports or capital inflows, and therein lies the problem. Further, the industry is largely an informal sector and high customs duties encourage tax evasion, so there is a bit of a tightrope balancing act to be performed.

The policymaker's task was made significantly less onerous when, in July 2017, the Government introduced a unified GST in the country. GST enables monitoring of gold import and domestic transactions, as well as encouraging formalisation of what is a highly informal sector.

SOME SPECIFIC SUGGESTIONS MADE IN THE NITI AAYOG REPORT AND ENSUING DELIBERATIONS THUS FAR

The report suggests a comprehensive review of the mining policy compatible with international practices. It would thus be reasonable to expect the Ministry of Mines to set up a separate wing to focus on gold mining in India, something India has successfully achieved in its hydrocarbons sector.

While it suggests reviewing the 10% customs duty and imposition of 3% GST, the report recognises that there may be financial considerations which may stand in the way of the Government doing so.

The report suggests reviewing policies for refining, to transform 'Make in India for India' into 'Make in India for the world'. This includes developing an India good delivery standard along the lines of the LBMA Good Delivery standard. It notes the increasing trend in domestic refining using mine dore, which in the fiscal year 2017-18 accounted for almost 50% of India's gold content imports. For the current year, I see 60% being refined locally, so is there here an invitation to move refineries from overseas into India? Perhaps India will finally see a two-way trade in gold.

There is talk of revamping the export of gold jewellery, with a higher focus on value added (and incentivising this). The Ministry of Commerce is working on these areas and announcements are expected soon. India is looking at mandatory hallmarking of jewellery, although there can be problems with the quality of the hallmark, due to technological obsolescence. The report also criticises the lack of adequate development of skills in this field for example, India does not have a formal training programme for

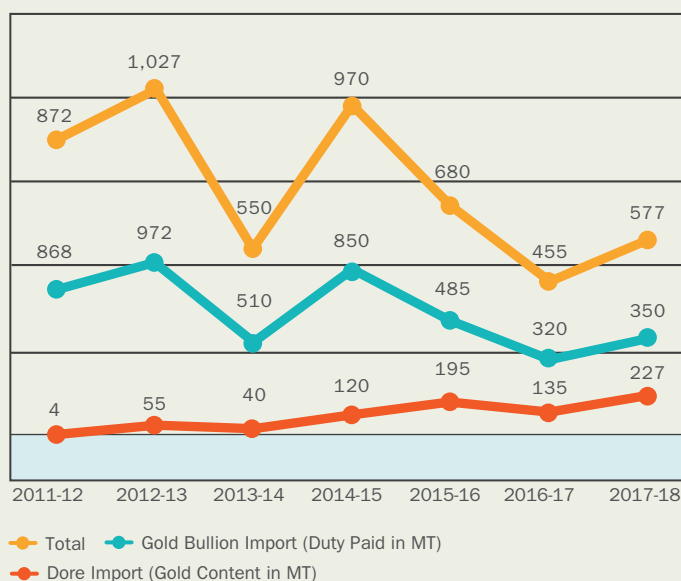
THE REPORT SUGGESTS REVIEWING POLICIES FOR REFINING, TO TRANSFORM 'MAKE IN INDIA FOR INDIA' INTO 'MAKE IN INDIA FOR THE WORLD'.



Jewellery stores in Kerala, Thiruvananthapuram

assayers. Recognising this, MMTC-PAMP, in collaboration with the World Gold Council, has set up a Precious Metals Assayer Training Institute in India. The course content has been defined, infrastructure established, the training duration and certification norms identified and finalised, and the first batch of students commences training in January 2019.

CHART ONE: CHANGING FACE OF DUTY-PAID GOLD IMPORTS (METRIC TONNES)



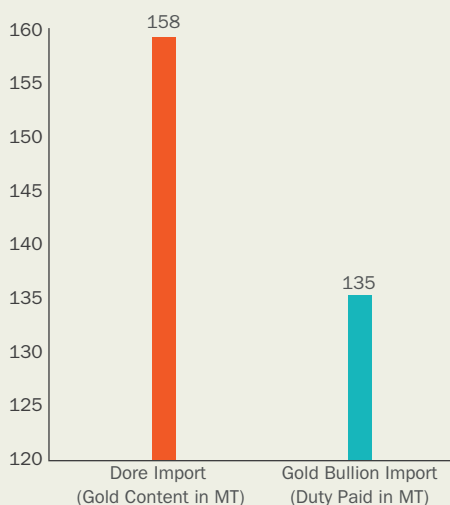
The chart above shows the current position of duty-paid gold imports in India. The bottom line shows how refining has increased to 227 tonnes of gold content in mine dore imported and refined in 2017-18, and in the first six months of 2018-19, domestic refining has overtaken refined gold bullion imports.



Significantly, the NITI Aayog Report talks about a revamped gold monetisation scheme using technology as a key enabler. There is a debate going on currently amongst various regulators on simplifying the process for opening metal accounts so that a normal consumer could have a rupee account and a metal account in gold. Digital transactions, the structure around gold clearing and a gold clearing

corporation may be seen in India, enabling jewellers and other entities to function as deposit mobilisation centres, and banks to treat gold as a quality liquid asset which they can either lend or sell as they wish. This is a work in progress. Overnight miracles cannot be expected but six to eight months seems to be a fair timeframe. Technology is the enabler, of course.

**CHART TWO: DUTY PAID GOLD CONTENT
(293 TONNES) 2018 (APRIL-SEPT)**



Fortunately for the government, MMTC-PAMP has a successful digital platform for gold, which may well be a starting point.

The report analyses domestic gold loans to the jewellery sector and recommends the global practice of transacting gold loans in terms of physical gold, including 'gold metal on loan' monitoring and its settlement, all of which is eminently achievable once customers are encouraged to open metal accounts linked with existing rupee accounts. A variety of regulatory considerations have been highlighted and commented upon.

There is as yet no debate on according the India gold coin status as legal tender; hence, it will continue as a coin. There is considerable debate in the report regarding the proposed bullion spot exchange, an activity spearheaded by the World Gold Corporation. An industry group is working on this and an interim report is due next month.

The Ministry of Commerce has already initiated a dialogue for setting up a Domestic Council for gold, gems and jewellery. The report highlights setting up a Gold Board comprising various regulatory entities and ministries; however, I believe that will take more time to achieve.

LOOKING AHEAD

While looking at all the positives and the transformation over a 56-year period from the Gold Control Act of 1962 to the NITI Aayog Report of 2018, policymakers will also have to reckon with global economic uncertainty and its impact on India's economy. A depreciating rupee, a fluctuating oil price and increasing hydrocarbon imports should compel us to temper expectations with reason. Policymakers will surely have to take into accounts these factors. The silver lining as I see it is that we now have a comprehensive 250-page policy document report and knee-jerk reactions may well be a thing of the past.



Rajesh Khosla – Associated with the Indian precious metals industry for over twenty five years. He is widely respected for his in-depth knowledge and understanding of commercial realities of the Indian gold market value chain. Has pioneered a number of innovative schemes that seek to change the way bullion is understood in India.

He was Managing Director MMTC-PAMP India from its inception in 2008 till August 2017, when he stepped down on attaining the age of seventy-five. As Chairman-Emeritus he continues to advise and guide the company in its quest for sustained excellence in precious metals. He is also President, Association of Gold Refineries & Mints (AGRM), and Director on the Governing Board of Indian Bullion & Jewellers Association (IBJA).

Industry acknowledgements include:

- Outstanding contribution to the Indian Bullion Industry, awarded at India International Gold Convention, 2015.
- Lifetime Achievement Award – Bullion Industry, awarded at Bullion Federation of India Global Summit, 2017.
- Industry Icon award, awarded at India International Bullion Summit, 2018.

Having steered MMTC-PAMP India for LBMA Good Delivery accreditation, he is spearheading interaction between industry and Government. to establish an India Good Delivery eco-system with global acceptance. He is frequently consulted on policy issues related to development of the Bullion industry in India and is a frequent speaker on the subject at industry forums and conferences in India and overseas.

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Paul Burton OBITUARY

BY COLIN GRIFFITH

Paul Burton, who was well known in the global gold market for over 35 years through his work in South Africa and the UK, passed away on 15 March 2018, aged 65.

Paul grew up in the UK and latterly studied at the Camborne School of Mines in Cornwall where he graduated with an Honours degree as a Mining Engineer in 1975.

The following year, he emigrated to South Africa, where he worked initially for Goldfields of South Africa and later on for Anglovaal. He was there in the early 1980s when the South African Reserve Bank finally allowed individual mining companies to hedge their price exposure on the international markets. With a high-yielding contango market suddenly available, Paul and Ian Benfield (Paul's boss at Anglovaal) quickly learnt the market rules, opened trading accounts and focused on the possibilities that this presented. This opportunity not only kept some of their marginal mines in business, but it also made them very profitable.

Paul was the first person to ever take me down a deep mine in South Africa. As the cage lurched lower and the light disappeared, and of course just as we were feeling slightly nervous, Paul – always the joker – arranged for some fireworks to explode just as we passed underground working areas. Where is Health & Safety when you really need them!

Everyone who knew Paul realised that he was always extremely active and, during his time in SA, he played a lot of rugby for Old Edwards in Johannesburg. He also started marathon running, completed and finished the Boston marathon (he even completed a half marathon charity run just a couple of years ago), and sang in a choir. During this time, he also studied and passed an MSc in Mineral Economics and an MBA, both at the University of Witwatersrand.

In 1987, Paul and Ian flew from South Africa to Taiwan on the South African Airways Helderberg, which was just weeks before that plane crashed under suspicious circumstances off Mauritius with no survivors. Paul always said that he had used up one of his nine lives on that flight!

Paul returned to the UK in 1994 and started working for World Gold as the Editor and The Mining Journal, and later for GFMS World Gold Ltd – a joint venture company that he had set up with GFMS.

However, in my view, global respect for Paul's work only really took off between 1999 and 2012. During this period of time, he contributed a quarterly review of developments in the global gold mining industry entitled Facing Facts in the fast-growing LBMA Alchemist magazine (which continues to remain a regular standing feature). This exposure resulted in him being asked to speak at many international conferences and seminars.



A photograph of Paul and Colin with 2018 "King of the Jungle" Harry Redknapp at the RAC club in London, 2013.

After the Thomson Reuters takeover of GFMS in 2011, Paul decided it was time to move on and, the following year, he set up his own company – Piran Mining Research – where his experiences as a mining engineer, minerals and financial analyst, and editor of leading industry journals were sought after by many companies.

Throughout his life, Paul was very proud to be a Cornishman, which was fully illustrated in 2012 when he was a volunteer worker at the Olympics. Scottish members of the British team were allowed to show Scottish flags on their outfits. However, Cornish participants were not allowed the same privilege and this decision really upset Paul.

Singing was an important part of Paul's social life and he made many friends through his long-term membership of *Suitcase Singers* in Falmouth, right up to Christmas 2017 when he became ill. This was fully demonstrated by the more than 300 attendees at his funeral.

Paul was a well liked and respected member of the international gold market, and will be sorely missed by all of us.

RIP PAUL



Paul with friends Ian and Clavel Benfield in South Africa, 2012

FACING FACTS



INTERNATIONAL GOLD BULLION COIN SALES JUMP IN 2018 DRIVEN BY A SURGE IN THE THIRD QUARTER

BY NATALIE SCOTT-GRAY, METALS DEMAND ANALYST – RESEARCH AND FORECASTS, GFMS, REFINITIV

The data below relates to all coin sizes of the Maple Leaf, Eagle, Buffalo, Kangaroo, Lunar, Krugerrand, Philharmoniker, Britannia, Sovereign and Libertad in North America, Europe, Asia, Africa and Other markets. These bullion coin sales are aggregated to monitor the level of investment demand on a regional basis, rather than identifying fabrication output on a regional basis, which is covered in the 'GFMS OFFICIAL COIN' numbers of our supply and demand model.

GOLD BULLION COIN SALES

During Q1-Q3 2018, gold bullion coin sales rose by 16% year-on-year to total just fewer than 3 million. This impressive increase in sales was largely dominated by one region, Africa, which recorded a sales jump of 115% over the period, further supported by our 'Other' region category, which rose by 13% over the period. These increases in sales, from perhaps what are known as less traditional markets (with typical demand

historically dominated by North America and Europe), offset the double-digit declines recorded in the rest of our regions (with the exception of Japan, which fell by 1%).

If we take a moment to concentrate on gold bullion coin sales split by market share, we can see that, up until end q3

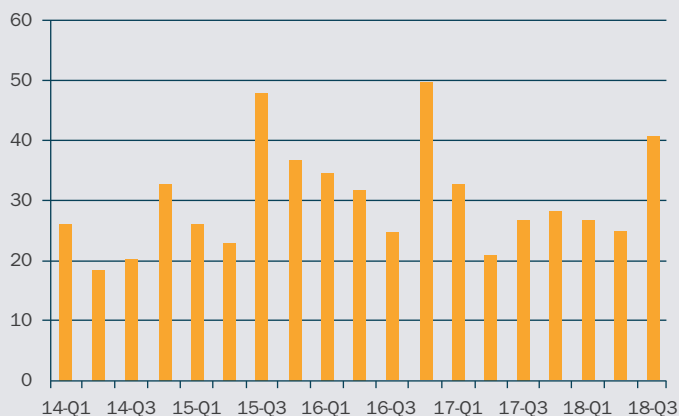
2018, there was a substantial shift in market dominance and, indeed, demand. At present, Africa is responsible for 45% of total market share, followed by Europe at 30%, North America at 21% and 1% for Japan, Other Asia and rest of the world. However, over the last five years, on an average basis, it has been demand in North America (40%) and Europe (36%) that has dominated sales levels. Indeed, this point or 'shift' in sales in 2018 can further be highlighted by looking at the change in market share on a year-on-year basis, in which Africa rose by 21%, while Europe and North America fell by 13% and 7% respectively.

HOW 2018 PLAYED OUT

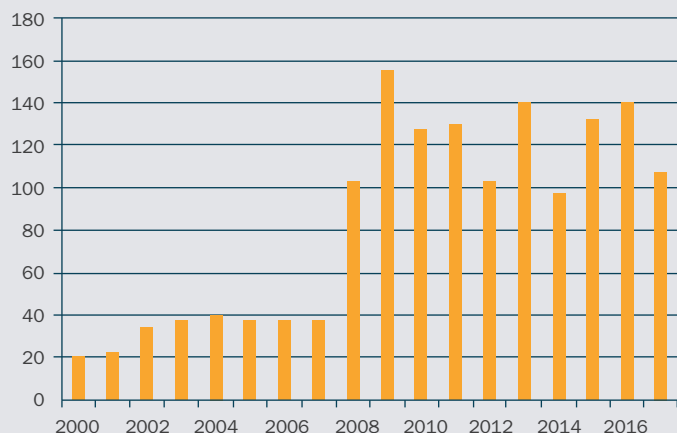
Sales in the first quarter of 2018 were fairly disappointing, with (as mentioned above) the traditionally strongest markets of demand recording a weak performance, and with both North America and Europe recording the largest decline in sales. Robust US economic data and the Federal Reserve's decision to raise interest rates by a further 0.25 basis point in March (while the Bank of Canada (BoC) similarly also raised interest rates in January) signalled an improving outlook for both economies and, in turn, investors began to move away from traditional safe-haven assets such as gold to favour more risky assets (despite equity market volatility). Meanwhile, in Europe, expectations over the European Central Bank's (ECB) decision to end quantitative easing by 2019 discouraged investors from purchasing gold bullion coins, with sales (for Europe) at their lowest first quarter level since 2013. The best-performing region was Africa (despite the average rand-denominated price for gold bullion coins rising by 1.4% over the period), with demand soaring by 170% following the Rand Refinery's issue of its 50th anniversary coin (while similarly extending the ranges of its Krugerrand offering in a new 2oz gold coin).

By the end of the second quarter, while African demand remained robust (and European sales remained weak), an increase in North American demand saw total bullion sales rise by 23% year-on-year. Despite US investors previously turning away from gold as an investment in light of an improving economic outlook (which indeed was enforced by the second interest rate rise in June), anticipation over the threat and realisation of a trade war between the United States and China buoyed demand for safe-haven assets, with gold

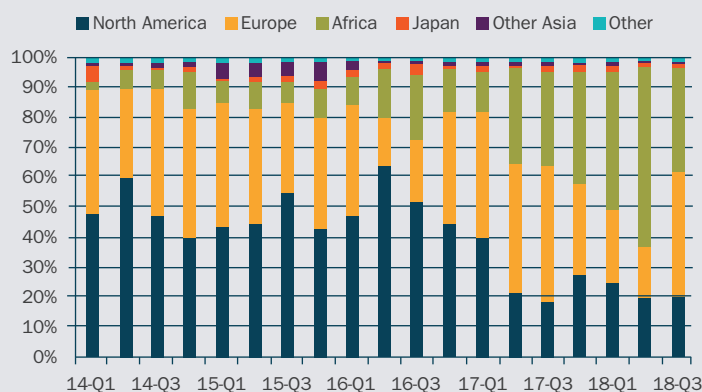
AGGREGATED GOLD BULLION COIN SALES (TONNES)
QUARTERLY



ANNUAL

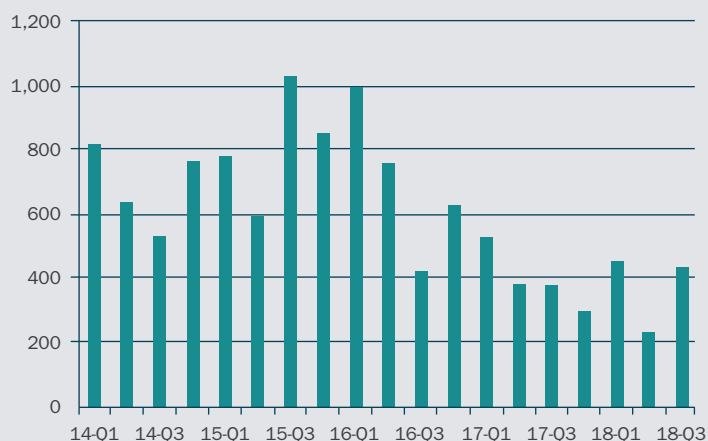


AGGREGATED GOLD BULLION COIN SALES (BY MARKET SHARE)



AGGREGATED SILVER BULLION COIN SALES (TONNES)

QUARTERLY



coin sales over May and June outpacing that of April by almost fivefold (matching the initial period of intensity over trade talks).

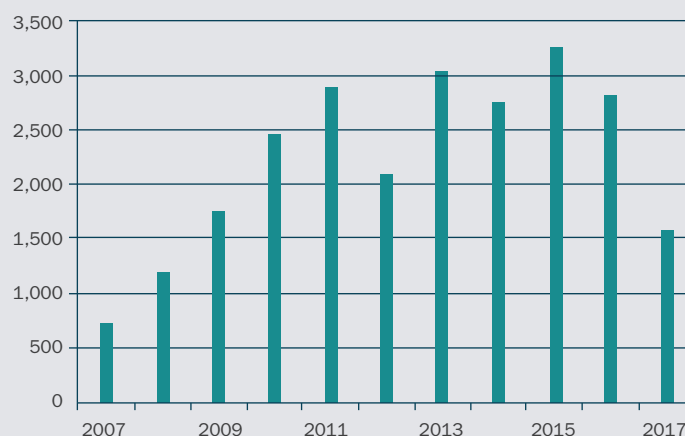
Over the period of July to September, following the moderate pace of bullion sales globally so far, total sales jumped by 55% year-on-year, marking the highest gold quarterly sales level since Q4 2016. While this notable jump in sales was likely supported by a dip in the average quarterly gold price (which fell by 5% year-on-year), it had a minimal effect on the total value of bullion sales, which almost doubled year on year. Africa once again was recorded as the largest consumer of coins, with demand no doubt influenced by the introduction of the 2018 Nelson Mandela Centenary coin. However, it was the sudden pick-up in European demand which was most noted (having previously been weak all year). Rising concerns over an ongoing global trade battle between China and the United States, emerging market (EM) turmoil and heightened concerns over the upcoming Brexit deadline this year resulted in investors seeking out safe-haven assets, while lower quarterly average gold prices in both euro (-4%) and sterling (-5%) over the period further boosted the yellow metal's attraction. North American demand was also elevated once again, with global political and economic uncertainties and the International Monetary Fund's downgrade in global growth projections (leading to a US equity sell-off) resulting in investors once again returning to physical gold.

SILVER BULLION COIN SALES

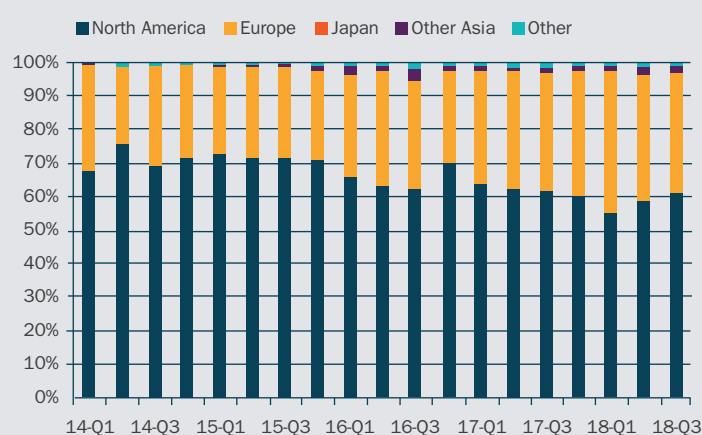
Sales for silver bullion coins to Q3 2018 fell by 14% or close to \$14 million, with total demand standing at just over \$35 million. Weakness was recorded in sales across each region, with the worst performance stemming from North America, Africa and our Other regions category (falling by 20%, 17% and 14% respectively year-on-year).

The weakness in sales levels year-on-year in Q1 (-15%) and especially in Q2 (-42%) were responsible for the decline in sales over the first half of the year, as investors moved towards higher-risk assets in the background of an improving outlook for the US economy, rising interest rates and strong equity markets. It wasn't until the third quarter of 2018 that demand for silver picked up, with bullion coin sales jumping by an impressive 94% year-on-year and 15% quarter-on-quarter, to record their highest Q3 sales level since 2015. All regions, with the exception of the small Japanese and our Other regions category (which collectively make up just 1.1% of market share) recorded increases in sales, rising by double digits in Q3, while all regions (excluding Japan) similarly recorded double-digit increases quarter-on-quarter. Lower silver prices and concerns over the future outlook for global growth contributed to the rise in demand, particularly from North America, which dominated 58% of silver coin demand.

ANNUAL



AGGREGATED SILVER BULLION COIN SALES (BY MARKET SHARE)



WHAT TO EXPECT

Given the backdrop of forecasted slower global growth and global political and economic uncertainty (in light of trade wars, EM currency weakness and concerns over future US corporate earnings), we forecast at time of writing that gold (and to a lesser extent silver) will continue to appeal to investors as a physical asset in the final quarter of 2018 (despite an improving outlook for the US economy). Indeed, with the VIX having spiked in Q4 back to its highest level since February 2018 in December, investors on the paper market are likely to continue to hold light trading positions, furthermore enhancing the attraction towards the physical safe-haven asset. (Please note that the paper investment market recorded weak interest from investors over Q3 2018, opposing the reaction to that of the bullion coin market, with net managed money positions moving into the red, falling by 253 tonnes to -142 tonnes. A rush into gross short positions of 269 tonnes far outweighed the minimal input into gross long positions of 16 tonnes (intra-quarter). Meanwhile, gold holdings in ETF positions also suffered over the period, falling by 4% or 91 tonnes (having been in a steady decline since mid-May) to record their lowest since 31 August 2017 of 2,220 tonnes on 18 September). Following positive economic data out of the United States (which saw unemployment fall to its lowest level in 18 years and inflation finally reach the Federal Reserve's (Fed) target level of 2%), US Treasury bond yields have soared, supporting the US dollar and hawkish sentiment from the Fed, which in turn has limited investors' attraction towards the safe haven.



Natalie Scott-Gray is a Metals Demand Analyst at GFMS, Refinitiv. She is the key analyst covering materials used in rechargeable batteries, predominately utilised in both the automotive and power grid sectors. She is the lead analyst for the GFMS coverage on cross commodities, in addition to heading up the team's technical analysis across the metals space. Furthermore, she is responsible for covering metal demand in the European markets. Prior to GFMS, Natalie was an oil and gas upstream analyst. She holds a Masters Degree in Chemistry from the University of Edinburgh.

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