

Monetary Gold and Central Bank Capital



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The World Gold Council is the market development organisation for the gold industry. Our purpose is to stimulate and sustain demand for gold, provide industry leadership, and be the global authority on the gold market.

We develop gold-backed solutions, services and products, based on authoritative market insight, and we work with a range of partners to put our ideas into action. As a result, we create structural shifts in demand for gold across key market sectors.

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

Based in the UK, with operations in India, China, Singapore and the USA, the World Gold Council is an association whose members comprise the world's leading and most forward thinking gold mining companies.

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Introduction

Central banks play a vital role in the global financial system. With a range of critical responsibilities and functions, they are integral to the smooth functioning of financial markets and the growth of national economies.

Robust balance sheets are an essential tool in the central bank armoury, allowing them to discharge their obligations effectively. Yet central bank balance sheets are exposed to particular vulnerabilities and risks that can become acute during times of stress.

These vulnerabilities arise because central bank balance sheets are structured differently from those of other institutions and because central banks' functional obligations limit how they can manage risk.

First, central bank balance sheets suffer from an imbalance between their foreign currency denominated assets and liabilities, which can create financial weakness particularly during periods of economic strife.

Second, central banks' assets and liabilities are subject to different forms of accounting treatment, which can place their balance sheets under further strain.

Gold can mitigate the risks arising from this asset/liability mismatch, helping central banks to reduce the impact of constraints imposed upon them, particularly during times of stress.

This paper focuses on the way that gold holdings can affect the revaluation reserves that form part of central bank equity. Relevant to all central banks with an asset liability management focus and a related interest in maintaining their equity, it is particularly targeted at emerging market central banks that hold US dollars (USD) against their nation's USD liabilities. In so doing, they expose their balance sheets to USD weakness, even as they seek to stabilise reserve adequacy measures to prevent currency fluctuations. These central banks are responsible for managing their nation's foreign exchange reserves and carry those reserves as assets on their balance sheet.

Background

During the 2007-09 global financial crisis, many national currencies appreciated sharply against the USD, as US investors took funds offshore in search of yield. Given that the USD is the single largest foreign exchange reserve currency for most central banks, its relative weakness had a notable impact on their balance sheets. In essence, when the USD loses value against national currencies, central bank balance sheets incur revaluation losses, which can erode their core equity during periods of extreme stress or volatility.

At times, this erosion reaches such a level that central banks are forced to ask their governments for recapitalisation, prompting questions about their competence and often impeding their ability to operate effectively.

This phenomenon was clearly in evidence in and around the financial crisis. At that time, however, it became apparent that central banks which held monetary gold as part of their foreign exchange reserves seemed better able to preserve their equity positions than those which did not¹ This paper explores the reasons behind this phenomenon and the conclusions to be drawn from it.

¹ Unless stated otherwise, any reference to gold in the paper is to monetary gold.

Central bank balance sheets – responsibilities and risks

Central banks are both custodians of monetary policy and managers of the nation's foreign reserves. As issuers of national currency, central banks carry circulating currency as a zero-cost liability. At the same time, multiple policy objectives require commercial banks to hold balances in central bank accounts that earn little or no interest.²

Their functions provide central banks with access to low-cost liabilities, which they can then invest in income-earning assets. As such, they tend to be profitable during times of economic stability or expansion.

However, central banks' obligations require them to structure their balance sheets in such a way that they carry risks not found in commercial entities.

As policymakers, central banks are limited in the way they hedge their exposures, compared to other financial institutions. Commercial banks, for example, can hedge foreign exchange exposure by purchasing swaps, options or other forms of cover. Were central banks to pursue the same approach, their transactions could be regarded as a signal by the markets. As such, they have to find other ways to manage the risk and offset the inherent volatility of their position.

Table 1, below, shows the core elements of a central bank balance sheet.

Table 1: Functional structure of central bank balance sheets

Assets	Liabilities
Foreign Reserves Management Assets <ul style="list-style-type: none">• Cash• Financial Instruments• Monetary Gold	Foreign currency liabilities <ul style="list-style-type: none">• International Financial Institution (IFI) membership[1]• As fiscal agent for governments in IFI transactions[2]• Government foreign currency deposits
Government Securities <ul style="list-style-type: none">• Monetary policy instruments• Backing for currency in circulation• Income generating to back capital	Currency in circulation
Loans to financial institutions <ul style="list-style-type: none">• Monetary policy instruments• Liquidity management	Government deposits – as banker to the government
Fixed assets <ul style="list-style-type: none">• Physical assets required to discharge functions	Financial institutions deposits <ul style="list-style-type: none">• Settlement accounts for payment system operation• Regulatory deposits for supervision Miscellaneous deposits for international non-bank entities
	Central bank financial instruments <ul style="list-style-type: none">• Monetary policy instruments
	Equity <ul style="list-style-type: none">• Statutory capital• Revaluation reserve

Notes: [1] For most central banks these are liabilities related to IMF membership and allocations of Special Drawing Rights (SDR).

[2] Liabilities arise for a central bank as fiscal agent for government's borrowings from IFIs.

² Today, several central banks even offer negative interest rates to commercial banks.

As the table makes clear, both sides of the balance sheet include financial securities denominated in foreign currencies. Typically, however, there is an imbalance between the two. Simply put, there are far more assets denominated in foreign currencies than there are liabilities, creating an open foreign exchange (FX) position that can have far-reaching implications.

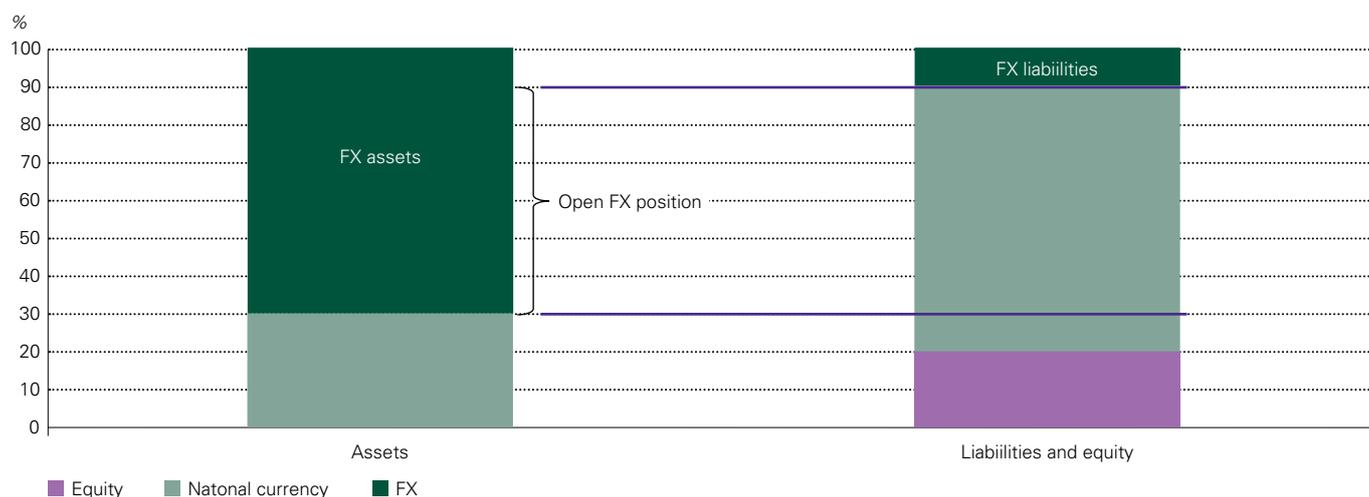
We illustrate this in the schematic below (**Chart 1**).

Central bank equity should help to support central banks' balance sheets but it, too, is exposed to risk, especially during periods of economic turmoil.

This equity is usually divided into two tranches: statutory capital and revaluation reserves.³

- **Statutory capital** is defined in central bank legislation and generally consists of resources that the central bank has received or retained in national currency, also known as realised capital.⁴
- **Revaluation reserves** are generally defined by central bank law or the bank's accounting framework. They consist of unrealised revaluations that provide a buffer to central bank statutory capital. Collectively, these reserves represent a dynamic element of central bank equity, the value of which is heavily influenced by interest and exchange rate variations.⁵

Chart 1: Schematic of central bank balance sheet open FX position



3 The composition of central bank equity is beyond any international accounting standards or any commercial bank equity regulatory framework. Here, we adopt a framework of a split between realised statutory capital and unrealised revaluation reserves that summarises their respective functions. However, some central bank laws require the distribution of portions of these unrealised revaluation balances to statutory capital or as dividends to government, which weakens the distinction.

4 The general definition of "realised" revaluation is when the central bank converts the revaluation into liquid resources denominated in the national currency.

5 See [Appendix I](#) for more detail.

Why central bank balance sheets are inherently volatile

Central bank balance sheets carry two material imbalances:

- Accounting policy mismatches
- Open foreign exchange positions

Both of these imbalances create volatility, which may create fluctuations in the overall level of central banks' equity and make it difficult for them to report their performance effectively. In certain circumstances, these mismatches can even affect a central bank's operational and financial independence.

Accounting policy mismatches

Most central banks report their financial performance in accordance with international standards, which are both formulated for and ideally suited to profit-maximising entities.⁶

As such, central banks account for the bulk of their financial instruments on the liability side at cost. This means that the value of all financial liabilities remains unchanged in the balance sheet even if their market value has shifted.

On the asset side, however, central banks value some financial instruments at fair value and some at cost. This creates an asymmetry between the way central banks value their assets and their liabilities. And this, in turn, creates volatility in either the central banks' reported profit and loss or their revaluation reserves.

Open foreign exchange positions

Central banks accumulate holdings of foreign currency financial assets. However, while most central banks carry some foreign currency liabilities, these are usually materially less than the sum of their foreign currency assets.

This imbalance between foreign exchange assets and liabilities creates an open foreign exchange position (highlighted in **Chart 1**) that is a key source of balance sheet volatility.⁷

6 These may be direct adoptions of International Financial Reporting Standards (IFRS) or International Public Sector Accounting Standards (IPSAS) or a derivation of these. The notable exception is the European System of Central Banks which has adopted accounting guidelines for those instruments with specific relevance for central banks. The US Federal Reserve has its own accounting framework too.

7 Two factors impact the volatility of the open foreign exchange position: the quantum of the open position and a currency mismatch between the denominations of foreign exchange assets and liabilities.

Revaluation reserves – retention or distribution

Reserve management policies present a further challenge. With a mandate to manage foreign currency reserves, reserve managers focus on maintaining the foreign currency value of those assets, rather than national currency revaluations.

Given that central banks aim to hold reserves on a long-term basis, the assumption is that revaluation gains will largely offset revaluation losses through an exchange rate cycle.

This assumption does not always hold good.

When losses accumulate, therefore, revaluation reserves are designed to provide a first level of protection. They offset the inherent volatility within central bank balance sheets, limit the impact of revaluation losses on the bank's statutory capital and ensure that central bank balance sheets are robust across business cycles.

In short, revaluation reserves help central banks to carry out their functions effectively by minimising the impact of external valuation fluctuations.

As such, while most central banks recognise revaluation gains in their financial statements, they do not allocate them to statutory capital or distribute them to the government as dividends. The rationale behind this is clear:

- First, retaining revaluation gains within unrealised reserves helps to absorb cyclical volatility and thereby protect central banks' core equity.
- Second, distributing revaluation gains to the government risks distorting domestic money supply by injecting what is in effect free credit to government into the economy.

In recognition of the role that revaluation reserves play within a central bank balance sheet, there is no upper limit for the gains that can accumulate within those reserves. However, different approaches are applied to negative, or debit, balances. While some central bank laws allow debit balances to remain in the reserves, most do not. In such cases, revaluation losses need to be covered by annual realised profits or statutory capital. This creates clear risks and vulnerabilities, which can result in central banks seeking recapitalisation from their governments.

The role of gold in stabilising central bank equity

The USD is the world's pre-eminent reserve currency. Most central banks hold the majority of their foreign exchange reserves in USD and this exposes their equity to any volatility in the US currency, particularly as they have limited options to offset this exposure with foreign exchange liabilities.

One option is to find an asset that offsets gains and losses in the USD, rising in value as the value of the USD declines and thereby offsetting USD revaluation losses. Gold is one such asset.

Central banks collectively own more than 35,000 tonnes of gold and it is the third-largest reserve asset in the world. Central banks either maintain a dedicated gold revaluation account within their balance sheet or include gold as part of their foreign currency revaluation reserves.

In either case, however, when central banks revalue gold, they do so in their national currency. As such, the revaluation combines movements in the USD-denominated gold price *and* the USD/national currency exchange rate.⁸

Gold is widely considered a safe haven in times of financial strife. At such times, the USD can weaken and there is a flight to safe assets, such as gold. Given the USD's reserve currency status, it does not automatically weaken in a crisis but a negative correlation manifestly exists between the price of gold and the USD exchange rate with the national currency.

Simply put, when the USD falls, the gold price tends to rise.

The relationship of the euro and the USD gold price helps to illustrate this point.⁹ Analysing daily price movements over more than two decades reveals a negative correlation between the two assets of -0.475 (**Chart 2**).

Given that a perfect negative correlation would be represented by -1, a figure of almost -0.5 indicates a material inverse relationship.¹⁰

Chart 2: EU USD and USD gold prices 1990-2020



Source: MacroTrend Data Download/World Gold Council

⁸ See the WGC papers on central bank accounting for gold at www.gold.org/what-we-do/official-institutions/accounting-monetary-gold.

⁹ For simplicity, the paper will refer to LGD gold as gold despite minor differences between the two. We also use daily gold prices to reflect that this is the default valuation basis for most foreign reserve portfolios.

¹⁰ A perfect negative correlation would be represented by -1.

But central banks convert gold revaluations into their national currency when they are preparing their financial statements. As such, a more accurate picture of gold's negative correlation characteristics can be seen when the price of gold is converted into the national currency.

Chart 3 presents the price of gold in euro and the euro/USD exchange rate, again looking back from 1999 to spring 2020. While the chart trendlines indicates that a negative correlation exists, the conversion to euro has weakened the correlation from -0.475 to -0.303.¹¹

However, a detailed look at the relationship between the euro and gold shows that the negative correlation effect becomes more pronounced at times of crisis. This suggests that holding gold is particularly useful at times of greatest market volatility, when central bank balance sheets are most likely to come under stress.

Furthermore, the euro itself is a reserve currency. Along with a wide range of factors that influence the euro/USD exchange rate, this may dilute the hedging impact of holding gold in reserves for central banks whose national currency is the euro.¹² Conversely, however, given that gold's negative correlation characteristics are apparent even with the euro, the effect is likely to be even more pronounced for non-reserve currencies.

In summary, gold can play a role as a counter-cyclical hedge to USD exposure because, as the dollar weakens, gold strengthens. Hence, revaluation gains on a central bank's gold portfolio should offset losses suffered on its USD portfolio and help to maintain its core equity.

Chart 3: EURO USD and EURO gold prices 1999-2020



Source: MacroTrend Data Download/World Gold Council

11 The correlation was determined using daily data. Weekly, monthly and annual time stops produce slightly different correlations that will impact revaluation accounts in different ways depending on the frequency of a central bank's revaluation processes.

12 The euro has been chosen because four of the ten top central banks holding material amounts of gold are eurozone banks: Germany, Italy, France and the Netherlands.

Conclusion

Central bank balance sheets are subject to unique stresses and strains. Their foreign exchange assets are far larger than their foreign exchange liabilities, they account for their assets and liabilities in different ways and they are limited in the hedging instruments that they can use to manage risk.

Taken together, these imbalances create balance sheet volatility, which can become acute during periods of market turmoil. At such times, governments may be forced to step in and recapitalise the central bank, potentially undermining its authority and raising widespread questions about its competence.

Holding gold can provide central bank balance sheets with a layer of extra protection. Gold can mitigate the risks inherent in the structure of many central bank balance sheets, the accounting policies adopted in financial statements and the foreign currency exposure inherent in their strategic asset allocation.

Gold is a counter-cyclical asset that tends to rise in price when the USD falls. As the USD is the pre-eminent reserve currency, central banks that hold gold on their balance sheet benefit from its natural hedging properties. These properties are particularly relevant, because central banks convert the price of gold to their domestic currency when they revalue their reserves so they benefit from both the rising gold price and USD weakness.

The proportion of gold held will depend on central banks' individual circumstances and policy direction. However, our analysis reveals that gold can make a positive contribution to the strength and stability of central banks' revaluation reserves, especially in extreme situations, when central bank balance sheets are likely to be under the most significant stress.

Further information

The World Gold Council has conducted extensive research into central banks and monetary gold, covering how best to account for gold and how best to optimise allocations to gold within their reserves portfolio. For further information, see: <https://centralbankgold.org/accounting>.

This page covers issues of central bank gold accounting and provides links to the following two papers.

Working Towards a Common Accounting Framework for Gold.

Guidance for Monetary Authorities on the recommended practice in accounting for monetary gold.

Appendix I

Statutory capital and revaluation reserves

Statutory capital comprises:

- Authorised capital
- General reserves (including undistributed profits)
- Dedicated special purpose capital reserves

Revaluation reserves include:

- Those mandated by the central bank's accounting standards such as:
 - Fixed-asset revaluation reserves
 - Fair value reserves through other comprehensive income (FVOIC)
- Those mandated by individual central bank law, such as:
 - Foreign exchange revaluation reserves
 - Gold revaluation reserves
 - Fair value reserves for price changes to financial instruments (FVTPL)¹³

Some central banks hold a separate account for each instrument/currency combination within their revaluation reserves. Some maintain summary accounts for each class of revaluation. For those revaluation reserves not mandated by accounting standards, central banks generally maintain, as a minimum, revaluation accounts for price changes of financial instruments and another for changes in foreign currency revaluation movements. Each configuration of revaluation reserves produces different treatments for revaluation gains and losses. These result in different effects on the balances of statutory capital and revaluation reserves. However, there is broadly the same impact on total central bank equity.

Most mature central banks hold individual revaluation accounts for each currency and financial instrument on their balance sheet, as this is widely considered to be best practice.

There are three principal reasons for this:

- First, revaluation reserves should only contain unrealised revaluations. External auditors need to be able to attest to the composition of these revaluation reserves to ensure their integrity and they are better able to confirm discrete account balances than a large pool.
- Second, unrealised reserves are more likely to remain on a central bank's balance sheet if there are individual accounts for each currency and financial instrument.
- Third, discrete account balances make it easier to manage the impact of revaluation losses and harder to cross-subsidise losses.

While these are all aggregated in a central bank's financial statement, many have thousands of different revaluation reserve accounts for daily accounting purposes.

¹³ International Financial Reporting Standards produce accounting standards (IFRS/IAS) covering the use of revaluation reserves. For central banks these cover fixed assets (IAS 16) and financial instruments (IFRS 9). Central banks may revalue financial assets as fair value through other comprehensive income (FVOIC) in which situation the central bank allocates revaluations to a revaluation reserve. Alternatively, it may revalue financial instruments as fair value through profit and loss (FVTPL) where the central bank recognises the revaluations within its profit and loss statement. These become an element in undistributed profit. However, in an action beyond the scope of accounting standards, most central banks allocate these revaluations to a separate revaluation reserve before making any other distributions of profits.

Appendix II

Accounting for gold revaluations

Ideally, central banks will account for monetary gold in a manner that reflects the way they manage their gold assets. From an accounting perspective, they may account for gold as a financial asset or as a currency. Each approach provides different paths for accounting for gold revaluation.

As international accounting frameworks do not provide an effective accounting treatment for central bank holdings of monetary gold, central banks have developed a range of accounting approaches for this asset. A number of banks maintain a dedicated gold revaluation account. Those that do not usually assign the revaluation of gold as part of the foreign currency revaluation reserve. Some may choose to account separately for the gold price and foreign currency elements of the gold revaluation.

Central bank policy choices will affect the extent to which their gold unrealised revaluation reserves can help to maintain core equity. The World Gold Council has developed two papers that review central bank gold accounting practices and provide guidance on accounting for monetary gold so as to maximise the counter-cyclical benefits. Both papers are available at www.gold.org/what-we-do/official-institutions/accounting-monetary-gold.

In summary, the World Gold Council accounting guidance recommends accounting for gold at fair value through other comprehensive income. This discloses revaluation movements below the operating profits in the profit and loss statement before transferring the movement to a dedicated unrealised revaluation reserve element in the central bank's equity. The approach combines price and related exchange rate movements as a single value and assigns both to the dedicated reserve. For further information, see: [Accounting for Monetary Gold](#).

This guidance assumes that the central bank has a general policy covering all unrealised revaluation reserves that uses unrealised revaluation gains to offset any unrealised revaluation losses as they arise. Specific policies will define how each central bank treats situations where revaluation losses exceed any positive balance in the revaluation reserves.

The relationship between gold and a central bank's national currency will differ from jurisdiction to jurisdiction. And this is one of several elements that central banks will consider when assessing the optimal composition of their assets and liabilities and the appropriate levels of gold holdings. For further information, see: [Gold and central bank reserve management during the Covid-19 pandemic](#) and [BIS Working Papers: What share for gold?](#)

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