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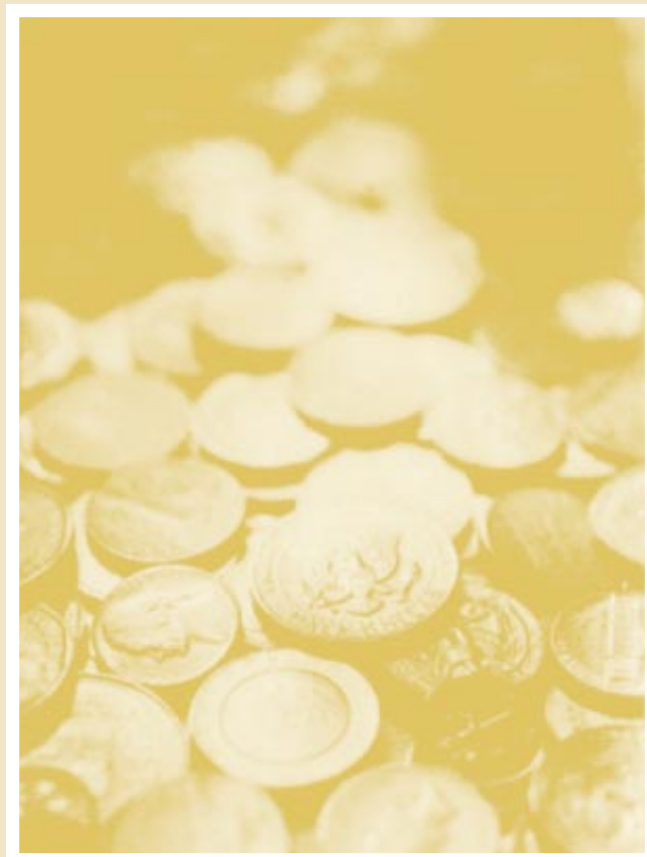
Central Bank Gold Reserves

An historical perspective since 1845

by

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Note: Throughout this study the weight of gold is usually indicated in metric tonnes, abbreviated as m.t.

The views expressed in this study are those of the author and not necessarily those of the World Gold Council. While every care has been taken, the World Gold Council cannot guarantee the accuracy of any statement or representation made.

PREFACE

Timothy Green has been a journalist, writer and consultant for nearly forty years. He is well known as one of the world's foremost writers of books on gold, particularly *The World of Gold* and *The Gold Companion*, and as a regular speaker at international conferences on gold. A generation of those interested in gold, its history, its trading, the global markets, and the different uses to which the precious metal has been put, has grown accustomed to regarding his impressive list of publications as an invaluable resource.

In the spirit of facilitating his pioneering work, the World Gold Council is pleased to publish this latest research study, which begins the task of trying to pull together in one volume the various statistics – spread across different archives and in different databases – concerning the accumulation of official sector gold. This study makes no pretence of being exhaustive. Rather, it is hoped that it lays out some of the vital groundwork upon which other future researchers may build. There are many gaps in our knowledge concerning how the world's central banks drew to their coffers so much bullion; it is our hope that this essay closes some of those lacunae.

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INTRODUCTION

This paper examines the evolution of central bank gold reserves in the wake of the great gold rushes of the mid-nineteenth century, when for the first time gold really became a widely circulating monetary metal in the pockets of millions of people in many countries, as well as being held increasingly by central banks and treasuries.

The pattern of this development over the succeeding 100 years has, as far as we know, never been pulled together before in a single report. International Monetary Fund statistics track central bank holdings since 1948. Before that the Bank for International Settlements monitored the years after 1930, while the Board of the US Federal Reserve put together a long-running series from 1913 to 1941. The Annual Reports of the Director of the US Mint pull together many statistics from the mid-1870s. These are supplemented by data in the appendices of the House of Commons Select Committee on the depreciation of the silver price in 1876, the first report of the Royal Commission on the relative values of precious metals in 1887 and Royal Commissions on Indian Finance and Banking in 1913 and 1926. Additionally, the London brokers, notably Sir Hector Hay at Mocatta & Goldsmid, and Stewart Pixley in the second half of the nineteenth century, kept invaluable long-running records of production, coin minting and Indian demand, though not central bank holdings; that job largely fell to Dr. Adolph Soetbeer in his monumental statistical study *Materialen*, on which most people draw for a wide-ranging, long-running series on central banks' stocks from the 1870s.

Later, Joseph Kitchin of Union Corporation in South Africa, almost single-handedly it seems, put together the best record of production and monetary gold, marrying nineteenth-century statistics with his own for the first 30 years of the twentieth century. His numbers turn up most widely in reports by the League of Nations (among others) about the fate of the gold standard in the early 1930s. Dr. W. J. Busschau of Gold Fields of South Africa kept up for a while where Kitchin left off. Samuel Montagu's Annual Bullion Review also provides a vital source for the years after World War II, by which time the IMF began to keep us informed. The annual gold survey from Consolidated Gold Fields in London offers the most detailed survey of gold statistics from 1967 onwards (now continued by Gold Fields Mineral Services). But it is all piecemeal.

This report makes attempts to stitch it all together. There are clearly inconsistencies, due to different interpretations by various early analysts (the 1876 Silver Committee was given six different versions of mine production in the preceding 25 years); but a broad picture does emerge. I have found the Annual Reports of the Director of the US Mint exceptionally valuable, because they often present a run of data over many decades. These reports have been criticised by some analysts for taking too much notice of 'official' figures of production, for instance, but their virtue is the long annual pattern.

My own research has been greatly aided by the staff of the London Library and by Ms K. Begley in the Bank of England's Library and Information Centre.

Timothy S. Green

1850: a watershed in production

Prior to 1850 gold was not just a precious metal but a genuinely rare one. World gold production from 1800-1850 totalled around 1,200 metric tonnes; from 1851-1900, propelled by the discovery in the United States, Australia and, later, South Africa, it was almost 10,400 m.t. – virtually a ten-fold increase. Indeed, in those last 50 years of the nineteenth century about twice as much gold was mined as in previous history. Between 1847-52 alone, annual output rose from 35 m.t. to 265 m.t.

This growth coincided with an era of rapid expansion in industry, trade and international banking, which gold helped to finance. The relative abundance of gold also made possible the development of the international gold standard in all major nations save China, with gold coin forming a significant part of the monetary circulation in many countries. Previously it had only been in Britain that the true gold standard ruled, almost accidentally, since 1717, when gold was slightly overvalued against silver by Sir Isaac Newton as Master of the Mint, and officially since 1816 when the Coinage Act declared the new sovereign, valued at £1, as the sole standard of value and unlimited legal tender.¹

Thus 1850 is the watershed. Suddenly governments, their treasuries or central banks had unprecedented flows of gold from America and Australia, which could fill their reserves or enable their mints to make gold coins, which found their way into the pockets of millions of people world-wide, replacing the silver coins that had predominated before. A host of nations nailed the gold standard to their mast, led by Germany in 1871, followed by most European countries including France, Belgium and Switzerland by 1878. The United States dithered between a gold and a bimetallic (gold and silver) standard until 1900, while the silver mining lobby there fought a bitter rearguard action. Japan also took up the colours in 1897. As Professor T. E. Gregory noted: “The international gold standard is essentially a creation of the second half of the nineteenth century”.²

To comprehend the scale of change, a little background on the world of gold just prior to that famous discovery of gold at Sutter’s Mill in California in 1848 and the Australian discoveries three years later is useful. The economic historian R. G. Hawtrey once summed it up in a lively debate with Joseph Kitchin, the great compiler of historical gold data in the early twentieth century:

“There was one gold standard country in the world, namely, Great Britain. There was one bi-metallic country in which gold predominated, namely The United States. All Europe, apart from England, and I think the independent town of Bremen, used either silver or else the bi-metallic standard in which silver predominated. Practically the entire currency for continental Europe, like the entire currency of Asia, was supplied without any gold at all – not literally without gold, because ever since the Middle Ages, it had been the custom to use a certain amount of gold coin in Europe as a merchants’ monetary medium. But the standard was silver, both in countries like Germany, Austria, Hungary, Russia, Norway, Sweden, Denmark and Holland, where silver was the standard and where there was mono-metallism, and also in France,

¹ In practice, this gold standard did not become fully operational until 1821 because ‘cash payments’, by which paper notes could be cashed for gold coin in unlimited amounts at a fixed price, had been suspended since 1797 during the Napoleonic Wars, and were only then reinstated.

² T. E. Gregory, *The Gold Standard and its Future*, Methuen, London, 1934.

Belgium and other countries which were ostensibly bi-metallic. Some of these countries were usually on a paper standard, but...the reserves were in silver.”³

The interesting point in Hawtrey’s remarks is that, although gold did not circulate widely, except in Britain, it was ‘a merchants’ monetary medium’; it was their international standard of value. Incidentally, Hawtrey rather ignores the role that gold already played in India, although even there silver was then more significant.

The rarity of gold at this time is confirmed by the statistics. The Bank of England, fulcrum of the gold standard, usually had between 50 and 100 m.t. of gold (including coin) in its reserves between 1800 and 1850. On occasion it was much less; scarcely 9 m.t. one day in 1825, 17.6 m.t. in 1839 and hardly 61 m.t. in 1847 (a year of serious financial crisis in London and Paris) on the eve of the gold rushes.⁴

The Royal Mint made only 38 m.t. of sovereigns between 1840-44, compared to 135 m.t. in the next five years, and 225 m.t. from 1850-54 as the first of the new gold from the United States and then Australia flowed in. The contrast in France is even more dramatic, with only 40 m.t. of gold coin made by the Paris Mint between 1840-49, compared to 1,155 m.t. from 1850-59 (when France was still on a bimetallic system). In the US less than 28 m.t. of gold coin was minted during 1840-44, and 61 m.t. in 1845-49, compared with 326 m.t. between 1850-54. Double eagle coins were minted for the first time in 1850.

Helped by a new mint in Australia, which started production of sovereigns in 1855, more than 2,100 m.t. of gold coin was minted during the 1850s, against less than 250 m.t. in the previous decade (Table 5). That high level of coin output is the real indicator to what was going on for, rather than treasuries or young central banks building up their reserves, the coin was being disseminated among the population.

The banks saw a gold reserve essentially as a guarantee of their note issue, a hard lesson having been learned by the Bank of England which was challenged by the 1810 Bullion Committee report of the House of Commons with having printed too many bank notes during the period of suspension of gold payments from 1797-1821.

As the Bank’s Governor, T. M. Weguelin, told another House of Commons Committee in 1857, the Bank’s own stock of gold was around £10 million at that moment, enough to meet obligations, but this was actually £10 million less than it had been in 1852 as the first Australian gold reached London. Moreover, the Bank’s policy had turned in favour of gold, rather than silver (which it was permitted to hold as one-fifth of its bullion reserve).

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Sir John Clapham observes in his history of the Bank that it “bought very little silver after 1848 ... gold served its purpose better”.⁵ In his testimony in 1857, Weguelin pointed out that, although the Bank’s stock was modest, the gold coin circulation in the country at

³ *The International Gold Problem: A Record of the Discussions of Study Group of Members of the Royal Institute of International Affairs 1929-31*, Oxford University Press, 1931.

⁴ The House of Commons Select (Secret) Committee on The Bank Acts 1857. Evidence of T. M. Weguelin MP, Governor of the Bank of England.

⁵ Sir John Clapham, *Bank of England*, Vol.II, Cambridge University Press, Cambridge 1944, p.217.

large was rising. He estimated it at around £33-36 million (240-263 m.t.) before the gold rushes, but now up to £50 million (366 m.t.). This would rise to more than 800 m.t. by the mid-1870s. The Governor's measure of gold in £ sterling, rather than troy ounces, was commonplace through the nineteenth and early twentieth centuries; with a fixed gold price it was as easy and perhaps more relevant to measure it in money as by weight.

The Governor's evidence also highlights the rapid change in gold flows. Not only was the Bank's own stock down, but exports had been £135 million (988 m.t.) since 1851 (much of it to France and other European destinations) and £20 million (146 m.t.) to 'the East', mainly India and China. Exports (re-exports really) to France soared: in 1849 such exports accounted for less than 4 m.t., reaching 93 m.t. by 1853 and, for the decade 1850-59, a total of almost 1,030 m.t. France absorbed another 585 m.t. during the 1860s.

This sudden appetite for gold in France was a matter of market forces, rather than policy change by the government or the Bank of France. France had been on a bimetallic system since 1805, in which the gold/silver ratio was 1:15. This slightly over-valued silver, which was thus preferred as the cheapest way of paying debts (which could legally be paid in gold or silver). Contemporary estimates reckoned £100 million in silver and only £3 million in gold was in circulation in France in 1849.

Then two things happened. First Holland, which had also been bimetallic, decided to switch to a silver standard from mid-1850, with gold no longer accepted as legal tender. Close to 100 m.t. of gold coin was circulating in Holland. Much of this soon turned up in Paris, depressing the slight premium which had previously existed on gold.

Second, the demand for silver in London increased in the early 1850s, to meet rising exports to India and China, thus creating a silver premium which made it profitable to move silver from Paris to London; while gold production was now rising fast, that of silver was not. The flood of gold from the US and Australia (on top of Dutch disposals) also kept gold slightly below par (based on a 1:15 ratio) in Paris.

As a result, the contemporary observers, Tooke and Newmarch, writing in 1856, noted: "The French Mint has been over-burdened with the accumulations of Gold Bullion presented for Coinage...and the relative proportions of the two metals in the French Coinage, have ... been reversed - Silver has been withdrawn and Gold has taken its place".⁶

This switch bears remarkable similarity to the unofficial and unintended change to a gold coinage in Britain in the early 18th century, when there was again a premium on silver for India which exceeded the Mint's buying price, making it more profitable to send gold to the Mint in London and sell silver to India. In the 1850s India was not only the mainstay of the silver market but was also taking more gold; 117m.t. between 1855-59 and more than 400 m.t. during the next decade, much of it in sovereigns.

⁶ Tooke & Newmarch, *History of Prices and State of the Circulation, 1792-1856*, Longman Brown, London 1856, Vol.6, pp.81-82. The book includes a detailed account of this changeover.

The surge in output: 1850-55

The London gold market itself had expanded with the gold rushes, with Stewart Pixley and Samuel Montagu joining the ranks of brokers, Rothschilds taking on the Royal Mint refinery besides their banking business, and Henry Raphael starting another refinery. Both of the new refiners, along with Johnson Matthey, got good delivery status for their bars from the Bank of England, who had previously recognised only the bars of Brown & Wingrove. The expansion of the good delivery list by the Bank of England was an important step in guaranteeing the gold from London, now that much of it was going to foreign central banks, treasuries or mints. It entrenched the acceptance of officially approved names throughout the world, an essential element of growing international payments settlements in gold.

A regular pattern of gold flows came to be established. Before 1848, most of the gold from Russia - then the largest producer, accounting for around 17 m.t. annually - was already coming to London. The US soon eclipsed Russia; in 1851 California produced 77 m.t., rising to 93 m.t. in 1853. Initially much of this gold was minted by the US Mint, which produced nearly 85 m.t. of coin in 1852 and more than 400 m.t. in the decade from 1848. American exports started slowly.

From the perspective of historical analysis it is unfortunate that gold and silver were not listed separately in the US statistics until 1864, but the huge jump in the value of exports of gold and silver from 1851 suggests most was gold, since exports prior to that were nominal. Thus at least 200 m.t. of gold was exported from the US between 1851-54 (some of this being coin); Rothschild's Royal Mint refinery handled 14 m.t. of Californian bar gold in 1853 alone.

Once US bar and coin exports were separated in 1855, coin was shown to account for around 40% of US exports of gold and silver. Once gold bar and coin became distinguished from silver (in 1864) coin was identifiable as comprising almost 80% of exports. The fact that exports included coin is important, because once the coins arrived in Europe they were often re-melted to make local coins, as was certainly the case in Britain and France. Consequently, in the statistics of the day, from which we judge how much gold 'money' was in circulation, there was often double counting.

One witness to the 1886 Royal Commission on Gold and Silver in London noted that the Royal Mint estimated that in the 1870s at least 25% of sovereigns were made from melted American coin, and that at some other European mints the proportion might be more or less. Such re-melting clearly happened from the early 1850s, because the total minting of coin by the US and European mints equalled or exceeded new production in many years. Production of just over 2,000 m.t. world-wide from 1851-60 virtually matched minting, leaving nothing apparently for jewellery or India. Hence the quantity of 'monetary gold' in circulation sometimes quoted in nineteenth century reports was often inflated.

For Australia the flow pattern is clearer because virtually all of the gold came to London as bullion or doré for refining, at least until 1856 when sovereigns were minted in Australia itself. Even then the local mint usually produced only 10-15% of output, the rest going to London for refining.

The switch to the gold standard: 1855-90

After the shock of gold output surging from around 35 m.t. in 1847 to 265 m.t. in 1852, production actually declined. It took another 40 years, and the advent of increased South African production, before 1852's peak was matched. By 1854 annual output was less than 200 m.t.; it thereafter settled in a range of 150-180 m.t. for the next 30 years. Markets, banks and mints thus had time to digest that first wave of gold production and to become accustomed to a fairly steady level of supply, albeit much higher than ever before. Australia and the US remained the leaders throughout this period, each producing 75-80 m.t. annually and together accounting for around 80% of supply.

Russian output grew to around 35 m.t. annually by the 1870s. The gold was chiefly made into coin at the St Petersburg Mint (which made 38 m.t. of ducats and half imperials in 1865), or went into the reserves of the Imperial Russian Bank which, along with the Bank of England and the Bank of France, held the only significant stocks for many years.

The discussion, however, at monetary conferences or parliamentary investigations or by a bevy of analysts - who started keeping track of statistics for the first time - focused less on the reserves of central banks than on the 'monetary stock' of each nation, which would include any such reserves but was usually primarily the gold coin in circulation. There was much to-do about the per capita amount of gold circulating in each country. The economic commentator Ernest Seyd, who assembled one of the most thorough contemporary compilations of gold statistics, delivered a paper to the House of Commons Select Committee on the Depreciation of Silver in 1876, showing his analysis of the gold stock of all nations on either the single gold standard (essentially Britain and Australia), a bimetallic standard, or the single silver standard by 1871. Seyd calculated that the gold standard countries had £160 million (1,171 m.t.), the bimetallic nations had £340 million (almost 2,500 m.t.) and the silver standard nations had £133 million (970 m.t.). These figures seem high and probably include double counting of coin: later analysts considerably revised downwards the totals.

Among bimetallic nations, France had nearly 90% of the gold stock, reflecting the fact that, while both gold and silver were legal tender, in practice gold coin had become predominant in the 1850s. Among silver standard nations, Germany had most gold, having started buying in 1870 and acquiring 43 m.t. soon afterwards in reparations from France after the Franco-Prussian war. Germany quadrupled its gold stock immediately after 1871, minting more than 360m.t. of coin in 1872-3 alone.

Both France and Germany therefore had the means to switch to the gold standard. In practical terms, this change was made possible by the quantity of gold which had become available in the preceding 25 years. Smaller European nations such as Austria-Hungary, Belgium, Denmark, Holland, Italy, Norway and Sweden all signed up to gold in the 1870s, having quietly started minting smaller amounts of coin in advance. They had discovered an added incentive. The switch from gold to silver triggered substantial silver sales, mainly from Germany, which depressed for many years the price of silver, previously as good a benchmark as gold. Nations with a silver reserve suddenly found its value diminished.

Yet central bank reserves remained small. By 1875 they amounted to no more than 1,100 m.t., while gold coin in circulation was approaching 3,000 m.t., suggesting the 'monetary stock' was around 4,200 m.t. This is slightly lower than Seyd's calculation, but as other witnesses to the 1876 inquiry showed, no one could be precise. At least six different assessments of world gold production since 1852 are to be found in the Select Committee's report. The London brokers, Sir Hector Hay of Mocatta & Goldsmid, and Stewart Pixley (whose figures did not coincide precisely either), both accused Adolph

Soetbeer, the noted German statistician, of under-estimating US output and of relying too much on official figures, when much gold production went unreported. However, Soetbeer's statistics are the most extensive available, especially on Europe, for the 35 years after the gold rushes. They also have the benefit of portraying a consistent, conservative pattern. His statistics, along with the annual reports of the US Mint from the mid-1870s and later ones from Joseph Kitchin of Union Corporation in South Africa in the first 30 years of the twentieth century, provide the best framework of the evolving pattern of monetary gold, whether in central bank or private hands.

The rise in central bank stocks: 1890-1914

The private sector remains predominant almost to the end of the 19th century. In 1895, of the 6,100 m.t. of monetary stock, central banks held around 2,750 m.t., but by 1905 the balance had swung in favour of central banks, who then had 4,710 m.t. of the monetary stock against private holdings of 3,916 m.t. Thereafter, in the run-up to the First World War, the central banks consolidated as the prime holders of gold. On the eve of war, they held just over 8,000 m.t. (an early estimate by Joseph Kitchin that they held 7,120 m.t. does not seem to include official stocks in Japan, India or South America).

This switch from private to government hands was aided, of course, by the new supplies from South African discoveries, which assumed major proportions during the 1890s, supported by new gold rushes to Western Australia and the Klondike in Canada. Whereas output had drifted under 150 m.t. annually by the mid-1880s, South Africa helped lift production over 200 m.t. a year after 1890, and the other discoveries pushed it beyond 350 m.t. by the late 1890s (although the South African mines were then closed for three years because of the Boer War). In the new century, with South Africa back in full flow, output approached 700 m.t. annually by 1914. Close to 60% of this gold went into monetary stocks, with central banks relentlessly retaining a larger slice.

One incentive was the widening of the gold standard club in the 1890s. Russia joined in 1893, Japan in 1897, India (on a gold exchange standard allied to sterling) in 1898 and, finally, the United States in 1900. The silver lobby in the United States had fought a desperate rearguard action for half a century, successfully retaining the bimetallic standard. They even pushed through the Sherman Silver Purchase Act of 1890, which required the government to buy 1,680 m.t. of silver annually, with Treasury notes being redeemable in gold and silver. The issue was settled only by the 1896 presidential election campaign. The Democrats had bimetallism as the main plank of their platform and nominated William Jennings Bryan of Nebraska. He made the famous remark, “You shall not crucify mankind upon a cross of gold” – but lost the election. So, in 1900, the dollar of twenty-five and four-fifths grains of gold 900 fine became ‘the standard unit of value; and all other forms of money issued or coined by the United States shall be maintained at a parity of value with this standard’. Ultimately, fifty-nine countries were on a gold or gold exchange standard; only China, among major nations, remained loyal to silver.

In practical terms, to accommodate the widened standard, central bank stocks of gold rose by 70% during the 1890s. But the banks still seem to have regarded their gold reserve (usually mainly in coin) as cover for their domestic note issue liabilities. Anyone could walk into banks in Britain, France, Germany or the US and exchange a bank note for gold coin at a fixed price. That was the essence of the gold standard. The United States, getting ready to go on the gold standard in 1900, minted 560 m.t. of coin between 1895-99, and a further 856 m.t. from 1900-04 to make sure plenty was in hand. The extent of gold coin manufacture from the early 1870s, when many countries officially switched to gold, is revealed by the US Mint report in 1896, which tracked almost 5,800 m.t. of gold coin minted in eighteen nations between 1873 and 1895 (Table 6). That is substantially more than world gold output during the same period of around 4,100 m.t. proposed by the US Mint report, confirming the earlier suggestions that a considerable amount of coin in some countries was made from melting imported coin.

The gold standard had international as much as domestic aspects. It implied that nations settled balance of payment differences with each other in gold, although in practice this seems to have happened relatively little. Many smaller nations, while having domestic gold circulation, did not bother to keep gold itself in reserve, but held sterling balances which, again, were regarded as being as good as gold. Britain was, after all, in Sir John Clapham’s phrase, “the creditor of the whole earth”. The Bank of England itself still kept a remarkably small reserve of under 200 m.t. in 1900, compared to the Bank of France with 544 m.t., the Imperial Bank of Russia with 661 m.t., and the US Treasury with 602 m.t.



The impact of war: 1914

The shadow of war changed all that. Many central banks and treasuries built war chests. Official reserves in France, Germany and Russia doubled between 1900 and the end of 1913; in the US they quadrupled. “There was considerably more continental demand for bar gold,” Mocatta & Goldsmid’s annual circular observed dryly. War was a real challenge, the first true test for the gold standard. War is expensive and governments knew they would need the gold. John Maynard Keynes, working as consultant at the Treasury, cautioned against the suspension of cash payments in gold, fearing the damage it might do to Britain’s and sterling’s images if the free gold market in London was suspended. Moreover, many countries kept their gold stocks in London, with the Bank of England, and their confidence, too, was crucial. So convertibility was not suspended (as it had been in 1797 in the Napoleonic wars), but the circulation of bank notes was quietly increased and they were made legal tender for any amount. Initially the minting of new sovereigns was not greatly reduced, but by 1916 only 1.5 million were made, compared to over 30 million in 1913. Sovereigns were also withdrawn from circulation when they came into the banks. At the outbreak of war, £123 million (900 m.t.) of gold coin was estimated to be in circulation in Britain; ultimately £100 million (732 m.t.) ended up at the Bank of England. The Bank of France took in 950 m.t. of privately-held coin by 1917. In all, over 3,000 m.t. of gold coin moved from circulation into central banks during or soon after the war.

At the outbreak of war, the Bank of England also bought gold at source in South Africa and Australia, doubling its reserves in five months to over 500 m.t. By 1920, the stock was up to 863 m.t. “There was magic in gold,” Sir John Clapham wrote in his history of the Bank, “ignorance in the costs of twentieth century war, a great and only half-mistaken faith in gold reserves”.⁷ While export of gold from Britain was not officially banned, it was rarely licensed, not least because of the threat of ships being sunk. Every nation husbanded its gold and let it go only for the most urgent settlements.

When the United States entered the war in 1917, exports were banned and the minting of coin drastically reduced. The US Mint made 387 m.t. of coin from 1910-14 and only 64 m.t. 1915-19. While the gold standard was not officially suspended, in practice it went into limbo.

⁷ Sir John Clapham, *Bank of England*, Vol.II, Cambridge University Press, Cambridge 1944, p.415.

After 1918: restoring the gold standard?

The lesson of war was that governments wanted gold firmly in their own hands, not those of their citizens. The prospect once peace came was also that the redemption of paper currency for gold at a fixed price would be severely limited and might ultimately cease, although few people realised it at the time. There was optimistic talk of going back to the full gold standard at the traditional price of £4.4s.11½d. per fine ounce troy.

But with the economies of Europe traumatised by war, and Russia succumbing to the Revolution, there was no going back, although the United States resumed full cash payments in 1919 (a full coin minting programme resumed at the US Mint which used nearly 1,500 m.t. of gold in the 1920s), while the London gold market got back in business with its first formal daily gold fixing. The price in London henceforth was to be quoted for 'good delivery' gold of 995 fine, replacing the historic 'standard gold' of 916 fine, though this did not mean the gold price itself had changed, rather that it was now quoted at £4.4s.11½d. per troy ounce for the higher fineness, instead of the Bank of England's traditional buying price of £3.17s.10½d for 'standard' gold.

However, the price did fluctuate in sterling terms simply because, in the aftermath of war, it was the dollar, not sterling, that became the world's most powerful currency as the centre of economic power shifted from Britain to the United States. The London gold price continued to be quoted in sterling for another fifty years, but that depended on the sterling-dollar exchange rate. The key now was the US gold price of \$20.67 per ounce, and the sterling price moved with the exchange rate. Thus, the first fix was at £4.18s.9d. per troy ounce on 12 September 1919, and as sterling fell further against the dollar that winter, gold rose briefly as high as £6.7s.4d.

This was clear evidence that two hundred years of a stable sterling price for gold was at an end. Yet a naive belief persisted among some economists and bankers that a return to the true gold standard was possible. The issue was debated at a conference organised by the new League of Nations in 1922. The consensus was that, while a return to the gold standard might be desirable, prices had risen so much due to the war, that there might not be enough gold to finance world trade. A proposal was made that nations 'economise in the monetary use of gold through the maintenance of reserves in the form of balances in foreign currencies'. In practice, this meant that central banks in smaller, poorer nations kept all or part of their reserves in sterling or dollars, which remained interchangeable for gold. This inevitably pushed the centre of gravity of gold stocks into the vaults of a handful of major central banks.

Indeed, this was already happening by the late 1920s with nearly 70% of all official stocks in the hands of just three countries, Britain, France and the United States. But the real power was with the US, where the Treasury and, increasingly, the Federal Reserve Banks, already had 45% of all stocks by 1925. In Britain the Bank of England had only 7%. The amount of gold coin remaining in private hands was also much less. A study for the League of Nations indicated total monetary stock at just under 15,500 m.t., of which central banks had 13,575 m.t. The changing pattern is reflected in the United States where the amount of gold coin in circulation halved between 1917 and 1930, while gold stocks held by domestic banks (as opposed to the Treasury or Federal Reserve) fell from over 350 m.t. in 1913 to 21 m.t. by 1930 (see Table 1). The days of widely circulating coin were over. By 1929, central banks held an estimated 92% of all 'monetary' gold.

Thus, it was a remarkable misjudgement, if not act of folly, that allowed Britain to go back on a 'gold bullion standard' in 1925 at the old price of £4.4s.11½d. Sterling was trapped in an unrealistic exchange rate. Under the bullion standard, notes could not be redeemed for sovereigns, but only for 400-ounce good delivery bars; a minimum purchase of

£1,700. “The 1925 return to the gold standard,” John Kenneth Galbraith has written, “was perhaps the most decisively damaging action involving money in modern times.”⁸

The British return to a half-hearted gold standard was not widely applauded. There was little free movement of gold, many small central banks sat on any gold they possessed. Germany, Japan and Spain resisted any return to convertibility. The French took one look and started turning all their foreign exchange into gold, even buying South African production forward the moment it was on the boat to Europe. By 1930 France held over 3,000 m.t. The French and the Americans between them held virtually 60% of all official gold stocks.

Another issue vexing analysts like Joseph Kitchin (who wanted to see a rising supply to justify gold continuing as circulating money) was that gold production was significantly less than prior to the war. Annual output was down from around 700 m.t. to nearly 500 m.t. in the early 1920s, before edging up to 600 m.t. again, helped by rising South African output. By 1929 South Africa accounted for 53% of world output, according to Joseph Kitchin, while the United States, where production had fallen 56% since pre-war days, contributed only 10%, and Canada about the same. Australia hardly rated; its production was down 75% since 1914.⁹ Thus the momentum of new supply which enabled those ‘monetary stocks’, whether official or private, to expand between 1850 and 1914, was no longer there. And, as we have noted, the Bank of France was aggressively buying South African production. So, from being a metal that was in the hands of millions for two or three generations, it was becoming concentrated in the vaults of a select few central banks.

During the 1930s that concentration increased. The fragility of the new system was exposed first by the Wall Street crash of 1929, causing widespread financial instability. Then the collapse of Credit Anstalt in Austria in 1931 called into question the standing of many banking institutions. Loans were called in, money was withdrawn from London. The Bank of England’s gold reserves fell by over 30% between the summer of 1928 and the autumn of 1931. The gold standard in Britain was suspended on 21 September 1931. Over two hundred years of a stable sterling gold price, save for during the Napoleonic Wars and immediately after World War I, had ended. Sterling was devalued, and the new gold price floated between £5.10s.0d. and £6.6s.10d. per troy ounce, though the dollar price remained steady at \$20.67 for the moment. The knock-on effect was immediate. Several smaller European central banks, such as Belgium and Holland, which had kept most of their reserves in sterling, believing that under the gold exchange standard it was as good as gold, lost heavily. Portugal, Sweden and India severed their links with gold completely. Only France and the United States, with their substantial gold reserves, were immune for a while.

The suspension of the gold standard by Britain did not mean that people were forbidden to hold gold bar or coin, merely that the Bank of England did not have to sell gold at a fixed, statutory price. The London gold market worked normally. Banks and individuals could still buy and sell gold, import it and export it, but at the price of the day. That general term ‘monetary stock’ which had previously applied to gold in circulation and official reserves, now applied only to central bank/treasury stocks. Private buyers became ‘hoarders’. As people in Europe became distrustful of paper money, so they began hoarding. The Bank for International Settlements calculated that, in the

8 J. K Galbraith, *Money, Whence it Came, Where it Went*, Andre Deutsch, London 1975, p.168.

9 Joseph Kitchin, paper presented to the Royal Institute of International Affairs, 26 February 1930, reproduced in *The International Gold Problem*, Oxford University Press, 1931.

five years after Britain went off the gold standard, almost 3,110 m.t. (70% of all gold mined in the period) went into hoarding.¹⁰ This private buying (by commercial banks and individuals) is not included in the monetary table (Table 3) of this report. The gold was bought through fear – fear of devaluation, fear of war. This was entirely different from the Victorian sovereign which millions kept in their pocket as money.

The destiny of monetary gold for the next twenty or more years now rested with the United States. President Roosevelt, coming into office early in 1933, inherited an economy beset by the depression. He had to create jobs, raise prices and increase the money supply. But to do so while on the gold standard could depress the dollar and lead to an outflow of gold. He promptly banned gold exports, halted convertibility of paper dollars into gold and ordered US citizens to hand in all their gold. Almost 500 m.t. of gold, mostly coin, worth \$321 million, was handed in for greenbacks. (The prohibition lasted until 31 December 1974.) Such measures, however, did not resolve the issue of the money supply, so Washington decided to raise the price of gold arbitrarily. Initially the price was edged up a few cents a day without much effect. Thus, on 31 January 1934 Roosevelt determined on a once-and-for-all rise. The price was set at \$35 per troy ounce (a devaluation of the dollar of 40% in relation to the old price of \$20.67 per ounce). Moreover, the United States decided to go back on a limited gold standard under which the US Assay Office would not only buy all gold offered to it at \$35 an ounce, but sell to any central banks, such as France, Holland, Belgium and Italy, which were still on the gold standard. This gold-dollar exchange standard lasted until 1971.

But there was little two-way exchange in it. The guarantee of a \$35 price started a virtual one-way traffic to New York for the next fifteen years. The Bank of France lost 200 m.t. of its gold in the first month as dealers traded in French francs for gold (at the local traditional rate) and sold it to New York. Ultimately, increasing pressure on the franc made it impossible to maintain the old parity to gold; France devalued and came off the gold standard in 1936, ordering its citizens to hand in their gold (few did). Holland and Switzerland came off the gold standard shortly after; only Belgium managed to maintain the standard until the outbreak of the Second World War. But in terms of monetary gold that was almost irrelevant. What counted was the soaring US stock. Before the price rise to \$35 the US held 6,070 m.t., by 1938 they had 11,340 m.t., and by 1942 20,205 m.t., with the ultimate peak just over 22,000 m.t. in the late 1940s and early 1950s (being 75% of all monetary gold by then and half of all gold ever mined).

The increase in stock was helped, incidentally, by the gold mining boom triggered by the price rise to \$35. World output doubled to a new record of 1,200 m.t. by 1940, with the US itself achieving a new record production of 155 m.t. that same year (not exceeded until 1988). Most of new mine supply went into the US stock. Despite the hoarding in Europe in the mid-1930s, jewellery demand had fallen – indeed the high price initiated much dishoarding of ornaments. Famine in India also led to the only significant dishoarding from the sub-continent in its entire history as 1,250 m.t. came out.

Effectively, there was one buyer of gold in the world – the US Treasury. It has been estimated that between 1930 and 1939 while new mine supply was 9,126 m.t., the addition to monetary stock was 10,634 m.t., meaning the official sector took every last ounce of mine output and then some dishoarded gold too. This does not entirely square with the BIS report in 1938 of 3,000 m.t. of new private hoarding, but the internal statistics of

¹⁰ Bank for International Settlements, 8th Annual Report 1938, p.45.

the gold market, except for official reserves and flows to and from India, which were also fairly precise, were not so reliable in those days. Estimates of dishoarding to be set against new hoarding may not have been precisely matched. Monetary purchases continued to absorb 90% of mine supply throughout Second World War, and only during the late 1940s did the private demand for gold start to revive.

The United States' pre-eminent position as the holder of gold in the immediate post-war years was a clear reflection of its unique economic power. The economies of Europe and Japan were in tatters. But there was a more formal framework for monetary gold once their recovery began. The Bretton Woods Agreement of 1944 had set the shape of the post-war international monetary system with fixed exchange rates and a gold exchange standard under which currencies were exchanged into gold at stable rates. In practice, that meant exchanging dollars for gold at \$35 an ounce. That parity was to be maintained, ultimately at great cost, until March 1968. The combined central banks' defence of \$35 through their 'gold pool' during the 1960s was a good example that you cannot beat the market in the end.

However, it is fascinating to see how well this gold exchange standard worked in the 1950s and early 1960s in the sense that international gold flows resumed and reflected the growing prosperity of European nations. Central banks continued to be significant buyers of new mine production (including accelerating South African output) absorbing almost 45% of new supply between 1948 and 1964. Monetary stocks rose from just over 29,000 m.t. in 1948 to 32,215 m.t. by 1953 (when the London gold market re-opened) to almost 37,600 m.t. by 1963. The pattern of country holdings, however, soon changed with the reverse flow of gold back across the Atlantic to Europe. The shifting balance was a reflection of new prosperity (only the UK went against this trend with steadily falling gold reserves as the role of sterling continued to diminish). At the end of 1953 the US still had nearly 20,000 m.t. and continental Western Europe only 4,840 m.t.; ten years later Western Europe had over 15,400 m.t., while in 1967 (the last full year of \$35 gold) Europe's stock was up to 18,640 m.t. The US stock was down to 10,722 m.t. Such was the measure of Europe's post-war recovery, it clearly highlighted the changed balance of gold reserves. In that sense the gold exchange standard did work; gold moved to newly prosperous nations. It was a measure of their wealth. The trouble was it was too restricted. Japan was always under pressure from the US Treasury not to buy gold as its economy grew. Japan had only 473 m.t. in 1970. So, although the gold reserve pack was reshuffled, not everyone took the cards. And then, in 1968, when the defence of \$35 gold ended, leaving the price free to float, an embargo was placed on central bank gold trading. Suddenly the regular movement of official gold was frozen (although the US did still sell to central banks with dollars until 1971). Central bank stocks were no longer mobile.

Even today, they reflect the way the world economy was in the late 1960s. And that is why some European central banks are left with a substantial stock of gold, which they are not quite sure what to do with, while other nations, such as Japan, whose economies have grown so much in the last thirty years, have very little. If the movement of gold among central banks had remained as open and easy as it is with currencies, then today's gold reserves might be a truer reflection of the global economy. As it is, they are a reflection of the way we were thirty years ago.

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TABLE 1: CENTRAL BANK / TREASURY STOCKS

All figures in metric tonnes fine gold

	1845	1850	1855	1860	1865	1870	1875	1880	1885	1890	1895
UK (Bank of England)	82.00	104.72	74.00	77.63	93.00	161.11	153.80	170.60	141.35	166.25	304.67
Germany - Imperial Bank - War Fund								37.98	56.38	143.06	209.37
Austria - Hungary			Nil	2.07	1.07	31.83	42.98	42.98	42.98	42.98	62.98
France (Bank of)	2.00	3.50	32.75	105.00	194.00	216.78	48.65	46.61	49.52	39.40	160.33
Spain (Bank of)							336.77	242.42	344.22	369.64	459.68
Portugal (Bank of)										44.00	58.25
Netherlands (Bank of)							42.20	34.65	28.83	37.12	18.27
Belgium (National Bank)							22.34	20.93	19.93	19.08	28.99
Italy (Bank of)						30.77	26.08	22.36	142.24	132.79	131.86
Russia (Bank of)	N/A	N/A	80.85	N/A	57.00	160.00	230.67	195.40	195.40	311.73	695.17
Romania (National Bank)										14.73	15.86
Bulgaria (National Bank)										3.12	2.00
Serbia (National Bank)										2.50	1.57
Turkey (Imperial Ottoman Bank)									5.41	11.32	9.87
Sweden (Royal Bank of)		0.30	0.10	0.10	2.07	5.20	7.89	8.34	8.81	10.09	22.62
Denmark (National Bank)							23.07	21.16	18.66		9.05
Norway (National Bank)							5.74	10.40	7.83		24.36
Switzerland (Banks of)			N/A	N/A	N/A	N/A	N/A	N/A	14.09	17.31	0.50
Greece (Bank of)										0.15	169.48
United States - Treasury						107.00	86.72	209.76	371.00	442.08	195.62
Australia (Bank of)							61.87	87.35	94.48	135.23	24.07
Canada (Treasury & Banks)										11.02	
South Africa (Banks of)										7.53	
India											
Argentina											
Brazil											
Japan											119.63
Finland										6.30	6.43
New Zealand											
Hungary (Austria/Hungary til 1925)											
Poland											
Indonesia (Dutch E. Indies)											
Uruguay											
Egypt											
Others											
TOTAL	84.00	108.52	187.70	184.80	347.14	712.69	1088.78	1150.94	1535.72	1969.04	2749.72

TABLE 1: CENTRAL BANK / TREASURY STOCKS CONT.

All figures in metric tonnes fine gold

	1900	1905	1910	1913	1915	1920	1925	1930	1935	*1940	*1945
UK (Bank of England)	198.47	199.21	223.37	248.09	584.60	863.75	1045.53	1080.00	1464.56	12390.22	1772.94
Germany - Imperial Bank	168.00	223.97	239.92	438.60	876.39	391.25	432.10	794.00	56.00	N/A	-
- War Fund	42.98	42.98	42.98	-	-	-	-	-	-	-	-
Austria - Hungary	322.16	370.78	402.60	378.39	208.86	NIL	3.16	45.00	41.00	² N/A	N/A
France (Bank of)	544.23	835.92	952.46	1030.43	1456.64	1622.17	1201.10	3160.00	3907.00	1772.52	1378.00
Spain (Bank of)	98.76	111.50	119.38	140.38	251.75	708.56	739.70	709.00	656.00	N/A	N/A
Portugal (Bank of)	7.87	7.97	9.87	19.19	13.84	15.95	14.00	13.00	60.00	82.00	N/A
Netherlands (Bank of)	27.31	47.85	76.10	92.46	260.48	385.23	270.98	257.00	435.00	548.53	240.00
Belgium (National Bank)	31.07	29.50	36.89	72.94	76.29	72.20	80.56	287.00	560.00	654.00	653.00
Italy (Bank of)	115.00	285.16	359.00	355.83	397.42	306.87	498.00	420.00	240.00	121.75	28.00
Russia (Bank of)	661.16	654.14	954.20	1233.00	1250.00	N/A	141.30	375.00	626.00	N/A	N/A
Romania (National Bank)	10.57	22.57	34.85	43.94	64.10	1.96	72.98	84.00	97.00	139.88	N/A
Bulgaria (National Bank)	0.90	10.83	9.18	15.95	17.76	10.83	12.00	15.00	17.00	21.80	N/A
Serbia (Yugoslavia)	2.09	5.57	7.26	16.85	18.66	18.66	22.12	29.00	38.00	72.61	N/A
Turkey (Imperial Ottoman Bank)	10.10	15.04	45.19	N/A	N/A	N/A	N/A	N/A	21.00	72.83	215.00
Sweden (Royal Bank of)	16.07	27.69	32.82	41.54	50.26	104.13	95.21	98.00	164.00	271.00	429.00
Denmark (National Bank)	23.79	31.45	29.92	31.20	44.84	12.34	87.88	69.00	48.00	46.21	34.00
Norway (National Bank)	12.85	11.43	13.94	19.46	20.77	90.29	58.59	59.00	77.00	80.00	71.00
Switzerland (Banks of)	28.49	30.84	45.31	49.90	72.98	150.48	131.82	207.00	582.00	446.22	1194.00
Greece (Bank of)	0.57	8.11	0.29	7.22	16.40	16.10	19.11	10.00	30.00	24.88	N/A
United States - Treasury	602.59	1148.67	1660.52	2293.46	2568.54	3679.29	5998.19	6358.00	8998.00	19543.30	17848.00
Australia (Bank of)	160.11	193.66	277.68	309.98	110.75	317.51	190.42	113.00	8.00	6.00	N/A
Canada (Treasury & Banks)	34.06	79.90	162.84	216.69	190.35	278.34	336.89	165.00	168.00	188.84	320.00
South Africa (Banks of)	49.36	54.90	75.85	54.17	48.30	50.56	80.00	50.00	188.00	313.45	819.00
India		29.64		186.60	102.17	174.85	163.43	193.00	243.00	243.92	243.00
Argentina		135.73		440.30	359.59	699.73	678.00	620.00	395.00	313.83	1064.00
Brazil				135.58	37.00	49.36	80.56	15.80	15.00	45.05	314.00
Japan		88.38	(e) 90.00	97.81	102.62	837.42	866.46	620.00	378.00	145.39	N/A
Finland	6.50	6.62	6.40	10.53	12.34	12.33	12.64	14.44	17.86	22.86	N/A
New Zealand				50.41	50.86	47.80	56.73	50.26	20.53	20.51	N/A
Hungary (Austria/Hungary till 1925)				-	-	-	15.65	42.00	20.00	21.73	N/A
Poland				-	-	4.50	36.62	95.00	75.00	N/A	N/A
Indonesia (Dutch E. Indies)				15.65	18.21	132.72	109.86	83.82	48.43	124.06	N/A
Uruguay				16.25	33.86	86.22	85.47	90.89	68.25	80.25	N/A
Egypt				15.80	53.72	24.83	24.98	30.25	48.70	46.39	N/A
Others				19.11	21.52	129.11	229.48	216.54	361.61	328.81	1708.00
TOTAL	3175.06	4710.01	5818.82	8097.71	9391.87	11295.34	13891.52	16469.00	20172.94	38188.84	28330.94

1 Bank of England end 1938: no figures 1940

2 Austrian National Bank taken over by Reichsbank 1938

e Estimate

Prime sources: Bank of England Weekly Returns: 1844-1914. Dr Adolph Soetbeer, Materialien, Hamburg, 1886. Reports of the Director of the US Mint, 1886-88, 1896, 1906. Royal Commission on Indian Finance and Currency, cd 7238, 1813, Appendix XXX. Royal Commission on Indian Finance and Currency, London 1926, Appendix 82, Evidence of Joseph Kitchin. Annual Reports, Bank for International Settlements 1930 et. seq. Annual Report of the Director of the Mint, Washington DC, 1940. Banking and Monetary Statistics, Board of Governors of the Federal Reserve System, Washington DC, 1943.

TABLE 3: "MONETARY GOLD"

All figures in metric tonnes fine gold

	1845	1850	1855	1860	1865	1870	1875	1880	1885	1890	1895	1900
(a) Central Banks/Treasuries Stocks	84	109	188	185	347	713	1089	1151	1536	1969	2750	3175
(b) Gold Coin in Circulation or with Commercial Banks	1300	1350	1725	2300	2650	2835	2976	3414	3439	3368	3350	4090
(a) + (b) Total "Monetary"	1384	1459	1913	2485	2997	3548	4065	4565	4975	5337	6100	7265
(a) Central Banks/Treasuries Stocks	1905	1910	1913	1915	1920	1925	1930	1935	1940	1945	1950	
(b) Gold Coin in Circulation or with Commercial Banks	4710	5909	8098	9356	11295	13892	16469	20124	28189	28330	34992	
(a) + (b) Total "Monetary"	3916	4699	3383	3298	2805	1565	984	*	-	-	-	
	8626	10608	11481	12654	14100	15457	17453	20124			34992	

Because of World War II statistics are incomplete and understate total

* Some domestic circulation France, Netherlands, Belgium

Prime sources:

Bank of England Weekly Returns: 1844-1914

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Banking and Monetary Statistics, Board of Governors of the Federal Reserve System, Washington DC, 1943

TABLE 4: LEADING CENTRAL BANKS / TREASURIES

Gold reserves in metric tonnes fine gold

	1845	1850	1855	1860	1865	1870	1875	1880	1885	1890	1895
UK	82	104	74	78	93	161	154	170	141	166	305
France	2.0	3.5	32.8	105	194	217	337	242	344	370	460
Germany*	N/A	N/A	N/A	N/A	N/A	N/A	43.0	81	99	186	252
Italy	N/A	N/A	N/A	N/A	N/A	30.8	26.0	22.0	142	133	132
Russia	N/A	N/A	81.0	N/A	57.0	160	230	195	195	312	695
USA**	N/A	N/A	N/A	N/A	N/A	107	87.0	208	371	442	169

	1900	1905	1910	1913	1915	1920	1925	1930	1935	1940	1945
UK	198	199	223	248	585	864	1045	1080	1464	N/A	1773
France	544	836	952	1030	1457	1622	1201	3160	3907	1773	1378
Germany*	211	267	240	437	876	391	432	794	56	N/A	N/A
Italy	115	285	350	355	397	307	498	420	240	122	28
Russia	661	654	954	1233	1250	N/A	141	375	7456	N/A	N/A
USA	602	1149	1660	2293	2568	3679	5998	6358	8998	19543	17848

* Germany includes War Fund 1875-1913

** USA does not distinguish gold and silver until 1870s

Prime sources:

Bank of England Weekly Returns: 1844-1914
 Dr Adolph Soetbeer, Materialen, Hamburg, 1886
 Reports of the Director of the US Mint, 1886-88, 1896, 1906
 Royal Commission on Indian Finance and Currency, London 1926, Appendix 82, Evidence of Joseph Kitchin
 Royal Commission on Indian Finance and Currency, London 1926, Appendix 82, Evidence of Joseph Kitchin
 Annual Reports, Bank for International Settlements 1930 et. seq.
 Annual Report of the Director of the Mint, Washington DC, 1940
 Banking and Monetary Statistics, Board of Governors of the Federal Reserve System, Washington DC, 1943

TABLE 5: GOLD COIN MINTING: MAIN COUNTRIES

Metric tonnes	1840-1844	1845-1849	1850-1854	1855-1859	1860-1864	1865-1869	1870-1874	1875-1880	1880-1884	1885-1889
UK	37.95	135.44	224.76	173.94	254.20	131.46	237.29	28.08	57.12	106.06
France	17.78	22.47	357.81	796.74	358.84	380.75	3.80	256.33	17.56	19.19
Germany	NIL	NIL	NIL	2.93	2.20	4.39	395.48	213.86	71.04	182.38
Russia	N/A	N/A	N/A	65.91	132.56	82.75	89.35	166.98	147.94	142.75
Australia	NIL	NIL	NIL	36.20	73.23	82.02	90.81	135.49	145.01	183.69
USA	27.29	61.38	326.14	188.95	226.30	184.56	218.98	305.40	421.85	200.85
	1890-1894	1895-1899	1900-1904	1905-1909	1910-1914	1915-1919	1920-1924	1925-1929	1930-1934	1935-1939
UK	316.74	185.98	320.59	501.51	982.35	⁴ 174.93				
France	30.00	197.22	117.19	² 314.50	358.84	380.75	3.80	256.33	17.56	
Germany	166.93	236.72	191.70	³ 104.26						
Russia	43.67	¹ 58.06								
Australia	225.90									
USA	332.56	559.78	856.10	723.44	387.17	63.96	541.15	924.19	213.75	NIL

¹ Russia 1895 only

² France 1905-08

³ Germany 1905-07

⁴ UK to 1917

Prime sources:

Tooke & Newmarch, History of Prices and State of the Circulation, 1792- 1856, 6 vols; Longman Brown, London 1857
 The Bullion Business of the Bank of England; Bank of England 1869
 House of Commons Select Committee on Depreciation of Silver, London 1876
 Dr Adolph Soetbeer, Materialien, Hamburg 1886
 Reports of the Director of the US Mint, Washington DC 1886-88, 1896, 1906, 1940
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TABLE 6: TOTAL GOLD COINS MINTED 1873-1895

Metric tonnes	
792	Australia
268	Austria-Hungary
109	Belgium
2	India
3	Egypt
345	France
920	Germany
603	UK
63	Italy
80	Japan
18	Mexico
49	Netherlands
5	Portugal
647	Russia
71	Denmark/Norway/Sweden
54	South America
311	Spain
1469	United States ¹
5809	Total

¹ US minted extensively 1896-1905, making her 1873-1905 total 2,835 m.t.

Source: Report to the Director of the Mint, Washington DC, 1896

TABLE 7: GOLD HOLDINGS US NATIONAL & STATE BANKS *

Metric tonnes fine	
5.58	1875
138.59	1880
145.57	1885
306.54	1890
221.00	1895
300.00	1900
295.96	1905
343.11	1910
178.19	1915
31.13	1920
27.40	1925
21.20	1930
Nil	1935

* Excludes US Treasury/Federal Reserve Almost exclusively in gold coin

Source: Annual Report of the Director of the Mint, Washington DC, 1940

TABLE 8: WORLD GOLD PRODUCTION 1835-1949

Five-yearly totals, metric tonnes	
102	1835-39
146	1840-44
278	1845-49
864	1850-54
1011	1855-59
915	1860-64
981	1865-69
878	1870-74
820	1875-79
765	1880-84
835	1885-89
1106	1890-94
1851	1895-99
2240	1900-04
3154	1905-09
3340	1910-14
3150	1915-19
2630	1920-24
3021	1925-29
3730	1930-34
5387	1935-39
5123	1940-44
3770	1945-49

Sources: Adolph Soetbeer; Bureau of the Mint (US); Joseph Kitchin (Union Corporation)

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