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June 30, 1999

To: Members of the Executive Board

From: The Secretary

Subject: **The Gold Market**

The attached paper provides background information to the paper on modalities for gold sales by the Fund (EBS/99/110, 6/25/99), which is tentatively scheduled for discussion on Friday, July 9, 1999.

Ms. Christensen (ext. 38397), Mr. Wattleworth (ext. 38765), Mr. Lakwijk (ext. 38819), or Ms. McAuliffe (ext. 38385) is available to answer technical or factual questions relating to this paper prior to the Board discussion.

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INTERNATIONAL MONETARY FUND

The Gold Market

Prepared by the Treasurer's Department

(In consultation with other departments)

Approved by David Williams

June 30, 1999

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I. INTRODUCTION

1. This paper provides background information on the gold market in connection with the Executive Board's consideration of the modalities of possible sales of gold by the Fund to help finance part of interim ESAF operations and special ESAF operations under the HIPC Initiative for the benefit of low-income countries. As requested by Executive Directors, this paper also describes the main features of the gold lending market.

2. The paper is organized as follows. Section II provides a general overview of the market and a summary of the paper. Section III describes the major features of the gold market, including general developments in prices, supply, and demand. Section IV discusses the derivatives markets in gold paper instruments and the gold lending market. Annex I describes the modalities for selling gold by the major gold producers and the official sector, while Annex II describes the Fund's previous gold sales program in 1976-80.

II. OVERVIEW OF THE MARKET AND SUMMARY

3. Since the Fund sold 25 million ounces of its gold in public auctions during 1976-80, the international gold market has grown significantly in depth, sophistication, and size. It has developed a full range of derivatives similar to those that exist in other financial and commodity markets. The demand for and supply of gold in the market are now nearly three times as large as in the late 1970s. Possible gold sales by the Fund of 5–10 million ounces would now correspond to just 4–8 percent of annual supply to the market. In comparison, the Fund's previous gold sales program averaged 12 percent of annual supply over the four-year period.

4. The spot price of gold has fallen sharply, but irregularly, from a peak of $850 per fine ounce (p.f.o.) in 1980 to $260 p.f.o.at end-June 1999, the lowest price since 1979 (Section III A and Figure 1). The prolonged fall in the price of gold is attributed to a number of factors, including changes in official and private attitudes to the role of gold as a monetary asset, reduced inflationary expectations, and the development of alternative financial investments. These factors have reduced the role of gold as a traditional inflation hedge and safe haven investment and adversely affected the investment demand for gold, which is estimated to have fallen to about 5–10 percent of total demand in the last 10 years, as compared with about 15 percent in the previous decade and up to 30 percent in the 1970s.

5. *Most recently*, the fall in gold prices accelerated with a fall by over 10 percent (to slightly below $260 p.f.o.) in the month following the announcement on May 7, 1999 that the United Kingdom would sell 13 million ounces of gold over the next few years, of which 4 million ounces would be sold in five public auctions every other month starting on July 6, 1999. Moreover, following a Swiss referendum in April 1999, certainty increased regarding sales of 42 million ounces of gold by the Swiss National Bank over the medium term, with sales possibly beginning as early as spring 2000. The announcement effects on the price of gold was compounded by investment funds taking large short positions in anticipation of further price declines, thereby contributing to the fall in price. In addition, some central

banks reportedly sold gold and other central banks lined up sales in the wake of the U.K. announcement, which further depressed the gold price and had a dampening effect on expectations of a future recovery in prices.

6. The long-term trend decline in the gold price reflects fundamental factors on both the demand and supply side. On the demand side, the gold market has witnessed a shift in the composition from investment forms to consumer and industrial products. Moreover, the geographical distribution of demand has changed significantly with a rising share of demand coming from emerging markets (in particular Asia), which now account for two thirds of demand, and a declining share from industrial countries. This shift has exposed the gold market to changes in economic conditions of the emerging market economies in particular.

7. On the supply side, technological advances in mining and exploration, in addition to exchange rate movements in some major producing countries, have reduced the real cost of extraction (in U.S. dollar terms) and gold mining output has continued to expand despite a falling gold price in recent years (Section III B). During much of the period of falling prices, production has been bolstered partly because producers hedged their future output against falling gold prices and sold forward their mine production—in some cases they have sold more than four years' production at highly advantageous prices since the forward price in gold is virtually always higher than the spot price on gold. However, while such financing arrangements tend to protect output in the short run, over the medium term the prolonged fall in price can be expected to have a material impact on mine production. Indeed, gold production is projected by market analysts to remain broadly unchanged in 1999 with possible declines thereafter if the current level of prices prevail.

8. The demand for gold for fabrication purposes, in particular from the jewelry and electronics industries, has consistently out-paced the supply from current production over the past 20 years. The so-called market deficit—i.e., physical demand less mine production—has been widening over the years and filled by direct sales from official and private sector stocks, and from gold lending by many central banks, which have resulted in sales in the spot market by the bullion banks, who borrowed the gold.[1]

9. Indeed, the very large overhang of above-ground stocks distinguishes gold from other commodities. Total stocks are reportedly the equivalent of 50 years of mine production. These stocks have in recent years provided to the market a ready source of supply, filling the gap between physical demand and mining output, as noted above. But they also make gold prices sensitive to changes in private demand for gold to hold and to market expectations of possible gold sales by the official sector. So far, the sales (net) by the official sector have been relatively small amounting to 6 percent of the official stocks during the past decade on a cumulative basis.

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[1]Bullion banks are those investment banks that are major wholesale traders in precious metals, in particular gold.

10. As is to be expected in an asset market, the experience of gold sales by the official sector suggests that the price impact is particularly strong at the time of the announcement rather than when the gold is actually released into the market. The relatively few central banks that have sold substantial amounts of gold from their reserves during the past decade—notably Argentina, Australia, Belgium, Canada, and the Netherlands—have announced their sales only after completion of their sales programs. These central banks have disposed of gold in a variety of ways, including direct sales to other central banks or through intermediaries using spot and forward sales, options, and other derivatives (Annex I). This contrasts with the United Kingdom intention to sell gold in a series of public auctions conducted by the Bank of England.

11. Over the last decade, official holders have sold on average the equivalent of 9 percent of annual supply coming on to the market. Furthermore, activity in the gold lending market has expanded, especially as a result of central bank lending. The total outstanding stock of lent gold is currently equivalent to nearly two years' new production. It is estimated that approximately 80 central banks participate in the gold lending market at present and that about 15 percent of all official stocks of gold has been lent to the market ensuring a return on gold holdings for some official holders. The main borrowers of gold are the bullion banks, who have entered into forward purchases with gold mining companies. To cover their positions, bullion banks sell the borrowed gold in the spot market—the so-called accelerated supply—thereby depressing the spot price on gold in periods when net lending is expanding (Section IV).

12. Looking ahead, some fundamental factors tend to raise the gold price—the recovery of demand following the emerging market crisis, and the slowdown in the rate of increase in gold output. Other factors such as the reduced role of gold in the official sector and possibly a related decline in the demand for gold as investment for the private sector point in the other direction. The outcome of these competing forces is unclear.

III. THE GOLD MARKET[2]

13. Gold has a number of distinctive features, which are reflected both in the institutional organization of the market and the way it functions. Gold is regarded as both a commodity and, still, although decreasingly, as a financial asset. It is highly durable, which has enhanced its value as a store of wealth, and is not consumed like many other commodities. Therefore, the bulk of gold that has been mined over the years has remained in above-ground stocks or applications, a substantial share of which is readily marketable. Decreasing interest in holding gold on the part of the official sector and industrial country investors has led to the existence

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[2]Information on the gold market is patchy. Transactions are characterized by a high degree of secrecy. Apart from the relatively small amount of open trading on exchanges, gold trades are private, over-the-counter transactions, and little is reported on these transactions. Production statistics and data on jewelry fabrication and industrial usage, as well as on official holdings of gold, are more readily available (Box 1).

Box 1. Data Sources

The **International Monetary Fund**'s *International Financial Statistics* (*IFS*) presents data on gold holdings as reported by the monetary authorities of member countries, the IMF, and BIS on a monthly basis. Data exclude gold holdings by other official entities. Changes in official holdings, as reported in *IFS*, might reflect outright gold sales or purchases by the monetary authorities or gold swaps although the practice of reporting varies.

Since 1997, the **London Bullion Market Association** has published statistics on the *turnover volume* by its eight clearing members (800–1,200 tons a day), which includes physical transfers in London as well as book transfers. These transfers may result from spot transactions and settlements of derivatives gold contracts, such as gold forwards and options. London is the center for the spot market for gold. The other major spot markets in Zürich and Hong Kong SAR do not publish trading data, but market participants suggest that the turnover is much lower than that in London. Only the gold exchange in Istanbul has provided daily spot trading statistics (1–3 tons a day).

The research group **Gold Fields Mineral Services Ltd (GFMS)** presents information from public and private sources and makes adjustments to the data in its publications that contain overviews of developments in the gold market (e.g., *Gold Survey 1999*, April 1999). Regarding official sales, GFMS uses *IFS* data but adjusts these to take account of: (i) estimated changes in gold holdings of official institutions other than the monetary authorities, (ii) forward sales by the official sector, based on information GFMS obtains from central banks, and (iii) changes in official sector gold lending. Regarding mine production and hedging, GFMS uses public information from mining companies as well as information obtained in its contacts with producers and bullion banks. GFMS compiles data on gold trade as reported by individual countries, and information provided by gold refineries and fabricators.

The **CPM Group** also produces surveys of the gold market with particular attention to the role of investment demand.

The **World Gold Council (WGC)**, a non-profit association of gold producers, publishes information on retail demand for gold in key markets. The data on country allocation of demand, as reported by the WGC, based on retail data, may vary considerably from those reported by GFMS (and the CPM Group), which are based on wholesale data.

of a sizable overhang of potential supply from existing gold stocks. The gold market is, therefore, highly sensitive to changes in expectations concerning the policies of the major holders of gold stocks, including central banks and the Fund.

14. The current demand for gold for fabrication and industrial use has outstripped current production by 40 percent per annum over the last decade, and this gap between demand and current production—the so-called "market deficit"—has widened over the years (Table 1). This deficit has been filled by sales of gold stocks by the private sector (i.e., scrap gold) and central banks and, increasingly, by central bank gold lending.

A. Gold Prices

15. The price of gold in the spot market has been on a downward trend from a peak of $500 p.f.o. in mid-1987;[3] the decline has accelerated since 1996, with the price falling from $400 p.f.o. to $260 p.f.o. in June 1999, a 20-year low (Figure 1). The relatively sharp and prolonged fall in the gold price is due to several factors:

- Fabrication demand for gold follows broadly cyclical developments, and gold prices move, to some extent, with other commodity prices reflecting the cyclical position of the world economy (Figure 2). In 1998, fabrication demand fell sharply mainly as a result of the Asian crisis, with demand falling by nearly 30 percent in East Asia. However, gold demand in East Asia recovered during the course of 1998, and overall the demand for gold has maintained a strong upward movement, in particular in the jewelry and electronics industries.

- Earlier peaks in gold prices in the late 1970s and early 1980s were partly explained by the oil shocks and related inflationary expectations that contributed to strong investment demand for gold. In recent years, the demand for gold as a store of value—the investment demand for gold—has accounted for only 5–10 percent of total gold demand (as compared with about 15 percent on average in the previous decade and 30 percent in the 1970s). The decline in investment demand can be attributed, in part, to lower inflationary expectations in the developed countries and the diminished attraction of gold as an investment alternative.

- Gold prices tended to rise sharply during periods of financial market distress (e.g., the debt crisis in Latin America in the early 1980s and the crash in the U.S. stock market in 1987) or as a result of political unrest in the world (Figure 1). However, gold prices expressed in U.S. dollars did not rise during the recent emerging market crisis and the resulting turmoil in the global financial markets. This might primarily reflect reduced

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[3]The all time record price for gold was $850 p.f.o. at the London p.m. fix on January 21, 1980.

Table 1. Annual Bullion Supply and Demand, 1989-98

	1989-98	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
	(In percent of 1989-98 total supply)	(In metric tons)									
Supply	100	**3,075**	**3,096**	**2,818**	**3,518**	**3,443**	**3,140**	**3,606**	**3,398**	**3,957**	**4,123**
Mine production	67	2,063	2,133	2,159	2,234	2,287	2,279	2,274	2,357	2,480	2,555
Scrap 1/	18	400	531	482	488	576	617	625	641	629	1,098
Net official sales	9	434	198	111	622	464	81	173	275	376	412
Net producer hedging 2/	6	178	234	66	174	116	163	535	125	472	58
Demand	100	**3,075**	**3,096**	**2,818**	**3,518**	**3,443**	**3,140**	**3,606**	**3,398**	**3,957**	**4,123**
Fabrication demand	93	2,547	2,684	2,876	3,206	3,041	3,074	3,294	3,336	3,905	3,709
Jewelry	78	2,048	2,188	2,358	2,760	2,553	2,618	2,791	2,850	3,342	3,145
Other 3/	15	499	496	518	446	488	456	503	486	563	564
Net investment demand 4/	7	528	412	-58	312	402	66	312	62	52	414
Gold price (US$ per fine ounce)	...	381	384	362	344	360	384	384	388	331	294

Source: Gold Fields Mineral Services Ltd, *Gold Survey 1999*.

1/ Supply of gold from fabricated old gold.

2/ Includes net hedging of options transactions with the official sector.

3/ Including coins, electronics, and dentistry.

4/ Calculated as market-balancing residual. Includes identified gold bar hoarding (see Appendix Table 5) and the net physical demand resulting from investor transactions in the spot and derivatives markets.

Figure 1 Price of Gold in London, 1972-99

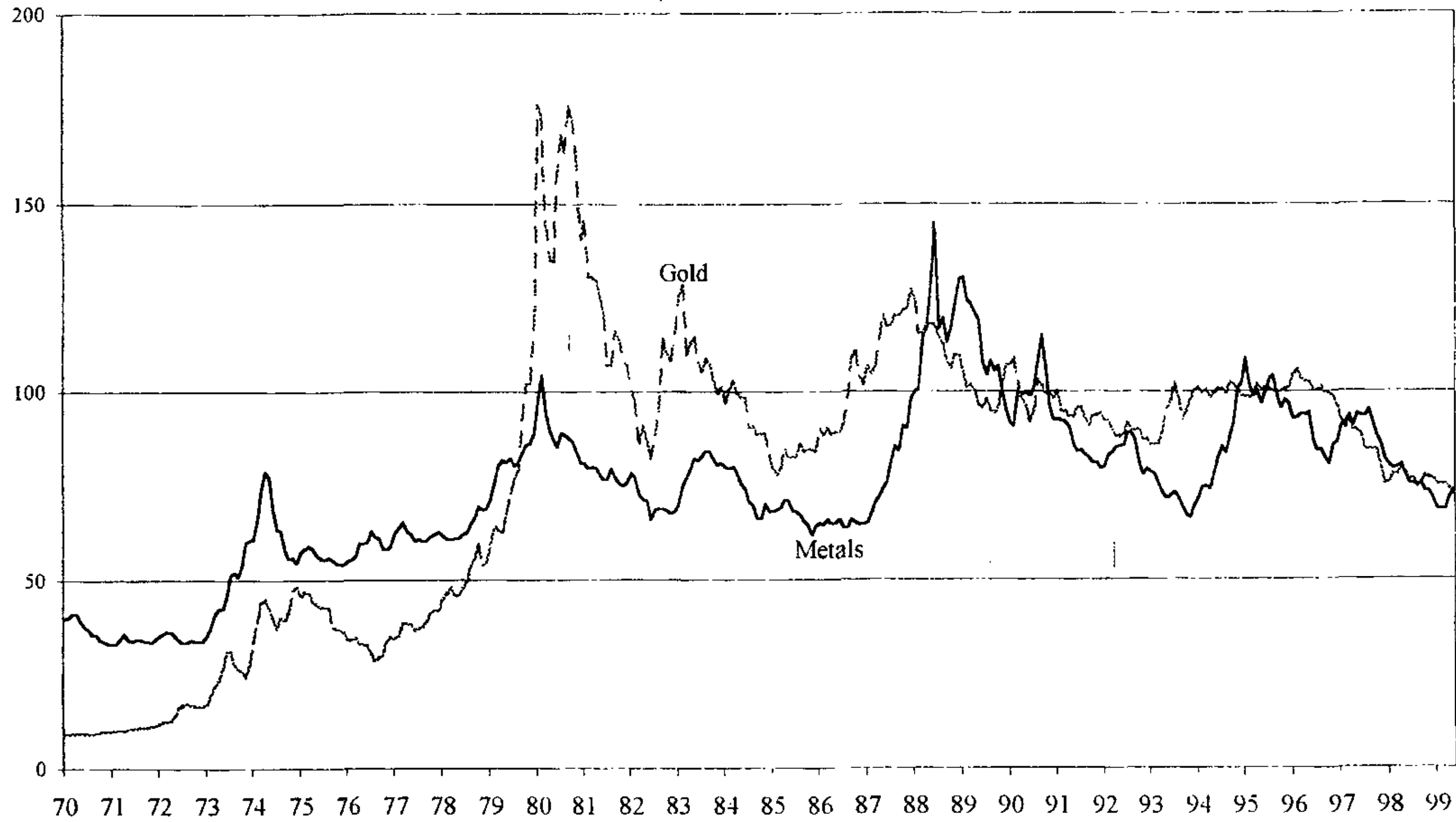
U.S. dollars per fine ounce (daily) 1/

Source: *International Monetary Fund.*

1/ Data end June 21, 1999.

Figure 2. Indices of Metals and Gold Prices, 1970-99 1/

(1990=100)



Source: International Monetary Fund.

1/ Metals index includes aluminum, copper, iron ore, zinc, nickel, tin and lead. Data end in May 1999.

fabrication demand and dishoarding by the emerging market countries (including Asia) in crisis, but also deflationary fears, the high liquidity premium and the strength of the U.S. dollar after the crisis, as well as the reduced role of gold as a safe haven investment.

- Since early 1996, investors have maintained a growing and large net short position in the market, taking advantage of low gold leasing rates, adding to the downward pressure on gold prices.

- Technological advances in mining and exploration, which has reduced the real cost of extraction, has supported continued expansion of mine production, notwithstanding the decline in the gold price.

- The perception of gold as a monetary asset has changed. Gold comprises a smaller share of official reserves than in the past, and the monetary authorities in several countries have disposed of part of their official gold holdings since the late 1970s. Some countries, such as Japan and Switzerland, have recently severed or reduced the link between currency issue and gold backing.[4] The reduced need for reserves by countries that adopted the euro and the recent announcements of future gold sales by the United Kingdom and the Swiss National Bank have also contributed to the uncertainty surrounding the stability of official gold holdings.

- The increased mobilization of central bank reserves through gold lending operations has had a depressing influence on the spot price for gold since on-lent gold is usually associated with sales of gold in the spot market (Section IV).

- The price impact of Fund gold sales of 5–10 million ounces is difficult to evaluate. There are no comprehensive empirical models of the workings of the gold market that allow for reasonably solid quantitative estimates of the impact of the announcement effects and thus of Fund gold sales on gold prices. On the demand side, estimates of price elasticities for fabrication demand (which accounts for the vast bulk of total demand) range from -0.4 to -0.8, but these partial equilibrium elasticities cannot be relied on for estimates of the impact of official sales. The price impact of announced central bank sales gives some indication of the order of magnitude, although the extent

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[4]In the new Bank of Japan law that came into effect on April 1, 1998, the requirement for the bank to hold liquid assets, which were defined to include gold, to back 100 percent of currency in circulation was eliminated. On November 1, 1997, the gold coverage of bank notes in circulation in Switzerland was reduced from 40 percent to 25 percent. In May 1998, the Swiss federal government approved a draft constitutional amendment to sever the Swiss franc's link to gold as a step toward the Swiss National Bank selling perhaps 1,300 tons (42 million ounces) of the country's gold reserves. In a referendum on April 18, 1999, the Swiss voters approved the constitutional amendment, which will enter into effect on January 1, 2000.

to which Fund sales have an impact on expectations concerning future sales by central banks is difficult to extrapolate (Section III C and Figure 5). Market participants generally confirm that the gold price has discounted possible Fund sales of 5 million ounces since the announcement was made in 1996, and that the market has been discounting up to 10 million ounces since March–April 1999 when officials mentioned such possible sales. By end–April 1998, gold prices had recovered to the level of the beginning of the year ($290 per fine ounce) before falling sharply in May–June 1999.

B. Supply of Gold

16. The main components of supply are mine production, scrap sales by the private sector, and supplies from the official sector in the forms of sales and lending that provide funds for net price hedging for producers (Figure 3).

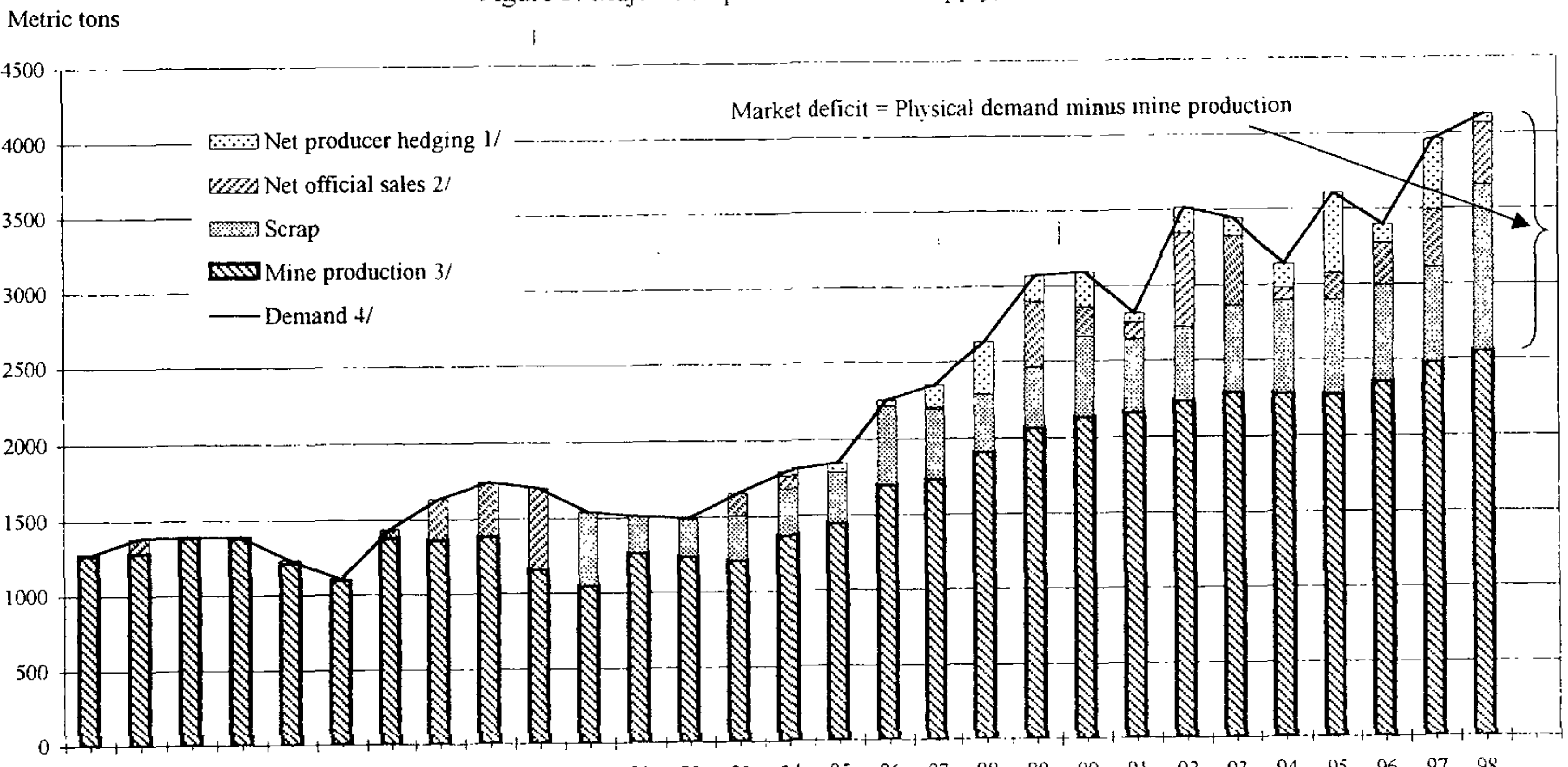
Mining production

17. Mining production is the largest source of supply to the spot gold market, meeting some two thirds of market demand (2,600 tons). The three largest gold-producing countries account for nearly half of total world production: South Africa (with 19 percent of world gold output), the United States (14 percent), and Australia (12 percent) (Table 2).

18. In recent years, gold production has become geographically diversified and played an increasingly important economic role in many developing countries (sometimes in conjunction with other mining activities). In Bolivia, Ghana, Guinea, Guyana, the Kyrgyz Republic, Mali, Mongolia, Papua New Guinea, Peru, and Uzbekistan, gold production accounted for more than 10 percent of total exports in 1998. Of these countries, five countries (Bolivia, Ghana, Guinea, Guyana, and Mali) are heavily indebted poor countries (HIPC) (Box 2).

19. After a rapid technology–driven expansion in the 1980s, gold mining grew by 1½ percent a year in the first half of the 1990s, accelerating to a 4 percent annual growth rate in the last three years (Appendix Table 1). Mining output has expanded despite the fall in gold prices, as producers have taken advantage of hedging opportunities, reduced costs, have shifted to higher grade ore, and in some producer countries have benefitted from exchange rate changes. Producers in Australia and North America, in particular, were in the forefront of the extensive use of hedging operations in the 1980s. It is estimated that Australian gold mining companies have hedged future production equivalent to close to five years of production at end–1998, compared to hedging of about 1½ years of production by North American companies, and about one year of production by South African mines. For heavily hedged producers, the recent price decline has not yet been fully reflected in their operations.

Figure 3. Major Components of Gold Supply, 1970-99



Source: Gold Fields Mineral Services Ltd

1/ Includes net hedging of options transactions with the official sector.

2/ For 1970-86, excludes net sales by China, Mongolia, North Korea, and the Soviet Union. Net purchases by the official sector in 1970, 1972, 1980, 1981, 1982, 1985, and 1986 are included in demand.

3/ For 1970-86, includes net sales by China, Mongolia, North Korea, and the Soviet Union instead of their mine output.

4/ Fabrication and investment demand, and net purchases by the official sector.

Table 2. Gold Mine Production, 1998

	In metric tons	Share of world production (In percent)	Share of country's exports 1/ (In percent)
Total	**2,555**	**100.0**	..
Industrial countries	892	34.9	...
United States	364	14.3	0.4
Australia	313	12.2	4.1
Canada	164	6.4	0.6
Other	51	2.0	...
Developing countries	1,663	65.1	...
South Africa	474	18.5	13.3
Russia	127	5 0	1 4
Indonesia	139	5.5	2.0
Peru	89	3.5	10.2
Uzbekistan	81	3.2	24.6
Papua New Guinea	63	2.5	23.7
Brazil	55	2.2	0.9
Chile	47	1.8	2.4
Philippines	35	1.4	1.0
Mexico	26	1.0	0.3
Colombia	22	0.9	1.4
Argentina	22	0.8	0.7
Ecuador	10	0.4	1.8
Fiji	4	0.2	3.0
of which: Low income countries 2/			
China	161	6.3	0 7
Ghana 3/	73	2.9	39.3
Zimbabwe	27	1.1	9.7
Kyrgyz Republic	22	0.9	24.3
Mali 3/	22	0.9	32.7
Bolivia 3/	17	0.7	11.5
Guyana 3/	15	0.6	17.9
Guinea 3/	13	0.5	15.2
Mongolia	10	0.4	19.8
Kazakhstan	9	0.4	1.2
Sudan 3/	6	0.2	5.8
Tanzania 3/	6	0.2	4.3
Congo, Dem. Rep. of the 3/	5	0.2	3.4
Nicaragua 3/	4	0.2	5.0
Cote d'Ivoire 3/	3	0.1	0.7
Tajikistan	3	0.1	3.8
Ethiopia 3/	3	0.1	2.6
Burkina Faso 3/	3	0.1	6.2
Vietnam 3/	2	0.1	0.1
Other	66	2.6	...

Sources: Gold Fields Mineral Services Ltd, *Gold Survey 1999*; and WEO database.

1/ Production valued at average price in London ($294 per ounce in 1998) as a share of the value of exports of goods and services in 1998. This provides an upper estimate of the importance of gold in exports. In many countries, domestic demand for gold absorbs part (or all) of the gold produced.

2/ ESAF-eligible countries.

3/ Heavily indebted poor countries.

Box 2. The Fall in the Gold Price and the Heavily Indebted Poor Countries

The impact of Fund gold sales on the heavily indebted poor countries (HIPC) has attracted considerable public debate (including by the World Gold Council—an association of gold producers). It has been argued that possible gold sales by the Fund has already contributed to a significant decline in the gold price and a decline in export receipts of gold producing HIPCs exceeding the investment income on the profits from possible gold sales by the Fund. In this context, the following considerations are relevant:

- Possible sales by the Fund of 5 million ounces have reportedly already been factored into the gold price since 1996, when they were first announced. The market has been adjusting to possible sales of up to 10 million ounces, as proposed by a number of government officials around the time of the Interim Committee Meeting. In late April, the price was recovering slightly following the announcements of these proposals, but then dropped sharply by some $30 per ounce, as the unexpected U.K. announcement led to perceptions of further sales by central banks.

- A possible Fund gold sale would be small in relation to the market by almost any standard of activity. A sale of 5 million ounces is equivalent to only three weeks of annual mining supply, and only two weeks of total world demand.

- Once completed, Fund gold sales will have no permanent impact on the price of gold.

- The long-term decline in the price of gold since 1996 has been due to a variety of factors, including:
  - cyclical developments,
  - diminished attraction of gold as an investment alternative,
  - expansion of mine output,
  - *central bank lending of gold, and*
  - declining role of gold as a monetary asset.

- Gold production exceeds 10 percent of total exports in five HIPC (Bolivia, Ghana, Guinea, Guyana, and Mali) and 5 percent in another four countries (Burkina Faso, Nicaragua, Sudan, and Tanzania). Even in the countries that are the largest gold exporters such as Ghana and Mali (gold production accounts for 39 percent and 33 percent of exports, respectively), a marginal impact on the gold price of, say, $10 per ounce (as opposed to the long-term decline in the price of gold) would amount to little more than 1 percent of export proceeds.

- The often substantial profit remittances by international mining companies imply that gold mining earns the country much less than suggested by gross receipts from gold exports.

- The negative impact on government revenues of the decline in the price of gold would depend on the degree of taxation and public ownership of mining. In fact, foreign companies frequently receive favorable tax treatment in order to encourage investment, so that the effect of a change in the price of gold on the government budget would likely be small.

- For countries reaching their so-called decision point under the HIPC Initiative in 2000 or thereafter, a decline in export receipts would be partly offset through larger assistance under the HIPC Initiative than currently envisaged, since the export base for calculating assistance would be reduced.

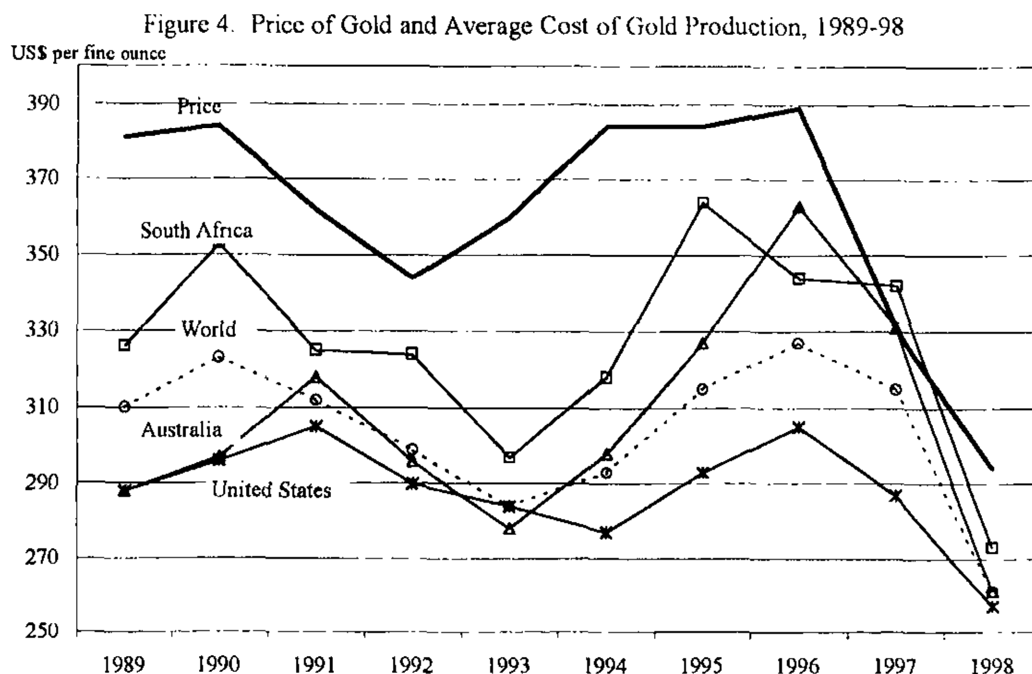
20. During the past decade, changes in the price of gold have generally been reflected in the cost of production with only a small lag (Figure 4). Increases in the price of gold, such as in 1993–95, led to higher average costs in U.S. dollar terms (per troy ounce of pure gold produced) as producers began to mine marginal ore deposits and, in general, were faced with rising unit labor costs. Declines in the price of gold, such as in 1991–92 and, more sharply, in 1997–98, induced producers to cut costs. Producers curtailed their expenditures on exploration, closed marginal mines, and brought on stream new low cost mines, often outside the main gold producing countries. In 1998 alone, and reflecting the prolonged fall in the price of gold, exploration spending is estimated to have dropped by 31 percent worldwide. In 1998, the average costs in the industry (in U.S. dollars) declined to their lowest level of the last decade, although this was also due in part to local currency depreciations against the U.S. dollar.

21. Notwithstanding the significant cuts in costs, profit margins have narrowed significantly in recent years. To the extent that recent cost reductions reflect the elimination of high cost producers, the recent fall in costs can be maintained. However, to the extent that the lowering of costs reflects the shift to low cost producer and exchange rate changes, it is unclear whether the reduction in costs can be sustained over the medium term. It is, therefore, significant that the relatively low gold price of recent years is beginning to have a material impact on gold output, particularly as producers increasingly focus on maintaining profit margins.

22. The cost of gold production has varied considerably among the three largest gold producing countries, but the differences narrowed sharply in 1998. Producers in the United States have relatively low costs. Furthermore, producers in the United States achieved a significant cost decline in the last two years primarily through rationalizations and, to a minor extent, through mine closures. In Australia and South Africa, average U.S. dollar costs have fluctuated more than in the United States, in part because of the changes in the value of the local currencies vis–à–vis the U.S. dollar. In South Africa, with falling labor productivity and the appreciation of the South African rand, costs in U.S. dollar terms increased in the mid–1990s. However, in the last two years, large cost reductions have been realized with a restructuring of the gold mining sector and the consolidation of several large firms. In view of this relatively low cost structure, South African producers, which have been hedging their output on an increasing scale, could be prepared to take out hedges at lower gold prices than producers elsewhere, thereby causing a downward pressure on the gold price.

23. In Australia, the sharp rise in costs during 1994–96 was reversed during 1997–98 due to the fall of the Australian dollar against the U.S. dollar, the closure of high-cost mines, increased production from low cost mines, and the recovery of higher-grade ore. As noted above, a major characteristic of the Australian gold industry is that most major producers are close to fully hedged in the short term, and the short-term effects of a fall in the gold price are small. Nevertheless, the relatively depressed gold price provide limited opportunities for locking in higher prices, thereby eroding profit margins and deterring the development of new projects.

Figure 4. Price of Gold and Average Cost of Gold Production, 1989-98



Source: Gold Fields Mineral Services Ltd.

24. Production outside the three main gold-mining countries has grown rapidly in recent years. Output from new and expanded mines has more than compensated for declining production in long-time gold producers such as Brazil and Russia. In Ghana, Indonesia, and Peru, little gold was produced a decade ago, but these countries are now among the 10 largest producers in the world. Significant gold deposits have been discovered in a range of countries, which can often be recovered at a low cost. Changes in mining codes and other regulations have resulted in increased foreign investment, and the major international mining companies have taken advantage of the new mining opportunities and diversified production geographically.

25. In a number of developing countries, in particular in sub-Saharan Africa, but also in Latin America and Asia, gold is produced in relatively small quantities compared to the output of the major gold-producing countries (Appendix Table 2). Artisanal and semi-industrial methods of gold recovery are widespread in these countries, although the share of gold mined by, or with participation of, international mining companies, has been rising. In recent years, countries with significant mineral deposits have increasingly attempted to attract foreign investment into their mining sectors. Liberalization of the investment regime has occurred or is underway in several, and tax incentives have also been granted. For example, in Mali, where two international consortiums mine the bulk of the gold that the country produces, investment procedures are being simplified, and mining companies currently benefit from a 5-year income

tax holiday, while a royalty of 6 percent is levied on the value of the gold output. In general, in these countries, the local population benefits from employment in the mining activities, although the mined gold, which is about 80 percent pure, is generally exported for refining elsewhere.[5]

Supply from private and official gold stocks

26. Global gold stocks are estimated at about 137,000 tons at end-1998, or more than 50 years of mine production at the 1998 level (Table 3). The bulk of gold stocks (more than 75 percent) are held by the private sector in the form of jewelry, gold bullion bars and coins, and in industrial applications. The experience in 1998 in the wake of the Asian crisis showed that privately held gold stocks can be mobilized quickly and can significantly influence supply conditions in the gold market.

27. The supply of scrap gold, which grew steadily over the past decade, jumped sharply in 1998 reflecting sales in East Asia (in particular, Indonesia and Korea). Scrap gold supply reached nearly 1,100 tons in 1998, almost double the annual average amount of the preceding three-year period, reflecting massive dishoarding in the early part of 1998.

28. The remainder of the stocks, approximately 34,000 tons, is held by the official sector, of which the Fund is the third largest holder of gold (behind the United States and Germany). Other large gold holders are France, Switzerland, and Italy. IMF gold holdings account for about 10 percent of official gold holdings, 2 percent of total world gold stocks, and more than one year of mine production. The 11 countries making up the euro area, together with the European Central Bank, account for close to 40 percent of total official gold holdings.

29. The very large concentration of official stocks of gold in a few industrial countries and the Fund has made the gold market highly sensitive to announcements regarding changes, or perceptions of possible changes, in policies of the major official holders. The market has struggled for some time with the perception of increased official sector sales and the effects of possible changes in the role of gold as a monetary asset. These uncertainties regarding future policies of official sector sales have been a significant factor in influencing the evolution of prices in the market over the last few years.

30. After a period of little change in official sector gold stocks in the 1980's, the supply of gold deriving from official sector sales and lending averaged some 600 tons per annum during 1989–98 (Table 4). The reduction in reported official holdings has been relatively modest over the last decade amounting to 6 percent on a net basis.[6] A few countries have added to their official gold holdings.

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[5]In some of the smaller producing countries, in particular in Asia, where demand for gold jewelry tends to be significant, mined gold may not be exported at all.

[6]Appendix Table 3.

Table 3. Distribution of Holdings of World Gold Stocks

	In metric tons	In millions of ounces	In percent of total	In years of 1998 production
World gold stocks, end-1998	**137,400**	**4,418**	**100.0**	**53.8**
Official sector holdings 1/	31,400	1,010	22.9	12.3
Private sector holdings	106,000	3,408	77.1	41.5
Jewelry	64,700	2,080	47.1	25.3
Private stocks	24,700	794	18.0	9.7
Other fabrication	15,300	492	11.1	6.0
Unaccounted	1,300	42	0.9	0.5
Official gold stocks 2/	**33,613**	**1,081**	**100.0**	**13.2**
Central bank holdings	30,196	971	89.8	11.8
Industrial countries	25,379	816	75.5	9.9
Of which: Euro zone	12,602	405	37.5	4.9
United States	8,139	262	24.2	3.2
Switzerland	2,590	83	7.7	1.0
Developing countries	4,817	155	14.3	1.9
International Monetary Fund	3,217	103	9.6	1.3
Bank for International Settlements	199	6	0.6	0.1

Sources: Gold Fields Mineral Services Ltd, *Gold Survey 1999*; and International Monetary Fund, *International Financial Statistics*.

1/ The differences between official sector holdings as reported by Gold Fields Mineral Services and by the IMF are explained in Box 1.

2/ International Financial Statistics: Data shown are for April 1999.

Table 4 Supply to the Spot Market Originating from Official Stocks, 1989-98

	1989-98	Total 1989-98	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
	(In percent of 1989-98 market supply)		(In metric tons)									
Total	17	5,954	**625**	**470**	**139**	**996**	**417**	**319**	**782**	**625**	**911**	**670**
Net official spot sales	8	2,808	450	170	189	471	342	194	122	203	348	319
Net spot supply from official lending 1/	9	3,146	175	300	-50	525	75	125	660	422	563	351
Memorandum items:												
Net official sales (spot and forward)	9	3,145	434	198	111	622	464	81	173	275	376	412
Net official lending 2/	11	3,725	200	300	150	625	-150	350	700	525	650	375

Sources: Gold Fields Mineral Services Ltd; and Fund staff estimates.

1/ Includes lending related to net producer hedging and to net hedging of official options transactions and official forward sales, as well as other lending (subsumed in the market-balancing residual in Table 1) that leads to spot supply.

2/ Includes lending that does not lead to spot supply, in particular lending used to increase fabricators' consignment stocks (some 400 tons during 1989-98), and to cover the withdrawal of private sector lending (some 200 tons during 1989-98).

31. The publicly expressed motivations for mobilizing official sector gold reserves have varied from country to country. The main motivating factors for outright sales of gold have included to repay external debt, the desire to increase the share of the foreign currency component in total reserves for intervention purposes, and to shift reserves to income-generating assets (Box 3). While official sector gold sales have generally been conducted in secrecy, a number of major central banks have announced their gold sales after they were completed.

32. Outright gold sales and gold lending have both fluctuated sharply during 1989–98, contributing to uneven supplies to the gold market, with official sales particularly heavy in 1989, 1992–93, and again in 1997–98. Gold prices have tended to weaken at the time of the announcements of official gold sales (Figure 5) and then recover slightly within 3–6 months, though the recovery in price did not amount to a reversal of the trend in the price of gold. Since early 1996, when the market price for gold has trended downward, some of the sharpest falls in prices have coincided with central bank announcements of sales that had already taken place by Argentina, Australia, Belgium, and the Netherlands, or of intentions to sell by the Swiss National Bank and the United Kingdom, or of participation in the gold lending market (Bundesbank).

33. Central banks have used a variety of modalities for selling gold. While they initially tended to sell gold to, or through the intermediation of, other central banks or the Bank for International Settlements (BIS), they have broadened the instruments to use a variety of sophisticated derivatives available in the gold market. Prior to the May 1999 announcement of the U.K. authorities, auctions had not been a feature of the modalities. The modalities for gold sales by the official sector, as far as they have been revealed by the authorities or market participants, are described in Annex I.

C. Demand for Gold

34. The demand for gold has been characterized by two main developments. Demand has shifted from various forms of investment into industrial and consumer products. In addition, the geographical composition of demand has changed significantly with a rising share of demand in emerging markets, in particular Asia, and a declining proportion in industrial countries. This changing pattern of demand has increased the gold market's sensitivity to economic developments in emerging market economies.

35. *Fabrication demand, which accounted for over 90 percent of market demand for gold* in the past decade, derives mainly from jewelry but also from electronics, dentistry, and coins. Such demand is heavily concentrated in Asia, which has accounted for approximately 45 percent of the total in recent years (Appendix Table 4). Emerging market economies account for as much as two-thirds of total demand. The major fabricator countries, including India and Italy, do not produce significant amounts of gold but import the bullion. Fabrication demand has increased sharply since the early 1990s, with the exception of 1998 when demand fell as a consequence of the economic slowdown in East and Southeast Asia, but the recovery in demand was well underway in the first quarter of 1999. Higher incomes worldwide have

Box 3. Official Announcements of Gold Sales and Transactions

• **Canada** announced in the context of its 1979 budget its intention to conduct a gold sales program which began in 1980 with the objective of gradually reducing the share of gold in reserves.

• The National Bank of **Belgium** has sold gold on five occasions since 1989. Belgium announced on March 22, 1989, that it had sold 127 tons of gold, on June 17, 1992, that it had sold 202 tons of gold, and on April 24, 1995, that it had sold 175 tons in order to increase its foreign exchange holdings. Belgium announced the sale of 203 tons of gold on March 27, 1996, stating that the sale had reduced the share of gold in total reserves to a level which would facilitate the participation of the National Bank of Belgium in the process of European unification and which corresponded to the proportion of gold in the total reserves of the Member States of the European Union. Further sales of 299 tons of gold were announced on March 18, 1998, in view of the desired level and composition of reserves after the introduction of the euro; the capital gain from the gold sales was used to repay government debt in foreign currencies.

• The **Netherlands** Bank announced on January 12, 1993 that it had sold 400 tons of gold during the fourth quarter of 1992. Officials cited a desire to reduce the country's gold holdings to a level closer to the European Community average and to improve the mix and performance of the central bank's reserve portfolio. In a press release of January 13, 1997, the Netherlands Bank stated that "in the past period, the Netherlands Bank sold 300 tons of gold. This represents over one-fifth of its total holdings (1,352 tons, including the gold transferred to the European Monetary Institute). These gold sales have brought the share of gold in the total holdings of gold and foreign exchange into line with that in other gold-holding countries."

• The Reserve Bank of **Australia** announced on July 3, 1997 that it had disposed of 167 tons of gold to increase its portfolio of foreign government bonds.

• The Bundesbank of **Germany** reported on November 12, 1997 that it had "carried out gold lending on a restricted basis for a long time, like most other central banks. It thus generates a contribution to covering the costs of maintaining the gold."

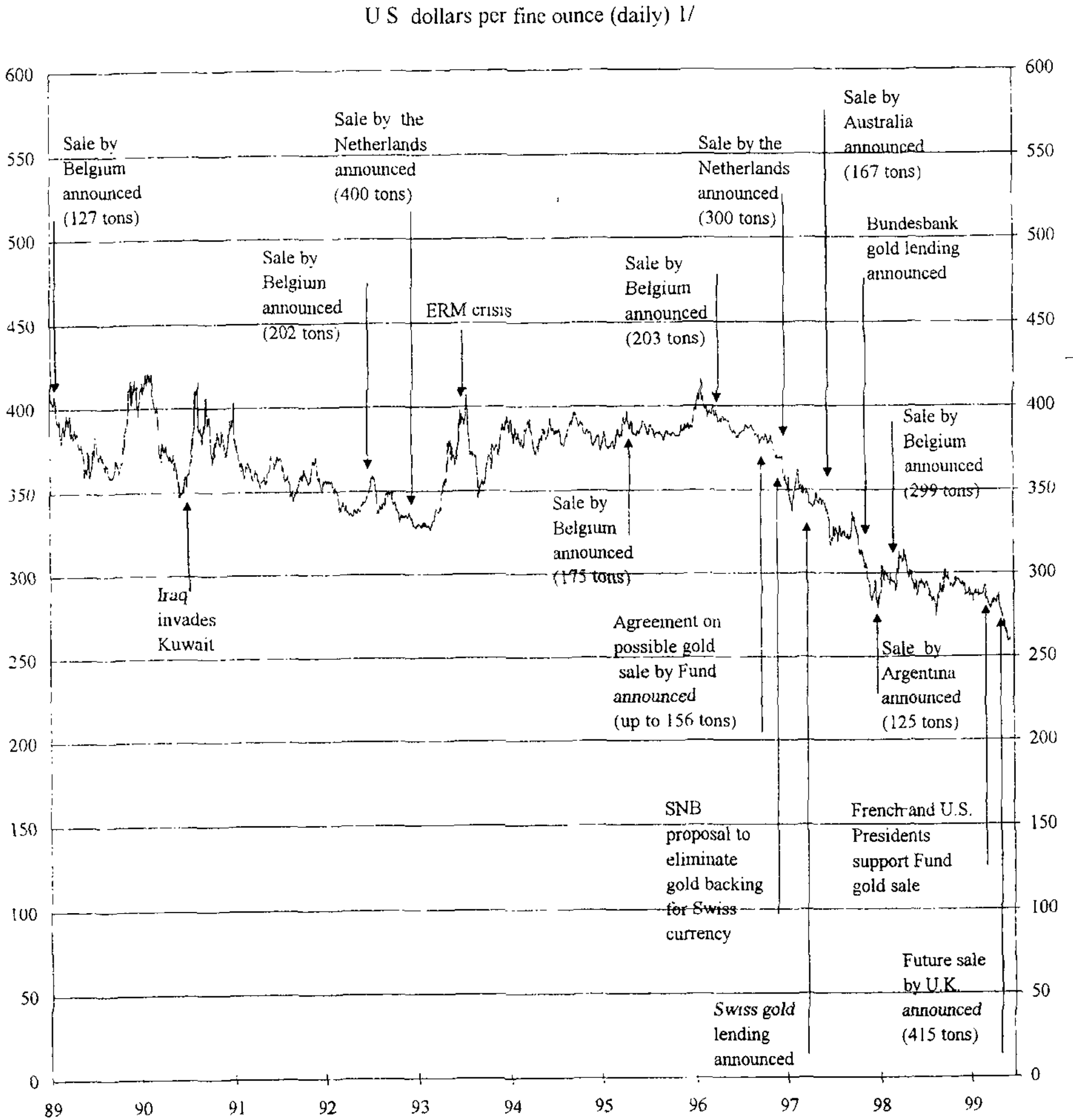
• The Central Bank of the Republic of **Argentina** announced on December 2, 1997 that it had sold 125 tons of gold earlier in the year, reportedly by converting to forward sales a long-standing put-call options strategy designed to guarantee the dollar value of the country's gold reserves.

• A working group of the **Swiss** National Bank (SNB) and the Swiss Federal Ministry of Finance (MoF) recommended in November 1996 that the gold backing for Swiss currency be eliminated; in March 1997 the Swiss President proposed gold sales to set up a humanitarian fund; and in October 1997 an expert group of the SNB and MoF recommended the sale of 1,300 tons of gold. In April 1999, the Swiss population voted in favor of a change in the Constitution to sever the link between the Swiss finance and gold. The SNB announced on April 2, 1998 that it had loaned 99 tons of gold at the end of 1997, and on March 31, 1999 that outstanding gold loans at end-1998 amounted to 187 tons. In its annual report for 1997, the SNB stated, "In order not to disturb prices in a fairly tight market, we build our positions cautiously and lend only a modest part of our gold reserves. Our partners are first class banks and securities houses, both domestic and foreign."

• The **U.K.** Treasury and the Bank of England announced on May 7, 1999 that the authorities intended to reduce official gold holdings over the medium term from the current level of 715 tons to 300 tons to restructure reserve holdings, and that five public auctions of a total 125 tons would take place during 1999/2000.

Figure 5. Price of Gold and Official Announcements, 1989-99

U S dollars per fine ounce (daily) 1/



Source: International Monetary Fund.

1/ Data end June 21, 1999.

contributed to rising fabrication demand, while demand has also responded to the lower gold prices of the past two years and a general relaxation of controls on gold imports and gold holdings in a number of large consumer markets. The liberalization of gold imports in India in particular (the largest gold fabricator) has contributed to strong demand since 1997, though demand fell sharply in the first quarter of 1999, in part in reaction to the large increase in imports in 1998.

36. Investment demand for gold, which amounted to 5–10 percent of market demand in recent years (compared with about 20 percent in the period 1970s and early 1980s), includes gold bar hoarding and the net physical demand resulting from investor transactions in the spot and derivatives markets. The diminished role of gold in an investment context reflects, inter alia, lower inflation expectations, and the development of attractive investment instruments in the financial asset markets. The perception of a change in the monetary role of gold in the official sector has also tended to sway attitudes toward gold in the private sector. While data on bar hoarding outside of Europe and North America are available, there are no firm data on overall investment demand. Estimates of investment demand are calculated as a residual and should, therefore, be interpreted with great caution (Appendix Table 5).

37. Investment demand, which is estimated at about 250 tons per annum over the past decade, has been volatile, fluctuating from well over 500 tons in 1989 to minus some 60 tons in 1991. In 1998, investment demand rose sharply to over 400 tons, from about 50 tons a year earlier, despite a virtual collapse of demand for gold bars in East Asia. The rise in demand in 1998 was reportedly due to the covering of short positions by North American and European investment funds in the aftermath of the Russian financial crisis and the restructuring of a major hedge fund. There were, however, few signs of outright purchases by funds despite significant financial market turmoil during the year, possibly underscoring the reduced role of gold as a safe haven investment.

IV. The Derivatives Markets and the Gold Lending Market

A. The Derivatives Markets

38. Since the 1970s, the gold market has developed from a spot market in physical gold to a fully fledged market including paper gold instruments. This market is used for both speculative and hedging purposes. While the range of derivatives is similar to that for the financial and other commodity markets, the vast amount of gold stocks provides a source of liquidity that is unmatched by other commodity markets. The development of the derivatives market has offered new opportunities for sellers of gold (whether producers or holders of gold) to hedge their price risk.

39. The main derivative instruments in the gold market are futures contracts, forward contracts, and options (for a definition of terms, see Box 4).

Box 4. Gold Derivatives Markets: Definition of Terms

Backwardation: a market situation where forward prices are lower than the spot price (see contango).

Call option: a contract that gives the holder (purchaser) the right, but not the obligation, to buy a specified amount of gold at a fixed (strike) price before or on the expiry date from the seller of the contract; option contracts can be either standardized and traded on an exchange or customized in the OTC market.

Contango: a market situation where forward prices are higher than the spot price (this results from spot-forward arbitrage when potential spot supply is ample); the gold market is normally in contango (see backwardation).

Forward contract: a contract in which two parties agree to the transfer of gold on a specified date in the future at a predetermined price; these are conducted in the "over-the-counter" (OTC) market on contracts negotiated between the counter parties.

Future: represents a standardized commitment to sell or buy a specified quantity and fineness of gold on a given date at a particular price, which is established on the floor of an exchange; the exchange acts as a middleman in each transaction.

Long position: purchase or retention of an asset.

Option premium: amount paid by the buyer to the seller to acquire an option.

Over the counter (OTC): trade not made on an organized exchange.

Put option: a contract that gives the holder (purchaser) the right, but not the obligation, to sell a specified amount of gold at a fixed (strike) price on or before the expiry date to the seller of the contract.

Principal-to-principal: direct transactions between buyers and sellers for their own account and risk without the intermediation of middlemen.

Short sale: the sale of a borrowed asset on the spot market in anticipation of a price decline.

- Trading in gold futures began with the repeal of the prohibition on the purchase and holding of gold by U.S. citizens on January 1, 1975, and picked up sharply in the late 1970s. Gold futures are primarily traded on the COMEX division of the New York Mercantile Exchange and on TOCOM (the Tokyo Commodity Exchange). Rising net short positions on the COMEX, which amounted to 296 tons at mid-June 1999 compared with 133 tons at end-1998, have exacerbated the recent fall in the gold price.

- Gold forward contracts are conducted in the "over-the-counter" (OTC) market. The forward market is generally used by large operators, such as gold producers, to hedge their positions in physical gold. Because the nature of the OTC market involves direct transactions between the buyer and the seller, there are no available data.

B. The Gold Lending Market

40. The existence of large stocks of official gold has allowed a relatively liquid lending market to develop that has been an important source of financing for mine producers, and facilitated hedging against price fluctuations. At the same time, gold lending has led to accelerated supply of gold to the spot market, which has tended to put downward pressure on the spot price of gold.

Operational features of the gold lending market

41. Gold lending takes the form of gold deposits and swaps. The gold lending market has typically three participants: a lender, which is often a central bank; a gold producer; and a bullion bank as intermediary. The central bank lends gold on deposit (or swaps gold) to the bullion banks for a fixed time period (usually not in excess of one year), and earns interest on the deposit—the so-called lease rate—while avoiding any price risk because it simply takes back the gold when the deposit matures. The main motivation for central bank lending of gold is to generate income on its official gold holdings, or in the case of swaps, to enhance the liquidity of its reserves. The bullion bank normally sells the gold it has accepted from the central bank in the spot market to avoid having an open position in gold and invests the cash proceeds at current market interest rates.[7] The gold producer hedges against price risk by selling forward future gold production to a bullion bank, which enables producers to lock in future gold production at higher than spot prices. The bullion bank completes the transaction

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[7]For bullion banks, gold deposits and swaps differ little, and the costs of obtaining a gold deposit or swap are about the same. From the perspective of central banks, gold swaps differ from gold deposits. With swaps, gold is sold against foreign exchange thus boosting foreign exchange reserves. By contrast, in the case of gold deposits, the lender retains ownership of the gold and therefore has a default risk; should the borrower fail to repay the deposit, the depositor could lose the gold that it had lent, unless the deposit had been secured with collateral.

by paying the gold producer when the contract for forward delivery matures and repays the central bank the gold it had accepted on deposit from the physical gold received from the producer.

42. These basic features of the gold lending market are illustrated in Figure 6. As can be seen, the bullion bank covers its forward gold purchase from a gold producer at time t and sells the gold borrowed from the central bank in the spot market and invests the proceeds in financial instruments. The gold loan is repaid by the bullion bank to the central bank at time $t+1$.

43. There are several variations of these basic features. For example, the demand for gold lending might also stem from bullion banks' transactions with market participants that are not producers, such as central banks, private investors, and fabricators. Central banks that sell gold avail themselves of the same type of gold derivative transactions with bullion banks as producers—e.g., selling through forwards and options—which, therefore, lead the bullion banks to borrow gold in the same way as when they carry out such transactions with producers. The operations of private investors acting as speculators and fabricators, however, contribute to demand in the gold lending market in a different way. Speculators and investment funds may sell short, i.e., borrow gold at the lease rate and sell it spot, in the hope of repurchasing the gold at a lower price by the time it needs to be returned. Fabricators also borrow gold from bullion banks, in the form of consignment stocks, in order to eliminate the price risk and to avoid tying up capital; the bullion banks in turn borrow gold from central banks.

44. A feature of the gold market is that it is nearly always in contango, i.e., the forward price virtually always exceeds the spot price for gold, which tends to increase the attractiveness of this market for gold producers. The contango effect is due to the ample supply of gold that is readily available from holders of gold stocks, i.e., primarily central banks. Backwardation—a lower forward price than spot price—is rare since gold holders can make guaranteed profits through selling spot and simultaneously buying forward when backwardation occurs. Such arbitrage transactions force spot and forward prices to adjust and move the market back into contango.[8] Since the market is nearly always in contango, this is a major incentive for producers to hedge their gold production, thereby delaying the impact on profits and output when gold prices decline. However, a persistent decline in price will eventually erode profit margins, deter exploration, and reduce output.

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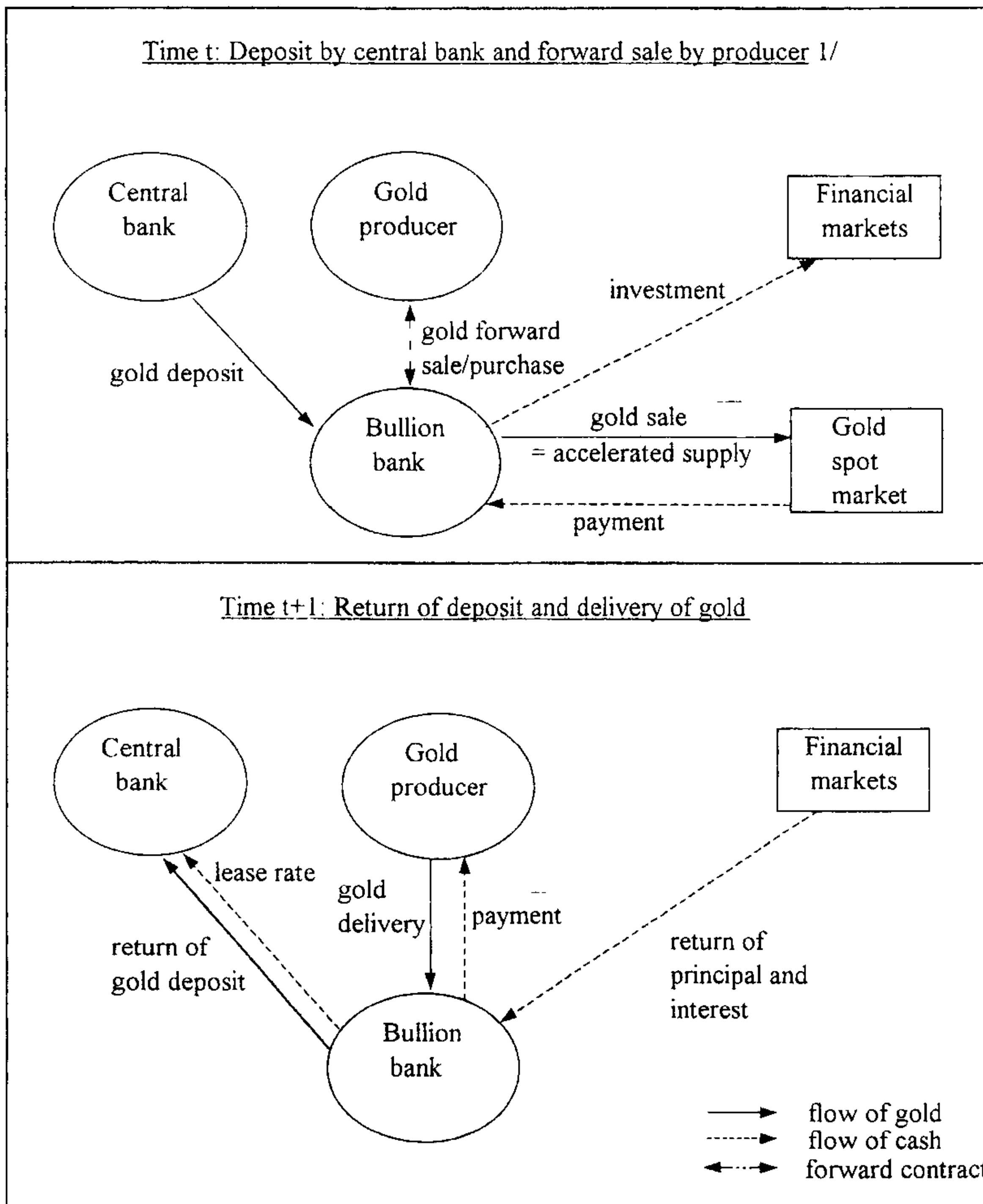
[8]The only period of backwardation at the three-month maturity occurred in the London market in November 1995, according to GFMS. Demand for gold lending surged while little new supply was available, as the gradual rise in lease rates earlier in the year had resulted in some lenders having already reached their self-imposed limits on lending. There may even have been some withdrawals of gold by central banks from the lending market due to heightened fears of market failure. Lease rates subsequently declined rapidly as new supply became available and the demand for borrowed gold fell.

Figure 6. Gold Lending



1/ The supply in the gold lending market also includes gold swaps from central banks. Gold producers also hedge future output with gold options.

45. The lease rate is determined by the difference between the interest rate on financial instruments and the forward premium on gold (Box 5). Lease rates are nearly always well below money-market interest rates for similar maturities because of the large supply of lending from existing gold stocks. If the forward premium increases due to changes in forward transactions, the leasing rate would decline. Similarly, the leasing rate would increase with the rise in interest rates in the money market to the extent the rise in interest rates is not reflected in higher forward premiums.

46. Central banks are willing to lend gold to bullion banks only on a relatively short-term basis, usually not in excess of six months though increasingly up to twelve months. The mining companies, in contrast, have also increasingly sought and obtained long-term hedging contracts with bullion banks. In some cases, these contracts extend beyond 10 years, albeit with an adjustable rate structure.

47. As the gold lending market has developed, bullion banks have made efforts to secure *and consolidate long-term relationships with central banks. As a result, the pool of official* sector lenders has increased, and reportedly approximately 80 central banks are active in the gold lending market. Furthermore, the process of rolling over maturing contracts has become established market practice so that variations in supply are relatively small and the maturities that central banks have been willing to accept have lengthened. Of course, individual bullion banks always have recourse to the interbank gold lending market, or the spot market as a last resort, to obtain gold if a central bank unexpectedly decides not to renew a gold deposit or swap. The major bullion banks are generally well capitalized, enjoy high credit ratings and long experience in gold market dealings, and manage a diverse portfolio of financial activities, though counterparty risk is a factor that central banks need to take into account when lending in the market.

Developments in gold lending[9]

48. Gold lending and borrowing, which began to develop in the early 1980s, have expanded sharply over the past decade. The outstanding amount of gold lent to bullion banks by private and, especially, official holders of gold is estimated at 4,725 tons at end-1998, compared with an estimated 1,200 tons at end-1988 (Table 5). The gold lending market has provided a major opportunity for central banks to earn a modest income on their gold holdings.

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[9]Official information on gold lending is virtually nonexistent. Consequently, the following information is largely drawn from private sources.

Box 5. The Gold Leasing Rate

The gold leasing rate l may be expressed as the money market interest rate r minus the forward premium f in gold (which is the difference between the forward price and the spot price in percent):

$$l = r - f$$

The actual rate in a leasing contract would differ from l in that it would incorporate a default risk, location and/or transaction size premium or discount, and reflect bid-ask spreads on the forward premium and interest rate.

In a typical lending transaction involving a central bank as the lender of gold, a producer as forward seller of gold, and a bullion bank as intermediary, the following transactions occur:

The central bank that lends gold to a bullion bank earns the leasing rate (l).

The bullion bank sells the gold borrowed from the central bank and invests the proceeds in the financial market, earning the market interest rate (r).

At the same time, the bullion bank purchases gold forward from a producer at a forward premium (f), that can be no greater than r minus l adjusted for a margin.

For illustration, the indicative three-month lease rate calculated by the London Bullion Market Association on June 25, 1999 was 1.07 percent. This rate was derived by subtracting that day's three-month forward premium on gold of 3.99 percent from the three-month LIBOR of 5.26 percent, and subtracting another 20 basis points to reflect market spreads.

Table 5. Gold Lending and Borrowing: Outstanding Stock
(In metric tons; end period)

	1988	1998
Amount lent	**1,200**	**4,725**
Official sources	550	4,275
Private sources	650	450
Amount borrowed	**1,200**	**4,725**
Producer-related hedging	500	2,700
Other	700	2,025

Sources: Gold Fields Mineral Services, Ltd.; and staff estimates.

49. Initially, only central banks with relatively small gold reserves participated in the lending market, but by end-1998 participation had expanded to include most of the central banks with large gold holdings. The number of countries with official sector involvement in the gold lending market is now estimated to have reached over 80. The outstanding amount of gold lending provided by the official sector by end-1998 amounted to nearly 15 percent of official gold holdings of all central banks (Figure 7). The share of industrial countries in the stock of total official gold lending rose from 33 percent at end-1995 to 46 percent by end-1998 as some industrial country central banks increased their lending, while new lenders, such as the Bundesbank and the Swiss National Bank, entered the market.[10]

50. Lease rates on gold have typically ranged from about 0.5 percent to 2.0 percent per annum for three-month maturity (Figure 8).[11] Lease rates have been somewhat higher on average in the 1990s than in the 1980s. Increased demand by bullion banks for borrowed gold has tended to raise lease rates, and the higher rates have tended to stimulate additional central

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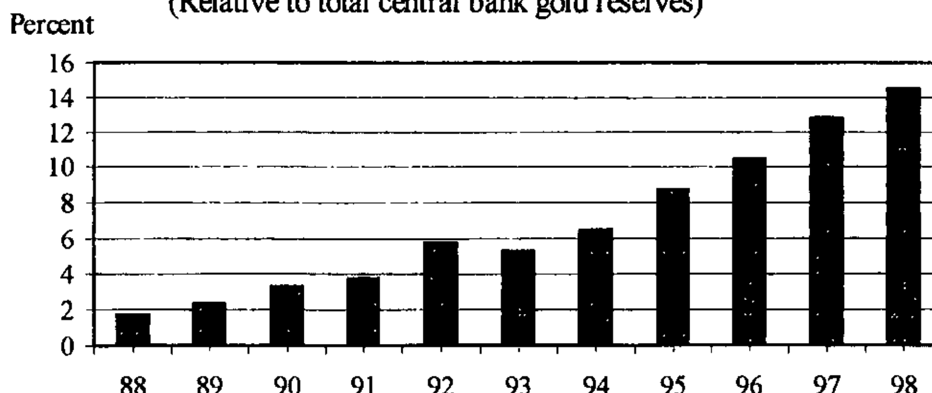
[10]The Bundesbank revealed in November 1997 that it had been carrying out gold lending on a restricted basis for some time. The Swiss National Bank has indicated that it began lending *gold in late 1997 after the minimum gold backing for its banknotes was reduced to 25 percent* from 40 percent. The Bank indicated that 187 tons were on loan at end-1998, up from 99 tons at end-1997. Other known market participants include the Bank of England, which lends on its own account as well as on behalf of other central banks; the Reserve Bank of Australia, which has said that it started lending gold in late 1986; and the central banks of Austria, Portugal, and Venezuela, which have indicated that they swap gold.

[11]Lease rates are generally higher for longer maturities, with 12-month rates exceeding 3-month rates by 50 basis points on average in 1998.

Figure 7. Official Sector Gold Lending, 1988-98
(Relative to total central bank gold reserves)



Sources: Gold Fields Mineral Services Ltd; and International Monetary Fund, *International Financial Statistics.*

bank gold lending. The cost of borrowing gold has been considerably below LIBOR by about 400 basis points on average since 1990, thus providing a major source of cheap finance for the expansion of mining operations, and associated hedging operations, but with consequent effects on the supply of gold to the spot market and on gold prices.

The economic impact of gold lending

51. A lending transaction is similar to a spot sale in its direct supply and price effects on the market. The accelerated supply to the spot market from borrowed gold allows gold to come onto the market earlier than it otherwise would. Accelerated supply has grown since the mid-1980s and, in some recent year s, has amounted to more than 20 percent of global mine output.[12] Accelerated supply has been a consistent net source of supply to the spot market since the gold lending market developed in the 1980s and has thus had a depressing effect on the spot price. The spot market is only affected by changes in accelerated supply on a *net* basis. A new gold deposit, for example, adds to the supply in the spot market, when it is offered for sale, while its withdrawal has the opposite effect, as the bullion bank that had received the deposit and sold it spot then has to obtain the gold for transfer back to the lender.

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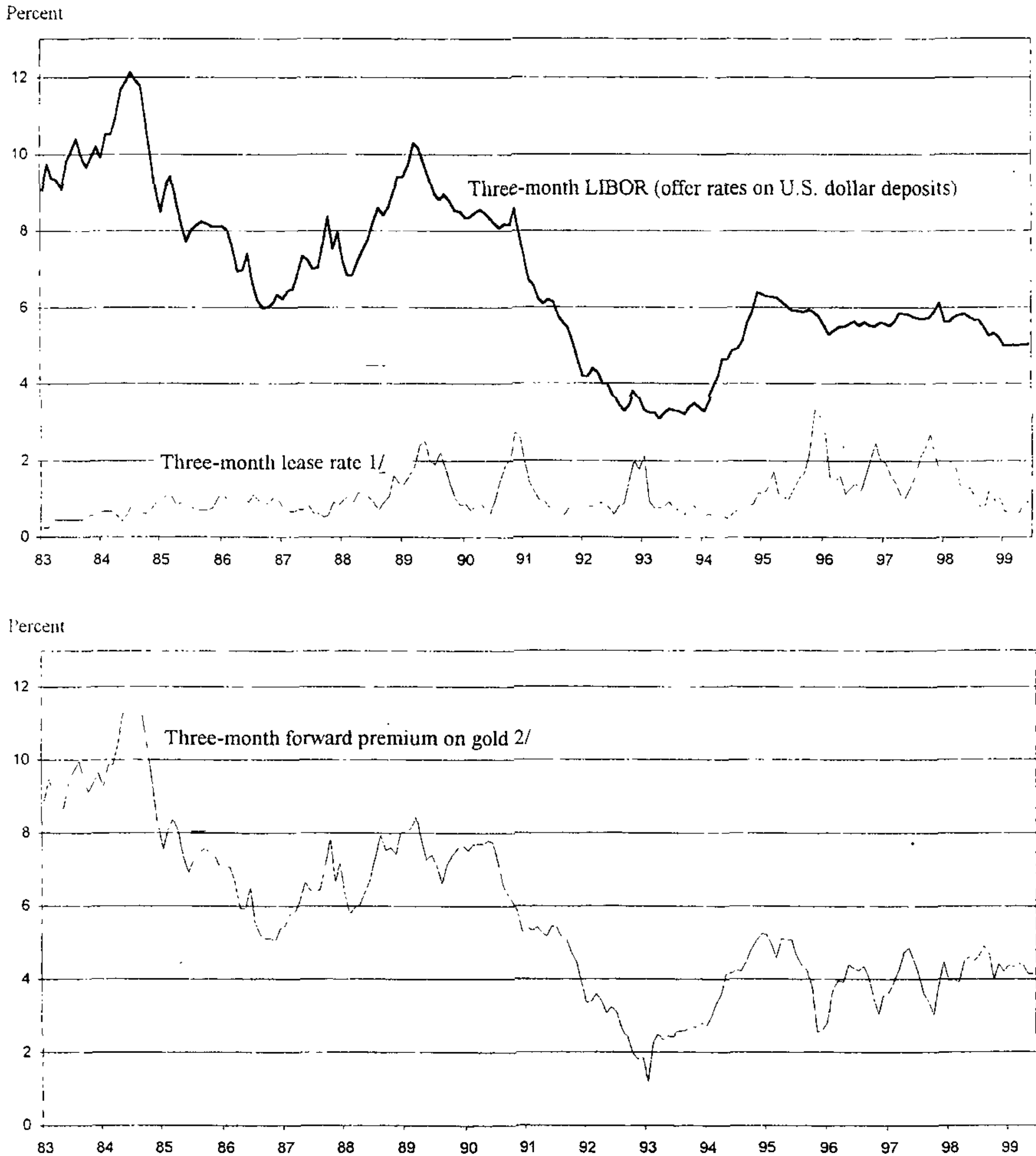
[12]The use of forward sales and options to sell gold by market participants other than producers who are "long" in gold is also considered accelerated supply and has a similar impact on the spot market. An additional form of accelerated supply is short selling, which is also accomplished by selling borrowed gold.

Figure 8. Gold Lease Rate, LIBOR, and Forward Premium, 1983-99
(Monthly average)



Sources: International Monetary Fund, *International Financial Statistics*; London Bullion Market Association; Union Bank of Switzerland; and staff calculations.

1/ For 1996-98, implied mid-market gold lease rate calculated by the London Bullion Market Association. Before 1996, based on data provided by Union Bank of Switzerland.

2/ Derived as the difference between LIBOR and lease rate shown above.

52 The existence of the gold lending market helps producers reduce their exposure to price movements. Without the availability of borrowed gold, producers would find it difficult to hedge future output as bullion banks would generally not want to assume open positions. If central banks were not willing to lend gold, there would be no other market participants in a position to offset the price risk faced by producers. While some market participants, such as jewelry fabricators, are buyers of gold and may appear to be good counter parties for producers, they are also sellers of the final product and would not benefit from locking in only the future purchase price for gold.

Gold operations and the Fund

53. Under the Articles of Agreement, the Fund is only authorized to sell gold. In the context of discussions on the cost of Fund credit in 1992, a number of Directors inquired about the possible utilization, in some other ways, of the Fund's gold to reduce the cost of Fund lending.[13] The General Counsel explained, however, that the Fund did not have the legal power to engage in any gold transactions other than the sale of gold and could not lend, lease, or swap gold. Specifically, he stated that Article V, Section 12 listed "three types of gold transactions that could be entered into by the Fund, each of which required a very high majority of the total voting power. The list of such transactions did not, however, include loans, leases, or swaps."[14] Moreover, Article V, Section 2(a), "provided that the number and nature of transactions on the account of the Fund were limited to those specifically authorized by the Articles. Therefore, there was no power for the Fund to enter into transactions with respect to gold other than those specifically listed in Article V, Section 12."

54. On gold loans and leases more specifically, the General Counsel said that the "provisions of Article V, Section 12 dealt primarily with the sale of gold, which in essence involved the transfer of ownership for a price. A loan, however, did not legally transfer ownership, as the lender would retain ownership of the asset in question; the legal effect would be the same whether the transaction was a loan or a lease."

55. Regarding gold swaps, the General Counsel noted that a swap "like a sale, involved the transfer of ownership for a price," but also included "an undertaking to retransfer the gold to the original owner at a later date. Normally, however, a swap transaction would also include an agreement on the price at which the transfer would take place, which posed certain problems under the Articles. The acquisition of gold by the Fund was limited to a very particular case in Article V, Section 12(d), which reads: 'The Fund may accept payments from a member in gold instead of special drawing rights or currency in any operations or transactions under this Agreement. Payments to the Fund under this provision shall be at a price agreed for each operation or transaction on the basis of prices in the market.' Therefore, while the Articles in theory provided for transactions that were similar to swaps, such

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[13]Seminar 92/1 (7/8/92).

[14]See statement by the General Counsel at Seminar 92/1 (7/8/92).

transactions would not technically be swaps, because the retransfer of gold to the Fund could only be made pursuant to the discharge of obligations by members under the Articles at the prevailing price at the time of the retransfer."[15] It should, however, be noted that the Fund is not precluded from entering into forward transactions to sell gold.

[15]The only time the Fund has accepted gold under Article V, Section 12(d) was in 1992, when gold was accepted from Cambodia in partial discharge of Cambodia's overdue obligations (see *Gold in the Fund*, EBS/95/69, 4/21/95).

MODALITIES FOR SELLING GOLD BY PRODUCERS AND THE OFFICIAL SECTOR

A. Producers

56. The modalities for selling gold by producers are partly determined by the restrictions in selling and holding of gold in each of the gold producing countries. The fifteen largest gold producing companies are based in Australia, Canada, Ghana, the United Kingdom, the United States, and South Africa. These account for about one-half of world production, and often derive a significant part of their output from mining operations outside of their home countries. These companies face large financing and sales needs on a continuous basis and are engaged in sophisticated financial operations. By contrast, the other half of the world's gold output is produced in a large number of countries by typically much smaller companies that mine domestically, and only in some cases are engaged in sophisticated financial transactions. In these countries, which include China, Russia, and a number of countries in Latin America, the Middle East, and Southeast Asia, restrictions on gold trading have been widespread, and central banks have often purchased the gold from domestic producers and sold it abroad.

57. Of the six largest producing countries, Australia, Canada, and the United States are mostly free of restrictions on gold holdings and trade. In South Africa, the holding and trading of gold in forms other than coins or jewelry is prohibited. In the People's Republic of China, gold prices are generally fixed, and trading of gold is restricted to certain users. In the Russian Federation, domestic trade in gold was not permitted until recently, but commercial banks are now allowed to purchase gold from mines and sell it abroad.

58. Large mining companies generally sell their gold to or through the intermediation of a bullion bank in spot, forward, or option contracts. Sales may take place "loco London good delivery," i.e., with bullion bars conforming to the standards of the London Bullion Market Association (LBMA) and delivered to the vaults of a member of the LBMA, or in any other manner that is satisfactory to the counter parties in the transaction.[16] Some companies have established direct sales channels to large jewelry fabricators, and others have begun to market their own gold bars, but the share of such sales in the total so far appears to be small. Organized exchanges, such as COMEX in New York, where gold futures and options are traded, are generally little used by producers to sell gold because exchange-traded contracts cannot be individualized and trading on an exchange is subject to mandatory margin requirements.

59. The large gold mining companies face financing and hedging needs that cannot easily be satisfied by bullion dealers, whose main function is to buy or sell gold wholesale. Many producers have forged links with bullion banks to obtain tailored financing, hedging, and sales packages, in which the hedging and sales aspects support the financing the banks are willing to

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[16] Loco London prices are the standard quotation all over the world for simplicity as this quotation method keeps the costs of freight, storage and insurance separate. The Bank of England facilitates gold trading in London as it stores gold of both official holders and large bullion banks in its vaults. This allows trades to take place without any physical movement of gold.

make available to producers for exploration, development, and production. The large bullion banks thus effectively combine the functions of banks and dealers. Bullion banks are able to provide gold to their customers in whatever fineness and location they may desire.[17]

60. **Australian** bullion banks were in the forefront of the innovative gold mine financing that was developed in the 1980s in connection with the lower-grade gold mining made possible by technological advances. Mining companies started working closely with the bullion banks to hedge and finance their production. The banks initially provided gold loans to mining companies (or prospective miners), which sold the gold spot to raise cash for new mines, and committed part of future production to loan repayment. The Reserve Bank of Australia supported their development by lending gold to the bullion banks.

61. The Australian banks handled all arrangements for the hedging, refining, and marketing of the gold, and developed "off the shelf" mine packages for small companies, including assistance with the setting up of gold recovery plants. Banks in Australia and in other countries soon also offered such all-round services to gold miners in other countries, in particular in North America, where gold mining was also growing and the demand for services ranging from mine financing to gold exporting was increasing. In the 1990s, Australian miners increasingly resorted to forward sales and options. Banks generally discontinued the practice of providing gold loans to producers, in part because they entailed substantial default risk.

62. **In South Africa** until recently, all gold production had to be delivered to the Reserve Bank of South Africa in accordance with exchange control regulations, and the Bank had the exclusive right to market the gold. Effective December 12, 1997, the Reserve Bank of South Africa allowed domestic producers, in the context of exchange control liberalization, to sell their own gold. It has not sold any gold on behalf of producers from the end of 1998. A phase-down period was negotiated between the Bank and producers, and all producers, except one, agreed to continue to use the Rand Refinery for refining their gold mine output to standards acceptable in major international markets. While South African gold, once refined, used to be shipped primarily to bullion banks in the major bullion markets of London and Zürich, direct shipments to Middle East or Southeast Asian markets are reportedly increasing. However, bullion banks continue to play a key role in arranging the transfers of gold from South Africa to markets around the world.

63. In **Russia**, gold production and marketing abroad remained centralized and controlled by the government until 1997, with Russia's own Bank for Foreign Economic Affairs replacing the Soviet Bank for Foreign Economic Affairs as sales agent. Russian commercial banks have been allowed to purchase domestic mine output since late 1993, and an interbank gold market began to develop in Moscow. The liberalization of Russia's gold industry proceeded in July 1997 with the relaxation of the state's monopoly in exporting gold, and in April 1998 several Russian commercial banks and major gold producers obtained licenses to export gold directly.

[17]Some bullion banks run their own refineries.

B. Official Sector

64. Gold sales by central banks are usually shrouded in secrecy as part of official reserves management policy. Only selected public information has been made public by the central banks or the respective governments and usually only after the sales have been completed. One exception was the Bank of Canada that announced its gold sales program in 1979 although without indicating the amount and phasing of sales. Another more recent example is the Bank of England, which in May 1999 announced its intention to sell some of the official gold holdings on behalf of the U.K. Treasury through public auctions (see below) and the basic modalities for these auctions. In other countries, including Australia, Belgium, and the Netherlands, the respective authorities issued press releases after the sale had taken place indicating the amounts of gold sales and the objectives of the sales program. The information below is based on information provided by both the authorities concerned and market participants.

65. While numerous central banks participate in gold lending and swap transactions, relatively few— among them notably Argentina, Australia, Belgium, Canada, and the Netherlands—have sold substantial amounts of gold from their reserves. Central banks have used a number of means for selling official gold. In some cases, central banks have sold to one or several other central banks or used the BIS as an intermediary to preserve the confidentiality of the transaction (e.g., Belgium and the Netherlands in their earlier gold sales). More recently, however, central banks (e.g., Argentina, Australia, Canada, and recent sales by the Netherlands) have reportedly often chosen to sell directly to bullion banks using a variety of sophisticated market instruments. These include forward sales for at least part of the sales (e.g., Australia, Belgium, Canada, and the Netherlands), and put-call options (Argentina). The modalities used by the major sellers of gold are described below.

66. The **Central Bank of the Republic of Argentina** reportedly sold 125 tons of gold in 1997 (nearly all of its holdings) through a longstanding put-call options strategy designed to guarantee the dollar value of the country's gold reserves; the average sale price of $371 p.f.o. was well above the market price at the time of the sale.

67. The **Reserve Bank of Australia** sold 167 tons of gold (two-thirds of its holdings) during the first six months of 1997. The sales were made gradually, by taking care not to disrupt market conditions. The sales were undertaken forward, with 125 tons delivered in June 1997, and the remainder in August and September 1997.

68. During the last decade, Belgium has sold over 1,000 tons of gold (three quarters of its holdings) on five occasions. It is widely believed that the BIS and other central banks played a key role in facilitating the **National Bank of Belgium's** sale to the market in 1992, in contrast with its sale in 1989, when reportedly some of the gold was acquired by other central banks. In 1996, the National Bank of Belgium sold through another central bank, which reportedly sold the gold to four or five bullion banks at a price very close to the London fix and with low transaction costs. The sale, which was reportedly spread over several months, involved substantial forward sales, and some of the gold may have been taken up by another central bank. In 1998, the National Bank of Belgium sold gold to five other central banks, which may have resold the gold.

69. In **Canada,** in December 1979, the Finance Minister announced a gold sales program in the context of the budget for 1980. He indicated that the sharp rise in the price of gold during 1978–80, at a time when the other components of the country's official international reserves had been declining, led to a substantial shift in the composition of their reserves portfolio. As a result, 22 million ounces of gold held by the Exchange Fund constituted almost 75 percent of their reserves. This was a far higher proportion than they had held in the past. It was also higher than the proportion then held by other industrial countries, with the exception of the United States, which held only small amounts of foreign currencies. From the standpoint of efficient management of their reserve assets, the Finance Minister further indicated that it would be more appropriate if this proportion were reduced somewhat. This would provide a more balanced portfolio and allow the country to invest more funds in interest-earning assets.

70. Accordingly, in 1980, the government initiated a policy of selling gold into the markets at a gradual and controlled pace. Cumulative sales of gold under the program have totaled *some 620 tons (about 90 percent of its holdings). The volume of sales has varied considerably* over the years. Between 1981 and 1985, net sales were relatively small, in a range of 1–16 tons per year. Sales picked up sharply to a range of 12–109 tons a year during 1986–96, but were temporarily suspended in 1996. Sales of 18.7 tons resumed in July-November 1998, according to monthly statements issued by the Canadian Ministry of Finance on sales during the previous month.[18] No gold was sold during the period December 1998–February 1999. During March–April, 1999, Canada sold 9.1 tons of gold.[19]

71. The sales have been carried out by the Bank of Canada (BoC) on behalf of the Department of Finance (DoF). Some of the sales were for local delivery to the Royal Canadian Mint for the fabrication of official Canadian bullion coins (the Canadian Maple Leaf). The bulk of gold has been sold loco London, however, with the initial shipment of gold taking place via deposits with bullion banks. Typically, the BoC has dealt directly with 6–7 bullion banks. Since 1995, most of Canada's remaining gold has been on deposit, and sales have been timed to coincide with maturing deposits.

72. As noted above, the Canadian Government announced the broad objective with its gold sales program ahead of the sales although it did not indicate the total magnitude or pace of sales. By publishing monthly statements three days after the end of each month containing the balance sheet of the Exchange Account Fund, the settlement of actual sales has been made public on a monthly basis.

73. The BoC has sold gold in both the spot and forward markets. The broad sales program in terms of amounts and general timing is agreed between the BoC and the DoF, with the BoC handling the implementation. The BoC maintains in-house expertise on gold market conditions and has some discretion over the exact timing and form of sales.

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[18] The position of the Exchange Fund Account is released within three business days of the end of each month.

[19] Sales data are on a settlement basis.

74. In 1992 and 1996, the Netherlands sold a total of 700 tons of gold (about 40 percent of its holdings). The settlement of the transactions took place after the announcements of the sales by **the Netherlands Bank** in early 1993 and early 1997, respectively. In order to assure confidentiality, in both cases the bank made use of an intermediary to sell gold on a forward basis. The gold was sold gradually depending on market conditions. The intermediary sold the gold under its own name into the market and to an official institution on a forward basis. Each forward transaction was offset by a forward sale from the Netherlands Bank to the intermediary.

75. On May 7, 1999, it was announced that the **United Kingdom** intended to sell 125 tons of gold (out of holdings of 715 tons) during the financial year 1999–2000, with the Bank of England (BoE) conducting five auctions on the Treasury's behalf. Over the medium term, the Treasury was planning to reduce its gold holdings to about 300 tons, with detailed plans for auctions in 2000–01 and later years to be announced later.

76. The first auction will take place on July 6, 1999. For the remainder of 1999–2000, it is envisaged that auctions will be held every other month, i.e., in September and November 1999 and in January and March 2000. Soon after each auction, the date and details of the next auction will be announced.

77. It is planned that around 25 tons (or 800,000 fine troy ounces) of gold will be offered at each of the five auctions, though the amount may be varied in the light of experience. The gold will take the form of London Good Delivery bars, each weighing about 400 fine troy ounces and located at the BoE in London. To encourage the widest possible interest, the Bank will consider bids for a minimum of 400 ounces and multiples thereof, at prices per ounce expressed in U.S. dollars. Successful bidders will be allotted gold in whole bars as near as possible in weight to the quantity of the bid accepted by the Bank.

78. The first auction will be conducted on a single, or uniform, price basis. Under this format, the bidding process will be competitive: bars will be allotted to the highest bidders, but all successful bidders will pay a single price that is equal to the lowest accepted bid. It is intended that subsequent auctions will also follow this single price format, but the pricing method will be subject to review in the light of experience. The auction will be limited to members of the London Bullion Market Association, including both market makers and ordinary members, and central banks and monetary institutions holding gold accounts at the BoE.

THE FUND'S GOLD SALES PROGRAM IN 1976–80

79. The Fund's gold sales program in 1976–80 was undertaken in light of understandings reached by the Interim Committee in 1975–76 on reducing the Fund's gold holdings by one third (50 million ounces) over a four-year period. The Fund sold 25 million ounces at public auctions during the period for the benefit of developing countries. The other 25 million ounces of gold were distributed—or restituted—to members, in proportion to their Fund quotas at the then official price of SDR 35 p.f.o.; these transactions are not discussed here. The Interim Committee also called for a Trust Fund to be established and administered by the Fund for the purpose of providing special balance of payments assistance to low-income members with the profits from the sale of the Fund's gold, augmented by financing from voluntary contributions or from loans.

Considerations for Fund gold sales

80. *During the period leading up to the gold sales program, the Fund gave consideration* to four main alternative modalities: sales through private agents, sales to central banks of member countries, sales through the BIS, and auctions conducted by the Fund. Sales through private dealers represented the normal procedure in the private gold market at the time, while gold sales through public auctions had just been used by the U.S. authorities for the disposal of a part of U.S. official gold stocks in 1975.[20]

81. *Sales through central banks were ruled out given the prohibition in the original* Articles of Agreement on gold sales to members at market prices.[21] Given the urgency of establishing the Trust Fund and selling gold for its benefit, it was considered that the necessary amendment of the Articles could delay initiation of the sales program to the detriment of the Trust Fund.[22] It was also considered that gold sales to members would not reduce the role of gold in the international monetary system, an important objective of the proposed amendment of the Articles.[23]

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[20]The U.S. Treasury sold 1.25 million ounces of gold in two auctions in 1975. The U.S. Treasury also sold 15.8 million ounces of gold in 19 auctions later in 1978–79. See Monthly Report on Gold Prices in World Markets, DM/80/6 (1/22/80) and EBS/95/132 (8/8/95).

[21]Under the original Articles, the Fund could sell gold to members only at the then official price of SDR 35 p.f.o. When the Second Amendment became effective in April 1978, the Fund was permitted to sell gold at prices based on market prices.

[22]See EBM/75/168 (10/22/75) and *Trust Fund*, EBM/75/149 and EBM/75/150 (9/19/75). See also *Trust Fund-Financing and the Use of the Fund's Gold*, EBM/75/173 and EBM/75/174 (11/7/75).

[23]See *Future Arrangements for Gold*, EBS/74/213 (7/18/74), and EBM/74/151 (12/22/74), EBS/75/368 (10/15/75), EBM/75/149 and EBM/75/150 (9/19/75).

82. During the discussion of alternative arrangements for selling the Fund's gold in the private market, considerable attention was focused on the possible effects that the Fund's operations might have on the gold market. The Fund's gold sales would have to be arranged so as to ensure that they would help avoid disorderly market conditions. In particular, it was considered important that the sales be made in an orderly manner by controlling the rate at which the gold would be released in the market.[24] It will be recalled that the gold market was much smaller than today with average annual supply during 1976–80 amounting to 1,470 tons. Because of the significant size of Fund gold sales in relation to the market, it was considered necessary to sell the gold over four years. The envisaged gold sales of 25 million ounces, or 780 tons, amounted to 12 percent of annual supply.[25]

83. The balance of considerations of these alternative arrangements led to the decision to conduct the gold sales through public auctions. Sales through public auctions would permit the Fund to meet a number of objectives. They would allow the Fund to act as a price taker, thus conforming to the proposed new Articles prohibiting the Fund from management of prices in the gold market. The Fund would also retain control over the disposal of its holdings, in contrast to giving private dealers discretion over the placement of the Fund's gold.

84. Public accountability would be better assured by the auction technique; the announcement of a fixed schedule of auctions to the public of specified amounts for some time ahead would remove uncertainty in the markets about the intentions of the provider of a substantial addition to the normal supplies to the market. By allowing market participants to know the conditions likely to pertain at least in the immediately foreseeable future, announcement of the amount to be sold through auctions would reduce uncertainties that would otherwise exert additional downward pressure on the market price, affecting, inter alia, the resources to accrue to the Trust Fund. Regular auctions would also avoid the difficulties inherent in the choice of private dealers or consortia.

The Fund's gold auctions[26]

Implementation

85. The sale of 25 million ounces of gold for the benefit of developing countries was conducted by public auctions over the envisaged four-year period. In order to implement this part of the gold sales program under the then existing Articles of Agreement, until April 1978

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[24]See de Vries, Margaret Garritsen (1985), *The International Monetary Fund, 1972–1978: Cooperation on Trial*,Vol. II, p. 126, EBS/74/213 (7/18/74), pp. 5–6, and EBM/74/151 (12/2/74).

[25]Excluding the 46 tons bought by member countries in "noncompetitive bids."

[26]This section is based on Annex III of *Gold in the Fund*, EBS/95/69 (4/21/95).

the Fund sold gold to creditor members at SDR 35 p.f.o. and these members transferred the gold to the Trust Fund at the same price against the payment of currency.[27] The Fund, as Trustee of the Trust Fund, sold the gold in periodically-held public auctions.

86. A major part of the profits from gold sales, together with income earned on their temporary investment, was used to provide long-term low-interest (Trust Fund) loans to eligible low-income developing countries. A portion of the profits from gold sales, corresponding to the shares of 104 developing countries in total Fund quotas, was transferred directly to these countries. Among the developing countries, members that preferred to have their share in profits from gold sales in the form of gold specie rather than in currency, were given the option of submitting noncompetitive bids at the auctions held by the Fund after the Second Amendment came into effect.[28]

87. In May 1976, the Executive Directors announced the terms and conditions for the first auctions, the approximate timetable of the auction program, indicating that 12.5 million ounces would be offered in the first two years of the auctions. Fund members (or agents acting on their behalf) were not allowed to submit bids at a price above SDR 35 p.f.o. The BIS was allowed to bid for its own account. The Fund reserved the right to reject any or all bids. The Fund also announced immediately after each auction the total quantity bid, the total quantity awarded, and the maximum, average, and minimum prices of successful bids.[29] The main terms and conditions of the auctions were modified in light of the experience, as described below.

Frequency of auctions and amount sold

88. The Executive Board initially decided that the auctions would be conducted at intervals of approximately six weeks and that a fixed amount of gold, 780,000 ounces, would be offered at each auction. After the first six auctions, the auctions were held on a monthly basis starting in March 1977, and the amount offered at each auction was lowered to 525,000 ounces; the decision to conduct monthly auctions aimed at reducing market uncertainty about the timing of gold auctions. The auction amount was further reduced in June 1978 (to 470,000 ounces) and in June 1979 (to 444,000 ounces) in order to take into account the effect of noncompetitive bids from members after the Second Amendment entered into effect.[30]

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[27]See *Gold Sales by the Fund,* EBS/76/46 (2/2/76).

[28]The amount of such a bid was limited to that part of the 25 million ounces of gold that corresponded to the member's share in total Fund quotas as of end-August 1975.

[29]The Fund supplemented this information with press releases giving the statistical distribution of the prices and amounts submitted in valid bids, as well as the names of successful bidders.

[30]Noncompetitive bids were permitted in the 12 auctions in June 1978 through May 1979 and were awarded in addition to the fixed amount of 470,000 ounces offered to competitive

(continued...)

Pricing method

89. In the first half of the auction program, the Fund alternated between two pricing methods: the "discriminatory price method," under which the successful bidder paid the price actually bid, and the "uniform price method," in which all successful bidders paid a uniform (cut-off) price, which was equal to the lowest acceptable price. In the absence of evidence that the uniform price method encouraged a wider participation or higher price bidding relative to the market price, the Fund adopted the discriminatory price method for all auctions in the second half of the sales.[31] Members submitting noncompetitive bids after the amendment of the Articles came into effect paid the average of the prices of accepted bids.

Other terms and conditions

90. The Fund auctioned gold of 0.995 fineness or better, with bids being received in Washington, D.C. To facilitate participation, the minimum bid requirement of 2,000 ounces in the first auction was lowered to 1,200 ounces for all subsequent auctions. Regarding the place of delivery, the Fund's depositories in New York, London, and Paris were used so as to leave the distribution of the Fund's remaining holdings of gold broadly unchanged. Originally, the Fund required each submitted bid to be accompanied by a deposit of $50,000. Unsuccessful bidders' deposits were returned promptly, while the balance due from a successful bidder was to be paid on delivery of the gold within four weeks of an auction. Following the review in December 1976 of experience in the previous five auctions, the final payment and delivery period was shortened to 10 days from the auction. The bid deposit was also changed from the previously flat sum to the greater of $25,000 or $10 per ounce bid in June 1977, and subsequently to $40 per ounce bid in March 1980 following the very sharp rise in the gold price at the time.

Results of the gold auctions

91. In the period between June 2, 1976 and May 7, 1980, the Fund sold a total of 24.998 million ounces of gold in 45 public auctions; 23.518 million ounces of this amount were sold to 51 separate bidders and 1.48 million ounces were awarded to 13 member countries that submitted noncompetitive bids. The proceeds from these gold sales amounted to $5.7 billion, of which $1.1 billion represented the capital value at SDR 35 p.f.o. and was retained in the GRA. The remaining $4.6 billion constituted the profits that were channeled to the Trust Fund for the benefit of developing countries; $1.3 billion of these profits was distributed directly to 104 developing countries and the remaining $3.3 billion was allocated

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[30](...continued)
bidders. These bids reduced the amount that could be offered for the remainder of the auction program.

[31]There was no statistically significant evidence from the Fund's experience that the pricing method in an auction had an effect on participation or bidding in the auction in terms of the subscription ratio, the average number of bidders, or the number of bids for the two types of auctions.

to concessional lending.[32] Trust Fund loans of SDR 2.3 billion were extended to 55 developing countries over the period of July 1, 1976 to March 31, 1981.

92. Participation in the auctions was substantial and generally included the major gold dealers. The Fund's gold sales at its auctions fetched prices that were generally close to prices prevailing in the major gold markets on the day of the auction. Over the four-year period, the (weighted) average award price of $228.65 p.f.o. was somewhat below the (weighted) average of the London fixings (including morning and afternoon fixings) during the four-year period of $228.90 p.f.o.

[32]Seven oil-producing countries (Iraq, Kuwait, Libya, Qatar, Saudi Arabia, the United Arab Emirates, and Venezuela) made irrevocable transfers of the full amounts of their profit shares to the Trust Fund. In addition, the former Yugoslavia transferred one third of its share of profits, and Romania lent 10 percent of its share, to the Trust Fund. The total value of the amounts transferred to the Trust Fund by these members added $125 million to the resources available for loans to eligible developing countries.

Table 1. Mine Production by Region, 1989-98

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
					(In metric tons)					
Total	**2,063**	**2,133**	**2,159**	**2,234**	**2,288**	**2,279**	**2,274**	**2,357**	**2,480**	**2,555**
Africa	675	676	691	715	731	703	655	624	637	643
of which:										
South Africa	608	605	601	614	620	584	522	495	493	474
Ghana	15	17	27	33	41	45	53	50	56	73
Zimbabwe	17	18	19	20	21	23	26	27	26	27
Mali	...	...	5	6	6	6	8	7	17	22
Asia	197	216	256	379	390	398	427	468	503	562
of which										
China	84	94	104	112	119	121	133	145	153	161
Indonesia	11	18	24	46	52	55	74	93	102	139
Uzbekistan	...	...	...	63	65	65	67	78	83	81
Papua New Guinea	34	34	61	71	62	61	55	54	49	63
Philippines	38	37	31	27	30	31	29	32	34	35
Kyrgyz Republic	...	...	...	1	1	2	2	4	17	22
Kazakhstan	...	...	...	14	14	15	15	12	11	9
Europe	30	35	32	177	190	185	171	163	171	161
of which										
Russia	...	...	...	152	165	158	142	133	138	127
Latin America	237	220	210	215	229	252	282	304	313	336
of which										
Peru	13	15	15	18	27	39	57	65	75	89
Brazil	101	84	79	77	76	73	67	64	59	55
Chile	29	33	33	39	39	43	49	56	53	47
Mexico	11	10	9	10	11	14	20	25	26	26
Argentina	1	1	2	2	1	1	1	1	3	22
Venezuela	17	14	13	12	11	14	17	20	20	14
North America	425	462	471	490	485	472	469	493	527	528
United States	266	294	296	329	332	326	319	329	359	364
Canada	160	167	175	160	153	146	150	164	168	164
Oceania	213	254	247	258	262	270	269	306	329	325
of which:										
Australia	204	244	236	244	247	255	254	290	313	313
Soviet Union	285	270	252	...	...	...	...	...	...	...
Memorandum item:										
Growth rate of total mine production	8.1	3.4	1.2	3.4	2.4	-0.4	-0.2	3.7	5.2	3.0

Source: Gold Fields Mineral Services Ltd, *Gold Survey 1999*.

Table 2. Selected ESAF/HIPC Countries with Low Gold Production, 1998

	In metric tons	Share of world production (In percent)	Share of country's exports 1/ (In percent)
Africa			
Madagascar 2/	1.00	0.04	1.2
Central African Republic 2/	0.70	0.03	3.7
Mozambique 2/	0.60	0.02	1.0
Kenya 2/	0.50	0.02	0.2
Niger 2/	0.50	0.02	1.5
Liberia 2/	0.50	0.02	0.5
Mauritania 2/	0.50	0.02	0.8
Eritrea	0.45	0.02	2.1
Uganda 2/	0.40	0.02	0.6
Cameroon 2/	0.30	0.01	0.1
Congo, Rep. of 2/	0.27	0.01	0.2
Zambia 2/	0.20	0.01	0.2
Angola 2/	0.20	0.01	0.0
Senegal 2/	0.19	0.01	0.1
Burundi 2/	0.14	0.01	2.2
Nigeria 2/	0.10	0.00	0.3
Rwanda 2/	0.09	0.00	0.8
Sierra Leone 2/	0.05	0.00	0.3
Asia			
Myanmar 2/	1.70	0.07	0.8
Pakistan	0.10	0.00	0.0
Latin America			
Honduras 2/	0.55	0.02	0.3

Sources: Gold Fields Mineral Services Ltd.; and WEO database.

1/ See Table 2 for the ESAF-eligible countries, including the heavily indebted poor countries, with larger gold production. This table provides additional information about the smaller gold-producing low-income countries. Production valued at average price in London ($294 per ounce in 1998) as a share of the value of exports of goods and services in 1998. This provides an upper estimate of the importance of gold in exports. In many countries domestic demand for gold absorbs part (or all) of the gold produced.

2/ Heavily indebted poor countries.

Table 3. Changes in Official Gold Holdings, 1989-99

	Stocks end-1988	Stocks end-April 1999	Cumulative change 1989-99	Percent change 1989-99
		(In metric tons)		
Total	**35,791**	**33,613**	**-2,178**	-6
Austria	658	404	-253	-39
Belgium	1,047	269	-778	-74
France	2,546	3,025	479	19
Germany	2,960	3,469	508	17
Italy	2,074	2,452	378	18
Netherlands	1,367	1,012	-355	-26
Spain	437	523	86	20
EMI/ECB 1/	2,923	769	-2,153	-74
Argentina	136	11	-125	-92
Australia	247	80	-167	-68
Canada	533	68	-465	-87
Japan	754	754	0	0
Philippines	88	174	86	97
Poland 2/	15	103	88	600
Romania	45	101	56	123
Russia 3/	317	425	107	34
Switzerland	2,590	2,590	0	0
United Kingdom 2/	591	715	124	21
United States	8,145	8,139	-6	0
BIS	206	199	-6	-3
IMF	3,217	3,217	0	0
Other	4,896	5,115	219	4

Source: International Monetary Fund. *International Financial Statistics*.

1/ The European Monetary Institute (EMI) held 20 percent of the gold holdings of the European Monetary System (EMS) member countries. The EMI transferred its gold to the EMS member countries at end 1998. The gold transfers from the euro-zone countries to the European Central Bank (ECB) took place in January 1999.
2/ Data are for March 1999 instead of April 1999.
3/ Data start in 1993.

Table 4. Fabrication Demand by Region, 1989-98

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
	(In metric tons)									
Total	**2,547**	**2,683**	**2,876**	**3,206**	**3,041**	**3,075**	**3,294**	**3,335**	**3,905**	**3,709**
Asia	977	1,000	1,221	1,407	1,326	1,432	1,513	1,532	1,776	1,572
East Asia	716	719	943	1,057	996	1,011	1,026	1,000	1,036	757
China	40	45	145	213	191	220	217	203	242	189
Japan	199	205	268	190	219	187	189	188	184	151
Taiwan Province of China	107	98	119	164	133	122	110	99	97	75
Hong Kong	66	52	82	99	89	88	87	84	105	68
Malaysia	22	45	67	99	82	75	78	82	101	67
Korea	84	67	73	74	76	80	82	84	83	66
Indonesia	75	84	62	79	74	112	133	132	119	62
Thailand	95	86	77	81	80	79	79	76	50	36
Singapore	23	31	38	38	30	23	22	23	24	16
Other	4	7	12	20	21	26	30	30	33	25
South Asia	262	281	278	350	331	421	487	533	741	815
India	222	241	234	304	282	370	426	455	627	722
Pakistan and Islamic State of Afghanistan	*30*	*32*	*35*	*35*	*36*	*37*	*41*	*51*	*73*	*51*
Bangladesh and Nepal	7	7	6	7	8	10	15	22	32	32
Other	3	2	3	5	5	5	5	5	9	11
Europe	676	749	761	805	755	756	787	766	846	881
Italy	359	396	430	473	452	447	458	450	512	547
Germany	70	78	81	77	74	72	71	69	69	65
United Kingdom and Ireland	*51*	*53*	*45*	*43*	*41*	*43*	*41*	*42*	*50*	*52*
France	37	45	43	45	47	46	43	44	45	48
Switzerland	45	54	51	43	40	46	47	43	46	47
Spain	32	36	35	32	28	29	32	32	37	41
Other	82	87	77	91	74	74	96	86	88	83
Middle East	335	400	411	521	494	414	525	566	746	683
Turkey	108	133	105	119	134	88	126	157	188	181
Saudi Arabia and Republic of Yemen	70	70	113	159	151	130	156	157	204	167
Egypt	66	69	56	63	50	56	61	69	123	118
United Arab Emirates	16	14	19	33	25	25	30	36	53	45
Iran	15	43	43	52	45	21	37	36	48	44
Iraq and Syrian Arab Republic	13	19	24	26	23	24	27	23	29	30
Kuwait	18	17	5	16	18	20	23	24	25	25
Israel	11	12	14	18	21	20	24	25	23	22
Other	126	156	137	155	163	117	168	196	242	233
North America	284	260	231	251	264	264	274	271	313	354
United States	230	215	202	219	233	237	245	246	272	309
Canada	54	46	29	32	31	27	28	25	41	44
Latin America	96	78	83	90	86	104	94	102	111	116
Mexico	56	39	38	42	35	38	22	29	33	36
Brazil	14	13	15	15	16	21	27	30	34	31
Other	27	27	30	32	36	45	45	43	45	49
Soviet Union/CIS 1/	121	122	96	65	53	45	41	45	48	45
Other	58	73	74	67	59	63	59	54	63	59

Source: Gold Fields Mineral Services Ltd, *Gold Survey 1999*.

1/ Commonwealth of Independent States (CIS) from 1992.

Table 5. Net Investment Demand by Region, 1989-98

	1989	1990	1991	1992	1993	1994	1995
						(In metric tons)	
Total	**528**	**412**	**-58**	**312**	**402**	**66**	**312**
Asia	396	248	211	255	151	211	293
South Asia	9	12	22	53	28	48	83
China	16	20	15	33	30	25	10
East Asia	371	216	174	170	93	138	200
Europe and North America 1/	-1	189	-310	30	239	-165	6
Latin America	97	-71	2	-52	-22	-8	-18
Middle East	37	45	35	71	22	16	22
Soviet Union/CIS 2/	0	1	4	6	10	10	8
Other	0	0	1	1	1	1	1

Source. Gold Fields Mineral Services Ltd, *Gold Survey 1999*.

1/ Calculated as residual.

2/ Commonwealth of Independent States (CIS) from 1992.