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Report to the Honorable
Edward M. Kennedy, U. S. Senate

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SOUTH AFRICA

Feasibility of Imposing Additional Sanctions on Gold

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National Security and
International Affairs Division

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September 25, 1989

The Honorable Edward M. Kennedy
United States Senate

Dear Senator Kennedy:

On November 23, 1988, you requested that we review South Africa's role in the world gold and diamond markets and the feasibility of imposing sanctions on these South African commodities. As agreed with your office, we are providing you with an interim report covering the results of our work on South African gold.

Background

In response to South Africa's policy of apartheid, the United States has imposed economic sanctions on selected products and transactions. In 1985, the President issued Executive Orders 12532 and 12535, which, among other things, administratively banned: imports of South African Krugerrands (gold coins); exports of computers to apartheid-enforcing agencies and nuclear goods and technology; and new loans to the South African government. Subsequently, the Congress, over the President's veto, passed the Comprehensive Anti-Apartheid Act of 1986, which legislatively banned

- imports into the United States of South African coal, textiles, uranium, agricultural products, iron and steel, and products from South African government-owned or controlled entities;
- exports of oil, arms, nuclear goods and technology, and computers to apartheid-enforcing agencies;
- new U.S. loans and investment in South Africa; and
- air transportation between the two countries.

Since 1986, debate in Congress has focused on the effectiveness of these existing sanctions and whether more should be imposed. Because gold mining and exporting is critical to South Africa's economy, sanctions against gold have been proposed as a possible additional method of pressure. This report describes South Africa's role in the world's gold market and analyzes the potential effects on South Africa, the United States, and other countries of adopting various proposals to impose sanctions on South African gold.

Results in Brief

Gold accounts for 45 percent of South Africa's export earnings, about 13 percent of its Gross Domestic Product, and 10 percent of its government tax revenues. The United States already has sanctions against imports of South African gold bullion through the Comprehensive Anti-Apartheid Act's ban on imports from South African government-owned or controlled entities. Proposals to further sanction South African gold include

- banning imports of jewelry containing South African gold,
- releasing gold from the central bank reserves of anti-apartheid governments to depress the price,
- banning imports of gold and gold products (including jewelry) containing South African gold and releasing gold from central bank inventories to offset any price increases caused by reduced supply to the market or market uncertainty caused by sanctions,
- forcing U.S. investors to divest all holdings in South African gold mining shares.

Enforcement of sanctions on South African gold may be more difficult than sanctions on other products but it may not be impossible. However, even if enforcement were perfect, most sanctions against South African gold might fail to generate substantial direct economic pressure because South Africa has many opportunities to develop new markets and/or because imposing any sanction on the world's largest gold producer may result in unintended price increases caused by speculative buying in the market. Any collateral price increases could unintentionally increase revenues from South African gold exports. The exception might be forced divestment from South African gold mining shares but this option would only hurt the South African economy at the margins.

South Africa could legally avoid the two sanctions on imports of gold and/or gold products by developing alternative markets and might benefit from unintentional speculative price increases. Initial price decreases resulting from releasing gold might be difficult to sustain in the long term because of unintended price increases. Also, releasing gold might harm other gold producing nations at least in the short term.

However, sanctions on this critical South African industry, even when failing to generate substantial direct economic pressure, could still have political, symbolic, and psychological effects. For example, sanctions on South Africa's largest export could have the psychological effect of chilling business confidence in the economy, lowering foreign and domestic investment in South Africa.

South Africa's Role in the World Gold Market

Despite its falling market share, South Africa still mined 35 percent (621 metric tons) of the 1,796 metric tons of gold produced worldwide in 1988. This large share, however, does not translate into much South African influence over the world price, according to industry analysts and economists. The price of gold is primarily determined by the demand for it as an investment asset rather than the supply of new production. Any attempt by South Africa to withhold supplies from the market to increase the price would eventually cause private investors and central banks to sell gold from their large stocks, thus pushing the price back down. Central bank stocks are 20 times greater than annual world gold production and private investment holdings are 30 to 36 times as great. In addition, the price of gold is affected by forces unrelated to South African production, namely expectations of inflation and economic and political uncertainty. (Appendix I contains additional information on South Africa's role in the world gold market.)

Feasibility of Imposing Sanctions on South African Gold

We recently reported that although most market analysts and many U.S. government officials were unaware of it, the Comprehensive Anti-Apartheid Act banned imports of South African gold bullion into the United States under the prohibition on imports from South African government-owned or controlled entities[1]. All South African gold is marketed internationally by the Reserve Bank of South Africa, a South African government entity. Because the United States imported only $79 million in gold bullion (about 6 metric tons) directly from South Africa in 1986[2] before the sanctions took effect and because knowledge of the ban was not widespread, the prohibition had little adverse effect on South Africa's gold exports or the price of gold.

Policymakers who want to impose further sanctions on South African gold should consider several major issues. First, because gold is more easily smuggled than most commodities due to its high value relative to its weight (gold in September 1989 was trading at about $360 an ounce) and because gold from all countries appears the same visually, enforcing sanctions on gold may be more difficult than for other commodities. Nevertheless, these difficulties might not render enforcement impossible. It is possible to determine where gold bullion was mined by physical and chemical testing and, as in other situations, enforcement may be

[1] South Africa: Enhancing Enforcement of the Comprehensive Anti-Apartheid Act (GAO/NSIAD-89-184) July 1989.

[2] The United States bought over half of its gold bullion imports from Canada.

helped by leads on illegal imports supplied by informants. While the predominant view of market participants in the gold industry is that there is no test to determine gold's origin, a research chemist at the National Institute of Standards and Technology has successfully determined the origin of refined gold by a test that analyzes trace metals in gold. According to the chemist, the test might be used to identify South African gold for sanctions enforcement. Moreover, most geochemists we interviewed said that such trace element tests are conclusive enough to be used in court to prosecute violators of the sanction. However, according to the chemist, it may be more difficult to use the test effectively to determine the country of origin of jewelry. Metals combined with gold in jewelry manufacturing may render the tests ineffective. To enforce sanctions on jewelry, enforcement authorities would need to rely on leads generated from documentation accompanying jewelry imports and tips from informants. (See Appendix II for more information).

Second, even if there were no smuggling and some other nations began to adopt a ban on imports of bullion, South Africa could sell its gold to many alternative markets. For commodities in which all that is produced is consumed, sanctions can cause a shift in traditional relationships, with the sanctioned country selling to non-sanctioning consuming countries and other suppliers exporting to sanctioning countries. For gold, in which annual consumption and production are about 2-3 percent of existing central bank and private investment stocks, the potential for such market shifts or "reordering" is even greater. Non-South African gold in central banks and investment stocks could be sold to consumers while being replaced in the stocks by new South African production.

Third, any sanction on the largest gold producer (35 percent of the market), in a market where psychological or speculative influences are powerful, might cause enough uncertainty to cause unintended price increases helpful to South Africa. If sanctions imposed to reduce South African gold revenues significantly raised gold prices, South Africa's total income could be maintained or even rise despite any decline in the quantity of shipments. The magnitude of these speculative effects is hard to predict and so, therefore, are the effects of sanctions on gold. On the other hand, any sanction imposed on South Africa's most important industry might chill business confidence in the country, leading to reduced foreign and domestic investment. The magnitude of this effect is also hard to predict.

Fourth, if gold sanctions were severe enough to shut down some South African mines, there might be great difficulty reopening them in any post-apartheid society. South African gold mines are deep and are subject to great geological pressure within the earth. Once mines are shut down and no longer maintained, the geologic forces close up the mine shafts. Some representatives from the mining industry said reopening a closed mine would be impossible and others said it would cost hundreds of millions of dollars.

Fifth, according to a quantitative economic analysis done by an economist knowledgeable about the South African economy, sanctions on South African gold would inflict greater dollar costs on white mine owners in South Africa than on white and black miners. As a group, black miners would experience a greater loss than white miners because they greatly outnumber them. White miners would lose more per capita income than black miners because they have higher wages.

Appendix II contains additional detail on these issues.

Options for Further Sanctioning South African Gold

Several proposals have been made by sanctions advocates to take further action against South African gold. The possible effects of imposing these sanctions are discussed below.

- Banning imports of jewelry containing South African gold and requiring certificates for jewelry imports stating that they are made with non-South African gold.

Most South African gold enters the United States in the form of jewelry, particularly Italian jewelry. About $800-$900 million of South African gold is used in Italian jewelry imported annually into the United States. This proposed sanction would address more imports into the United States of South African gold than the existing U.S. sanction on gold bullion. Obviously, banning jewelry imports made with South African gold would stop more South African gold from reaching the market in the form of jewelry if other nations also adopted it. Great potential exists, however, for market reordering that would allow new South African production to replace non-South African gold in central bank and private investment stocks, which would be sold to jewelry producers.

- Selling gold from reserves to depress gold prices.

Initially, selling gold from U.S. or foreign central bank reserves would decrease the price but whether it could be held down over the long-term is uncertain. Because U.S. gold stocks are about 4 times annual world production and world central bank stocks are 20 times this amount, central banks could sell gold into the market for some time to hold the price down. The amount of gold sold and the initial price decrease would depend on the number of central banks participating and how much they were willing to deplete their reserves. But because gold is both an asset and a store of value, investors and other governments might expect the price to rise over time. They may buy up what they perceive as cheap central bank gold to take advantage of any long-term potential for price appreciation after central banks finish their release. Such speculative buying might bid up the price of gold and tend to offset any initial price decreases from releasing gold. To avoid such speculative effects, the selling of central bank stocks would have to convince investors that gold was an asset whose price would not rise in the future.

In the late 1970s, the initial price decrease caused by U.S. Treasury and International Monetary Fund sales of small quantities of gold was more than offset by longer term price rises attributed by some analysts to investors purchasing gold to hedge against the substantial inflation of the period. Inflation is now less severe but the example illustrates how unpredictable macroeconomic circumstances can affect the policy.

If the gold price were depressed by releasing gold, the gold price would hurt gold producers in the United States, Canada, Australia, the Soviet Union, and several third world countries. It would also reduce the value of countries' central bank reserves, including those of developing countries. Disagreement exists between those who believe large sales of gold from reserves would destabilize the international financial system and those who see no such effect.

- Banning South African gold bullion and products containing it, while releasing gold from reserves to offset any price increases.

This proposal attempts to guard against the possibility that speculative price increases could more than offset the negative effect on South Africa's revenues resulting from lower quantities of gold exports caused by a ban on its gold. Although no speculative price increases occurred when the United States banned South African gold bullion because of the small quantity of U.S. imports and because the market was largely unaware of the U.S. ban, they might occur if the boycott became multilateral. But South Africa may not lose gold sales because new South African production could displace non-South African gold in the central bank and private investment stocks of non-sanctioning countries. In addition, as noted above, no guarantee exists that releasing gold from reserves will push the price back down over the long term.

The proponent of the proposal argues that if the price is stabilized by releasing gold from central banks, the market will discourage efforts to circumvent the ban on South African gold. According to the argument, if market participants fear that South Africa's additional smuggled supplies would depress the price even further from the stabilized value, they would be encouraged to assist in enforcing the ban. But if releasing gold does not hold back price increases and stabilize the price, market incentives for enforcement may be mitigated.

- Forcing U.S. holders to divest ownership of South African gold mining shares.

The Comprehensive Anti-Apartheid Act bans investment in South African gold mining shares issued after its passage but allows U.S. investors to retain and trade shares issued prior to enactment. Divestment, unlike the other proposals, would not try to reduce South African gold revenues, but would attempt to reduce the funds available for South African mining companies to invest in exploring for and producing gold. According to a representative from a mutual fund investing in gold, U.S. contribution to new capital formation in the South African gold mining sector already has been stopped because investment in new shares is already banned; the trading of old shares merely changes ownership in the companies. U.S. investors currently own 14 percent of South African gold mining shares.

Forced divestment, however, could further depress the share price of South African mining stocks, already selling below the prices of other countries' mining shares because of perceived risk, making it more expensive for the companies to raise capital. U.S. divestment may also help to chill the business climate in South Africa, discouraging new investment from domestic and other foreign sources.

Appendix II provide more detailed information on these possible sanctions and appendix III describes the objectives, scope, and methodology of the review.

As agreed, we did not obtain agency comments on this report. However, officials of the State Department and the Department of Commerce's National Institute of Standards and Technology reviewed the results of our work and any comments they made were incorporated as appropriate.

Unless you announce its contents earlier, we plan no further distribution of the report until 30 days after its issue date. At that time, we will send copies to the Secretaries of State, Commerce, and Treasury; the Commissioner of Customs; the Director, Office of Management and Budget; congressional committees responsible for overseeing implementation of the Act; and to other interested parties upon request.

This report was prepared under the direction of Allan I. Mendelowitz, Director, Trade, Energy and Finance Issues. The principal GAO staff members responsible for this review were Steven Sternlieb, Assignment Manager, Ivan Eland, Evaluator-in-Charge, and Bruce Kutnick, Economic Advisor.

Sincerely yours,

Frank C. Conahan

Frank C. Conahan
Assistant Comptroller General

Contents

South Africa's Role in the World Gold Industry

Gold is unique because it is both a commodity and an asset or store of value. As a commodity, it is used in making jewelry, electronic circuitry, and dental fillings. Although gold's role as money in the international financial system was diminished in 1973 when the gold-exchange standard was abandoned, allowing the price of gold and the value of world currencies formerly tied to it to float freely, gold still remains an asset and store of value in the stocks of private investors and central banks.

Share of World Production

South Africa is the world's largest gold producer, accounting for 35 percent of the world's 1988 supply of 1,796 metric tons; this share has declined, however, from its peak in the early 1970s because its mines are aging and producing less gold while Canada, Australia, the United States, and other nations are increasing their gold production. (See table I.1.)

Table I.1: The Five Major Gold Producing Countries

Country	Metric tons produced in 1988	Percent of world production
South Africa	621	35
Soviet Union	280	16
United States	205	11
Australia	152	8
Canada	129	7

Several third world countries are emerging as gold producers, including Brazil (100 metric tons), the Philippines (43 metric tons), and Colombia and Papua New Guinea (each with 33 metric tons).

South Africa once had the world's lowest production costs but has now slipped to fifth place behind Canada, the United States, the Philippines, and Australia because its mines are deep—as much as a mile below the earth's surface—and have lower grades of ore remaining.

Ability to Control Gold Price

According to many gold analysts and economists, South Africa has little control over the world price. First, unlike many other primary commodities, which are used exclusively for consumption, not all of the gold produced is consumed (in jewelry, electronics, and dentistry). The price of gold is primarily determined by the demand for it as an asset rather than by the amount of new production. Substantial quantities of gold are held in the stocks of private investors and central banks; gold held by central banks is about 20 times annual world production and private investment holdings are 30 to 36 times as great. If South Africa withheld gold from the market, the increased price might eventually stimulate sales from these stocks, thus pushing the price back down. But because gold is also an asset and store of value and its price is heavily influenced by psychological or speculative factors, South Africa might be able to increase the price for short periods by withholding gold to create uncertainty in the market. But South Africa is constrained from withholding supplies for longer periods because it needs export earnings to pay its foreign debt and because the large world gold inventories limit the effect any producer can have on the price for long periods.

Second, South Africa has difficulty manipulating the price of gold because global macroeconomic conditions can have substantial effects on that price. Although investors have decreased their use of gold as a hedge against political and macroeconomic calamities in recent years because a wider variety of financial investments are available, they still buy more gold when they expect substantial inflation and economic and political instability.

Demand for and Marketing of Gold

In 1988, the fabrication of jewelry, electronic circuitry, and dental fillings consumed 1,844 metric tons of raw gold[1]. The major consuming nations were Italy (274 metric tons), the United States (204 metric tons), India (188 metric tons), Japan (174 metric tons), Taiwan (93 metric tons), and South Korea (79 metric tons).

Jewelry consumes over 80 percent of this worldwide fabrication demand. In 1988, the largest consumers of gold for jewelry were Italy (262 metric tons), India (187 metric tons), the United States (101 metric tons), Japan (95 metric tons), Taiwan (90 metric tons), and Hong Kong (75 metric tons). According to an official of the Italian Statistical Bureau (ISTAT) and the statistics he generated, 91 percent of all gold entering Italy originates in South Africa. The Italian industry ultimately consumes at least one-third of all South African gold exports.

According to many analysts and market participants, South Africa markets most of its gold through the major gold markets in Switzerland and London, with much going through Switzerland. South African gold that is used in Italian jewelry passes through Switzerland on its way to the jewelry factories. South Africa refines its gold only to 99.5 percent

[1] With the supply of recycled gold (scrap) (324 metric tons) added to the 1,796 metric tons of new gold supplied by mining countries, total supply exceeds total consumption.

purity; it is then shipped to Switzerland, where some is merely reexported and some is remelted and rerefined to 99.99 percent purity.

Feasibility of Imposing Sanctions on South African Gold

Gold mining is critical to the South African economy, accounting for about 13 percent of its Gross Domestic Product and 10 percent of government tax revenues. The industry employs over a half million workers. As the country's largest export, gold provides 45 percent of its foreign exchange earnings. Because South Africa had difficulty servicing its foreign debt, which led its government to reach an agreement with creditor banks on partial debt rescheduling, revenues from gold exports are especially important to meet loan payments.

Whether pressures on the economy of South Africa from gold sanctions will induce the South African government to reform its political and social system is a matter of debate between those who advocate economic sanctions and those who oppose them. Those who advocate sanctions believe that the government would institute reforms to alleviate economic pressure. Some of those who oppose sanctions say that economic pressure would not create enough economic pain to cause reform and would cause a backlash among whites against foreign interference that would impede reform.

Whether successful or not in pressuring the government economically, such economic sanctions might have the symbolic effect of showing increasing opposition to apartheid. Also, many opposition groups within South Africa favor sanctions so such economic pressure might help to cultivate better U.S. relations with them.

Issues to Be Addressed When Considering Sanctions on Gold

There are several issues that should be addressed in considering sanctions, including identifying South African gold, the impact on the gold market, the long-term effect on a post-apartheid government, and the effect on South African miners.

Distinguishing South African Gold From That of Other Countries

A major issue for policymakers imposing sanctions on gold is whether South African gold or articles containing it can be distinguished from gold produced in other nations. Most of the participants in the gold industry we interviewed said the country of origin could not be determined by physical properties. South African gold bullion is engraved with a seal from the Rand Refinery, the only one in South Africa, but the bullion could be easily disguised by remelting and remarking. Some metallurgists and geochemists doubted that chemical tests could be made on gold refined to a high purity, because tests for country of origin are made on the trace elements of gold and highly refined gold has few trace elements left.

Other geochemists, however, believe that effective chemical tests could be made and one research chemist at the National Institute of Standards and Technology in the Commerce Department has reported developing a methodology for testing refined gold for its origin. According to the chemist, gold that is up to 99.99 percent pure can be successfully tested. The chemist analyzed trace elements in gold from coins to determine where they were mined. The test he used analyzes a sample of gold for the ratio of the various chemical forms of the trace element lead. Gold deposits from different mines have different lead ratios (signatures). He said that the only additional requirement for testing refined gold is taking a larger sample.

According to the research chemist, to test gold bullion for South African origin, a catalog of lead signatures from gold producing countries would be needed to compare with the signature of any sample. Startup costs would be incurred creating this catalog and developing a methodology for the testing, according to the Director of the Research Division of the Customs Service. The director said the costs for developing a methodology might be mitigated because the National Institute has already done testing on gold. After the catalog and methodology were complete, the chemist estimated that the costs would be $100 to $200 per gold sample tested. New testing equipment being developed might reduce the cost of testing and allow it to be done faster.

Some geochemists and market analysts we interviewed spoke of possible efforts by South Africa to render the test of gold bullion ineffective (for example, mixing its gold with that of other nations). According to the research chemist, such efforts might be thwarted by making an additional test called "trace element fingerprinting." This test analyzes the sample for the relative abundance of 20 different trace elements. Gold from different geologic locations has different signatures caused by different ratios. The methodology for the test is already highly developed. Once the catalog of signatures is developed, according to the chemist, the per sample cost of this testing program would be $30 to $40 per test.

Using more than one test might make it almost prohibitively expensive, although not impossible, for South Africa to render the tests ineffective, according to the research chemist. If the South Africans mixed their gold with that of another country to defeat one test, two tests would be more likely to detect properties of South African gold. If South Africa tried to add trace elements to its gold to imitate that of another country, the use of two tests would make it harder to do because it would be more difficult to get an exact match on all the trace elements.

Most geochemists we interviewed said that all such trace element tests are conclusive enough to be used in court as evidence against alleged violators of the sanction. The test will not, however, distinguish newly mined gold from gold that has been in investor and central bank stocks for some time. This would make it difficult to impose sanctions only on South African gold mined after the sanctions law takes effect.

It may be more difficult to identify the origin of gold in jewelry, according to the research chemist. In jewelry-making other metals are combined with gold to form a gold alloy. If lead and the other trace elements detected by the tests were added when a particular shipment of jewelry was manufactured, testing the gold contained in the jewelry for its origin may be more difficult. The added metals could change the ratios of trace elements measured by the test.

Even if an accurate chemical test for gold were implemented, a sanction against imports of South African gold might be somewhat harder to enforce than measures against other South African exports. Smuggling gold, which has a long history, is easier than for many other products because it has a high value-to-weight ratio. South Africa's annual gold production can be flown out of the country on a few jet aircraft. Yet, as in other situations, enforcement may be helped by leads on illegal imports supplied by informants.

Psychological Effects of Sanctions on the Gold Market

Because gold is an asset and store of value as well as a commodity, speculative effects may have a greater influence on the outcome of gold sanctions than on boycotts of other commodities. Any sanction aimed at harming South African gold production or export revenues might be perceived by the market as threatening the producer of 35 percent of the world's annual gold supply. Investors might anticipate that any gold sanction would cause a price rise and buy gold to profit from it, thus enhancing the speculative demand for the metal. If sustained, this increase in demand might become a self-fulfilling prophecy, increasing the price. Any long term gold price increase might offset any negative effect of sanctions on South African gold. This is because significantly higher gold prices could allow South Africa to maintain or even increase its gold revenue despite any decline in the volume of shipments. It is difficult to predict the magnitude or duration of the speculative effect, especially when other factors important in determining the value of gold are also changing, but figure II.1 demonstrates how gold prices increased during the debate and passage of the Comprehensive Anti-Apartheid Act in the summer and fall of 1986. It is possible that investors saw sanctions as indirectly threatening the largest producer of gold, thus creating uncertainty about future South African supplies and leading to the price rise. This speculative effect occurred even though the market was largely unaware that imports of gold bullion were covered by the sanctions.

Speculative demand for gold can also be caused by poor economic and political conditions in the world. Traditionally, investors have invested in gold as a hedge against inflation or economic or political instability. According to some market analysts, however, this demand may have weakened in recent years because many new investment opportunities are now available, as demonstrated by the failure of gold prices to rise immediately after the stock market crash of October 1987. The price of gold did not peak until two months after the crash.

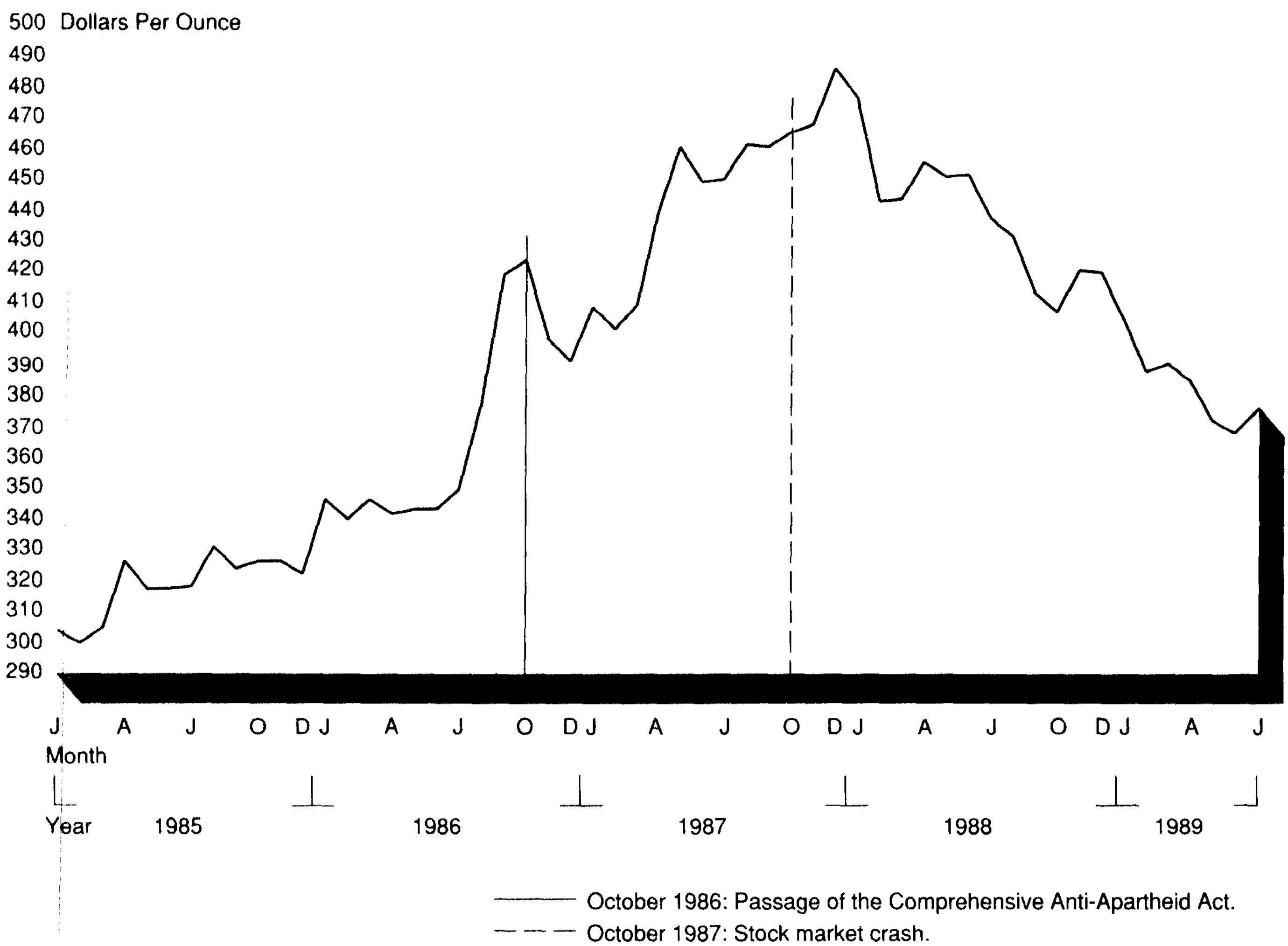
On the other hand, sanctions on South Africa's most vital export might lessen both foreign and domestic confidence in the South African economy. This might lead to less foreign and domestic investment in the economy and lower future rates of economic growth. This chilling effect on business confidence is hard to quantify.

Long-Term Effect of Severe Sanctions

If sanctions against South African gold became so effective that mines began to close, it would be difficult to reopen them in any post-apartheid society. South African gold mines are the deepest in the world, as much as a mile beneath the earth's surface, and subject to great geological pressure. According to many people we spoke with in the gold industry, because South African mines are so deep, inactive mines must be maintained to prevent geologic forces inside the earth from closing up the mine shafts. And, it is expensive to maintain a mine while on inactive status. Some representatives from the mining industry said that reopening a closed mine would be impossible while others said that it could cost hundreds of millions of dollars.

The South African government currently subsidizes mines that have high production costs, hoping that gold prices will rise and once again make such mines profitable. If severe sanctions were imposed on gold, the government might also subsidize the mines, hoping to preserve them until it weathered the sanctions. This policy might preserve the mines for a post-apartheid government.

Figure II.1: Price of Gold



Source: International Monetary Fund, Internatonal Financial Statistics.

Effect of Sanctions on Blacks and Whites

According to a quantitative economic analysis[1] done by an economist knowledgeable about the South African economy, sanctions on South African gold would inflict greater dollar costs on white mine owners in South Africa than on white and black miners. Although, as a group, black miners would experience a greater loss than white miners because they outnumber them, white miners would lose more per capita income than black miners because they have higher wages. A $1 million cut in South African gold export revenues because of sanctions would cost mine owners as a class an estimated $665,000, white miners about $72,000, and black miners about $156,000. But because black miners greatly outnumber white miners, per capita losses for white miners exceed those of black miners.[2]

Existing Ban on Imports of South African Gold Into the United States

Our July 1989 report concluded that imports of South African gold bullion into the United States were made illegal by the Comprehensive Anti-Apartheid Act of 1986. Such imports are prohibited because they fall under the ban on imports from South African government-owned or controlled entities. South African gold bullion is currently marketed internationally by the Reserve Bank of South Africa, a government entity. Some discussion has subsequently occurred in South Africa about allowing private mining companies to market their own gold, which would remove South African gold bullion from this sanction and insulate it from potentially similar sanctions by other countries. Marketing the gold, however, allows the South African government to control foreign exchange earnings derived from its largest export.

Because little gold bullion was imported into the United States directly from South Africa prior to the ban and because knowledge of the boycott in the gold market was not widespread, the ban has had little actual impact reducing South African gold revenues or on the world price. In 1986, the last full year prior to the ban, only $79 million in bullion imports came into the United States directly from South Africa. Loss of these revenues was more than offset by increased earnings from increasing gold prices. Even with U.S. sanctions, South Africa increased its gold revenues $1.4 billion from 1986 to 1987.

[1] Haider Ali Kahn, "Impact of Trade Sanctions on South Africa: A Social Accounting Matrix Approach," Contemporary Policy Issues, Volume VI, October 1988.

[2] The ratio of black miners to white miners is about 9 to 1 and therefore per capita income losses of white miners would exceed those of black miners by about 3 to 1.

If the United States obtained multilateral cooperation for the ban, the effects would be difficult to estimate because the number of countries that would adopt the measure is difficult to predict. If a small number of nations followed the U.S. lead, the market would be likely to eventually reorder itself, with South Africa selling to those countries with no sanctions against it and other gold producers exporting to nations with sanctions. Until the market reordered, South Africa might lose sales of gold.

Many more opportunities for market reordering exist in the gold market than in the markets for other commodities. Unlike markets for many commodities, for which all that is produced is consumed, central banks and private investors, whose large stock of gold is 50 to 56 times annual world production, provide an alternative market for South African gold. Non-South African gold in the stocks of non-sanctioning countries could be displaced by new South African production. Such market reordering would probably not cause South African gold to sell significantly below the world price because differences in transportation costs for gold, unlike many other commodities, are small.

In the extreme case, if enough countries imposed sanctions so that significant numbers of investors and consumers either could not or were unwilling to take South African gold, a two-tier price structure might then develop, with South African gold selling at a discount relative to non-South African gold because of lower demand.

Furthermore, any two-tier price structure might be eroded by South African attempts to smuggle its gold into prohibited markets by masking its origin. This would effectively raise the demand for South African gold. To reduce smuggling into the United States of steel containing Cuban nickel, the United States entered into government-to-government agreements with major steel producing nations whose companies use Cuban nickel not to export steel containing such nickel to the United States. The United States requires exporters from those countries to have certificates stating that the exported steel contains only nickel of non-Cuban origin. The foreign governments issue the certificates and are responsible for ensuring that their companies comply with them.

Because gold is also an asset and store of value for investors as well as a commodity, however, multilateral sanctions could raise the psychological uncertainty in the gold market enough to increase the speculative demand for and therefore the price of all gold. Even if, in the extreme case, multilateral sanctions limited markets for South African gold and reduced demand for it, speculative demand in the remaining markets might increase to make up for the loss. If the increase in speculative demand is less than the impact of the sanctions, the price of South African gold would decrease. If the increase in speculative demand were greater than the decrease in demand from sanctions, the price of South African gold exports would increase. Because of market reordering and therefore lower reduction in demand, the latter case might be more likely than the former. If the price increases, South African revenue from gold exports might increase if the price increase offset the loss of revenue from lower quantities of gold exports due to the boycott.

Other gold producing nations would benefit in either case. A demand decrease for South African gold would increase the demand for gold from other producers. If net market demand increased because of uncertainty, the price of gold for all producers would increase. Swiss and other refiners might incur greater costs if, during the refining process, South African gold had to be separated from that of other nations.

A multilateral ban on South African gold would affect the United States in any case. If sanctions did reduce demand for South African gold, U.S. gold producers might increase sales. Price rises from the speculative effect would help U.S. mining companies and increase the value of jewelry stores' inventories and investors' stocks, although jewelers may be hurt if higher prices reduce the demand for gold jewelry. Higher prices would hurt American gold jewelry producers and customers, electronics firms, and dentists, which would face increasing costs.

Analysis of Proposals for Further Sanctions on South African Gold

Sanctions advocates have proposed several further sanctions against South African gold. We analyzed the possible effects and implications of adopting these proposals.

Banning Imports of Jewelry Containing South African Gold

The main route of South African gold into the United States is through imports of Italian jewelry. Of the $1.8 billion in gold jewelry imported into the United States in 1988, 58 percent, or $1 billion, came from Italy.[3] Although South Africa initially exports most of its gold to Switzerland, a large portion eventually arrives in Italy because it is the dominant gold jewelry producer in the world. South Africa is a traditional and special supplier for the Italian jewelry industry. Italy buys about

[3]Both the $1 billion and $1.8 billion figures contain some platinum and other precious metal jewelry.

one-third of South Africa's gold exports and ISTAT, the government statistical office in Italy, estimates that 91 percent of the legal gold imports into Italy originate in South Africa.

One proposed gold sanction would prohibit gold jewelry imports into the United States that contain South African gold. U.S. importers of gold jewelry might be required to sign a certificate stating that the jewelry was not made with South African gold. Ultimately, if importers did not make false representations on the certificate, they probably would turn to the foreign jewelry manufacturer to make sure the items were not made with prohibited gold. This would begin a chain reaction of questions about the gold's origin from the jewelry manufacturer through a bank or bullion dealer to the refiner.

If the United States required the certificate and no one in the chain made false representations, the ultimate burden to demonstrate the gold was not South African would pass from the importer to the Italian jewelry-maker, to an Italian bank where most jewelry producers buy their gold, and finally to Swiss refiners. To certify that the gold bars they were making contained no South African gold, the Swiss might have to change the way they refine gold. The Swiss refineries receive gold bars at 99.5 percent purity from many producing nations, including South Africa. Depending on the buyer's wishes, the Swiss reexport bars at the existing purity or remelt and rerefine them into bars or ingots of 99.99 percent purity. A demand exists for 99.99 percent gold in banking and for industrial applications, including electronics and jewelry-making. Gold that is remelted and rerefined to higher purity in Switzerland is a mixture of gold from various countries. To certify which gold bars, if any, were free from South African gold, Swiss refineries might need to refine South African gold separately from that of other countries.

Even refining South African gold separately might not allow the Swiss to make their other gold completely free of the South African-origin metal because they regularly recycle (remelt and rerefine) gold of unknown origin previously used in jewelry and other gold articles (known as gold scrap). Refineries in other countries that recycle scrap might have a similar problem certifying non-South African origin.

Because the United States is the largest market for gold jewelry in the world and a customer for over 50 percent of Italy's jewelry exports, it might be able to exert some leverage on jewelry-makers to use non-South African gold. But because the boycott would be directed at imports from jewelry producing countries rather than directly at South African gold bullion, some chance exists that imposing the measure might expose the United States to proceedings under the General Agreement on Tariffs and Trade for violating its principles of free trade, according to one of the foremeost authorities on the agreement.

Detecting false claims of using non-South African gold by bullion dealers, banks, and jewelry-makers in the supply chain might be rendered difficult because of the aforementioned difficulty in identifying the origin of the gold contained in jewelry. To enforce the ban, Customs would need to rely on investigative leads generated from import documentation accompanying jewelry shipments and tips from informants.

In 1988, the United States imported $1.8 billion in gold jewelry. Because the amount of such imports containing South African gold is unknown, the effect of a U.S. ban cannot be quantified. This ban, however, would address more imports of South African gold than the $79 million eliminated by the ban on gold bullion. The approximately $800-$900 million of South African gold contained in U.S. imports of Italian jewelry alone far exceeds this figure. South Africa probably would not lose all this revenue if sanctions were imposed because it could find alternative markets for some of the gold and some of the remainder might be smuggled into the United States.

If other nations also imposed the measure, the effect would depend on whether South Africa could find alternative buyers for its gold. If only a few jewelry-makers stopped using South African gold, the market might reorder itself, with South Africa selling to all those that would still accept its gold and other producers selling to those that would not. If many jewelry-makers stopped using South African gold, the market might still reorder because South Africa might sell its new production to displace non-South African gold in central bank and private investment stocks, which would be sold to the jewelrymakers. Speculative effects leading to price increases in the bullion market might be less when imposing sanctions indirectly on jewelry rather than directly on South African bullion but little reduction in South African revenues will probably occur to offset these effects because of market reordering.

A U.S. ban on jewelry containing South African gold might increase costs to foreign jewelry-makers that had to change traditional suppliers of gold or separate South African gold from that of other nations in the jewelry-making process. The Swiss and other refiners who supply jewelry-makers could also incur increased costs if they chose to separate South African gold in the refining process. Other gold producers and other holders of stocks of gold, including those in the United States, might be helped if, because of market uncertainty, the demand and price for all gold went up.

In the United States, such a measure would increase the price of jewelry to retail jewelers and the consuming public as foreign refiners and jewelry-makers passed along the increased costs of separating South African from non-South African gold. If the price of gold went up because of uncertainty in the market, American jewelry-makers, electronics firms, and dentists would face increased costs. While retail jewelers' current inventories would increase in value, the amount of gold jewelry that consumers buy could decline due to higher prices.

Release of Gold From Reserves

The Economist magazine and some economists advocate releasing gold from U.S. or foreign central bank reserves to depress the world price and hurt the South African economy. The proponents of this option argue that unlike sanctions banning imports of South African gold or jewelry containing it, the option does not require enforcement because no evasion can occur. They argue that when the price drops, South Africa will lose more revenue than any other producing nation because it is the largest gold producer. They also argue that because the United States uses more gold than it produces and is therefore a net importer, it and other net gold consuming nations would benefit from a reduction in the price. American jewelrymakers and customers, electronics firms, and dentists would benefit from any price decrease and gold mining companies and private investors would be hurt. The proponents believe that a net gain would accrue to U.S. society, with the value of gains by groups that consume gold exceeding the losses by mining companies and investors but they had no quantitative evidence to support this view.

The leading proponents of this option argue that the effects on South Africa add benefits to a measure that should be adopted for other reasons. They believe that gold should no longer be regarded as possessing any properties of money and should be looked upon as just another commodity. Despite gold's reduced monetary role after the gold-exchange standard was abandoned, allowing the values of gold and world currencies to fluctuate freely, gold still retains some of its monetary characteristics, such as an asset and store of value for private investors and central banks. To help achieve the goal of completely "demonetizing" gold by eroding its role as an asset and store of value, proponents advocate the sale of gold held by central banks.

Gold now held by central banks reduces the supply currently available for the market and keeps the price artificially high. Proponents argue that efficient use of an exhaustible resource requires that cheaper sources of the material be exploited before more expensive sources. The gold now being mined and sold has costs of about $150 to $600 per ounce to produce while the costs of producing the gold bullion stored in central banks have already been incurred. They argue that more expensive gold is being mined and consumed now and cheaper gold is being stored for future consumption. They believe cheaper central bank gold should be sold and used first.

Opponents of releasing gold from U.S. reserves either want to maintain gold's current role in the international monetary system or want to return to the gold standard (reimposing a fixed price for gold in dollars or another major currency and pegging other world currencies to it at fixed exchange rates). Opponents regard gold as an asset and a store of value, as well as a commodity, and believe that the United States should retain its gold reserves rather than sell them. Some of the opponents also believe that U.S. action to depress the gold price could cause instability in the international financial system. Other economists we talked to did not regard this possibility as likely.

Opponents also focus on the collateral economic damage that depressing gold prices would have on U.S. and other gold producers. Some of these producers are major U.S. allies (Canada and Australia), one is a major adversary (the Soviet Union), and the remainder are third world nations (Brazil, the Philippines, Papua New Guinea, and Colombia). One opponent said that depressing the price would reduce a valuable source of foreign exchange for the Soviet Union during attempts at economic reform. Depressing the price of gold would also reduce the value of many countries' central bank holdings, including those of developing countries.

Some opponents believe that once the price was lowered by releasing gold, it might be hard to hold it down in the long term. One analyst says that the significant portions of total world gold stocks held by major central banks could be used by any one of them to initially hold the price down. Of the 90,000 to 100,000 metric tons of gold held in world stocks, about 36,000 metric tons (about 20 times annual world production) are held by central banks and the balance by private investors. U.S. gold stocks are about 4 times annual world production. The United States or another major gold holding country could sell gold into the market for some time to initially hold the price down. The amount of gold sold and the initial price decrease would depend on the number of central banks participating and how much they were willing to deplete their reserves. But if private investors and other governments believed that gold prices would increase over the long term after central banks finished their release, they might buy up central bank reserves sold at at what they perceive as discounted prices. This speculative demand itself might establish a floor under the price or even cause it to increase past its initial level. To avoid such speculative effects, the selling of central bank stocks would have to convince investors that gold was an asset whose price would not rise in the future.

In the mid and late 1970s, the U.S. Treasury and the International Monetary Fund sold small quantities of gold into the market. Upon announcement of the sales the price of gold decreased, but over the long term it increased past its initial level. Some analysts attributed this increase to gold's attractiveness as an investment hedge against substantial worldwide inflation during this time. Inflation is now less severe but the episode illustrates the effect that macroeconomic circumstances can have on the policy.

Banning All South African Gold and Releasing Gold

One sanctions proposal by an anti-apartheid activist advocates banning South African gold and products containing it (including jewelry) and releasing only enough gold from U.S. reserves or foreign central banks to help offset any price increase. As noted earlier, the United States already banned the imports of South African gold bullion but it was not widely known because the boycott was covered under the prohibition on imports from South African state owned or controlled entities. Because only $79 million in direct imports from South Africa were terminated and speculative effects were dampened by insufficient knowledge of the sanction, the measure's effect on the gold price was negligible.

If some nations banned imports of South African gold and gold products, South African gold could displace non-South African gold in the private investment and central bank stocks of non-sanctioning countries. This could reduce or eliminate South Africa's revenue losses from the sanctions. If the price went up because multilateral sanctions created uncertainty in the world market, releasing gold from the U.S. Treasury or foreign central banks might initially bring the price back down and eliminate any short term windfalls in revenue for South Africa. However, as noted above, no guarantee exists that the price can be held down in the long term by releasing gold. It is hard to estimate the magnitude or direction of the long term effect on price of releasing gold, especially when unpredictable macroeconomic factors can significantly affect the outcome.

The proponent of the proposal argues that if the price is stabilized by releasing gold from central banks, the market will discourage efforts to circumvent the ban on South African gold. According to the argument, if participants in the bullion market fear that South Africa's additional smuggled supplies would depress the price even further from the stabilized value, they would be encouraged to assist in enforcing the ban. But if releasing gold does not hold back price increases and stabilize the price, market incentives for enforcement may be mitigated.

As noted earlier, if the United States or any other nation banned gold products (including jewelry) from third countries, for example Italy, containing South African gold, some chance exists that imposing the measure might expose them to proceedings under the General Agreement on Tariffs and Trade.

If South African gold and gold products were banned and price increases were offset by selling gold from central banks stocks, demand for gold produced by U.S. and other foreign gold producers would probably not increase because selling central bank gold into the market would replace any lost South African sales. A constant price for gold, however, would probably dampen worldwide private investment demand for gold, which is usually held for its appreciation in value. This might cause private investors to sell gold and invest in assets that were likely to appreciate. But investors consider the price of gold relative to the price of other assets; if the price of other assets declines while the price of gold remains constant, investor demand for gold might rise.

If South African gold and gold products were prohibited and the release of gold did not hold back price increases, U.S. and foreign non-South African mining companies and private investors would be helped. U.S. and foreign jewelry-makers, electronics firms, dentists, and the customers of these industries would be hurt.

Mandatory Divestment of Shares in South African Gold Mining Companies

The Comprehensive Anti-Apartheid Act bans new U.S. investments in South Africa. This provision prohibits U.S. investors from buying shares in South African gold mining companies issued after passage of the Act but allows them to retain and trade shares issued prior to enactment. The proposed sanction would require the liquidation of such investments. According to a study done by a major mutual fund investing in gold stocks, U.S. shareholders hold 14 percent of South African gold mining shares outstanding.

Unlike the other proposed sanctions, which attempt to reduce South African gold revenues, this measure tries to limit the amount of capital the South African gold mining industry has available for its operations and expansion, including mineral exploration.

Proponents of divestment argue that limiting the access of South African industry to capital inflow impedes economic growth and exacerbates South Africa's balance of payments problems caused by its foreign debt. They believe that divestment will force the South African government to reform its political system to alleviate the pressure.

Some opponents of divestment are skeptical that it significantly impedes growth and believe it may lead to a backlash that rallies South African whites around the government, slowing reform.

The vice president of a mutual fund investing in gold stated that because U.S. investment in new South African mining shares is already prohibited, no new capital is provided for business expansion and exploration in the South African mining sector. He argued that trading old shares on secondary markets merely changed the ownership of the mining companies.

If Americans were required to divest old shares and South Africans bought them, however, they would be using money that they could have used for other purposes. More important, widespread divesting of American shares could further depress the price of South African mining stocks and make it more expensive for the companies to raise capital. South African gold mining shares already sell at a discount because the perceived risk is higher than investing in other countries' gold mining stocks.

The most important effect of divestment might be to chill business confidence in South Africa; it might reduce domestic and other foreign investment in the economy and thus slow future economic growth rates.

A study commissioned by the gold mutual fund estimates a one time loss of at least $1.2 billion for U.S. investors if they were required to divest. The losses would occur because sellers would get lower prices for the shares when buyers knew the U.S. government required owners to sell within a certain time period. Others believe this figure to be too high.

Objectives, Scope, and Methodology

In a November 23, 1988 letter, Senator Edward M. Kennedy asked us to examine South Africa's role in the world gold and diamond markets, the feasibility of sanctioning South African gold and diamonds, the impact of sanctions on Namibia, and the implications of removing sanctions on Namibia for continued enforcement of those on South Africa. On July 14, 1989, we reported findings developed during the course of our work on U.S. government enforcement of the ban on imports from South African government-owned or controlled entities contained in the Comprehensive Anti-Apartheid Act. As agreed with Senator Kennedy's office, we are providing an interim report on the results of our work on gold. A final report on diamonds and Namibia will be issued later.

To obtain information about the international gold market, South Africa's role in it, and the feasibility of imposing sanctions on South African gold, we interviewed and obtained documentation from knowledgeable private sector representatives and U.S. and foreign government officials. We talked with gold mining analysts in major brokerage houses in London; officials from the London and New York gold markets; representatives from U.S. trade associations for gold mining, refining, and trading interests and retail jewelry stores; a representative from the South African Chamber of Mines; representatives from the Italian gold jewelry-manufacturing industry and its trade unions; academic economists and private researchers knowledgeable about world gold markets; U.S. and foreign anti-apartheid groups that advocate sanctions on South African gold; British and Italian government officials; and representatives of the State Department's Office of Southern African Affairs, Interior's Bureau of Mines, and Treasury's Office of Foreign Assets Control and Customs Service. We also obtained information from the Swiss government about its gold refining industry.

To obtain information on whether gold from South Africa can be distinguished from that of other countries through chemical testing, we interviewed chemists and geochemists from private research organizations, the U.S. Geological Survey, and the National Institute for Standards and Technology.

To measure gold imports into the United States from South Africa and third countries, we used the Department of Commerce's data base on U.S. trade flows. We conducted our work from December 1988 to August 1989 in accordance with generally accepted government auditing standards.

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