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PLATINUM: BULLISH AGAIN

Back in March 1972, with Platinum trading at \$96/oz, we issued a report stating that the market had totally discounted the probable nonusage of platinum-based catalytic convertors by the auto industry. We felt that because of this, the risk/reward ratio was extremely favorable. As it turned out, the auto companies soon thereafter did implement convertors to meet emission standards, Platinum easily reached our first objective of \$160, and eventually hit \$290/oz. Four and one half years later, a similar situation has developed where risks are rather minimal while upside potential is excellent. Once again, therefore, we recommend the purchase of deferred Platinum contracts as an excellent speculation with low risks and large gain possibilities.

DEMAND

Platinum is a 'precious metal' because it is one of the worlds scarcest metals and because it is widely used in jewelry and is uniquely valuable in industry, due to its catalytic, anti-corosive, physicochemical, and electrical properties.

There are six major Platinum using industries, and, based on demand over the past five years, new technological factors, and a survey of reliable industry sources, we have been able to project their probable needs through 1978 as follows:

	(76) USA	(76) WORLD	(77) USA	(77) WORLD	(78) USA	(78) WORLD
Jewelry	25,000	800,000	30,000	820,000	35,000	840,000
Automotive	450,000	550,000	500,000	650,000	625,000	850,000
Petroleum	70,000	450,000	160,000	525,000	200,000	600,000
Electrical	75,000	250,000	125,000	350,000	100,000	300,000
Chemical	100,000	600,000	300,000	900,000	225,000	750,000
Ceramics & Glass	60,000	220,000	75,000	250,000	90,000	280,000
Miscellaneous	40,000	70,000	85,000	120,000	100,000	150,000
TOTAL	820,000	2,940,000	1,275,000	3,615,000	1,375,000	3,770,000

JEWELRY

As in the case of Gold, jewelry is the largest single area of Platinum usage. However, as much as 90% of the total jewelry demand comes from just one country, Japan, while consumption in other parts of the world is often as low as 1-2% of a nation's total Platinum needs. The large usage in Japan occurs mainly because Platinum has traditionally been favored over Gold.

Sales in Japan are expected to continue to grow at a rate of 3-5%/year, while in the U.S. the Platinum industry has just launched a strong campaign to increase ornamental usage. If this project is successful, U.S. sales could easily increase from 25,000 oz/year to 100,000 oz/year or more, although this possibility has not been factored into our estimates, as the success of the campaign can not as yet be assessed.

AUTOMOTIVE INDUSTRY

Since 1974, catalytic convertors using an average of .07 oz of Platinum each have been employed in cars made for use in the U.S. The vast potential for this new market created expectations for a 1-1½ million oz/year increase in demand propelling prices to all time highs in 1973-74. As it turned out, industry only required 350-500,000 oz/year, and the subsequent disappointment caused the market to retreat rather sharply. In our opinion, the drop was overdone as an analysis of the fundamentals will show.

Car emission levels regulated by the EPA have been getting increasingly strict every year, with a goal of 'clean air' by the early 1980's, and it is expected that truck emissions will also become more firmly regulated, possibly starting with the 1978 model year. Thus, until a cheaper working alternative to the platinum-based convertor is achieved, this market seems bound to increase in size, especially now that Japan and some European nations have brought in similar controls. While some industry observers feel that new technological breakthroughs will do away with the Platinum-based convertor present indications do not substantiate these claims. Engineers and researchers in Detroit are convinced that the convertor will be the standard anti-pollution device at least

until the mid 1980's since plans for base-metal convertors, engines which burn pollution free, etc..., have all been beset by crippling difficulties.

Another major criticism has been that catalysts could be polluters themselves, giving off sulfuric acid aerosols. However, recent research has shown that these early fears were largely unfounded. When convertors are properly aligned, any pollutant (after the first 200 miles of breaking in) is so minimal as to be negligible, and even these small amounts will be eliminated totally when 'three-way catalysts' (acting against carbon dioxide, hydrocarbons, and nitric oxide) come into use within the next two years. (See Platinum Metals Review 1976 Volume 20 (2), 38-45). It should be noted that this groundless fear has been a potent depressant on the market.

PETROLEUM

In any oil refinery, large amounts of Platinum are used as catalysts to upgrade the octane level of certain end-fuels such as gasoline. At the same time, lead has, in the past, been used as a standard 'anti-knock' additive, to decrease the octane level needed for smooth engine running. Now, with lead being eliminated because of its destruction of Platinum's catalytic action in convertors, not to mention being a serious air pollutant, the octane level of car fuel will have to be increased to compensate for the loss of the lead properties. Of course, this will require more Platinum since the upgrading or reforming process will have to be lengthened. Thus, if unleaded fuel becomes standard for all cars, a great deal of Platinum will be used to increase the refineries' high octance capacity. Note, however, that the demand from this industry can vary widely from year to year, since it is only in new refineries that the massive amounts of Platinum are needed. This is because catalytic devices, by their nature, can be used for a long time before becoming ineffective. In this context, the planned increase in refining capacity for the late 1970's could prove to be a significant demand factor.

ELECTRICAL

Although in this field, Platinum usage has not grown as much as in other areas because of more efficient use and cheaper substitutes developed over the past 5-10 years, it is quite clear that its thermal stability, chemical inertness and excellent conductivity give it a continued important role. Thus, in spark plugs, thermostats, voltage regulators, electric meters, thermocouples (high voltage), and many other areas, Platinum is still vital. Cheaper metals can sometimes be substituted under low stress conditions, e.g. low voltage phone relays which must last for decades, but high-stress areas usually require Platinum.

As a matter of interest, the reason Palladium is so much cheaper than Platinum is that it has less stability, conductivity, and resistance to oxidation and/or corrosion. For instance, in the earlier example of catalytic convertors (a high temperature, high stress use), only about 5-10% of the total metal can be Palladium, or efficiency of operation drops dramatically. For both metals, however, secondary recovery (from used parts) in this industry is very low. Thus, almost all needs must be filled by new metal.

CHEMICAL

Until the advent of convertors, the chemical industry was the largest user of Platinum in the U.S. and second only to jewelry world-wide.

The relevant physical properties are its catalytic and anti-corrosive actions. In the production of nitric acid, which is used in nitrogen fertilizer, explosives, and plastics, Platinum gauze screen catalysts are a crucial component, while the production of most laboratory ware requires Platinum to help in corrosion resistance. Other uses are in the production of synthetic rubber, pesticides, and pharmaceuticals. Because of its unique properties, Platinum will probably be used in rapidly increasing quantities by this highly researched, mushrooming industry. With so many new discoveries each year, Platinum consumption will surely rise, and combined with expansion of its current uses, this area of demand looks very promising.

GLASS & CERAMICS

The glass manufacturing industry uses Platinum alloys in parts of glass-melting furnaces and as liners in pots used to make optical glass because of the ability of the alloys to withstand severe high temperature corrosive conditions with little wear and without contaminating the glass. Platinum - Rhodium brushings are vital in the manufacture of glass fibre, this being its main use in the glass industry. Since the use of glass fibre is expanding rapidly, growth in Platinum usage in this area seems assured. The glass and ceramics industries also decorate china and glass dinnerware with Platinum.

MISCELLANEOUS

By far the biggest category here is dental and medical uses, such as additives to gold-based dental alloys, orthodontic devices, coutery points, hypodermic needles, etc.. Other fields of use include manufacture of jet engines, fuel cells, and portable chlorine generators.

As it can be seen demand is large and growing, especially with industry recovering from the severe 1974-75 recession. Very high Platinum consumption in 1974 (ordered before the recession began) gave way to an extremely low level of demand in 1975 and 1976, especially in the chemical, petroleum, and electrical fields. The 'catch-up' factor, therefore should be working very strongly in favor of a large jump in consumption in 1977 and 1978 (just as other sensitive industrial commodities such as cotton have bounced back in 1976 from below average years in 1974 and 1975). Since we believe that the economic recovery will continue, we have based our 1977 projections on the long term average growth rate, plus the 'catch-up' factor with the latter having a lesser influence on 1978 demand.

No allowance was made for speculative-type demand. It should be pointed out that in the past, incremental demand on the part of speculators always came atop a fundamentally tight situation thus adding fuel to the fire. While it is extremely difficult to quantify such a volatile demand factor, a very conservative estimate can be arrived at by examining incremental additions to the open commitment figures on the New York Mercantile Exchange on situations where prices have experienced bull moves. Such an approach would yield 100-200,000 ounces. In addition, industry restocking can be a swing factor of at least the same magnitude, as the trade reacts 'bullishly' to tightening fundamentals. Finally, with so much research going on into new uses for Platinum, there is also an excellent possibility of further discoveries which could raise demand substantially, just as did occur with the anti-pollution devices.

SUPPLY

a) Production/Capacity

Ninety-eight percent of the world's supply of Platinum comes from 3 countries, South Africa (60-65%), U.S.S.R. (28-33%), and Canada (4-8%), with all other countries put together only producing 2%. In the U.S.S.R. and Canada, Platinum is mainly a by-product of nickel mining. In South Africa, Platinum is the primary metal and it is mined from a very rich, almost pure Platinum ore-body found in the Merensky Reef, Transvaal province. Only South African output can thus be called 'supply-elastic'. As an illustration, when in 1974 the market for anti-pollution devices opened up, South African companies increased capacity to accomodate what was thought to represent a yearly demand in excess of 1 million ozs/year. When the actual requirements became apparent, planned levels were cut back, but capacity had already been increased to well above the industrial requirements at that time.

As the situation now stands, projected output for 1976 -- 1978 is as follows, with maximum achievable present capacity in brackets:

<u>Producer</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1976</u>
				<u>Capacity</u>
U.S.S.R.	780,000	850,000	900,000	(1,000) ¹
Canada	140,000	140,000	140,000	(140)
South Africa: Rustenberg Mines	900,000	1,100,000 ²	1,300,000	(1,600)
Impala Corp.	600,000	600,000 ²	750,000	(900)
Others	100,000	100,000	150,000	(100)
TOTALS	2,520,000	2,790,000	3,240,000	3,740

1 Estimated on basis of large new nickel mines now being opened in North-West Siberia.

2 Recently published plans.

It is quite obvious that large increases in worldwide output hinge almost entirely on South African production. With political and social unrest in that area escalating almost daily, it would seem highly improbable that new investment projects and thus expanded capacity, would be undertaken by essentially foreign-controlled companies. One may even go a step further and wonder whether output will be increased to potential capacity. Factors such as violence, sharply rising black wages and stiff capital controls will certainly make our above projections reasonable, if not downright liberal.

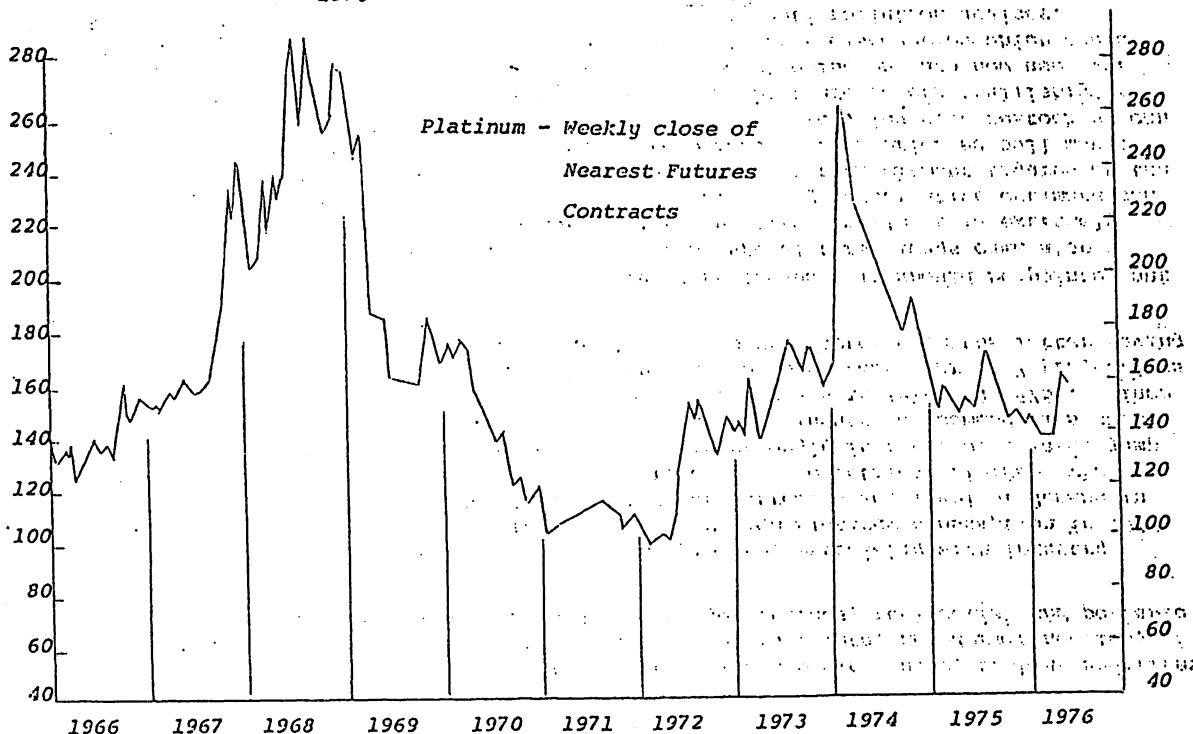
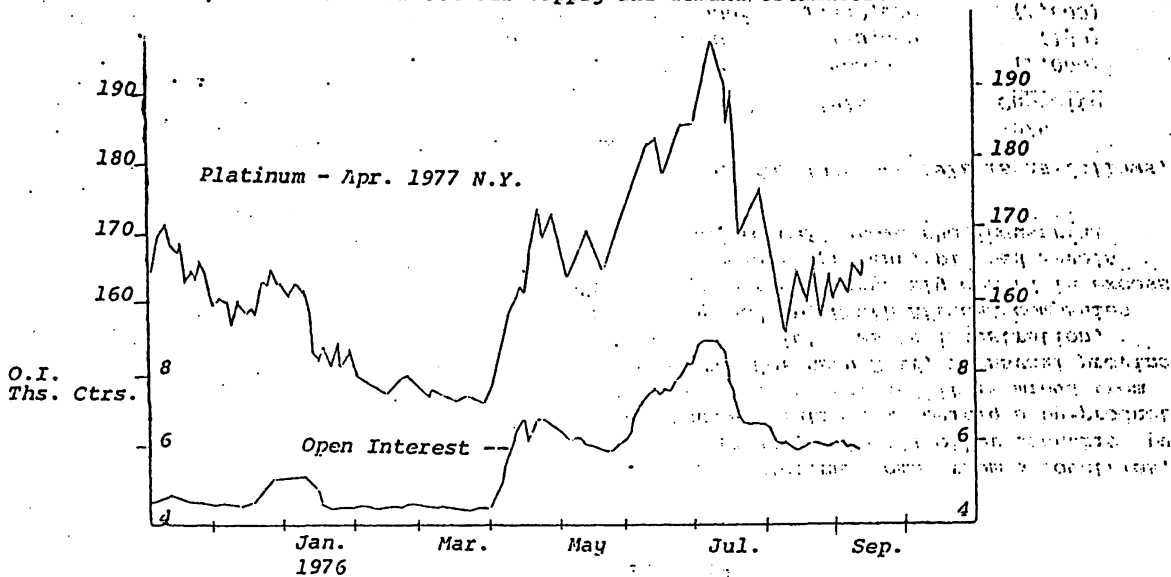
Another inponderable is the amount of Platinum Russia would be willing to sell in the West in any particular year. Judging from past experiences, it is doubtful that they would dump any excess stocks on the market, preferring rather to keep supplies tight, drive up the price, and sell their normal 3-500,000 oz/year. Furthermore, Russian selling is greatly influenced by a need for foreign exchange, with the primary determinant of this need being the state of their grain crop. Since 1976 is shaping up

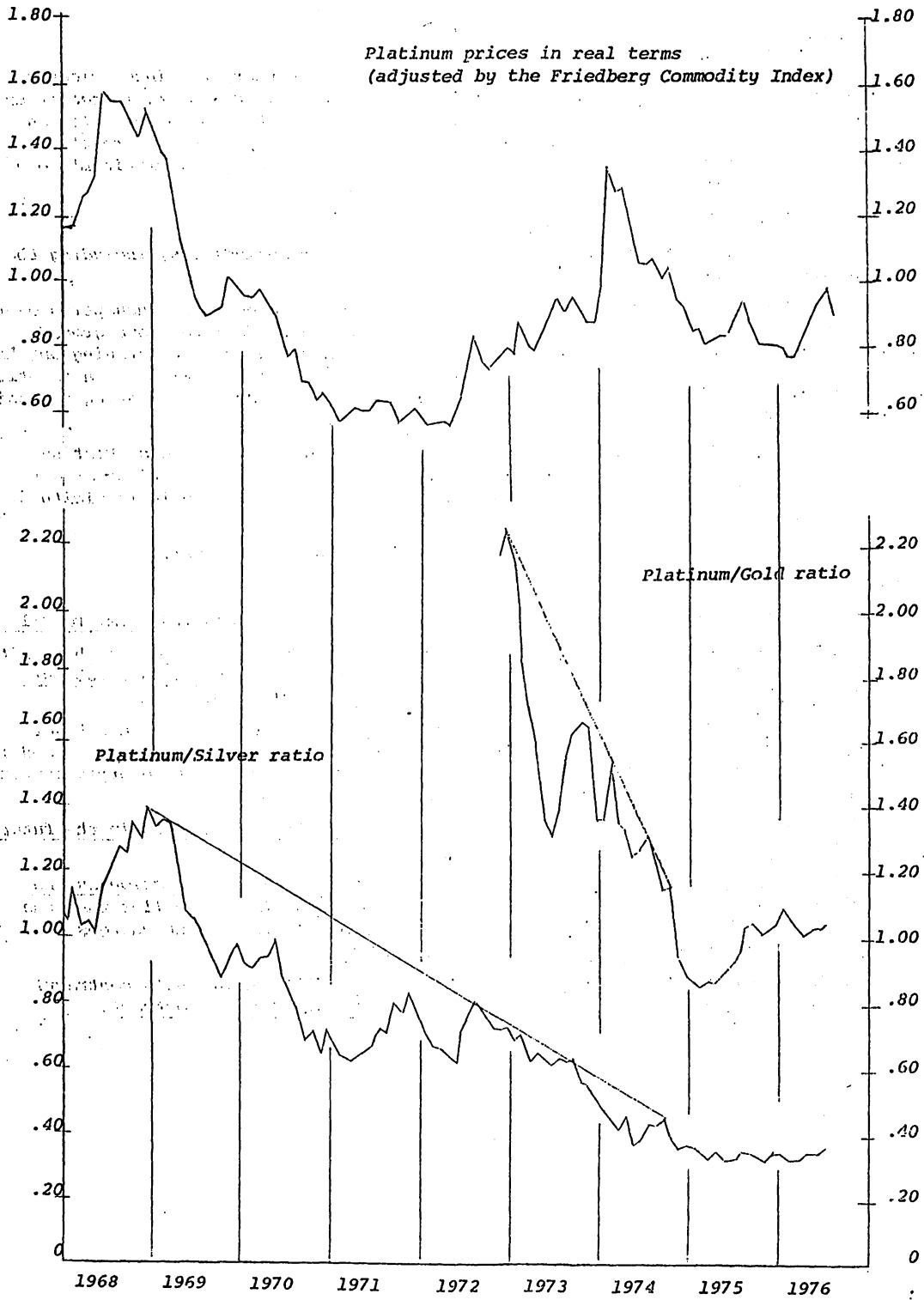
as a good crop year, very little extra foreign exchange would be required, and thus there should not be great pressure to sell Platinum stocks.

b) Above Ground Supplies

Current estimates place the total at 2-2.5 million oz., with the following breakdown: U.S. government stocks 452,000 ozs., (265,000 disposable), U.S. industry stocks 402,000 ozs., (both as of Dec. 31/75), commodity exchange warehouse stocks of 182,000 (as of August 23, 1976), rest of world stocks 500,000, and producer supplies of up to half a million oz. for each of South Africa and the U.S.S.R. Thus, the total world stocks even if they were all available, (a rather questionable assumption) couldn't supply industrial platinum needs for one year.

The situation in the U.S. is even more critical. Being a large net importer of Platinum, industry is carrying less than a half-year's supply. Vulnerability to world events will force industry to work with higher levels of inventory than required by purely commercial considerations. It should be pointed out that Platinum reclaimed from scrap totals 300,000 oz/year in the U.S. alone, but a large part of this is 'toll refined' never leaving the ownership of the industrial user. Because of the technicality most of the 300,000 oz don't affect our supply and demand estimates.





UNDERVALUATION

(Taking 1967 as a base year (a 'normal' commodity year) Platinum prices are selling today at 50% of their 'true', dollar-adjusted value. Moreover, in recent months it has gained relative to both Silver and Gold, thus strengthening the case for an independent move to new highs. While on a day to day basis, prices will react sympathetically to the other members of the precious metals complex, Platinum's own dynamics will prevail over the next 12-24 months horizon.

SUMMARY & CONCLUSION

Platinum is grossly undervalued vis a vis other commodities, including the precious metals complex:

In the 1976-78 period, there will be an apparent excess of consumption over production of nearly 1,500,000 ounces which will threaten to deplete above ground supplies. This is especially true in the U.S. where industry is only carrying one half year's usage and is seriously vulnerable to cut-offs in supplies. Finally, a chaotic labor situation in South Africa could tighten supplies even further, creating a possible shortage, or, at the very least, a shortage psychology.

Our supply/demand estimates are sufficient to justify a rise of Platinum to \$250-300/oz. Severe labour dislocations in South Africa may take prices into the stratospheric \$500-1,000/oz area, especially in view of the relative inelasticity of demand.

Buy the most deferred deliveries, particularly October 1977.

THE PLATINUM CONTRACT

Platinum trades on the New York Mercantile Exchange from 9:45 a.m. to 2:10 p.m.

The contract calls for 50 ounces (troy) of pure platinum, sheet or bar, with a weight tolerance of 2% either higher or lower. Minimum specifications 99.8% pure platinum and platinum metals with a minimum of 99.5% pure platinum.

Trading is confined to contracts primarily for delivery in the months of January, April, July and October. At the present time, the nearest contract traded is October 1976 which closed at 153.50 on September 13, 1976; the most deferred contract traded is October 1977 and it closed at 171.20 on the same date.

As one can very well see, the premium for a contract 17 months in the future is quoted at an annualized premium of 7.9%.

This small premium provides the investor with an added attraction as the 'financing' required for carrying platinum future 12 months is far smaller than the one an investor would have to pay for carrying physical platinum (bank charges plus storage may run as high as 9% per annum (in the U.S.))

Initial margin (deposit guaranteeing the fulfillment of one's contract) required is \$1,500 per contract, approximately 1% premium of the contract.