

Appendix C – Market analysis

The July 2022 update to the International Monetary Fund's (IMF's) World Economic Outlook projected global economic growth of 3.2% in 2022 and 2.9% in 2023, reflecting negative revisions to the outlook for the major economies of the United States, China and Europe. The risks to the outlook remain tilted to the downside – the potential for reduced gas supplies to Europe could materially alter both the inflation and growth outlook in the region, while intermittent lockdowns in China could further suppress economic momentum.

All three major PGM markets – platinum, palladium and rhodium – recorded fundamental surpluses in 2021. The combination of accelerated destocking of producer inventories, coupled with the shortfall in expected auto demand due to the worsening semi-conductor chip shortage, resulted in a year characterised by extreme volatility with tight physical markets and price support in the first half of the year countered by increased primary and secondary refined supplies and erratic auto purchasing in the latter months.

Refer to page 19 of the 2022 Group results booklet at www.implats.co.za for the complete market review.

Platinum

koz	2020	2021	2022	2023
Demand				
Industrial	4 421	4 937	5 035	5 198
Automotive	2 288	2 527	2 667	2 905
Hydrogen and fuel cells	36	43	65	103
Other industrial	2 097	2 367	2 303	2 190
Jewellery	1 830	1 953	1 958	2 032
Investment	1 175	90	(165)	—
Total demand	7 426	6 979	6 828	7 230
Supply				
Primary	4 879	6 197	5 771	5 883
South Africa	3 250	4 664	4 176	4 245
Zimbabwe	457	486	516	529
North America	339	265	298	305
Russian sales	709	658	656	679
Others	125	125	125	125
Secondary	1 597	1 653	1 607	1 641
Recycle – Auto	1 154	1 204	1 159	1 171
Recycle – Jewellery	422	422	422	445
Recycle – Other	22	27	25	25
Total supply	6 477	7 850	7 378	7 524
Movement in stocks	(949)	871	550	295

2022 PLATINUM MARKET to remain in surplus

Demand expected to decrease by 2%

- Automotive production recovery on easing chip shortages
- Stable jewellery demand as Zero Covid policy in China offsets good growth elsewhere
- Industrial demand remains elevated and firm.

Supply to retrace by 7% on operational headwinds and processing maintenance across peer group.

Negative outlook for physical investment demand in 2022 due to macro-economic climate.

Appendix C – Market analysis (continued)

The palladium price closed FY2022 some 31% lower (US\$1 888 per ounce) than the start (US\$2 761 per ounce). The average London trade price for the full financial year was 9% lower at US\$2 207 per ounce (FY2021: US\$2 425 per ounce).

Palladium

koz	2020	2021	2022	2023
Demand				
Industrial	10 132	9 924	10 065	10 197
Automotive	8 510	8 327	8 439	8 679
Hydrogen and fuel cells	—	—	—	1
Other industrial	1 623	1 597	1 625	1 516
Jewellery	177	207	207	214
Investment	(90)	40	(60)	—
Total demand	10 219	10 171	10 212	10 410
Supply				
Primary	6 171	6 994	6 714	6 830
South Africa	1 922	2 750	2 459	2 512
Zimbabwe	389	405	432	443
North America	934	857	951	981
Russian sales	2 714	2 769	2 660	2 681
Others	212	212	212	212
Secondary	3 190	3 429	3 075	3 316
Recycle – Auto	2 686	2 898	2 562	2 820
Recycle – Jewellery	128	117	112	104
Recycle – Other	376	414	401	392
Total supply	9 361	10 423	9 789	10 146
Movement in stocks	(858)	252	(423)	(264)

2022 PALLADIUM MARKET to return to deficit

Demand estimated to remain unchanged vs 2021

- Automotive production recovery weakened by supply chain challenges, thrifting and switching
- Industrial offtake reflects ongoing price elasticity of demand.

Supply to decline by 4% with weak recycling and Russian sales uncertainty.

A tight market in medium term despite rising BEV sales.

Limited speculative interest and net short positioning vulnerable to supply and demand shocks.



Rhodium pricing also exhibited significant price volatility in FY2022, with an almost 50% differential between peak to trough pricing of US\$22 200 and US\$11 250 per ounce, respectively. The closing price of US\$14 000 per ounce was 28% lower than the opening US\$19 700 per ounce on New York Dealer Trade. The average price for the full financial year of US\$16 411 per ounce was some 13% weaker (FY2021: US\$18 812 per ounce).

Rhodium

koz	2020	2021	2022	2023
Demand				
Industrial	980	988	1 027	1 071
Automotive	904	896	922	947
Hydrogen and fuel cells	—	—	—	—
Other industrial	76	92	106	124
Investment	(7)	(3)	(2)	—
Total demand	973	985	1 025	1 071
Supply				
Primary	609	790	724	734
South Africa	477	668	592	598
Zimbabwe	41	43	46	48
North America	21	15	16	17
Russian sales	58	53	58	60
Others	12	12	12	12
Secondary	339	370	326	339
Recycle – Auto	339	370	326	339
Total supply	948	1 160	1 050	1 073
Movement in stocks	(25)	175	25	3

2022 RHODIUM MARKET to tighten

Demand to grow by 4% with rise in 2H 2022 automotive production.

Supply to retrace by 8% as South African volumes normalise following inventory release.

Physical tightness dictated by level of Chinese and Scrap activity in the SPOT market.



Merensky Reef stockpile ore at Two Rivers

Automotive

Global light-duty vehicle sales are estimated to have reached 81.4 million units for 2021. This marked a 5% improvement on the pandemic-struck 2020 result, although it remained 10% below the sales rate achieved in 2019. The early months of 2021 were marked by pandemic-related restrictions, which were followed by crippling supply-chain constraints impacting the availability of semi-conductor chips in the latter part of the period.

	2020	2021	% Change	2022E	Year-on-year %
World	77.8	81.4	5	81.3	0
North America	16	16.6	3	16.6	0
Europe	14.5	14.5	0	13.4	(7)
Japan	4.1	3.9	(4)	3.9	1
India	2.5	3.2	22	3.5	12
China	24.4	25.5	4	26	2
Rest of the world	16.3	17.8	9	17.7	(1)

Light-duty vehicle sales

Source: LMC July 2022 Forecast

The broader global impact of the war is most likely to be felt via the macro-economic effects of a deteriorating growth outlook, rising inflation and the impacts on disposable income and consumer confidence. LMC retains the view that supply constraints remain the most pressing issue for the near-term automotive outlook, with lengthy delays on new vehicle deliveries and inventories well below normal operating levels.

The next series of major emission standards changes is expected in 2023. In 2022, changes in auto demand will primarily be driven by underlying production volumes, which are expected to run ahead of sales to replenish depleted inventory levels, and changes in the underlying choice of metals used. In particular, additional platinum is expected to be used at the expense of palladium in the after-treatment of gasoline engines. 'Switching' is expected to vary greatly by geographic region and by OEM, but will help to drive a structural increase in platinum automotive use after years of decline due to falling diesel market share.