

Platinum & Palladium Survey 2008
Launch Presentation – 24th April 2008

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Tanaka Precious Metals Group

■ Platinum in 2007

■ Palladium in 2007

■ Outlook for 2008

Highlights of 2007 - platinum

- Supply shock from mine production in South Africa**
- Fabrication demand strong but showed little growth**
- Platinum reverted to deficit after surplus in 2006**
- Zurich stocks reduced, implied ~2 months demand**
- ETFs impact liquidity but remain part of global stock**

■ Price rises 34% intra-year to close at \$1,526

South Africa delivers supply shock in 2007, global platinum output falls 6% to 6.56m ozs

■ South Africa fell by 370,000 ozs to 5.07m ozs

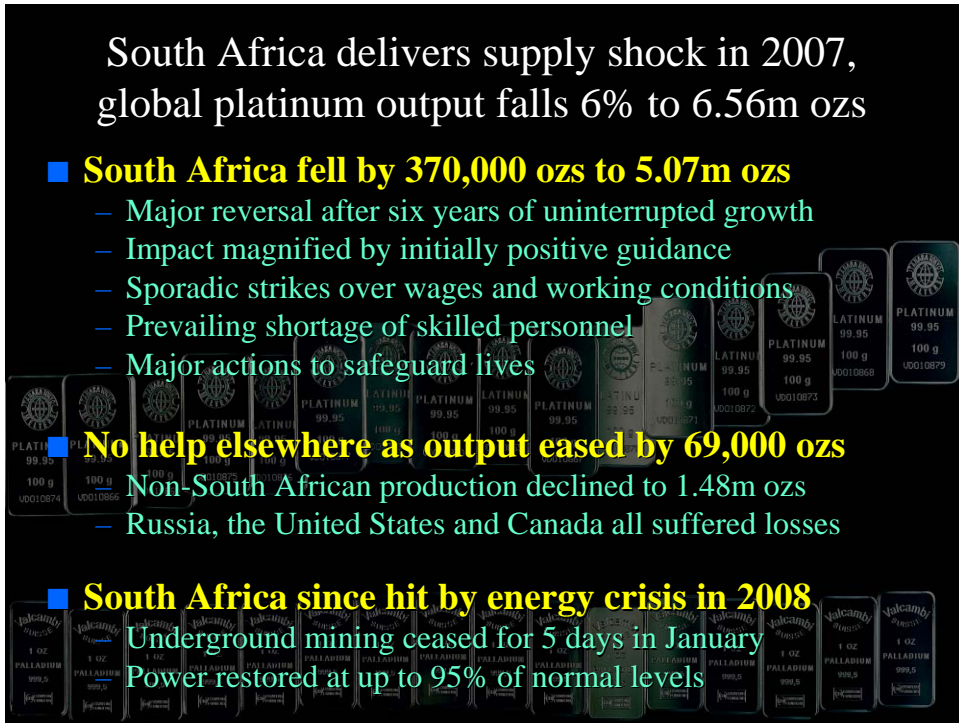
- Major reversal after six years of uninterrupted growth
- Impact magnified by initially positive guidance
- Sporadic strikes over wages and working conditions
- Prevailing shortage of skilled personnel
- Major actions to safeguard lives

■ No help elsewhere as output eased by 69,000 ozs

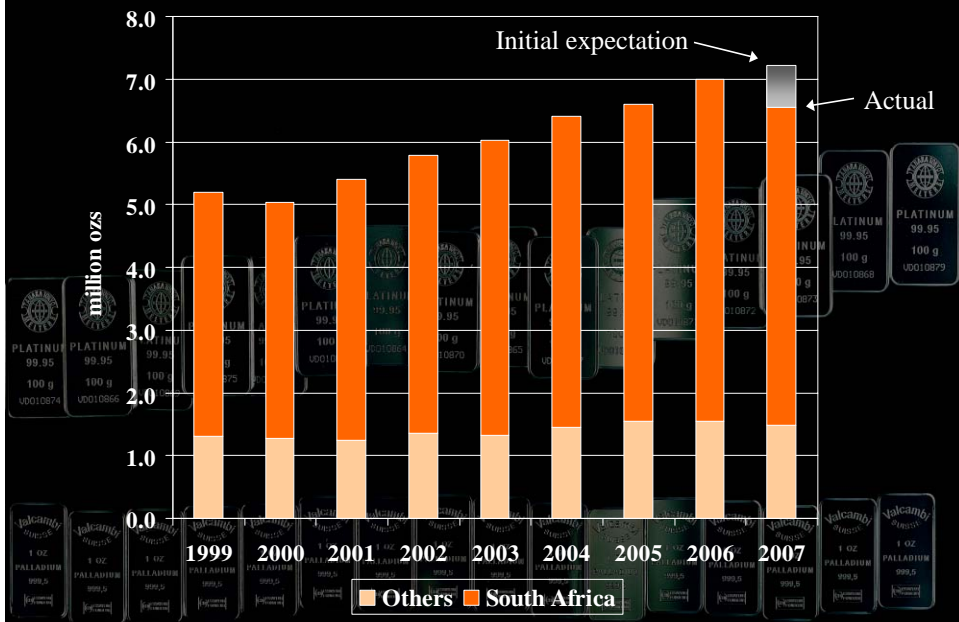
- Non-South African production declined to 1.48m ozs
- Russia, the United States and Canada all suffered losses

■ South Africa since hit by energy crisis in 2008

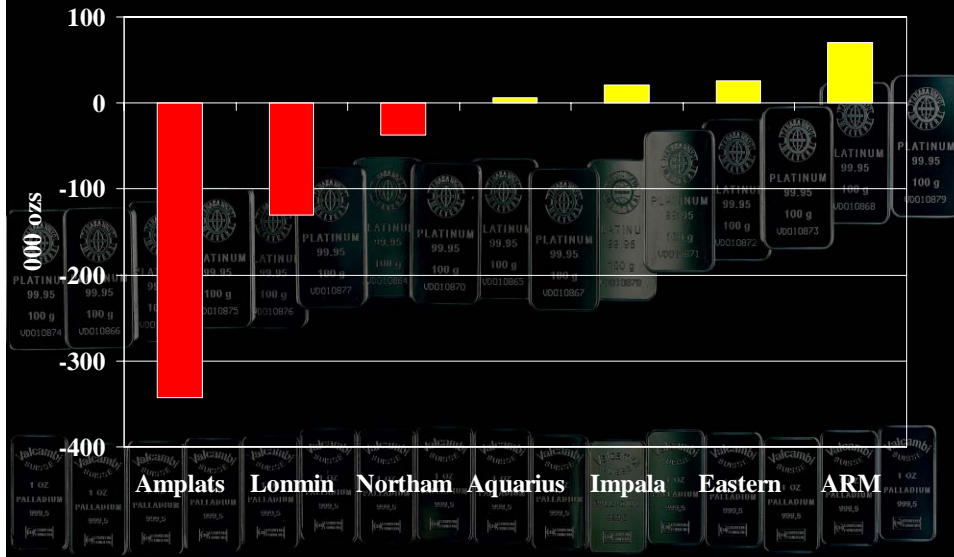
- Underground mining ceased for 5 days in January
- Power restored at up to 95% of normal levels



Global mine production - platinum



Platinum in South Africa Winner & losers in 2007



Autocatalyst recycling in 2007 – platinum

- **Recovery in total rose by 10% to 926,000 ozs**
 - Represented 12% of headline supply.
 - Now exceeds entire mine output from Russia, world #2
- **North America – yielded 545,000 ozs, up 5%**
 - Mature market, almost 60% of global recovery
 - Modest growth reflects platinum use in late 1990s.
- **Europe – advances strongly to 247,000 ozs, up 24%**
 - Recovery has more than doubled over last 5 years
 - 60% catalyst fitment on ELVs, should reach 90% by 2010
 - Full potential hindered by ELV exports for reuse
- **Japan & other regions – up 9% at 134,000 ozs**
 - Japan also impacted by ELV exports
 - Maturity in other countries distant; beyond 2010

Headline supply - platinum



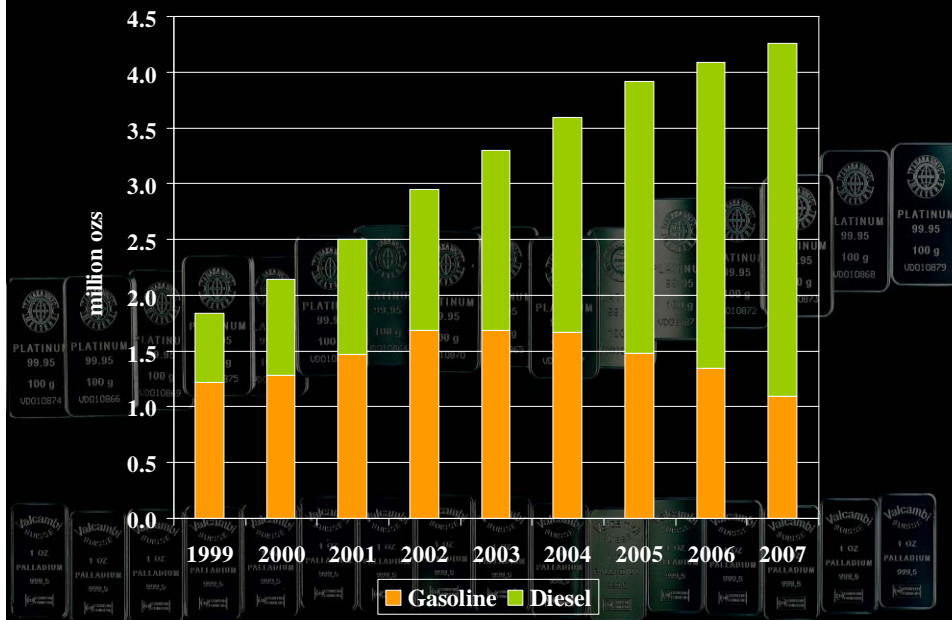
Demand - platinum



Autocatalyst demand in 2007 - platinum

- **North America: up 6% at 741,000 ozs**
 - New heavy duty diesel standards from January 2007
 - Light diesels (SUV, PUP) captured by Tier 2 standards
 - Losses in gasoline; lower production, thrifting & substitution
- **Europe: 6% higher at 2.07m ozs**
 - Light duty diesels rose 12.5%, now half of all production
 - Euro 4 compliant diesels rose 19%, Euro 5s now underway
 - Fitment of coated DPFs was two-thirds higher
 - First material substitution of platinum by palladium in diesel
 - Continuing losses in gasoline, thrifting & substitution
- **Japan & other regions: steady at 1.45m ozs**
 - Japan – platinum use in gasoline drifted lower
 - Offset by gains in other countries, mainly diesel related

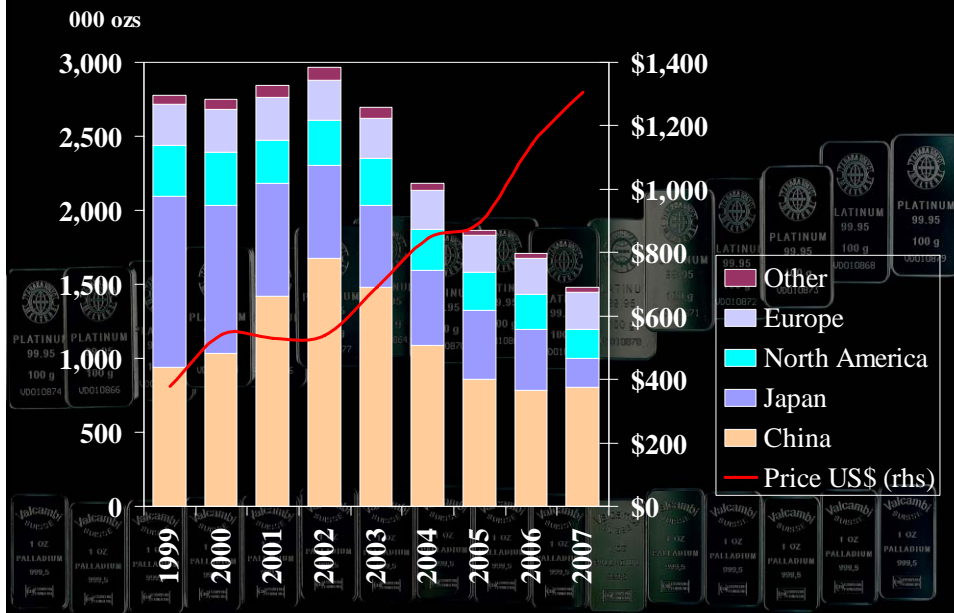
Global autocatalyst demand - platinum



Demand - platinum



Jewellery fabrication – platinum



Jewellery demand in 2007 - platinum

- **Five years of decline, has halved since peak in 2002**
 - Accounted for less than 20% of total platinum demand in 2007
- **North America & Europe – total 445,000 ozs (down 6%)**
 - Europe up 4% – branded products including watches
 - N America down 17% – weak US economy & impact of prices
- **Japan slumped to only 200,000 ozs**
 - Resistance to higher prices & competition from white gold
 - Weight thrifting continues but options running out
 - Increased recycling of old platinum jewellery
- **China against the trend – up 2% to 803,000 ozs**
 - Gains in 1st 9 months eroded by Q4 price driven decline
 - Downtrend accelerates in 1st quarter 2008
 - Total fabrication lower, old jewellery scrap surges

Demand - platinum

<u>'000 ozs</u>	<u>2006</u>	<u>2007</u>	<u>+(-)</u>
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Autocatalyst	4,092	4,262	170
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Jewellery	1,709	1,482	(227)
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Other industrial

– Glass	450	395	(55)
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– Electronics	427	461	34
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– Petroleum	180	248	68
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– Other applications	787	835	48
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Total demand	7,645	7,683	38
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(Net of scrap, including any use of industry stocks)

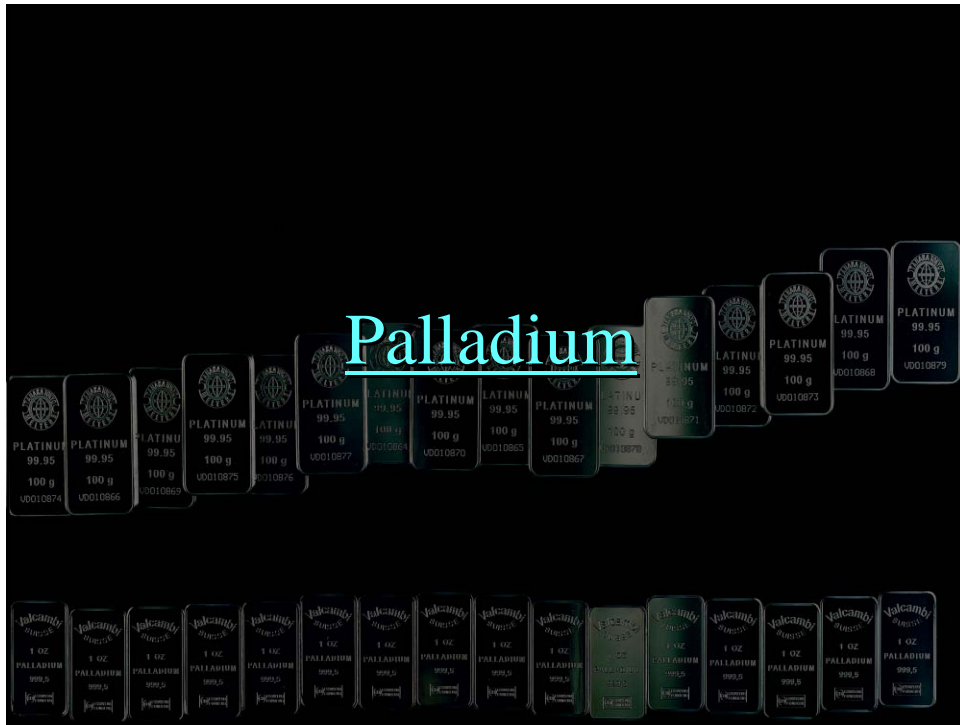
Up <1%

Supply & demand - platinum



Supply & demand - platinum





Highlights in 2007 - palladium

- Supply reduced despite gains in autocatalyst recycling
- Higher autocatalyst demand, jewellery consolidated
- Demand in total showed continued improvement

■ Palladium reverted to underlying deficit at “gross” level

■ Russian stock sales partly offset by deficit and ETFs

■ Zurich stocks remain large, implied ~1 year’s demand

■ Prices rises 10% intra-year to close at \$365

Mine production in 2007 – palladium Down 4% to 7.0m ozs

- **Russia – production declines by 4% to 3.05m ozs**

- Output at world #1 Norilsk impacted by upgrading work

- **South Africa – falls 6% to 2.68m ozs as platinum drops**

- Again, first decline in production for 6 years

- Palladium grades little changed, so it's a platinum story

- **North America – retreats slightly to 0.98m ounces**

- Sharp decline in US overwhelms gain in Canada

- In other words, losses at Stillwater exceeded NAPd's gains

- **Elsewhere – fractionally higher at 284,000 ounces**

- Output from Zimbabwe quite steady at 133,000 ozs.

Autocatalyst recycling in 2007 - palladium

- **Continues to accelerate, up 28% to 963,000 ozs**

- Now 12% of supply, finally overtakes platinum

- **North America – surges to 654,000 ozs, up 25%**

- Mature market, accounts for 68% of global recovery

- Driven by rising palladium use from late 1990s

- **Europe – recovery jumped 44% to 201,000 ozs**

- Further gains in ELV catalyst fitment, 60% in 2007

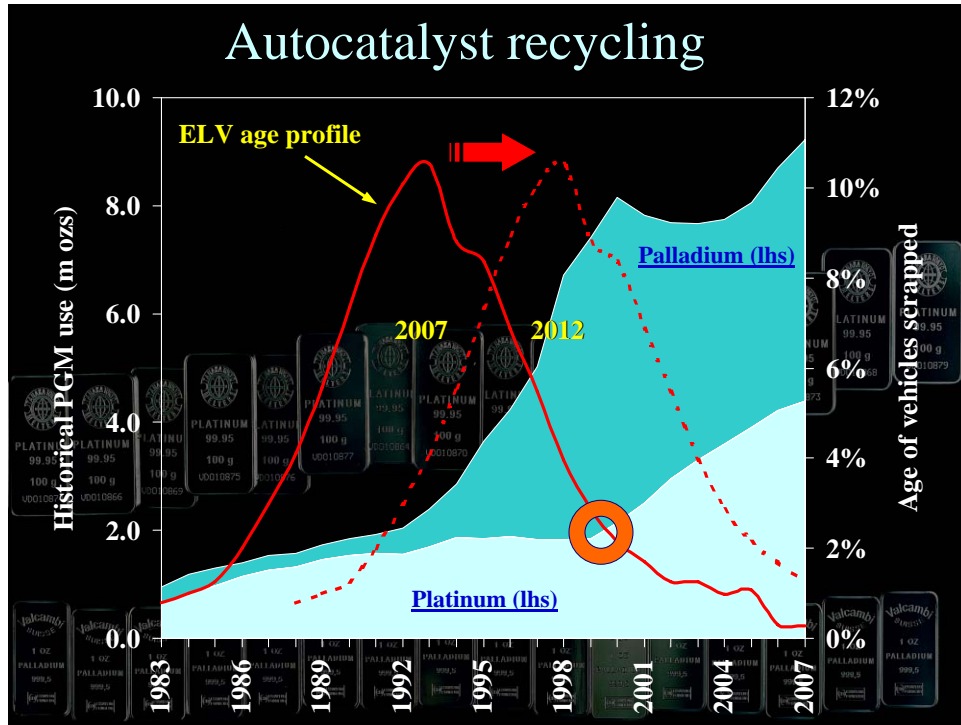
- Also reflects late 1990s surge in palladium usage

- ELV exports for reuse continue to limit recovery

- **Japan & elsewhere – remains modest at 108,000 ozs**

- Japanese ELVs exports still an issue

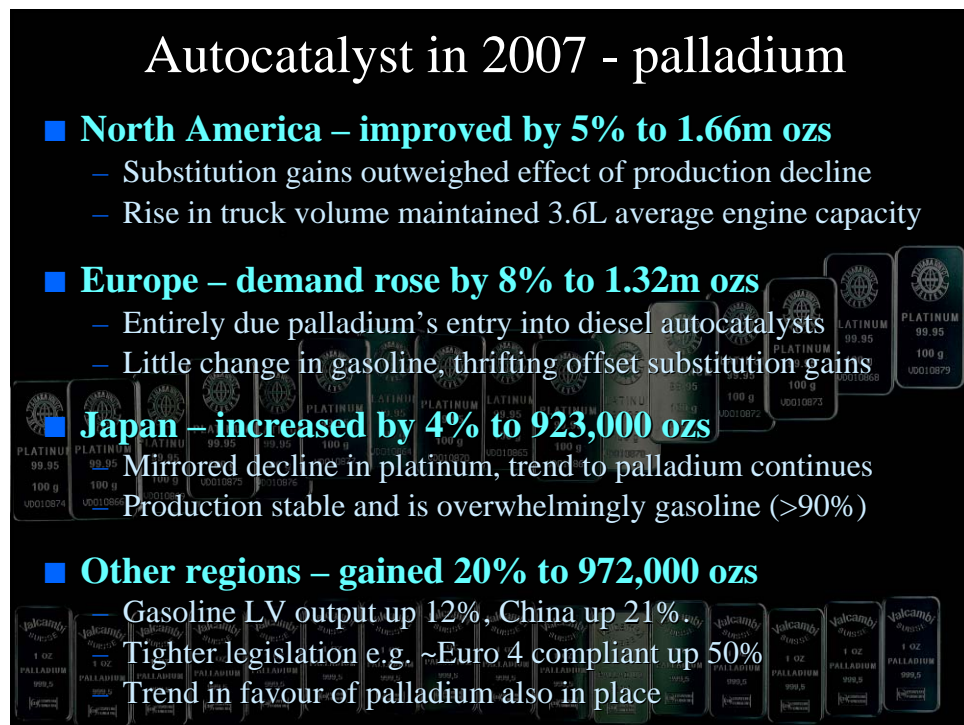
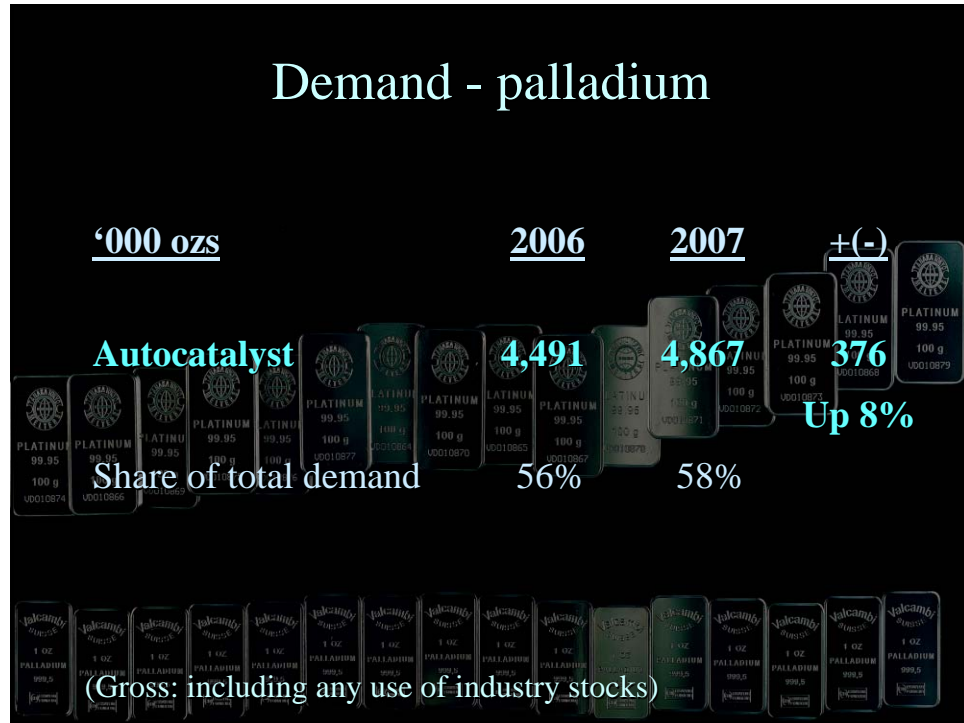
- Elsewhere, will be more of a factor post 2010



Headline supply - palladium

	2006	2007	+(-)
‘000 ozs			
Mine production	7,307	6,996	(311)
Autocatalyst recycling	754	963	209
Headline supply	8,061	7,959	(102)
			Down 1.2%

(Excluding supplies from above-ground stocks)



Demand - palladium



Jewellery in 2007 - palladium

- **Fabrication demand rose by 4% to a net 1.03m ozs**
 - 2007 average price up 11%, volatility much reduced at 18%
- **China – eased lower by 2.5% to 641,000 ozs**
 - Gains over much of 2007 eliminated by fourth quarter slump
 - Recycling (e.g. Pd950) significantly less in 2007
 - Formal adoption of *ba jing* – palladium gold – enhances status.
- **Elsewhere – fabrication up 18% at 384,000 ozs**
 - US – progress on palladium jewellery but slowed by economy
 - Europe – white gold aided by watches and palladium jewellery
 - Japan – impacted by lower white gold and platinum demand

Demand - palladium

'000 ozs	2006	2007	+(-)
Autocatalyst	4,491	4,867	376
Jewellery	981	1,025	44
Other industrial			
- Electronics	1,219	1,275	56
- Other sectors	1,247	1,154	(93)
Total demand	7,938	8,320	382

Up 4.8%
(Including any use of industry stocks)

Supply & demand - palladium

'000 ozs	2006	2007
Headline supply	8,061	7,959
Demand	7,938	8,320
Gross surplus (deficit)	123	(361)

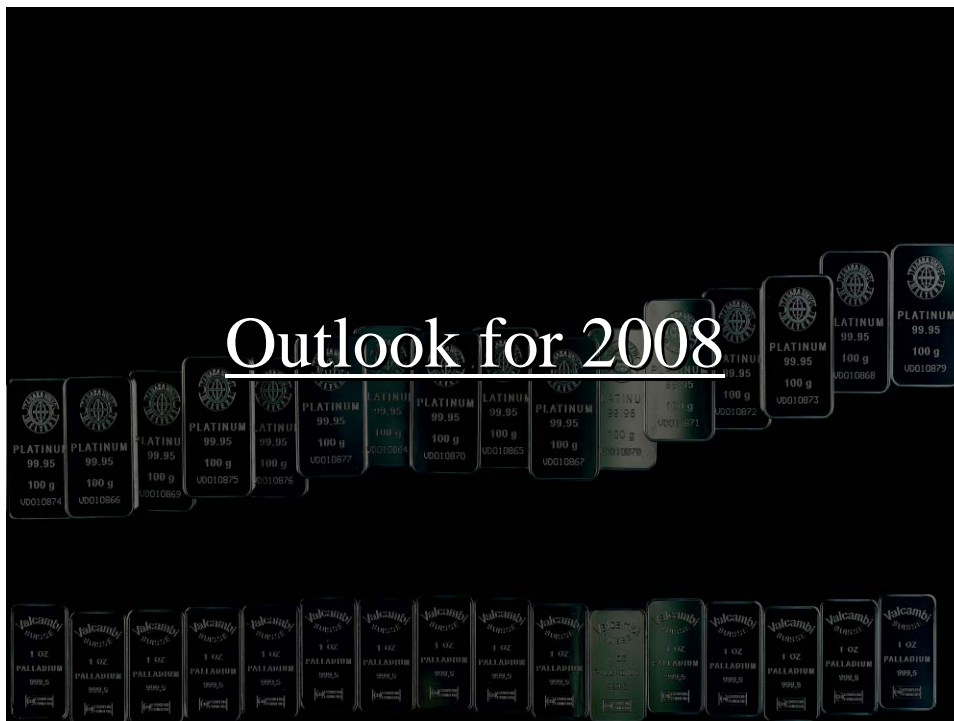
Above-ground stocks changed by these amounts

Also the measure of *net* investment/(disinvestment)

Supply & demand - palladium

<u>'000 ozs</u>	<u>2006</u>	<u>2007</u>
Gross surplus (deficit)	123	(361)
Other stock activity		
Russian state sales	1,550	900
Stillwater inventory	63	0
Exchange traded funds	0	(280)
Sub-total	1,613	620
Residual surplus (deficit)	1,736	259

Outlook for 2008



Platinum in 2008 – considerable uncertainty

- **South African production remains the central issue**

- January losses could be largely offset by ramp-ups
- Impact of restricted power availability remains unclear
- Skills shortages and safety management issues remain
- Overall, decline seems most likely, ~100,000 ozs (2%)

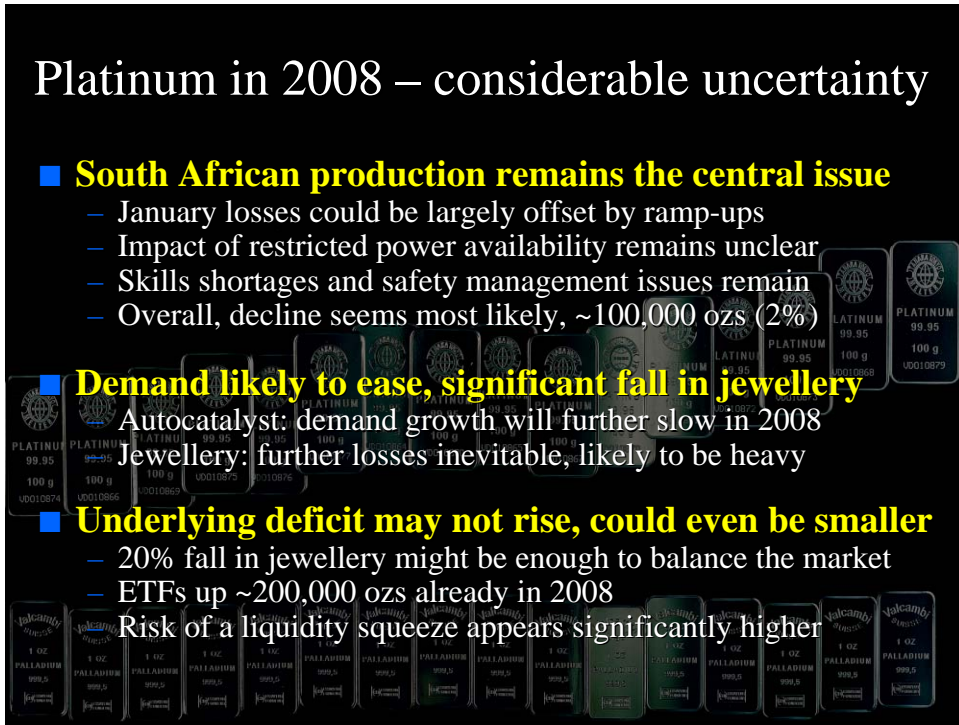
- **Demand likely to ease, significant fall in jewellery**

Autocatalyst: demand growth will further slow in 2008
 Jewellery: further losses inevitable, likely to be heavy

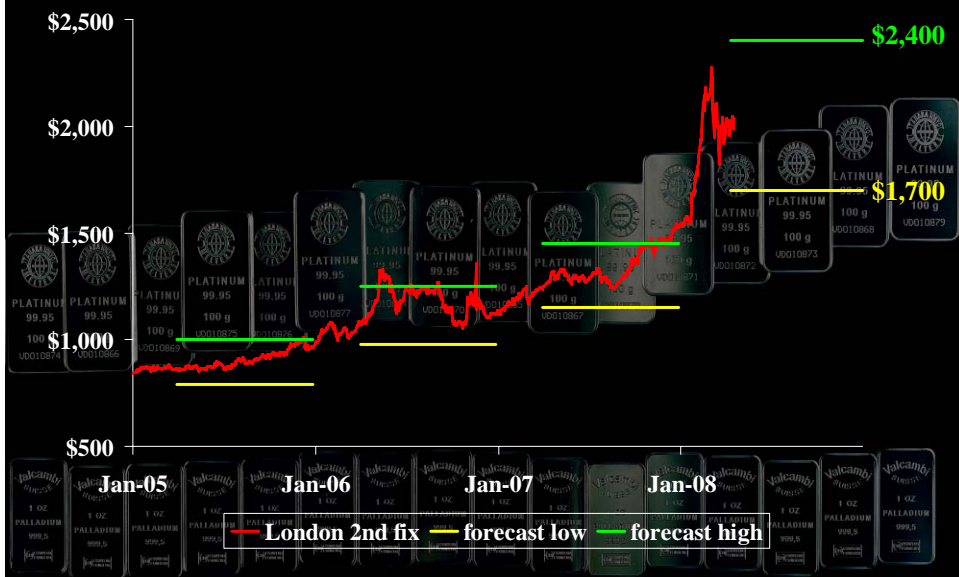
- **Underlying deficit may not rise, could even be smaller**

- 20% fall in jewellery might be enough to balance the market
- ETFs up ~200,000 ozs already in 2008

Risk of a liquidity squeeze appears significantly higher



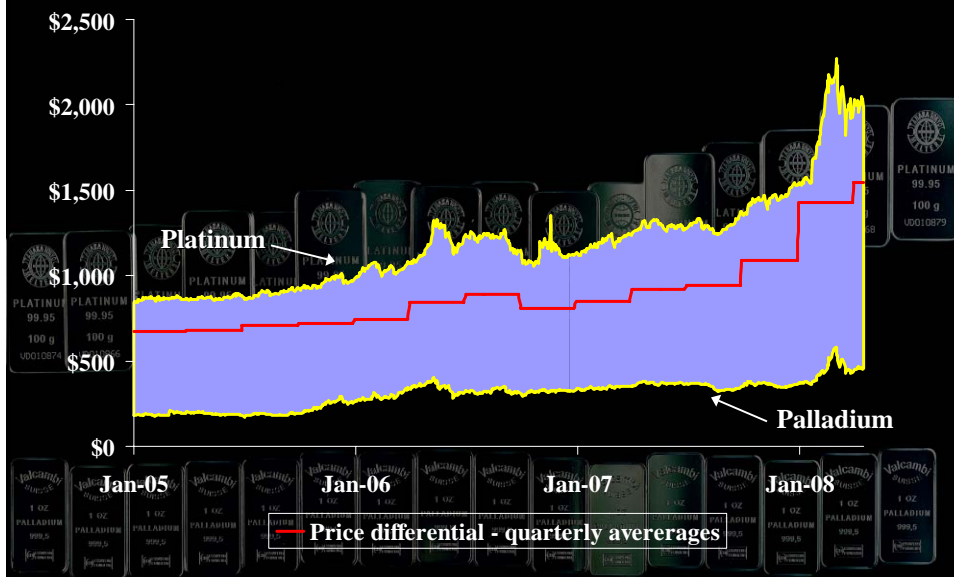
Platinum – forecast trading range to end 2008 (range so far in 2008 is \$754)



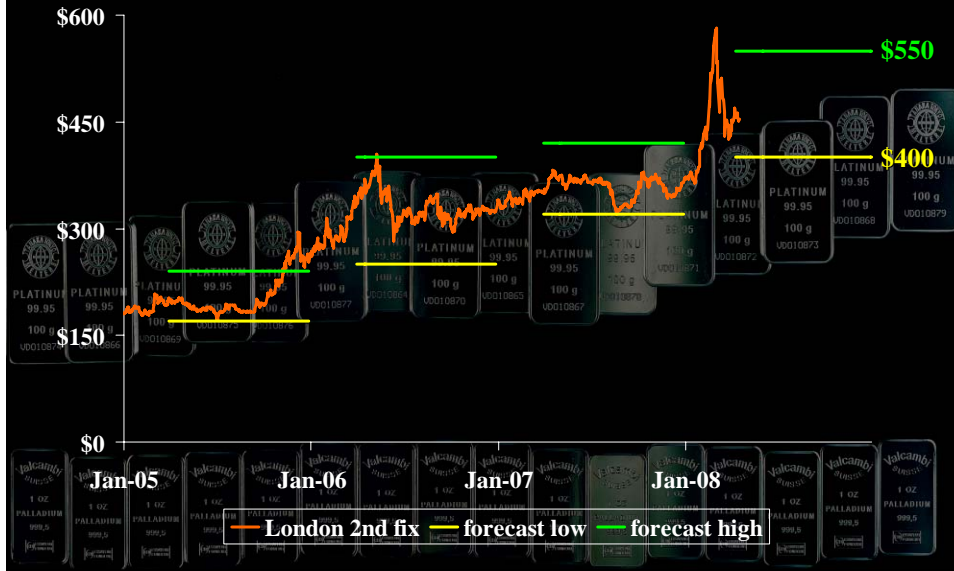
Palladium in 2008

- **Headline supply expected to show modest increase**
 - Mine production marginally lower, South Africa & Russia
 - Further strong gains from autocatalyst recycling
- **Fabrication demand should continue to improve**
 - Autocatalyst gains in diesel and gasoline
 - Steady progress in electronics
 - Jewellery demand expected to rise (strong Q1 in China)
- **Gross deficit likely to persist and may rise**
 - Further Russian stock sales are anticipated
 - ETFs have already added 290,000 ozs this year
 - Gross deficit and ETFs will absorb much of Russian sales
 - Modest residual surplus likely to recur

Platinum & palladium prices, a chasm opens between them



Palladium – forecast trading range to end 2008 (range so far in 2008 is \$225)



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