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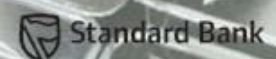
Platinum & Palladium Survey 2007

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Platinum & Palladium Survey 2007

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London

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Tanaka Precious Metals Group

The background of the slide is a dark, monochromatic image of numerous platinum and palladium bars. The bars are arranged in a grid-like pattern, with some showing the Valcamb logo and others showing the Japanese Mint logo. A mallet with two spherical heads is positioned diagonally across the center of the bars. The text is overlaid on this background.

■ **Platinum in 2006**

■ **Palladium in 2006**

■ **Outlook for 2007**

Highlights in 2006 - platinum

- **Headline supply up 424,000 ozs at 7.86m ozs (6%)**
 - Mine production adds 371,000 ozs, hits 7m ozs for 1st time.
 - Further gains in autocatalyst recycling as Europe advances.
- **Fabrication demand rises 136,000 ozs to 7.72m ozs (2%)**
 - Autocatalyst up 7%; gains in diesel outweigh fall in gasoline.
 - Jewellery escapes with 8% loss despite record high prices.
- **Platinum moved into surplus for 1st time in 8 years**
 - Surplus of 145,000 ozs in 2006 (deficit of 142,000 ozs in 2005)
 - Appears at gross and residual level (stock releases absent).
- **Net inflows of platinum to Switzerland hit record high.**

Mine production in 2006 – platinum

Up 6% to 7m ozs

■ **South Africa up 7% to 5.45m ozs (78% of total)**

- Amplats added 12% (Amandebult, Rustenburg, inventory).
- Implats down 3%; Impala losses outweigh Marula gains
- Lonmin essentially flat as smelter problems impede progress.
- New mines; Everest, Two Rivers, rehab of Crocodile River.
- Aquarius rises 32% to 304,000 ozs (Everest ramping up).

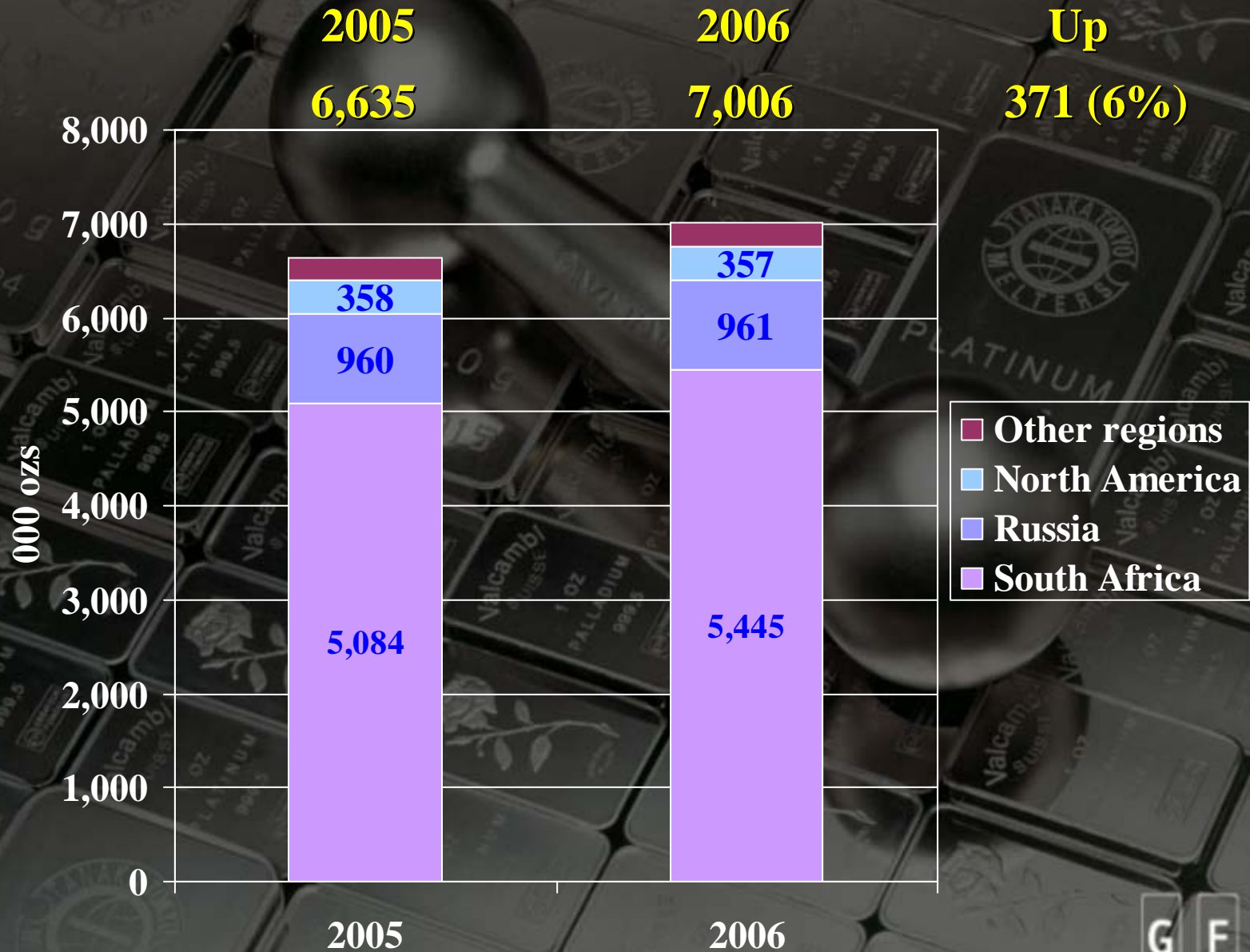
■ **Production in Russia flat at 961,000 ozs (14% of total)**

- Norilsk largely unchanged with output at 752,000 ozs.

■ **Remaining output up 2% to 600,000 ozs (8% of total)**

- North America flat; decline at Inco offset by SMC, NAPd.
- Zimbabwe up 4%; growth envisaged but situation difficult.

Mine production - platinum



Platinum mining - up 371,000 ozs in 2006



Autocatalyst recycling in 2006 - platinum

- **Recovery rose by 7% in 2006 to 855,000 ozs**
 - Represents 11% of headline supply.
 - Exceeds annual production of world #4 miner, Norilsk.
- **North America yielded 517,000 ozs, up 3%**
 - Mature market, represents 60% of global recovery.
 - Modest growth reflects lower platinum use in late 1990s.
- **Europe advances strongly to 210,000 ozs, up 21%**
 - Catalyst fitment of ELVs exceeded 50% for 1st time.
 - Up to 5 years before Europe reaches maturity of US market.
- **Other regions, recovery unchanged at 127,000 ozs**
 - Japan hindered by exports of ELVs for reuse elsewhere.

Headline supply - platinum

'000 ozs

2005

2006

+(-)

Mine production

6,635

7,006

371

Autocatalyst recycling

801

855

54

Total supply

7,437

7,861

424

Up 5.7%

(Excluding supplies from above-ground stocks)

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Demand - platinum

'000 ozs

2005

2006

+(-)

Autocatalyst

3,910

4,166

256

Up 6.5%

Share of total demand

52%

54%

(Excluding the use of industry stocks)

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Autocatalyst in 2006 - platinum

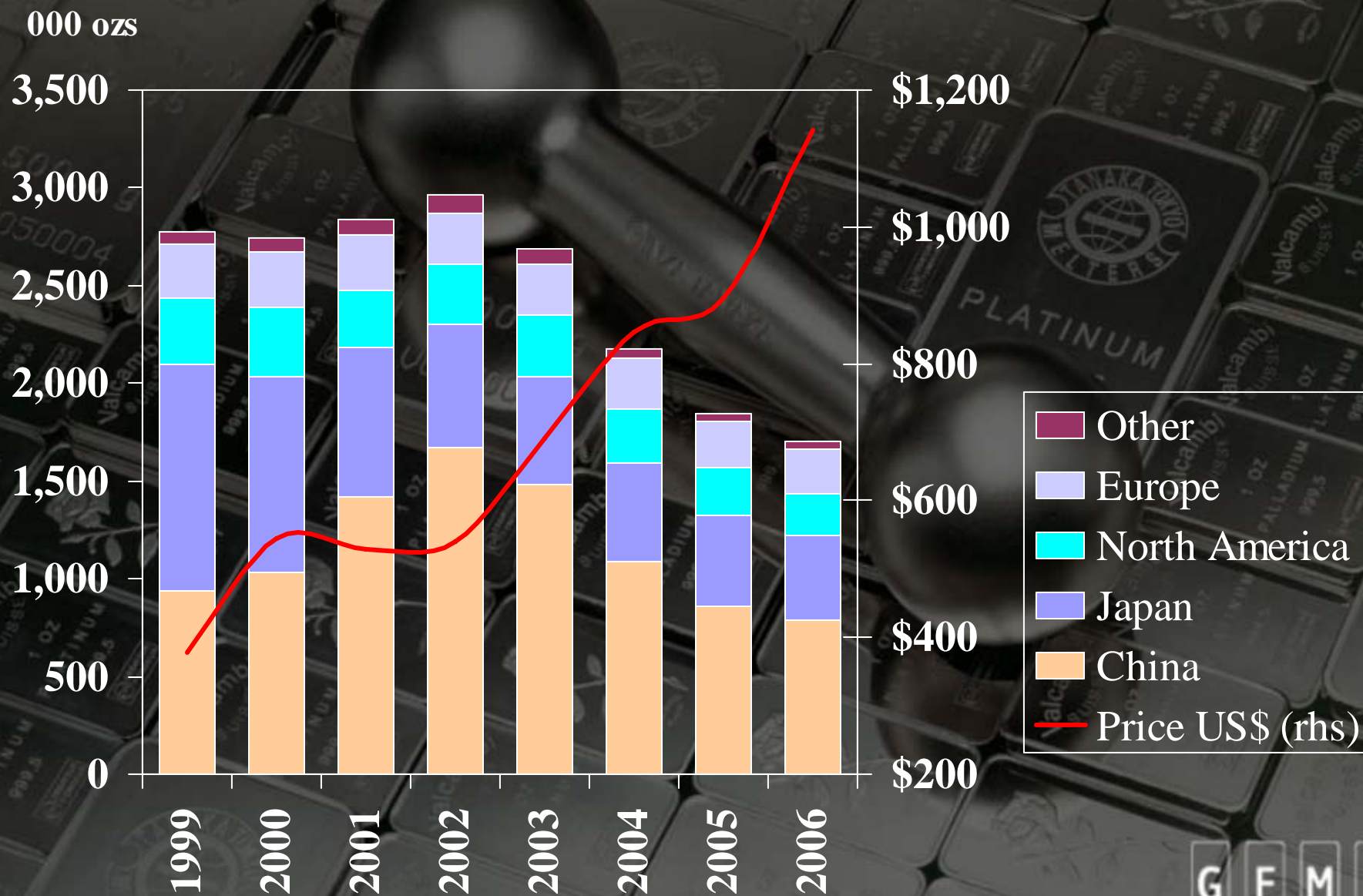
- **North America, 3% lower at 661,000 ozs**
 - Further attrition in gasoline (substitution & thrifting).
 - Gains in HD diesel (new standards from January 2007).
- **Europe, demand scales 2m ozs, up 13% at 2.08m ozs**
 - Demand growth again driven by diesel applications.
 - Diesel = 47% of light vehicle production in 2006.
 - Production of Euro 4 compliant diesels rose 45%
 - Fitment of catalysed DPFs trebled.
 - Further decline of platinum use in gasoline applications.
- **Japan & other regions: 3% higher at 1.43m ozs**
 - Japan slips 2%, attrition in gasoline cushioned by diesel gains.
 - Elsewhere, 13% rise in LV production & tighter legislation.

Demand - platinum

<u>'000 ozs</u>	<u>2005</u>	<u>2006</u>	<u>+(-)</u>
Autocatalyst	3,910	4,166	256
Jewellery fabrication	1,842	1,700	(142)
			Down 8%
Share of total demand	24%	22%	

(Excluding the use of industry stocks)

Jewellery fabrication – platinum



Jewellery in 2006 - platinum

- **Fabrication falls 8% to 1.7m ozs, 4th year of decline**
 - Escapes relatively lightly, given record prices & volatility.
- **Japan declined by 7% to 432,000 ozs**
 - Retail demand stabilised but jewellery imports increased.
 - Scrap supply higher, old jewellery from private sources.
 - Significant downward revision to our historical series.
- **North America & Europe, total 444,000 ozs (down 8%)**
 - Europe down 4%, resilient bridal & high end market.
 - N America down 13%, inventory utilisation & price point issues.
- **China down 8% to 789,000 ozs (not bad considering!)**
 - Auspicious year for weddings, 2 spring days in Year of the Dog!
 - Gemset fared quite well, although scrap flows increased.

Demand - platinum

<u>'000 ozs</u>	<u>2005</u>	<u>2006</u>	<u>+(-)</u>
Autocatalyst	3,910	4,166	256
Jewellery	1,842	1,700	(142)
<u>Other industrial</u>			
– Glass	475	450	(25)
– Electronics	375	434	59
– Other applications	977	965	(12)
Total demand	7,579	7,715	136

Up 2%

(Excluding the use of industry stocks)

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Supply & demand - platinum

'000 ozs

2005

2006

Headline supply

7,437

7,861

Demand

7,579

7,715

Gross surplus (deficit)

(142)

145

(Excluding above-ground stocks)

Supply & demand - platinum

'000 ozs

2005

2006

Gross surplus (deficit)

(142)

145

Stock releases

US DLA

13

0

Residual surplus (deficit)

(130)

145

A collection of Valcamb 1 oz platinum and palladium bars is shown, with a hammer resting on them. The bars are arranged in a grid pattern, and the hammer is positioned diagonally across the center. The bars are dark in color, and the hammer is a dark, polished metal. The background is a dark, textured surface.

Palladium

Highlights in 2006 - palladium

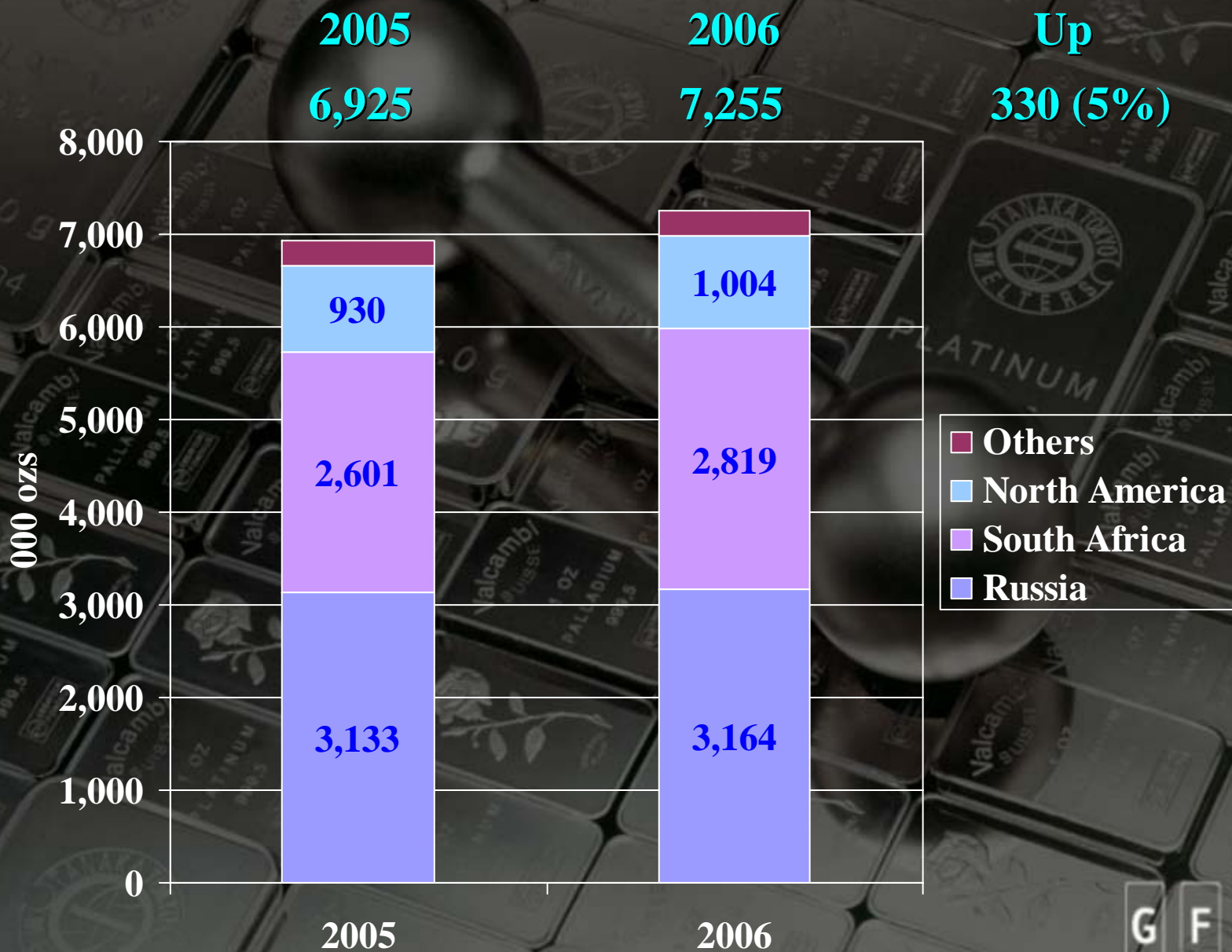
- **Headline supply rises 458,000 ozs to 8.02m ozs (6%)**
 - Mine production gains 330,000 ozs, up 5%.
 - Autocatalyst recycling up 20%, adds 128,000 ozs.
- **Fabrication demand up 124,000 ozs at 7.9m ozs (2%)**
 - First rise in autocatalyst demand since 2000
 - Overall gain for palladium despite 17% fall in jewellery
 - Palladium continues its rehabilitation
- **Moved into gross surplus for the 1st time since mid-90s.**
 - Surplus of 117,000 ozs in 2006 (deficit in 2005 of 217,000 ozs)
- **However, substantial sales from above-ground stocks.**
 - Residual surplus of 1.7m ozs (revised 1.6m ozs in 2005)

Mine production in 2006 – palladium

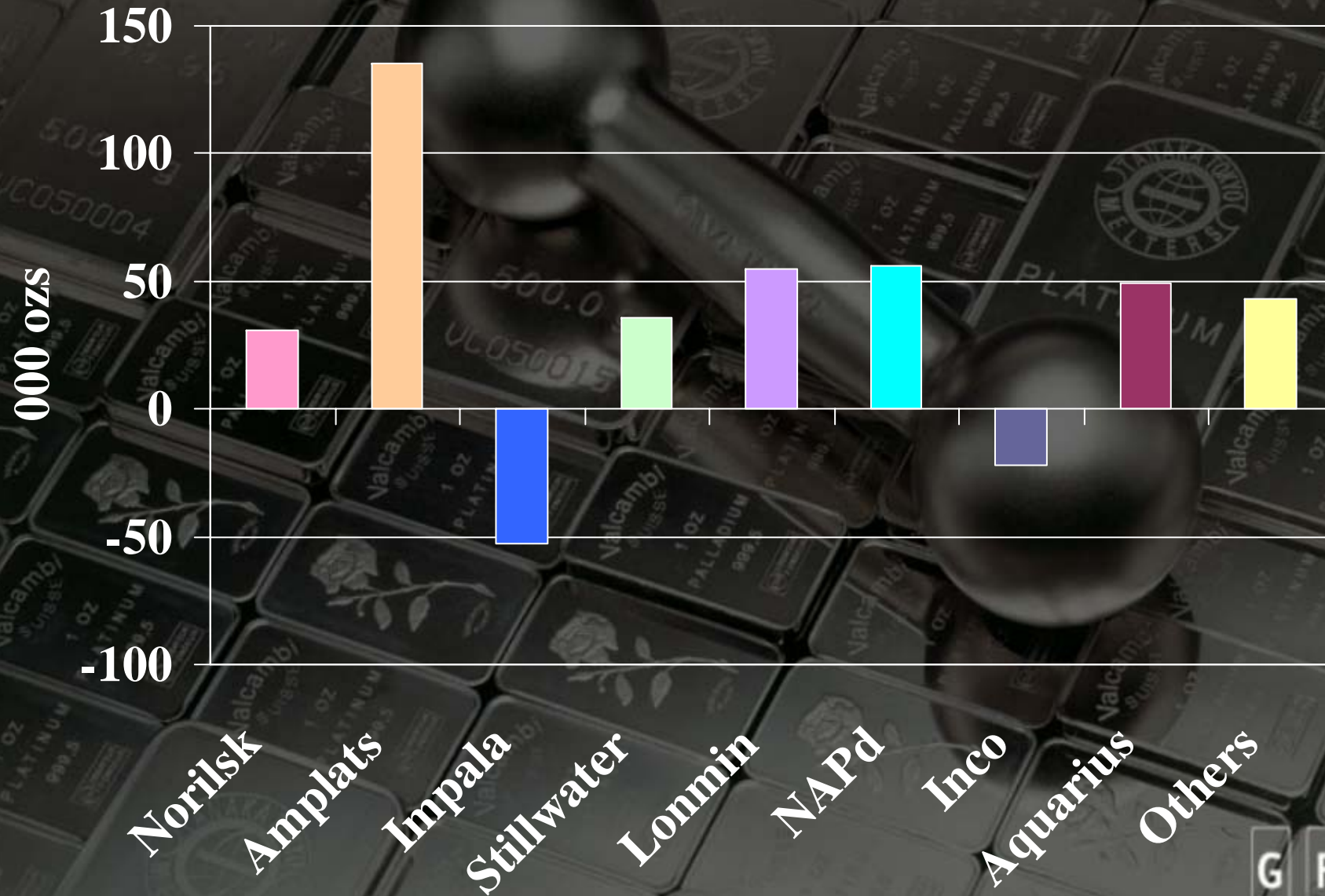
Up 5% to 7.26m ozs

- **Russia, output stable at 3.16m ozs, up 1%**
 - World #1 Norilsk accounted for 44% of global production.
- **South Africa rises 8% to 2.82m ozs, as platinum grows**
 - 60% of this gain attributable to Amplats.
 - Platinum expansion continues to drive palladium growth.
 - Ratio of palladium to platinum edging higher.
- **North America rebounds by 8% to 1m ounces**
 - Strong recovery at NAPd on start of underground mining.
 - Change in working practices lifted output at Stillwater.
- **Elsewhere, little changed at 269,000 ozs, up 3%**
 - Output from Zimbabwe flat at 135,000 ozs.

Mine production – palladium



Palladium mining - up 330,000 ozs in 2006

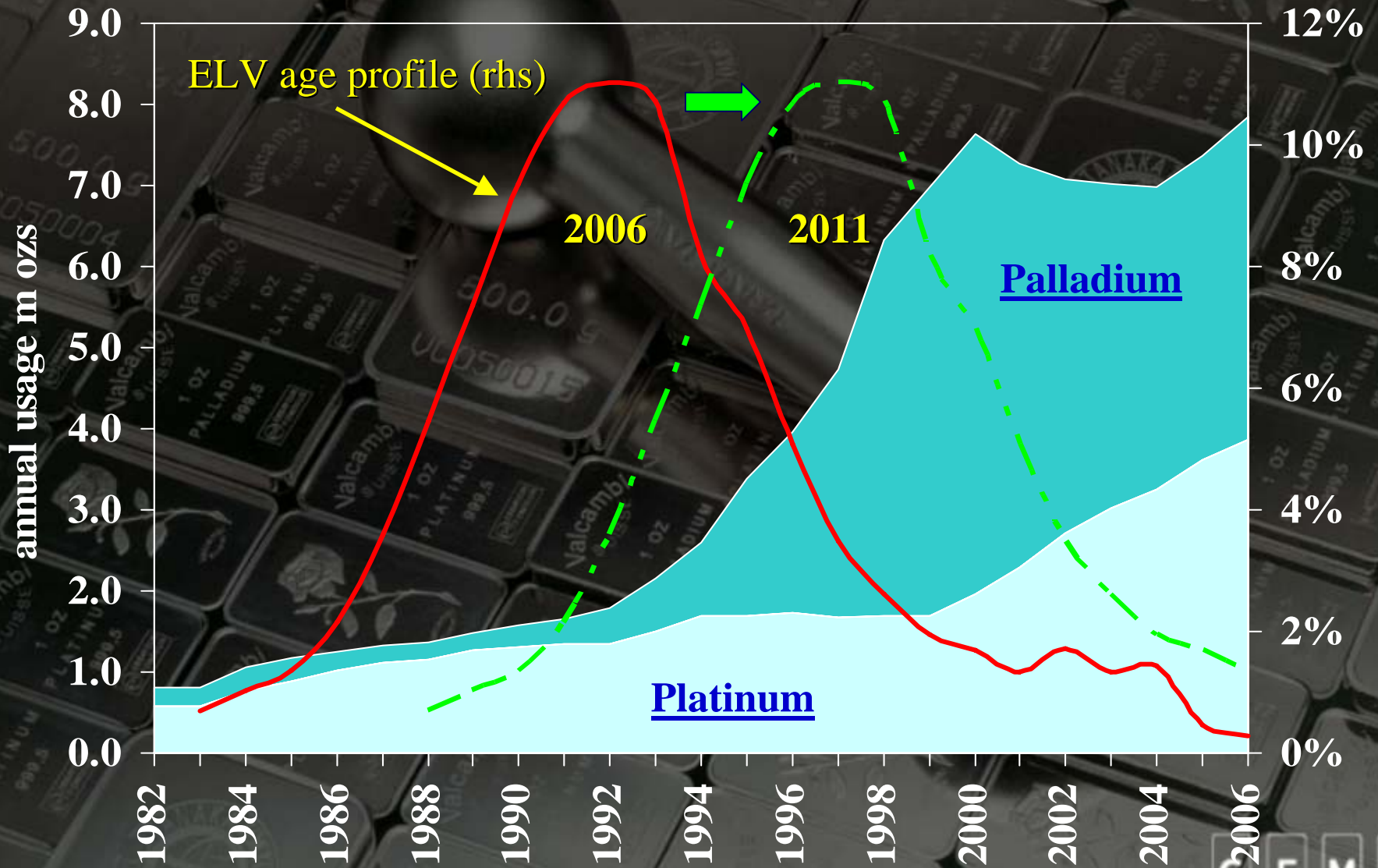


Autocatalyst recycling in 2006 - palladium

- **Another large gain in 2006, up 20% to 764,000 ozs**
 - Now represents 10% of headline supply, exceeds Impala.
- **Recycling in North America topped 500,000 ozs**
 - Recovery of 526,000 ozs in 2006, up 21%.
 - Tapping increasingly into peak palladium use of late 1990s
- **European recovery rose 22% to 142,000 ozs**
 - Also driven by high palladium usage from late 1990s.
 - >50% of ELVs catalyst fitted, maturity within 5 years.
- **Recovery in Japan & other regions 96,000 ozs, up 10%**
 - Japanese exports of ELVs for reuse, impacts palladium too.

Autocatalyst recycling

subtitle: approaching the iceberg



Headline supply - palladium

'000 ozs

2005

2006

+(-)

Mine production

6,925

7,255

330

Autocatalyst recycling

636

764

128

Headline supply

7,561

8,019

458

Up 6%

(Excluding supplies from above-ground stocks)

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Demand - palladium

'000 ozs

2005

2006

+(-)

Autocatalyst

4,135

4,456

321

Up 8%

Share of total demand

53%

56%

First increase in six years !

(Excluding the use of industry stocks)

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Autocatalyst in 2006 - palladium

■ North America improves by 5% to 1.56m ozs

- Consumption rose despite 6% fall in gasoline LV production.
- Substitution gains versus platinum and Tier 2 benefits.

■ Europe rose by 3% to 1.22m ozs

- After multi-year decline, small rise in gasoline LV production
- Euro 4 compliance up 21% in gasoline (diesel up 45%).
- Further substitution gains in gasoline, process started in diesel.

■ Japan, palladium demand up 16% at 871,000 ozs

- Gasoline LV production up 4% on rising exports.
- Substitution process gathering pace after slower start.

■ Other regions gain 14% to 811,000 ozs

- LV output 29.1m units, up 13% (80% gasoline).
- Included strong gains in China (29%) & Latin America (15%).
- Tighter legislation e.g. Euro 3 compliance in China 57%.

Demand - palladium

<u>'000 ozs</u>	<u>2005</u>	<u>2006</u>	<u>+(-)</u>
Autocatalyst	4,135	4,456	321
Jewellery fabrication	1,178	981	(197)
			Down 17%
Share of demand	15%	12%	

(Excluding the use of industry stocks)

Jewellery in 2006 - palladium

- **Fabrication demand fell by 17% to a net 981,000 ozs**
 - 2006 average price up 60%, volatility highest ever at 31%
- **China stalled then fell, down 27% to 657,000 ozs**
 - Spectacular 2005 included sizeable inventory build.
 - Higher use of scrap (incl. replacement of plain Pd950 by Pd990).
 - VAT & price transparency issues (palladium not traded on SGE).
- **Elsewhere, fabrication up 18% at 324,000 ozs**
 - North America 76,000 ozs, up 43% (due to palladium jewellery).
 - Europe unchanged, palladium jewellery offset lower white gold.
 - Japan down 4% to 78,000 ozs (lower use in platinum alloys).

Demand - palladium

<u>'000 ozs</u>	<u>2005</u>	<u>2006</u>	<u>+(-)</u>
Autocatalyst	4,135	4,456	321
Jewellery	1,178	981	(197)
<u>Other industrial</u>			
– electronics	1,121	1,219	98
– other sectors	1,344	1,245	(99)
Total demand	7,778	7,902	124

Up 2%

(Excluding the use of industry stocks)

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Supply & demand - palladium

<u>'000 ozs</u>	<u>2005</u>	<u>2006</u>
Headline supply	7,561	8,019
Demand	7,778	7,902
Gross surplus (deficit)	(217)	117

(Excluding above-ground stocks)

Supply & demand - palladium

<u>000 ozs</u>	<u>2005</u>	<u>2006</u>
Gross surplus (deficit) **	(217)	117
Russian state sales	1,400	1,550
Stillwater inventory	439	63
US DLA sales	19	0
Total stock releases	1,858	1,613
Residual surplus (deficit)	1,641	1,731

** Global stocks increased by a net 117,000 ounces in 2006
Otherwise, stocks changed hands e.g. Russia to investors

The background of the slide is a dark, monochromatic photograph of numerous Valcamb platinum and palladium bars. The bars are arranged in a grid-like pattern, with some showing a rose emblem and others showing the Valcamb logo. A large, dark hammer is positioned diagonally across the center of the image, resting on the bars. The text "Outlook for 2007" is overlaid in a light purple, serif font, underlined.

Outlook for 2007

Platinum in 2007

Expected to remain in surplus

- **Headline supply expected to rise ~380,000 ozs (5%)**
 - South African mine production will again be the feature.
- **Demand growth limited by substitution & high prices**
 - Autocatalyst: further gains in the diesel sector
 - Increasing fitment of particulate filters...but
 - Palladium penetration in diesels becoming material.
 - US heavy duty, 1st full year but production to fall sharply.
 - Further contraction of platinum's use in gasoline systems.
 - Jewellery: further losses seem inevitable.
 - Impact across the board but China to suffer the brunt.
 - Scrap flows and physical disinvestment to increase.
- **Supply increase to outweigh growth in demand**

The case for platinum

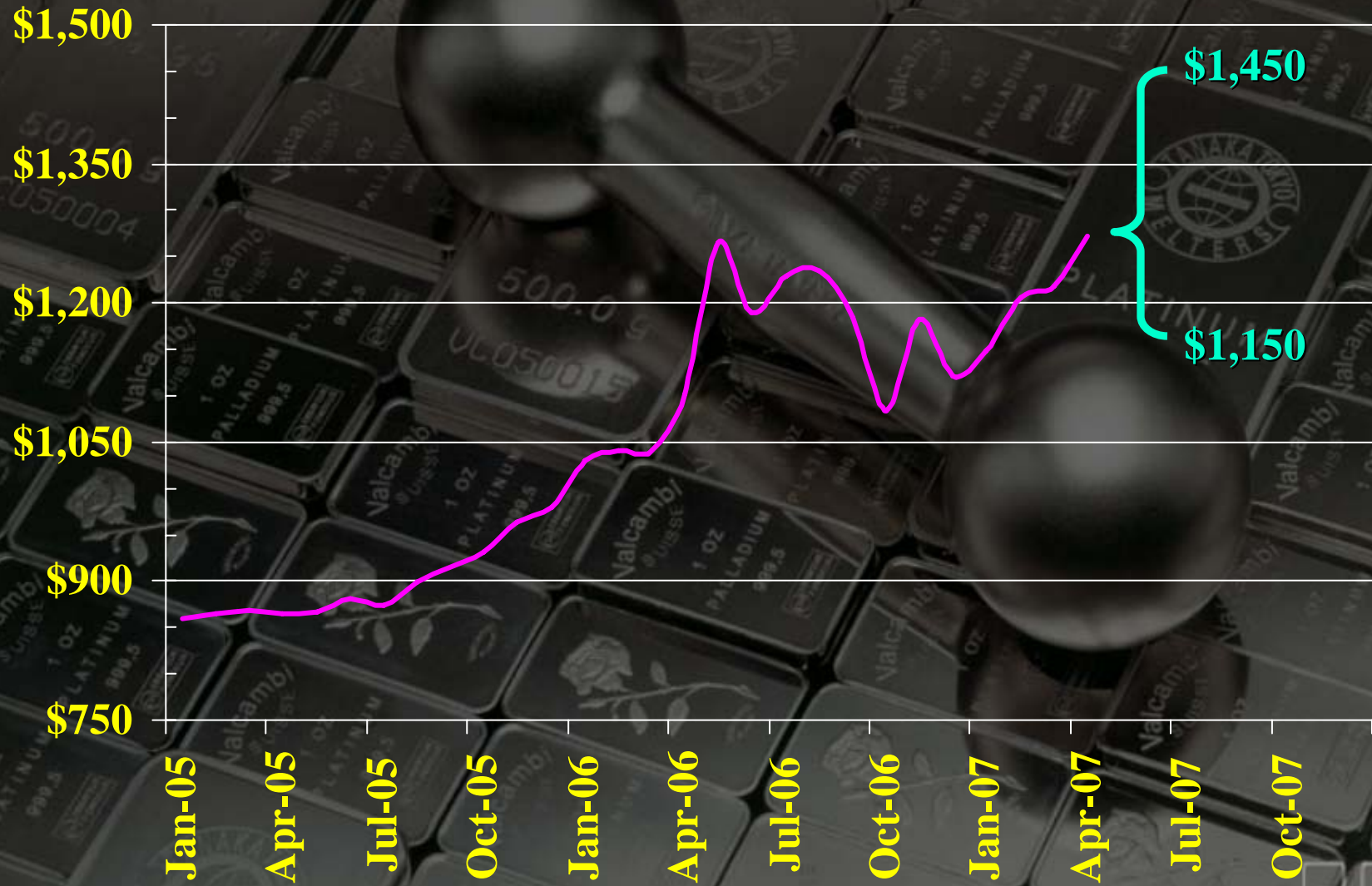
■ Fundamentals remain positive despite return to surplus

- 98% of supply in 2006 was absorbed by fabrication.
- “Essential” applications comprised 78% of demand.
- With decline of jewellery, demand is now less flexible.
- Supply-side sensitivities are correspondingly greater.
 - Supply heavily concentrated, geographic & corporate.
- Deficits have depleted stocks by almost ~5m ozs since 1999.
- Perception that remaining above-ground stocks are limited.
 - We agree, but stocks are somewhat larger than many believe.

■ These continue to underpin positive investor sentiment

- Plus HD diesel potential & prospects in the US for LD diesel.

Price outlook (to end 2007) - platinum



Palladium in 2007

Smaller gross surplus but heavy stock sales likely

- **Headline supply expected to rise ~300,000 ozs (4%)**
 - South African mine production + autocatalyst recycling
- **Demand gains likely aided by rebound in jewellery**
 - Autocatalyst: demand has finally turned the corner
 - Gasoline: substitution gains, thrifting less pronounced.
 - Diesel: palladium penetration becoming material.
 - Jewellery: palladium price higher but advantage remains
 - China: 2006 effects of inventory & Pd950 recycling removed.
 - Price transparency & VAT are remaining issues.
- **Gross surplus may reduce but heavy stock sales likely**

The case for palladium

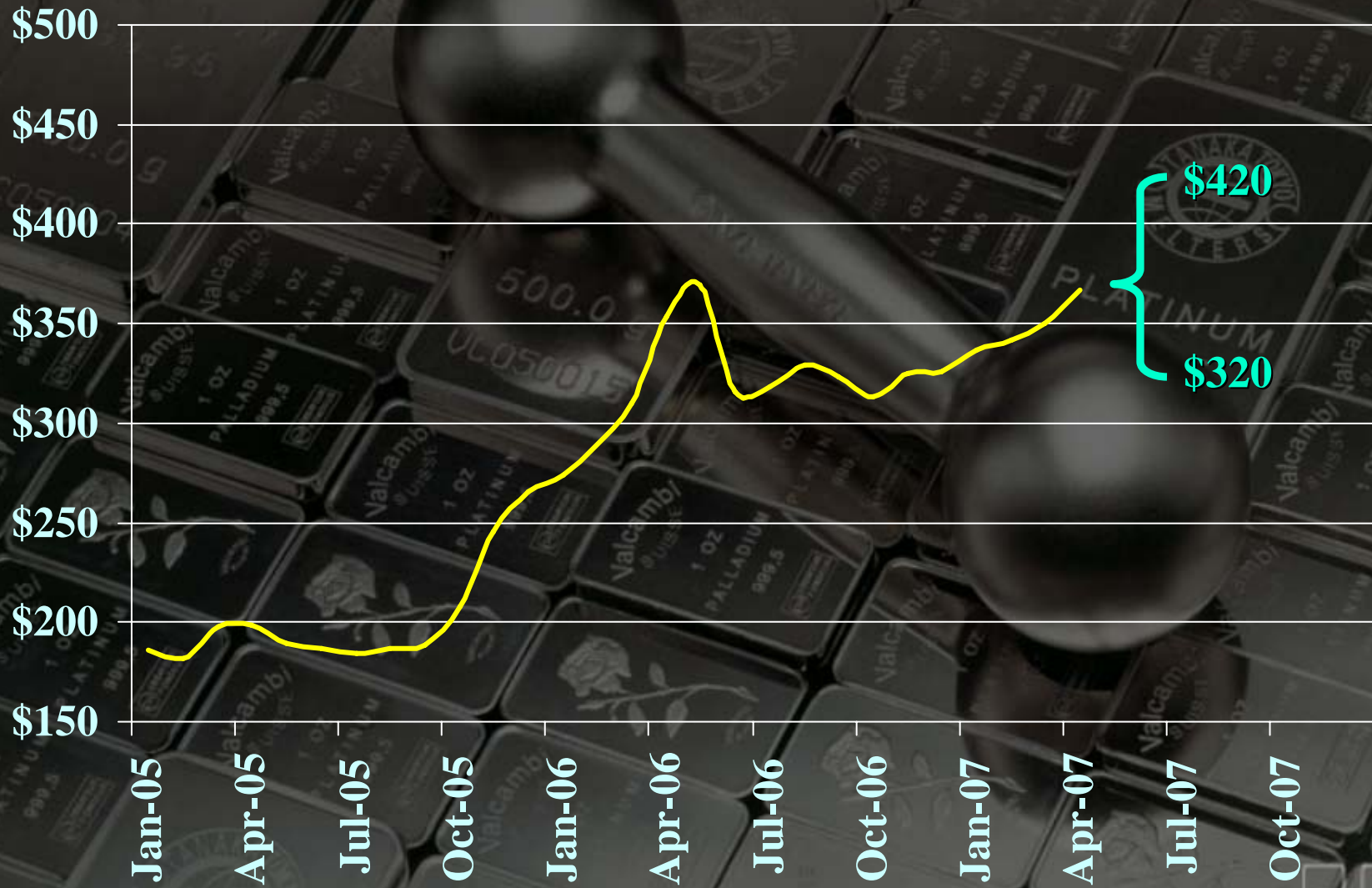
■ **Overshadowed by substantial above-ground stocks**

- Barring stocks, fundamentals are broadly similar to platinum's.
- 98% of headline supply in 2006 was absorbed by fabrication.
- “Essential” applications form 78% of demand (same as Pt).
- Demand inflexibility & supply-side risks are just as real.
 - But these issues masked by large above-ground stocks.
- Perception: historic surpluses mean rising above-ground stocks.
 - Reality: global stocks have been cut by ~11m ozs since 1999.
- Stocks large but ownership changing (from Russia to investors).

■ **Investors may already know this! Also tuned-in to:**

- Palladium's substitution opportunities (value play versus Pt).
- Long term prospects for palladium jewellery.

Price outlook (to end 2007) - palladium



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