

**University Club of Chicago  
Investment Society 2014**

**Chicago, USA**

**June 25, 2014**

**Presented by John Kaiser**

**A Roadmap to Resource  
Sector Speculation**

**[www.KaiserResearch.com](http://www.KaiserResearch.com)**

# **Kaiser Research Online Membership**

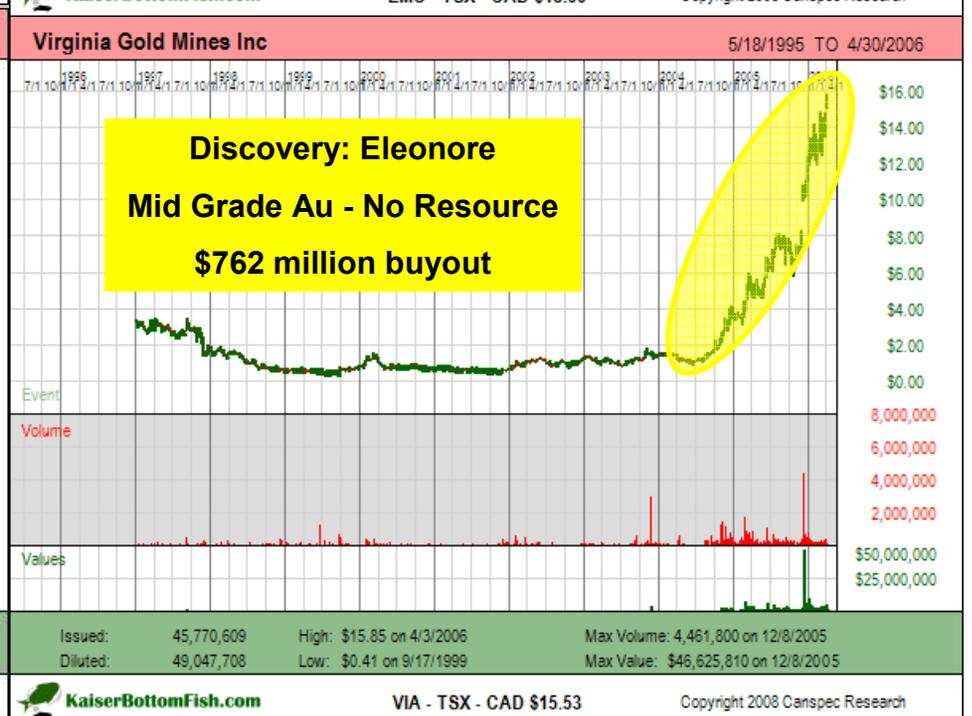
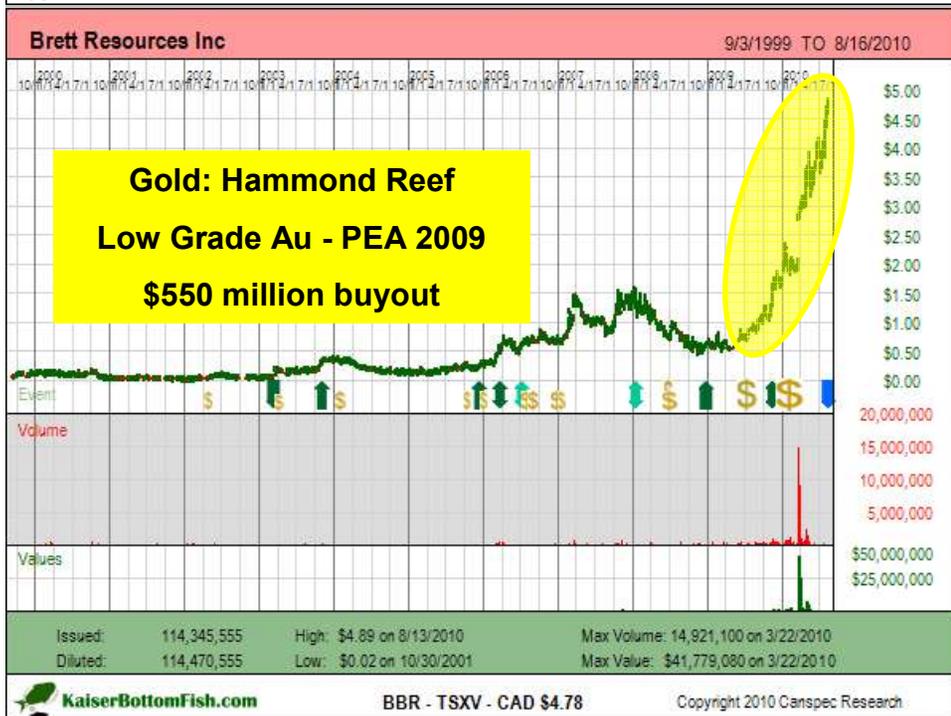
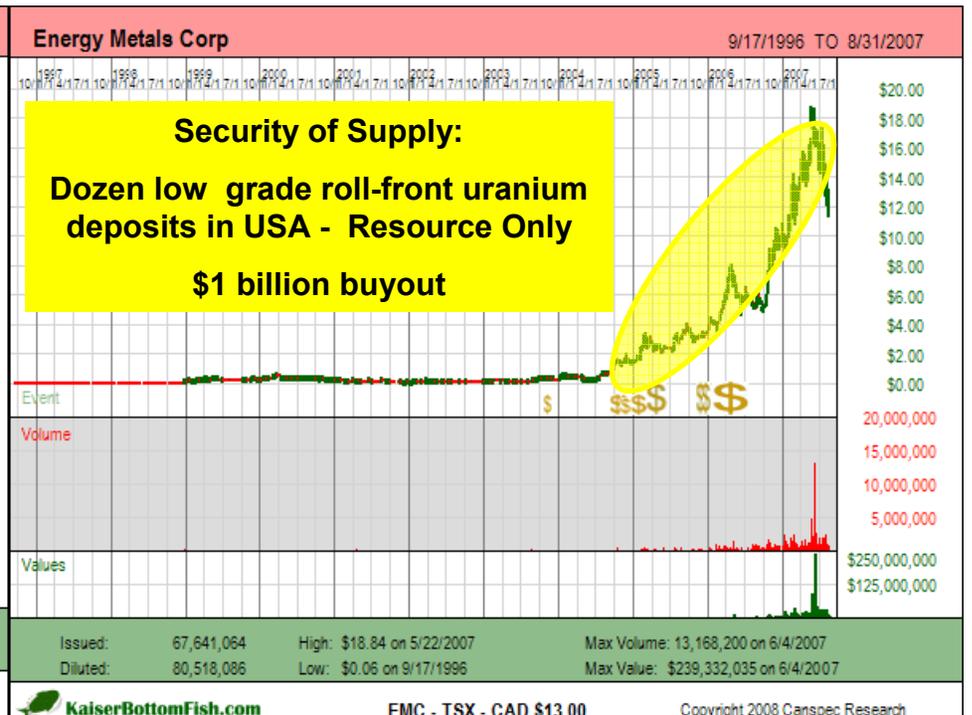
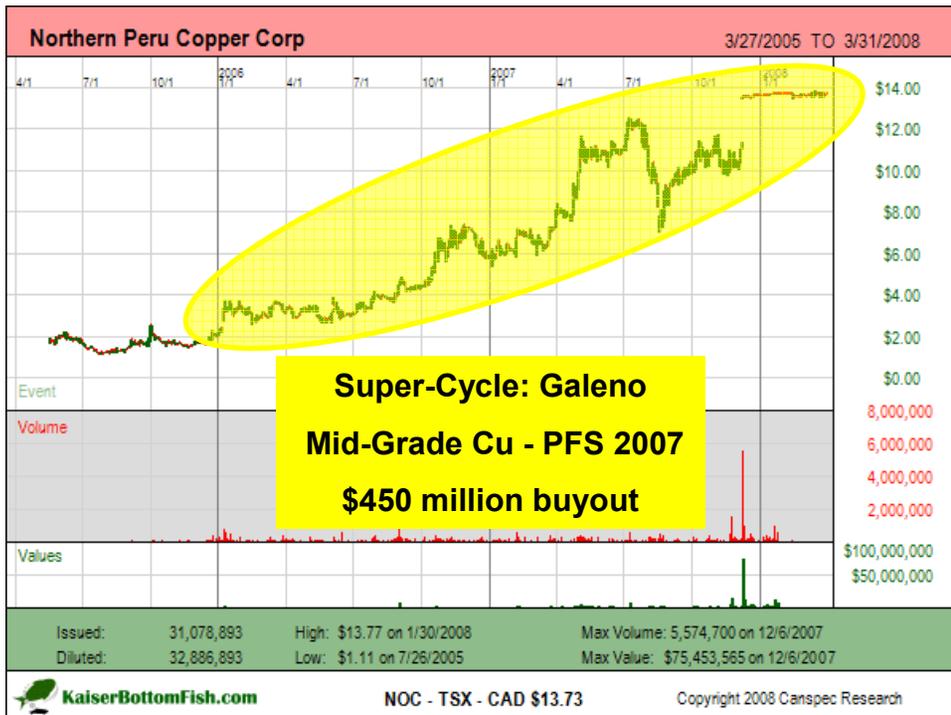
- \$100 every 30 days auto renewal
- \$250 per 90 days auto renewal
- \$800 per year no auto renewal

**[www.KaiserResearch.com](http://www.KaiserResearch.com)**

**Online information and commentary portal covering all Canadian listed companies involved in the resource sector with emphasis on exploration and development juniors.**

# **Four Core Resource Sector Narratives**

- **Macro-Economic Trends**
- **Security of Supply**
- **Gold**
- **Discoveries**



# **Rational Speculation Model**

**A formal system for valuing a spec stock**

## **Three Steps**

- **Outcome Analysis – what is the dream target and the key assumptions behind it?**
- **Probability Analysis – where in the exploration cycle is the project and what is it “worth” now?**
- **Risk-Reward Analysis – is it a good, fair, or poor bet?**

## Mine Supply Speculation focuses on Future Cash Flow from a Depleting Asset: A Mine is an Annuity

**Discounted Cash Flow Model:** What is an orebody worth?

$$\sum_{n=1}^m \frac{\text{Annual Cash Flow}}{(1 + \text{Discount Rate})^n}$$

Less Capital Cost

n = year of cash

m = mine life (years of mining)

**Annual Gross Revenue**

less      Operating Costs

=            **Operating Profit**

less      Taxes

=            **After Tax Cash Flow**

NPV

**NPV(rate,value1,value2,...)**

Returns the net present value of an investment based on a discount rate and a series of future payments (negative values) and income (positive values).

# Key Cash Flow Model Inputs

Revenue	Cost	Risk
<ul style="list-style-type: none"> <li>• Tonnage</li> <li>• Grade</li> <li>• Recovery</li> <li>• Payable</li> <li>• Mining Rate</li> <li>• Metal Price</li> </ul>	<ul style="list-style-type: none"> <li>• Mining</li> <li>• Processing</li> <li>• Royalties</li> <li>• Concentrate Shipping</li> <li>• G &amp; A</li> <li>• Initial Capital</li> <li>• Sustaining Cost</li> <li>• Tax Rate</li> <li>• Depreciation</li> </ul>	<ul style="list-style-type: none"> <li>• Environmental Permitting</li> <li>• Social License</li> <li>• Title</li> <li>• Tax</li> <li>• Geopolitical</li> <li>• Technical</li> <li>• Infrastructure</li> <li>• Management</li> </ul>
<p><b>NSR / tonne</b></p>	<p><b>Cash Cost / metal unit</b>  <b>All-In Cost / metal unit</b>  <b>\$ Cost / tonne</b></p>	<p><b>Discount Rate %</b></p>

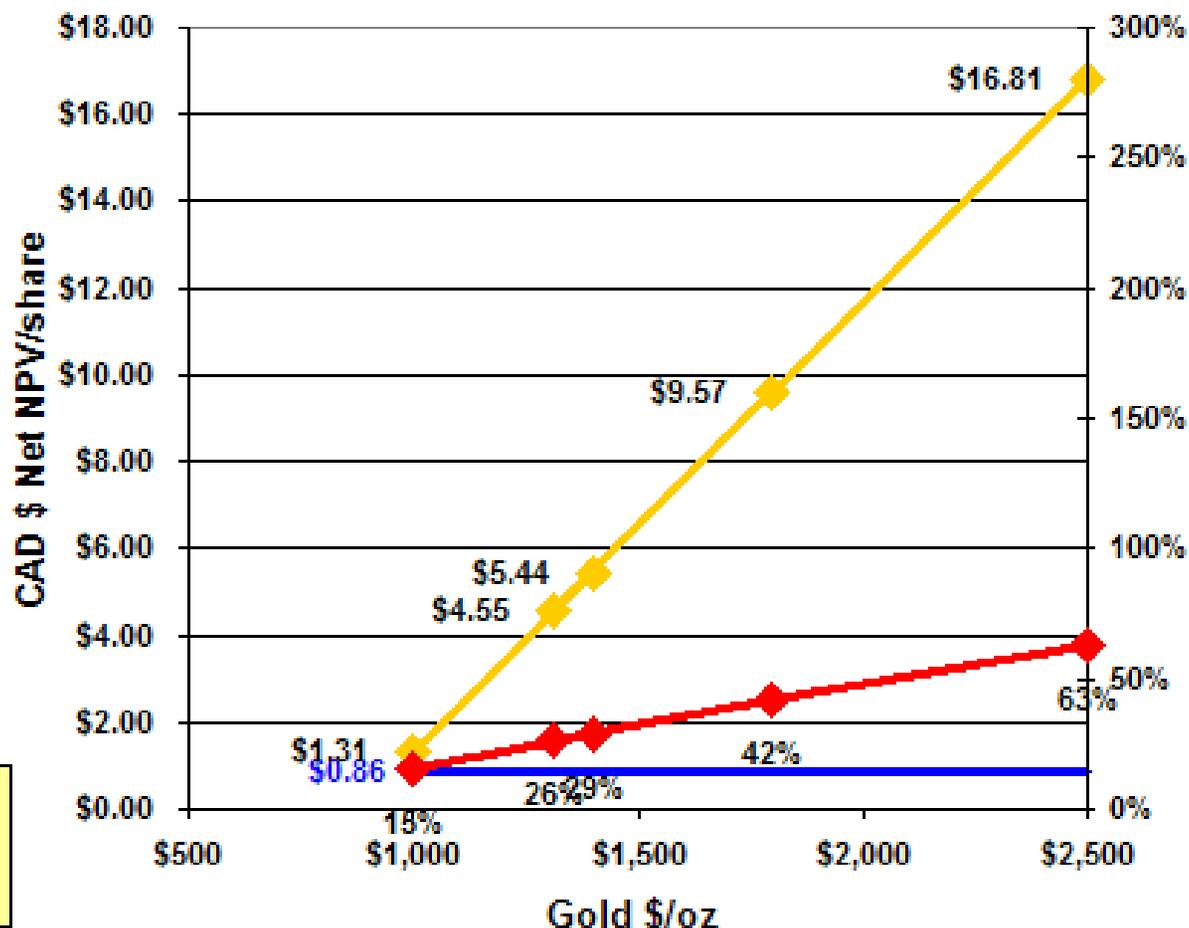
## Midas Gold - Golden Meadows: After-Tax Sensitivity

### 100% After-Tax Net Present Value

Pessimistic:	\$1,000/oz	\$213,900,555
Base Case:	\$1,400/oz	\$889,936,863
Spot:	\$1,314/oz	\$743,744,011
Optimistic:	\$1,800/oz	\$1,565,973,171
Fantasy:	\$2,500/oz	\$2,749,036,709

- Current Stock Price
- Net NPV/SH vs \$/oz Au
- Internal Rate of Return

Net Present Value based on life of mine averages, by-products use spot prices.



PEA Sep 21, 2012: 20,000 tpd OP, 13.2 yr; CapEx: \$879 M, SusCapEx: \$303 M, OpEx: \$25.86/t; Tax: 30% DDBM  
Fully Diluted: 163.6 M, Stock Price: \$0.86; Located: United States - 100% WI, Discount Rate: 10%

LOM Tonnage: 101,000,000 t @ 1.72 g/t Au, 0.45% Sb  
LOM Output: 4,922,000 oz Au, 90,600,000 kg Sb  
By-Product Spot Prices: Sb \$4.41/kg

# Mine Exploration & Development Cycle

Stage	Exploration Cycle Stage	Objective	Time Required
1	Grassroots	Conceptual, land acquisition	1 year
2	Target Generation & Drilling	Filtering for drill targets	1-2 years
3	Discovery Delineation	Defining the limits of a discovery & producing initial 43-101 resource estimate	1-2 years
4	Infill Drilling	Upgrading resource estimate from inferred category	1-2 years
5	Preliminary Economic Assessment (PEA) & Metallurgy	Evaluating recoveries and optimal processing method, initial economic analysis with 30%-35% error margin	1 year
6	Prefeasibility (PFS)	Produce a mineable reserve, detailed engineering for mining plan and associated costs, 15-25% error margin	1-2 years
7	Permitting, Marketing & Feasibility (FS)	Securing approval, negotiate offtake, production decision, 8-12% error margin	1-3 years
8	Construction	Building the mine	1-3 years
9	Production	Mining cash flow	10-40 years

# **Definition of Speculative Value**

**(borrowed from gambling logic)**

**The degree that the return achieved through actualization of an anticipated but uncertain outcome matches or deviates from the intrinsic odds of achieving that outcome.**

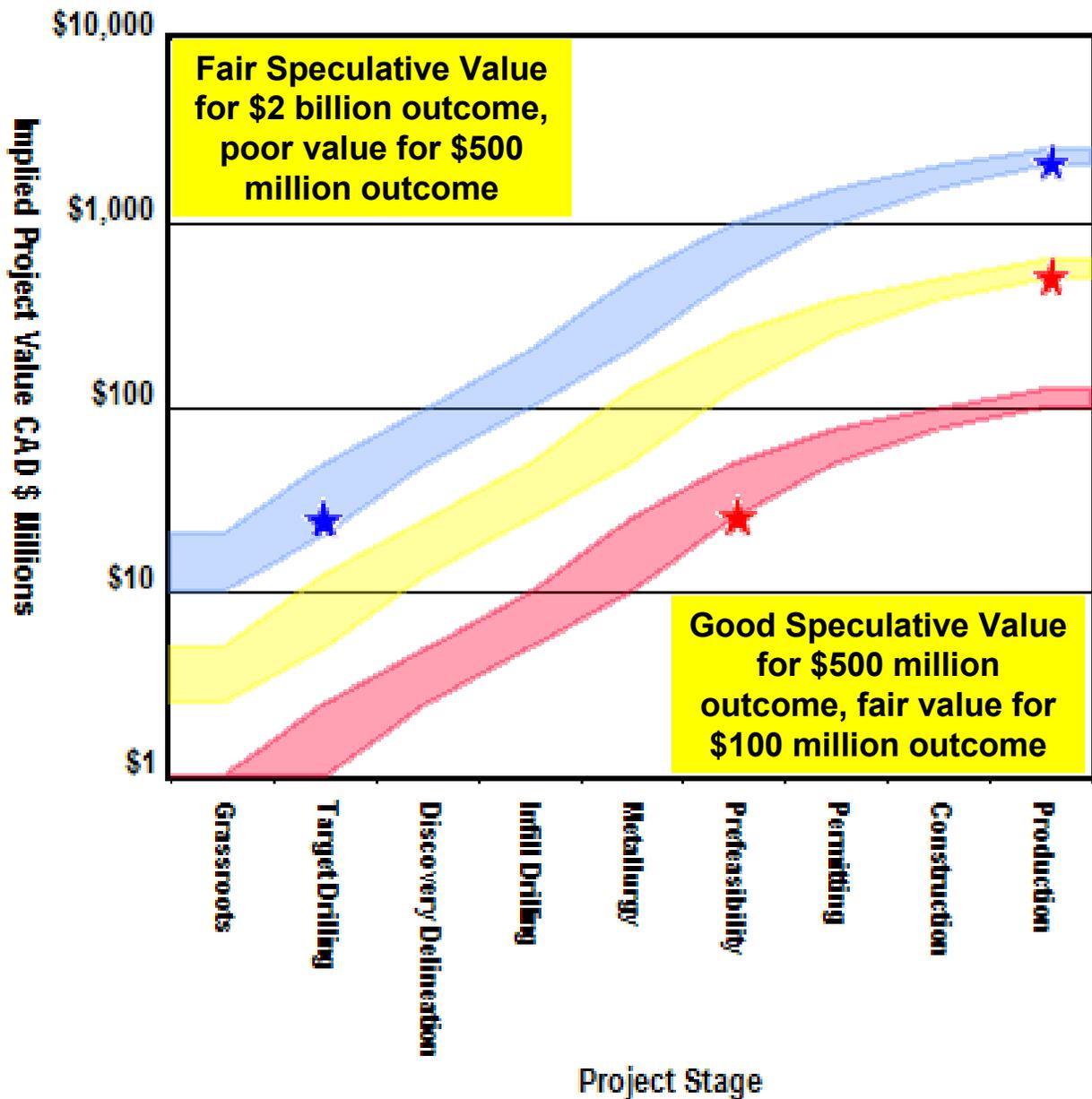
- **Fair Bet – 10:1 odds, pays 10:1**
- **Poor Bet – 10:1 odds, pays 5:1**
- **Good Bet – 5:1 odds, pays 10:1**

## Rational Speculation Model – Uncertainty Ladder for Metal Projects

Exploration Cycle Stages		Success Probability		Outcome Target Fair Value Channels (\$ Millions)		
		Chance	Leverage	\$100	\$500	\$2,000
1	Grassroots	0.5-1%	100-200	<\$1	\$2.5-5	\$10-20
2	Target Drilling	1-2.5%	40-100	\$1-2.5	\$5-12.5	\$20-50
3	Discovery Delineation	2.5-5%	20-40	\$2.5-5	\$12.5-25	\$50-100
4	Infill Drilling	5-10%	10-20	\$5-10	\$25-50	\$100-200
5	Metallurgy	10-25%	4-10	\$10-25	\$50-125	\$200-500
6	Prefeasibility	25-50%	2-4	\$25-50	\$125-250	\$500-1,000
7	Permitting, Marketing & Feasibility	50-75%	1.3-2	\$50-75	\$250-375	\$1,000-1,500
8	Construction	75-100%	1	\$75-100	\$375-500	\$1,500-2,000
9	Production	100%		\$100	\$500	\$2,000

Note: the fair value range in each exploration stage row for each outcome target column is calculated by multiplying the target value by the success chance. ie stage 4 target \$500:  $0.05 \times \$500 = \$25$ ,  $0.1 \times \$500 = \$50$

# Mineral Exploration Cycle



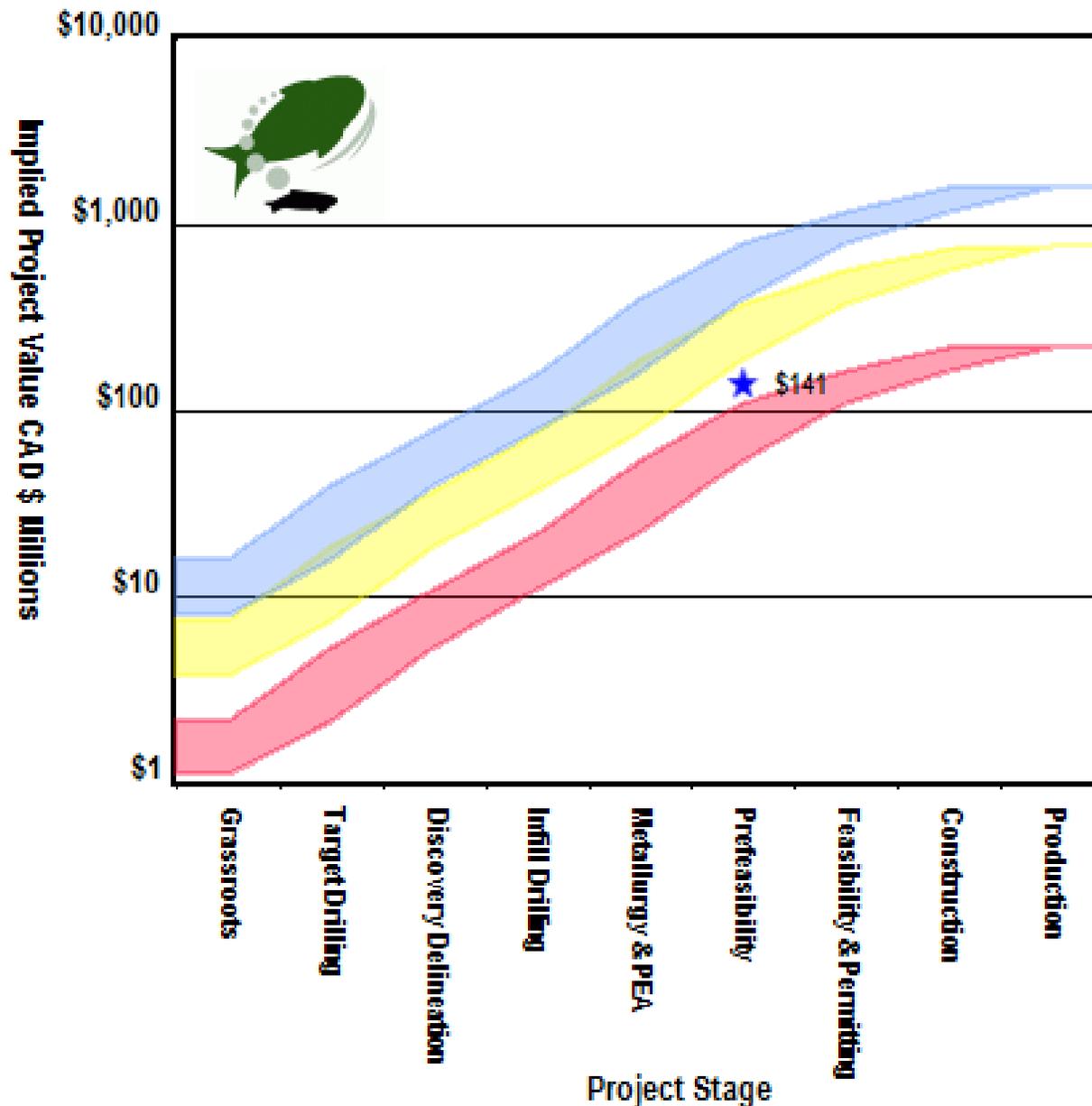
**Dream Target Channels**

- \$100 million Dream Target
- \$500 million Dream Target
- \$2 billion Dream Target

The speculative value depends on the stage of the project, the value implied by the market, and the visualized outcome.

# Midas Gold - Golden Meadows: Valuations

Monday, June 23, 2014



## After-Tax Net Present Value

- Pessimistic: \$214 million
- Spot: \$744 million
- Optimistic: \$1,566 million

PEA: Sep 21, 2012

★ Midas Gold - Golden Meadows

Primary Metal: Gold

Zero NPV: \$967/oz

Pessimistic: \$1,000/oz

Spot: \$1,314/oz

Optimistic: \$1,800/oz

All-In Cost: \$702/oz Au

LOM Output: 4,922,000 oz

Annual Output: 348,000 oz

OP: 20,000 tpd 14.2 yrs

CapEx: \$879,400,000

OpEx: \$25.86/t

Tonnage: 101,000,000 t

Grade: 1.72 g/t Gold

Location: United States

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# Build your deposit, mine it, and share it!

**Builder:** JKaiser    **BuildName:** Colorado North Rok    **Build Status:** No public BP yet    **BuildPlanName:** North Rok Test    **Close Form**

Main    Deposit    Mining    Cost    Revenue    Risk

BPDepositSourceID:

BPTonnageID:

BPTonnage:

**Validate Deposit Choices**

**Tonnage**

- None
- Very Unsure
- Somewhat Unsure
- Somewhat Sure
- Very Sure

BPTonnageNote is public:

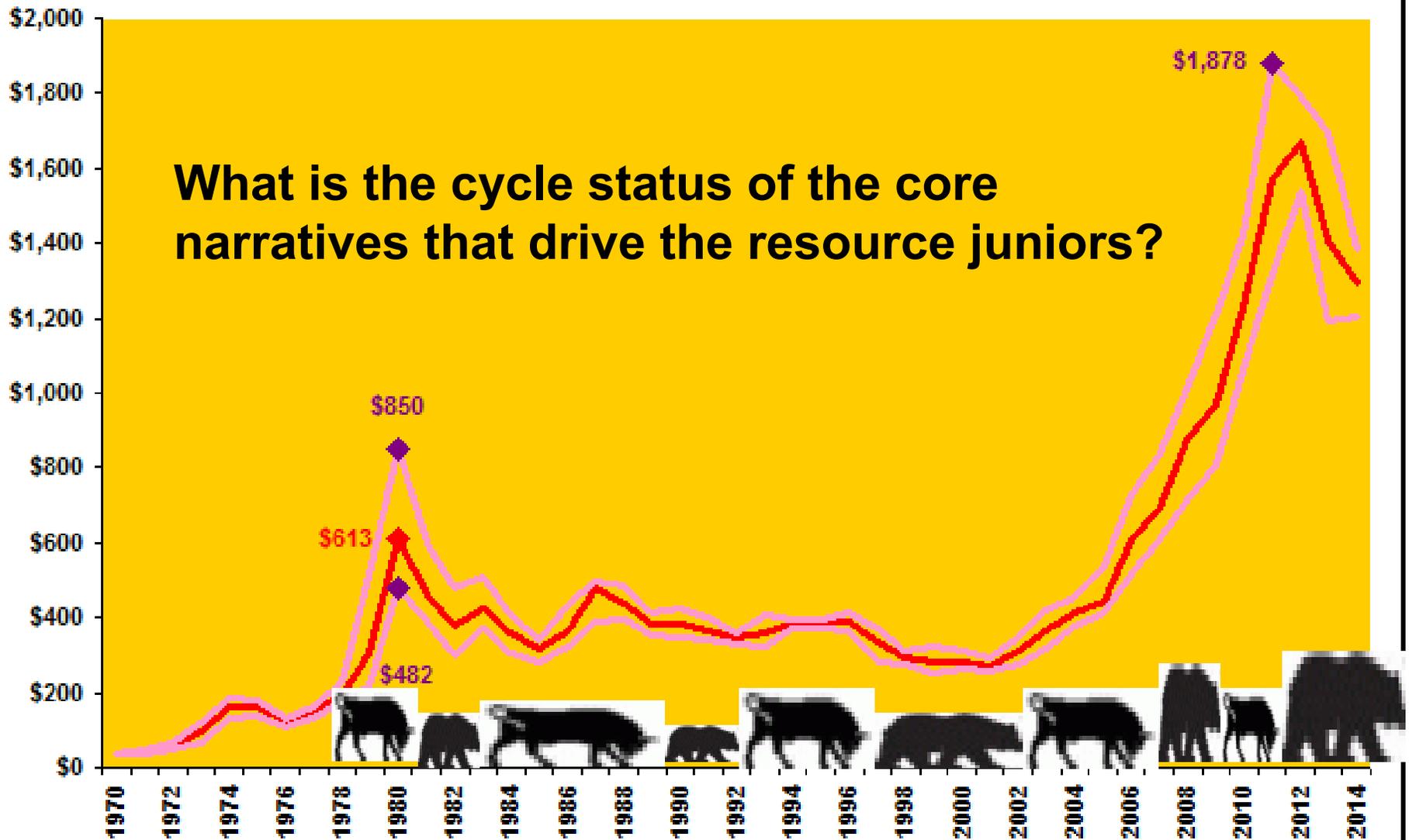
	Metal 1	Metal 2	Metal 3	Metal 4
	<input type="text" value="Copper (%)"/>	<input type="text" value="Gold (g/t)"/>	<input type="text" value="Molybdenum (%)"/>	<input type="text" value="Blank ()"/>
<b>Grade:</b>	<input type="text" value="0.60%"/>	<input type="text" value="0.60"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>
	<ul style="list-style-type: none"><li><input type="radio"/> None</li><li><input checked="" type="radio"/> Very Unsure</li><li><input type="radio"/> Somewhat Unsure</li><li><input type="radio"/> Somewhat Sure</li><li><input type="radio"/> Very Sure</li></ul>	<ul style="list-style-type: none"><li><input type="radio"/> None</li><li><input type="radio"/> Very Unsure</li><li><input checked="" type="radio"/> Somewhat Unsure</li><li><input type="radio"/> Somewhat Sure</li><li><input type="radio"/> Very Sure</li></ul>	<ul style="list-style-type: none"><li><input type="radio"/> None</li><li><input type="radio"/> Very Unsure</li><li><input type="radio"/> Somewhat Unsure</li><li><input checked="" type="radio"/> Somewhat Sure</li><li><input type="radio"/> Very Sure</li></ul>	<ul style="list-style-type: none"><li><input type="radio"/> None</li><li><input checked="" type="radio"/> Very Unsure</li><li><input type="radio"/> Somewhat Unsure</li><li><input type="radio"/> Somewhat Sure</li><li><input type="radio"/> Very Sure</li></ul>

(Screenshot of prototype under development by Kaiser Research Online)

# Annual Average Gold Price with High-Low Range

— Average Gold Price

— Yearly Hi-Lo Range



June 2014

Kaiser Research Online

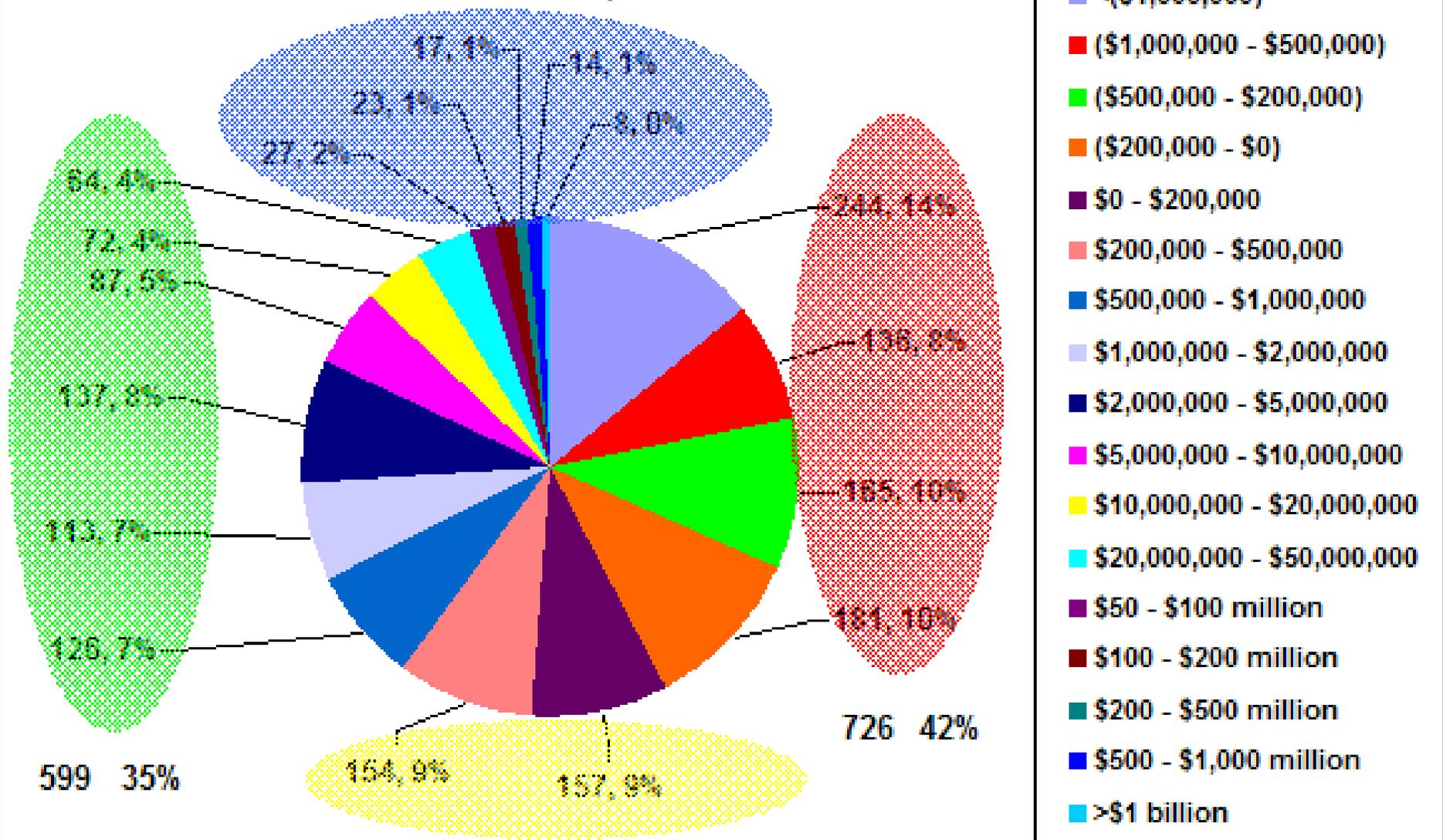
\$48,173,552,530

# Working Capital Range Breakdown

1,725

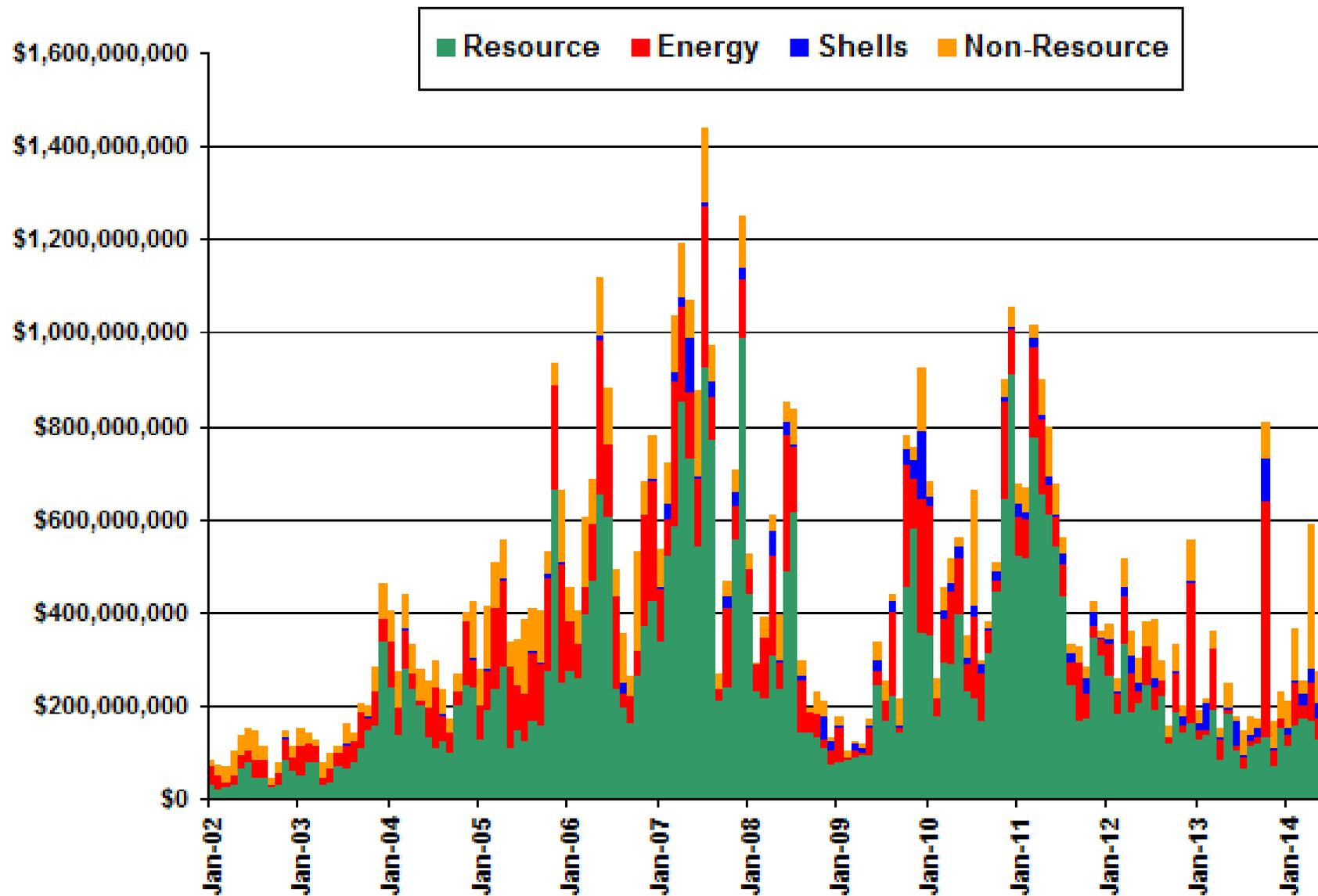
Active KRO Companies

81 5% (# cos, % of Total Cos)



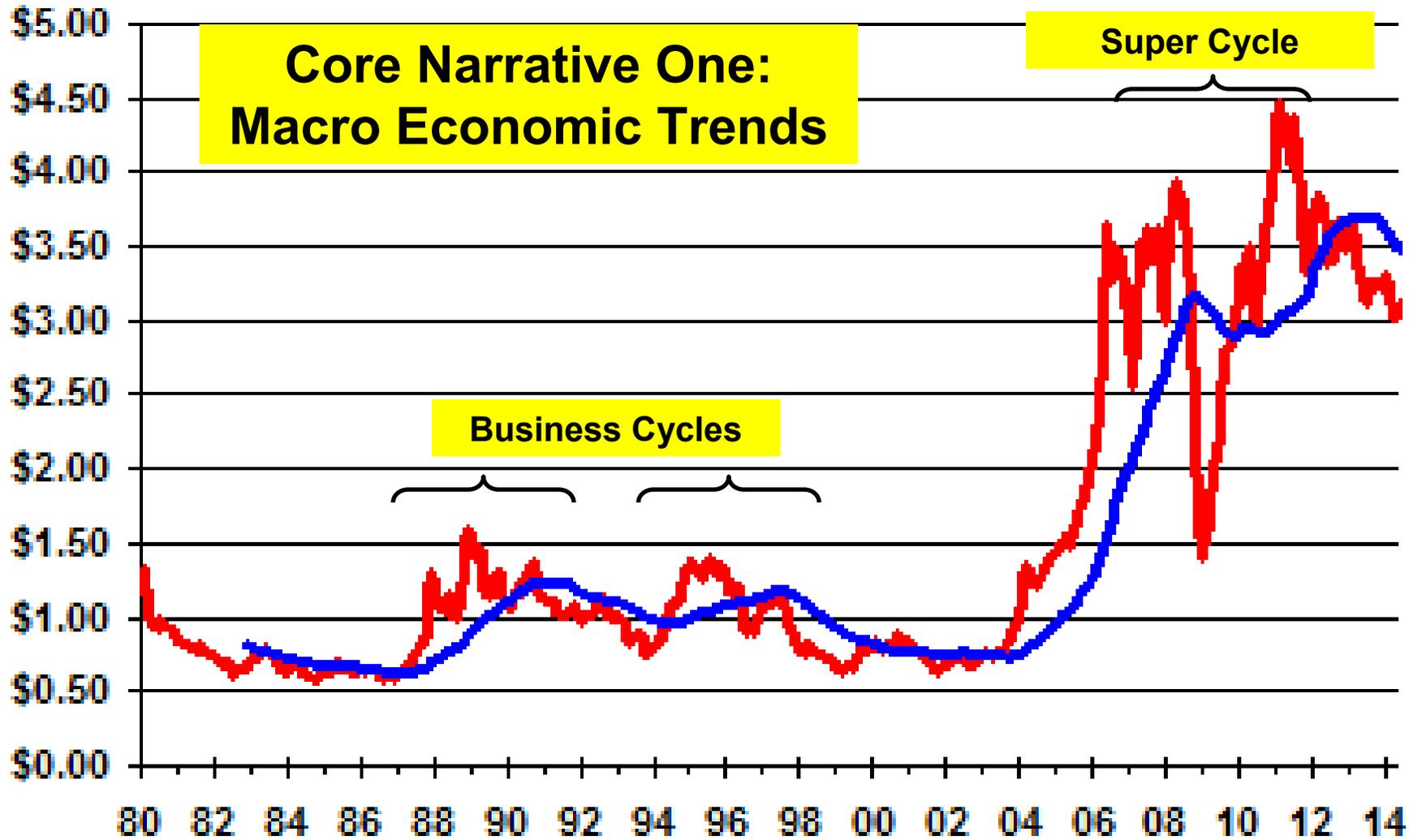
- <(\$1,000,000)
- (\$1,000,000 - \$500,000)
- (\$500,000 - \$200,000)
- (\$200,000 - \$0)
- \$0 - \$200,000
- \$200,000 - \$500,000
- \$500,000 - \$1,000,000
- \$1,000,000 - \$2,000,000
- \$2,000,000 - \$5,000,000
- \$5,000,000 - \$10,000,000
- \$10,000,000 - \$20,000,000
- \$20,000,000 - \$50,000,000
- \$50 - \$100 million
- \$100 - \$200 million
- \$200 - \$500 million
- \$500 - \$1,000 million
- >\$1 billion

## Monthly Value of TSXV Private Placement Financings



# Copper US \$/lb LME

\$3.12 — Monthly Avg  
\$3.48 — 3 Year Avg



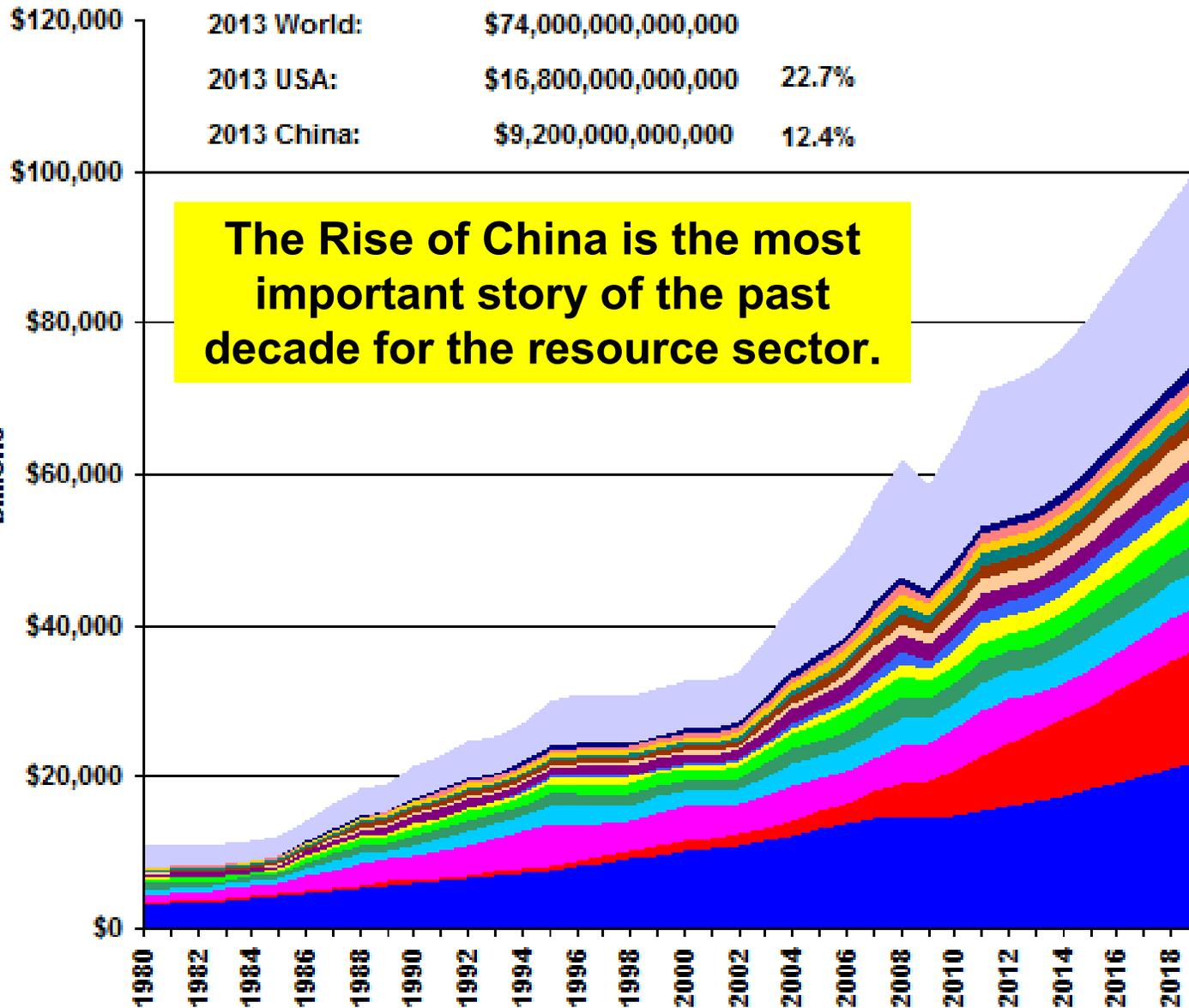
# Global GDP Current Dollars

IMF forecasts 2014-2018 (April 2014 WEO)

2013 World:	\$74,000,000,000,000	
2013 USA:	\$16,800,000,000,000	22.7%
2013 China:	\$9,200,000,000,000	12.4%

**The Rise of China is the most important story of the past decade for the resource sector.**

billions



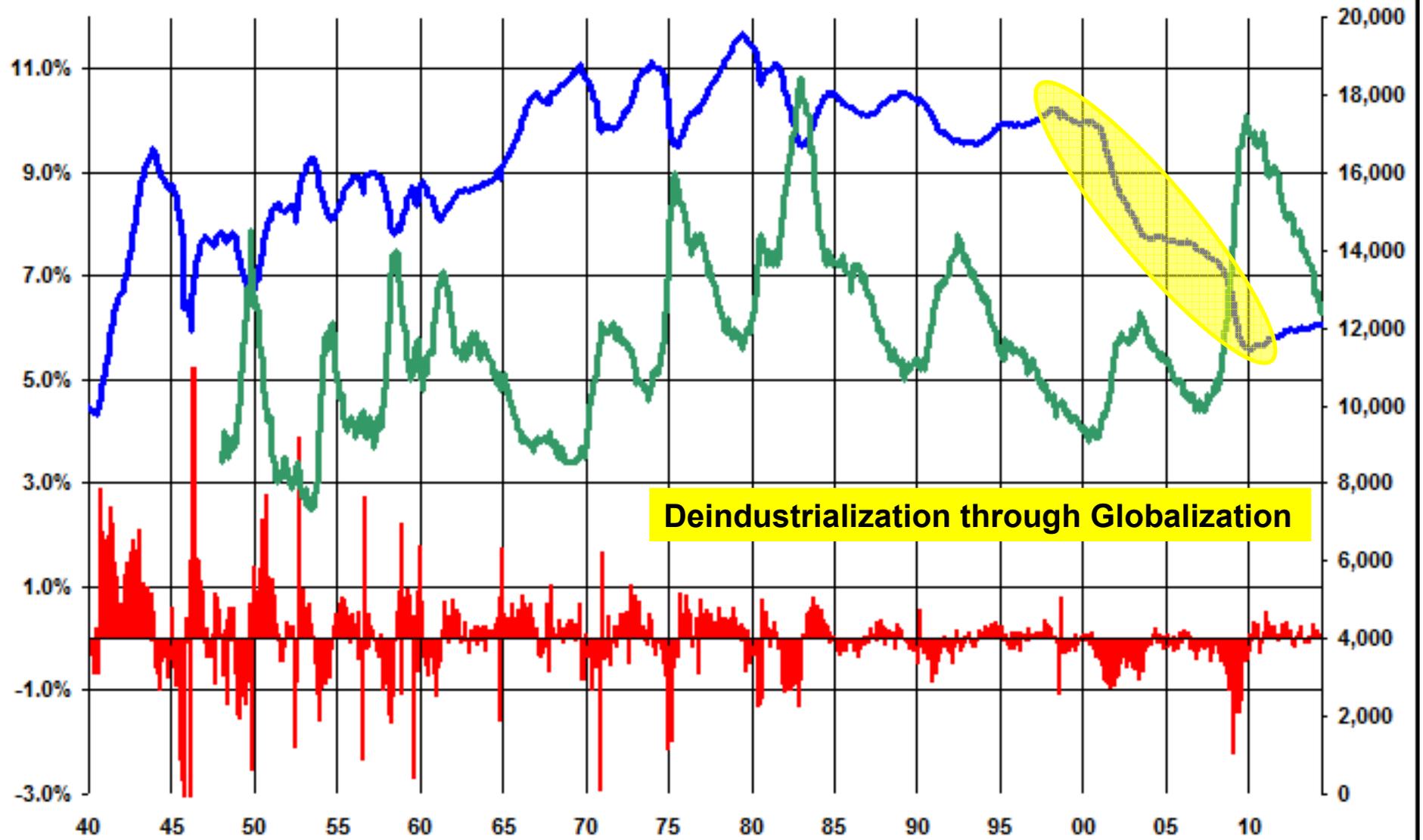
- Others
- Korea
- Mexico
- Spain
- Australia
- Canada
- India
- Italy
- Russia
- Brazil
- United Kingdom
- France
- Germany
- Japan
- China
- United States

# The Fading Chinese Anomaly

- **End of Cheap Labor – urbanization of rural Chinese ending, one child demographic problem, automation behind reshoring of manufacturing by “mature” economies a tough problem**
- **Pushback on Working Conditions – the period of sacrifice is ending as workers demand better conditions (ie Foxconn)**
- **Public outrage over pollution - crackdown on downstream cost dumping has begun as an emerging middle class shifts the focus from “quantity of life” to “quality of life”.**
- **Rethinking FDI and technology transfer – uneven playing field, cyber espionage and intellectual property theft**
- **Including its shadow banking system China has a \$24 trillion debt that is ripe for a catastrophic implosion.**
- **China’s territorial ambitions in southeast Asia**

# US Manufacturing Jobs

Monthly Job % Change    Total Jobs - '000s    Unemployment Rate %



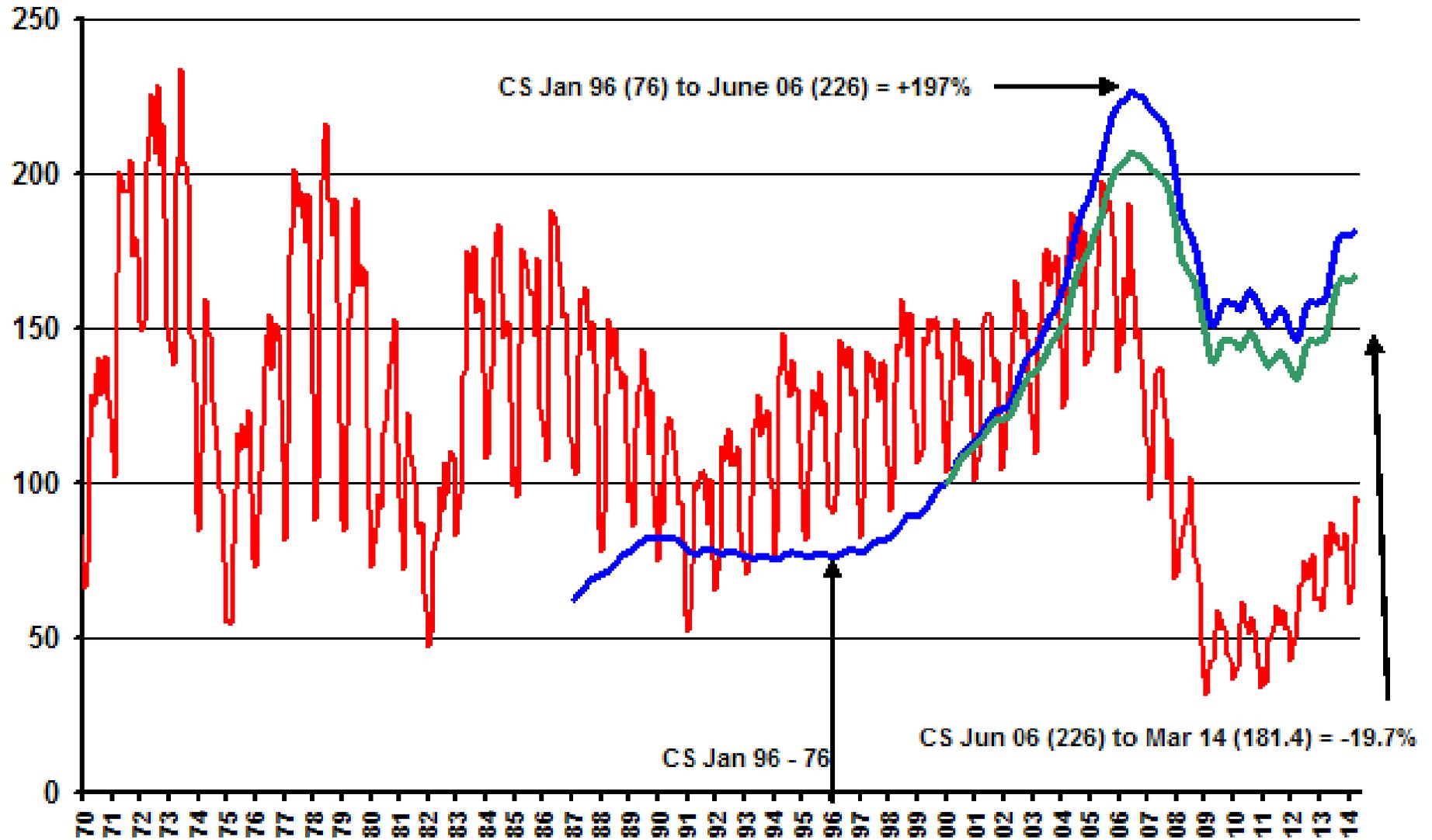
Source: Bureau of Labor Statistics

Kaiser Research Online

May 2014

# US Residential Home Data

- Monthly New Housing Starts - no seasonal adj. (000's) May 14
- S&P Case Schiller Home Price Index (10 city) Mar 14
- S&P Case-Schiller Home Price Index (20 City)



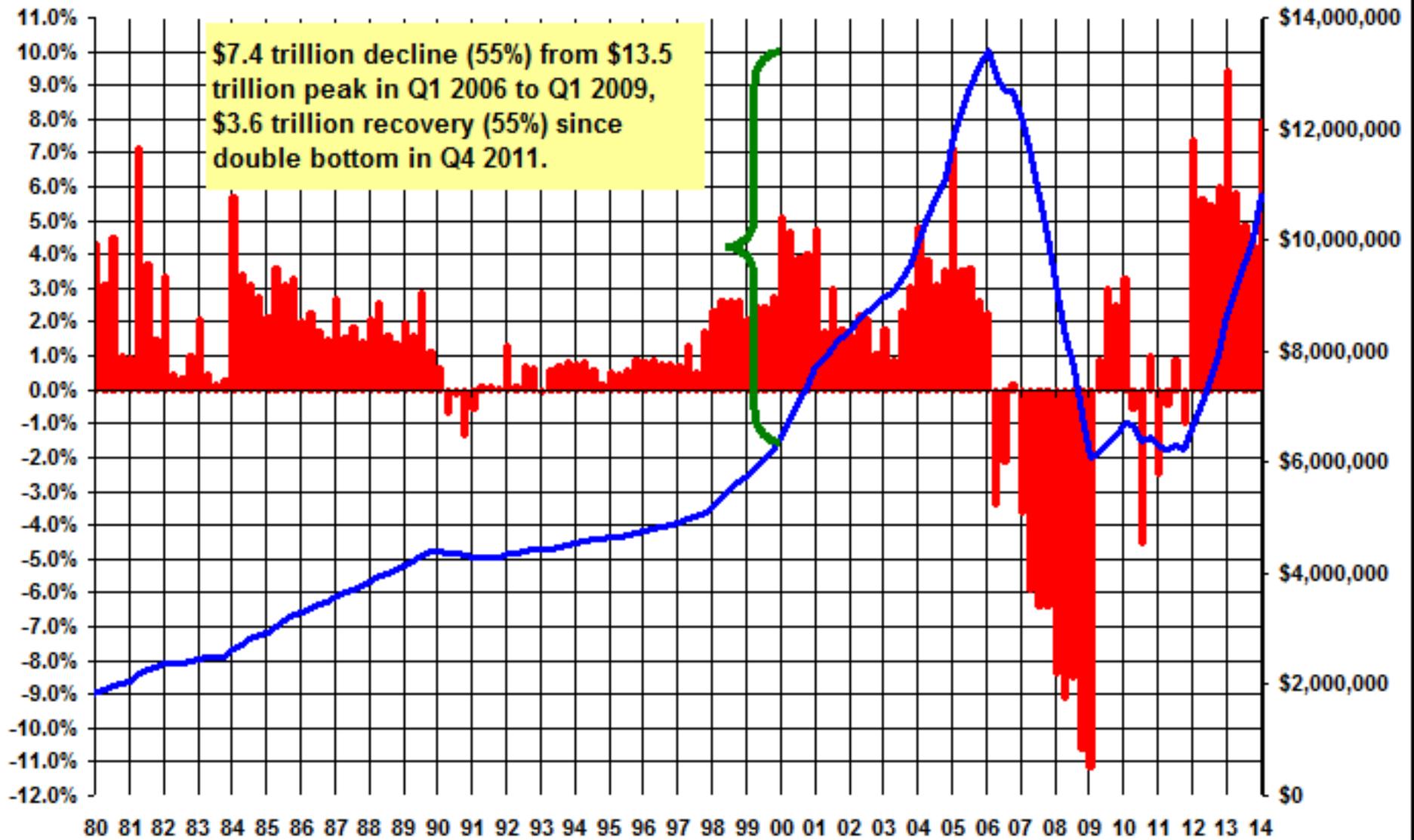
# US Household Net Real Estate Equity

\$10.8 trillion 18.0% Chg

Quarterly % Change

Net Real estate Equity - '000,000s

13.2% of net worth



Source: Federal Reserve

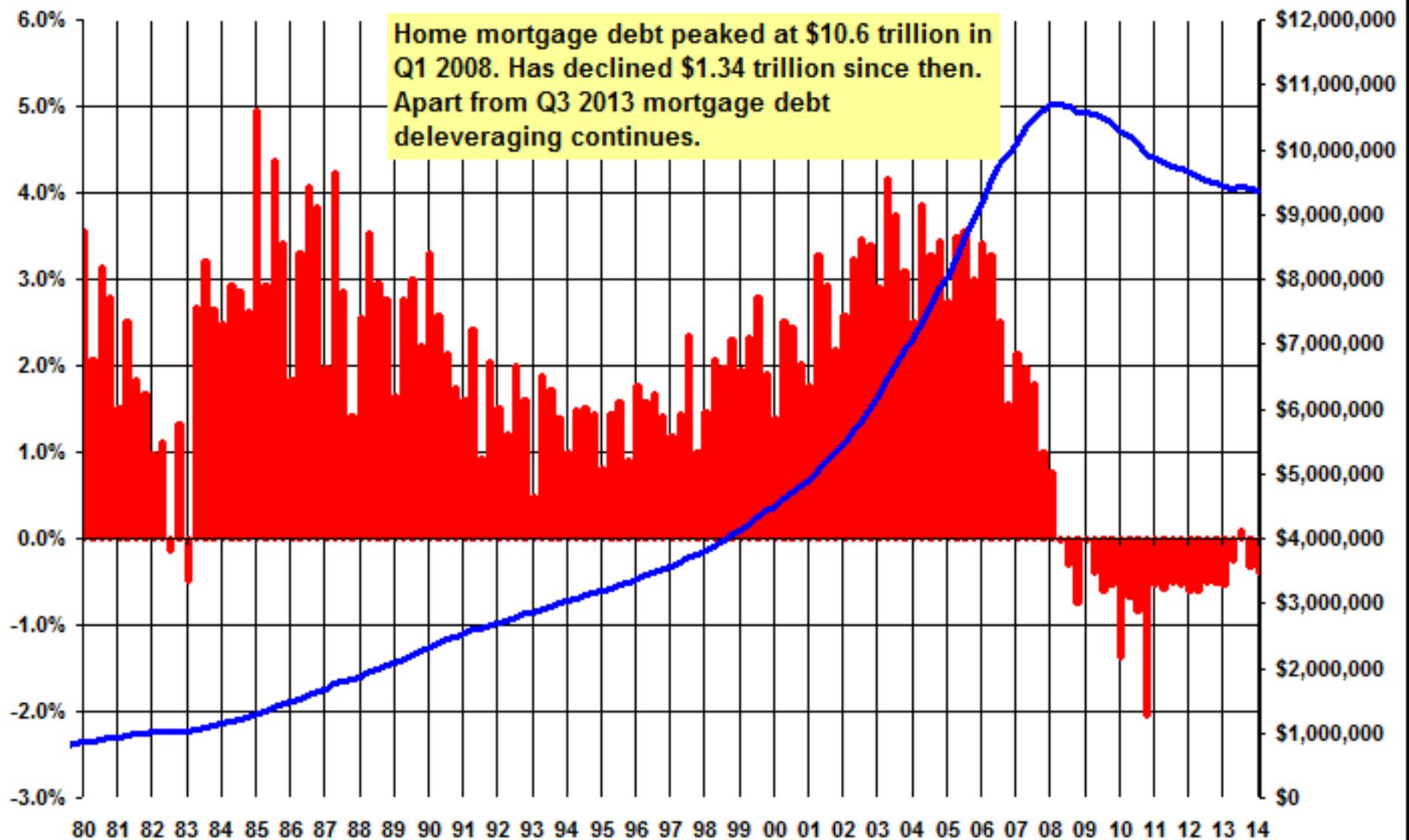
Kaiser Research Online

Q1 of 2014

# US Household - Home Mortgages

\$9.3 trillion -0.6% Chg

■ Quarterly % Change      — Home Mortgages - '000,000s



Source: Federal Reserve

Kaiser Research Online

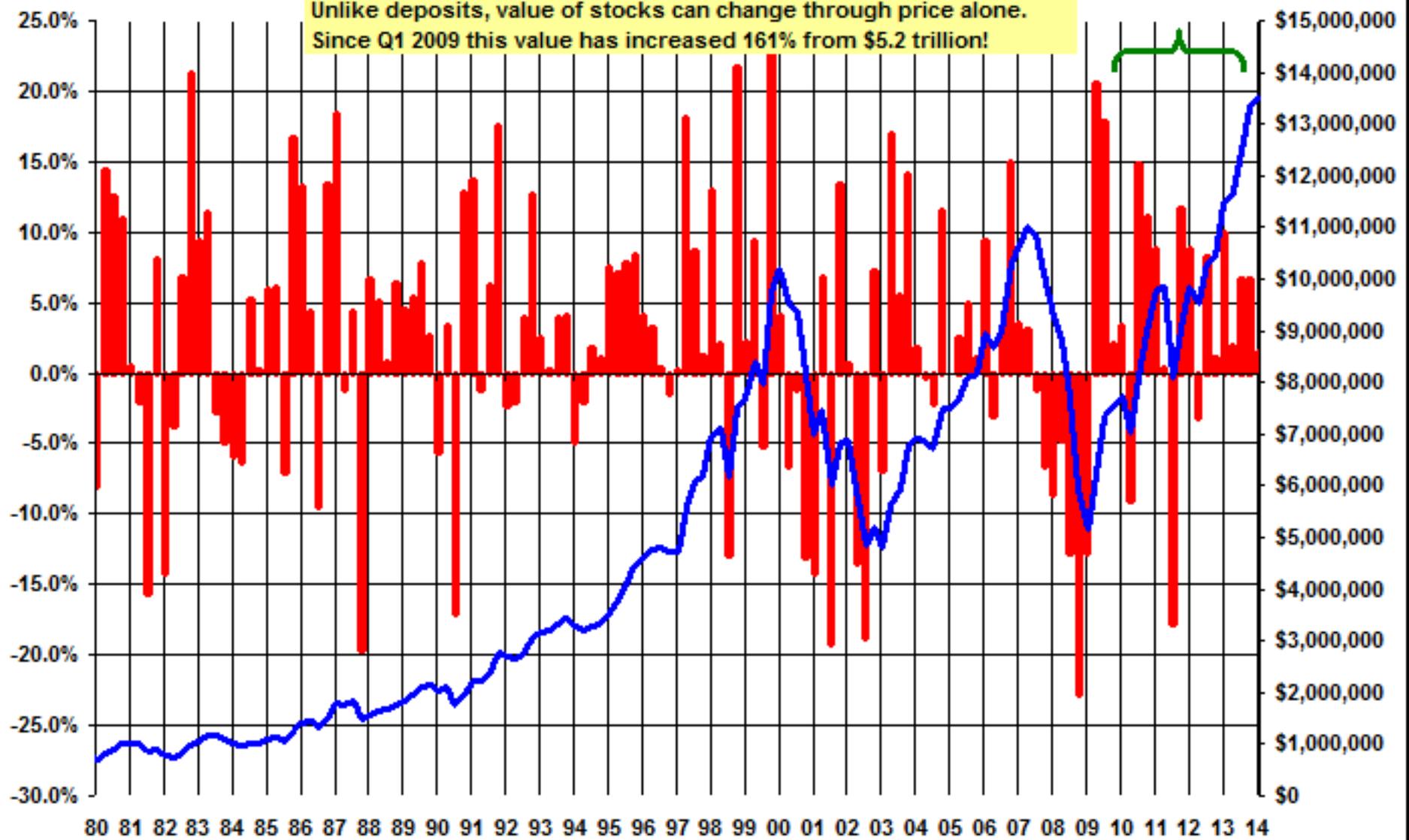
Q1 of 2014

# US Household Stocks

**\$13.5 trillion** 15.5% Chg  
16.5% of net worth

■ Quarterly % Change      — Stocks - '000,000s

Unlike deposits, value of stocks can change through price alone.  
Since Q1 2009 this value has increased 161% from \$5.2 trillion!



Source: Federal Reserve

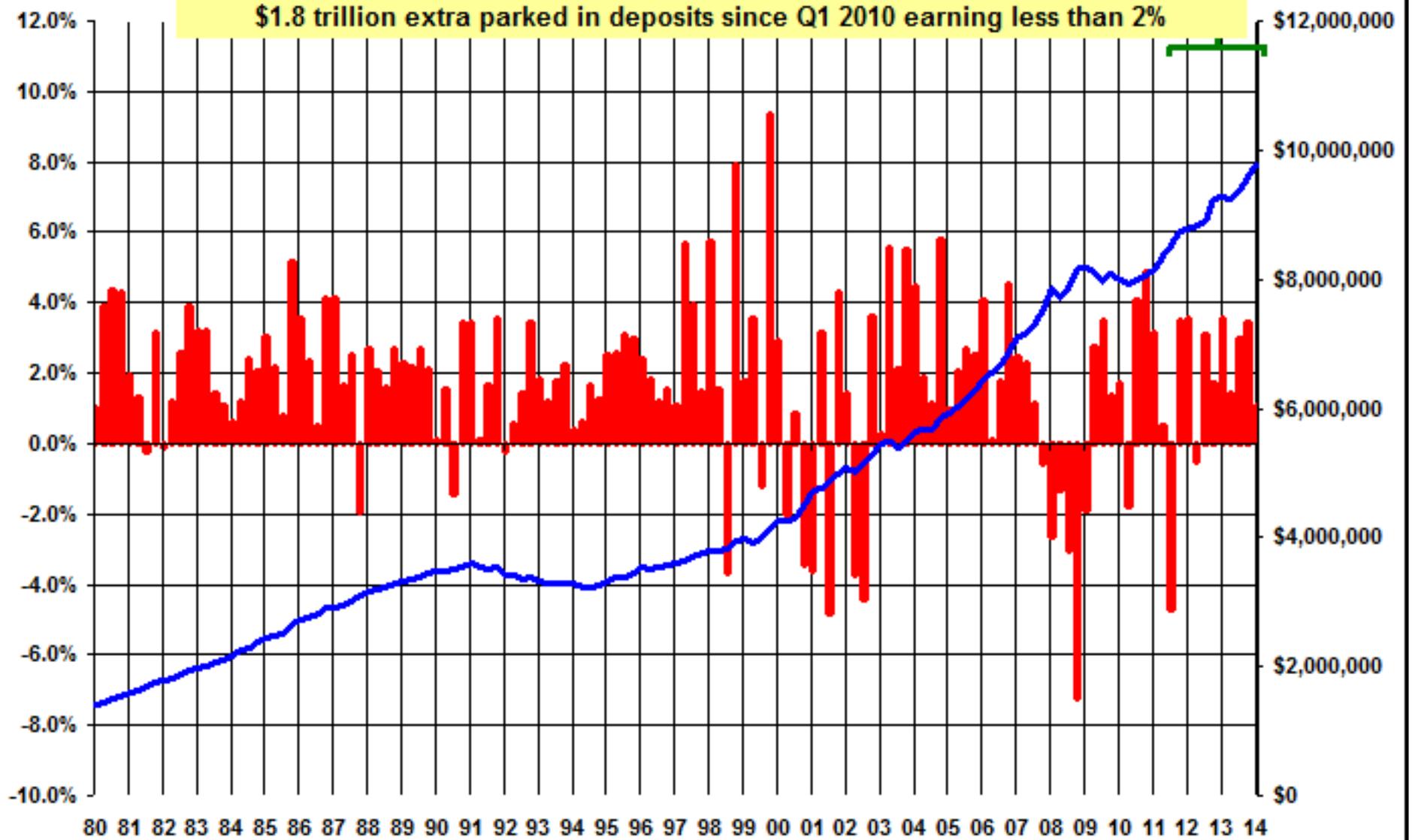
Kaiser Research Online

Q1 of 2014

# US Household Deposits

**\$9.8 trillion** 5.8% Chg  
12.0% of net worth

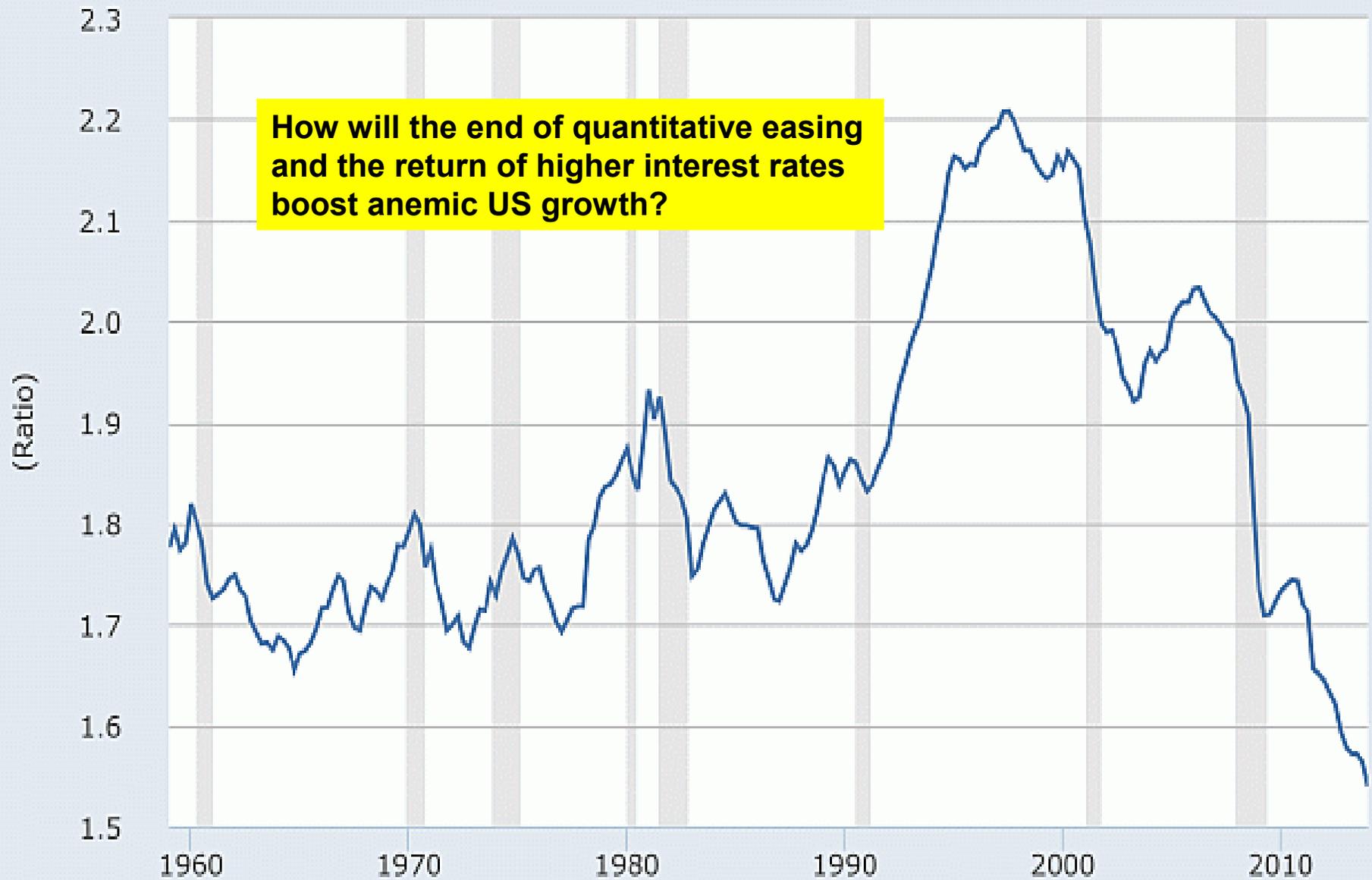
Quarterly % Change Deposits - '000,000s



Source: Federal Reserve

Kaiser Research Online

Q1 of 2014



Source: Federal Reserve Bank of St. Louis

Shaded areas indicate US recessions - 2014 [research.stlouisfed.org](http://research.stlouisfed.org)

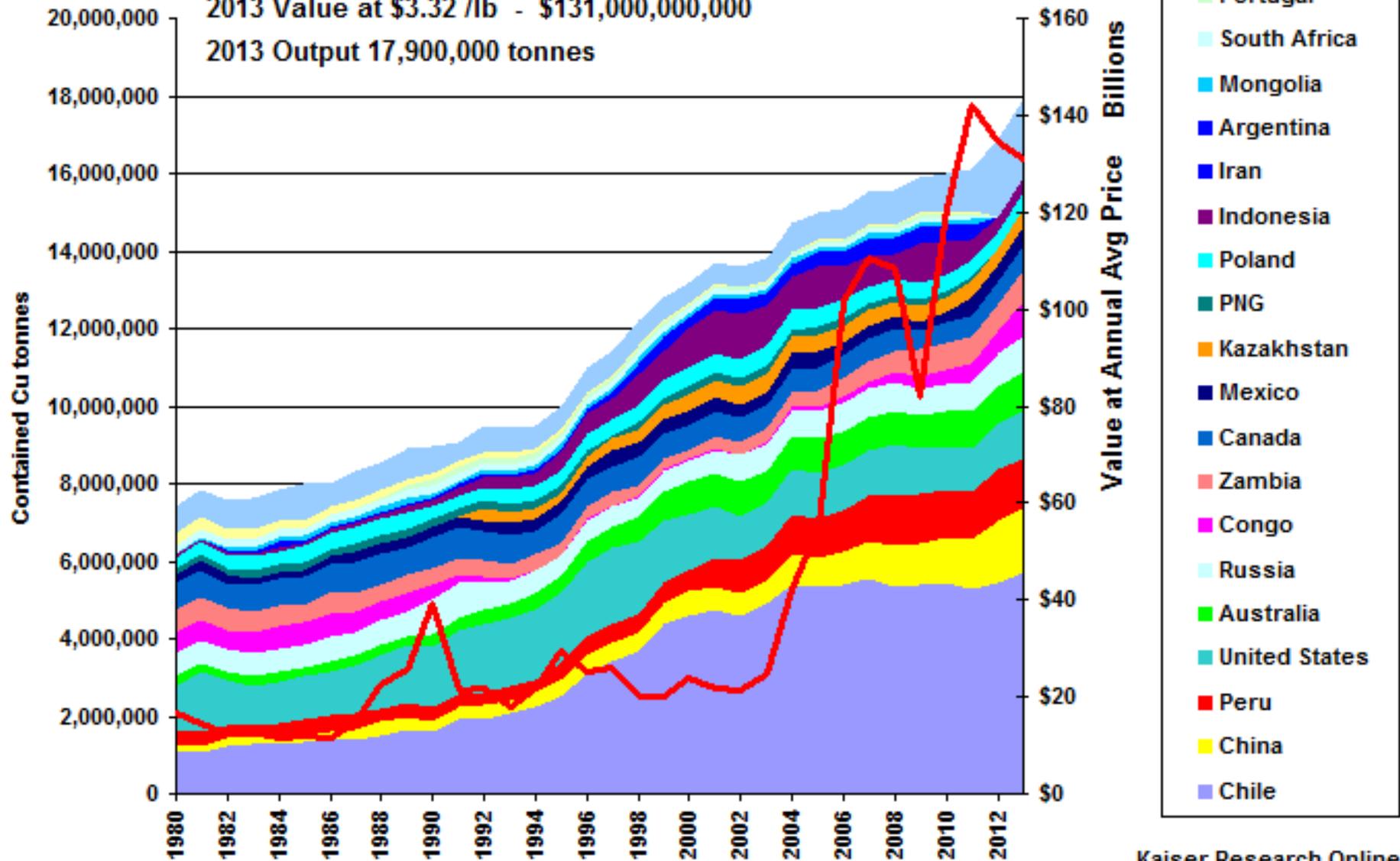


# Annual Copper Production

Production Data Source: USGS

Annual Production Value based on average annual copper price

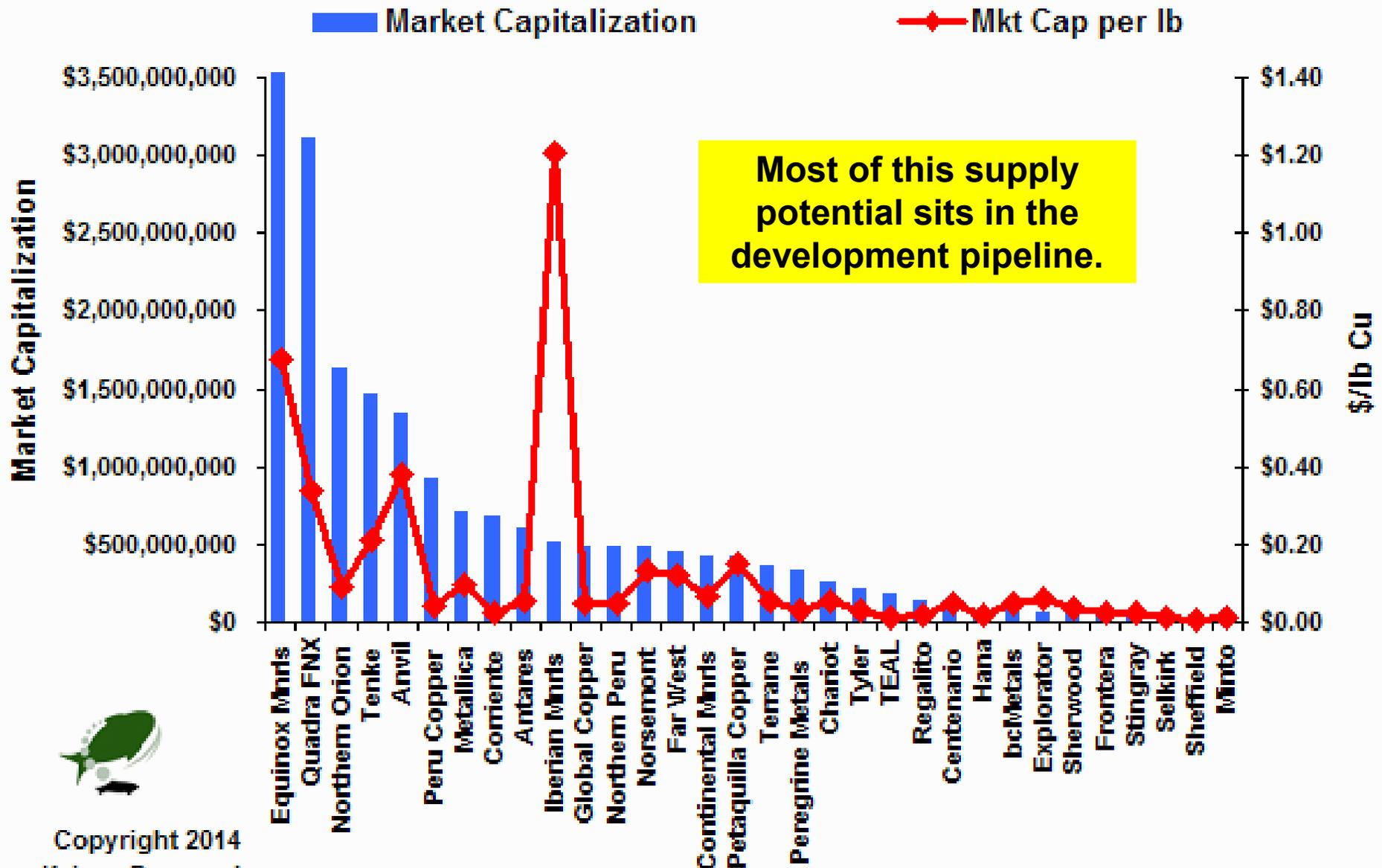
2013 Value at \$3.32 /lb - \$131,000,000,000  
2013 Output 17,900,000 tonnes



# Primary Copper Companies - Taken Over 2003-2014

Value: \$23,000,000,000

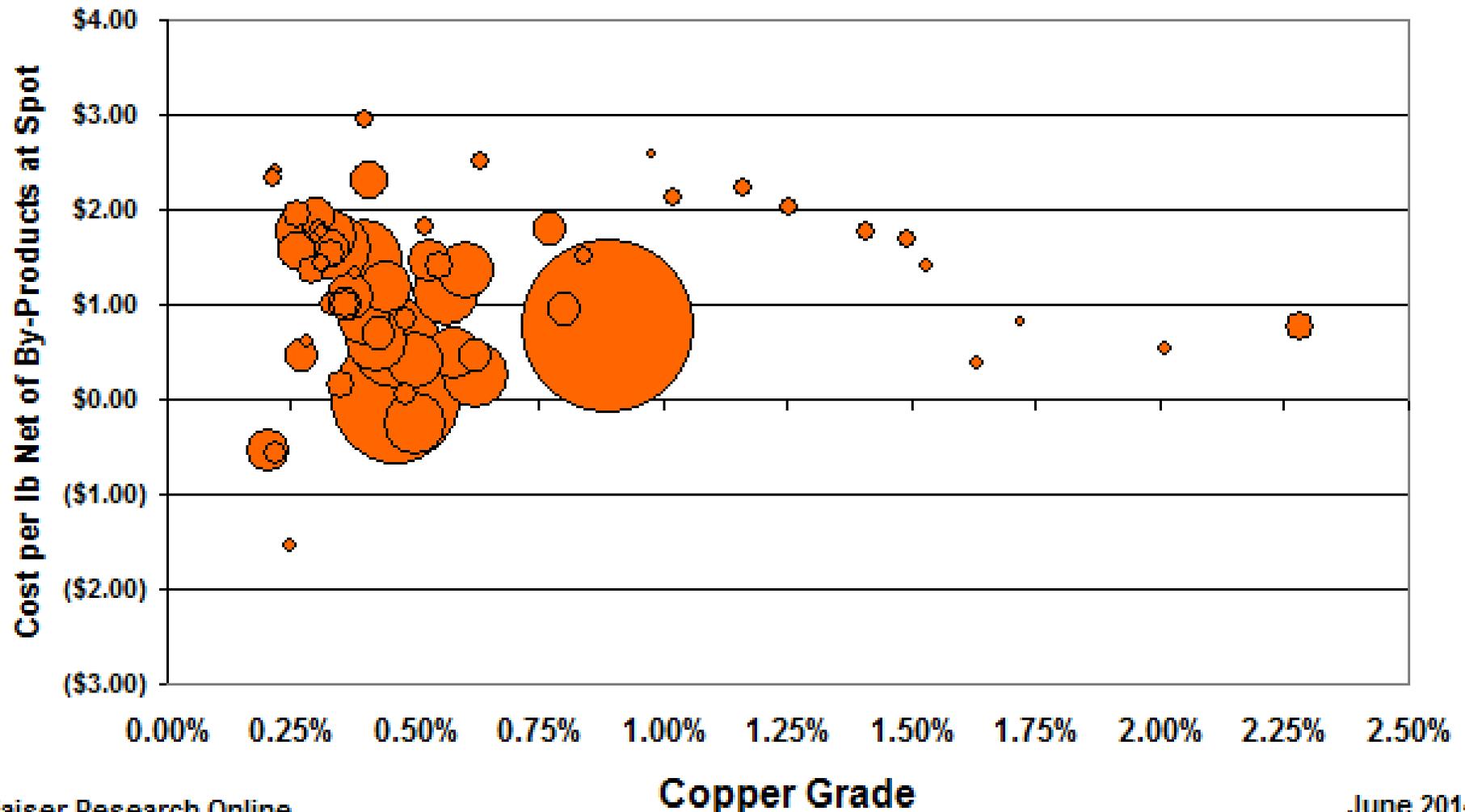
Net lbs Cu: 220,000,000,000



## All-In Cost vs Grade for Undeveloped Copper Deposits

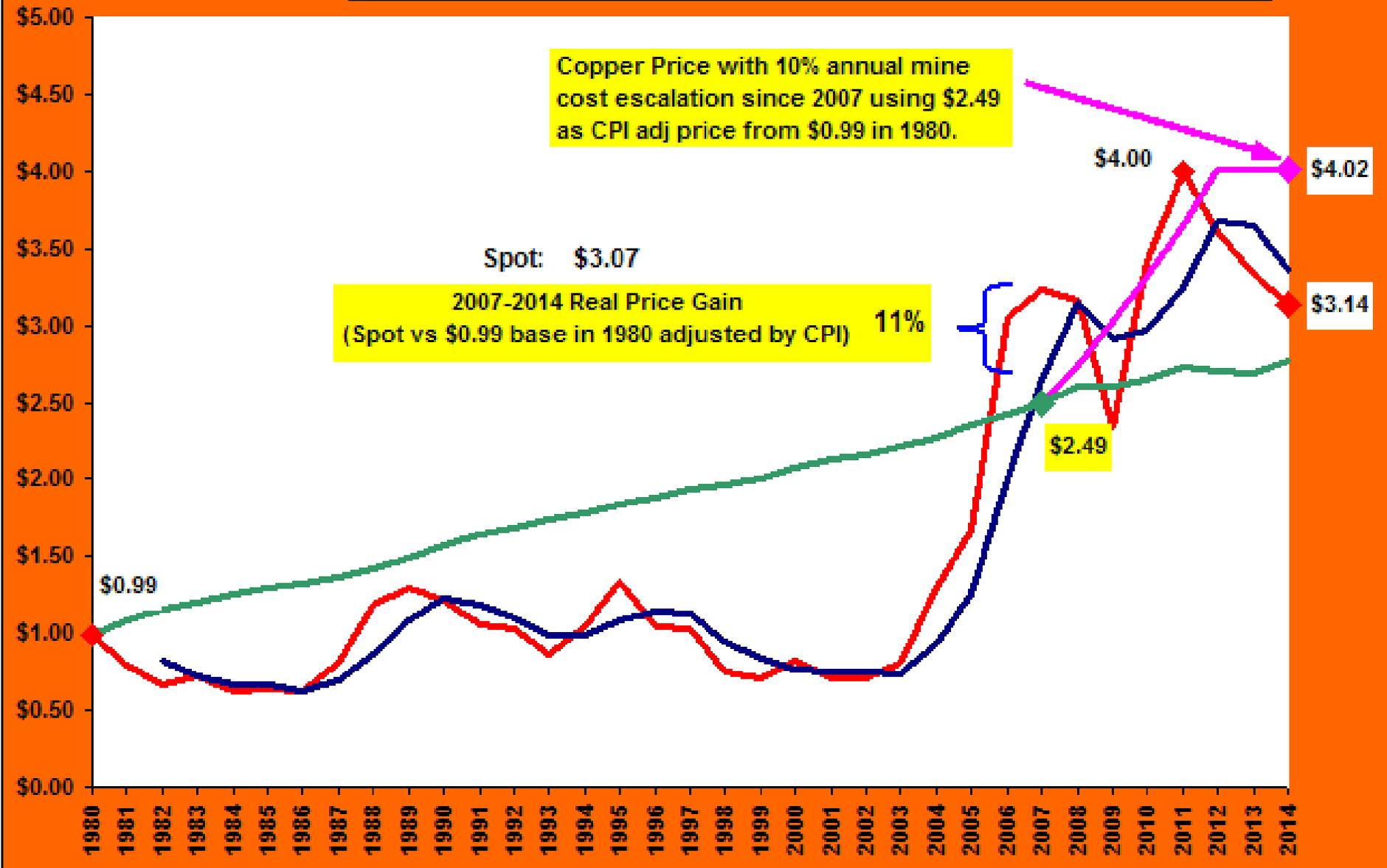
76 deposits for which PEA, PFS or BFS has been done since 2007

Additional Potential LOM Production	127,369,040 tonnes Cu
Additional Potential Annual Production	5,204,352 tonnes Cu
(Bubble sizes range 10 M lbs to 1.9 B lbs per year)	78% cost < \$1.50/lb



# Copper

- Average Annual Copper Price \$/oz
- 3 year average - includes current year
- Copper CPI adjusted with 10% mining cost escalation 2008-2012
- Copper Price US CPI inflation adjusted from 1980 base of \$0.99 per lb



# Lumina Copper Corp

6/22/2004 TO 6/20/2014



Issued: 44,007,402

High: \$17.16 on 3/30/2012

Max Volume: 5,696,700 on 6/20/2014

Diluted: 46,958,235

Low: \$0.30 on 10/24/2008

Max Value: \$54,560,635 on 6/20/2014



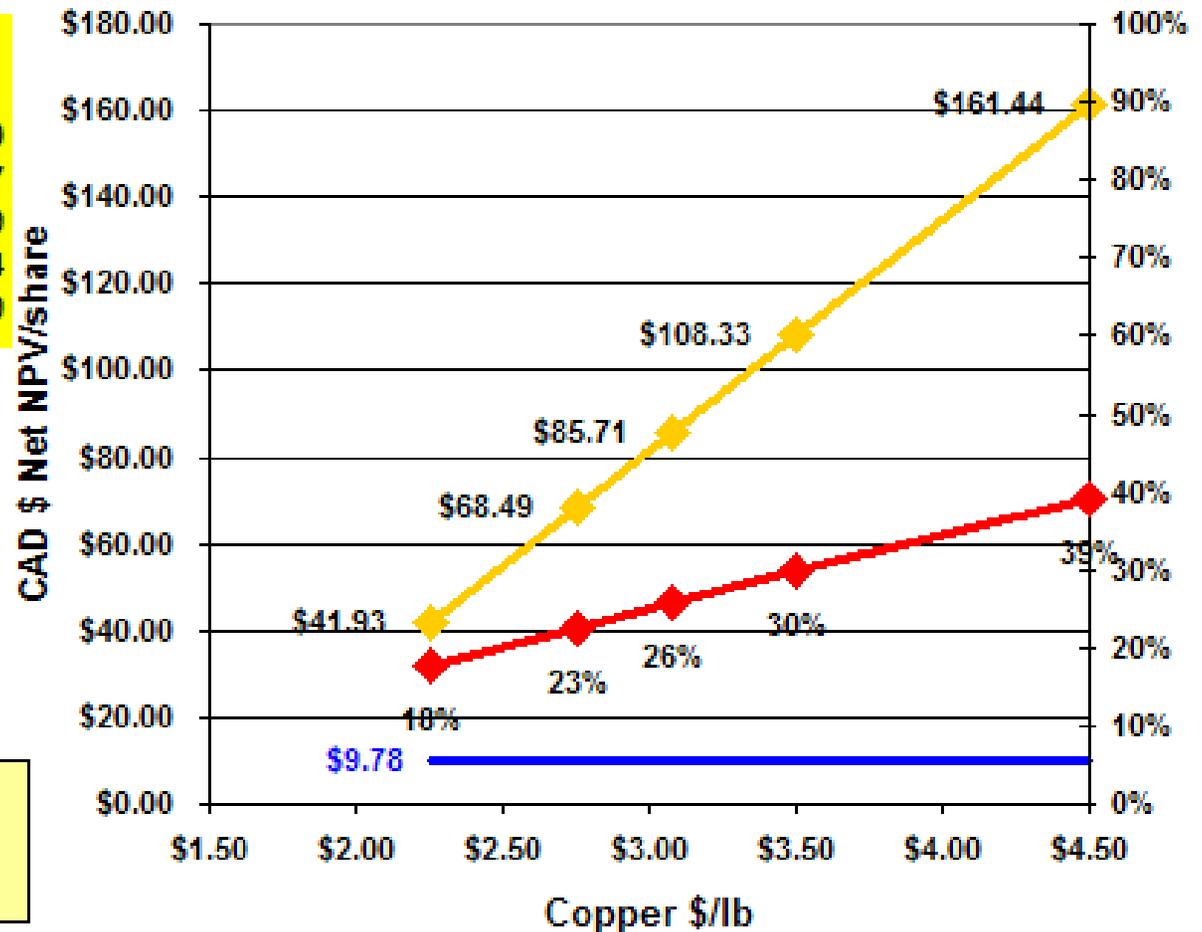
# Lumina Copper - Taca Taca: After-Tax Sensitivity

## 100% After-Tax Net Present Value

Pessimistic:	\$2.25/lb	\$1,969,153,210
Base Case:	\$2.75/lb	\$3,216,222,027
Spot:	\$3.07/lb	\$4,024,821,449
Optimistic:	\$3.50/lb	\$5,086,825,254
Fantasy:	\$4.50/lb	\$7,580,962,889

- Current Stock Price
- Net NPV/SH vs \$/oz Au
- Internal Rate of Return

Net Present Value based on life of mine averages, by-products use spot prices.



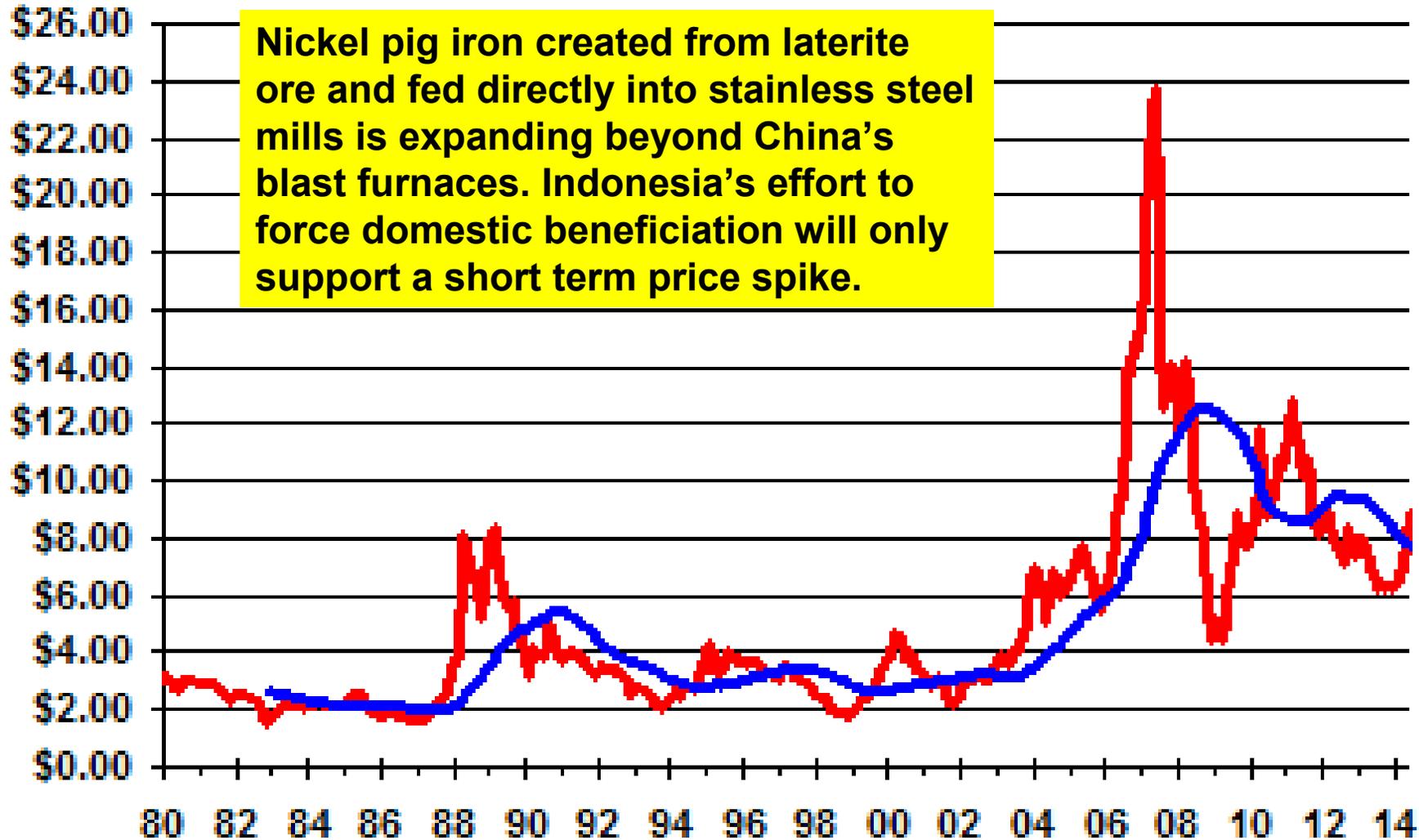
PEA Apr 9, 2013: 120,000 tpd OP, 37.3 yr; CapEx: \$3,000 M, SusCapEx: \$1,800 M, OpEx: \$9.77/t; Tax: 30% DDBM  
Fully Diluted: 47.0 M, Stock Price: \$9.78; Located: Argentina - 100% WI, Discount Rate: 10%

LOM Tonnage: 1,651,000,000 t @ 0.46% Cu, 0.09 g/t Au, 0.01% Mo  
LOM Output: 15,064,560,000 lb Cu, 3,080,000 oz Au, 253,134,000 lb Mo  
By-Product Spot Prices: Au \$1,313.50/oz, Mo \$14.97/lb

# Nickel US \$/lb LME

\$8.82 — Monthly Avg

\$7.77 — 3 Year Avg

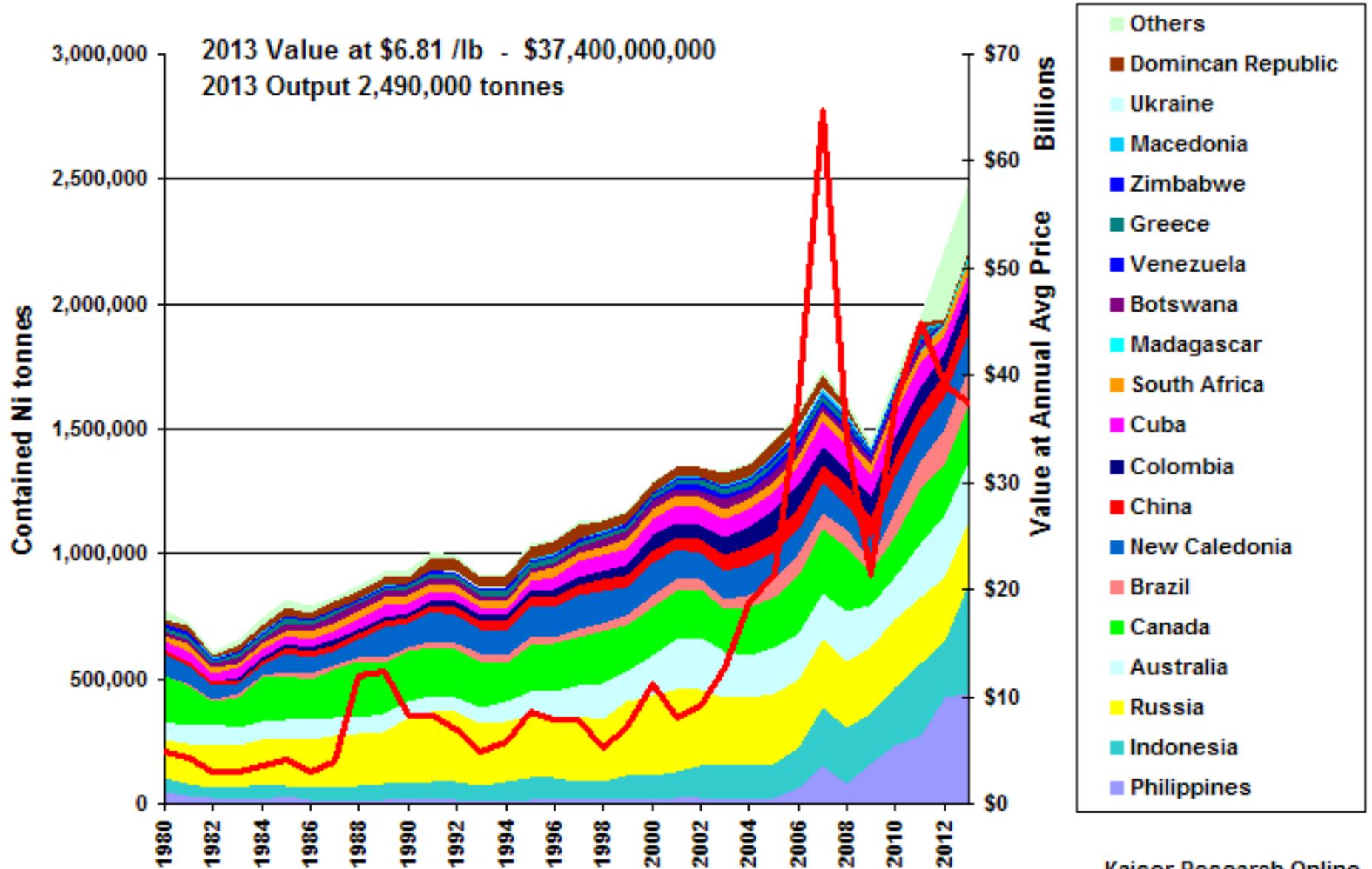




# Annual Nickel Production

Production Data Source: USGS

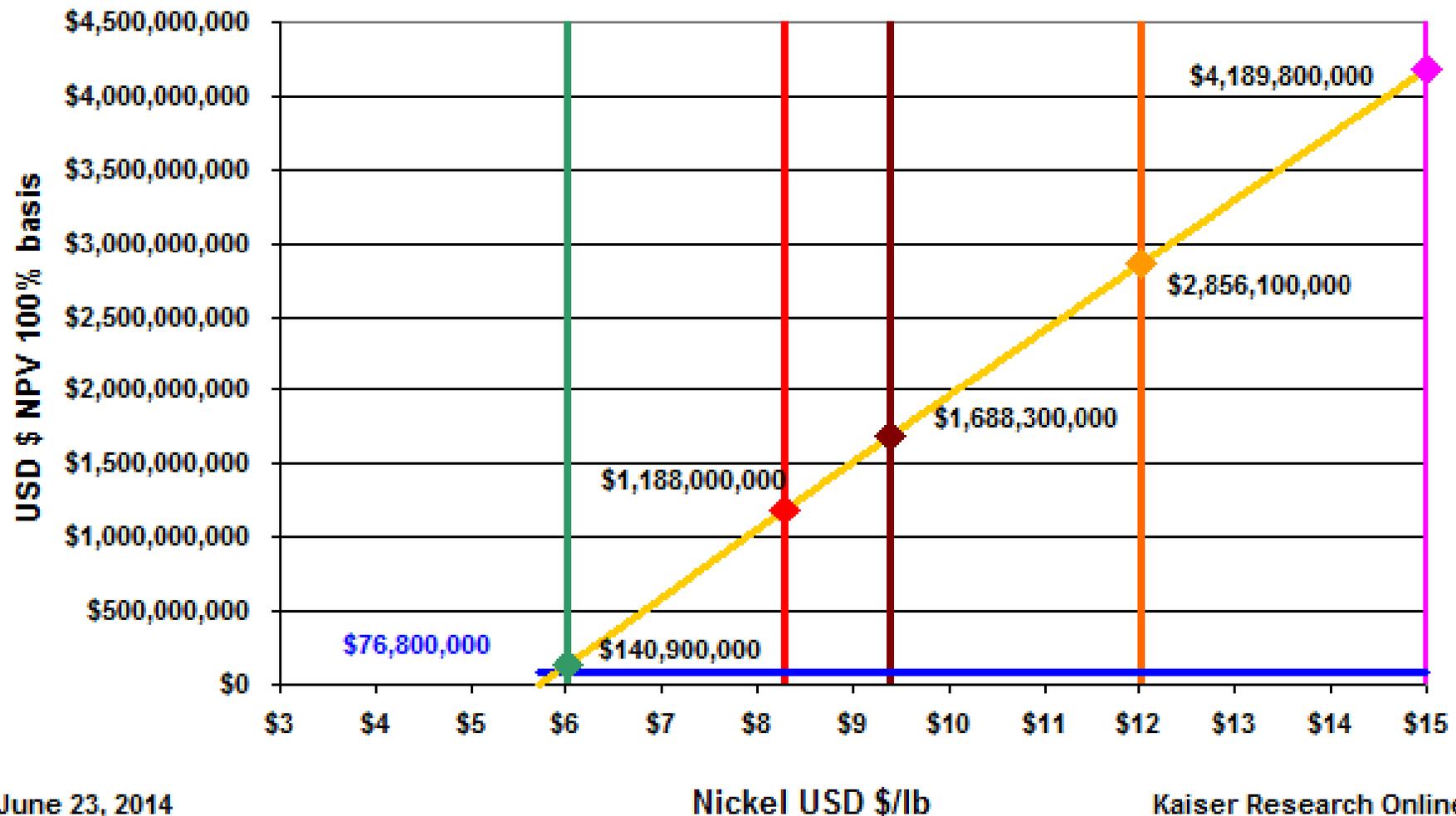
Annual Production Value based on average annual nickel price



## First Point - Decar - After Tax NPV Sensitivity

- Pessimistic - \$6.00/lb Ni - IRR 12%
- Base Case - \$9.39/ Ni - IRR 31%
- Current - \$8.28/lb Ni - IRR 12%
- Optimistic - \$12.00/lb Ni - IRR 44%
- Fantasy - \$15.00/lb Ni - IRR 59%
- Implied 100% Project Value - \$76,800,000
- AT NPV vs \$/lb nickel at 10% Disc Rate

Modified PEA Mar 2013: 114,000 tpd OP Gravity-Mag Sep  
 CapEx \$1.3 B, LOM SusCap \$763 M, OpEx \$6.04/t, 23 yr mine  
 I+I - 925 M t @ 0.118% Ni (Davis Tube),  
 120 M FD, 30% Tax, exch 1:1 USD:CAD, 25% net  
 Direct ship concentrate (Fe+Ni+Cr) payable 90% Ni value  
 PEA prepared by Cliffs to earn 60%, opt to earn 75%

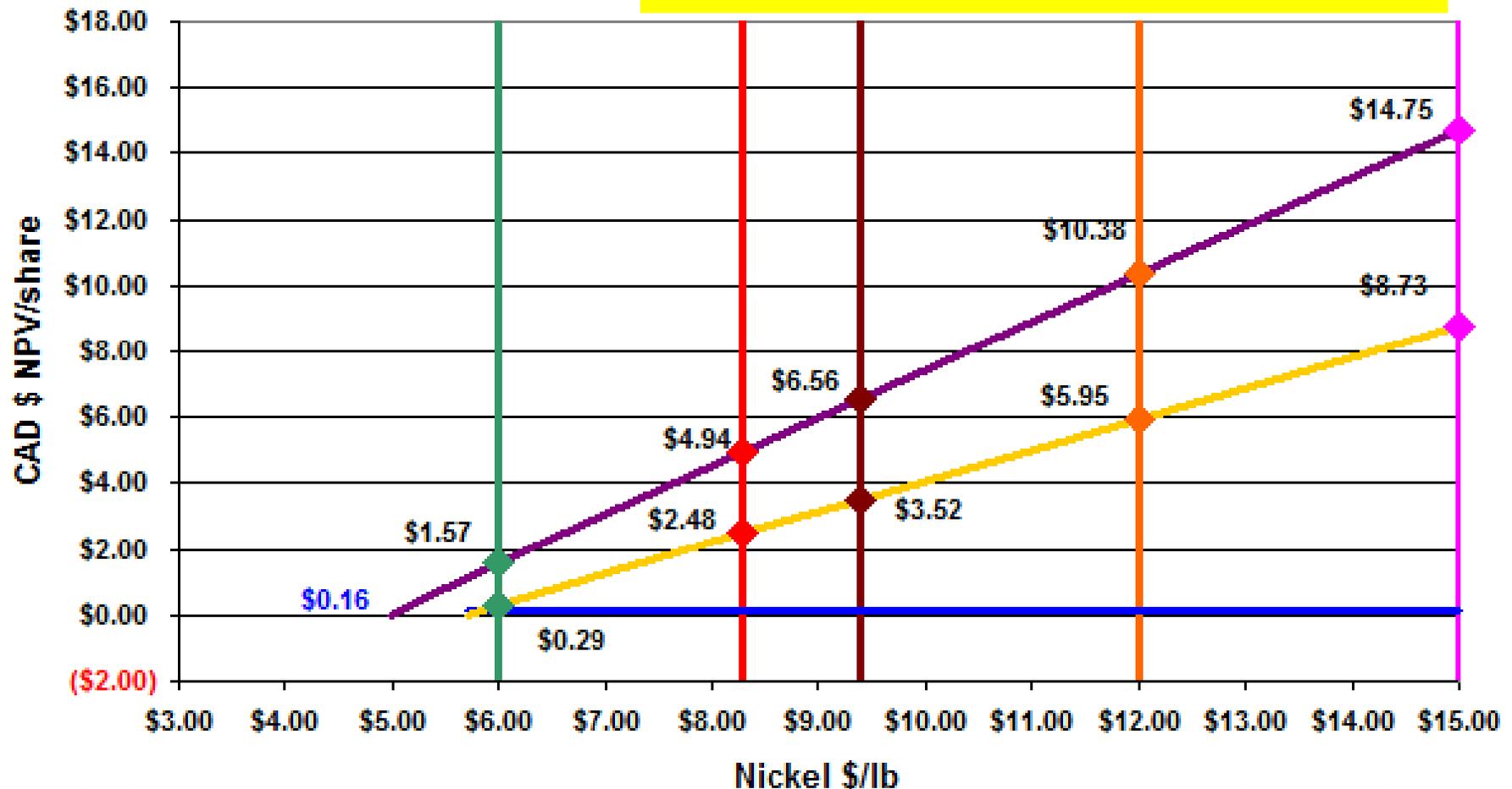


## First Point - Decar - After Tax NPV Sensitivity

- Pessimistic - \$6.00/lb Ni - IRR 12%
- Base Case - \$9.39/ Ni - IRR 31%
- Current - \$8.28/lb Ni - IRR 12%
- Optimistic - \$12.00/lb Ni - IRR 44%
- Fantasy - \$15.00/lb Ni - IRR 59%
- Current Stock Price - \$0.16
- Share vs \$/lb Ni at 10% Disc Rate
- Share vs \$/lb Ni at 5% Disc Rate

Modified PEA Mar 2013: 114,000 tpd OP Gravity-Mag Sep  
 CapEx \$1.3 B, LOM SusCap \$763 M, OpEx \$6.04/t, 23 yr mine life  
 I+I - 925 M t @ 0.118% Ni (Davis Tube), recovery 82%  
 120 M FD, 30% Tax, exch 1:1 USD:CAD, 25% net  
 Direct ship concentrate (Fe+Ni+Cr) payable 90% Ni value  
 PEA prepared by Cliffs to earn 60%, opt to earn 75%

CapEx, payable %, tax rate, mining cost changed from PEA



# First Point Minerals Corp

6/25/2004 TO 6/23/2014



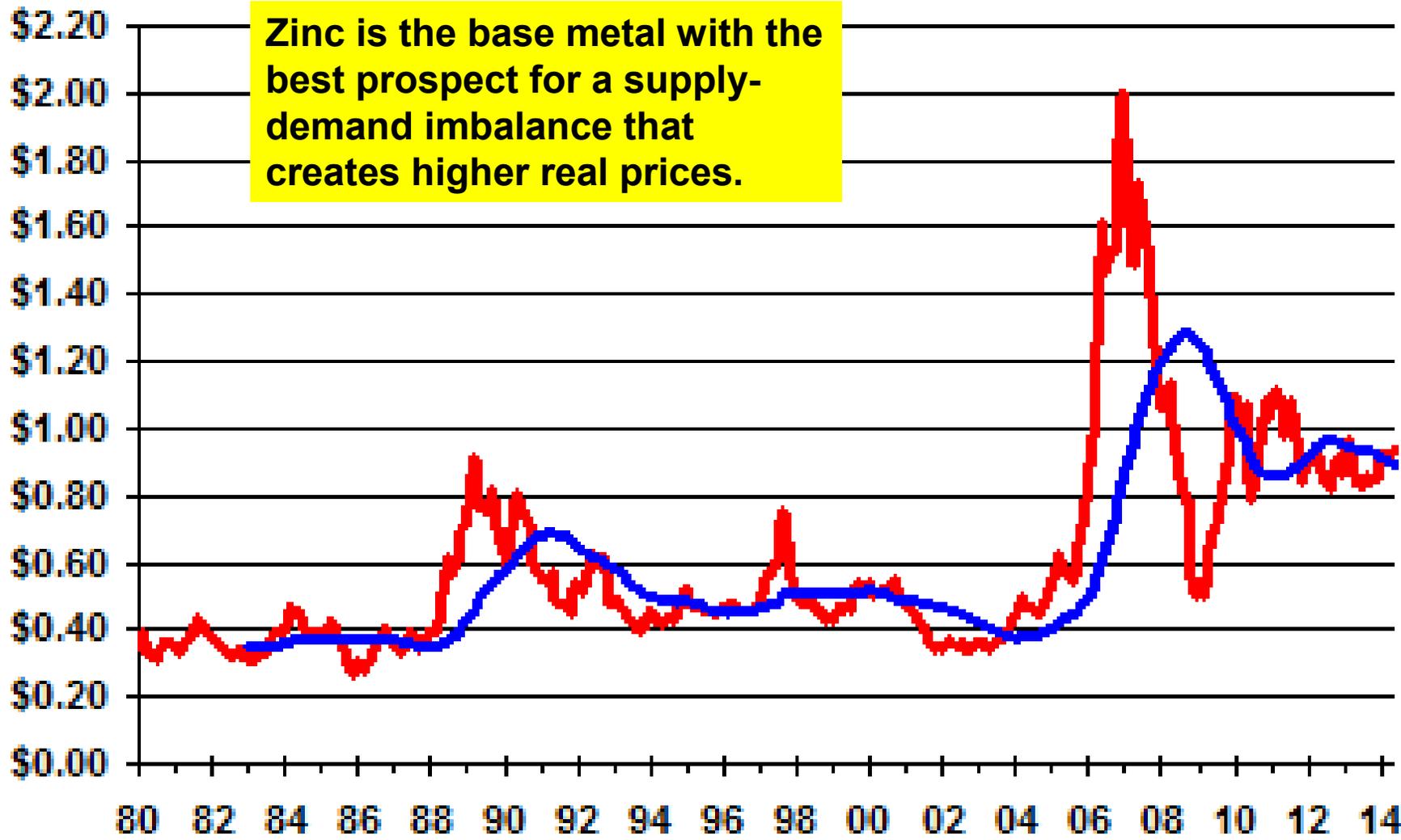
Issued:	105,804,339	High: \$1.08 on 4/16/2010	Max Volume: 12,483,700 on 5/18/2007
Diluted:	119,965,449	Low: \$0.02 on 11/21/2008	Max Value: \$9,296,022 on 4/16/2010



# Zinc US \$/lb LME

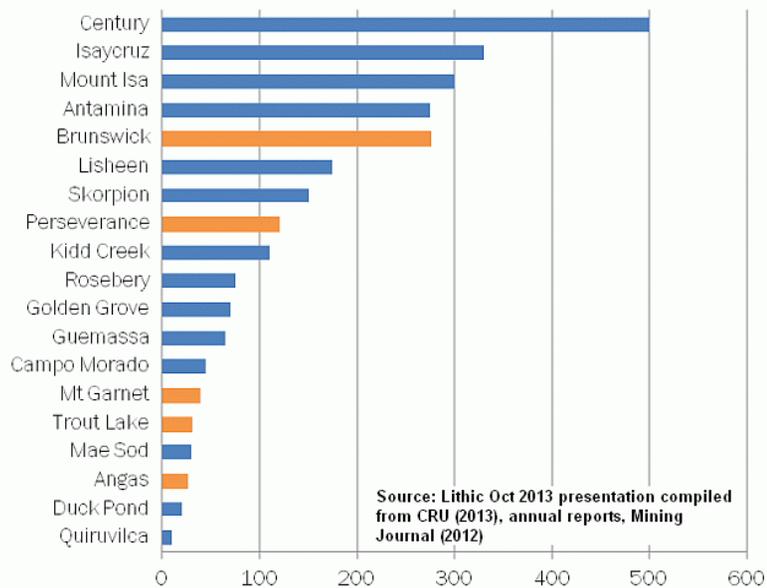
\$0.93 — Monthly Avg  
\$0.90 — 3 Year Avg

Zinc is the base metal with the best prospect for a supply-demand imbalance that creates higher real prices.

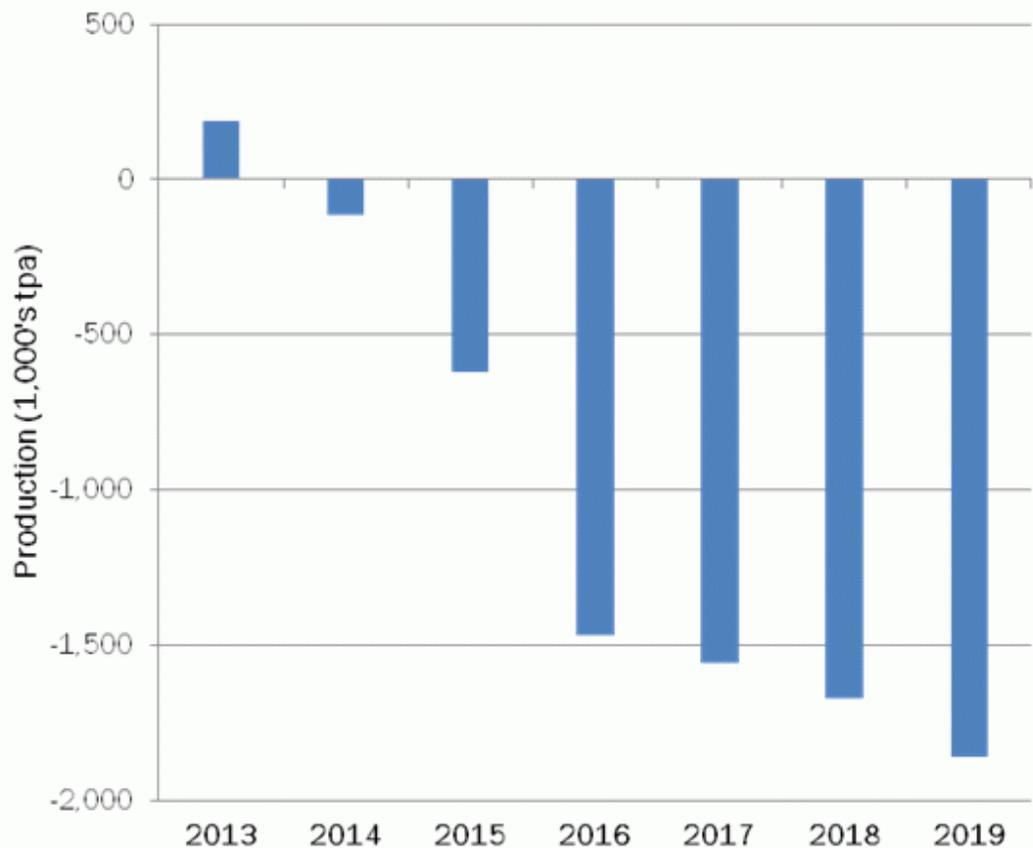


**Does not assume a supply cutback from China.**

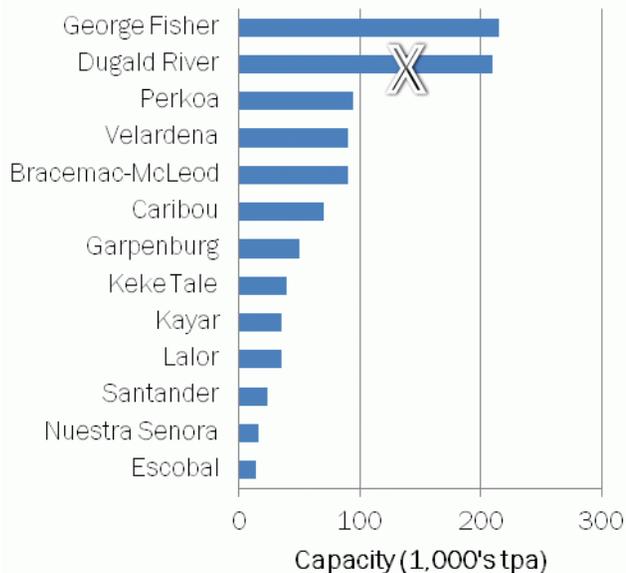
**Mine Closures/Reductions**



**Zinc Supply/Deficit**



**Mine Openings/Expansions**



Source: Lithic Oct 2013 presentation compiled from CRU (2013), annual reports, Mining Journal (2012)

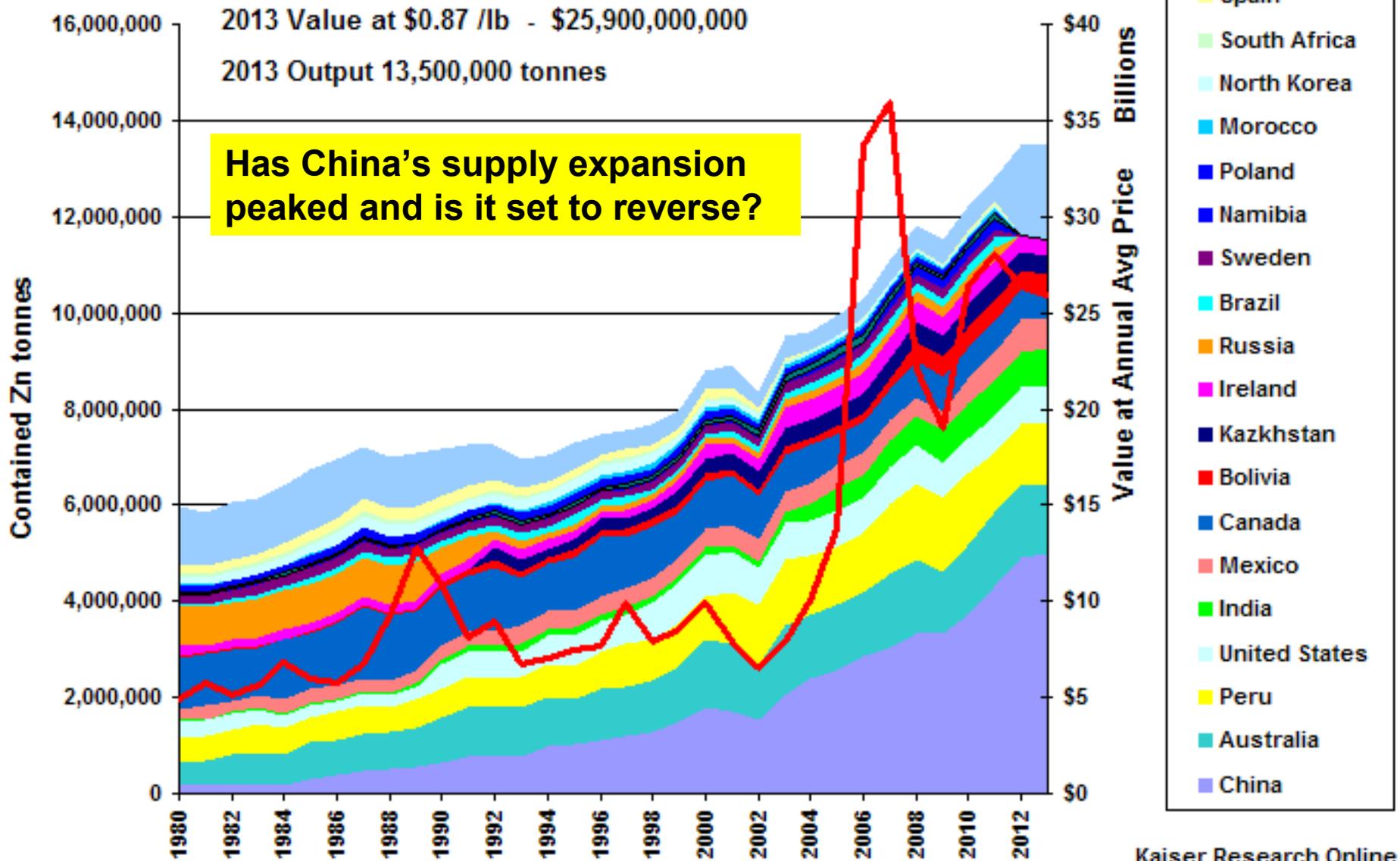
Source: Lithic Oct 2013 presentation compiled from CRU (2013), annual reports, Mining Journal (2012)



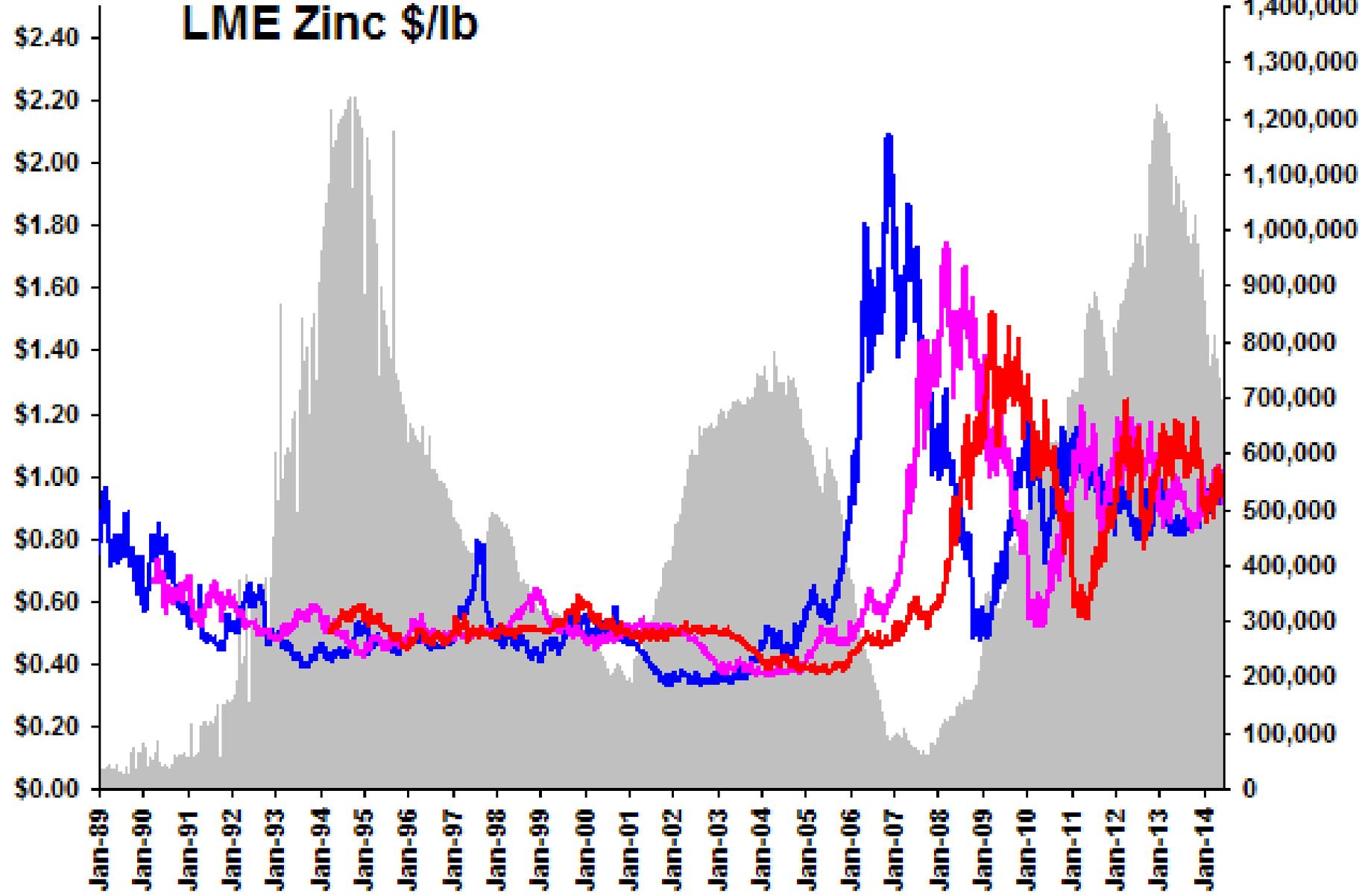
# Annual Zinc Production

Production Data Source: USGS

Annual Production Value based on average annual zinc price



# LME Zinc \$/lb

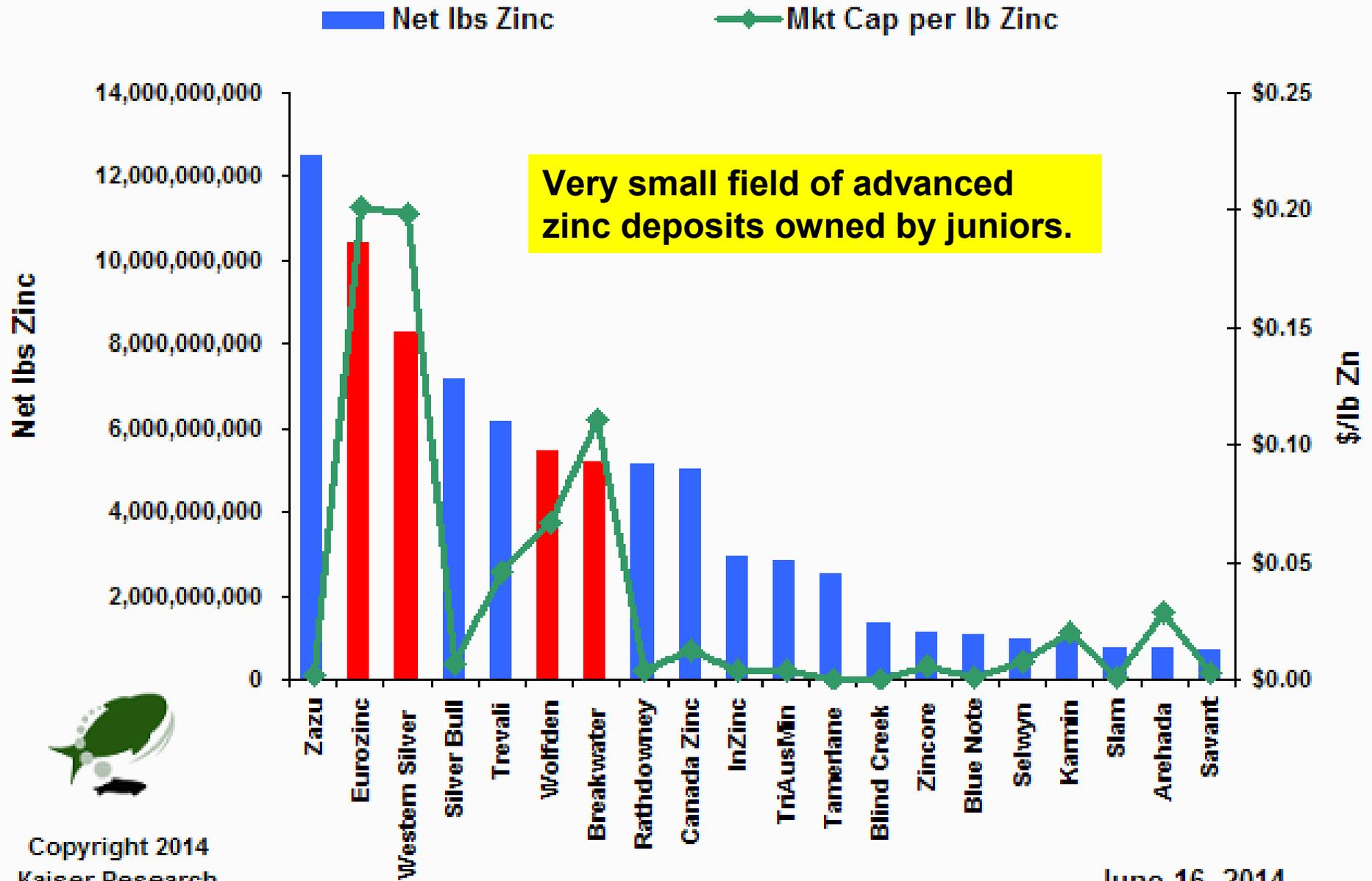


Legend:

- LME Warehouse Stocks (t)
- Spot
- Future Price projected 15 months prior
- Future Price projected 27 months prior

# Primary Zinc Companies - Top 20 by Pounds

(Red - Companies taken over or merged, Orange - takeover pending)



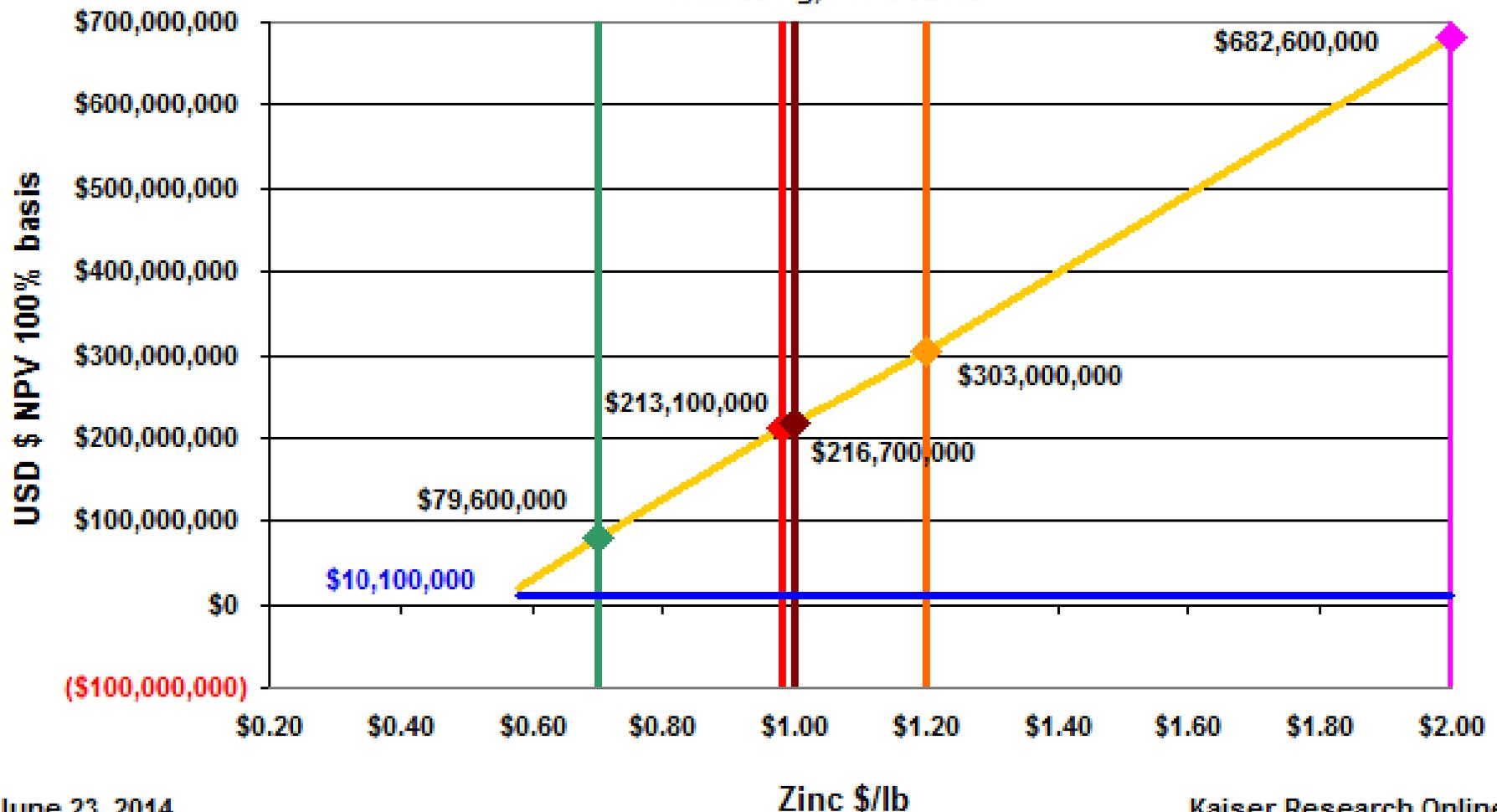
**Very small field of advanced zinc deposits owned by juniors.**



## InZinc Mining - West Desert - After Tax NPV Sensitivity

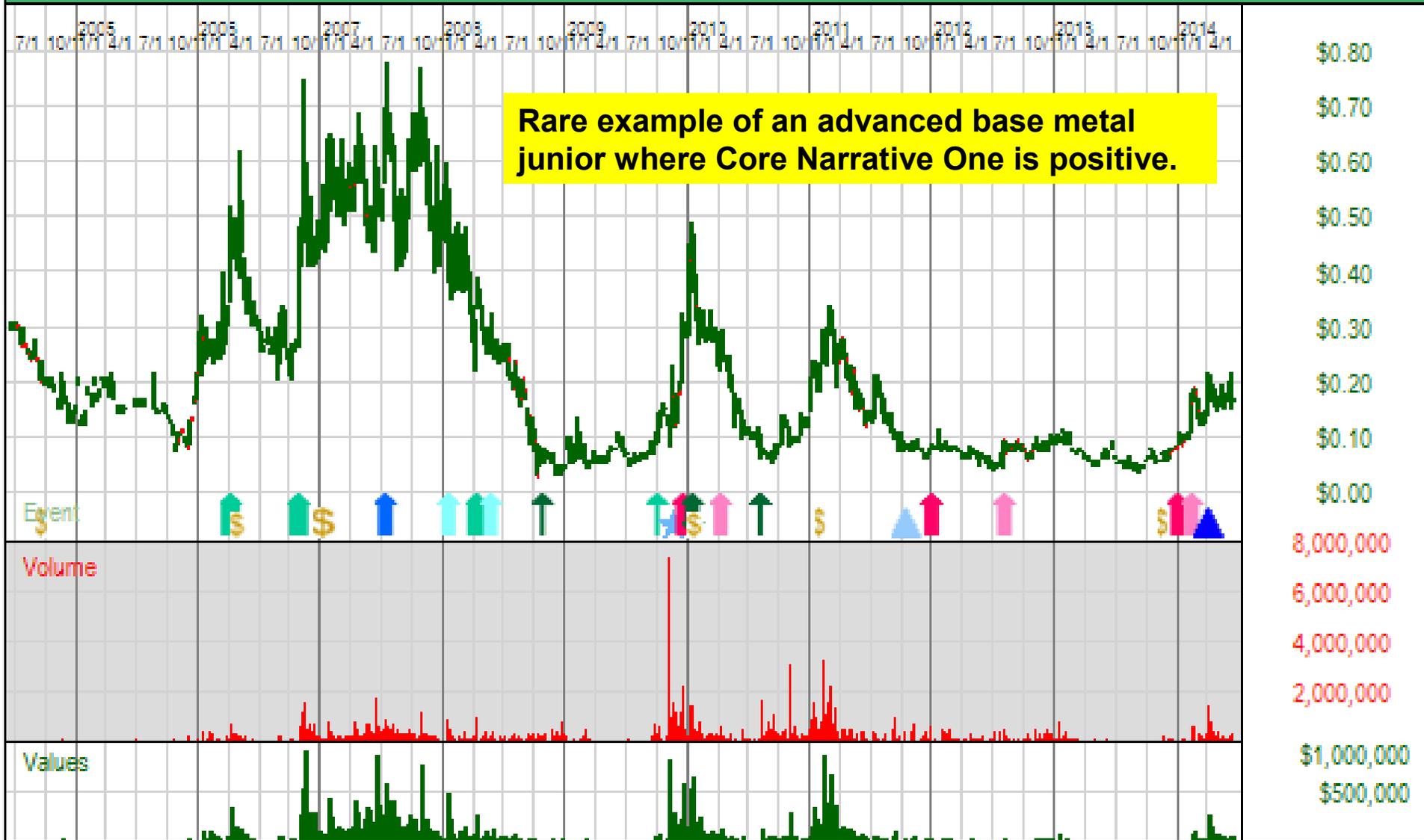
- Pessimistic - \$0.70/lb Zn - IRR 16%
- Base Case - \$1.00/lb Zn - IRR 25%
- Current - \$0.98/lb Zn - IRR 25%
- Optimistic - \$1.20/lb Zn - IRR 30%
- Fantasy - \$2.00/lb Zn - IRR 55%
- Implied 100% Project Value - \$10,100,000
- AT NPV vs \$/lb Cu at 10% Disc Rate

PEA Apr 2014: 6,500 tpd UG-Flotation, 15 yr mine life, Utah  
 CapEx \$247.4 M, SustEx \$141.5 M, OpEx \$41/t, ShipEx: \$69/t  
 LOM: 34 M t @ 2.72% Zn, 0.27% Cu, 44% mag, 30 g/t In, 1  
 Conc: 55% Zn, 29% Cu, BC: \$3/lb Cu, \$600/kg In, \$115/t 63%  
 FD: 67.5 M, tax rate 39%, exch 1.10:1 USD/CAD, 100% Net  
 LOM: 1.6 B lb Zn, 148 M lbs Cu, 569 t In, 14.5 M t magnetite,  
 1.1M oz Ag, 114 K oz Au



# InZinc Mining Ltd

6/25/2004 TO 6/23/2014

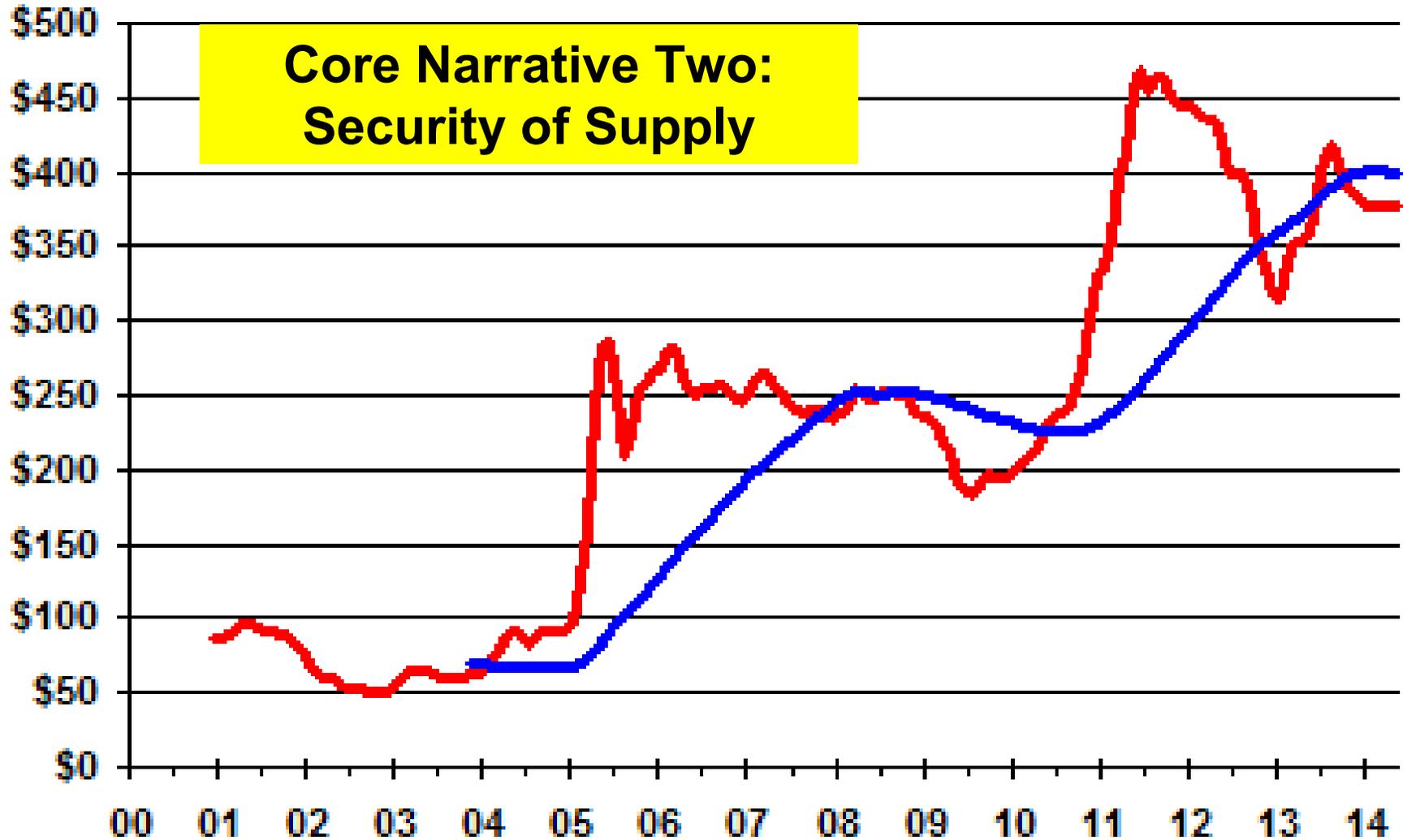


\$0.80  
\$0.70  
\$0.60  
\$0.50  
\$0.40  
\$0.30  
\$0.20  
\$0.10  
\$0.00  
8,000,000  
6,000,000  
4,000,000  
2,000,000  
\$1,000,000  
\$500,000

Issued:	63,178,019	High: \$0.78 on 7/20/2007	Max Volume: 7,412,800 on 11/6/2009
Diluted:	67,028,019	Low: \$0.03 on 10/10/2008	Max Value: \$905,418 on 11/10/2006

# Tungsten APT US \$/mtu

\$376.44 Monthly Avg  
\$398.00 3 Year Avg

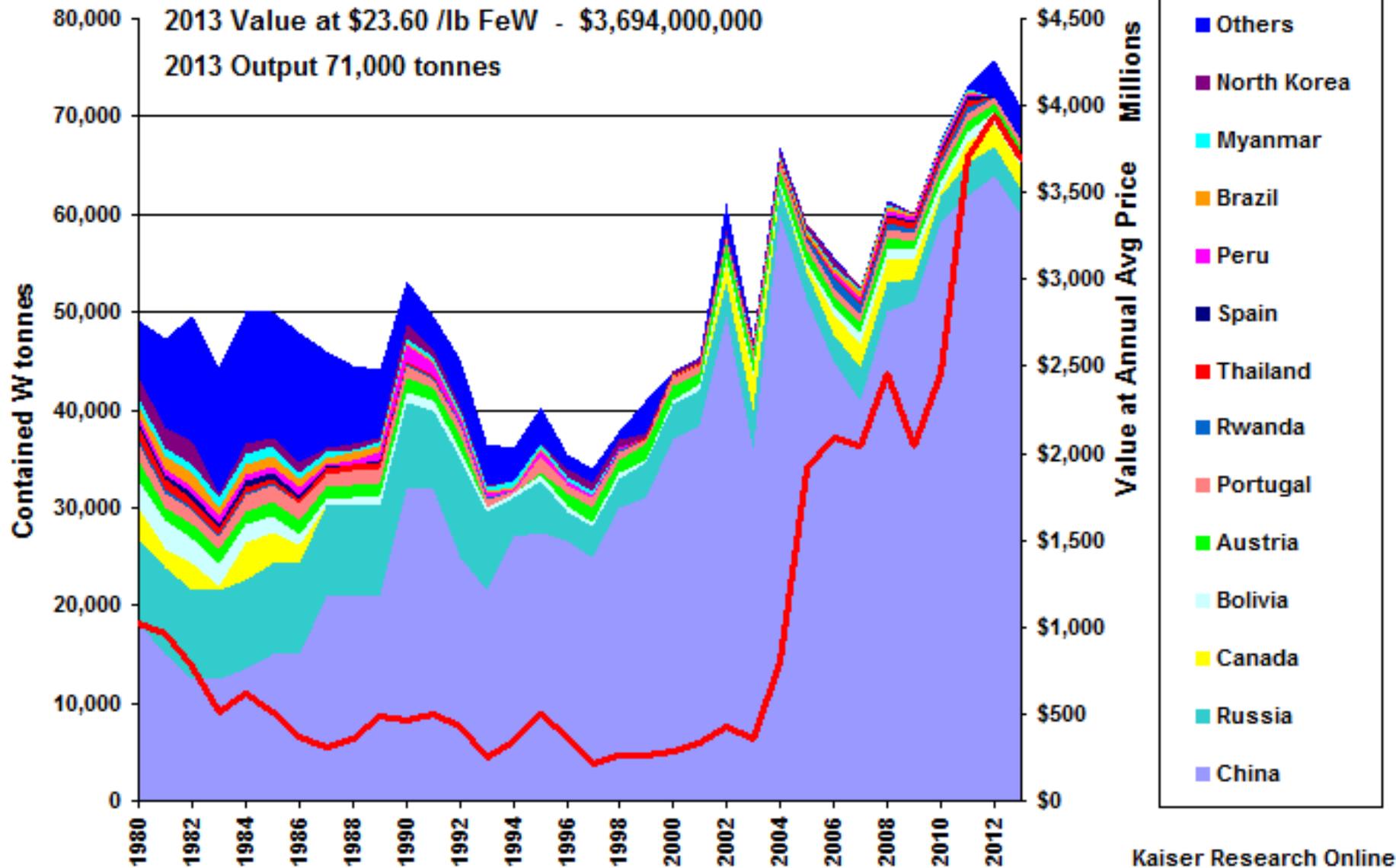




# Annual Tungsten Production

Production Data Source: USGS

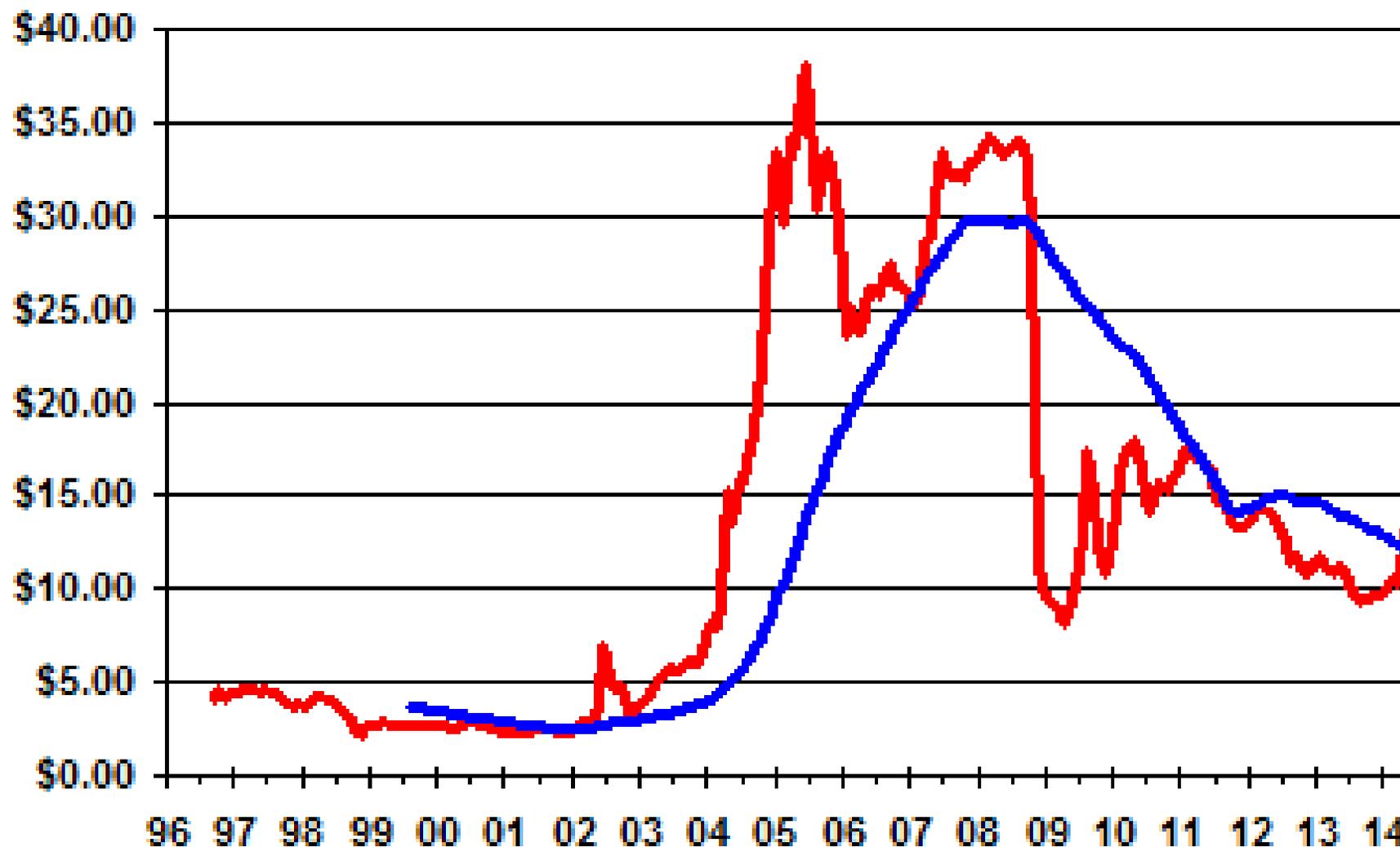
Annual Production Value based on average annual tungsten price



# Molybdenum (MoO3) US \$/lb

\$14.10 Monthly Avg

\$12.06 3 Year Avg

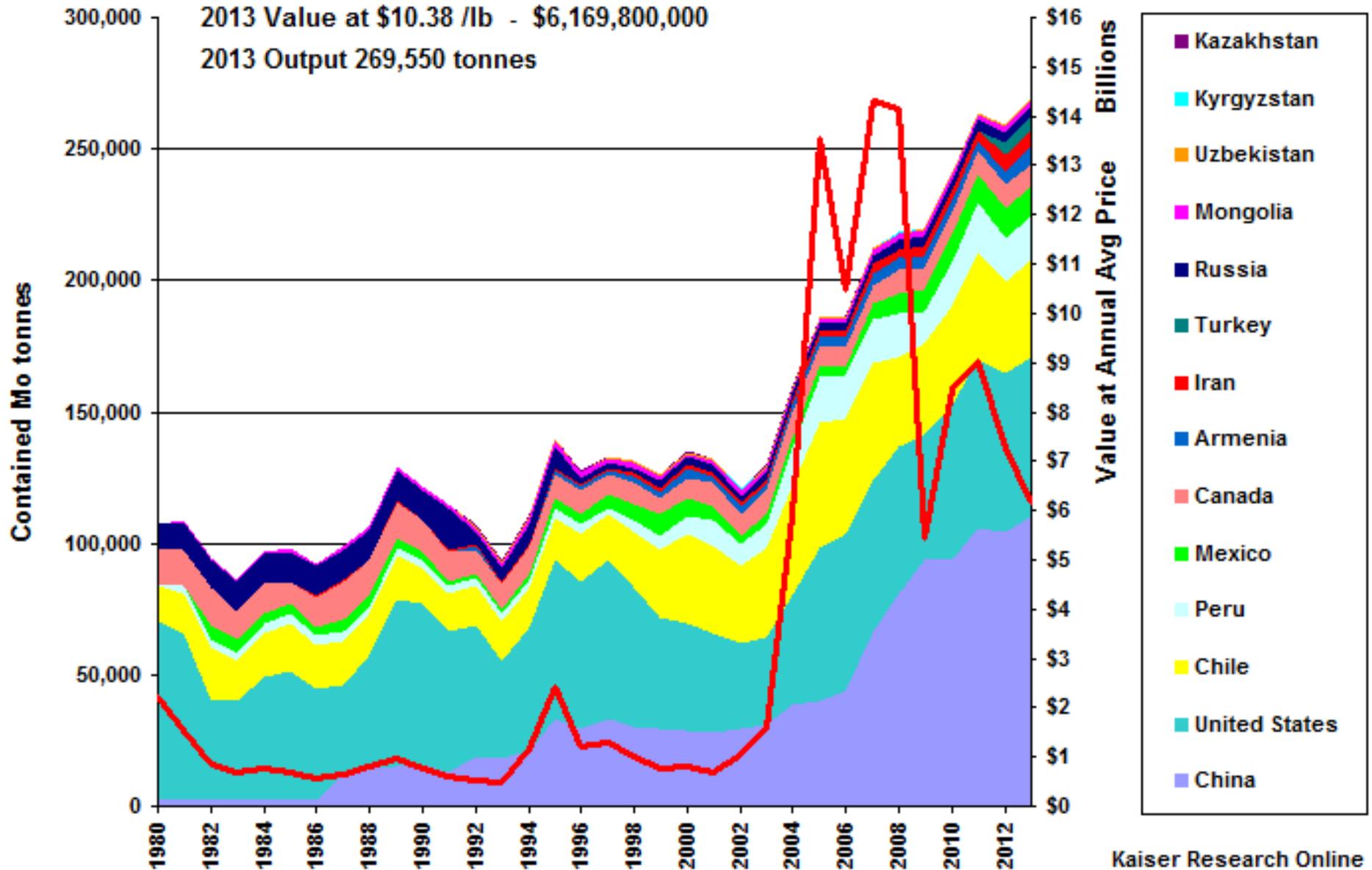




# Annual Molybdenum Production

Production Data Source: USGS

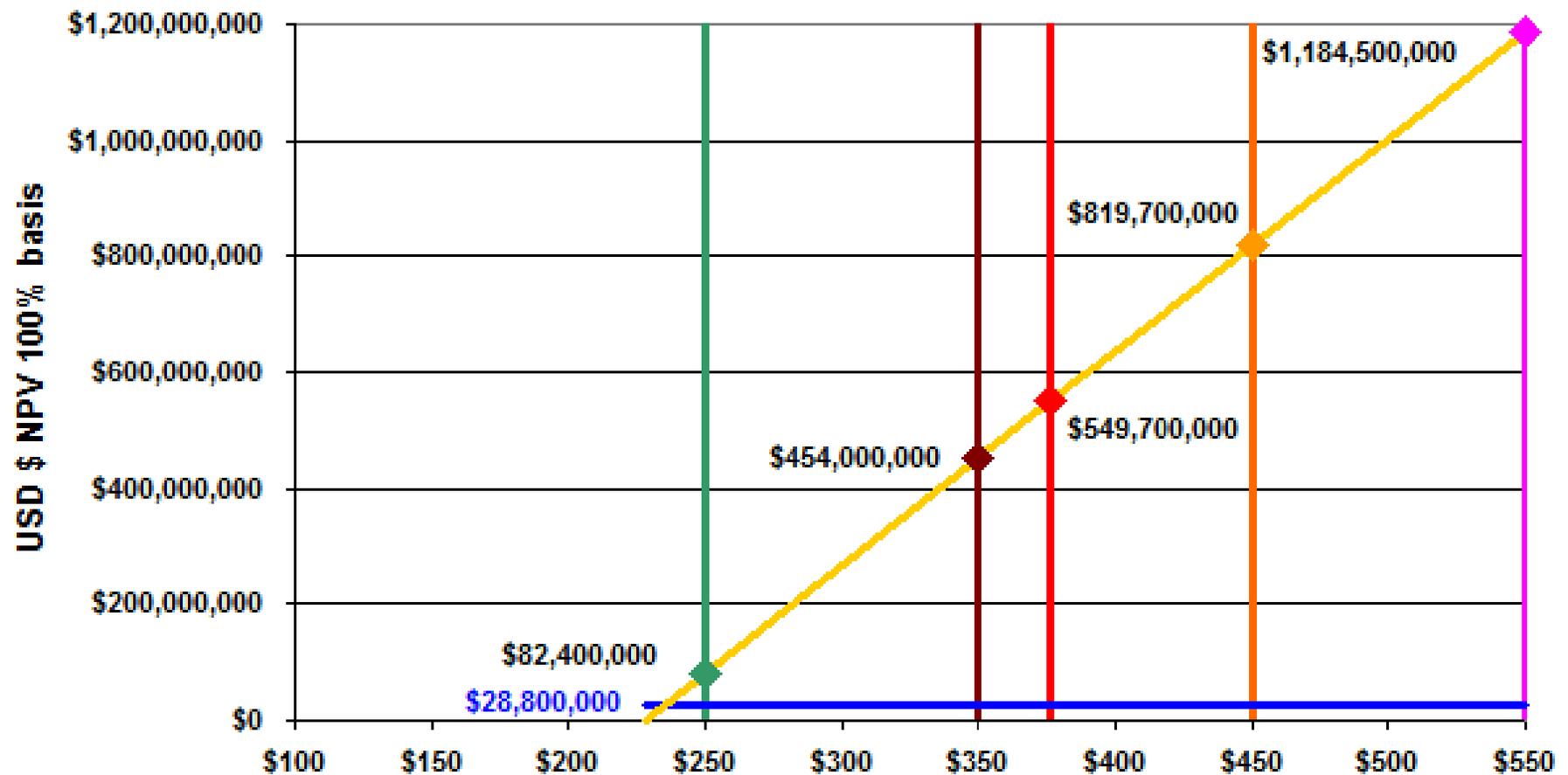
Annual Production Value based on average annual MoO<sub>2</sub> price



## Northcliff - Sisson - After Tax NPV Sensitivity

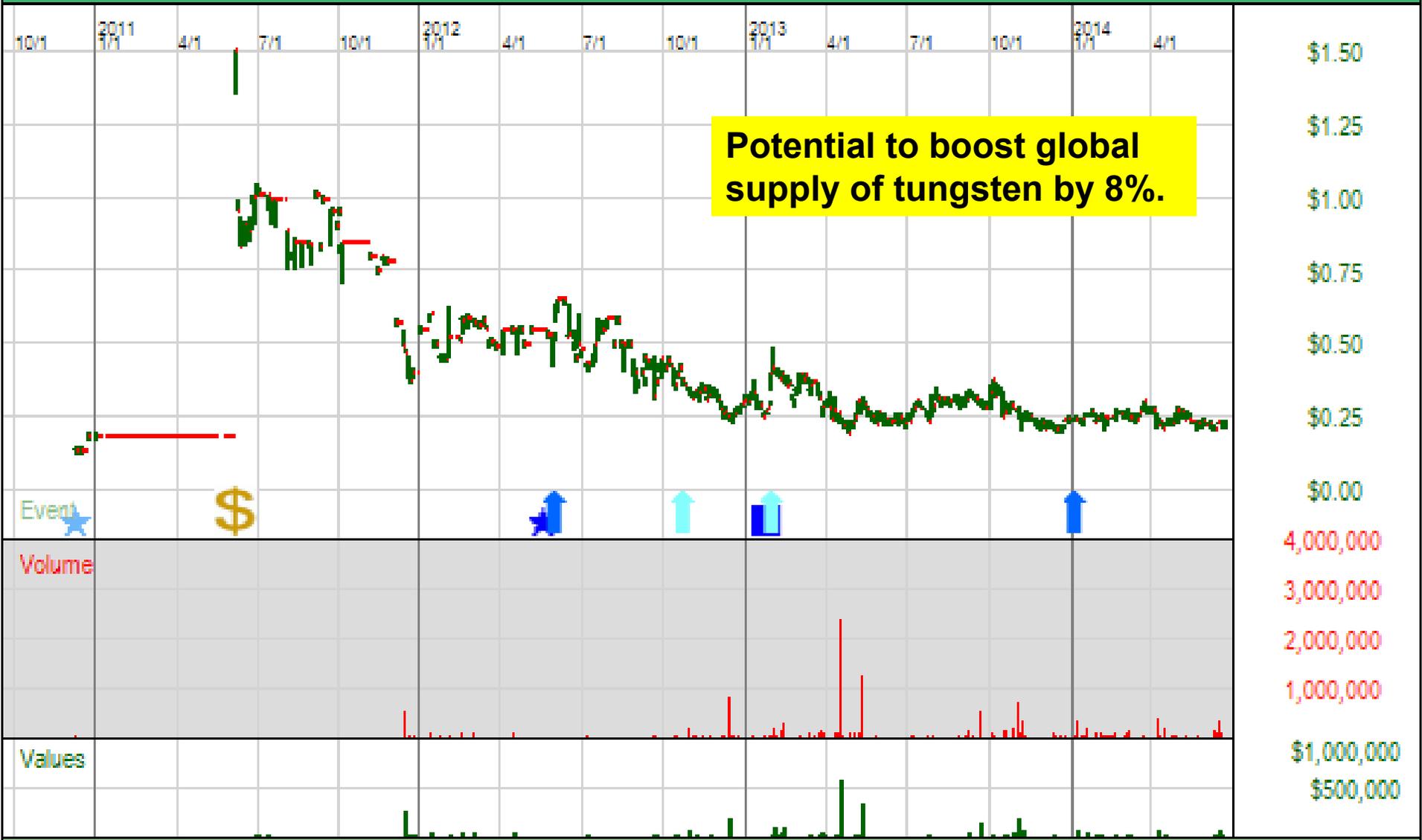
- Pessimistic - \$250/mtu WO3 - IRR 10%
- Base Case - \$350/ WO3 - IRR 23%
- Current - \$376/mtu WO3 - IRR 25%
- Optimistic - \$450/mtu WO3 - IRR 32%
- Fantasy - \$550/mtu WO3 - IRR 41%
- Implied 100% Project Value - \$28,800,000
- AT NPV vs \$/mtu tungsten APT at 10% Disc Rate

2013 FS DCF with LOM avg: 30,000 tpd OP flot w/ APT plant  
 CapEx \$579 M, Sus Cap \$90M, OpEx \$12.43/t, 27 yr mine life  
 P+P - 281 M t @ 0.073% WO3 & 0.022% Mo, MoO2 at \$15/lb  
 98.4 M FD, 30% Tax, exch 1:1 USD:CAD, 78.5% net  
 Recovery: WO3 77%, Mo 82%, Smelter keeps 12% Mo  
 Annual Output Y1-5: 687,000 mtu APT, 4.4 million lb MoO2



# Northcliff Resources Ltd

9/27/2010 TO 6/23/2014



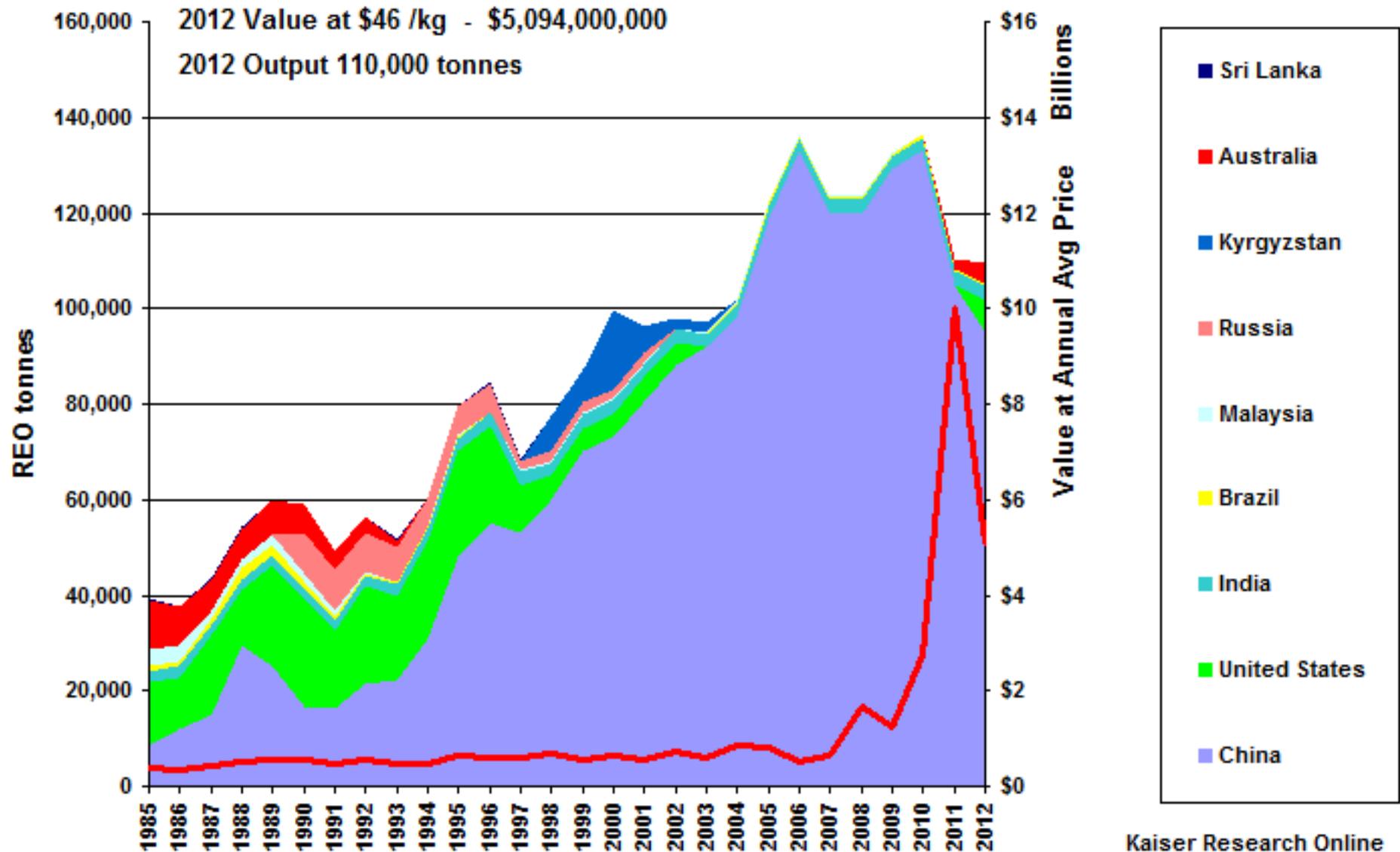
Issued:	91,288,134	High:	\$1.50 on 6/8/2011	Max Volume:	2,411,100 on 4/15/2013
Diluted:	98,351,874	Low:	\$0.14 on 12/9/2010	Max Value:	\$578,664 on 4/15/2013



# Annual Rare Earth Oxide Production

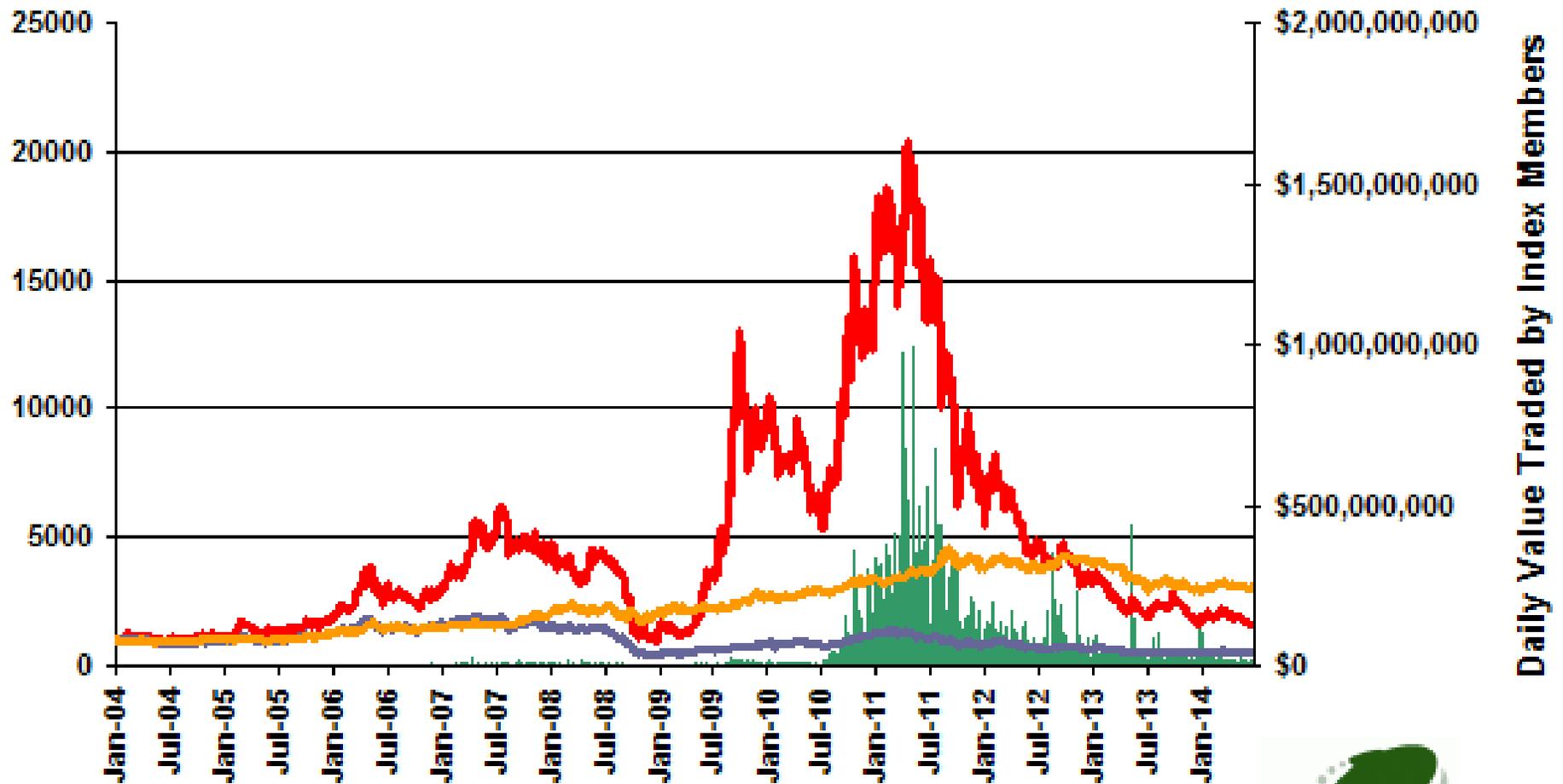
Production Data Source: USGS

Annual Production Value based on KRO supply estimates & Domestic Price

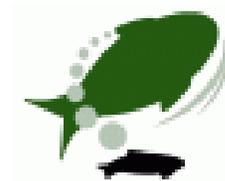


# KRO Rare Earth Stock Index

June 23, 2014



- Daily Value Traded by Index Members
- Gold \$415.20/oz normalized to 1000 on Jan 2, 2004
- TSXV Index Normalized to 1000 on Jan 2, 2004
- Rare Earth Index - 1000 on Jan 2, 2004

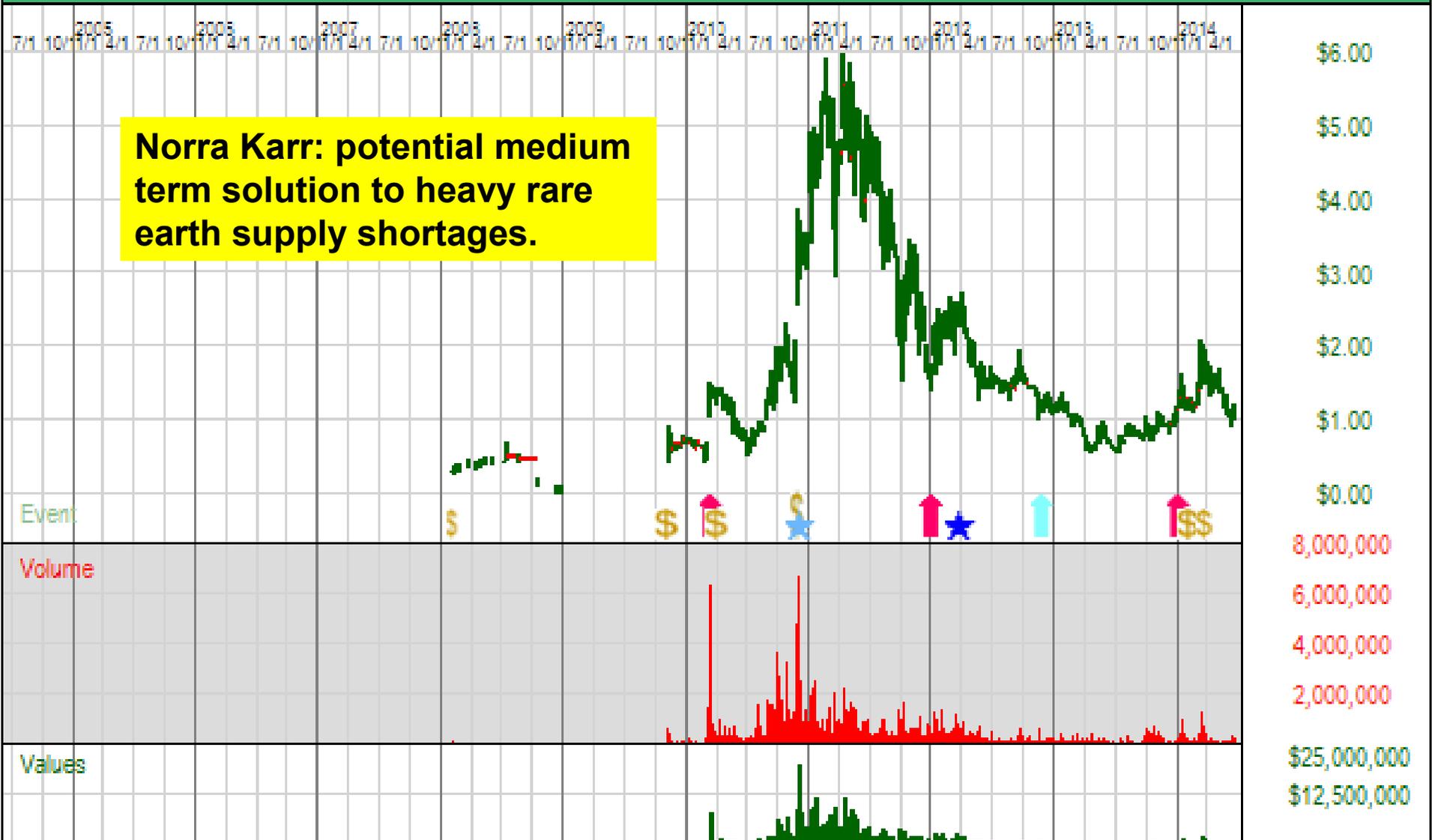


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Kaiser Research

# Tasman Metals Ltd

6/25/2004 TO 6/23/2014

**Norra Karr: potential medium term solution to heavy rare earth supply shortages.**



Issued: 64,826,845

High: \$5.98 on 4/15/2011

Max Volume: 6,726,700 on 11/26/2010

Diluted: 71,698,203

Low: \$0.04 on 12/12/2008

Max Value: \$20,018,946 on 11/26/2010



# Namibia Rare Earths Inc

9/27/2010 TO 6/23/2014



Issued: 77,828,500

High: \$0.87 on 4/14/2011

Max Volume: 3,374,700 on 2/19/2013

Diluted: 83,028,500

Low: \$0.09 on 12/10/2013

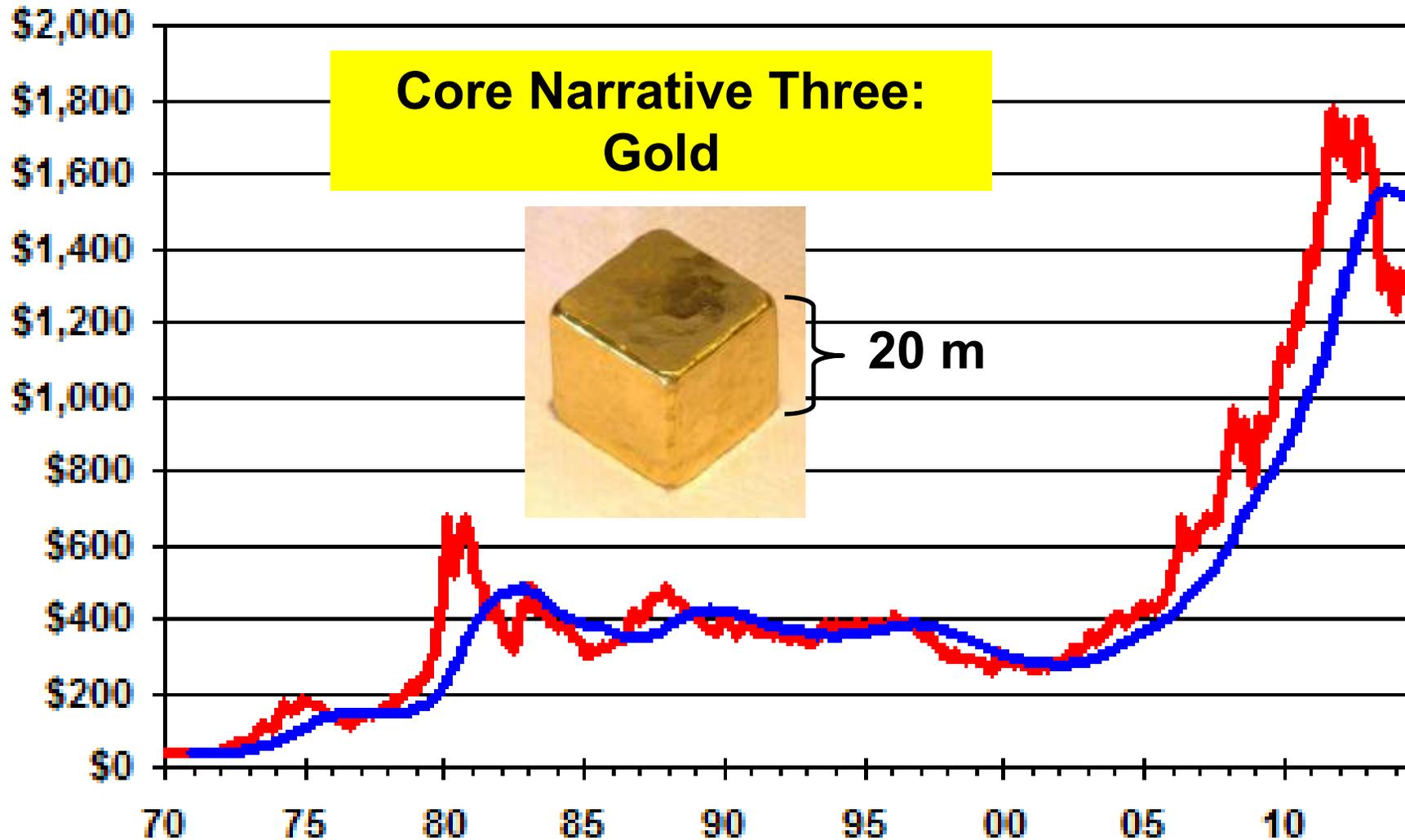
Max Value: \$740,108 on 4/14/2011



# Gold US \$/oz London

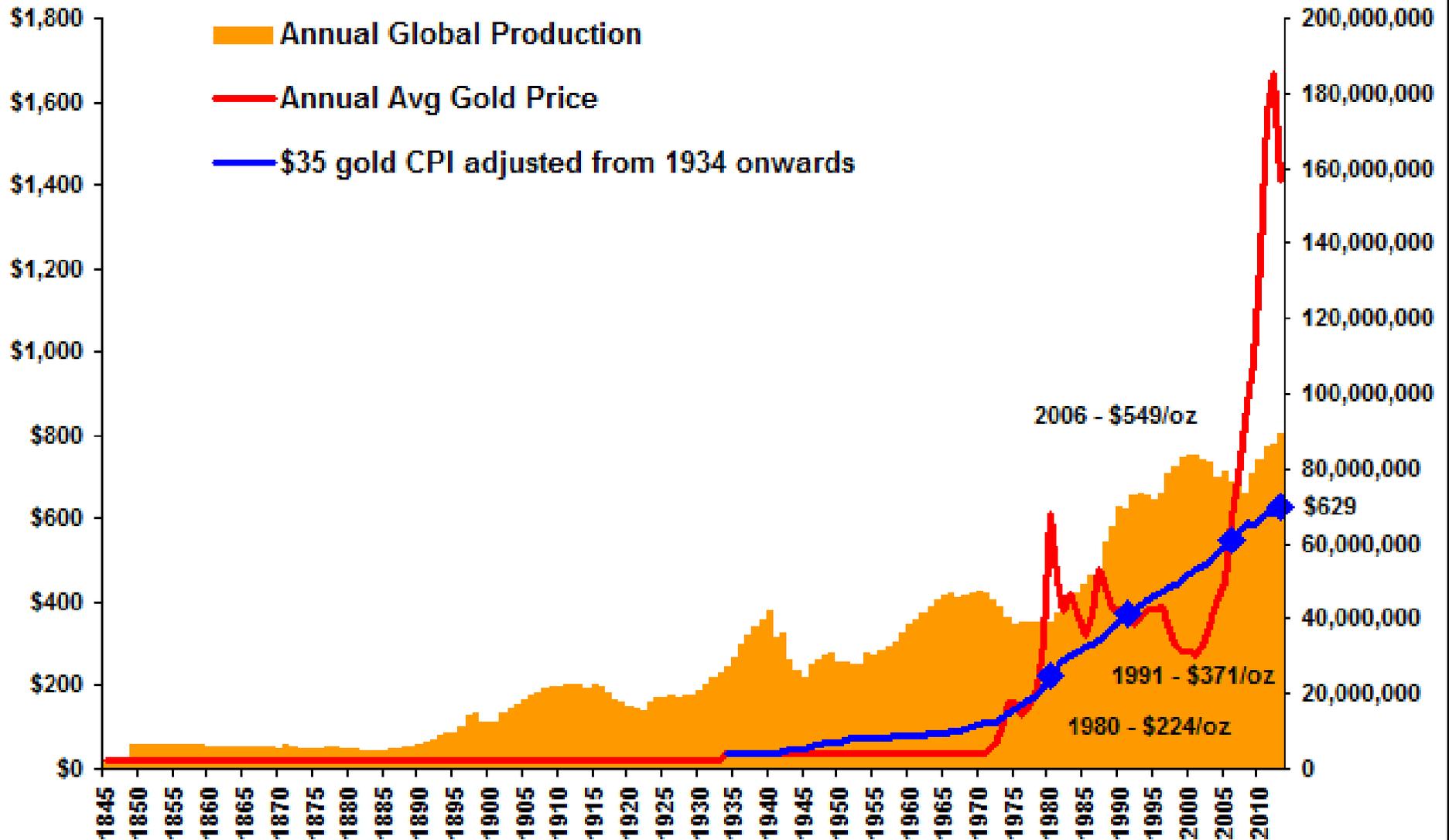
\$1,288 — Monthly Avg

\$1,531 — 3 Year Avg



20 m

## Trends in Global Gold Production 1845-2012



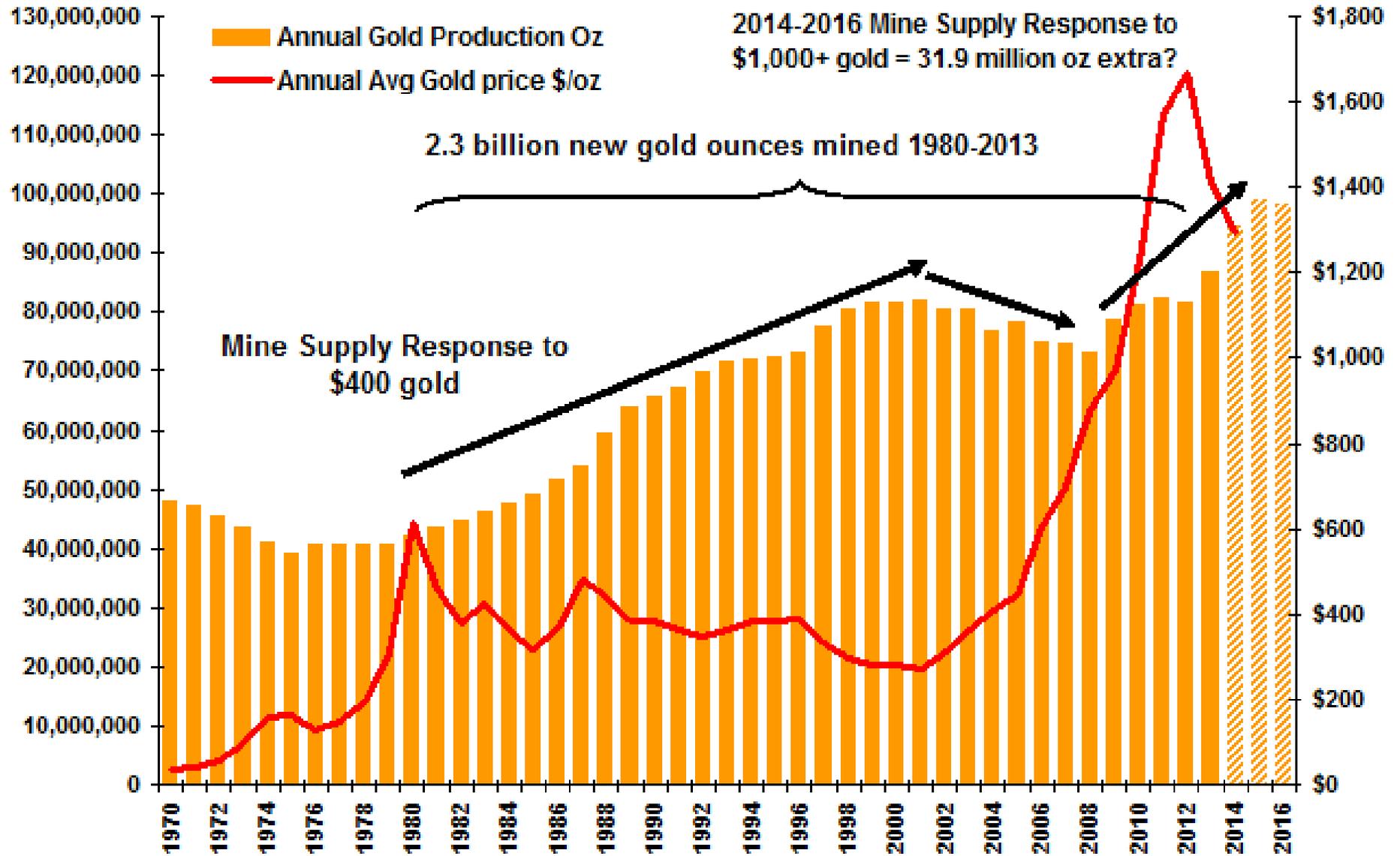
Source: CPM, WGC

June 2014

Kaiser Research Online

# Annual Mine Supply - Gold Ounces

(2.3 billion oz added to 3.2 billion oz stock from 1980-2013, 2014+ CPM projections)



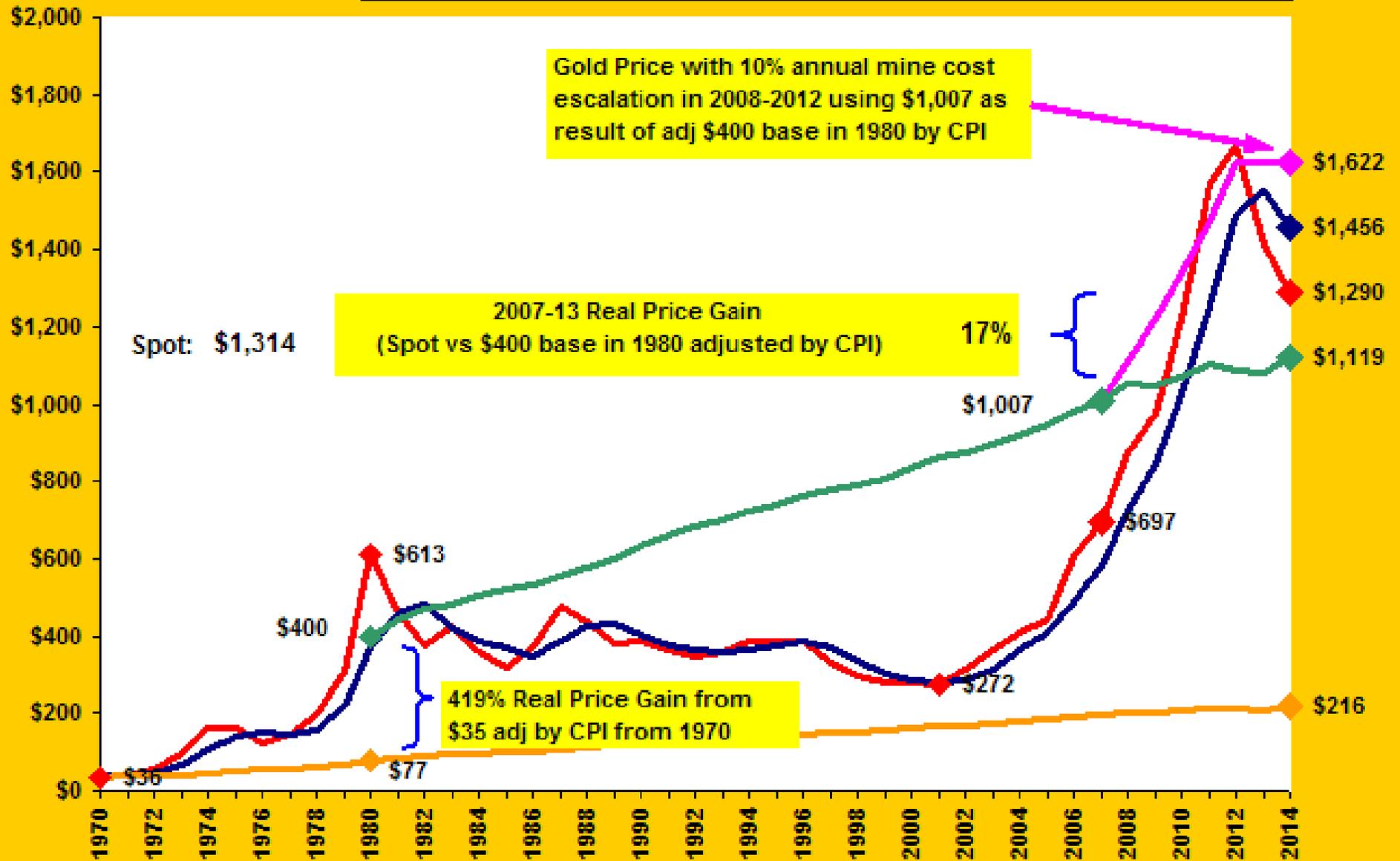
Source: CPM

June 2014

Kaiser Research Online

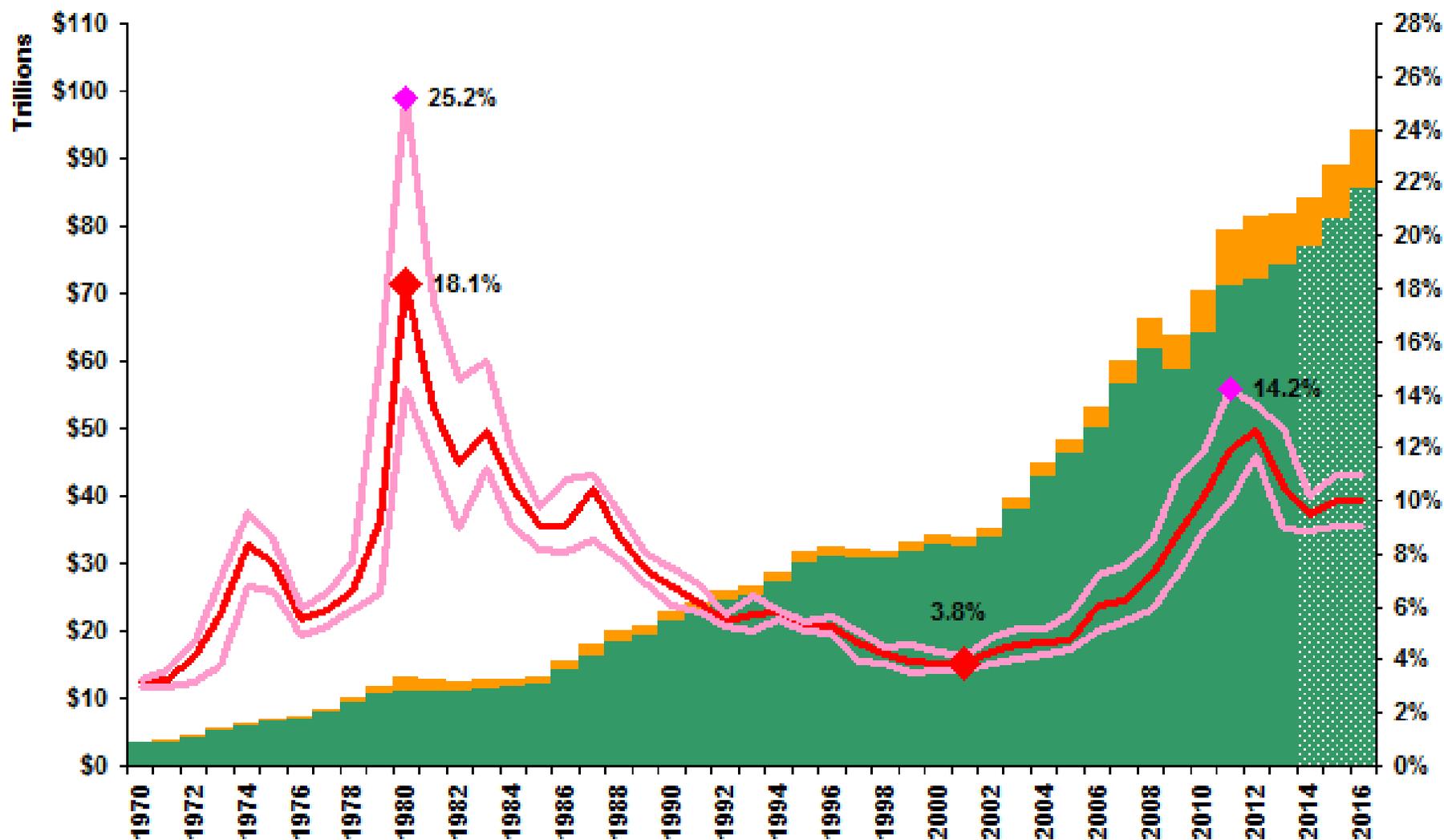
# Gold

- Average Annual Gold Price \$/oz
- 3 year average - includes current year
- Gold CPI adjusted with 10% mine cost escalation 2007-2012
- Gold Price US CPI inflation adjusted from 1980 base of \$400 per oz
- Gold Price US CPI inflation adjusted from 1970 base of \$36 per oz



## Relationship between Global GDP and Value of Existing Gold Stock (2014 onwards GDP & Mine Supply estimated)

■ Global GDP   
 ■ Value of Gold Stock   
 — Gold Value as % of GDP   
 — Gold % of GDP Hi-Lo Range



Source: CPM, IMF, World Bank

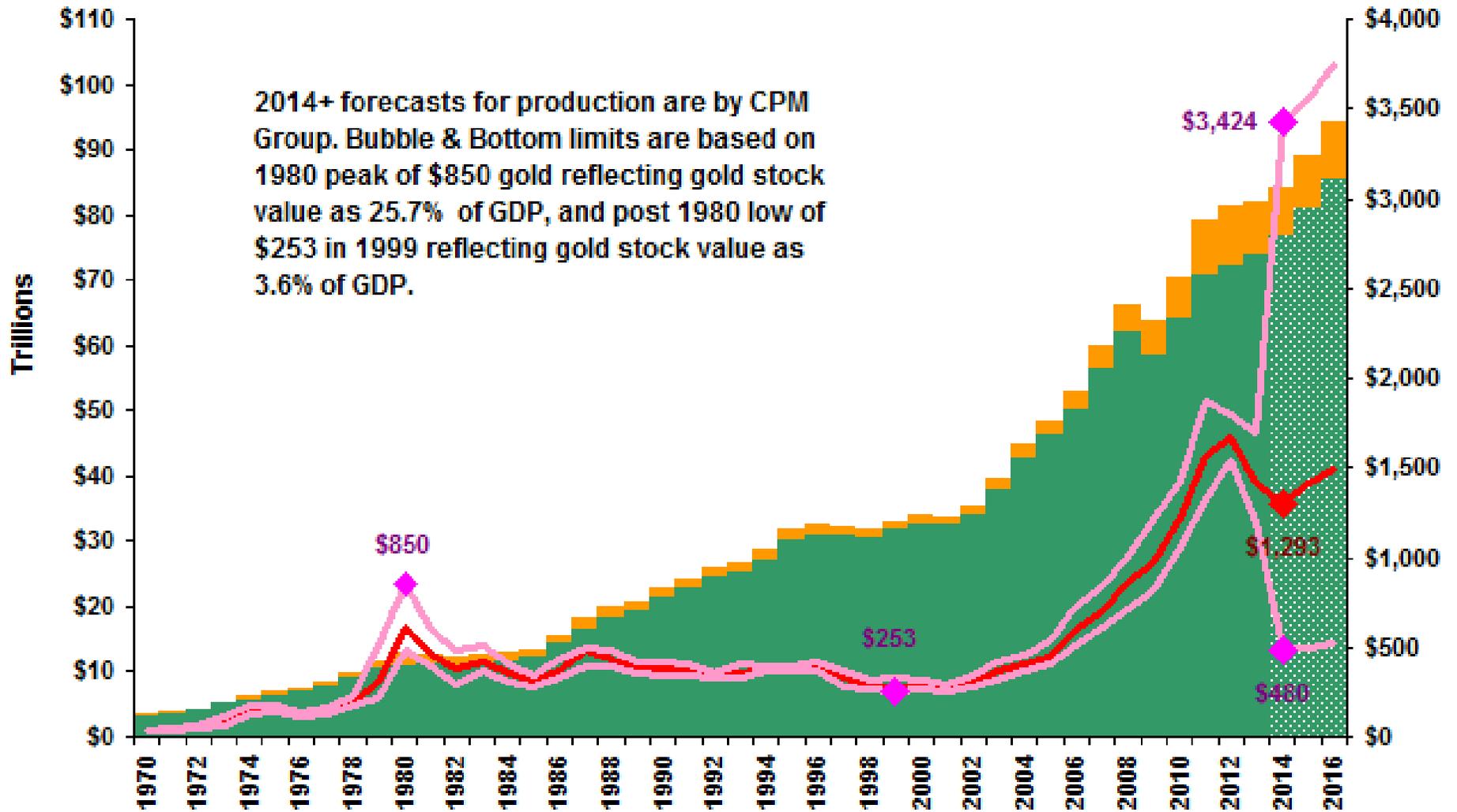
June 2014

Kaiser Research Online

# Past Peak & Bottom Based Bubble & Bear Limits for Gold

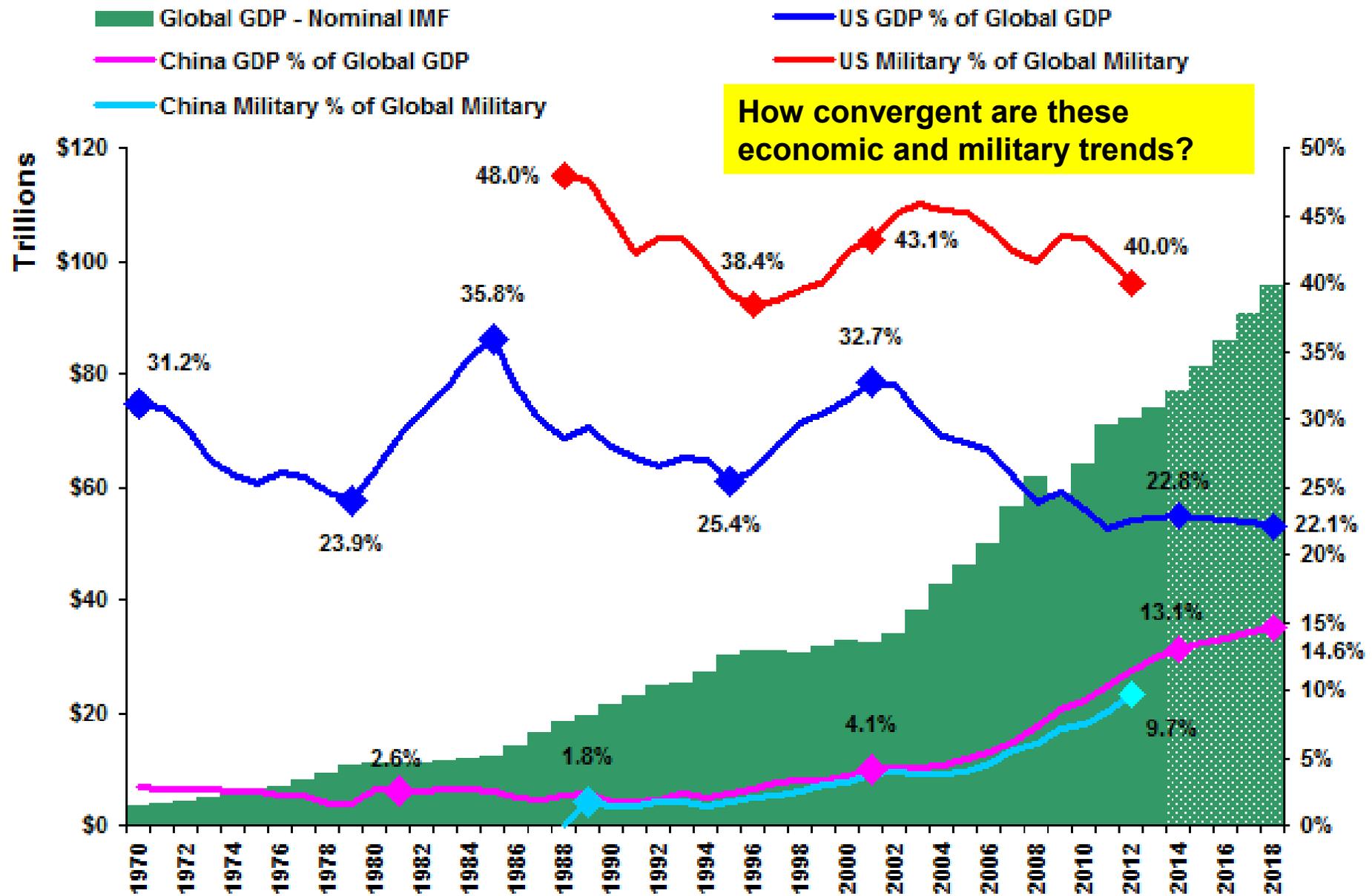
(2014 onwards GDP & Mine Supply estimated)

- Global GDP
- Value of Gold Stock
- Average Gold Price
- Yearly Hi-Lo Range



## US & China Relative Percentage of Global GDP & Military Spending

(2014-2018 GDP estimates by IMF)



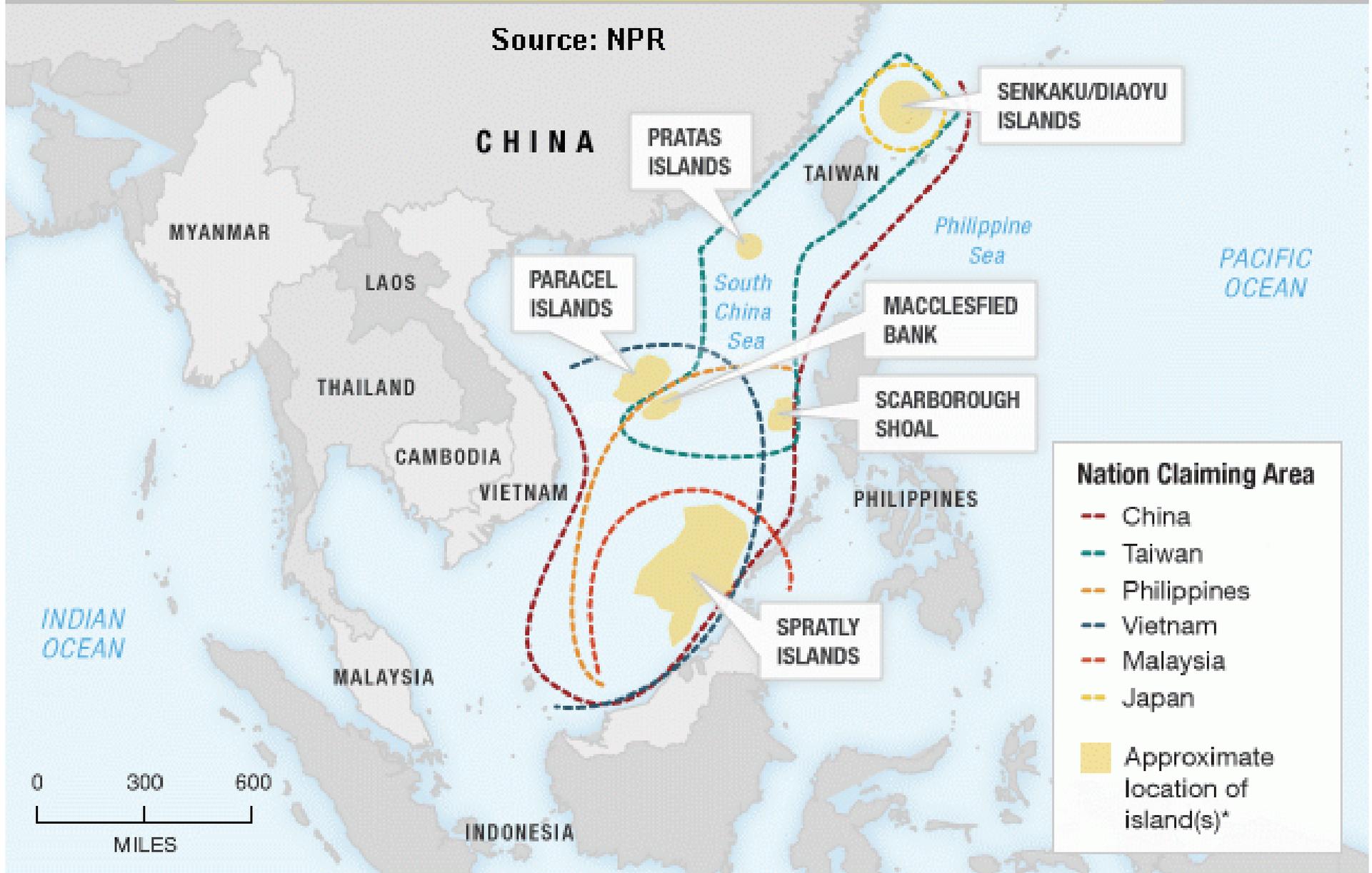
Source: IMF, SIPRI, World Bank

June 2014

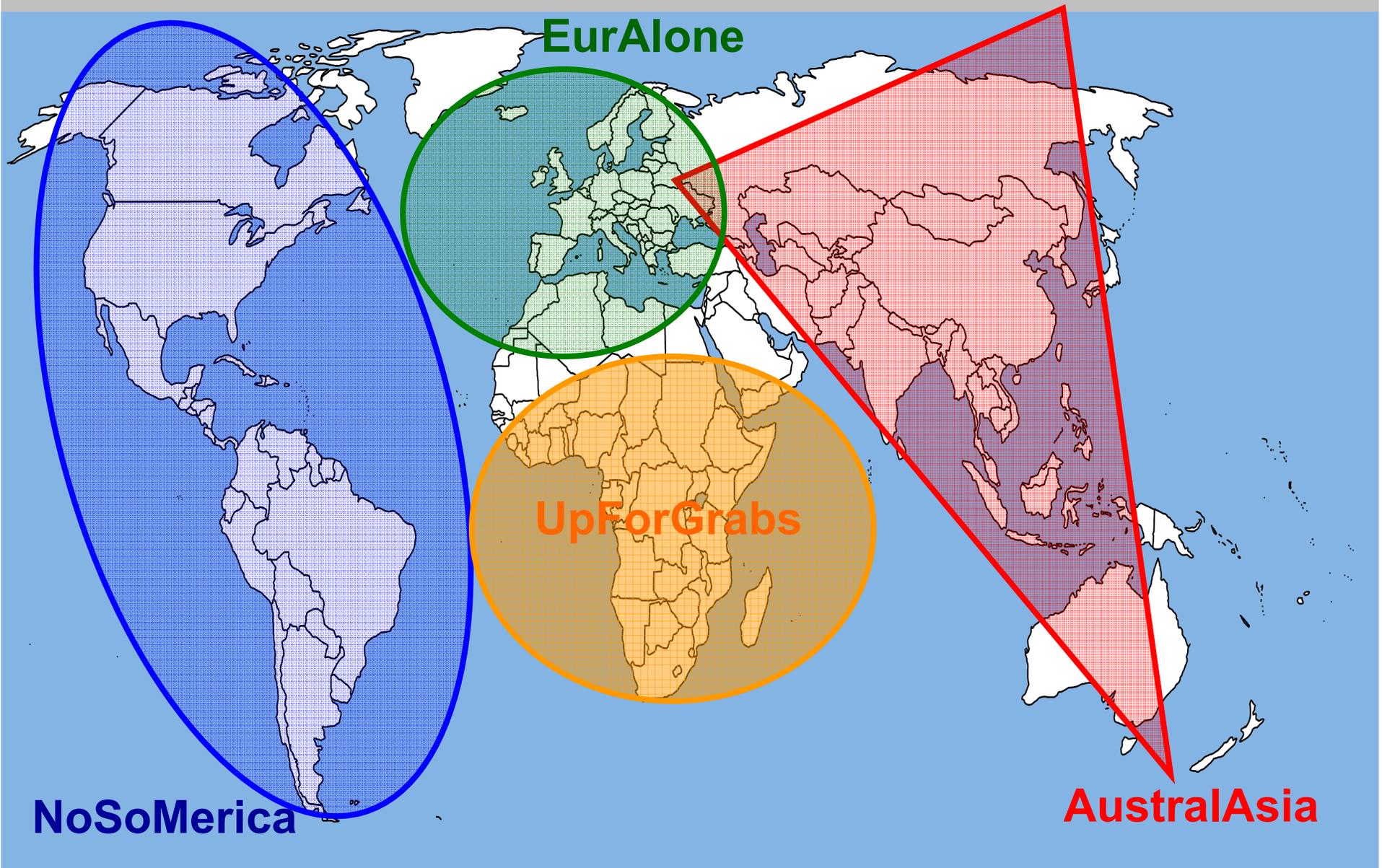
Kaiser Research Online

# China's own security of supply needs force it to expand its footprint in Southeast Asia.

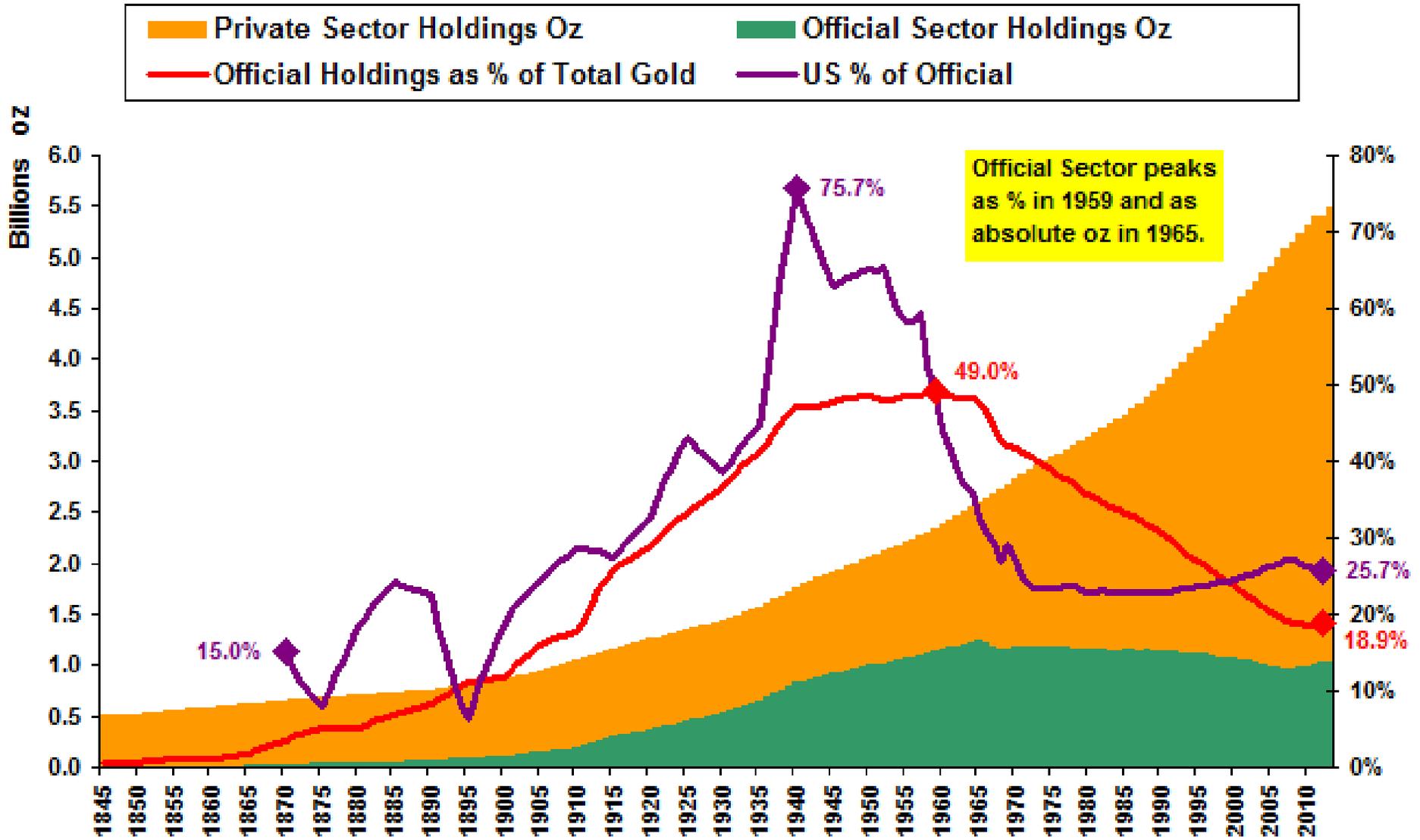
Source: NPR



# Post-Globalization Economic Zone Fragmentation?

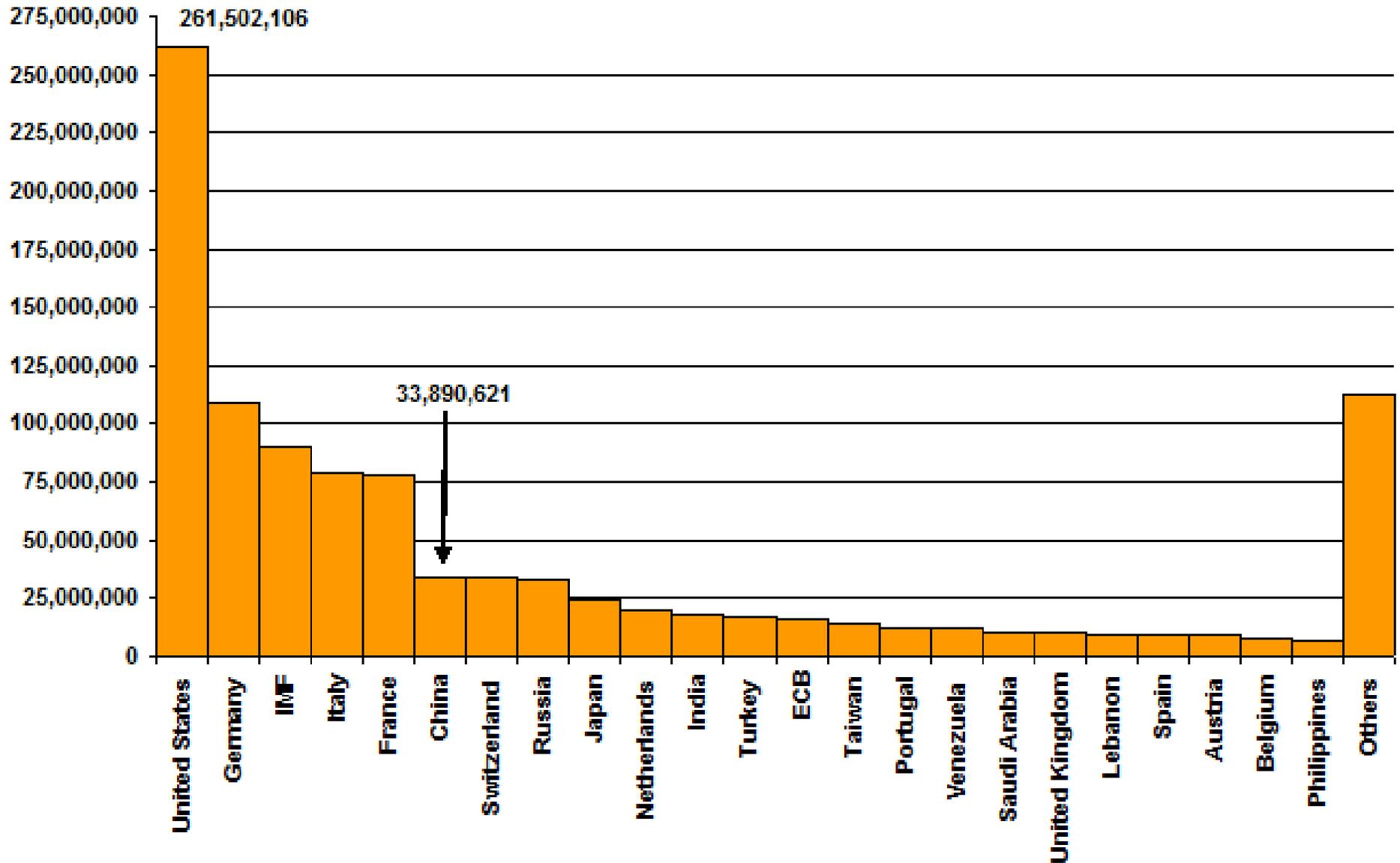


## Trends in Official & Private Sector Gold Holdings



# Official Gold Holdings - Feb 2014

1,025 million ounces (31,890 tonnes)

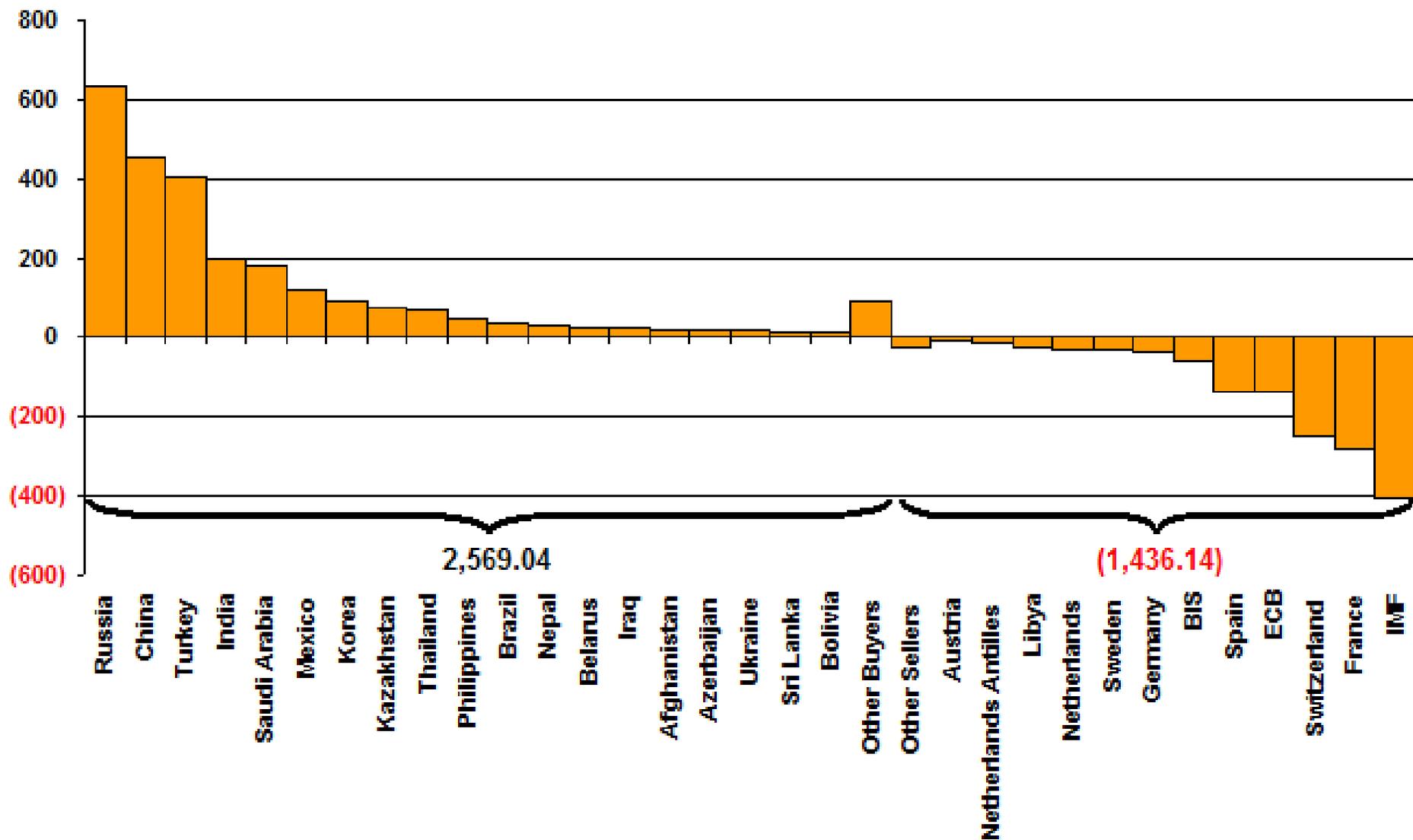


Source: World Gold Council

Kaiser Research Online

# Official Sector Gold Holding Change since 2007

+ 1,132.9 tonnes or 36.4 million ounces as of Feb 2014



Source: World Gold Council

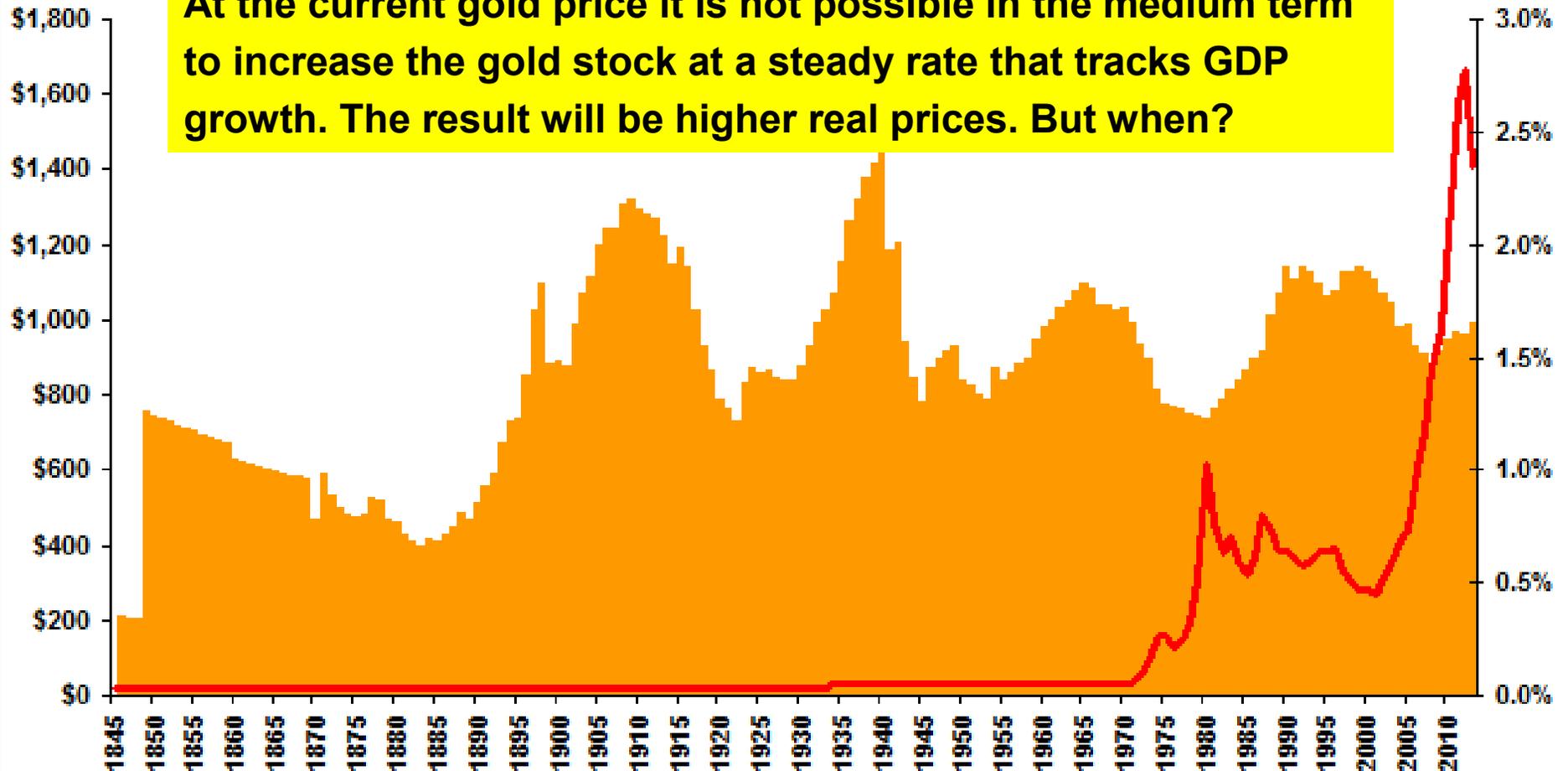
Kaiser Research Online

## Trends in Global Gold Production 1845-2013

Annual % Increase in Gold Stock

Annual Avg Gold Price

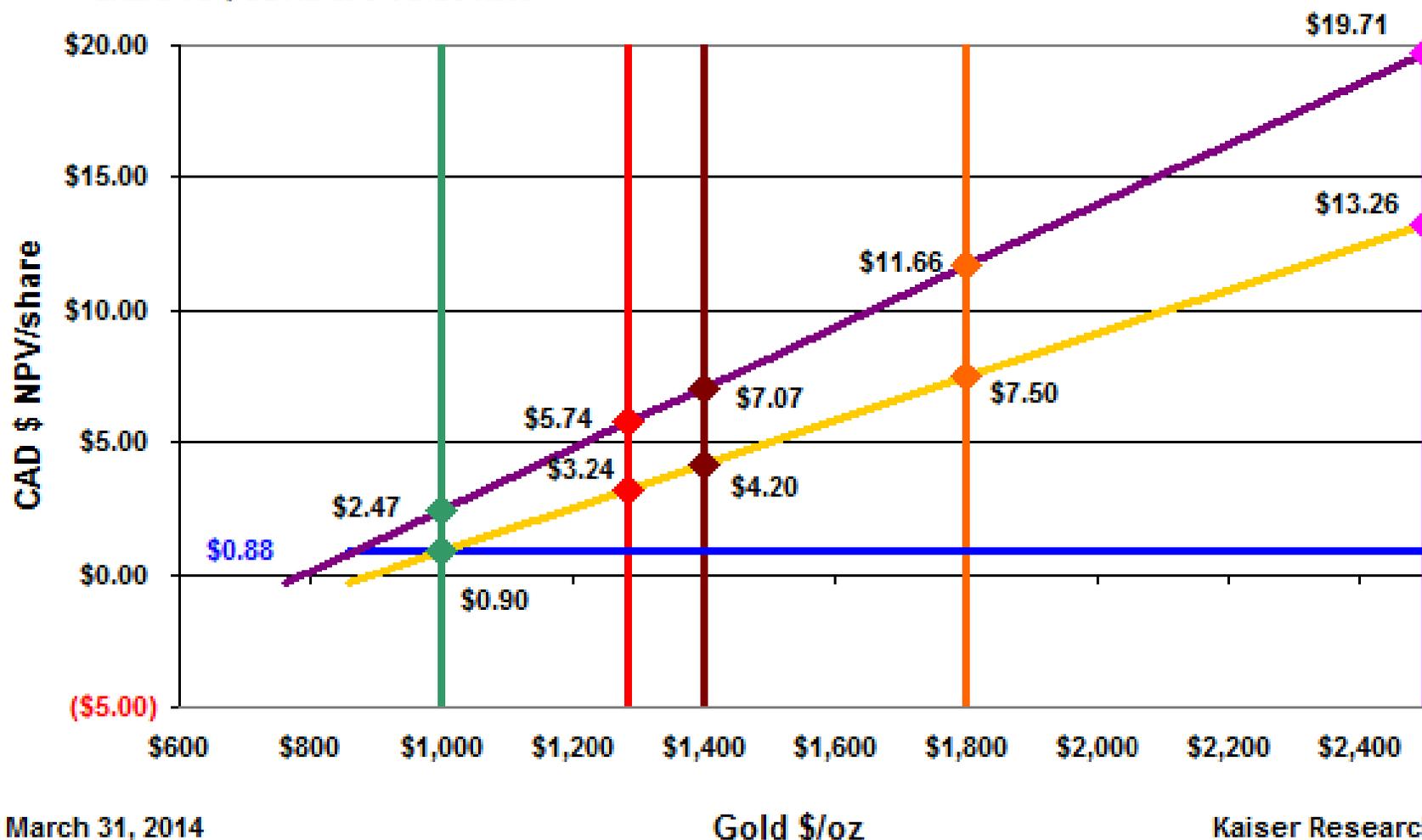
At the current gold price it is not possible in the medium term to increase the gold stock at a steady rate that tracks GDP growth. The result will be higher real prices. But when?



## Midas Gold - Golden Meadows - After Tax NPV Sensitivity

- Pessimistic - \$1,000/oz Au - IRR 14%
- Base Case - \$1,400/ Au - IRR 27%
- Current - \$1,284/oz Au - IRR 24%
- Optimistic - \$1,800/oz Au - IRR 38%
- Fantasy - \$2,500/oz Au - IRR 55%
- Current Stock Price - \$0.88
- Share vs \$/oz Au at 10% Disc Rate
- Share vs \$/oz Au at 5% Disc Rate

PEA Sept 2012: 20,000 tpd OP & Mill/POX, 15 year mine life  
 Capex \$879 M, SustEx \$303 M, OpEx \$29/t, BC \$20/oz Ag, \$4.60/lb Sb  
 I+I: 101.3 M t @ 1.72 g/t Au, 1.6 g/t Ag, incl 17.4 M t 0.45% Sb  
 Flotation Recovery 89% Au, 16% Ag, 80% Sb with 65% payable  
 FD: 162.6 M, tax rate 43%, exch 1:1 USD/CAD, 100% Net  
 LOM payable 4.9 M oz Au, 335,000 oz Ag, 90.6 M lb Sb (antimony)



# Midas Gold Corp

9/27/2010 TO 6/23/2014



Issued: 141,705,090

High: \$4.90 on 1/16/2012

Max Volume: 1,542,400 on 1/12/2012

Diluted: 163,565,901

Low: \$0.63 on 11/28/2013

Max Value: \$6,786,560 on 1/12/2012



# Arequipa Resources Ltd

9/8/1993 TO 10/24/1996



Issued: 31,400,000

High: \$34.75 on 5/27/1996

Max Volume: 5,799,304 on 7/11/1996

Diluted: 35,900,000

Low: \$0.49 on 2/3/1995

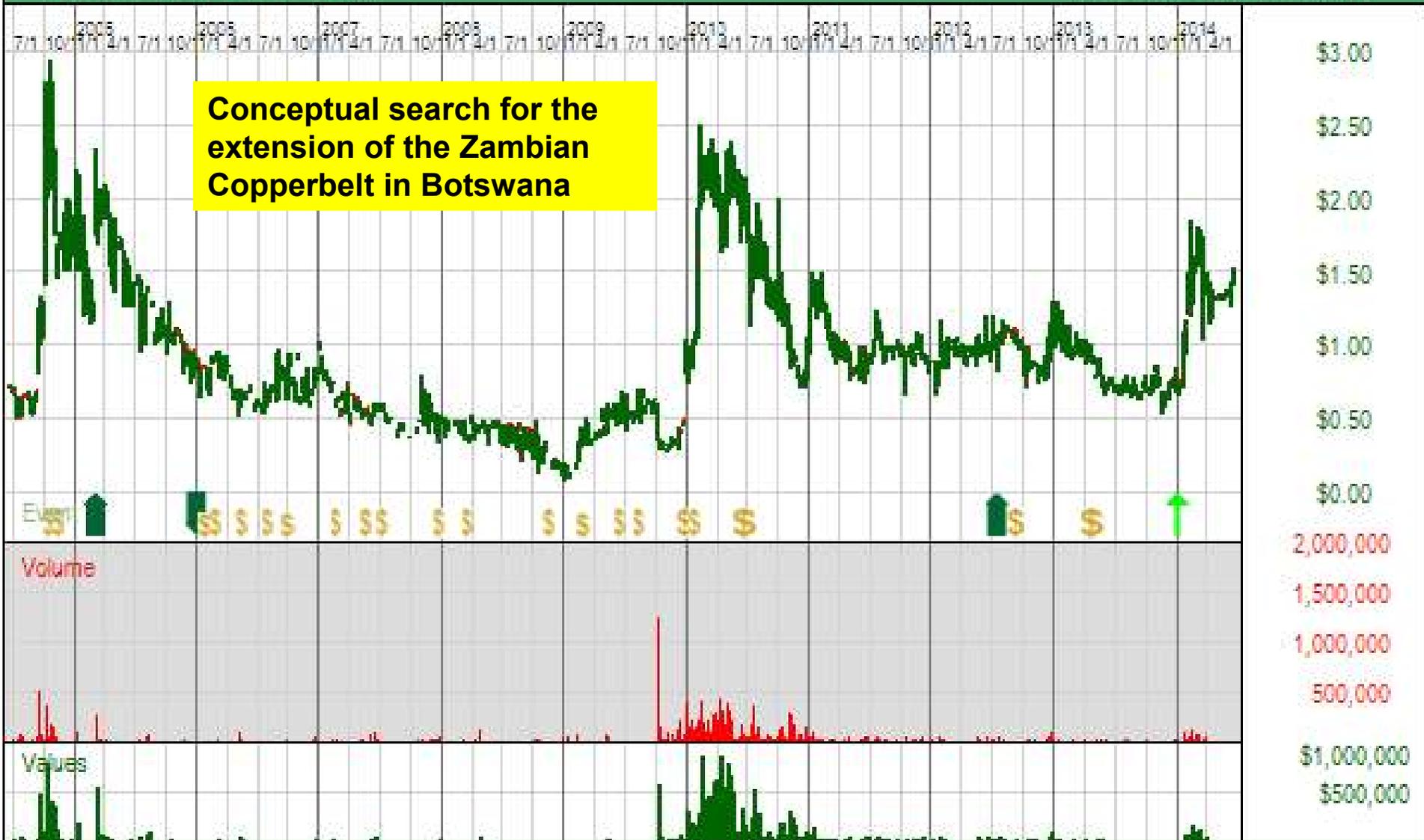
Max Value: \$166,440,025 on 7/11/1996



# Tsodilo Resources Ltd

6/25/2004 TO 6/23/2014

**Conceptual search for the extension of the  
Zambian Copperbelt in Botswana**



\$3.00

\$2.50

\$2.00

\$1.50

\$1.00

\$0.50

\$0.00

2,000,000

1,500,000

1,000,000

500,000

\$1,000,000

\$500,000

Issued: 30,780,989

High: \$2.95 on 10/22/2004

Max Volume: 1,250,100 on 10/2/2009

Diluted: 40,893,489

Low: \$0.07 on 1/2/2009

Max Value: \$873,260 on 4/9/2010



KaiserResearch.com

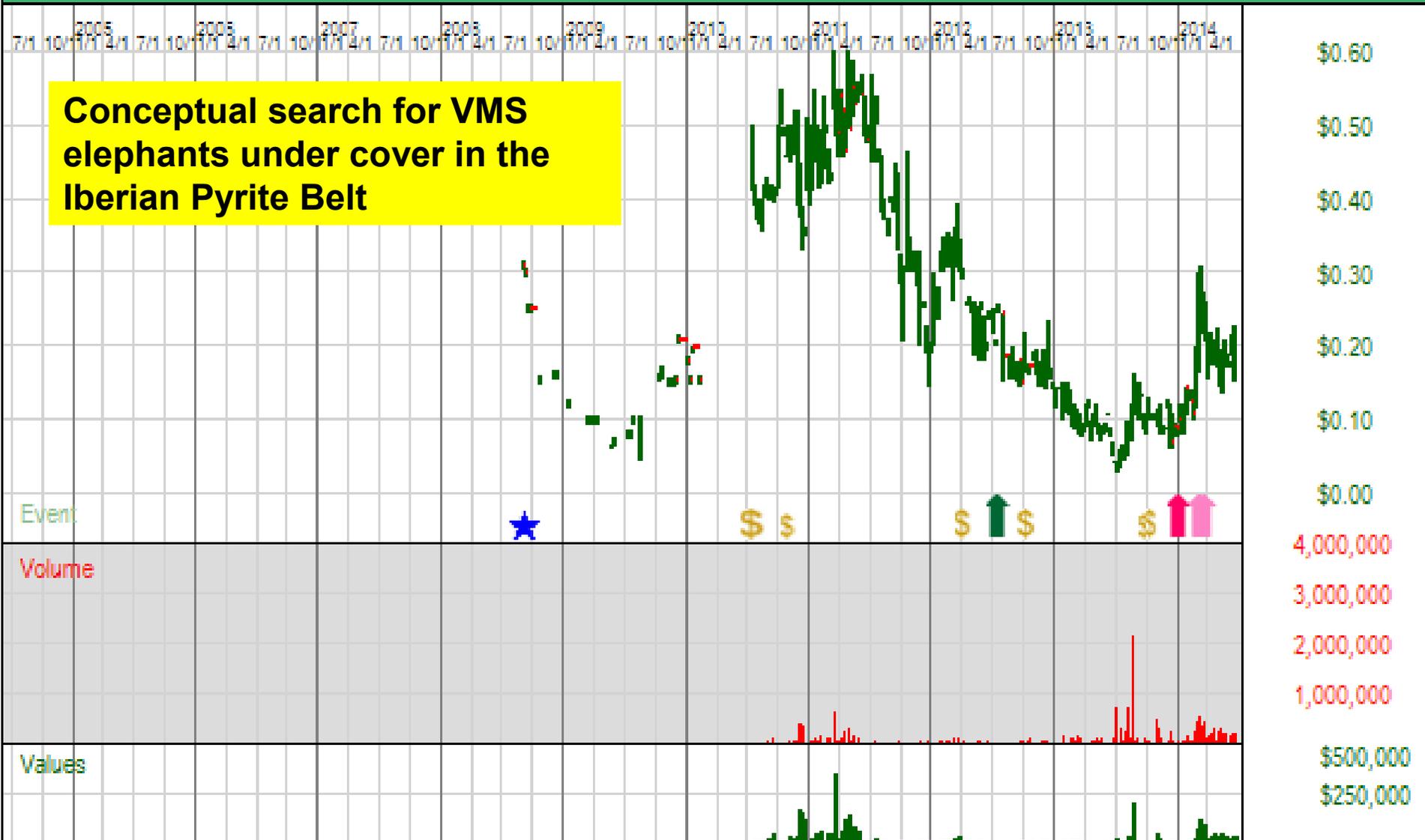
TSD - TSXV - CAD \$1.50

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# Avrupa Minerals Ltd

6/25/2004 TO 6/23/2014

**Conceptual search for VMS elephants under cover in the Iberian Pyrite Belt**



Issued: 38,973,571

High: \$0.60 on 3/11/2011

Max Volume: 2,179,000 on 8/16/2013

Diluted: 64,112,871

Low: \$0.04 on 7/5/2013

Max Value: \$354,433 on 3/11/2011



# Uravan Minerals Inc

6/25/2004 TO 6/23/2014

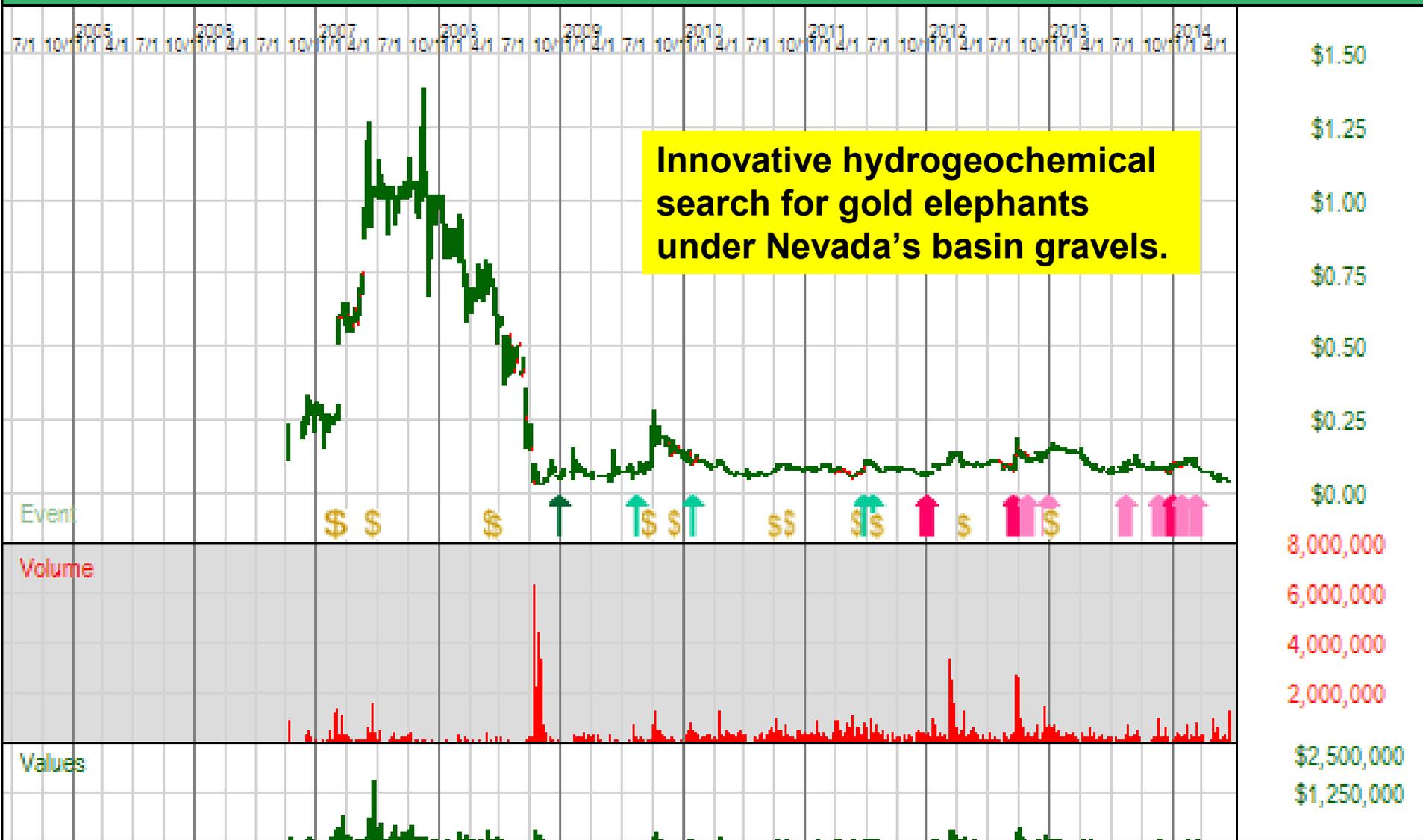


**Innovative geochemical search for deep uranium elephants in the Athabasca Basin**

Issued:	38,544,012	High:	\$2.00 on 9/16/2005	Max Volume:	1,737,900 on 11/2/2012
Diluted:	40,569,012	Low:	\$0.03 on 4/19/2013	Max Value:	\$1,316,058 on 4/13/2007

# Nevada Exploration Inc

6/25/2004 TO 6/23/2014



Issued: 128,065,900

High: \$1.38 on 11/16/2007

Max Volume: 6,300,900 on 10/10/2008

Diluted: 144,043,900

Low: \$0.03 on 10/31/2008

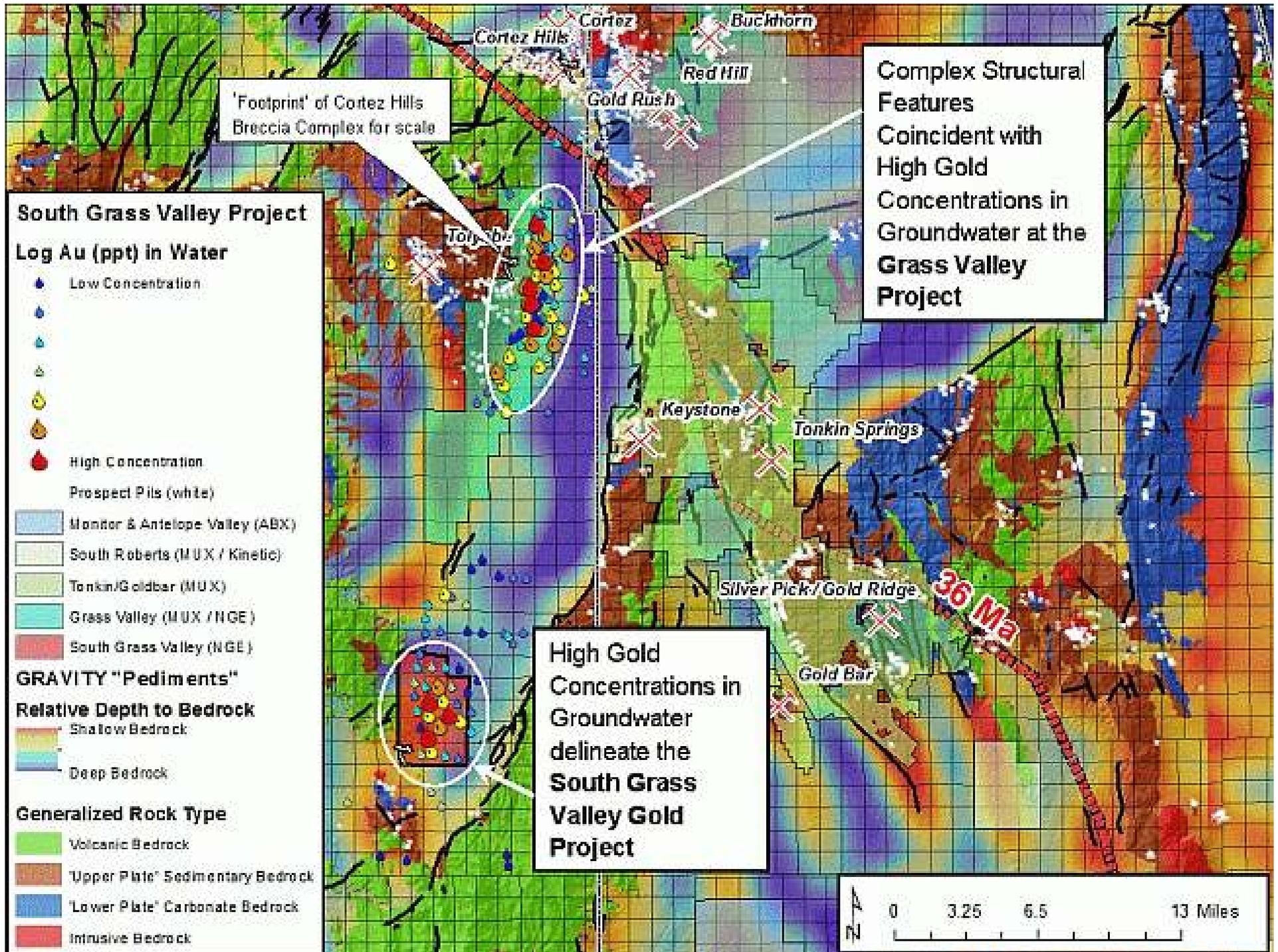
Max Value: \$1,598,701 on 6/15/2007

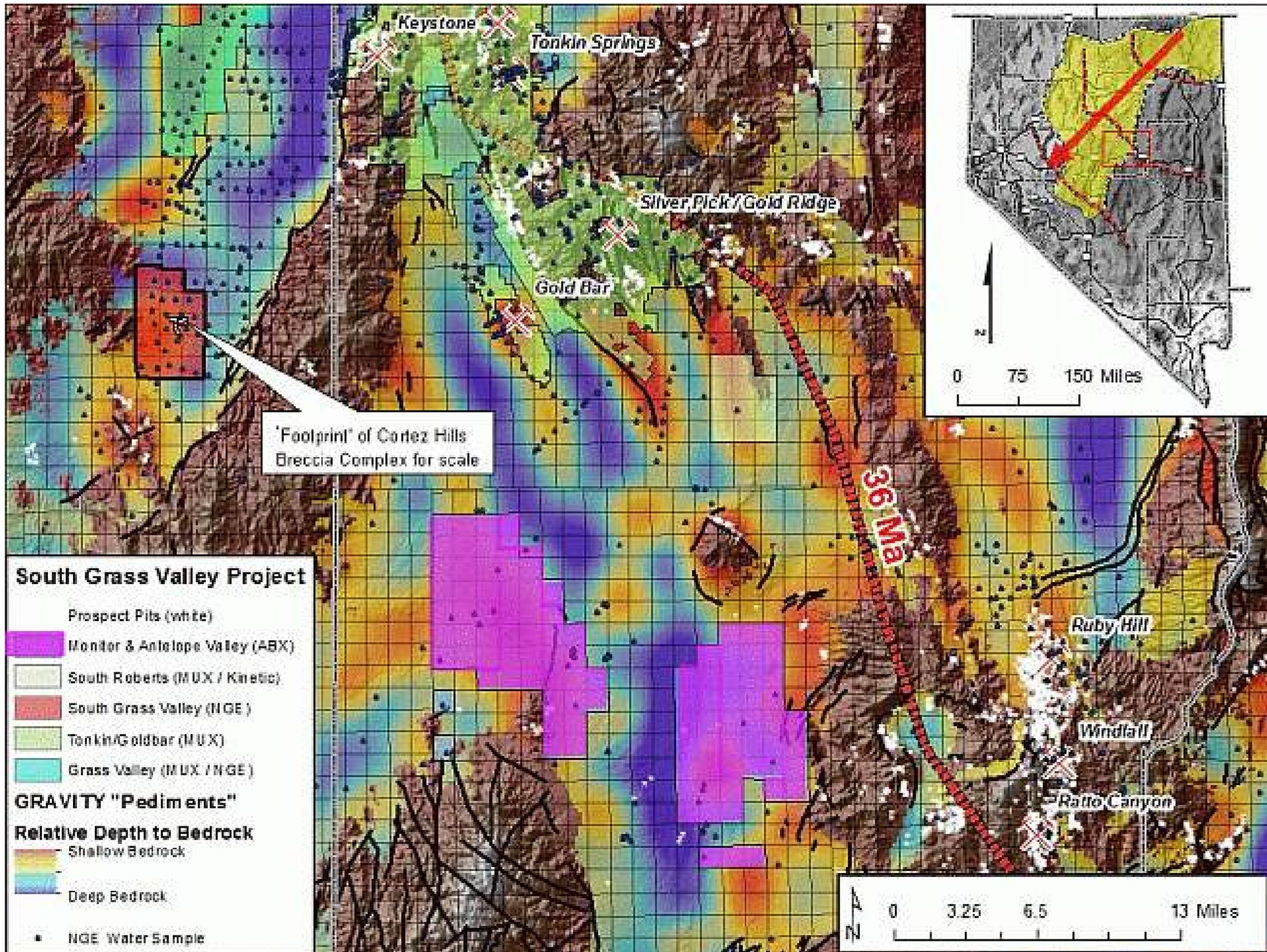


**KaiserResearch.com**

**NGE - TSXV - CAD \$0.04**

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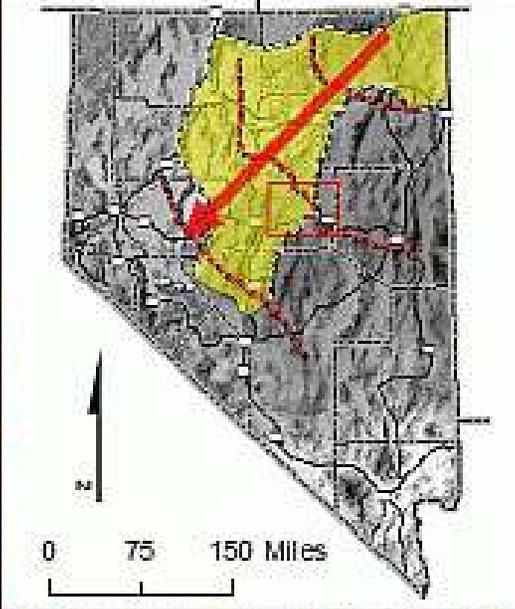




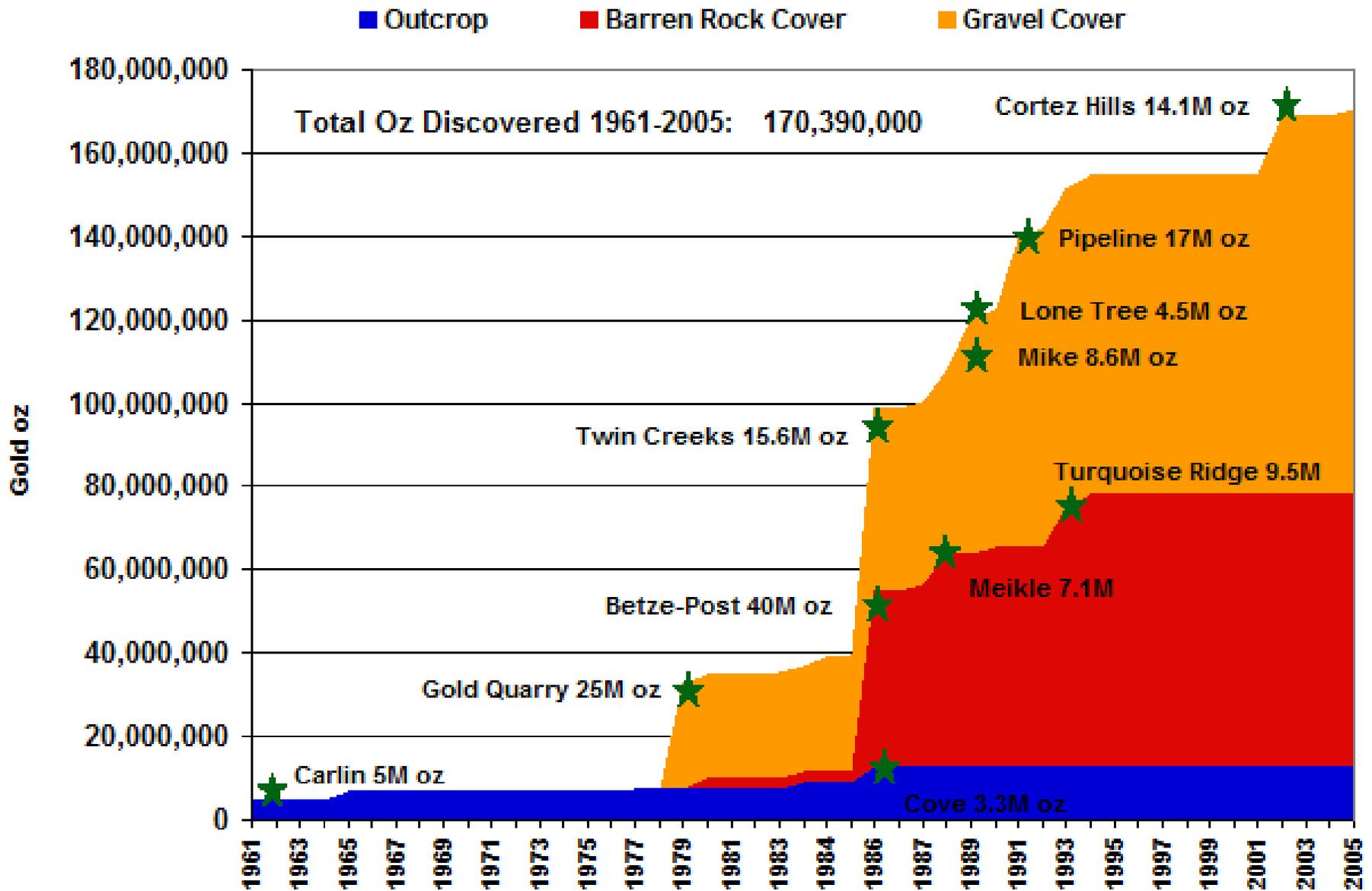
'Footprint' of Cortez Hills Breccia Complex for scale

**South Grass Valley Project**

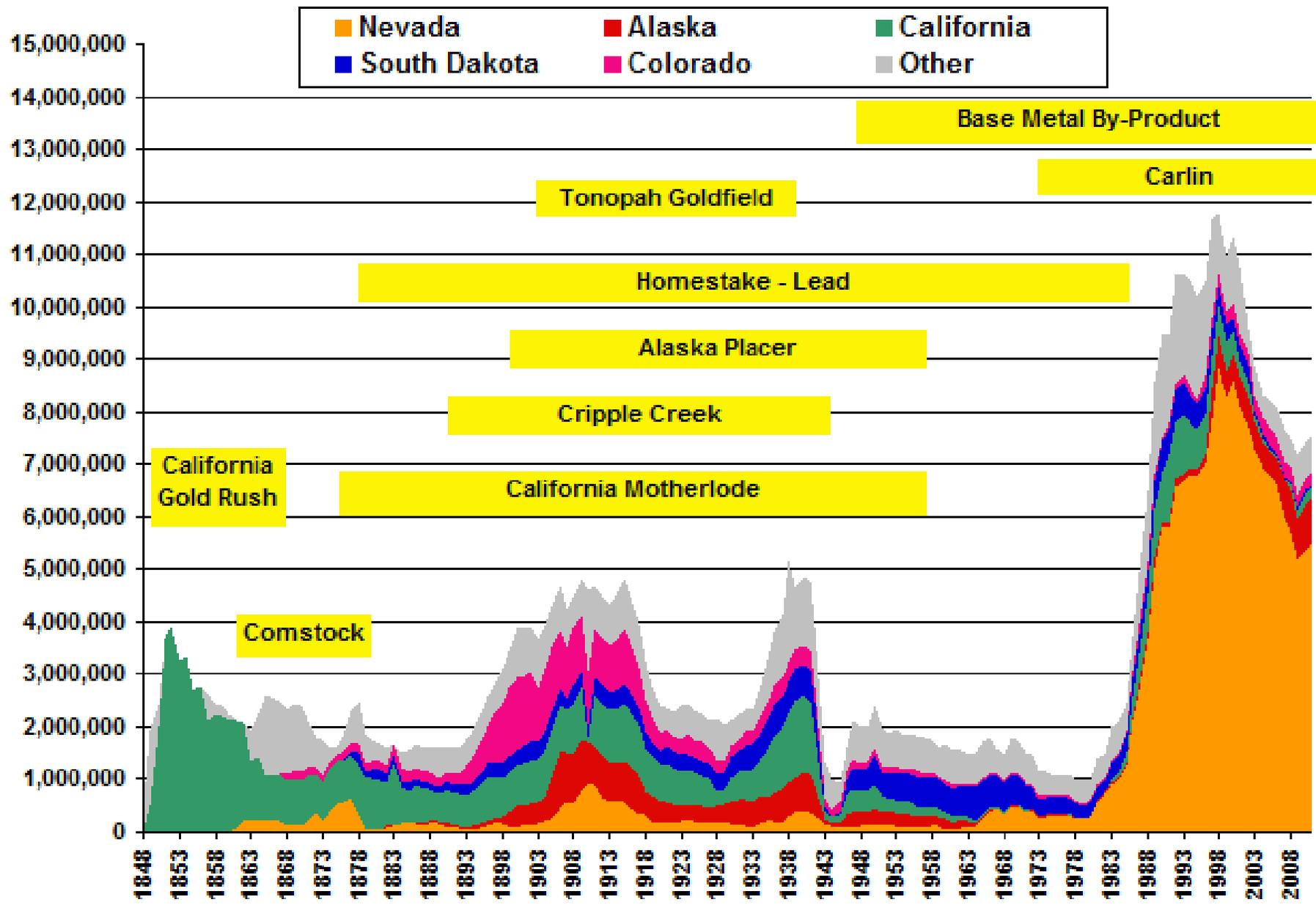
- Prospect Pits (white)
  - Monitor & Antelope Valley (ABX)
  - South Roberts (MUX / Kinetic)
  - South Grass Valley (NGE)
  - Tonkin/Goldbar (MUX)
  - Grass Valley (MUX / NGE)
- GRAVITY "Pediments"**
- Relative Depth to Bedrock**
- Shallow Bedrock
  - Deep Bedrock
- NGE Water Sample



## Cumulative Gold Discovery in Nevada Selected Deposits



# US Gold Production (oz)



Source: USGS

Kaiser Research Online

# EMC Metals Corp

9/28/2010 TO 6/24/2014



Issued: 178,013,747

High: \$0.44 on 12/20/2010

Max Volume: 10,540,400 on 11/8/2010

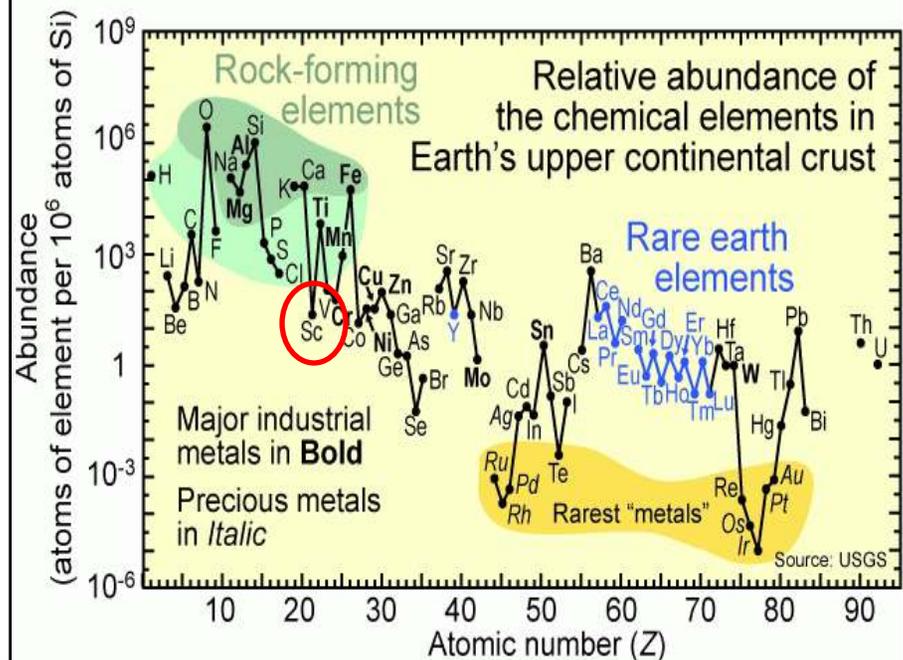
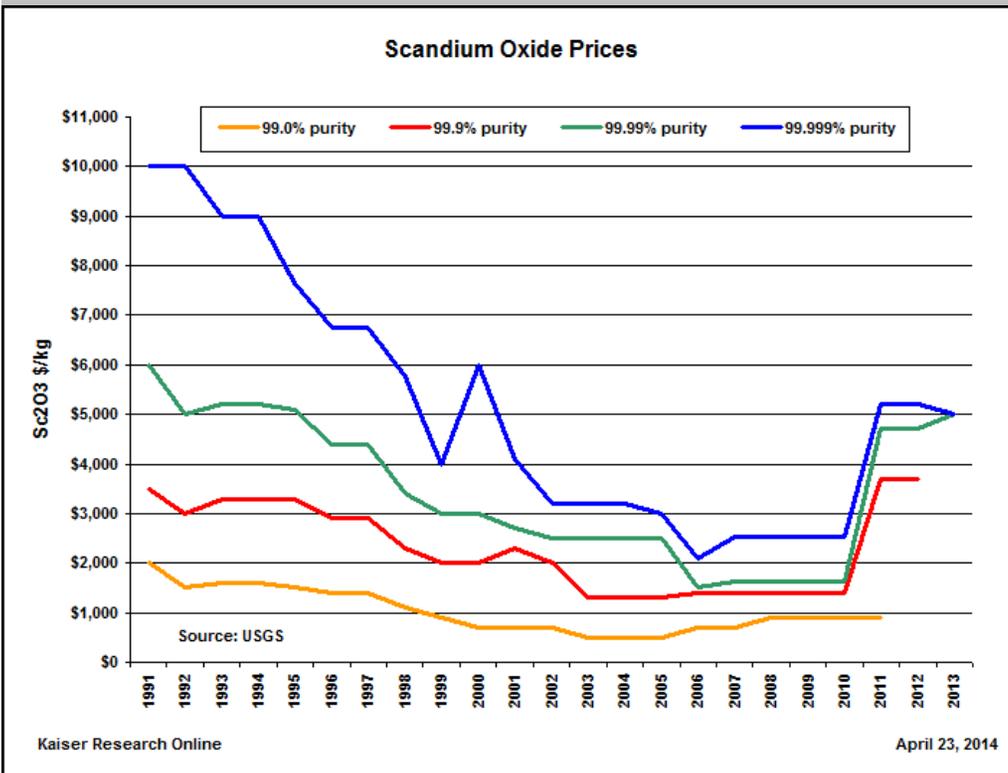
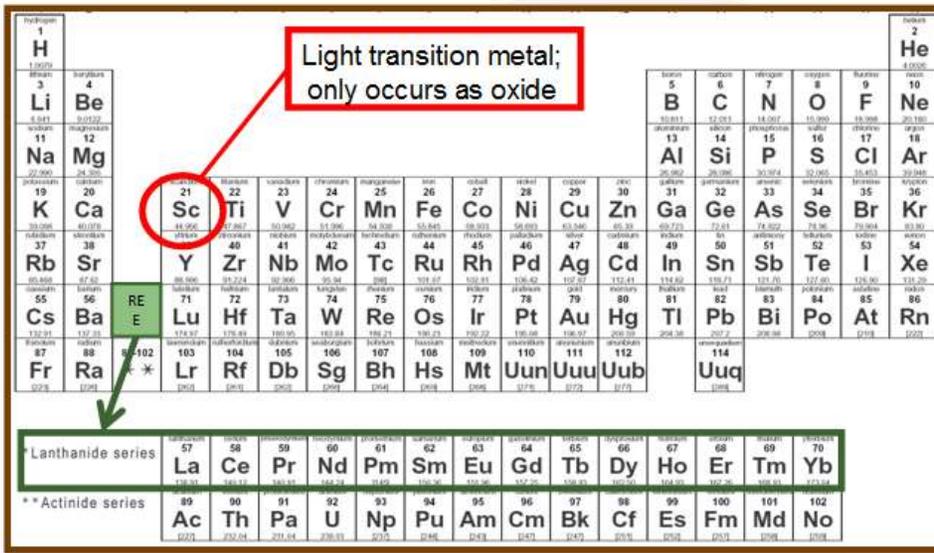
Diluted: 190,965,497

Low: \$0.02 on 5/16/2013

Max Value: \$1,791,868 on 11/8/2010



Scandium often considered a REE (as is Yttrium) – technically is not



# Aluminum Alloy Market

If you build it  
they will  
come!

# Solid Oxide Fuel Market

20-year demand for 29,230 new passenger and freight aircraft

20-year new deliveries of passenger and freight aircraft



**20,242** single-aisle aircraft  
+724 aircraft over GMF 2012



**7,273** twin-aisle aircraft  
+299 aircraft



**1,711** very large aircraft  
+5 aircraft

---

**29,226** new aircraft  
+1,028 aircraft

Passenger aircraft (> 100 seats)

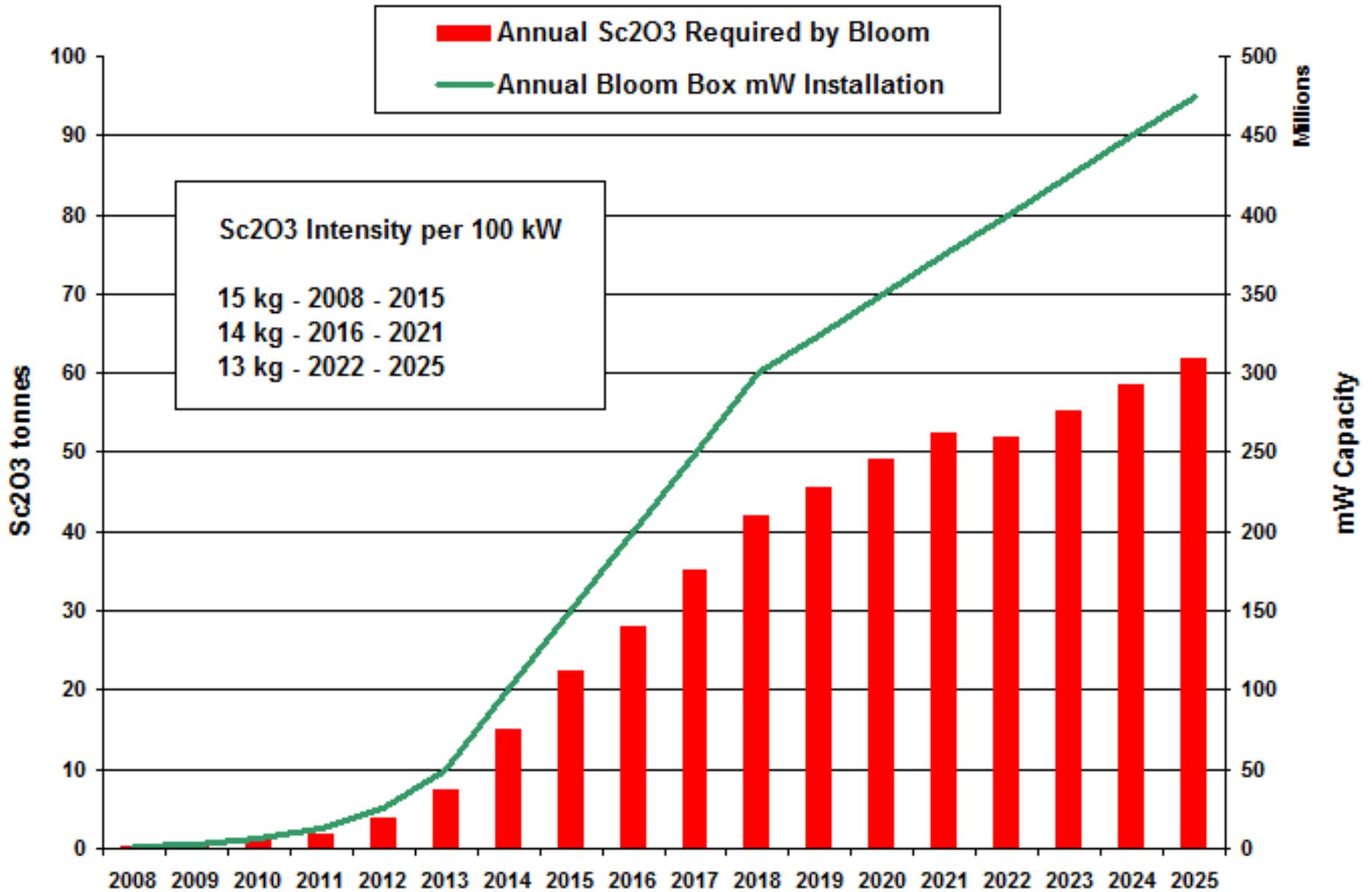
Jet freight aircraft (>10 tons)

Market value of \$4.4 trillion

Source: Airbus GMF



## Projected Scandium Market & Bloom Box Installation

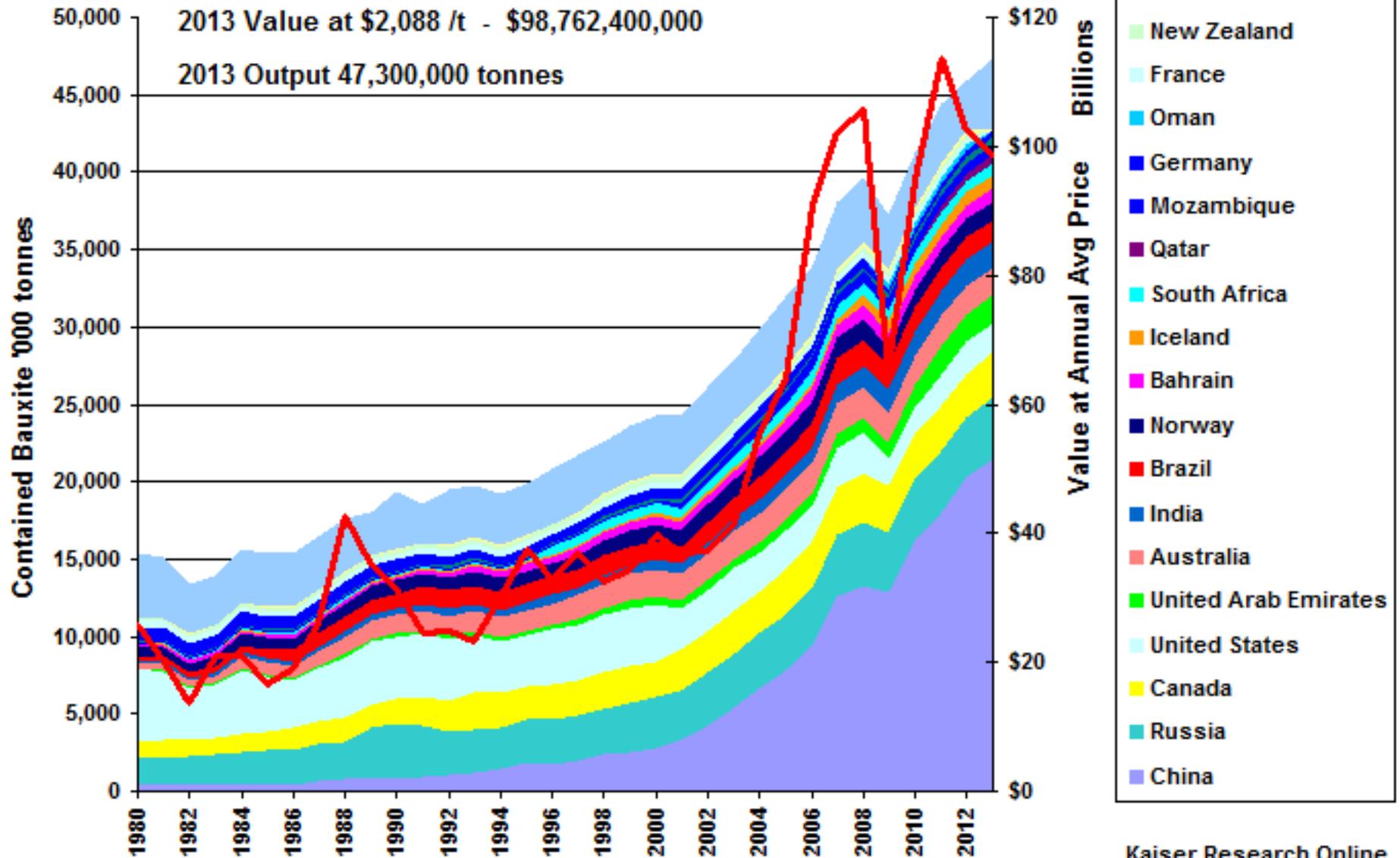




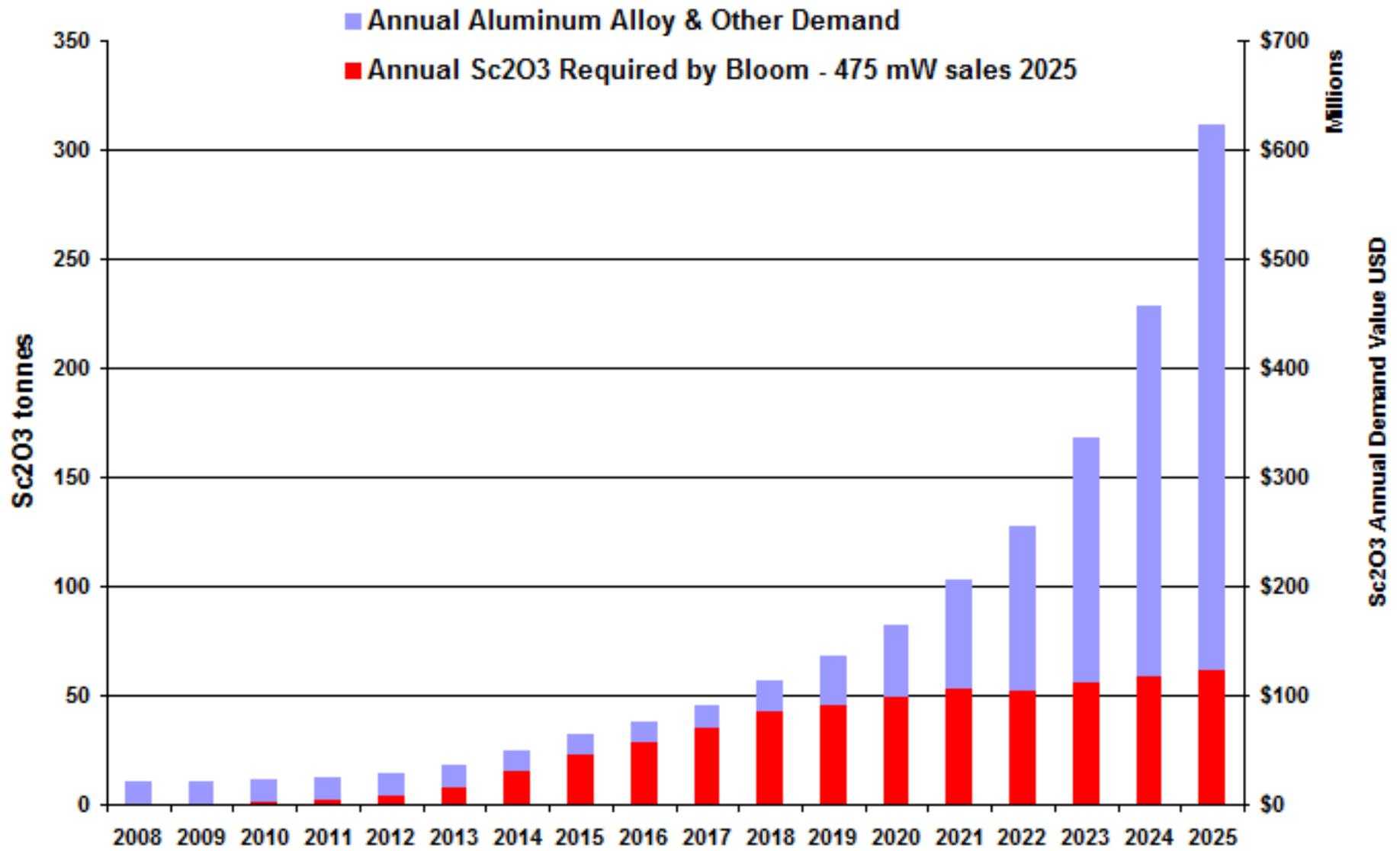
# Annual Aluminum Production

Production Data Source: USGS

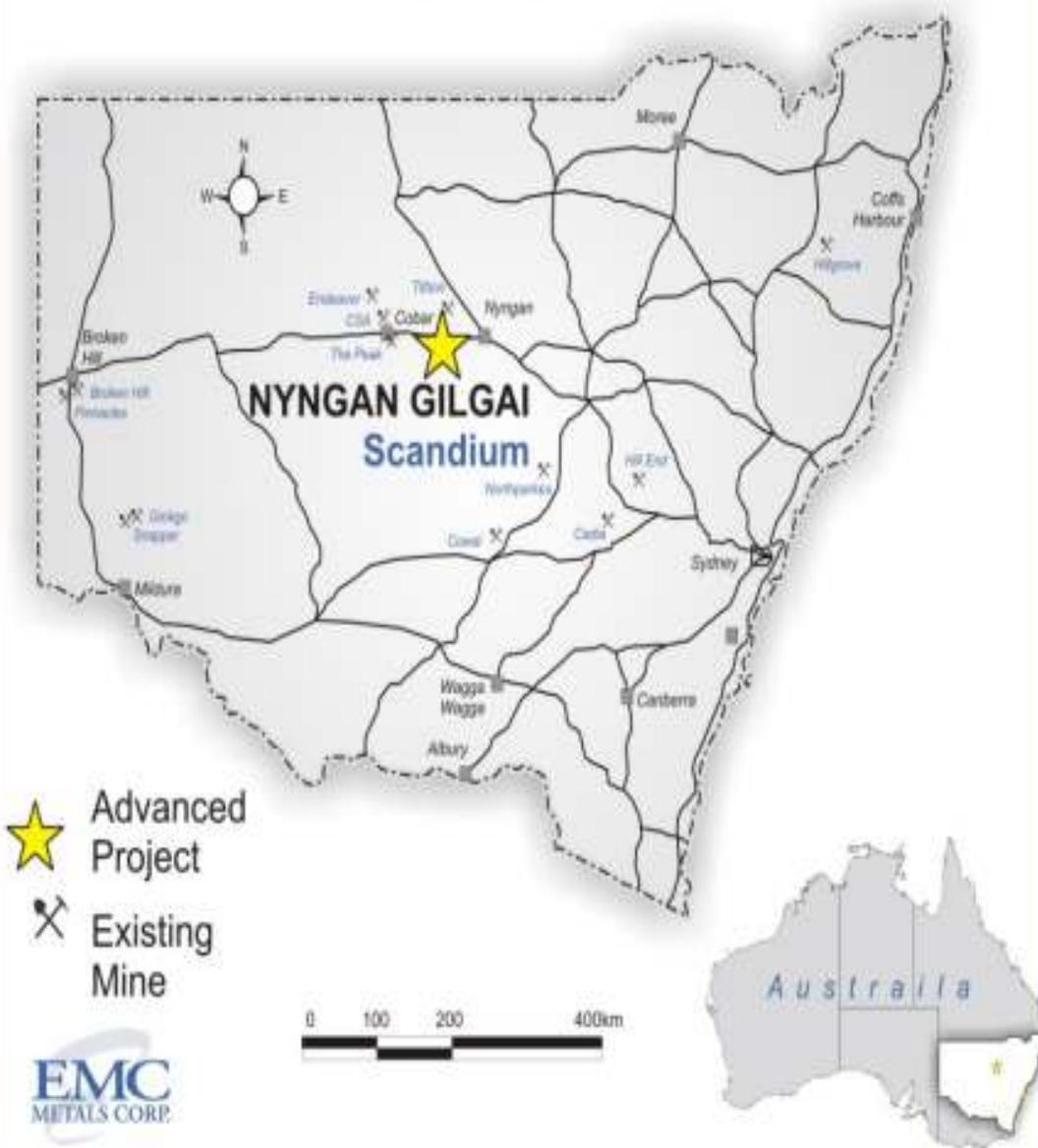
Annual Production Value based on average annual LME price



## Projected Scandium Market Value at \$2,000/kg Sc2O3



# New South Wales

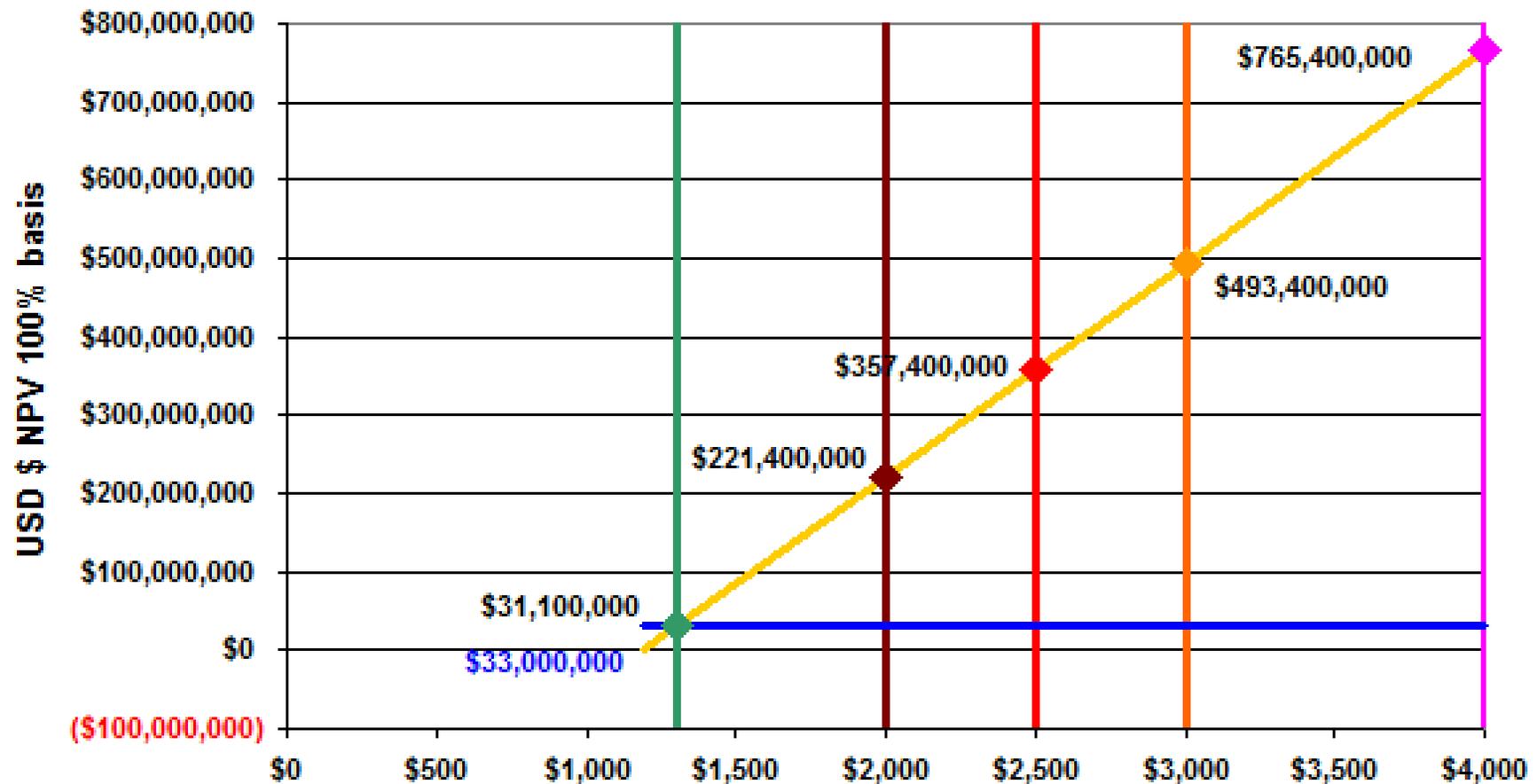


During last 6 years major enriched scandium deposits have been found that offer scaleable primary supply potential.

## EMC - Nyngan - After Tax NPV Sensitivity

- Pessimistic - \$1,300/kg Sc2O3 - IRR 13%
- Base Case - \$2,000/kg Sc2O3 - IRR 30%
- Current - \$2,500/kg Sc2O3 - IRR 41%
- Optimistic - \$3,000/kg Sc2O3 - IRR 52%
- Fantasy - \$4,000/kg Sc2O3 - IRR 73%
- Implied 100% Project Value - \$33,000,000
- AT NPV vs \$/kg Sc2O3 at 10% Disc Rate

Modeled on Lucknow PFS: 375 tpd OP HPAL, no acid plant  
 LOM: 2.6 MT @ 314 g/t Sc 43-101, 81.5% recovery, strip 0.8:1  
 CapEx \$185 M, SustEx \$23.4 M, OpEx \$275/t  
 FD: 193 M, tax rate 28% 7 yr Dep, 1.07:1 AUD/USD, 98.5% Net  
 LOM Output: 980 t Sc2O3 @ 99.9%, 20 yr mine life, 49 tpa  
 Location: New South Wales, Australia



## **Alternative Narrative**

- **No need to worry about macro-economic trends**
- **No need to hope for supply dislocations**
- **No metal price trends to monitor**
- **No need to pull a discovery drill hole**

## **Just do what you can control**

- **Deliver a feasibility study**
- **Raise the capital and construct a small scale mine**
- **Serve Bloom's needs**
- **Show primary production is profitable at \$2,000/kg**
- **Scale up to accommodate aluminum alloy sector**
- **Consolidate other emerging scandium deposits and become the dominant scandium supplier**

# **Kaiser Research Online Membership**

- \$100 every 30 days auto renewal
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