Uncovering exploration trends and the future: Where's exploration going?

Richard Schodde
Managing Director, MinEx Consulting
Adjunct Professor, Centre for Exploration Targeting, UWA

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Re-presented at the Rimfire Pacific Mining AGM 14th November 2014 Melbourne

Overview

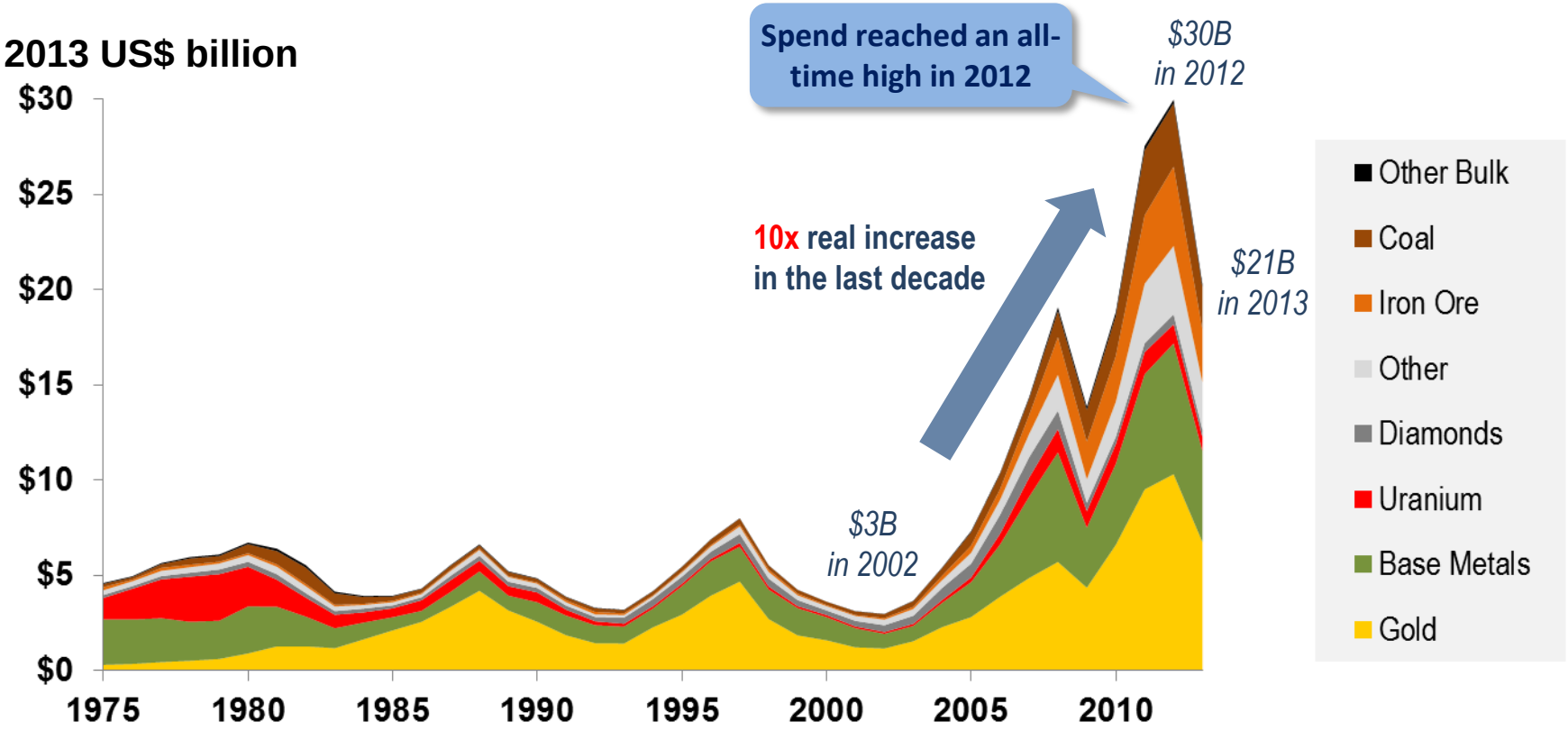
1. Trends in exploration spend for the World
2. Number of discoveries made
3. Exploration performance – cost per discovery
4. Change in the depth of discovery
5. Location of recent discoveries
6. Current financial situation for junior explorers
7. Outlook for exploration
8. Summary / Conclusions

Exploration expenditures reached an all-time high in 2012, down by 30% in 2013

1. TRENDS IN EXPLORATION SPEND

Exploration expenditures: World

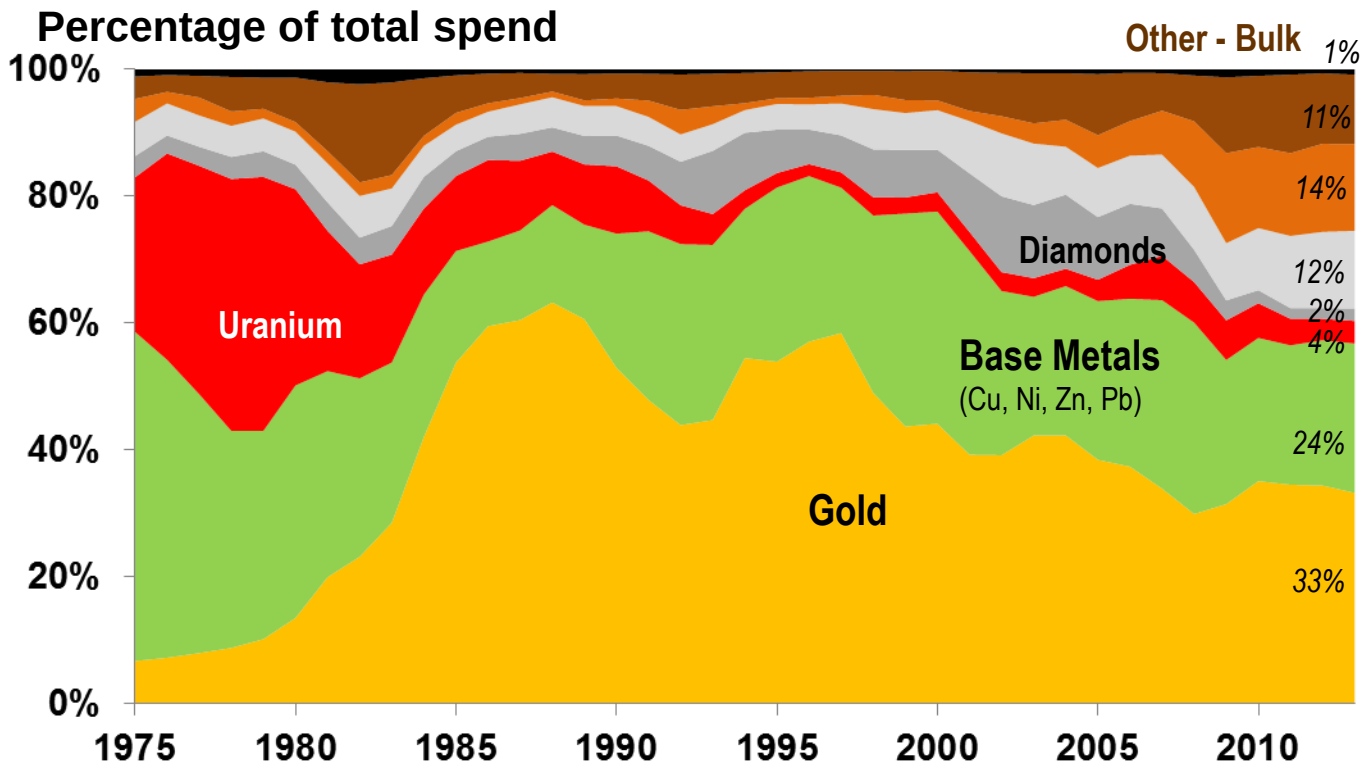
by Commodity : 1975-2013



Sources: MinEx Consulting estimates © September 2014, based on data from ABS, NRCan, MLR (China), OECD and SNL MEG

Exploration expenditures: World

by Commodity : 1975-2013



Major increase in spend on Bulk Minerals

Coal

Iron Ore

Other – Non Bulk

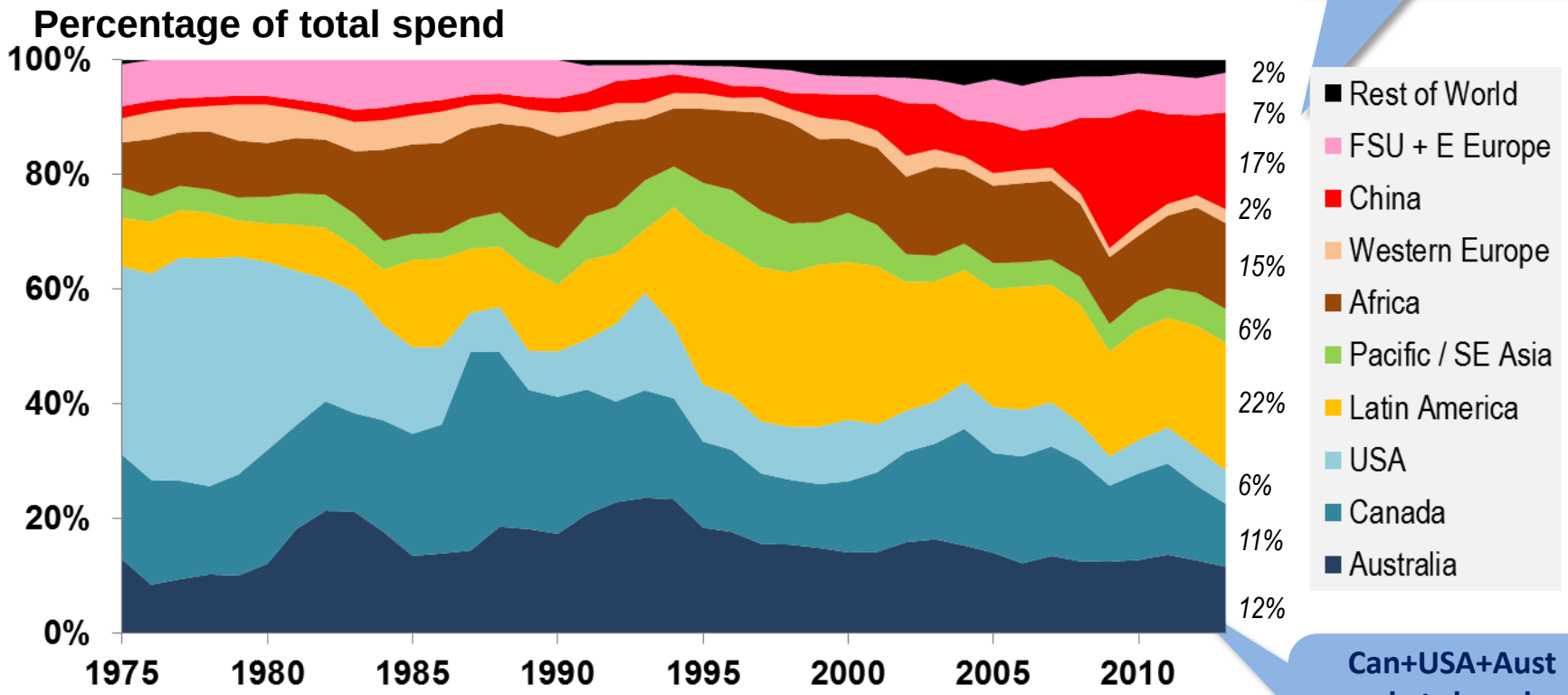
Gold continues to be the main target

Sources: MinEx Consulting estimates © September 2014, based on data from ABS, NRCan, MLR (China), OECD and SNL MEG

Exploration expenditures: World

by Region : 1975-2013

China spends more on exploration than any other country in the World



Can+USA+Aust market share has halved in the last 2 decades

Note: Includes spend on Bulk Minerals
"Rest of World" refers to, Mongolia, Middle East and South West Asia (including India and Pakistan)

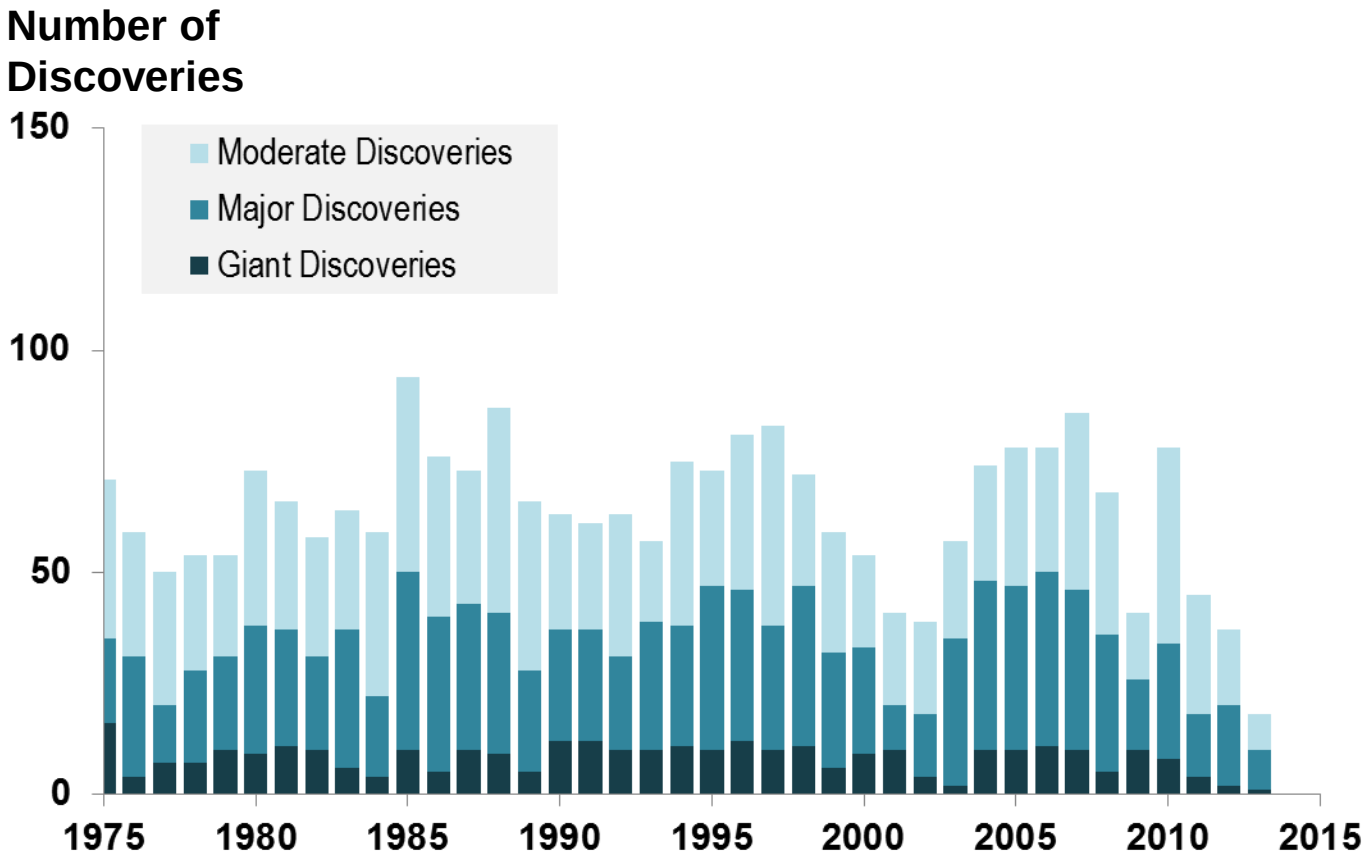
Sources: MinEx Consulting estimates © September 2014, based on data from ABS, NRCan, MLR (China), OECD and SNL MEG

Industry finds on average one significant new deposit every week

2. NUMBER OF DISCOVERIES MADE

Number of significant discoveries made

Non-Bulk discoveries World: 1975-2013



Note: Excludes satellite deposits within existing Camps. Also excludes Bulk Mineral discoveries.

Giant >6 Moz Au, >125 kt U_3O_8, >1 Mt Ni, >5 Mt Cu equiv

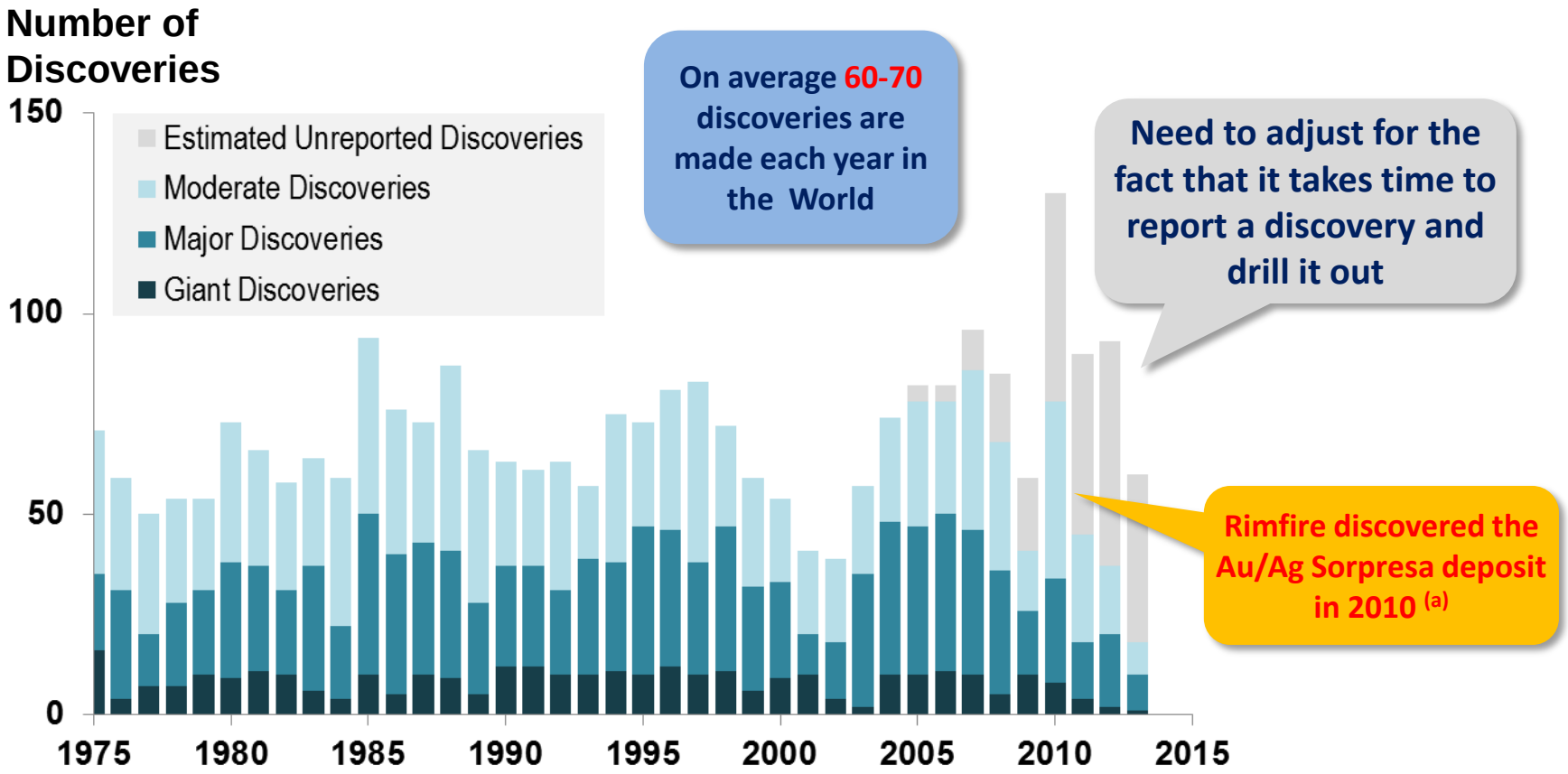
Major >1 Moz Au, >25 kt U_3O_8, > 100 kt Ni, >1 Mt Cu equiv

Moderate >0.1 Moz Au, >5 kt U_3O_8, >10 kt Ni, >0.1 Mt Cu-equiv

Source: MinEx Consulting © September 2014

Number of significant discoveries made

Non-Bulk discoveries World: 1975-2013



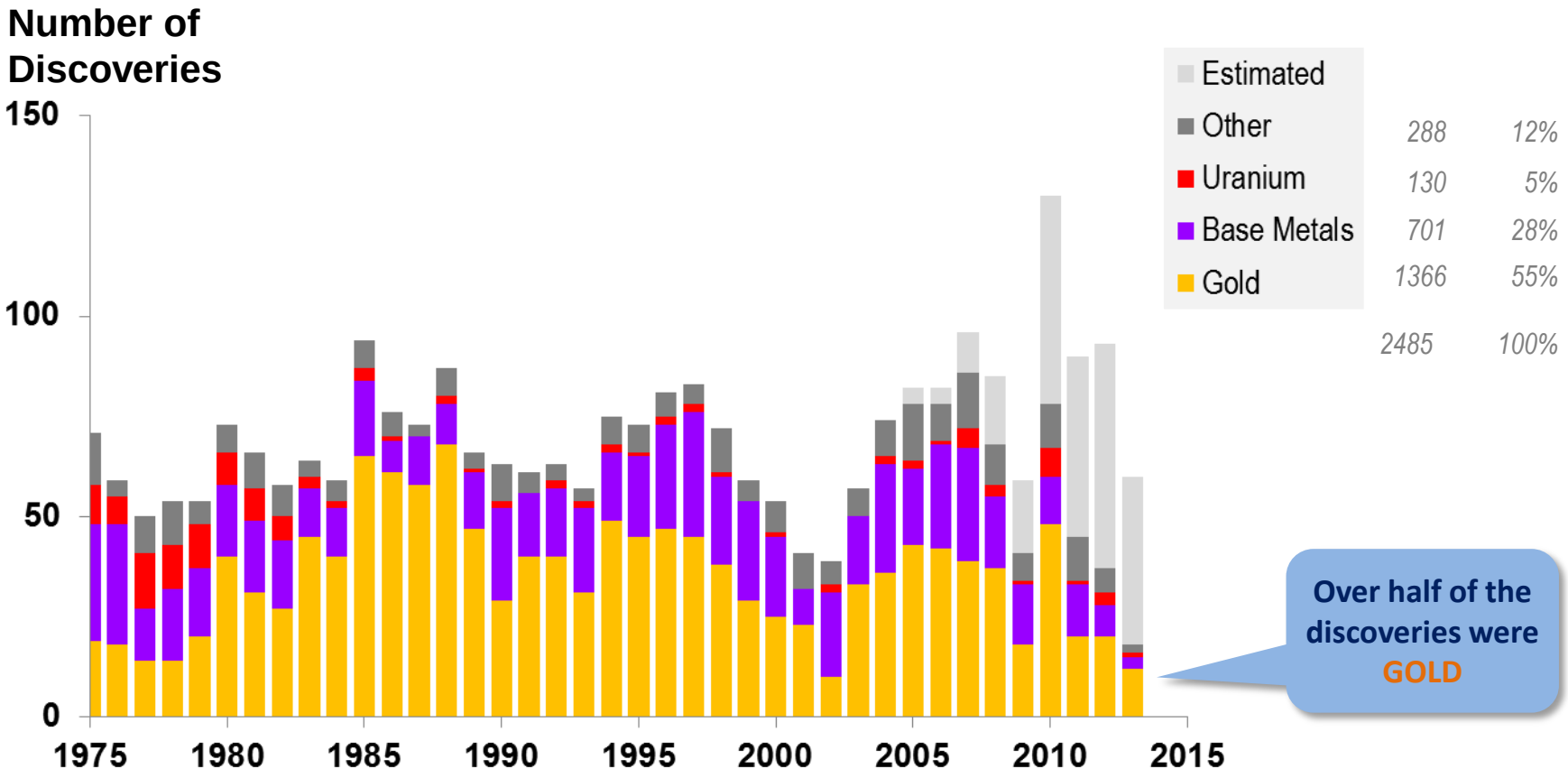
Note: Excludes satellite deposits within existing Camps. Also excludes Bulk Mineral discoveries.

(a) A Resource Statement has not yet been released for Sorpresa

Source: MinEx Consulting © September 2014

Number of discoveries made by Commodity

Moderate+Major+Giant discoveries in the World: 1975-2013

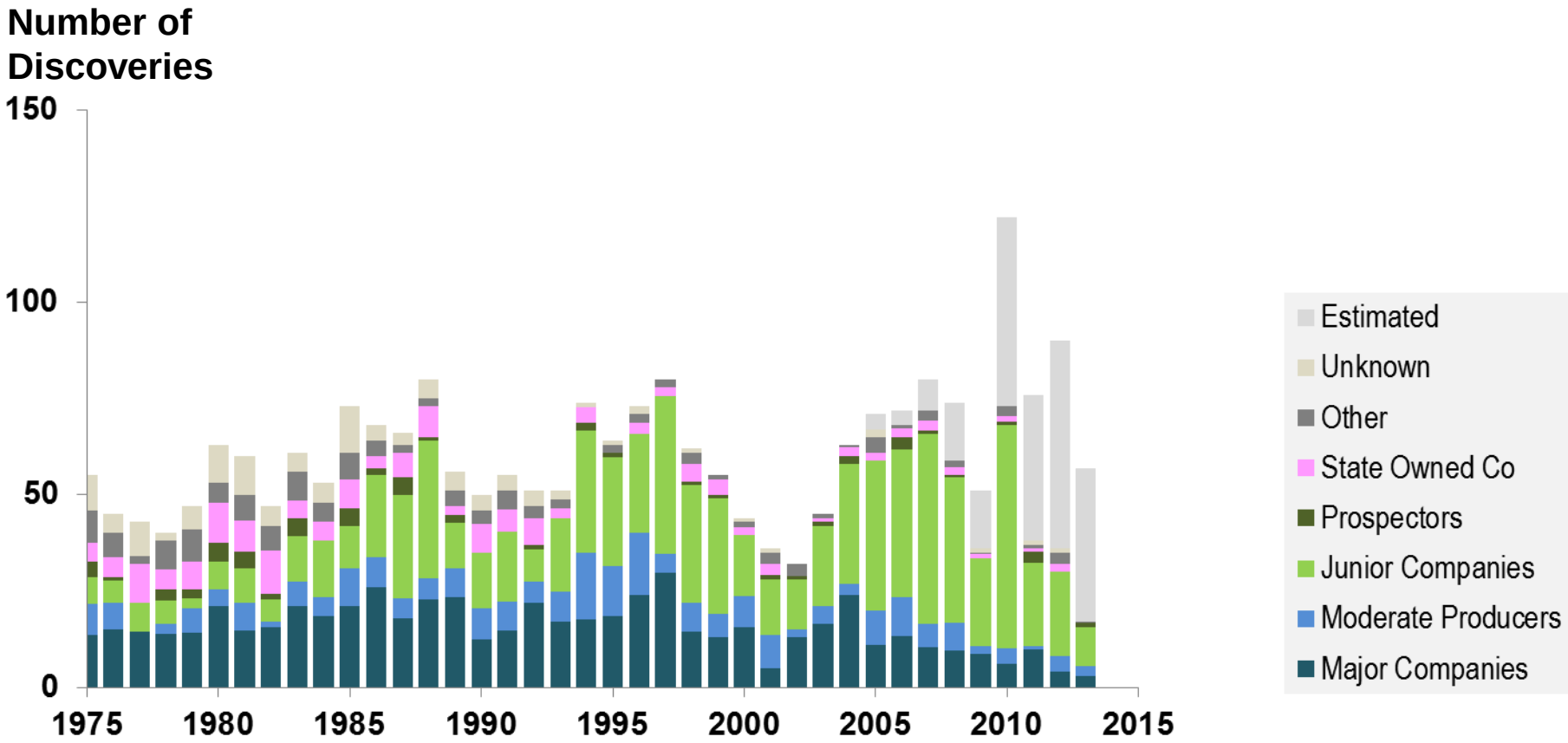


Note: Excludes satellite deposits within existing Camps. Also excludes Bulk Mineral discoveries.

Source: MinEx Consulting © September 2014

Number of discoveries made by Company Type

Moderate+Major+Giant discoveries in the Western World: 1975-2013

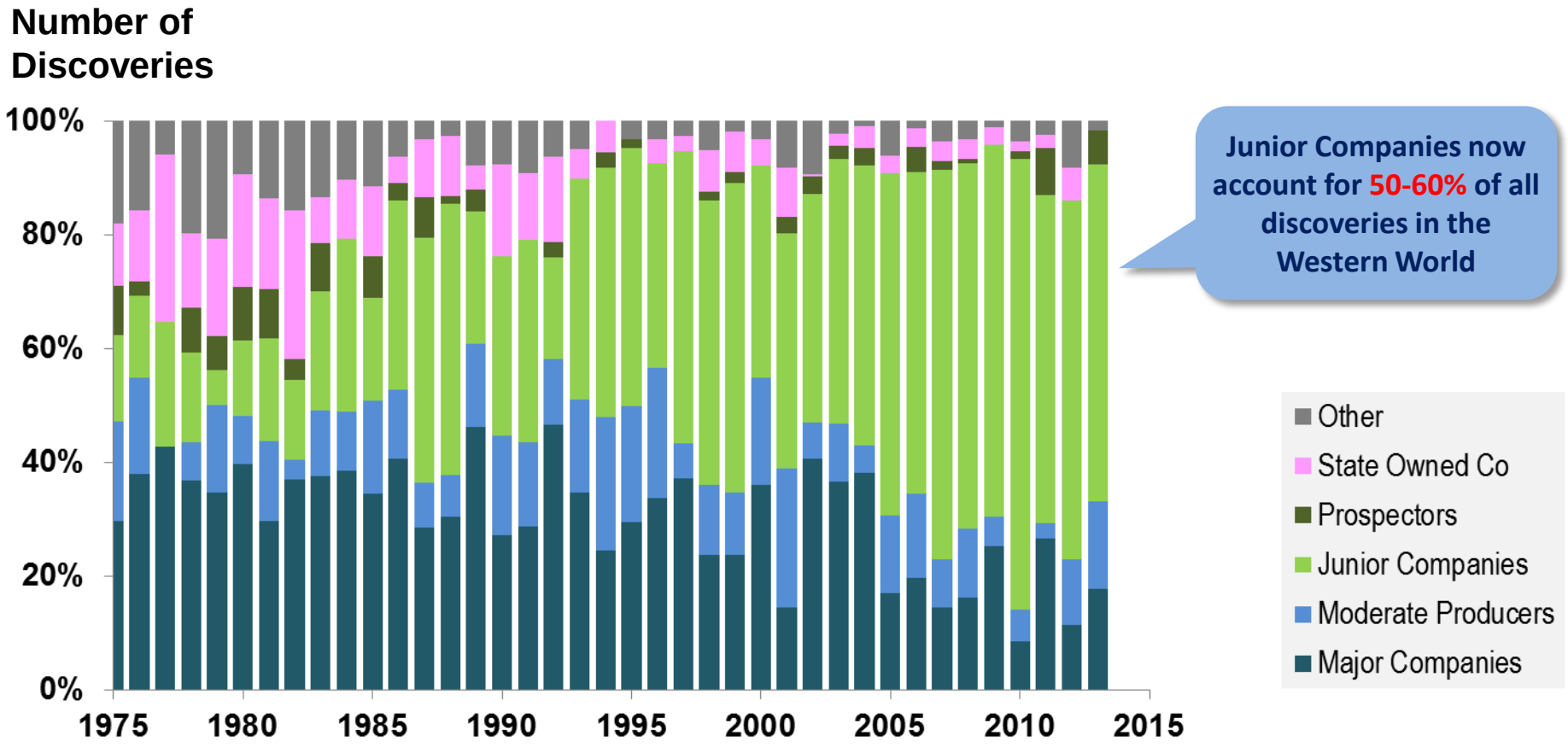


Note: Figures are adjusted for shared discoveries
Western World only. Excludes discoveries made in FSU, Eastern Europe and China
Excludes satellite deposits within existing Camps. Also excludes Bulk Mineral discoveries.

Source: MinEx Consulting © September 2014

Percentage of discoveries made by Company Type

Moderate+Major+Giant discoveries in the Western World: 1975-2013



Note: Figures are adjusted for shared discoveries
Western World only. Excludes discoveries made in the FSU, Eastern Europe and China
Excludes satellite deposits within existing Camps. Also excludes Bulk Mineral discoveries.

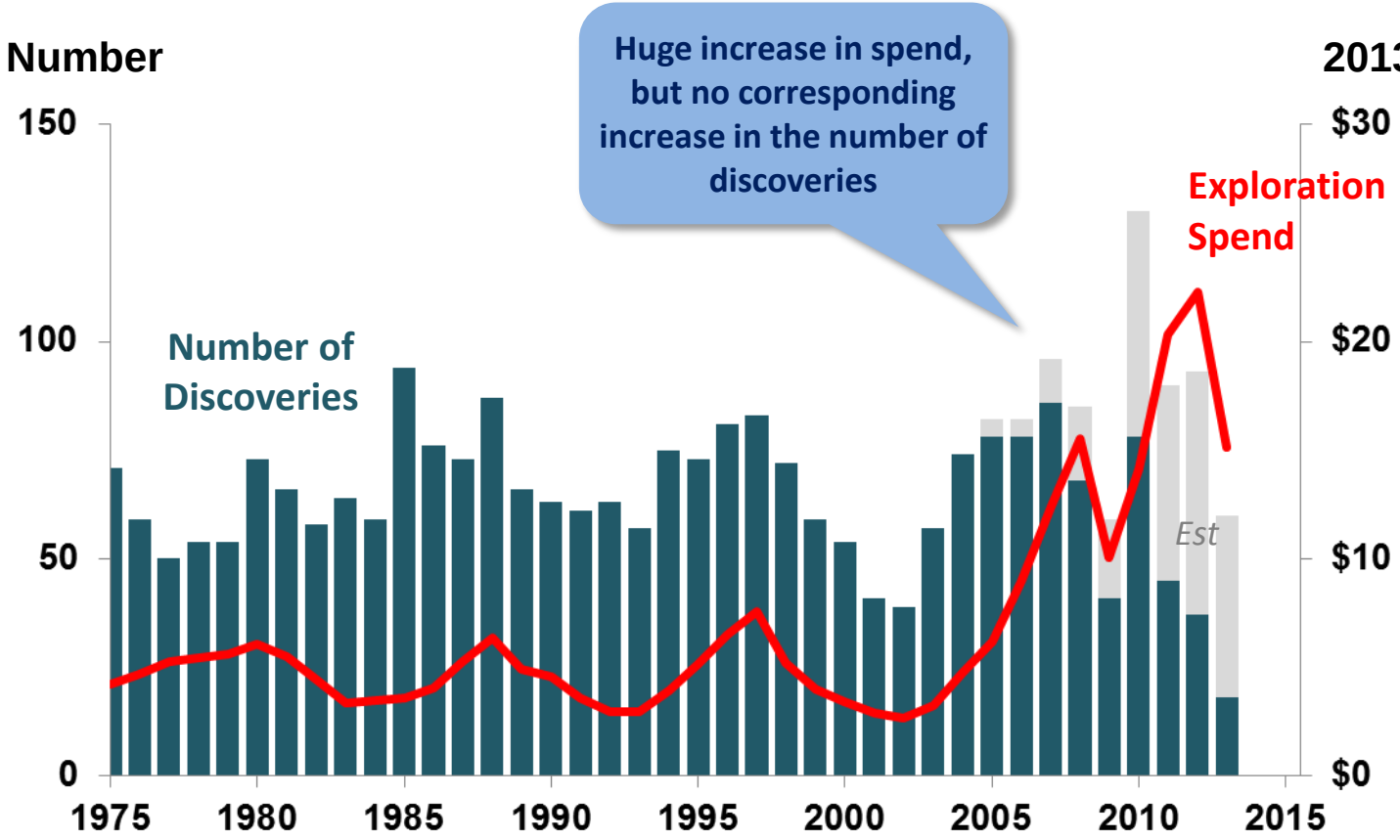
Source: MinEx Consulting © September 2014

Unit discovery costs are rising

3. EXPLORATION PERFORMANCE

Until recently discovery rate moved in-line with exploration expenditures

Non-Bulk exploration spend and discoveries World: 1975-2013



Discovery performance has been affected by higher input costs (labour, drilling and admin).

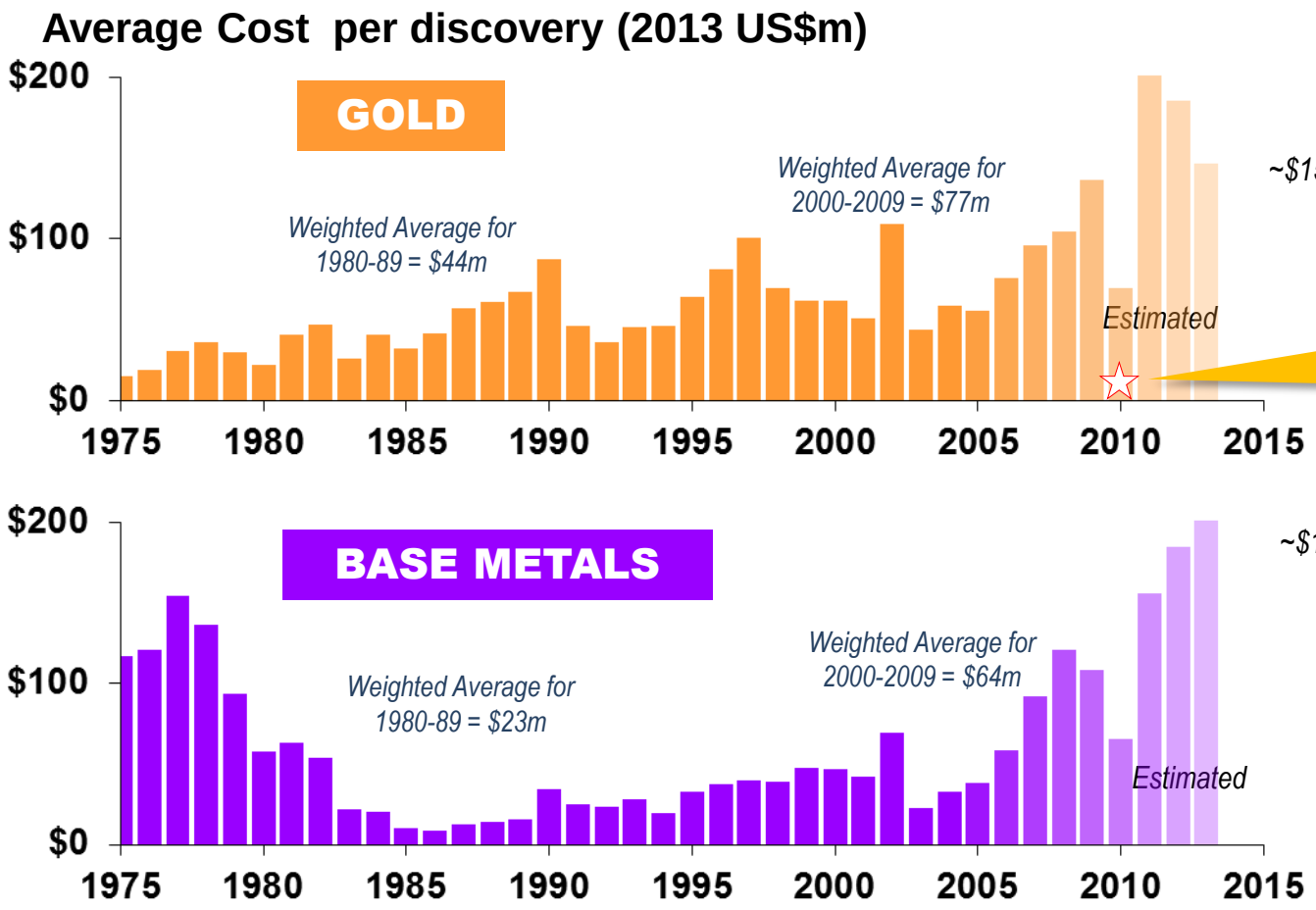
Is partly offset by shift to Brownfield Exploration (but this delivers smaller-sized discoveries)

Note: Based on Moderate, Major and Giant discoveries.
Excludes satellite deposits within existing Camps. Also excludes Bulk Mineral discoveries and expenditures.

Source: MinEx Consulting © September 2014

Discovery costs are rising

Unit cost per for a moderate-sized Gold or Base Metal discovery in the World



Unit discovery costs have doubled in the last decade

Between 1999-2010 Rimfire spent a total of US$10m on exploration and discovered Sorpresa

If your exploration budget is $5m then the odds of making a (modest) discovery in a given year are less than 1 in 30

Exploration is a high-risk/high-reward activity

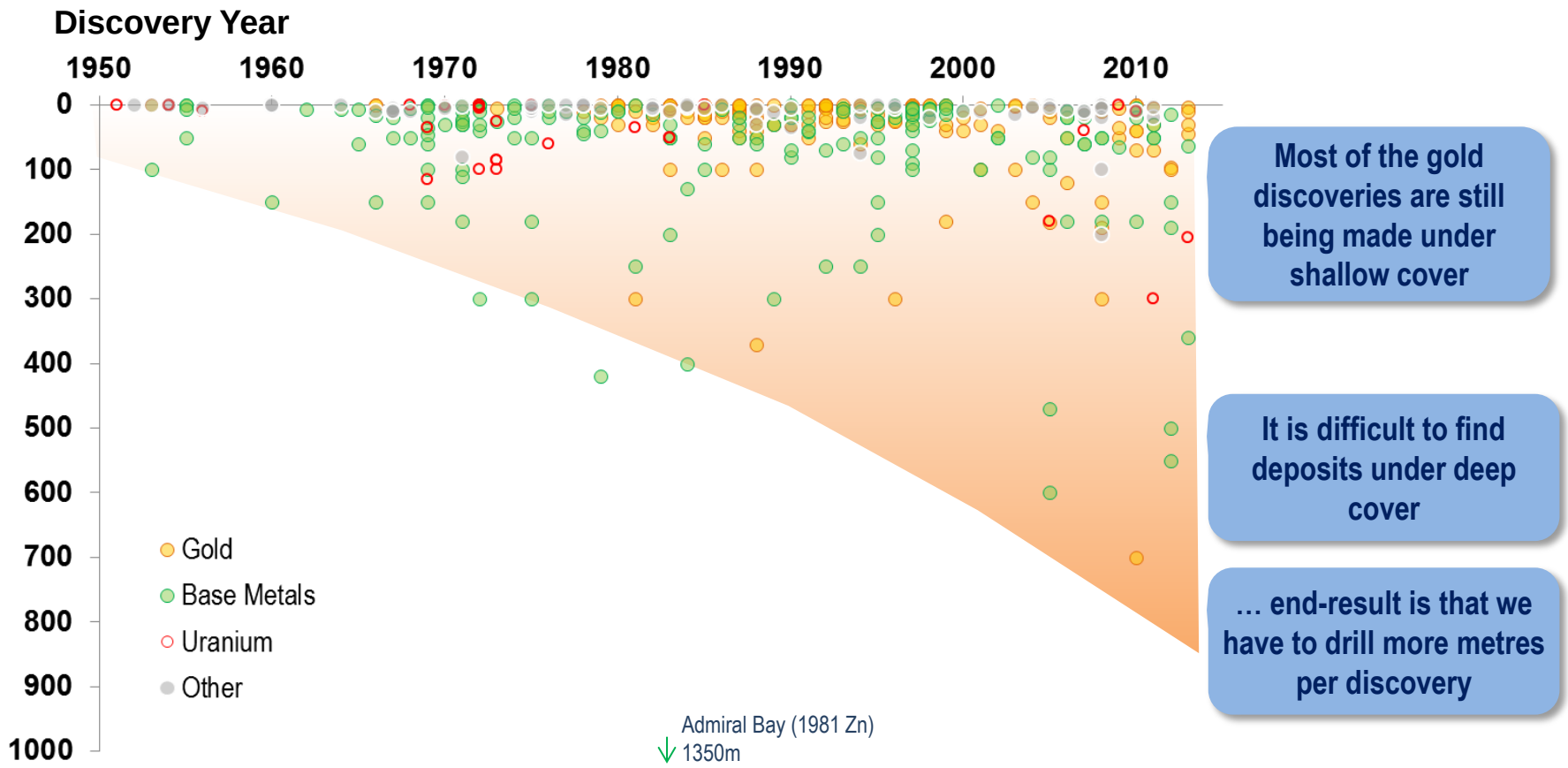
Note: Discoveries are for deposits >0.1 Moz Au or >0.1 Mt Cu-eq
Data from 2005 onwards have been adjusted for unreported deposits

Source: MinEx Consulting © September 2014

We are having to progressively explore under deeper cover

4. CHANGE IN THE DEPTH OF DISCOVERY

Depth of cover for discoveries in Australia: 1950-2013

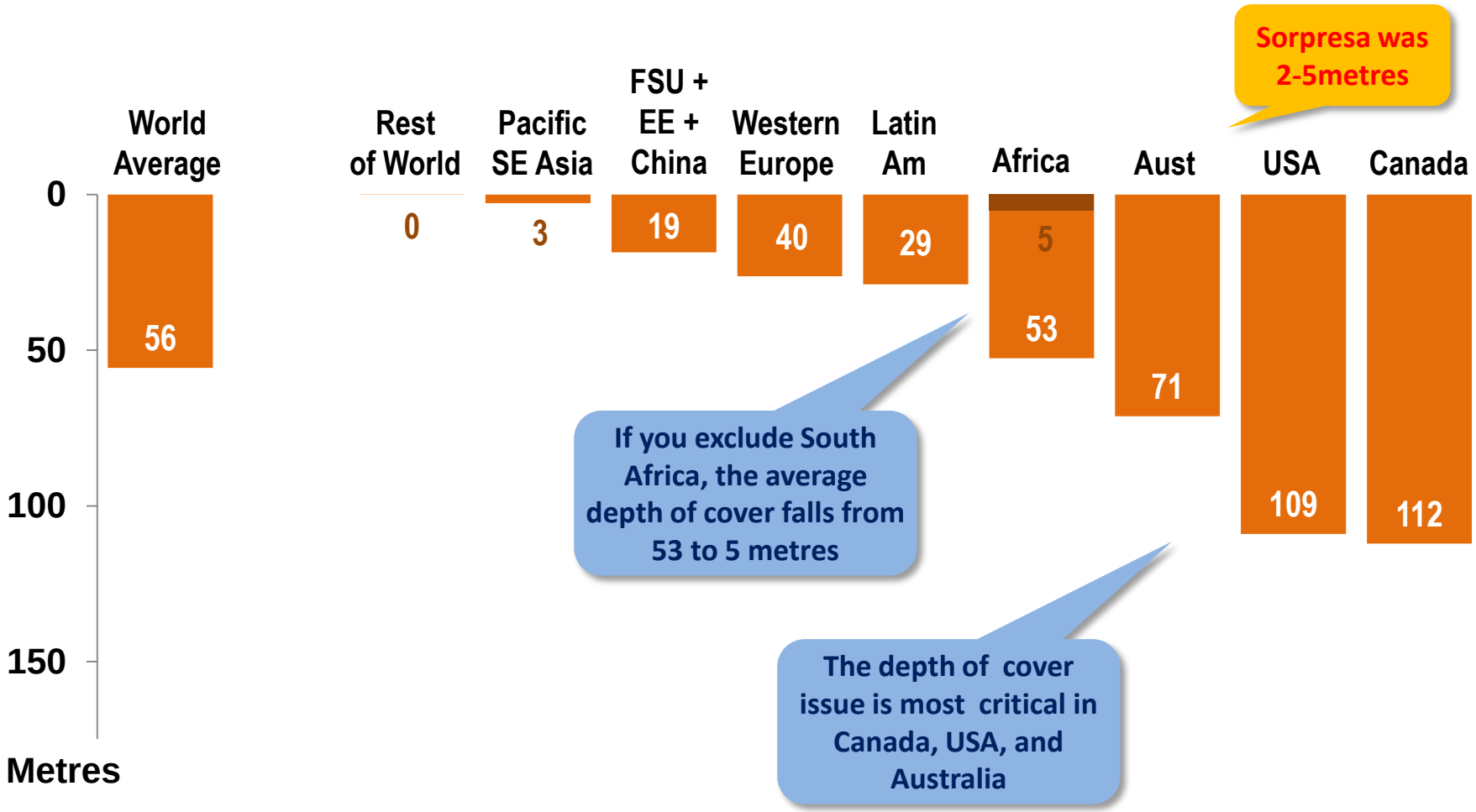


Note: Excludes satellite deposits within existing Camps. Also excludes Bulk Mineral discoveries..
Analysis based on Moderate-, Major- and Giant-sized deposits

Source: MinEx Consulting © September 2014

Average depth of cover for discoveries - GOLD

World: 2004-2013



Note: Based on 267 Moderate-, Major- and Giant-sized deposits

Source: MinEx Consulting © September 2014

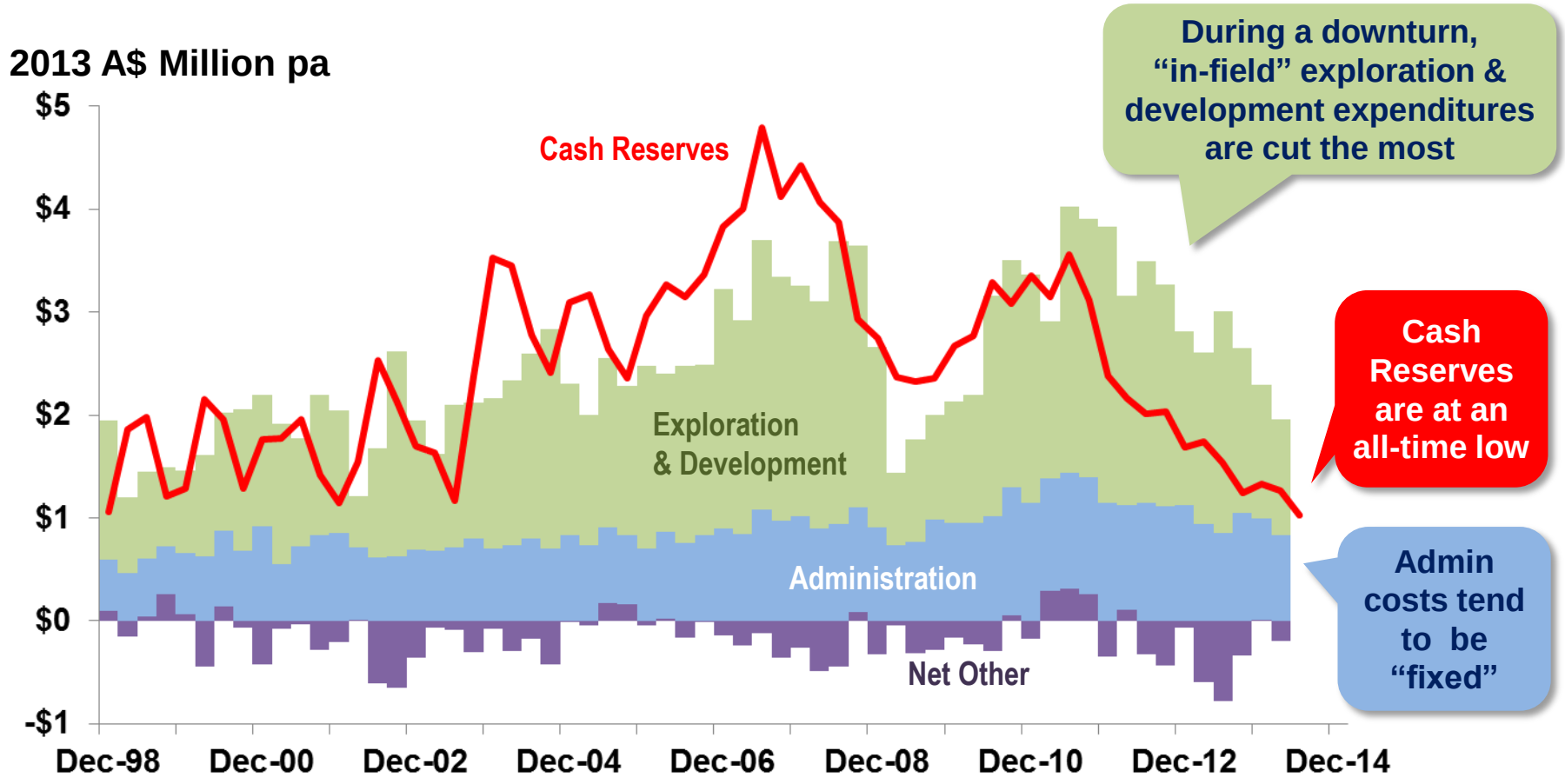
The Junior sector makes up ~40% of total spend and finds over half of all discoveries … so the future of the industry depends on them

Junior companies are doing it “tough”

6. CURRENT FINANCIAL SITUATION FOR JUNIOR EXPLORERS

Cash Reserves and Expenditures have dropped dramatically

MEDIAN Australian Junior Exploration Company : 1998-June 2014



Note: Survey based on a sample of 125 junior exploration companies listed on the ASX between 1998-2014
"Net Other" includes production and other costs less interest income, mine revenue, Government Assistance and R&D tax credits
Quarterly spend data has been multiplied by 4x to produce an annualised spend rate

Source: MinEx Consulting © September 2014 based on Quarterly Reports to the ASX

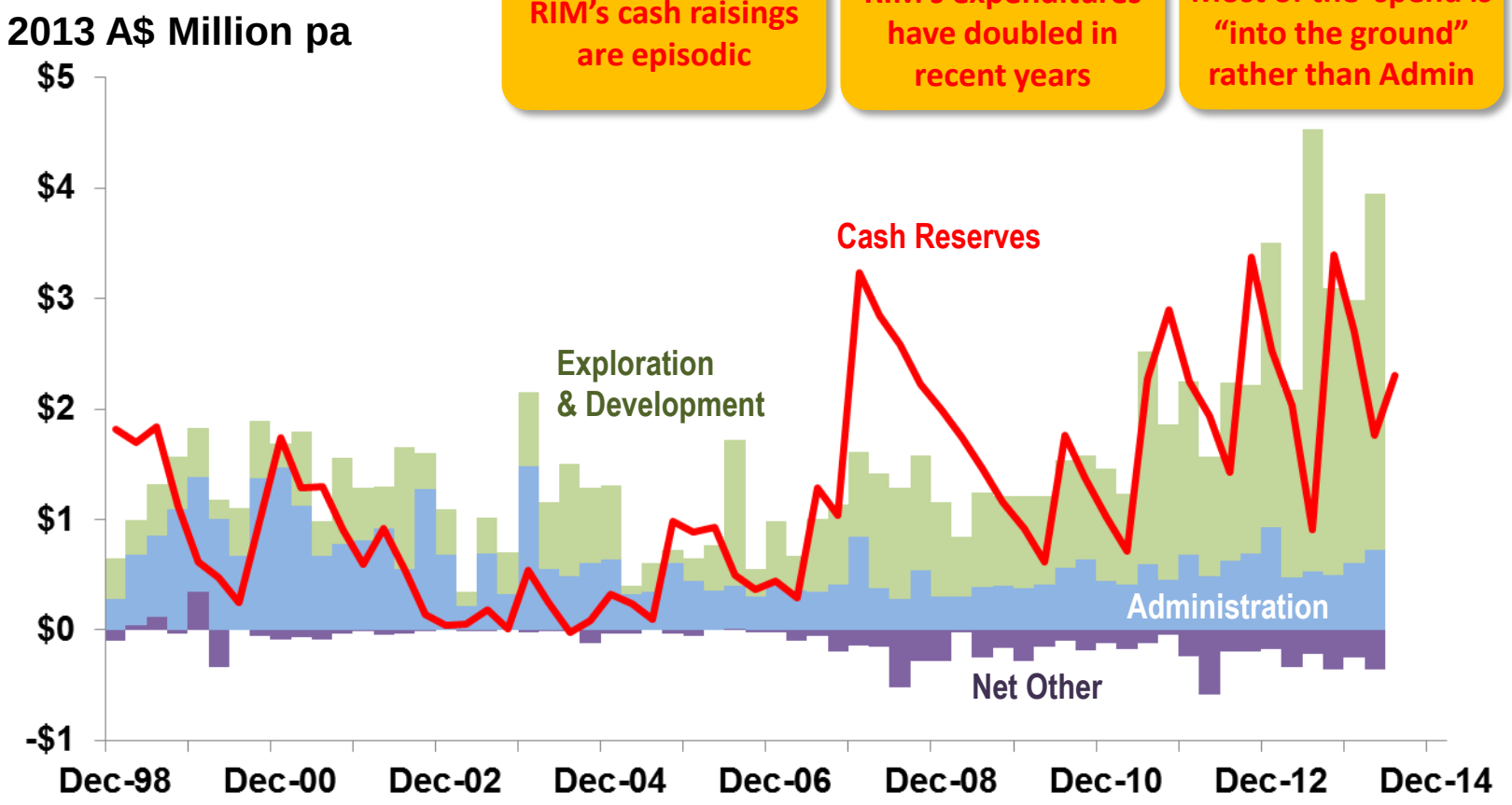
Cash Reserves and Expenditures

Rimfire Pacific Mining: December 1998-June 2014

RIM's cash raisings are episodic

RIM's expenditures have doubled in recent years

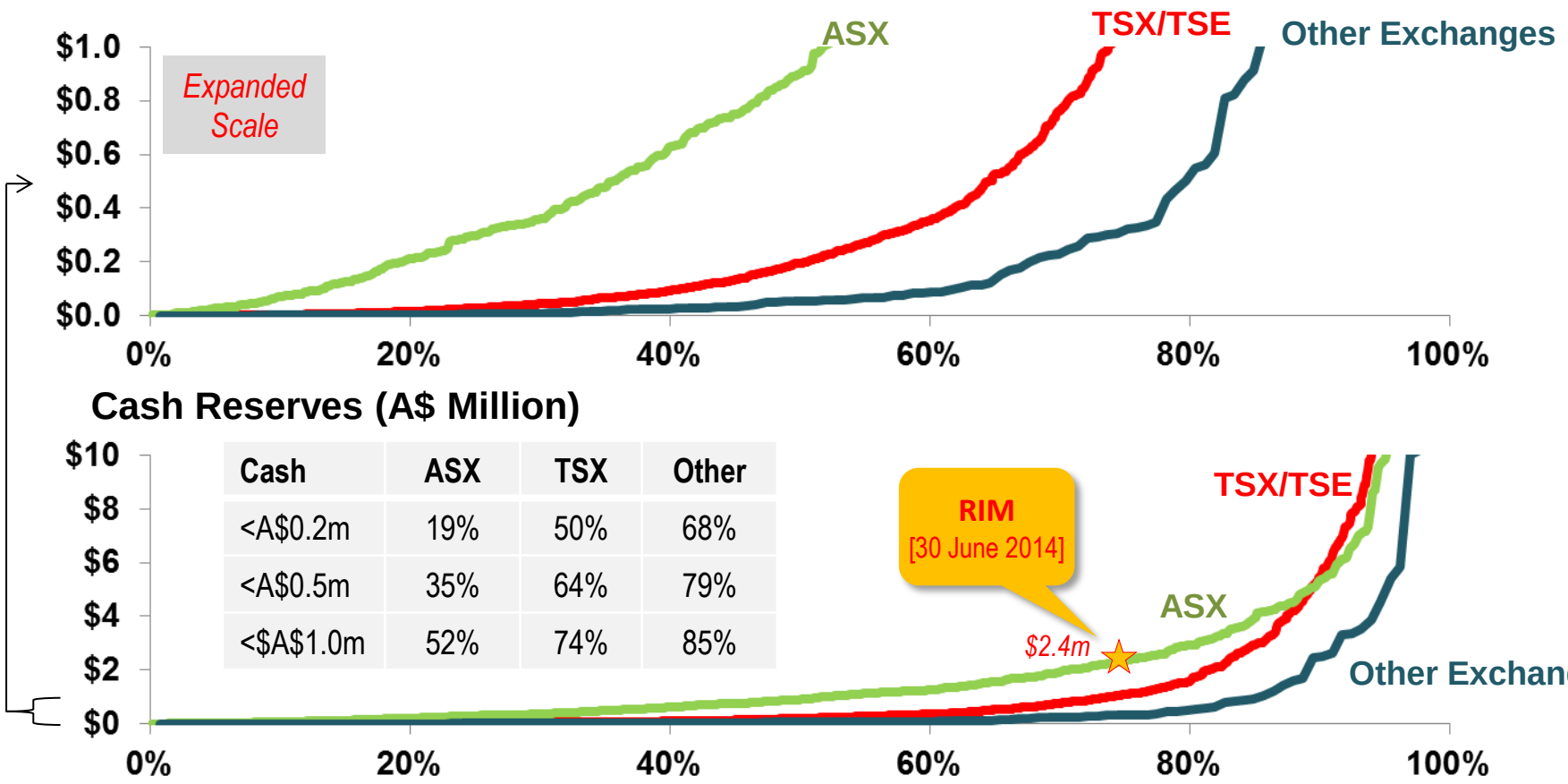
Most of the spend is "into the ground" rather than Admin



Source: MinEx Consulting © November 2014
based on Quarterly Reports to the ASX

Note: "Net Other" includes production and other costs less interest income, mine revenue, Government Assistance and R&D tax credits
Quarterly spend data has been multiplied by 4x to produce an annualised spend rate

Most Junior Explorers in Australia & Overseas currently have less than $1m in Cash Reserves

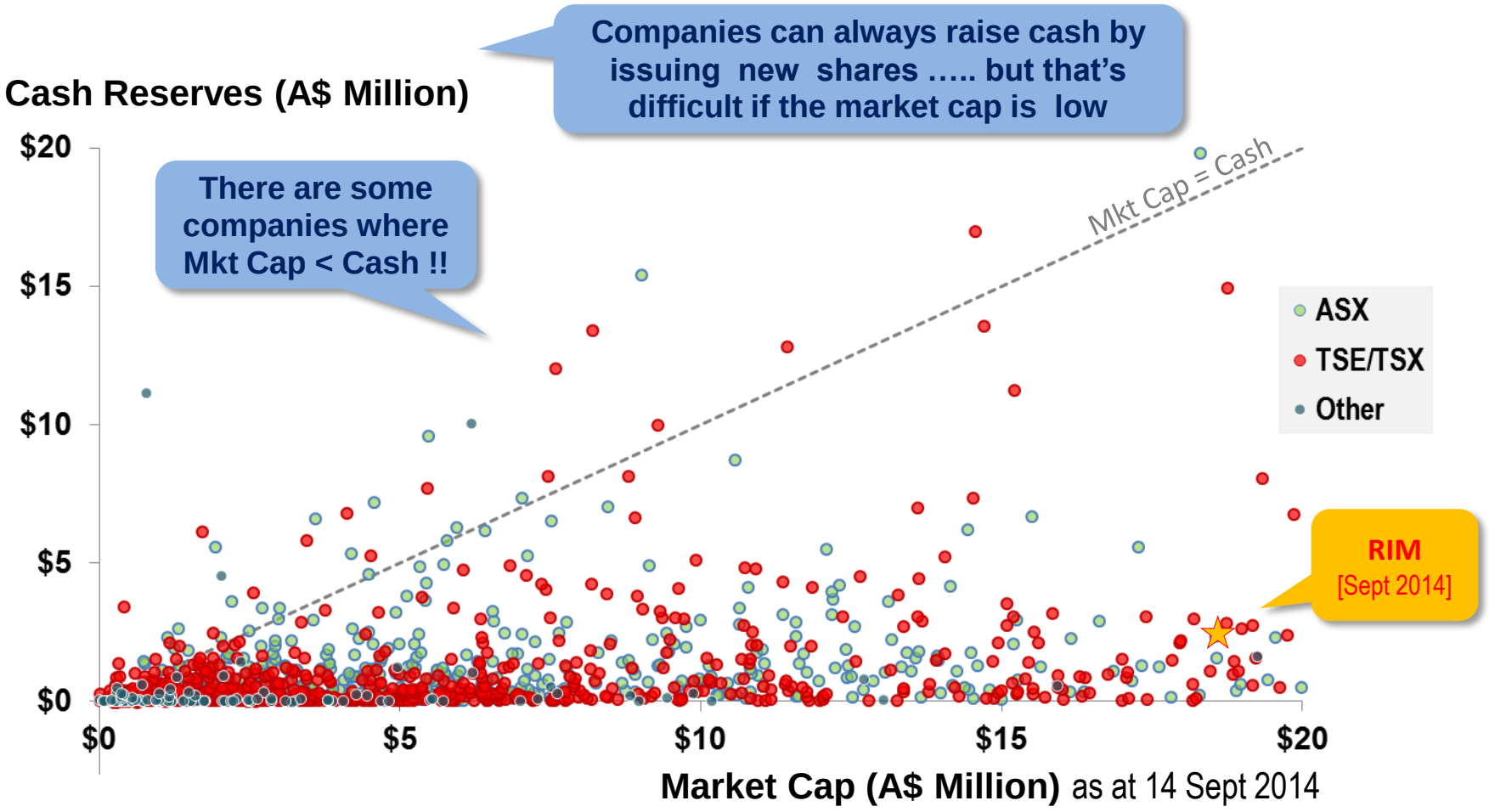


Cash	ASX	TSX	Other
<A$0.2m	19%	50%	68%
<A$0.5m	35%	64%	79%
<A1.0m	52%	74%	85%

Note: Based on an analysis of the cash reserves (as at March-June 2014) for 1980 publicly listed Junior Explorers - 1258 on the TSE/TSX, 589 on the ASX and 133 on other exchanges (such as the CSE, NYSE, AIM, NEC, NZE,OTC and NEC and Pink Sheets). Excludes companies with annual revenues >A$1m.
Based on ExRate of A$1.00 = C$1.00 = US$0.90

Source: MinEx Consulting © September 2014

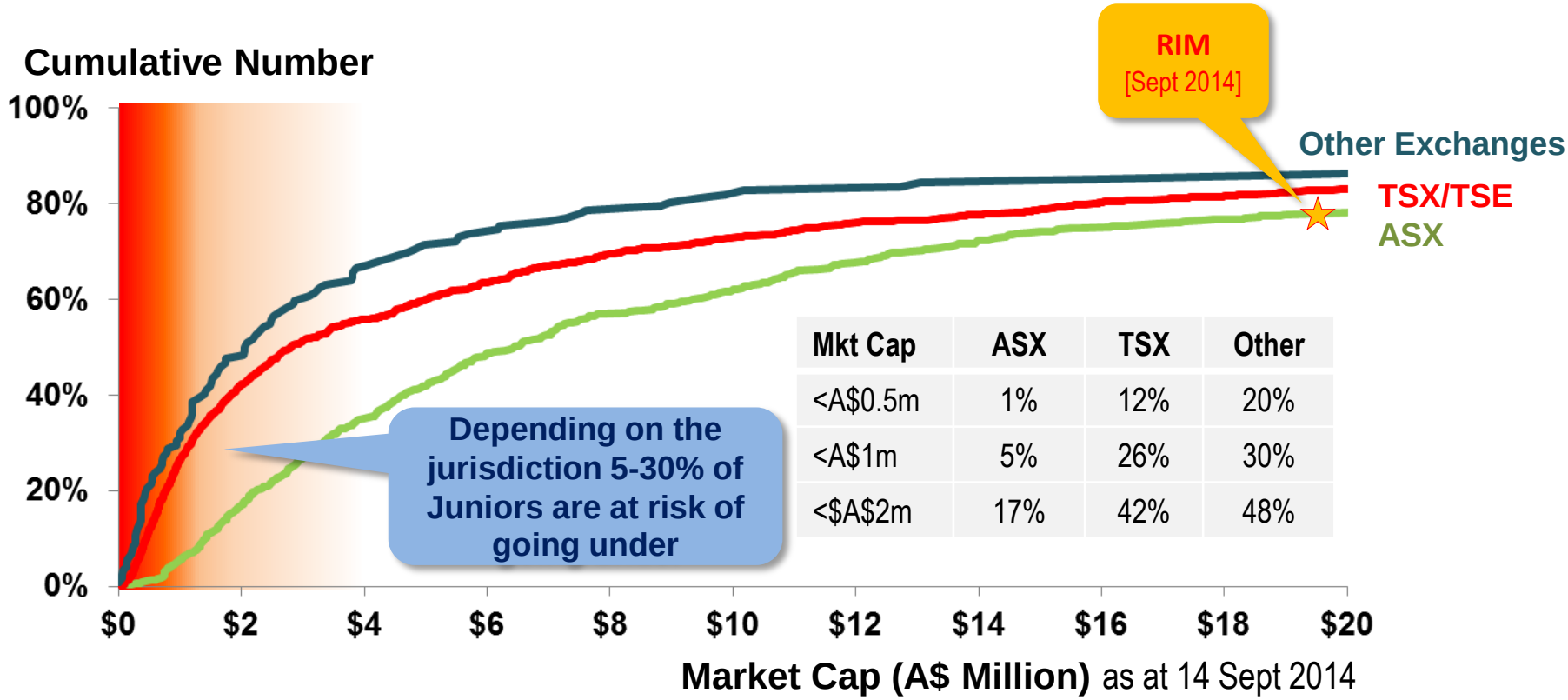
The lack of cash is of main concern to those junior companies with low market caps



Note: Cash reserves (as at March-June 2014) for 1980 publicly listed Junior Explorers.
Excludes companies with annual revenues >A$1m.
Based on ExRate of A$1.00 = C$1.00 = US$0.90

Source: MinEx Consulting © September 2014

Junior Explorers with very small market-caps are at most risk of failing



Mkt Cap	ASX	TSX	Other
<A$0.5m	1%	12%	20%
<A$1m	5%	26%	30%
<A2m	17%	42%	48%

Note: Based on an analysis for 1980 publicly listed Junior Explorers - 1258 on the TSE/TSX, 589 on the ASX and 133 on other exchanges (such as the CSE, NYSE, AIM, NEC, NZE,OTC and NEC and Pink Sheets). Based on ExRate of A$1.00 = C$1.00 = US$0.90

Source: MinEx Consulting © September 2014

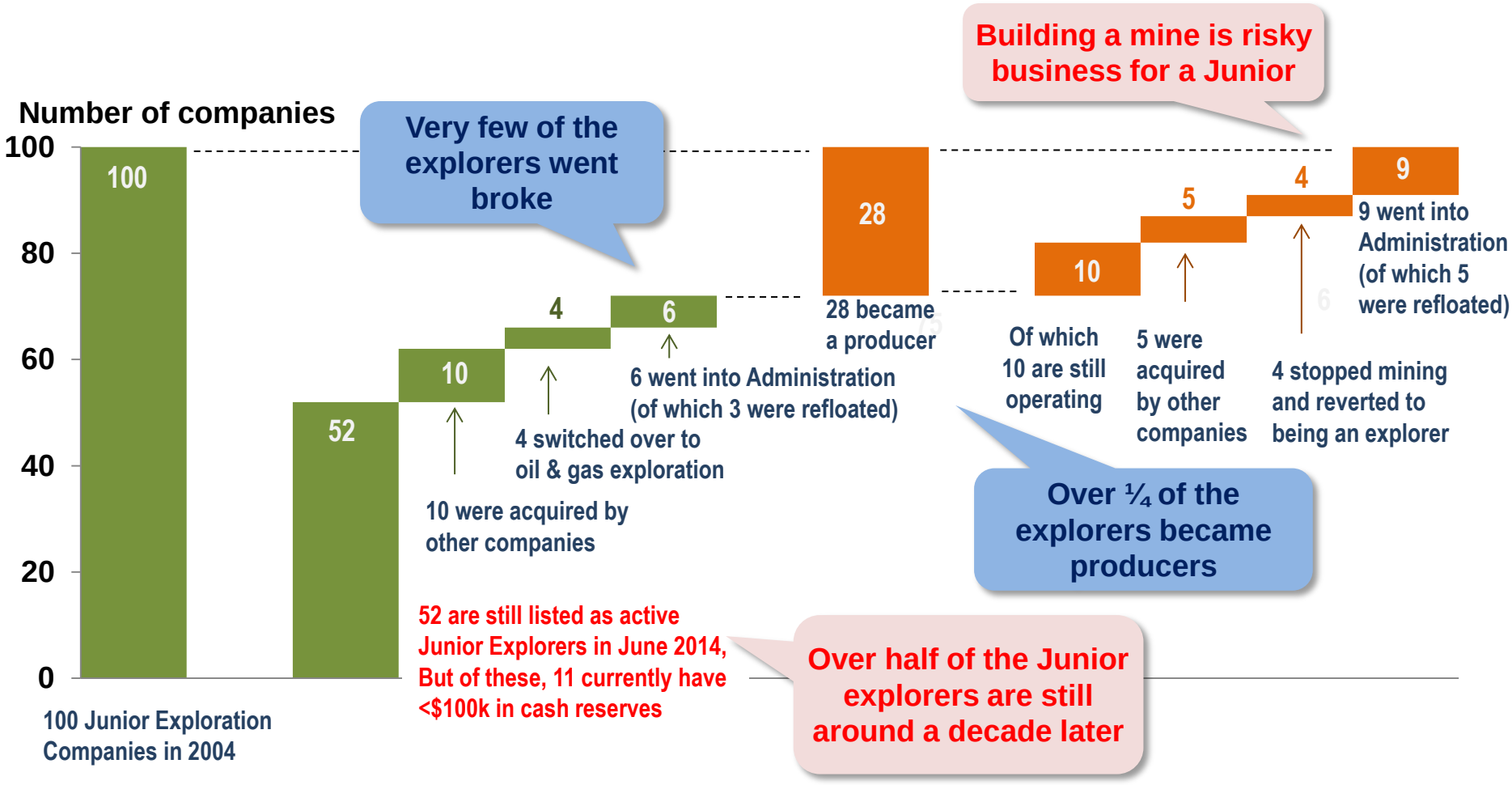
…. But junior explorers are incredibly resilient and most will survive

"Junior companies are like cockroaches … they can both survive a nuclear winter !"

Source: Canadian Mining Industry spokesperson (who wishes to remain anonymous) March 2014

History of Junior exploration companies over the last decade

(100 ASX-listed Junior Explorers in June 2004 versus June 2014)

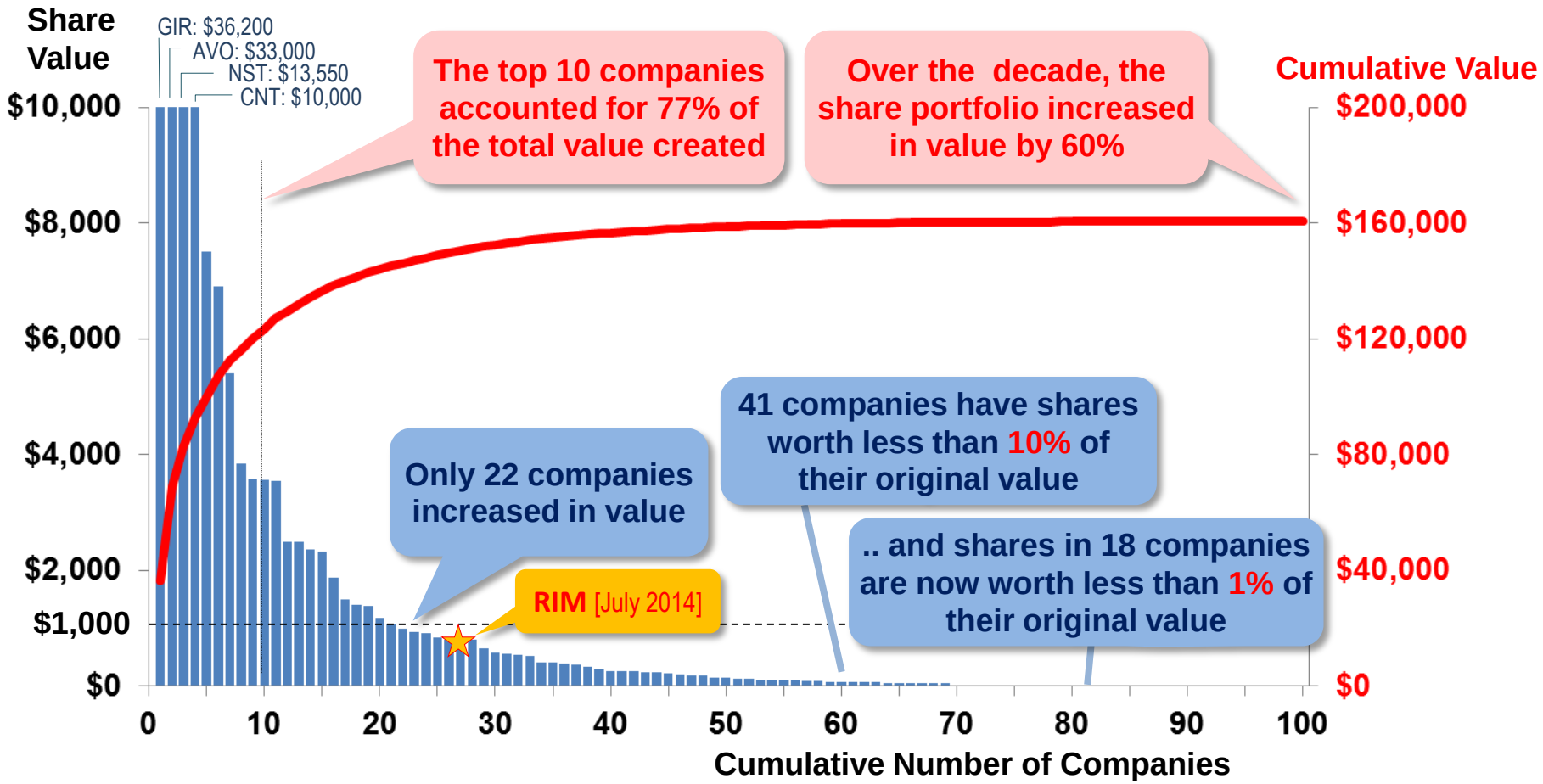


Note: The analysis is based on a random sample of 100 junior mineral exploration companies (out of ~300) listed on the ASX on 30th June 2004.

Source: MinEx Consulting © July 2014

Value of a portfolio of 100 ASX junior exploration companies

Each company purchased for $1000 on 4th July 2004 versus its value on 4th July 2014



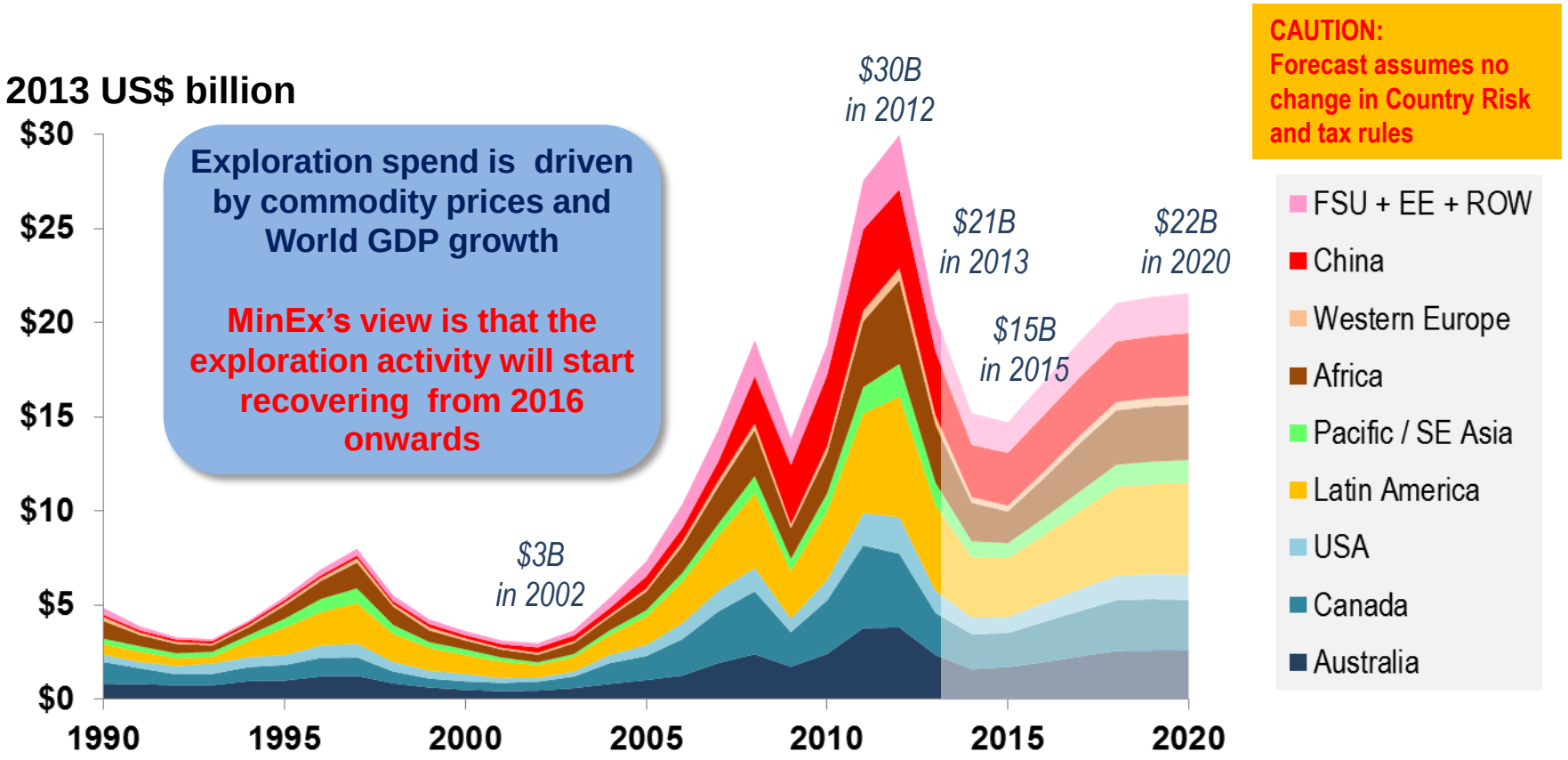
Note: The analysis is based on a random sample of 100 junior mineral exploration companies (out of ~300) listed on the ASX on 30th June 2004.
Final value is based on share price prevailing on 4th July 2014, or on the date it was delisted from the ASX (through takeover or liquidation)

Source: MinEx Consulting © July 2014

Spending is set to rise in the next 2-3 years

7. OUTLOOK FOR EXPLORATION

Forecast exploration expenditures World : 1990-2020



Note: "Rest of World" refers to, Mongolia, Middle East and South West Asia (including India and Pakistan)

Source: MinEx Consulting estimates © September 2014, forecast is based on a multi-factor regression model using commodity price forecasts from Consensus Economics Aug 2014

8. SUMMARY / CONCLUSIONS

Summary / Conclusions [1/4]

1. Trends in exploration spend
   - Over the last decade global exploration spend rose 10-fold, reaching an all-time high of US$31 billion in June 2012. Its half that now.
   - Gold still the most important target, but bulk minerals now account for ¼ of all expenditures.
   - Traditional countries (of Canada, USA and Australia) have lost market share to Latin America and Africa. Big news story is that the country with the largest domestic exploration spend is China (17% in 2013 versus 2% in 1997) .

2. Number of discoveries
   - On average 50-60 significant discoveries are made each year in the World
   - Gold accounts for 55% of all discoveries
   - Junior sector has risen in importance and accounts for 50-60% discoveries in the Western World

Summary / Conclusions [2/4]

3. Exploration performance
   - Over the last decade, expenditures have risen but discovery rates haven't.
   - Unit discovery costs have doubled in the last decade. Average cost of finding a significant gold deposit is US$150m. Discovery cost for a base metal deposit is now US$180 million.

4. Depth of cover
   - Industry is having explore under progressively deeper cover.
   - Average depth is now 56 metres for gold and 114 metres for base metals.
   - The imperative to have effective exploration tools is critical in mature countries like Canada, USA, Western Europe and Australia

5. Location of major discoveries
   - Ten "Hot spots" identified around the World – covering all continents

Summary / Conclusions [3/4]

6. Current financial situation for junior explorers
   - Expenditures are driven by the junior's ability to raise capital.
   - In a downturn, the first cost to be cut is spending on fieldwork.
   - 19% of Australian and 60% of Canadian juniors have <A$200k in cash reserves
   - Market cap is much more important than cash. 5% of Australian and 26% of Canadian juniors have a market cap <$1m …. Which makes it very difficult to raise fresh cash. *Notwithstanding this ….*
   - Junior explorers are incredibly resilient - and most will survive. 56% of Australian junior explorers in 2004 were still operating a decade later.
   - Over the last decade Australian shareholders on made a 60% return on a broad portfolio of junior explorers. However most of this came from just 10% of the investments. 8 out of 10 juniors lost money for their shareholders.

Summary / Conclusions [4/4]

7. Outlook for exploration
   - To be sustainable, the mining industry needs to continue to fund exploration.
   - The level of exploration spend is primarily driven by commodity prices, world economic growth and the availability of funds for juniors.
   - Based on the latest commodity price forecasts, MinEx Consulting projects that global exploration spend will bottom out at $15 billion in 2015 and recover back to 2013 spending levels (of $21 billion) by the end of the decade

In summary, the long-term outlook is good and most companies will survive the current nuclear winter

Contact details

Richard Schodde
Managing Director
MinEx Consulting
Melbourne, Australia

Email: Richard@MinExConsulting.com
Website: MinExConsulting.com

Copies of this and other similar presentations can be downloaded from my website

Due to time constraints the following slides were left out of the main presentation

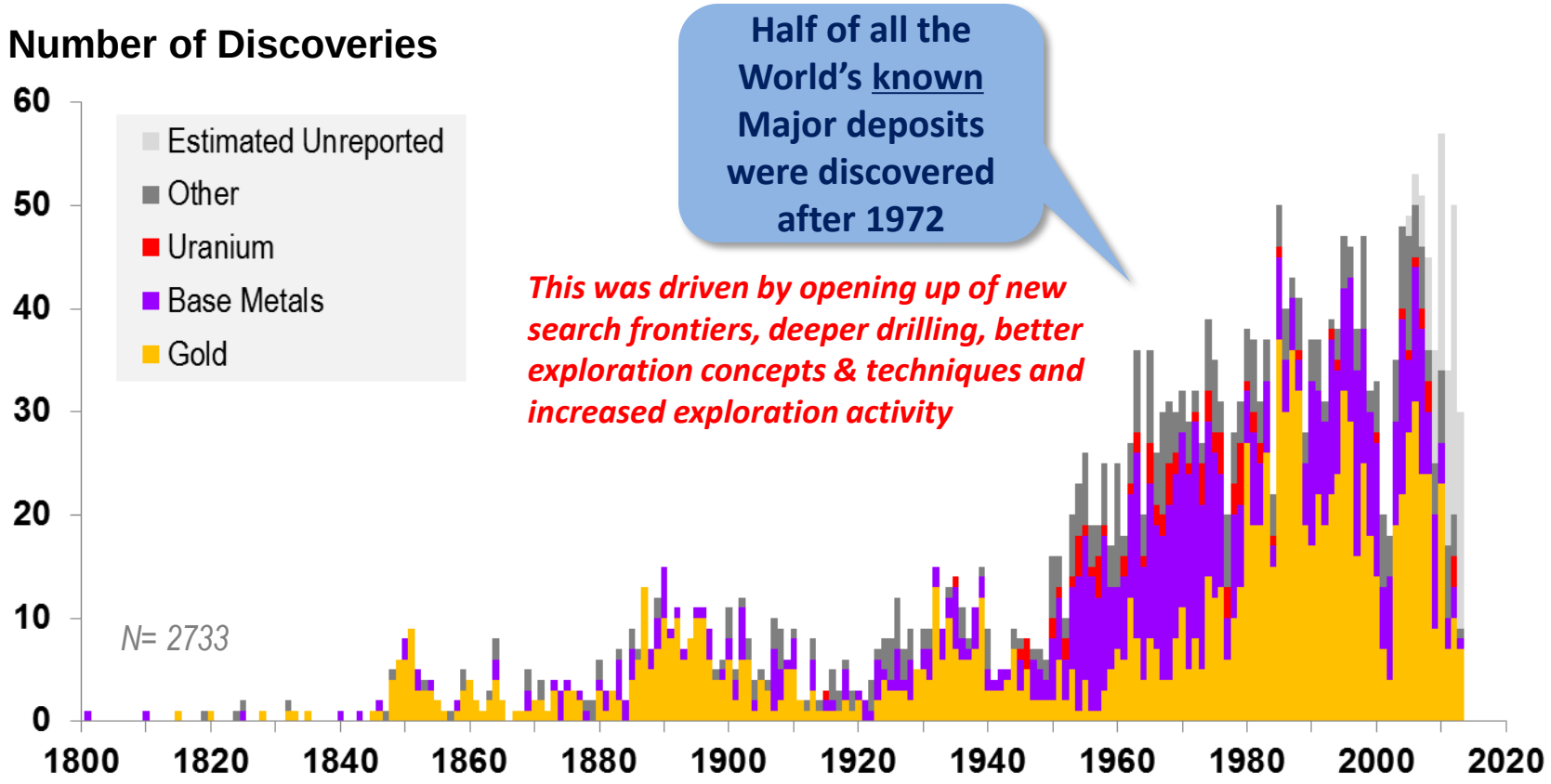
SPARE SLIDES

Most mineral deposits have been found in our life-time

A1. HISTORY OF EXPLORATION

Half of all of the World's major deposits have been found in the last 40 years

Number of Major discoveries in the World: 1800-2013



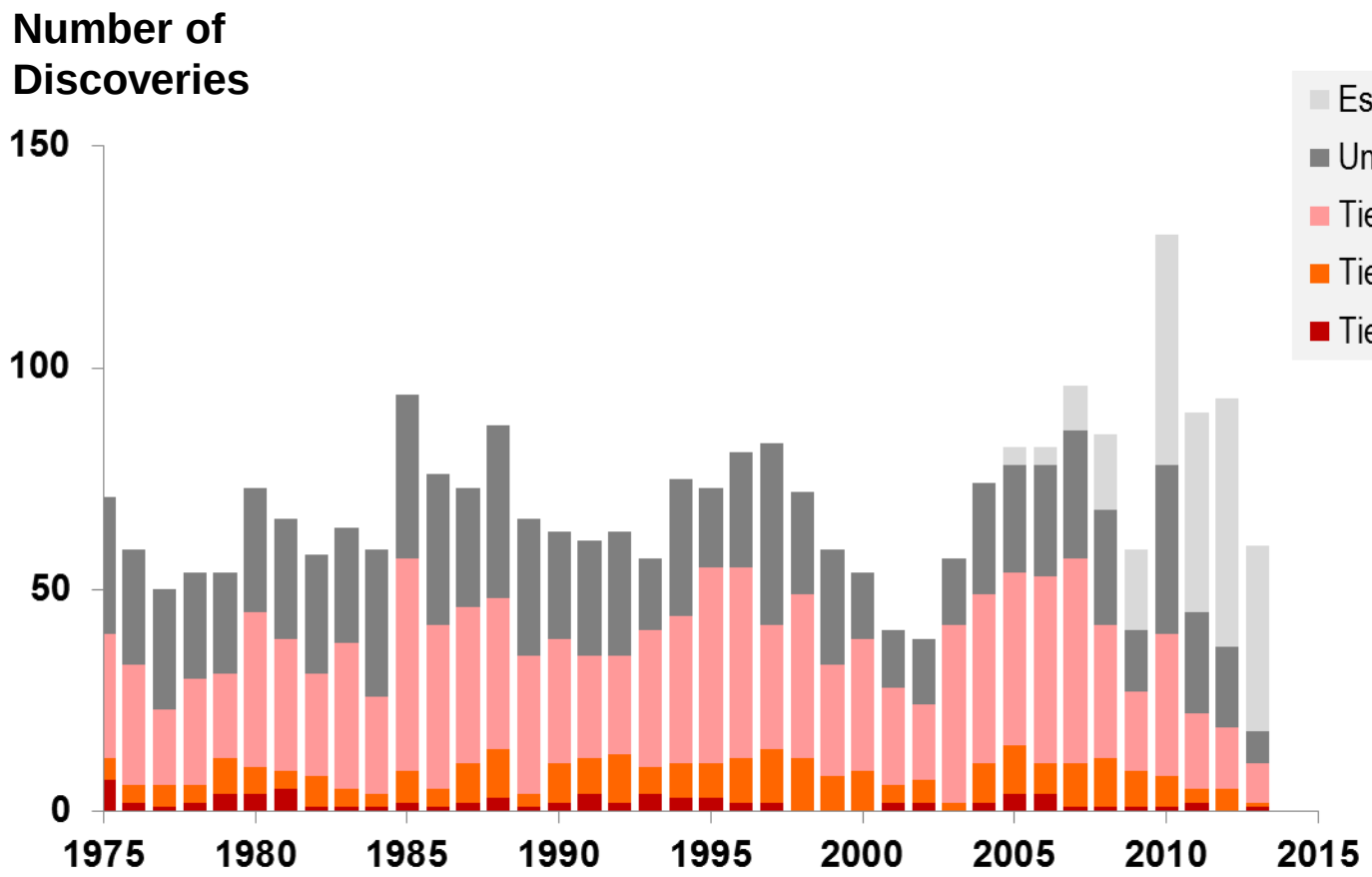
Note: "Major" is defined as > 1 Moz, >100kt Ni >25 kt U3O8 and >1 Mt Cu or metal equivalent
Excludes Bulk Mineral discoveries.
Excludes 91 deposits found prior to 1800, and 194 deposits with unknown discovery dates

Source: MinEx Consulting © September 2014

2A. NUMBER OF DISCOVERIES MADE

Quality of the discoveries made

Discoveries in the World by Tier: 1975-2013

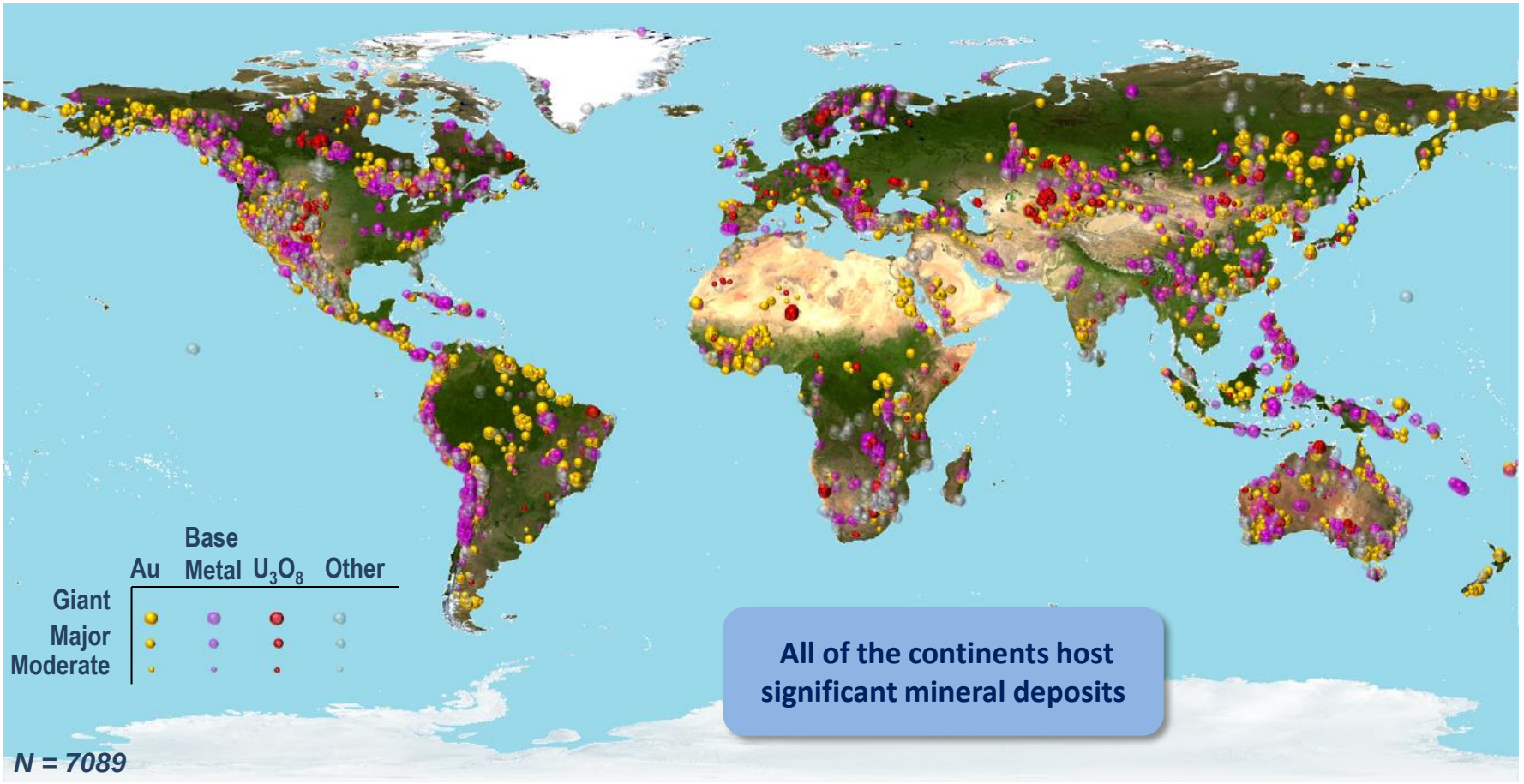


Note: "Tier 1" defined as World Class deposits that are large, long life and low cost and are worth >$1000m at the Decision-to-build stage
"Tier 2" defined as having some (but not all) of the characteristics of a Tier 1 and are worth $200-$100m
"Tier 3" are large (generally > Moderate in size) but marginally economic deposits and worth $0-200m
"Unassigned" refer to Moderate-sized deposits of modest value (~$10m)
Analysis excludes satellite deposits within existing Camps. Also excludes Bulk Mineral discoveries.

Source: MinEx Consulting © September 2014

5A. LOCATION OF MAJOR DISCOVERIES

Significant Mineral Deposits in the World by Size : All Years

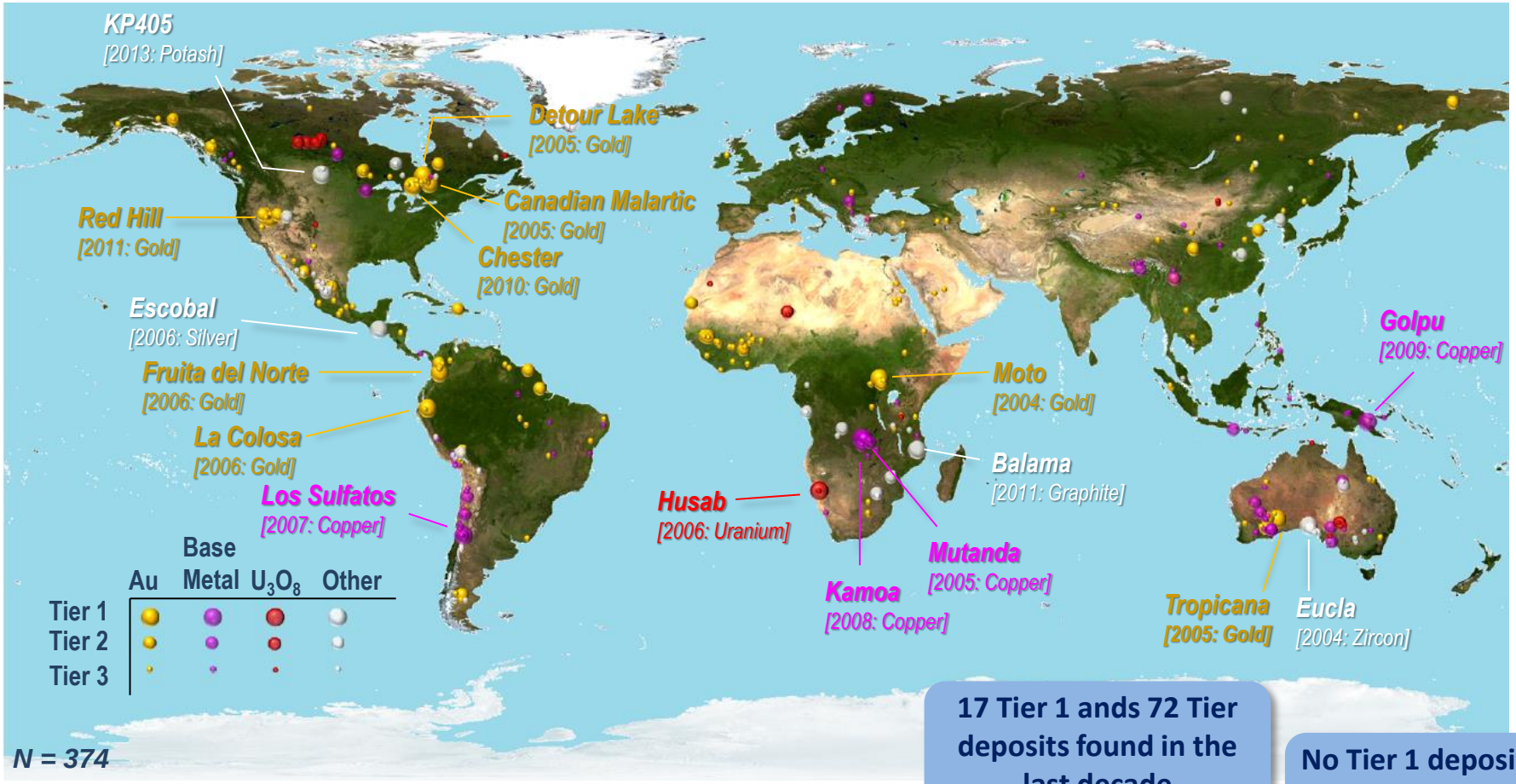


Note: Excludes Bulk Mineral discoveries.

Note: "Moderate" >100koz Au, >10kt Ni, >100Kt Cu equiv, 250kt Zn+Pb, >5kt U_3O_8
"Major" >1Moz Au, >100kt Ni, >1Mt Cu equiv, 2.5Mt Zn+Pb, >25kt U_3O_8
"Giant" >6Moz Au, >1Mt Ni, >5Mt Cu equiv, 12Mt Zn+Pb, >125kt U_3O_8

Source: MinEx Consulting © September 2014

Significant discoveries in the world by Quality: 2004-2013



17 Tier 1 ands 72 Tier deposits found in the last decade

No Tier 1 deposits found in FSU, China or Europe

Note: Excludes Bulk Mineral discoveries.

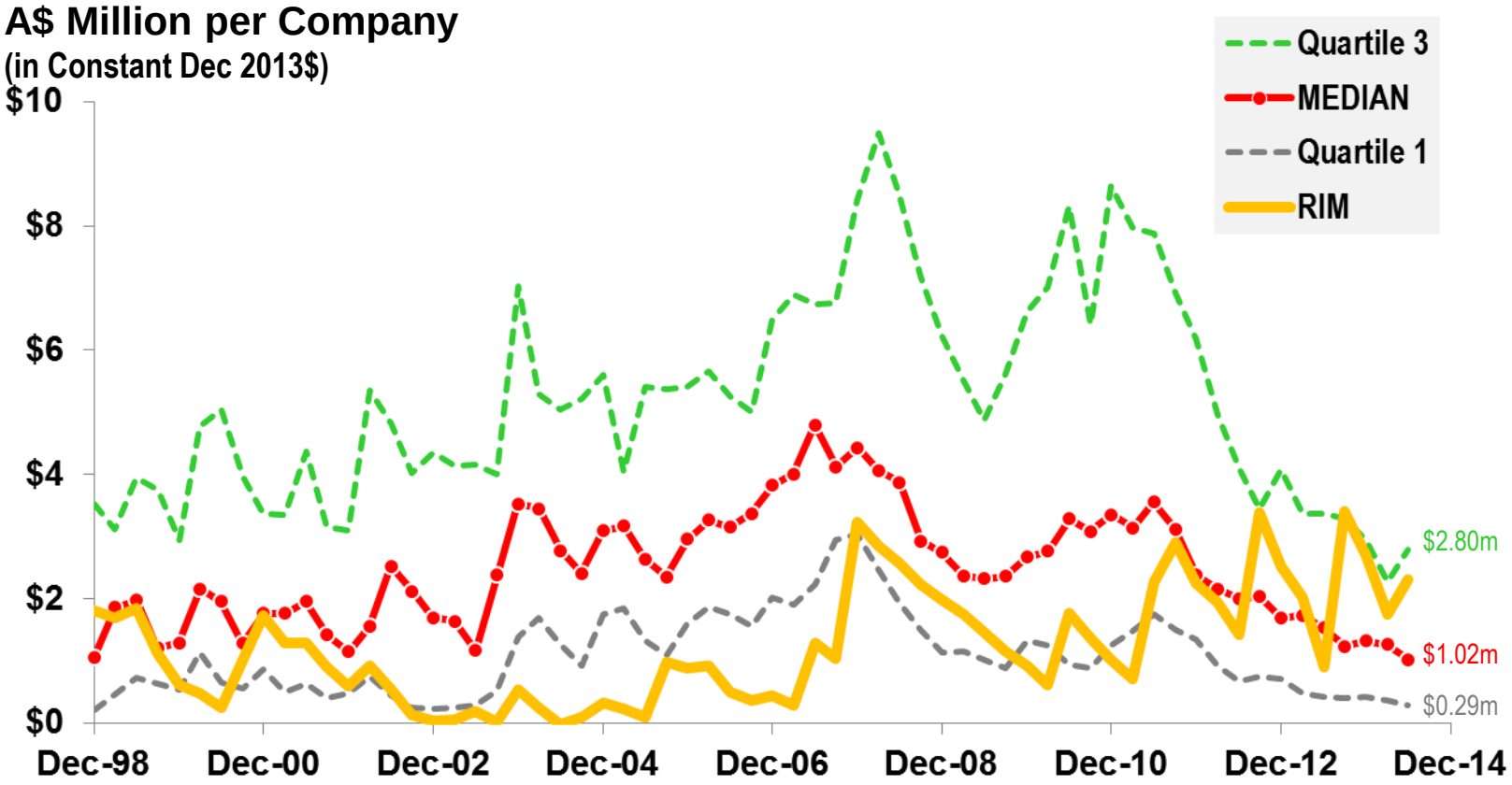
Note: "Tier 1 " is a Company making mine which is both large, long life and low cost. Has an NPV $_{\text{at Decision to Build}}$ >US $1000m
"Tier 2" is a significant mine, and has some of the characteristics of a Tier 1 . Has an NPV $_{\text{at Decision to Build}}$ of US $200-1000m
"Tier 3" is a marginal mine, and only has one of the characteristics of a Tier 1 or 2 . Has an NPV $_{\text{at Decision to Build}}$ of US $0-200m

Source: MinEx Consulting © September 2014

6A. CURRENT FINANCIAL SITUATION FOR JUNIOR EXPLORERS

Change in cash position: 1998-June 2014

Sample of Australian Junior Exploration Companies

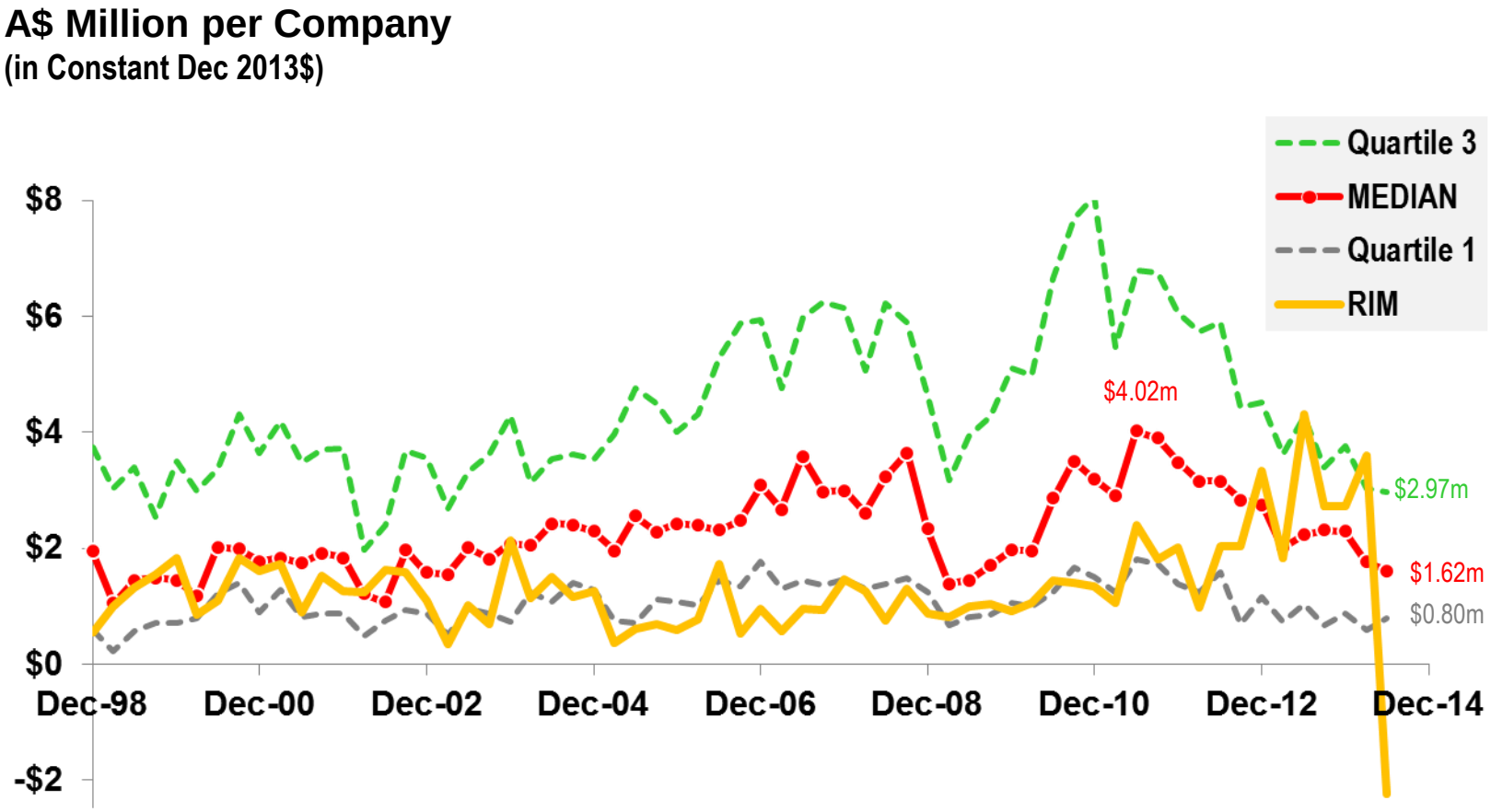


Note: Survey based on a sample of 125 (past & present) junior exploration companies out of a total of 800+ companies listed on the ASX between 1998-2014

Source: MinEx Consulting © September 2014 based on Quarterly Reports to the ASX

Change in expenditures: 1998-June 2014

Sample of Australian Junior Exploration Companies

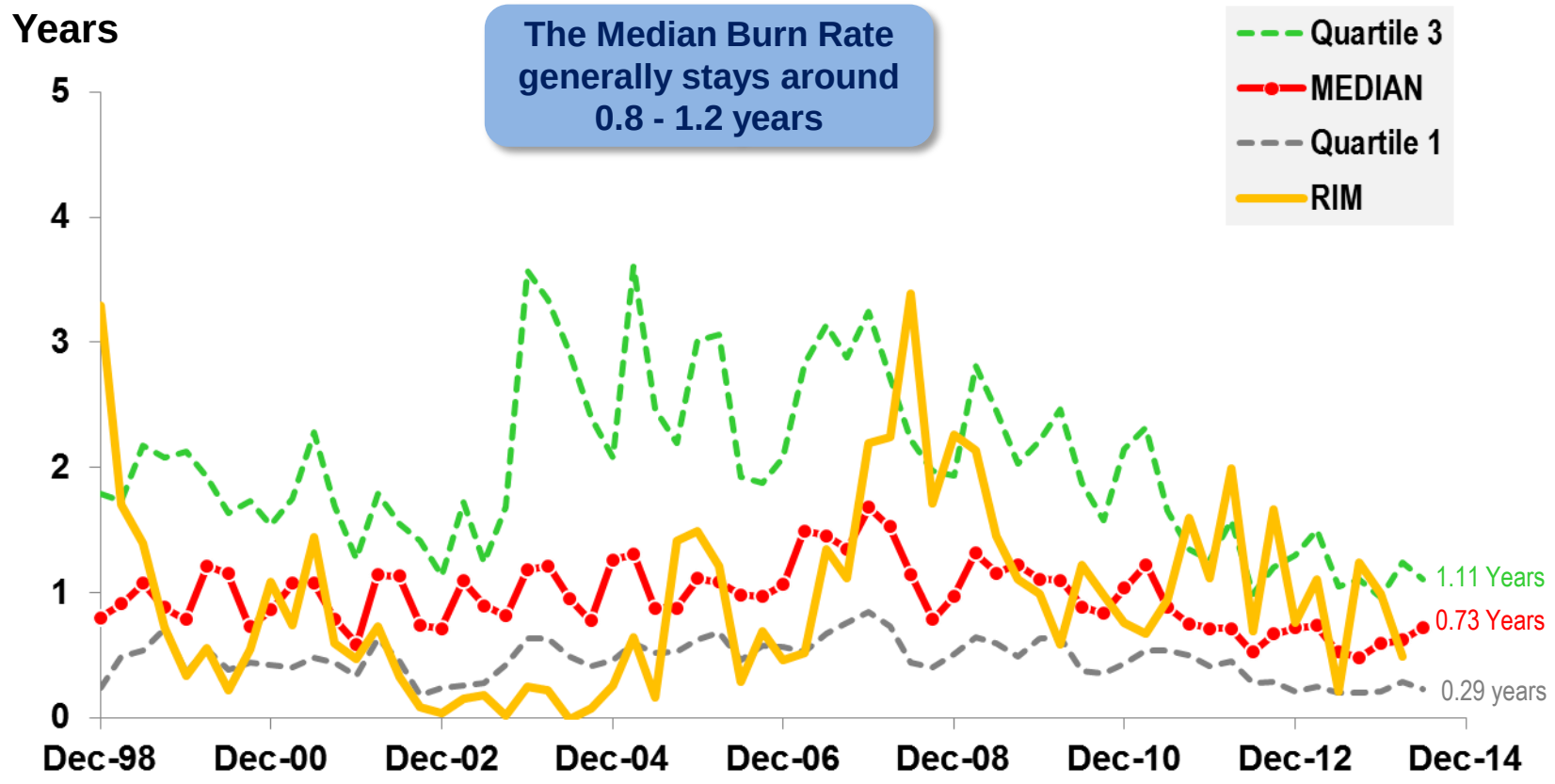


Note : Survey based on a sample of 125 junior exploration companies listed on the ASX between 1998-2014
Expenditure figures are reported on an annualised basis.
Expenditures are defined as the net operating cash flow (and include exploration, development, administration and other expenses, less any incidental revenues).

Source: MinEx Consulting © September 2014
based on Quarterly Reports to the ASX

Cash burn rate for Australian Junior Explorers

Annualised operating expenditures divided by cash reserves



Note: Survey based on a sample of 125 (past & present) junior exploration companies out of a total of 800+ companies listed on the ASX between 1998-2014

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