

STRADE

China Workshop

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S&P Global Market Intelligence

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Chinese And European Involvement In
Exploration And Mining

S&P Global

Market Intelligence

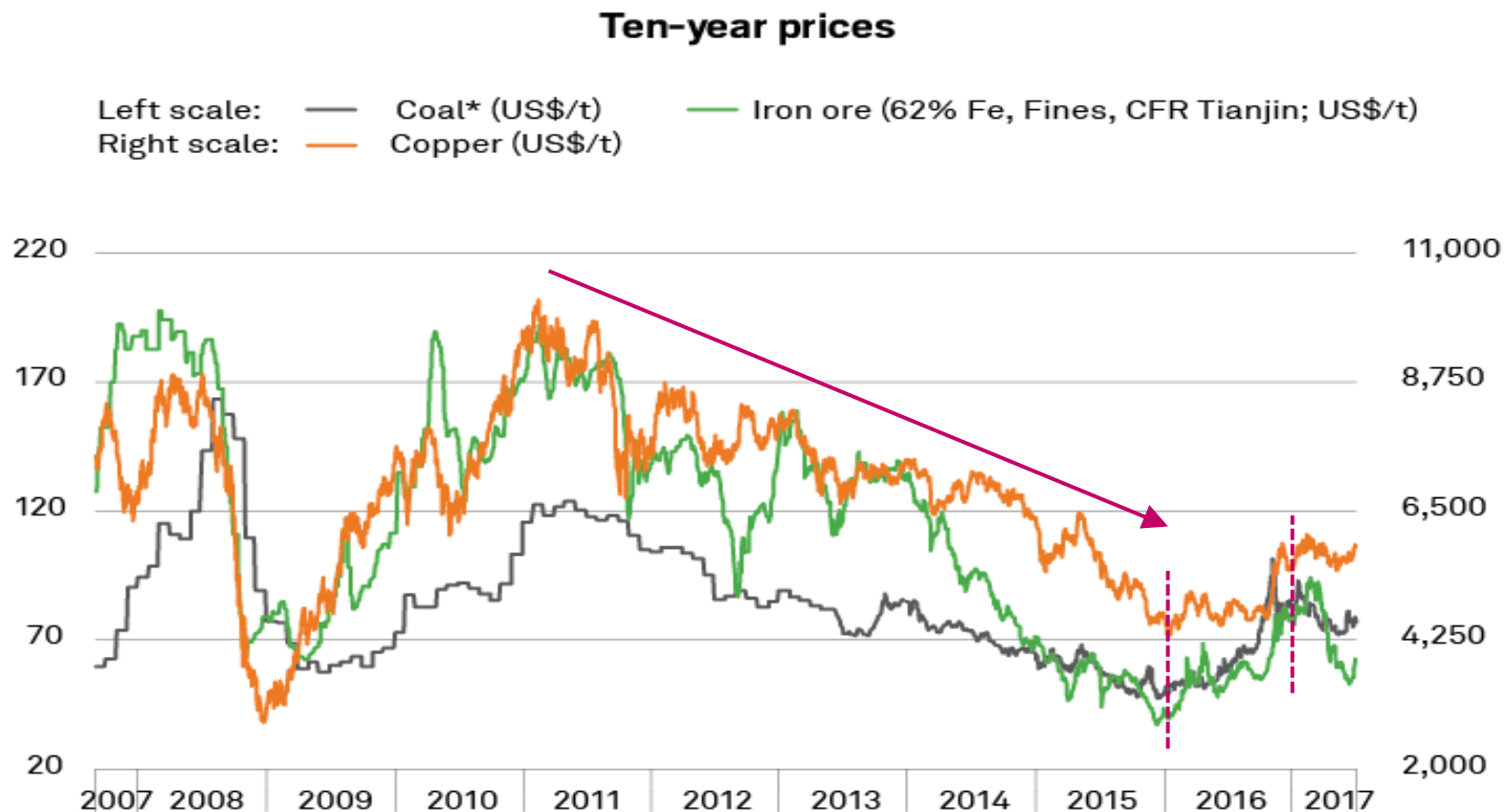
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Main Mined Commodities – 10 Year Price Trend

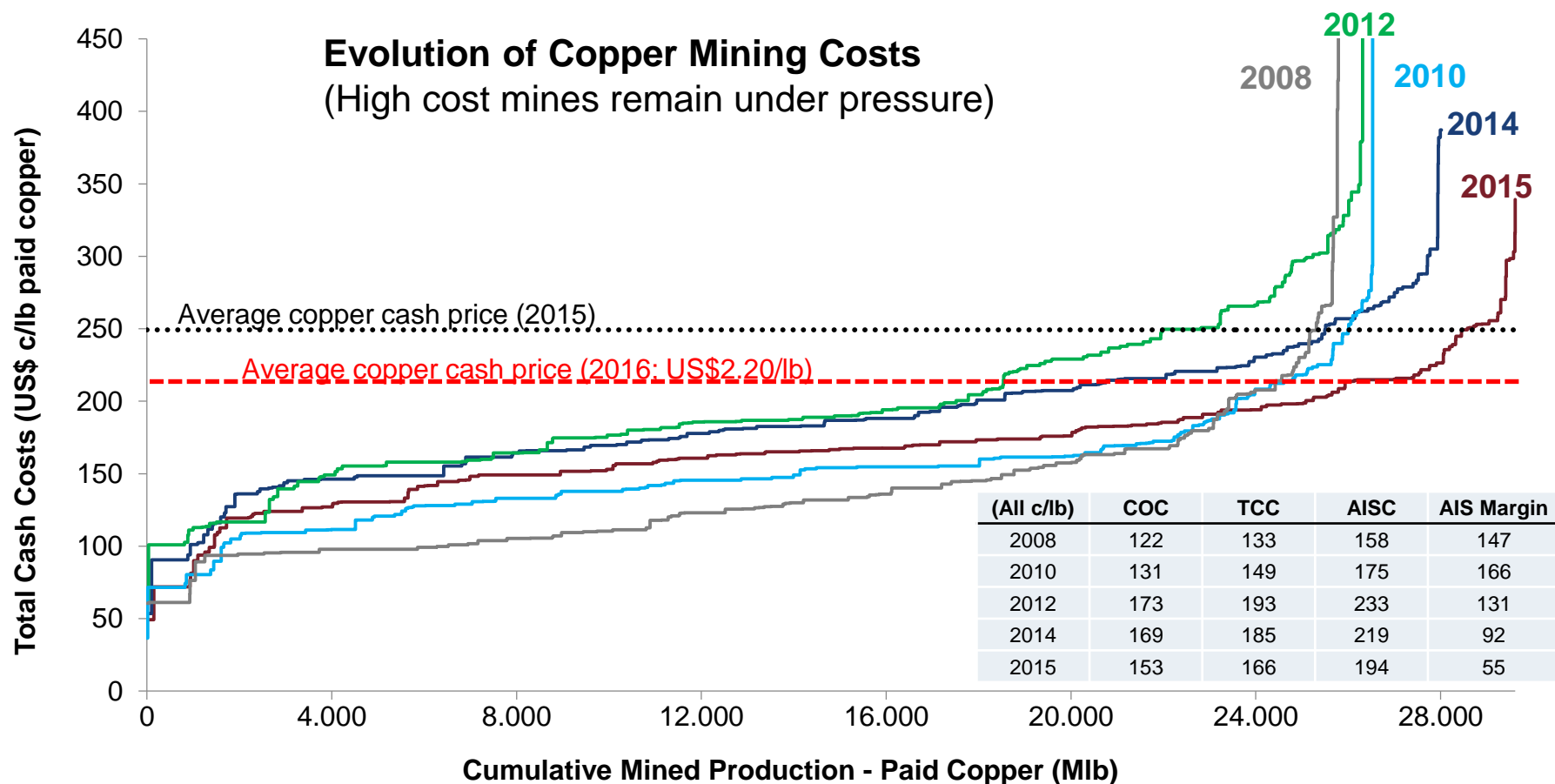


*Australian thermal coal; FOB Newcastle.

Source: SNL Metals & Mining database, an offering of SP Global Market Intelligence; June 30, 2017.

Reaction To The Falling Metals Prices

i) Lower, And Flatter, Cost Curves

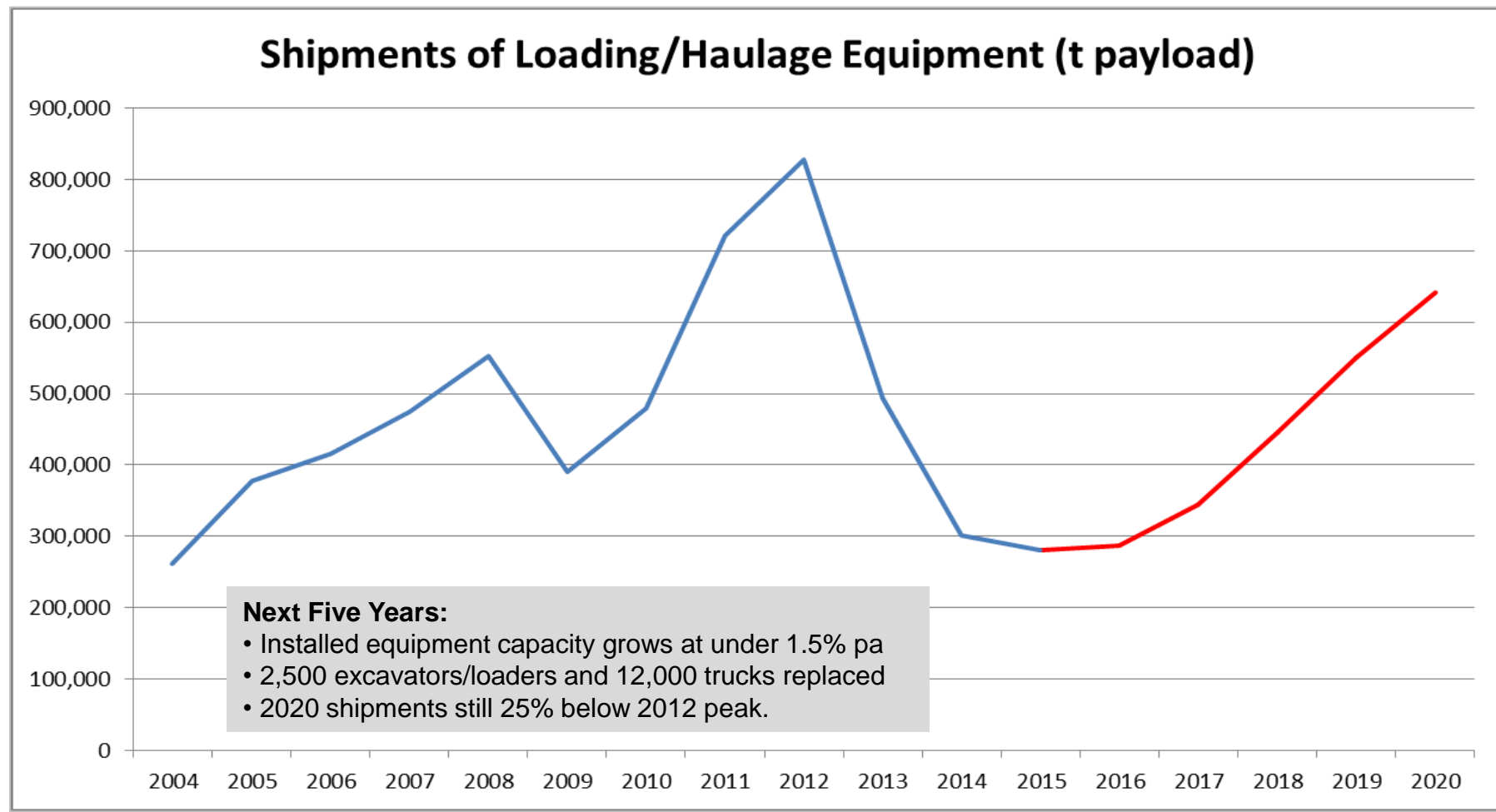


* COC = Cash Operating Cost (excludes royalties). TCC = Total Cash Costs. AIS = All-in-Sustaining Cost/Margin.

Source: SNL Metals & Mining, an offering of S&P Global Market Intelligence; end-April 2016.

Reaction To The Falling Metals Prices

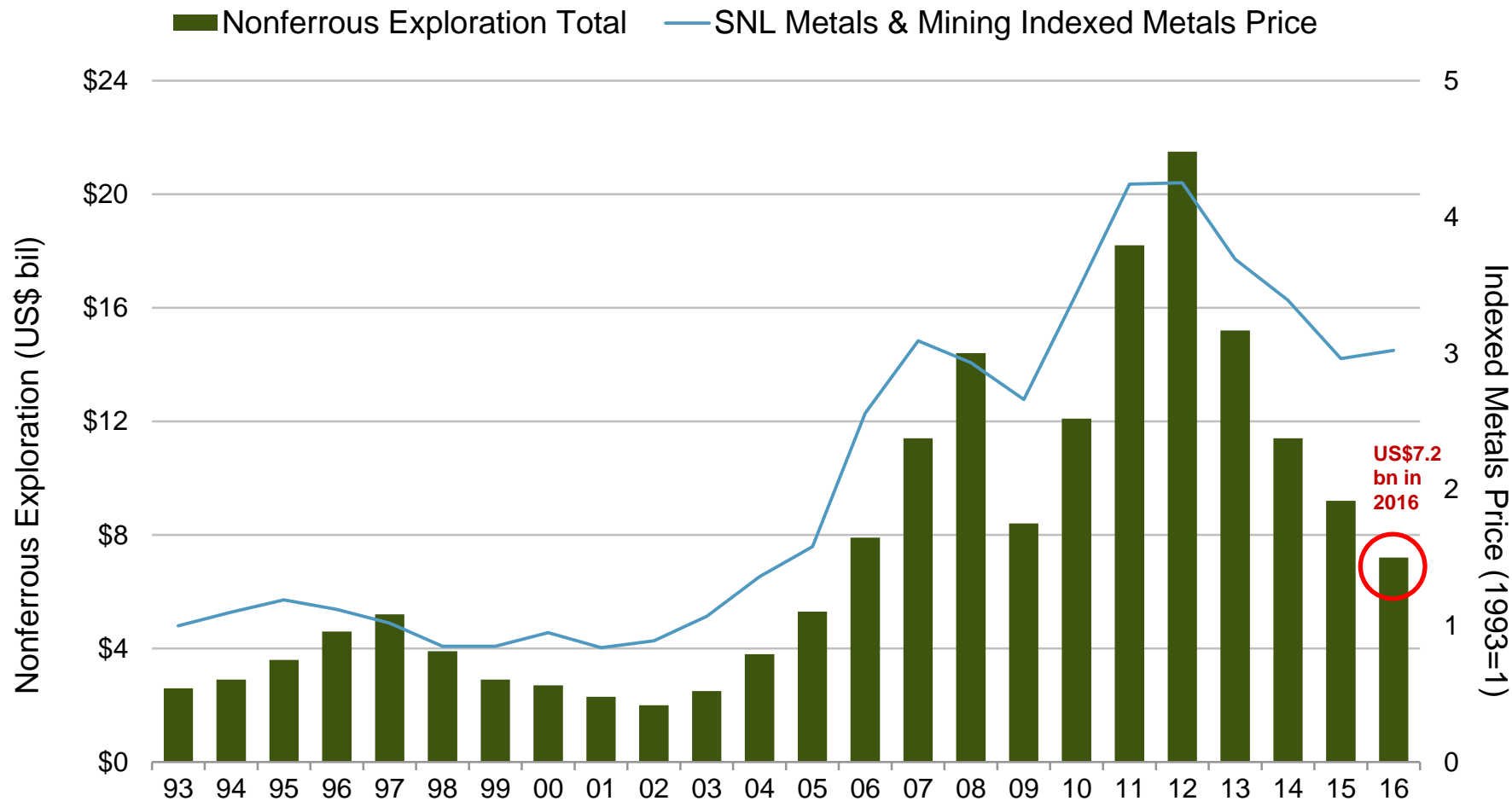
ii) Falling Equipment Orders



Source: The Parker Bay Co. Information as of end-March 2016.

Reaction To The Falling Metals Prices

iii) Lower Exploration Expenditure



Source SNL Metals & Mining, an offering of S&P Global Market Intelligence; end-2016.

Consensus commodity forecast prices

Commodity *	2016 (actual)	Average forecast as of Aug. 17, 2017		
	Average price	2017	2018	2019
Gold (US\$/oz)	1,247.96	1,253.60	1,277.49	1,299.78
Silver (US\$/oz)	17.09	17.62	18.42	19.05
Platinum (US\$/oz)	985.36	1,012.11	1,070.30	1,041.31
Rhodium (US\$/oz)	683.52	894.75	968.50	941.17
Palladium (US\$/oz)	612.41	796.60	826.63	850.83
Aluminum^	0.73	0.85	0.86	0.85
Cobalt	11.55	21.08	22.35	21.69
Copper	2.21	2.59	2.72	2.84
Iron ore (US\$/t)**	58.45	63.89	58.37	57.45
Lead	0.85	1.00	1.01	1.00
Molybdenum	6.37	7.21	7.52	8.14
Nickel	4.36	4.63	5.09	5.78
Tin^	8.17	9.04	9.02	9.36
Zinc	0.95	1.23	1.26	1.20
Uranium	25.72	28.56	35.13	43.51

Data as of Aug. 17, 2017.

* US\$/lb unless stated otherwise.

** Iron ore is for 62% Fe.

^ Aluminum and tin 2016 average prices provided by S&P Capital IQ.

Prices in **red** represent a lower price, while prices in **green** represent a higher price, compared to the previous year's forecast.

Forecast price data provided by S&P Capital IQ Consensus Estimates.

Source: S&P Global Market Intelligence

The Mining Sector (2017f)

	MINED ('000t)	AVERAGE PRICE (US\$/t)	VALUE PA (US\$ bn)
Coal (commercial)	7,300,000	109 *	796
Iron Ore (62% Fe)	2,165,000	67	145
Copper	23,350	5,720	134
Gold	96.4 Moz 3.0	40,188,000 \$1,250/oz	120
Zinc	13,790	2,800	39
Nickel	2,050	10,000	21
Diamonds	132 Mct 0.026	625,000,000 \$125/ct	16
Silver	885 Moz 28	570,000 \$17.6/oz	16
Bauxite	300,000	45	14
Potash (K2O)	37,000	280	10
Top Ten Total	9,841,220	Av \$133/t	1,312

Other major metals include Lead (4.6 Mt at \$2,200/t for \$10 billion), and the PGMs (12.6 Moz at a combined \$900/oz for total of \$11 billion)

* 70% Thermal (\$80/t) + 20% Met (\$250) + 10% Lignite (\$30)

Source SNL Metals & Mining, an offering of S&P Global Market Intelligence; as of September 2017.

The Mining Sector (2016)

China's Share of Top Six Mined Commodities

COMMODITY	RANK	CHINA	GLOBAL	SHARE (%)
Coal *	1 st	3,360 Mt	7,310 Mt	46.0
Iron Ore	3 rd	224 Mt	2,082 Mt	10.8
Copper	3 rd	1.64 Mt	19.92 Mt	8.2
Gold	1 st	14.6 Moz	96.3 Moz	15.2
Zinc	1 st	4.40 Mt	12.05 Mt	36.5
Nickel	7 th	90 Kt	1,986 Kt	4.5

* Commercial production of all hard and soft coal

Source SNL Metals & Mining, an offering of S&P Global Market Intelligence; as of September 2017.

The Mining Sector (2016)

Metals Supply and Demand in Europe and China

METAL	Units	MINED SUPPLY			REFINED SUPPLY			REFINED DEMAND		
		Europe	China	World	Europe	China	World	Europe	China	World
Iron Ore [*]	Mt	38	117	2,082	203	808	1,630	194	682	1,515
Copper	Mt	1.63	1.64	19.92	3.22	7.90	22.89	3.51	10.49 ^{x6.4}	22.77
Zinc	kt	736	4,400	12,053	2,737	6,274	13,682	2,407	6,693	13,852
Nickel [#]	kt	49	90	1,986	280	603	2,002	328	1,084 ^{x12.0}	2,057

^{*} The refined supply of iron ore is of crude steel, and the refined demand is the consumption of finished steel.

[#] The top six countries for mined supply of nickel contribute 71% of the total; Refined supply is of primary nickel.

Source Commodity Briefing Service, an offering of S&P Global Market Intelligence; as of September 2017.

The Mining Sector (2016)

Share of Global Metals Supply and Demand

*

METAL	MINED SUPPLY (%)			REFINED SUPPLY (%)			REFINED DEMAND (%)	
	Europe	China		Europe	China		Europe	China
Iron Ore	1.8	5.6		12.5	49.6		12.8	45.0
Copper	8.2	8.2		14.1	34.5		15.4	46.1
Zinc	6.1	36.5		20.0	45.9		17.4	48.3
Nickel	2.5	4.5		14.0	30.1		15.9	52.7

Source Commodity Briefing Service, an offering of S&P Global Market Intelligence; as of September 2017.

China's Overseas Assets (projects and mines)

COMMODITY	TOTAL ASSETS	INACTIVE	ACTIVE ASSETS
Coal	48	12	36
Copper	62	30	32
Gold	63	20	43
Iron Ore	71	40	31
Nickel	17	7	10
U3O8	25	15	10
Zinc	13	5	8
TOTAL (23)	345	147	198

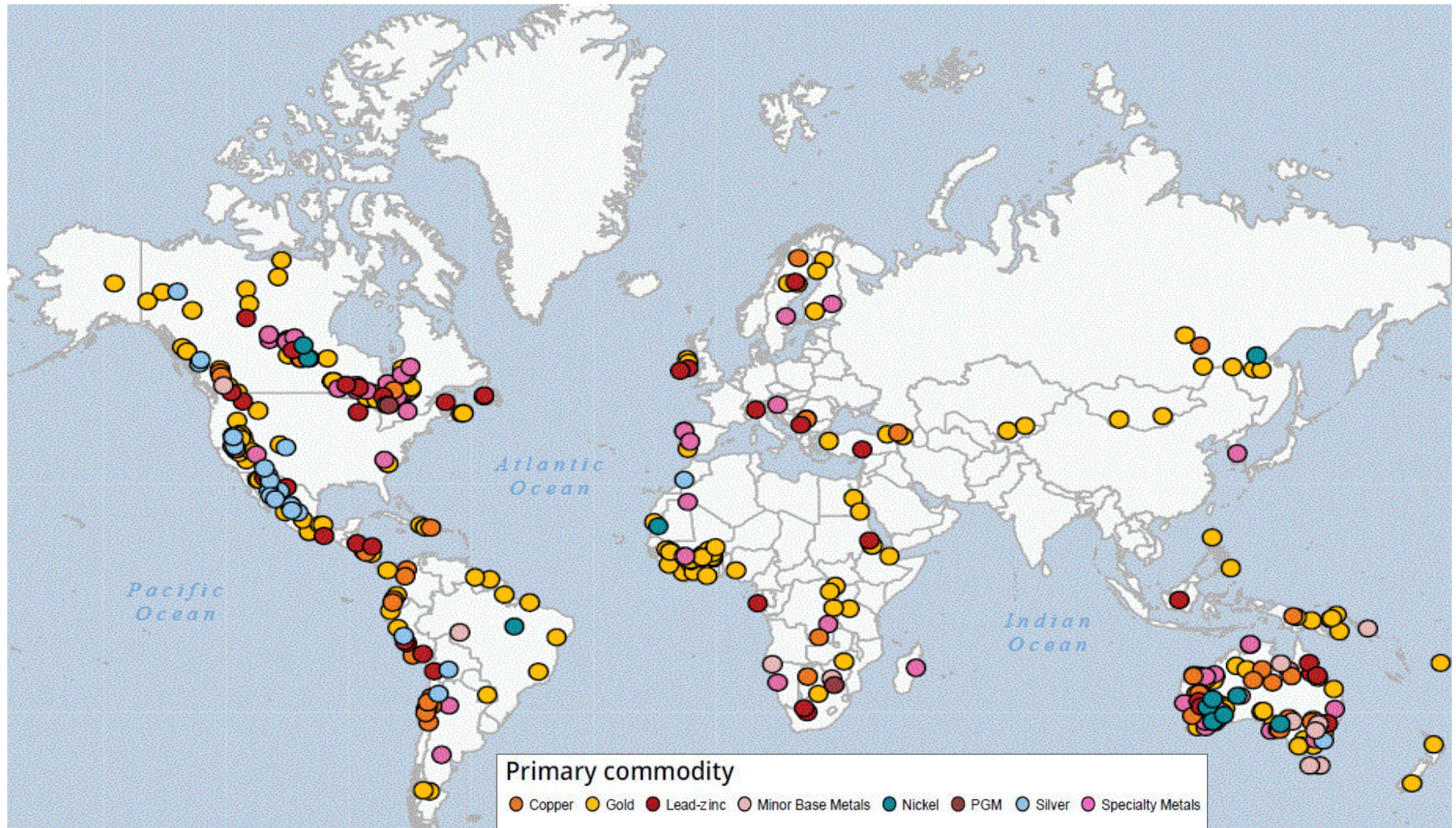
Source SNL Metals & Mining Database, an offering of S&P Global Market Intelligence; as of September 2017.

China's Overseas Active Assets

Country	Total	Expl	Resrv	Feas	Constr	Comm	Mine	Exp
Australia	85	15	29	12	1	3	13	12
Canada	17	5	5	3	0	0	4	0
Mongolia	9	1	2	0	1	1	4	0
DRC	9	0	1	3	1	0	4	0
Russia	8	0	5	0	1	1	1	0
SA	7	0	1	1	0	0	4	1
Total	198	26	53	26	6	8	61	18

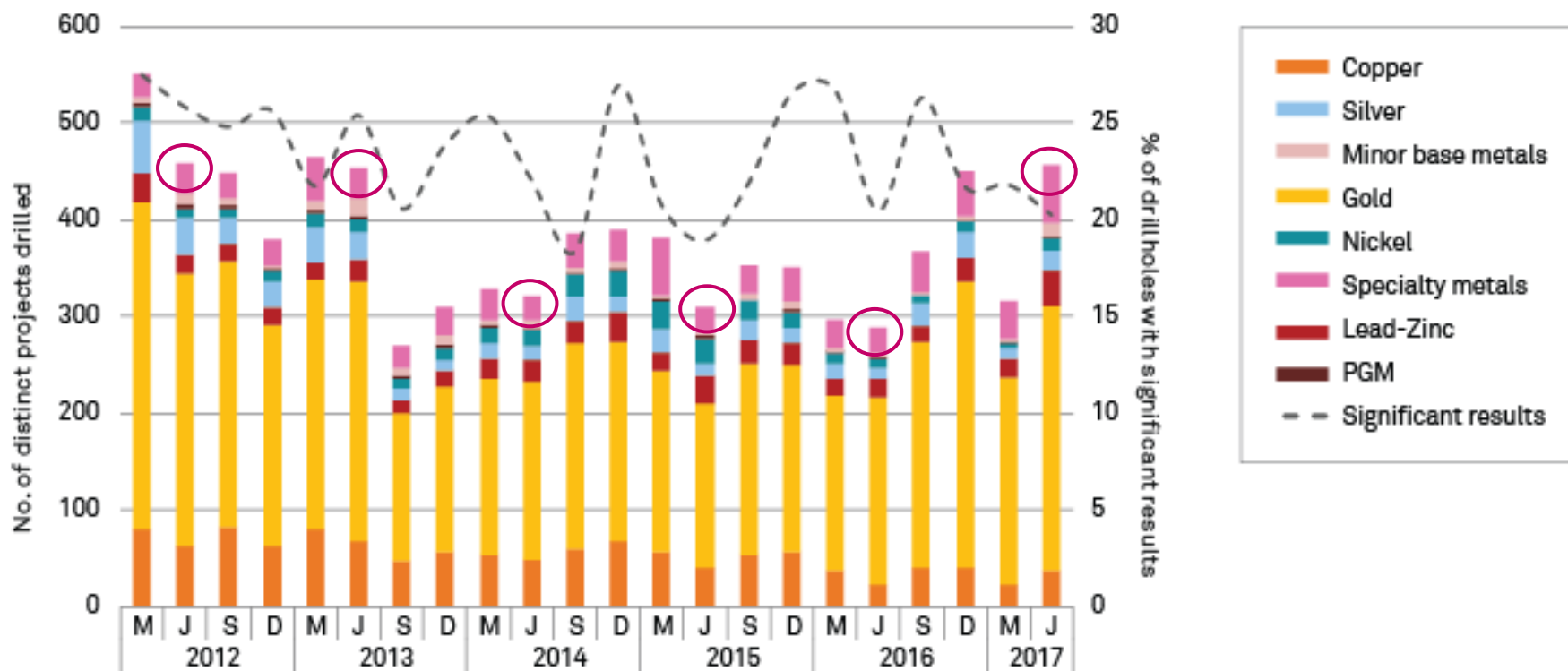
Source SNL Metals & Mining Database, an offering of S&P Global Market Intelligence; as of September 2017.

Reported Drilling (Q2 2017)



Source: SNL Metals & Mining database, an offering of S&P Global Market Intelligence; July 31, 2017.

Global Drill Activity (Projects; Q2 2017)



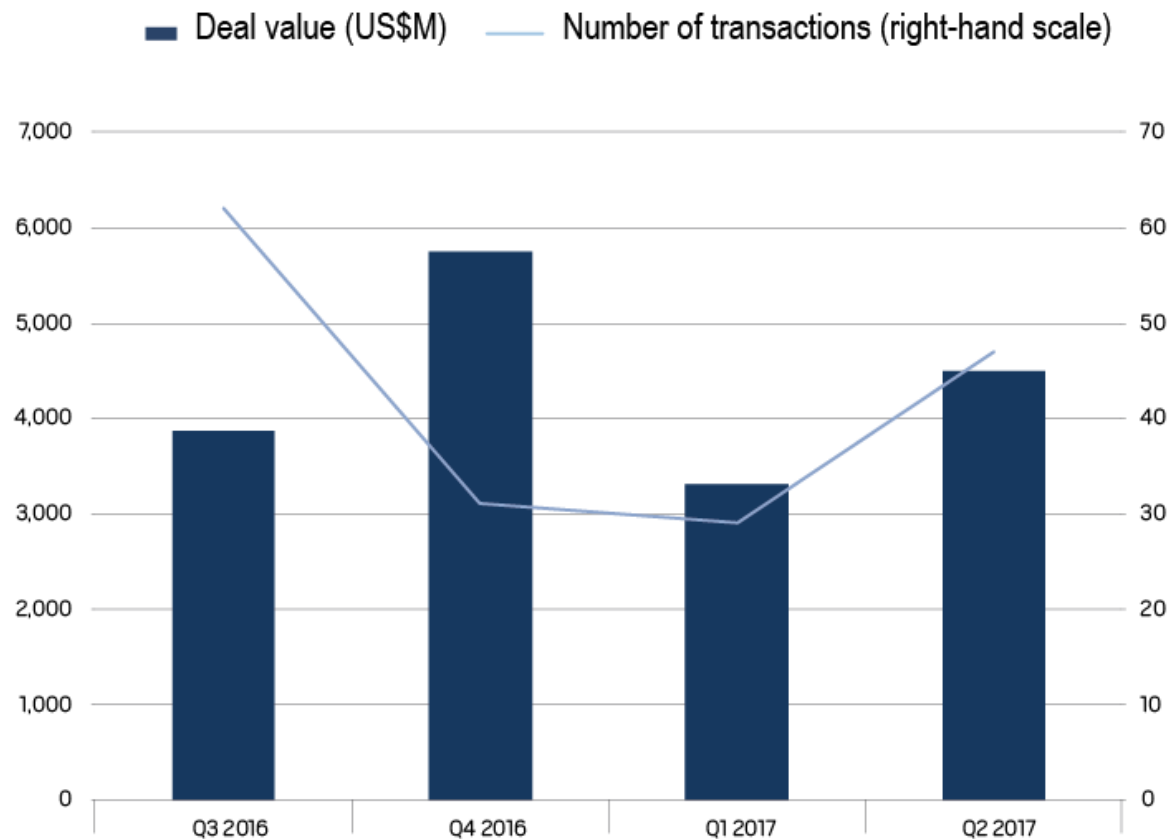
Source: SNL Metals & Mining database, an offering of SP Global Market Intelligence; July 31, 2017.

Mergers And Acquisitions (Mining Deals; Q2 2017)

	Value (US\$M)	Deals (Number)
By Acquirer Country:		
China	1,876.4	5
Canada	1,153.2	22
Japan	835.0	2
Australia	240.3	9
Russia	146.0	1
UK	144.2	2
Hong Kong	41.6	1
Vietnam	24.2	1
USA	17.3	1
Turkey	8.0	1
Tanzania	5.6	1
Bermuda	5.4	1
By Target Commodity:		
Gold	3,321.1	28
Nickel	658.0	2
Copper	339.9	9
Zinc	75.7	4
Silver	45.0	1
Lead	23.0	1
U308	17.3	1
Diamonds	17.2	1
Grand Total	4,497.2	47

Source: SNL Metals & Mining database, an offering of SP Global Market Intelligence; July 31, 2017.

Mergers And Acquisitions



Source: SNL Metals & Mining database, an offering of SP Global Market Intelligence; July 31, 2017.

Total Quarterly Fund Raising (US\$M)

	Q2 2017	Q1 2017	Q2 2016
Company size (US\$M)			
<10	258	165	239
10-99	991	746	871
100-499	1,137	781	968
500-2,000	1,371	1,070	970
>2,000	8,079	6,808	4,896
Private/Other	415	2	326
Company class			
Junior	1,728	1,633	2,131
Intermediate	1,848	511	672
Major	8,647	6,151	4,135
Other	29	1,277	1,333
Primary exchange			
TSX	2,325	3,804	3,605
ASX	1,974	634	989
London	914	1,078	178
Other	7,039	4,057	3,499
Total raised	12,251	9,572	8,271

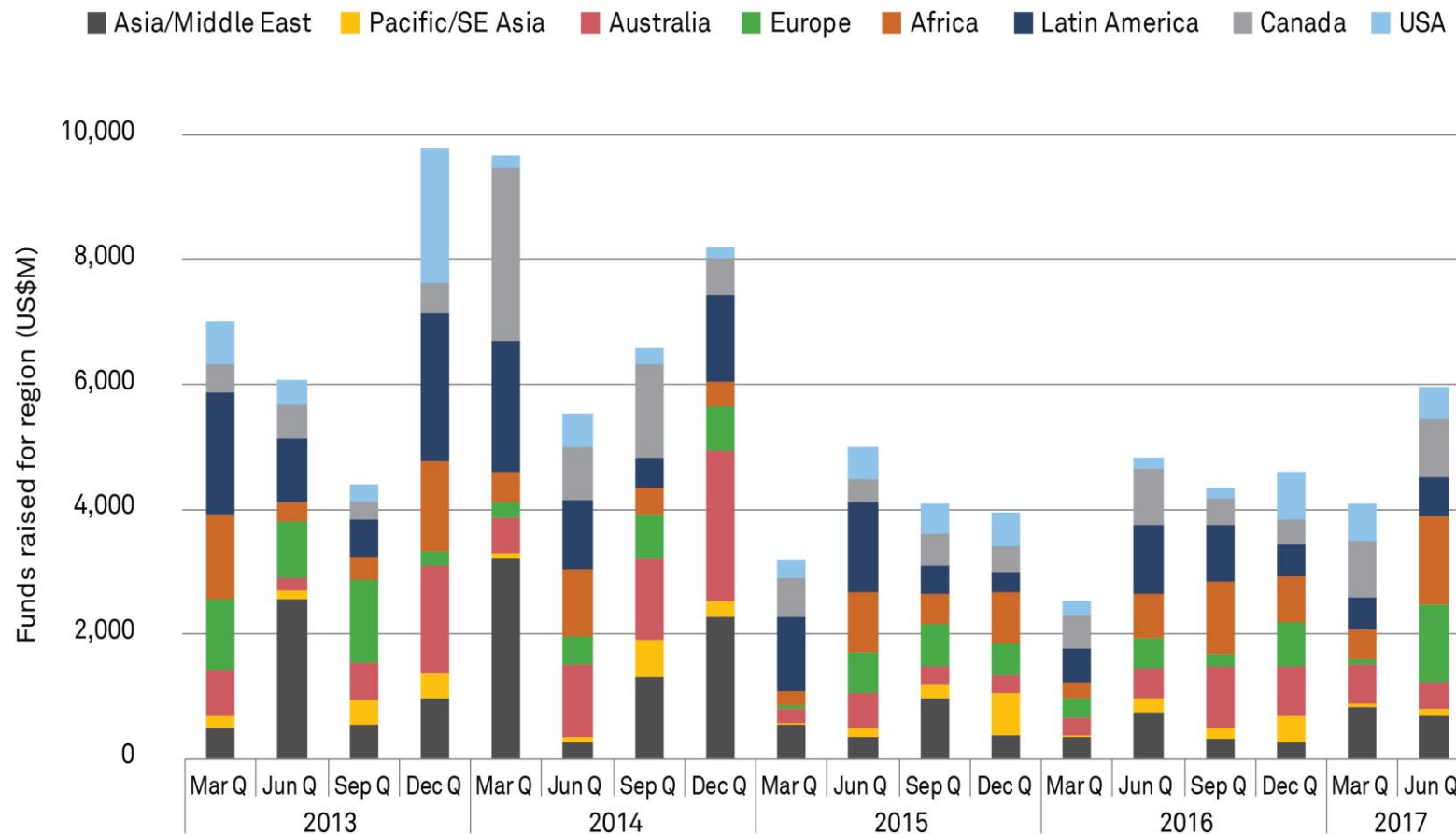
* Company Classification according to definitions in Corporate Exploration Strategies, adjusted to include all commodities.
Source: SNL Metals & Mining database, an offering of SP Global Market Intelligence. Data as of July 31, 2017.

Regional Financing (US\$M; Where Identifiable)

		Canada	U.S.	Australia		Africa	Europe	Asia/ME	Latin Am	Pacific		Total
2013	Mar Q	456.5	670.3	732.8		1,353.2	1,128.7	478.1	1,960.4	215.3		7,002.4
	Jun Q	545.4	383.6	198.2		296.0	925.9	2,541.6	1,027.4	146.7		6,227.0
	Sep Q	283.2	262.2	608.6		364.4	1,318.4	550.3	611.3	386.1		4,394.5
	Dec Q	477.9	2,150.3	1,724.7		1,442.2	237.0	974.9	2,388.1	390.6		10,184.3
2014	Mar Q	2,789.5	179.9	574.2		479.2	259.5	3,194.0	2,091.5	94.4		9,752.1
	Jun Q	855.2	544.4	1,165.0		1,065.0	460.5	262.6	1,101.1	77.6		5,532.2
	Sep Q	1,505.5	267.1	1,308.3		422.3	691.7	1,316.4	485.0	589.2		6,588.9
	Dec Q	601.7	169.2	2,415.5		397.2	696.1	2,263.7	1,395.5	257.7		8,196.6
2015	Mar Q	615.8	297.7	217.9		240.1	70.7	542.6	1,179.5	20.5		3,184.7
	Jun Q	347.0	519.8	565.6		980.0	657.4	336.8	1,449.3	138.1		4,993.9
	Sep Q	497.3	498.4	299.7		503.3	667.2	971.7	440.1	209.8		4,087.5
	Dec Q	433.2	528.9	297.9		799.8	514.7	373.0	320.4	673.0		3,941.1
2016	Mar Q	515.7	239.9	278.5		260.4	309.2	345.3	547.8	31.7		2,528.5
	Jun Q	913.0	166.2	466.4		707.1	483.9	742.2	1,103.4	231.6		4,814.0
	Sep Q	424.1	187.9	997.0		1,152.4	198.4	320.7	897.1	166.9		4,344.0
	Dec Q	388.0	761.6	809.9		733.5	700.2	249.1	530.9	420.0		4,593.2
2017	Mar Q	915.7	574.6	634.4		466.4	97.7	813.5	512.5	56.6		4,071.4
	Jun Q	929.1	508.8	429.0		1,427.2	1,245.5	687.7	605.0	111.3		5,943.7
Total		13,493.8	8,910.7	13,723.8		13,089.6	10,662.7	16,964.3	18,646.3	4,217.0		100,379.8
Share (%)		13.4	8.9	13.7		13.0	10.6	16.9	18.6	4.2		

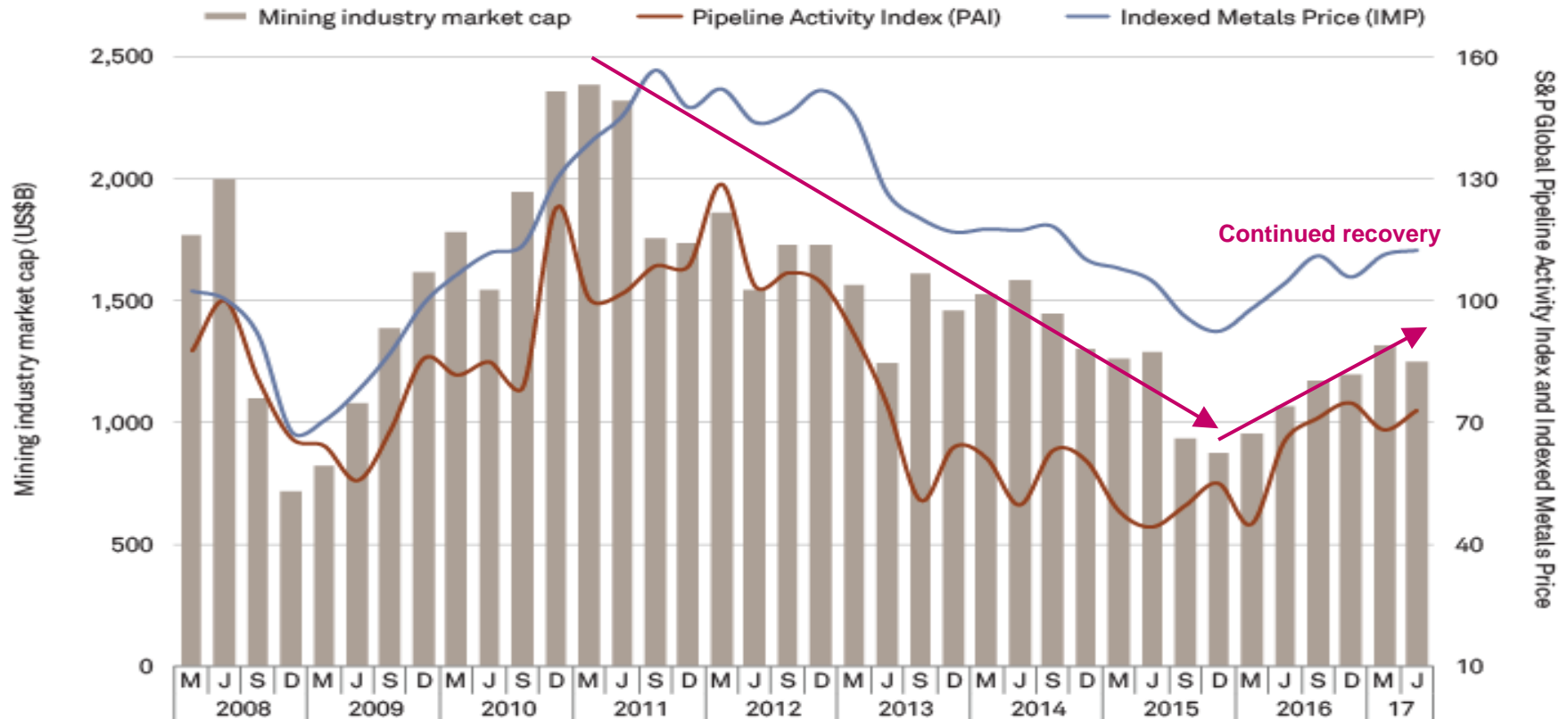
Source: SNL Metals & Mining database, an offering of SP Global Market Intelligence; July 31, 2017.

Regional Financing (Where Identifiable)



Source: SNL Metals & Mining database, an offering of SP Global Market Intelligence; July 31, 2017.

Industry's Market Capitalization (Quarterly)



Source: SNL Metals & Mining database, an offering of SP Global Market Intelligence; July 31, 2017.

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