

COMMODITY Insights Bulletin

December 2015

Copper (Q2, 2015–Q3, 2015)

Cu
COPPER

Insight: Adjusting to a new reality

As copper prices hover just above the US\$2.00/lb mark, conjecture exists as to how low prices will go and for how long they will remain at these levels. While concerns over excess supply initially sparked weakness this year, demand concerns have continued to dampen market sentiment.

However, the reality is that weakening demand was always going to eventuate, particularly as the gradual decline in Chinese consumption set in. After all, China was eventually going to stop growing at a double digit pace as it transitions from an investment to a consumption and services driven economy. Growth is now expected at a slower but more sustainable level of 6.5 percent.

So why is this such a surprise and why have prices dropped so dramatically to 6-year lows?

Firstly, emerging economies and developed economies such as the US and Europe have not picked up the slack as originally expected. Secondly, a higher US dollar (on the expectation of interest rate rises by the FED) has made commodities such as copper more expensive for buyers using other currencies. Thirdly, declining inventories and production cuts have not alleviated ongoing global demand concerns.

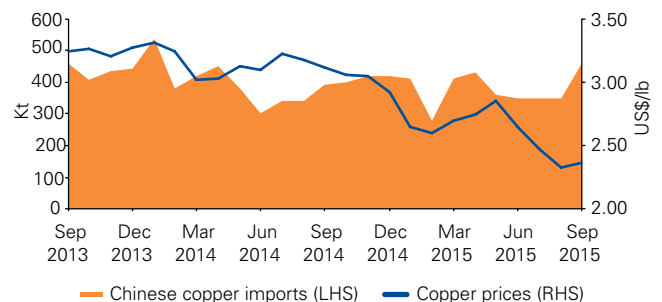
Historically, supply constraints and disruptions have helped alleviate these concerns with the expectation that the market would return to a balance/small surplus. In a lower price environment, projects are deferred or delayed and price induced closures become more frequent. The closures announced so far have had little impact in the short-term, with price gains quickly eroded.

“Closures announced so far have had little impact, with resulting price gains quickly eroded.”

Maritza Araneda
KPMG in Chile

Further mine closures will assist with the rebalancing of the market in 2016/2017 but prices are likely to take time to fully recover. While prices are starting to hit a floor and should recover in the second half of 2016, current price levels will be the new norm, at least for the next 1-2 years, after which the market should readjust to a deficit position.

Figure 1: China copper imports and LME copper prices, September 2013–September 2015



Sources: “Import & export commodities by industry,” China Custom Statistics, HKTDC Research, <http://china-trade-research.hktdc.com/business-news/article/Fast-Facts/China-Customs-Statistics/ff/en/11X000000/1X09N9NM.htm>, accessed November 2015; IMF Primary Commodity Prices, International Monetary Fund, <http://www.imf.org/external/np/res/commod/index.aspx>, accessed November 2015; “China Imports and Exports of Copper and Aluminum in March 2015,” Shanghai Metals Market, accessed November 2015; KPMG analysis

Price outlook¹

In 2014, copper prices for London Metal Exchange (LME), grade A cathodes, witnessed a decline of about 6 percent year-on-year (y-o-y). Overall copper prices declined about 12 percent, averaging US\$3.3/lb in January 2014 and dipping to about US\$2.9/lb by December 2014. This drop was primarily driven by depressed demand resulting in surplus in the market, as inventories started to build up in China — which is one of the key producers and consumers of copper.²

For the first 9 months in 2015 (January–September), copper prices witnessed a decline of about 18 percent, from an average price of US\$3.15/lb in 2014 to US\$2.59/lb in September 2015. Current prices stand at US\$2.10/lb and it is expected that the average LME copper price will decline about 32 percent year-over-year (y-o-y) in 2015, owing to the supply glut in the market, which has resulted in huge stock build-ups. Additionally, China witnessed moderate economic growth, which resulted in reduced consumption growth over the last year, compared with the 15 percent annual average growth recorded over the past 5 years (2009–2014).³

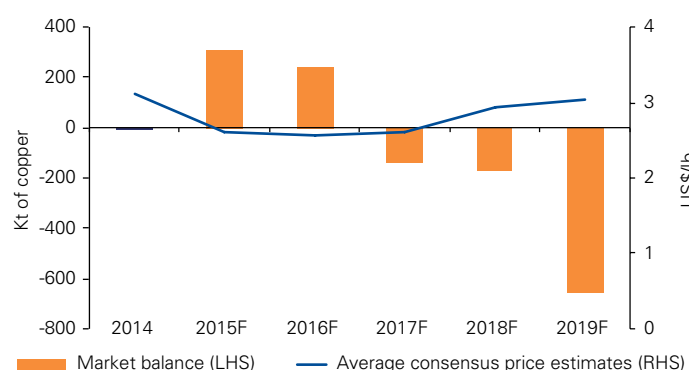
As a result of the drop in prices, several major miners, such as Glencore, Freeport McMoRan and Anglo American declared mine shutdowns and production cuts during Q2, 2015 and Q3, 2015. In November 2015, the LME copper price declined to US\$2.04/lb, the lowest level in the past 6 years. This reflected the reduced copper demand from China, impacted by the slowdown in the economy. Freeport McMoRan was the first producer to announce a production cut, followed by Glencore's 400 thousand tons (Kt) of copper production cut this year.⁴

In 2016, average LME copper prices are expected to decline a further 1 percent, to average at the consensus price estimate of US\$2.56/lb, due to continued decline in demand growth and strong production growth, which is forecast to increase stocks and put downward pressure on prices. However, the ongoing risk of supply disruptions, including production cuts and natural disasters that have taken place this year are likely to result in an upside to prices. In September 2015, Glencore temporarily suspended production at high-cost copper mines in the Democratic Republic of Congo (DRC) and Zambia — which

are Africa's leading copper producers. This is expected to effectively drop global copper supply from the market by about 1–2 percent.⁵

Over 2016–2019, prices are expected to increase at a CAGR of 5.8 percent, to reach US\$3.04/lb in 2019, from US\$2.56/lb in 2016. This is expected to be driven by increases in consumption growth, as large consumers, such as China and India, are looking to increase investments in power distribution networks. However, certain delays in project investments, due to low copper prices and declining ore grades in major producing regions, are likely to result in slow production growth over the medium-term. Consumption growth is forecast to remain higher than production over the medium-term, resulting in an upward pressure on prices.⁶

Figure 2: Market balance* and prices of refined copper, 2014–19F



Source: BMO Capital Markets, the Copper Wire, 26 October 2015; HSBC Global Research, Metals and Mining, 6 October 2015; Morgan Stanley, Commodity Matters, Copper production cuts adding up, 23 October 2015; Salman Partners, The Morning Note, 26 October 2015; UBS Global Research, Southern Copper Corp, 28 October 2015; via Thomson Research/ Investext, accessed November 2015; Resources and Energy Quarterly; Bureau of Resources and Energy Economics (BREE), Australian Government, September quarter 2015, accessed November 2015; KPMG Analysis

*Market balance represents the difference between the supply and demand for refined copper. A positive market balance indicates that supply is more than the demand, whereas a negative market balance indicates demand exceeding supply.

¹ BMO Capital Markets, the Copper Wire, 26 October 2015; HSBC Global Research, "Metals and Mining," 6 October 2015; Morgan Stanley, Commodity Matters, Copper production cuts adding up, 23 October 2015; Salman Partners, The Morning Note, 26 October 2015; UBS Global Research, Southern Copper Corp, 28 October 2015, via Thomson Research/Investext, accessed November 2015; Resources and Energy Quarterly; Bureau of Resources and Energy Economics (BREE), Australian Government, September quarter 2015, accessed November 2015

² Resources and Energy Quarterly; Bureau of Resources and Energy Economics (BREE), Australian Government, September quarter 2015, accessed November 2015

³ Resources and Energy Quarterly; Bureau of Resources and Energy Economics (BREE), Australian Government, September quarter 2015, accessed November 2015

⁴ Antofagasta cuts copper output forecast for the year, Mining.com, 29 July 2015; Copper gets boost from Glencore mine shutdown, Business Day Live, 7 September 2015; Miners Are Cutting Production to Cope with Low Copper Prices, Market Realist, 4 November, accessed November 2015

⁵ Copper price to rally on supply disruptions: Capital Economics, Mineweb, 22 September 2015; Miners Are Cutting Production to Cope with Low Copper Prices, Market Realist, 4 November 2015; Resources and Energy Quarterly; Bureau of Resources and Energy Economics (BREE), Australian Government, September quarter 2015, accessed November 2015

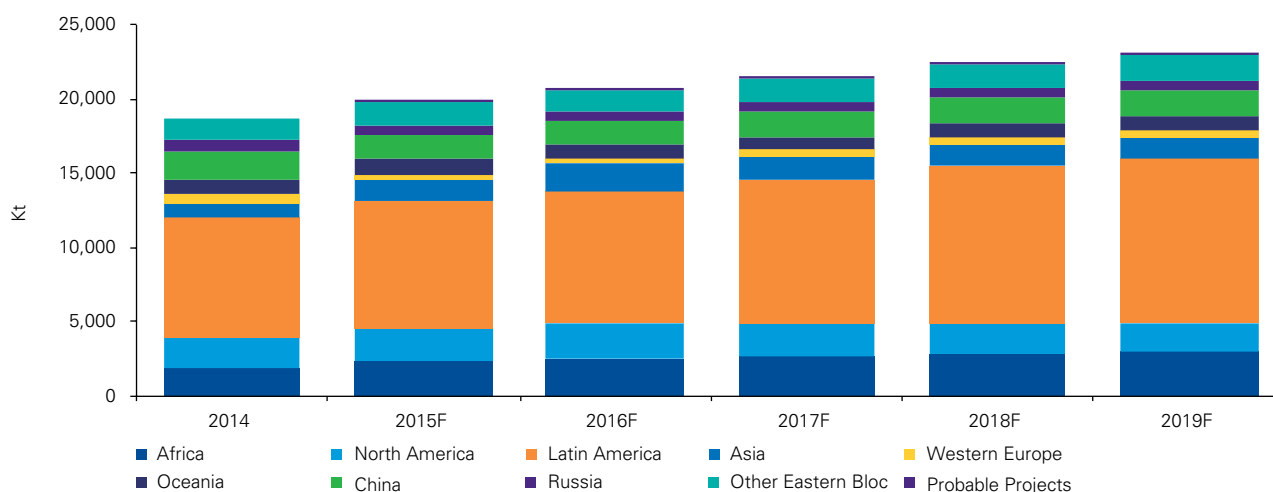
⁶ "Resources and Energy Quarterly; Bureau of Resources and Energy Economics (BREE), Australian Government, September quarter 2015, accessed November 2015

Supply and demand⁷

Supply

Mined copper production

Figure 3: Global production of mined copper, 2014–19F



Source: RBC Capital Markets, Metal Prospects — Copper Market Outlook — Fourth Quarter 2015, 06 October 2015; via Thomson Research/Investext, accessed November 2015

- Mined copper production increased by about 2.4 percent, to reach 18.7 million tons (Mt) in 2014, from 18.2Mt in 2013, due to increased production from North America and Africa.⁸
- During Q2 and Q3, 2015, global copper production was affected by several unexpected global events. Indonesia's road blocks over a pay dispute forced the world's second largest copper mine to shut down for 5 days, whilst Chile's torrential rains and floods also impacted production. Copper producer, Antofagasta, slashed its copper output 2015 forecast, particularly for the Los Pelambres copper mine. The company forecasts copper production of 665Mt in 2015, as compared with about 705Mt in 2014 — which is about a 6 percent decline y-o-y. BHP Billiton also experienced lower production due to lower output from Escondida (the world's largest copper mine) due to decreasing copper ore grade over 2015.⁹
- Over 2015, mine production is expected to increase 5 percent y-o-y to reach 19.7Mt in 2015 as compared with 2014, driven by increased production from large mines. In 2015, the global increase was primarily attributed to improved production levels at large mines in Indonesia and Chile.
- This is despite the fact that copper production in Chile was significantly affected in 2015, due to unplanned production stoppages (maintenance shutdown at Glencore's Collahuasi mine) and unfavorable environmental conditions (both drought and floods in the North of Chile). The ability of large mining companies in Chile to continue increasing production, will depend on their ability to find alternate water supplies. For example, BHP Billiton and Rio Tinto are building a US\$3.4 billion desalination plant in Chile after being warned that water shortfall could decrease production at the jointly owned, Escondida mine.¹⁰
- In 2016, global copper production is expected to increase by 5 percent, driven by the scheduled commissioning of MMG's Las Bambas mine in Peru, with an expected annual production of 250Kt. Several other mines, such as the Bozshakol mine in Kazakhstan (115Kt annual production) and the Sierra Gorda mine in Chile (119Kt annual production) are expected to start or ramp up their production in 2016. However, if the current low price environment continues, mining companies might tweak their production strategy over the near term.¹¹
- Over 2015–2019F, copper production is forecast to grow at a CAGR of 4.6 percent, reaching 23Mt in 2019, from about 20Mt in 2015. Additional mines are expected to be commissioned over this period, including the Agua Rica and El Pachon mines in Argentina, which are expected to add 206Kt and 150Kt of production, respectively.¹²

⁷ Would Supply Disruptions Lend Support to Copper Prices in 2H15? Market Realist, 13 August 2015; Glencore copper production drops after shutdown, Market Watch, 5 May 2015; Copper: Preliminary Data for July 2015, ICSG, 20 October 2015; Resources and Energy Quarterly, Bureau of Resources and Energy Economics (BREE), Australian Government, September quarter 2015, accessed November 2015; RBC Capital Markets, Metal Prospects — Copper Market Outlook — Fourth Quarter 2015, 06 October 2015; via Thomson Research/Investext, accessed November 2015

⁸ Resources and Energy Quarterly, Bureau of Resources and Energy Economics (BREE), Australian Government, September quarter 2015, accessed November 2015

⁹ Would Supply Disruptions Lend Support to Copper Prices in 2H15? Market Realist, 13 August 2015; accessed November 2015

¹⁰ Drought in Chile forcing copper production slowdown, The Australian Business Review, 27 November 2015; Glencore copper production drops after shutdown, Market Watch, 5 May 2015; Resources and Energy Quarterly, Bureau of Resources and Energy Economics (BREE), Australian Government, September quarter 2015, accessed November 2015; RBC Capital Markets, Metal Prospects — Copper Market Outlook — Fourth Quarter 2015, 06 October 2015; via Thomson Research/Investext, accessed November 2015

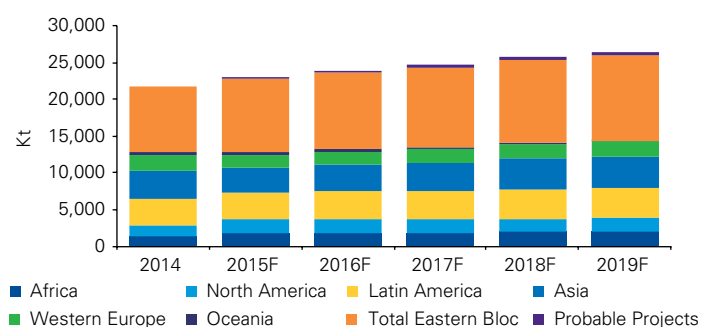
¹¹ "MMG's Las Bambas on track to start copper output in May or June," Reuters, 23 September 2015; Copper: Preliminary Data for July 2015, ICSG, 20 October 2015; Factsheet, KAZ Minerals website, February 2015; Sierra Gorda copper mine in Chile begins commercial production, Reuters, 1 July 2015; accessed November 2015

¹² In Argentina, \$5 Billion of Mine Projects Is Riding on Elections, Bloomberg, 27 April 2015; accessed November 2015

Demand

Refined copper production

Figure 4: Global production of refined copper, 2014–19F



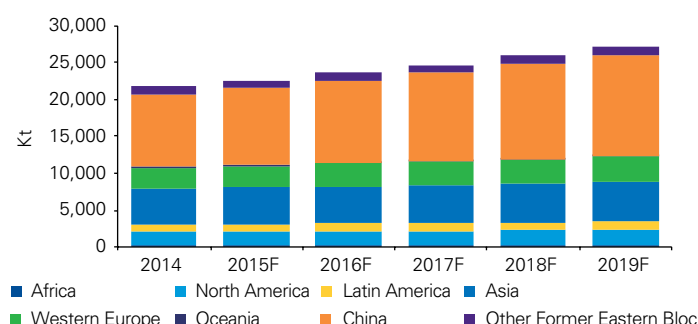
Source: RBC Capital Markets, Metal Prospects — Copper Market Outlook — Fourth Quarter 2015, 06 October 2015; via Thomson Research/ Investext, accessed November 2015

- Global refined copper production is expected to witness growth of about 5.5 percent to reach 23Mt in 2015, compared with 22Mt in 2013, primarily due to increased production from African projects, such as Zambia and the DRC.¹³
- In September 2015, Glencore's decision to cease production for 18 months at the Katanga refinery is expected to partly offset the increased production from newly commissioned refinery capacities that are being commissioned in Africa and Latin America over 2016. In China, production declines at refineries were mainly attributed to lower ore grade availability from domestic mines and higher import costs for copper concentrates, along with lower copper prices.¹⁴
- During Q2, 2015 and Q3, 2015, refined copper production in Chile and Japan (the second and third largest refined copper producers) declined by 3 percent and 2.5 percent, respectively, while in the US (the fourth largest refined copper producer) production dropped by 6 percent. Chinese copper smelters (largest refined copper producer) have plans for deeper production cuts, due to lower metal prices and a drop in supply of raw material scraps and concentrates, from domestic mines. Jiangxi Copper Company, one of the largest integrated copper producers in China, is expected to cut a further 10 percent of its production at its Guixi smelter by the end of 2015, which would reduce its refined copper production by about 10Kt per month.¹⁵

- In 2016, global refined production is expected to witness slow growth of about 4 percent y-o-y to 23,876kt, compared with 24,600kt in 2015. Growth is expected to come from large producers, such as the Canadian copper refinery (320Kt annual production) in Canada, and the Chuquicamata mines (500Kt annual production) and Escondida (320Kt annual production) mines in Chile. It is also expected to be largely driven by a 5 percent growth in refined production in China, supported by strong production growth by emerging copper producers.¹⁶
- Over 2015–2019, refined copper production is expected to grow at a CAGR of 3 percent — from about 23Mt in 2015 to 26.4Mt in 2019. According to the International Copper and Zinc Group (ICZG), China is expected to account for about 60 percent of the additional refined copper production growth, followed by refinery capacity increases in other regions, such as the DRC, Mexico, Peru and Zambia.¹⁷

Refined copper consumption

Figure 4: Global production of refined copper, 2014–19F



Source: RBC Capital Markets, Metal Prospects — Copper Market Outlook — Fourth Quarter 2015, 06 October 2015; via Thomson Research/ Investext, accessed November 2015

- Global refined copper consumption is expected to witness sluggish growth over 2015 to reach 22.6Mt. This is likely to be driven by investment in electricity distribution networks globally. The Chinese economy has a huge impact on copper demand, since it accounts for the highest share of global copper consumption. However, copper demand in China, which accounts for the highest share of global copper consumption, may be adversely affected by the new industry standard of switching to low-cost aluminum power cables instead of traditional copper cables.¹⁸

¹³ RBC Capital Markets, Metal Prospects — Copper Market Outlook — Fourth Quarter 2015, 06 October 2015; via Thomson Research/ Investext, accessed November 2015

¹⁴ Glencore Zambia Move to Halt 26% of Country's Copper Output, Bloomberg, 7 September 2015; Resources and Energy Quarterly", Bureau of Resources and Energy Economics (BREE), Australian Government, September quarter 2015, accessed November 2015

¹⁵ Copper: Preliminary Data for July 2015, ICSG, 20 October 2015, accessed November 2015; Chinese copper smelters consider deeper production cuts, Reuters, 24 August 2015; accessed November 2015

¹⁶ Resources and Energy Quarterly", Bureau of Resources and Energy Economics (BREE), Australian Government, September quarter 2015, accessed November 2015; Copper: Preliminary Data for July 2015, ICSG, 20 October 2015, accessed November 2015

¹⁷ Copper: Preliminary Data for July 2015, ICSG, 20 October 2015, accessed November 2015

¹⁸ RBC Capital Markets, Metal Prospects — Copper Market Outlook — Fourth Quarter 2015, 06 October 2015; via Thomson Research/ Investext, accessed November 2015; Resources and Energy Quarterly", Bureau of Resources and Energy Economics (BREE), Australian Government, September quarter 2015, accessed November 2015

- Over Q2, 2015 and Q3, 2015, global consumption for copper witnessed a slow growth due to reduced demand from China. Chinese copper imports of anode, refined copper, copper alloys and semi-finished copper products remained flat over the period. Over the first 8 months in 2015, copper imports were at 2.9Mt, an 8.1 percent y-o-y decrease. Demand for copper remained poor across the developed markets of Europe in 2015, due to sluggish economic conditions and poor investments in housing and electricity infrastructure.¹⁹
- In 2016, copper consumption is forecast to grow 4.4 percent, to 23.6 percent in 2016. This is expected to be driven by growth by emerging consumers, such as India, and increased demand from China, despite the slow economic growth. As a result of the Modi government's plan to provide electricity access and reliability across India, copper consumption is expected to increase substantially over the near term.²⁰
- Over 2015–2019, copper demand is expected to grow at a CAGR of 5 percent to 27Mt in 2019, owing to the continued investment in China's electricity networks. Further, the Chinese government has plans to upgrade its cross-country power transmission capacity, to provide improved connection between the eastern and western cities.²¹
- Copper consumption in other markets such as Southeast Asian, Latin American and African countries is forecast to increase over the medium-term. This will be driven by the substantial growth potential in copper consumption, as a result of the scope of electricity generation and general infrastructure development in these regions.²²

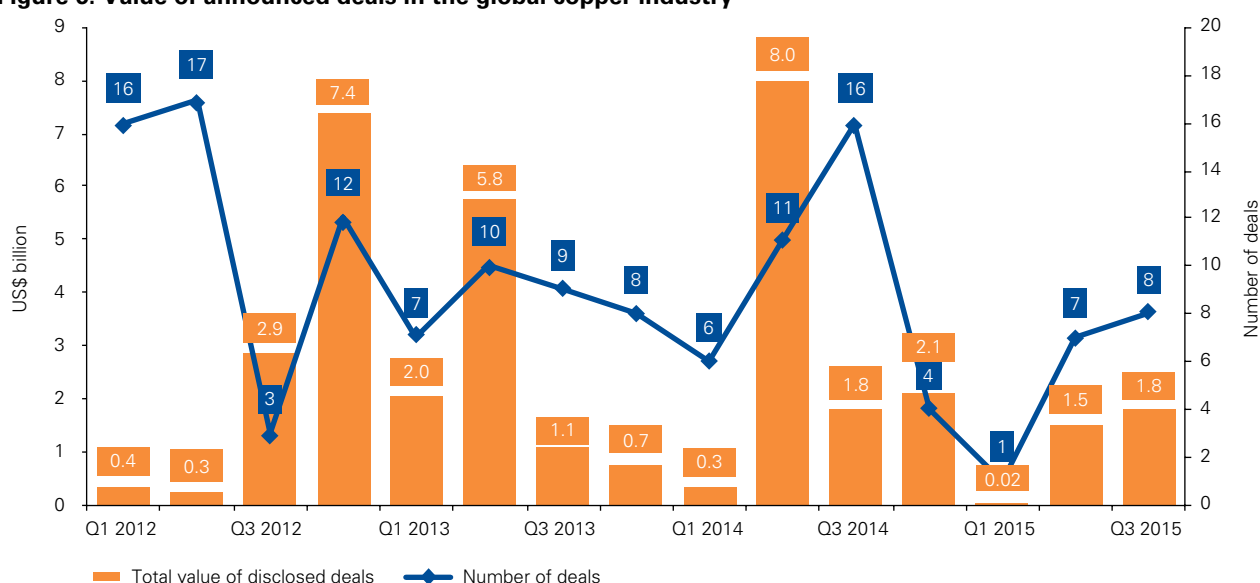
Key developments

Ownership changes²³

The total value of seven major deals announced in Q2, 2015 was US\$1.5 billion, compared with one deal in Q1, 2015,

valued at US\$0.02 billion. Similarly, the total value of eight major deals announced in Q3, 2015 was US\$1.8 billion.

Figure 6: Value of announced deals in the global copper industry



Source: Mergermarket and Thomson database, accessed October 2015; KPMG analysis

¹⁹ UPDATE 1-China monthly copper imports flat in August, Reuters, 8 September 2015; Chinese Copper Consumption in 2015: Key Investor Takeaways, Yahoo finance, 24 August 2015, accessed November 2015

²⁰ Resources and Energy Quarterly, Bureau of Resources and Energy Economics (BREE), Australian Government, September quarter 2015, accessed November 2015

²¹ Resources and Energy Quarterly, Bureau of Resources and Energy Economics (BREE), Australian Government, September quarter 2015, accessed November 2015; Copper: Preliminary Data for July 2015, ICSG, 20 October 2015, accessed November 2015

²² Resources and Energy Quarterly, Bureau of Resources and Energy Economics (BREE), Australian Government, September quarter 2015, accessed November 2015

²³ Mergermarket and Thomson database, accessed October 2015

Table 1: Copper deals in Q2, 2015 and Q3, 2015

Date announced	Target	Target nation	Acquirer	Acquirer nation	Status	Value of transaction (US\$ million)	Stake (%)
24 Aug 2015	Anglo American Norte S.A.	Chile	Investor group*	UK and US	Completed	500	100
24 Jul 2015	Calissio Resources-San Pedro	Mexico	Milagros Del Cobre Mineria	Mexico	Announced	14.6	N/A
16 Jun 2015	Cia Minera Milpo SAA	Peru	Votorantim Metais Cajamarquilla	Peru	Completed	118	60
10 Jun 2015	Cripple Creek & Victor Gold Mining Company	US	Newmont Mining Corporation	US	Announced	820	N/A
4 May 2015	CuDeco Ltd.	Australia	Focus Sun Holdings Ltd.	China	Announced	40	14
8 Jul 2015	Discovery Copper (Botswana) Pty Ltd.	Botswana	Khoemacau Copper Mining	Botswana	Completed	35	N/A
27 Aug 2015	El Morro Copper-Gold Project	Chile	Goldcorp Inc.	Canada	Announced	90	30
6 Jul 2015	El Pilar Copper Development Project	Mexico	Grupo Mexico S.A.B. de CV	Mexico	Completed	N/A	N/A
26 May 2015	Kamoa Holding Ltd	Barbados	Gold Mountains (HK) Intl. Mining	Hong Kong	Announced	412	50
10 Jun 2015	Korbalihinsky Rudnik Chelyabinsk	Russia	Korbalihinsky Rudnik Chelyabinsk	Russia	Completed	63	100
12 May 2015	Rutila Resources Limited	Australia	Tio (NZ) Limited	Australia	Announced	36	30.6
6 Jul 2015	Stingray Copper Inc-El Pilar	Mexico	Southern Copper Corp	US	Completed	100	100
23 Apr 2015	Sunward Resources Ltd	Canada	NovaCopper Inc.	Canada	Completed	27	100
21 Aug 2015	Universal Coal PLC	UK	Ichor Coal N.V.	South Africa	Announced	42	70
30 Jul 2015	Zaldivar Copper Project	Chile	Antofagasta PLC	UK	Announced	1,005	50

Source: MergerMarket and Thomson database, accessed October 2015; KPMG analysis

* An investor group comprised of Audley Capital Advisors LLP of the UK and Orion Mine Finance Group of the US

Regulatory updates

Table 2: List of recent regulations in the copper industry

Country	Regulation	Target nation
Israel ²⁴	Israeli government may restart its copper project and revisit tax related issues	The Israel government plans to restart its long-shelved copper project in southern Israel, which was held up for several years over regulatory issues. An interministerial committee instructed a team of officials from various ministries to propose amendments to the current law, which would allow the project to proceed.

Cross-section of global copper projects

Table 3: Cross-section of key copper projects as per 2014 production

Project	Country/Region	Operators/Owners	Commodities	Start year	Stage	2014 Copper production (Ktpa)
Chuquicamata Copper/Molybdenum Mine	Antofagasta, Chile	Codelco	Copper, molybdenum, gold, silver	1910	Operating	340
Collahuasi Copper/Molybdenum Mine	Antofagasta, Chile	Compania Minera Dona Ines de Collahuasi SCMM	Copper, molybdenum, silver	1999	Operating	470
El Teniente Copper operation	Libertador Bernardo O'Higgins, Chile	Codelco	Copper, molybdenum, gold, silver	1904	Operating	450
Escondida Copper operation	Antofagasta, Chile	BHP Billiton Ltd	Copper, gold, silver	1990	Operating	1,708* (for the year ended 30 June 2015)

²⁴ "Israeli government may restart Cu project, revisit tax issues," 21 August 2015, via Factiva, accessed November 2015.

Table 3: Cross-section of key copper projects as per 2014 production (continued)

Project	Country/Region	Operators/Owners	Commodities	Start year	Stage	2014 Copper production (Ktpa)
Los Bronces Copper/Molybdenum Mine	Santiago, Chile	Anglo American plc	Copper, molybdenum	2002	Operating	192* (for the 6 months ended 30 June 2015)
Los Pelambres Copper/Molybdenum Mine	Coquimbo, Chile	Antofagasta plc	Copper, molybdenum, gold, silver	2000	Operating	265* (for the first 9 months of 2015)
Radomiro Tomic Copper Mine	Antofagasta, Chile	Codelco	Copper, molybdenum	1998	Operating	380

The above table includes the key copper projects, by 2014 annual production. However, for some of the projects, we have provided the updated production numbers for 2015, available through company websites.

The list is not exhaustive and contains only a limited number of projects.

Source: Company data

Table 4: Cross-section of other copper projects

Project	Country/Region	Operators/Owners	Commodities	Start year	Stage	Initial capex excluding sustaining capex (US\$ million)
Aktogay Copper deposit	Shyghys, Kazakhstan	KAZ Minerals PLC	Copper, gold, silver	2017	Construction	2,300
Andina Copper operation	Valparaiso, Chile	Codelco	Copper, molybdenum concentrates	1970	Operating	6,800 ²⁵
Antapaccay Copper/gold mine	Cuzco, Peru	Glencore Xtrata plc.	Copper, gold, silver	2012	Operating	1,470
Bozshakol Copper/silver mine	Pavlodar, Kazakhstan	KAZ Minerals PLC	Copper, molybdenum, gold, silver	2016	Construction	2,200
Caspiche Gold/Copper Project	Atacama, Chile	Exeter Resource Corporation	Copper, gold, silver	N/A	Preliminary Economic Assessment completed	387 ²⁶
Cobre Panama Copper/Gold/Molybdenum	Penonome, Panama	First Quantum Minerals Ltd.	Copper, molybdenum, gold, silver	2017	Construction	6,425
Frieda River Copper/Gold Project	Sandaun, Papua New Guinea	Glencore	Copper, gold, silver	N/A	Feasibility Study	1,500–1,800 ²⁷
Golpu Copper/Gold Deposit	Morobe, Papua New Guinea	Harmony Gold Mining Company Limited, Newcrest	Copper, molybdenum, gold, silver	2019	Feasibility study	4,845
KSM Gold/Copper Project	British Columbia, Canada	Seabridge Gold	Copper, molybdenum, gold, silver	N/A	Pre-feasibility/Scoping	5,256
Las Bambas Copper/molybdenum/gold mine	Apurimac, Peru	MMG Ltd.	Copper, molybdenum, gold, silver	2016	Construction	7,400 ²⁸
Los Azules Copper deposit	San Juan, Argentina	McEwen Mining Inc.	Copper, gold, silver	N/A	Preliminary Economic Assessment completed	3,920
Oyu Tolgoi copper/gold operation	Omnogovi, Mongolia	Turquoise Hill Resources Ltd.	Copper, molybdenum, gold	2013	Operating	6,600
Resolution Copper/Molybdenum Deposit	Arizona, US	Rio Tinto Limited	Copper, molybdenum	Mid-2020	Pre-feasibility/Scoping	More than 6,000
Toromocho Copper mine	Junin, Peru	Chinalco Mining Corporation International	Copper, molybdenum, silver	2013	Operating	3,500

The capex mentioned in the table above includes only the initial capex for a project and excludes sustaining capex, contingency amount (if any) etc.

The list is not exhaustive and contains only a limited number of projects.

Source: Company data

²⁵ Capex for phase II operations scheduled to start in 2021.

²⁶ Total capex of US\$1,967 for a combined 60,000 tons per day open pit, heap leach oxide gold operation

²⁷ Development capital estimate as per a new feasibility study for a mid-sized development expected to be completed by mid-2015

²⁸ Initial capital cost of US\$4.2 billion as per a feasibility study in 2010. Company raised the estimate to \$7.7 billion because of permitting delays, infrastructure costs and costs associated with relocating communities.



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Maritza Araneda has over 15 years of experience servicing clients in the mining industry in areas of financial reporting, audit and accounting matters, acquisitions and divestments, corporate governance and internal systems.

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