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[Mining Industry, Basic Materials Sector]

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KGHM Polska Miedź SA

Date: 15/02/2015 **Current Price: PLN 185.5** **Recommendation: BUY**
Ticker: KGH:PW (Bloomberg) **USD/PLN: 3.12** **Target Price: PLN 220 (USD 70.5)**

Holding Period Return		
End of 2013	End of 2014	End of 2015
27%	**39%**	**55%**

Source: Team estimates

Change in forecast level of USD/PLN rate in years 2013-2017	Change in forecast level of copper price in years 2013-2017				
	-10%	-5%	0%	5%	10%
-10%	212	221	229	236	243
-5%	222	230	239	246	253
0%	231	240	248	256	263
5%	240	249	257	265	272
10%	249	257	265	273	280

Source: Team estimates, based on DCF price

Highlights

KGHM - Copper-bottomed investment

- **We issue a buy recommendation with a target price of PLN 220 (USD 70.5)**. It implies 27% holding period return (including dividend). KGHM is one of the biggest and most liquid blue-chips on WSE (average daily volume as percent of shares outstanding: 0.53%), effectively expanding into international markets. Current position may be described by the 9th place in mined copper production and the 1st place in silver production globally. The Company is a typical dividend-paying firm, with historical median dividend yield in years 2008-2012 amounting to 10.76%

- **Main price growth drivers:** (1)Robust pipeline of international projects resulting in 58% growth of production volume by 2017; (2) High discount to peers (52% with respect to P/E_{2012E}, 32% with respect to $EV/EBITDA_{2012E}$) expected to fall substantially. The main reasons for discount decrease are geographical and mineral base diversification, as well as significantly higher growth opportunities comparing to past; (3) Increasing operational efficiency by Group average C1[1] cost reduction by 20% till 2018.

- **Sound financial position: low leverage, cash sufficiency and high margins.** We estimate KGHM to still exhibit healthy financial standing, despite high forecast outlays for projects and high dividend payout: (1) D/A equal to 5.45% in 2012E and 11.38% in 2017E; (2) CFO/CAPEX; in 2012E to be 141%, in 2017E to be 383% (3); EBITDA margin amounting to 35% in 2012E and 45% in 2017E.

- **Main risks issues are**: adverse fluctuations in copper and silver markets, as well as in USD/PLN exchange rate. Macro conditions, industry demand and supply assumptions also have significant influence. Moreover, failures of new projects and State Treasury influence may pose additional risk.

Market profile	
52-week price range (PLN)	**111.4 – 194.5**
Average daily volume	**1 059 368**
As % of shares outstanding	**0.53%**
Sharpe ratio (2012)	**3.77**
2012 dividend yield	**24.2%**
Shares outstanding	**200 000 000**
Market Capitalization (PLN bn)	**37. 76**
Institutional Holdings	**62%**
BV per share (PLN)	**109.7**
ROE 2012E	**22%**
Debt to capital 2012E	**5.43%**
P/BV	**1.68**
P/E	**7.5**

Source: Team estimates, Bloomberg

Valuation	DCF	Multipliers
Estimated price	248	192
Weights	50%	50%
Target price	**220**	

Source: Team estimates

KGHM daily stock prices (PLN)

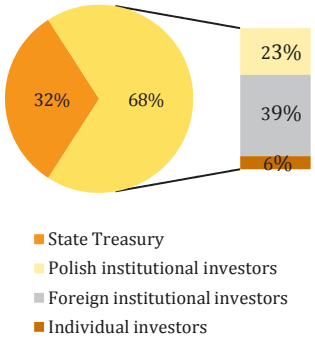
Source: stooq.pl, Team estimates

[1] The costs of mining, milling and concentrating, onsite administration and general expenses, property and production royalties not related to revenues or profits, metal concentrate treatment charges, and freight and marketing costs less the net value of the by-product credits.

Important disclosures appear at the back of this report

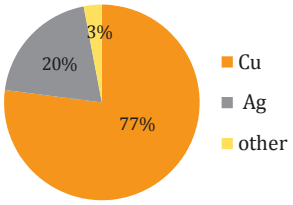
Business Description

Figure 1: Shareholders structure



Source: Company data

Figure 2: Revenue breakdown – shares of extracted metals in 2012Q3

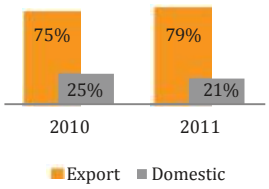


Source: Company data

Figure 3: Polish deposit

Source: Company data

Figure 4: Export vs. domestic copper sales



Source: Company data

KGHM Polska Miedź S.A. is a Polish mining company, which specializes in copper extraction and smeltering. Established in 1951, located in Lubin, Lower Silesia, KGHM Polska Miedź S.A. is one of the biggest players on global copper producers market. After acquisition of Canadian Quadra FNX (now KGHM International) the Company is a holder of **# 4th largest copper reserve base in the world**. The Company is **9th biggest copper mine producer** globally and **#1 silver producer**. We identify the biggest strength of the Company to be the **quality of its products** ('four nines' – 99.99% of copper in their products), **great base of know-how**, **sustainable financial standing and own resource base**(as well as smelters – backward integration of production process). The Company is currently engaged in intensive exploration projects which assure prospects for further strengthening of KGHM's international position (please see appendix 10 regarding global mines portfolio). In 2011 the Company was hiring over 18k workers, whereas 12k where miners. As a holding, KGHM comprises 50 subsidiaries. However, the core business (dedicated to 87% of the Group revenues and 103% of NI in year 2011) was run through one company, KGHM Polska Miedź S.A. until the acquisition of Quadra FNX.

Sales of copper constitutes 76% of total sales of the Company. The product is used mainly in electric and electronic goods industry as well as construction industry. Additionally it may be used in transport, household appliance and industrial equipment. KGHM offers copper products in forms of cathodes, wire rods and billets, while wire rods and cathodes being most important. Business model is based on long-term, often optional contracts(optionality depends on the amount of tonnage) for copper delivery, as well as the sales through LME. Currently binding contracts for copper sale were signed with the following customers: Prysmian Metals Limited (size of the contract PLN 2.38 – 2.86 bn), MKM Mansfelder Kupfer Messing GmbH (PLN 1.5 bn), nkt cables Gmbh Cologne (PLN 4 –4.4 bn) and China Minmetals Corporation (PLN 6.3 –12.6 bn). For more information please see the appendix 15.

Product foreign recipients. In year 2011 the domestic sales of copper and copper products amounted to 21% of total copper sales while 79% of sales where exported. Main foreign destinations for copper products where Germany, China, Italy and the Czech Republic. Sales of silver covered 20% of total revenues in Q3 2012. Export sales (including European Union sales) accounted for 97,3% of total silver sales. The biggest foreign customers for silver where Great Britain, the USA and Belgium. The acquisition of Quadra FNX and associated with this event future projects (check appendix 12 with future projects) are going to increase by a significant amount the production of nickel and precious metals as well as add molybdenum to the overall produced metals portfolio.

Current strategy of the Company can be described with the following 5 pillars:

- **Improving productivity**–main goal to halt the increasing unit cost of production in Polish mines. Possible solutions are investment in new technologies (mechanical mining or ore), modernisation of existing infrastructure (replacement of mining machinery, modernisation of smelter process in Głogów – currently in progress), optimalization in the areas of purchases, IT and mine development activities.
- **Developing the resource base** – strategic goal of reaching the production level of ca. 700 k tonnes of copper by 2018. Considered solutions are: development of deep deposit mining system, investment in foreign mining assets and exploration of new local deposits.
- **Diversifying sources of revenues and gaining independence from energy prices** – strategic goal: in long term ca. 30% of revenues from energy production. The Company takes into consideration further investments in gas fired power plants and renewable energy sources. Currently the Company already holds stakes in energy companies, e.g. in Tauron Polska Energia S.A. and Energetyka Sp. z o.o., for more information please refer to appendix 14.
- **Regional support** – the goal of the Company in the area of regional support is to remain the key employer in region, with possible new jobs creation as well as protecting the local natural environment and health of local community (supporting sport activities, arts and science).
- **Developing organizational know-how and capabilities** – this pillar of strategy is going to be realized via implementation of management mechanism through goals, staff development programs as well as increase of Group structure transparency.

During 2012 there was no major change in terms of **shareholders structure** of KGHM. The only shareholder holding 5% or more of the Company's equity is the Polish State Treasury, which holds 31.79% of the share capital. Such state of things implies certain risky policy connected to many aspects of the Company's activity. KGHM is under political pressure set by the government. This may influence dividend policy, particular strategic plans(such as investment decisions or future acquisitions). The rest of shareholders are highly diluted, however some tendencies among them can be followed. 39.3% of the Company stocks are held by different foreign institutional investors, while 22.5% is held by the domestic ones. 6.4% of KGHM stocks is held by individuals.

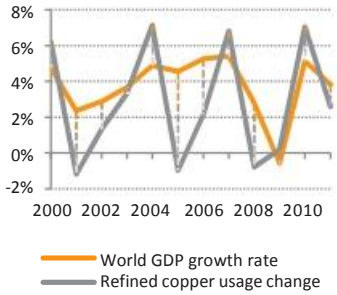
KGHM management comprises only professionals. Currently, management of KGHM consists of 5 persons (the maximum number is 7 members). The CEO is Herbert Wirth, PhD in Science, received the degree doctor habilitatus in mining and geological engineering. He has served as the chairman of management board since 2009 and previously dealt with geological projects and management of companies connected with mines. Under his leadership, KGHM for the first time in history effectively expanded internationally on a large scale. Other 4 members of management have wide experience in either copper extraction and mine management: Wojciech Kędzia and Dorota Włoch, or are experts in planning and finance projections: Włodzimierz Kiciński and Adam Sawicki. As indicated in the risk section, there are strong labour unions in KGHM. However, so far management has been able to keep good relations with those unions.

Industry Overview and Competitive Positioning

Figure 5: Copper usage in cyclical industries

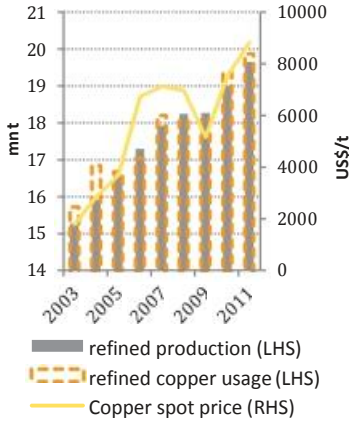
Source: KGHM CSR report

Figure 6: Copper consumption sensitive to global economic outlook



Source: ICSG, World Bank data

Figure 7: Global refined copper deficit/ surplus



Source: ICSG data

Figure 8: QE positive effects on copper and silver prices (appendix 23)

	QE1*	QE2**
Copper	108%	20%
Silver	64%	81%

*(11/2008-03/2010)
** (08/2010-06/2011)

Source: Team estimates

High barriers to entry and perfectly-competitive prices
Copper industry is characterised by significant entry barriers: limited resource base, existence of mining concessions and high capital intensity(please refer to Porter's 5 forces analysis in appendix 35). KGHM is a beneficiary of the only copper deposit in Poland which is also the biggest one in Europe, but further increase of mined copper output is possible only through exploration of new deposits, in countries where global mining is concentrated. High capital intensity is related to energy costs (in Europe 25-34% of product cost), transportation and water supply needs, specialised employees and mining equipment, as well as maintenance of environmental protection systems. According to Davenport[2] research, fixed capital investment cost for a complex producing refined copper is ca. $8500/t (from 0.75% Cu ore). The fact that individual copper producers are price-takers with the only product distinction based on product quality (KGHM produces copper cathode with 99.99% copper content) and the high dependence of industry's profitability on the copper market price lead us to the analysis of the forces which govern this price.

Copper market outlook determined by global economy
Copper (as presented in Figure 5) is a material used in pro-cyclical industries such as electronics, construction and transportation. The market driven by demand from above mentioned sectors presented 3% CAGR for the last 20 years. According to our research, the correlation coefficient between refined copper usage change and world GDP growth rate is 58% with beta of 1.26. Higher sensitivity of copper consumption over global GDP growth can be observed in Figure 6.

Developing countries: driving force in copper consumption
In 1990 copper usage in developed economies (Western Europe and North America) constituted 50% of global consumption. According to 2012 ICSG estimates, this share decreased to 25% and the market has been monopolized to China demand (39%) (please see appendix 18). European sovereign debt crisis and tightening fiscal policies were not in favour of EU construction industry (key copper consumption driver) which has been declining since 2008 (please refer to appendix 21). Yet, the potential for further Asian copper consumption growth still exists. In 2011 5.82 kg of copper per capita was consumed in China, contrary to 16.32 kg per capita consumed in Germany (please refer to appendix 20). Up to 2020 it is predicted that China and India will solely represent 50% of global copper usage, driven by 10.1% and 5.8% respectively long-term manufacturing growth.

Copper supply to follow increased consumption
After three years of deficit in refined copper production (from 358kt in 2010 to 237kt in 2012E) the new mining projects are expected to switch market into copper production surplus (360kt in 2013E). The major ones aimed to start production between 2013E and 2017E will increase global copper annual production in 2017E by 3.6mnt (22% of 2012 forecast mined copper production). New mine openings are necessary to meet expected demand. Current mine base will result in 5.12mn t deficit in 2020. On the other hand realization of all proposed mine projects will produce 8mn t copper surplus (please refer to appendix 19).

High copper prices: impulse for riskier projects
In 2012 the global mined copper production was determined in 33% by the output from Chile. The 2nd biggest producers were China and Peru (both 8% of global output), followed by USA (7%). Yet, the high copper prices made profitable to invest in more capital-intensive projects (characterized by lack of infrastructure or country's unstable political situation). In 2020 an increased proportion of supply will come from Africa (Democratic Republic of Congo, Zambia) and Asia (Mongolia, Afghanistan) but it is forecast to be dependent on smaller and deeper mines with lower copper grade (0.9% copper in process feed in 1980 as compared to 0.7% in 2012). (Please see appendix 19)

Stable copper secondary market and minor substitution risk
Copper is one of the most often recycled material, as it doesn't lose its chemical or physical properties in the recycling process. The recycling input rate (copper scrap use in total copper usage) was on av. 35% in last ten years. The rate was stable, varying from 32.4%(2009) to 37%(2006). There is no perfect substitute for copper although it is sometimes replaced by aluminium, plastic, steel and optical fibre. The highest product market loss in 2011 was present in telecom cable market – 14%. The copper market is a beneficiary of new technologies as it is a component of solar panels, wind farms and modern means of transport.

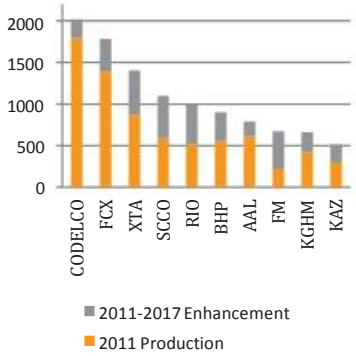
Possible future copper surplus is a major reason of long-term copper price decrease. Yet, such a decrease is limited due to high level of US monetary base. The **short-term distortion risks** which may influence copper price are new round of US Quantitive Easing, Chinese copper destocking risk and introduction of physically backed copper ETF (please see appendix 23 & 24). Copper market is also influenced by active futures market.

Prices affected by active futures market
The total volume of open contracts in 2011 on LME, COMEX and SHFE amounted to 1.25bnt of copper which is 62x refined copper usage in 2011. LME market share (measured by open copper futures contracts) decreased from 82% in 2005 to 71% in 2011 in favour of COMEX and SHFE (12% and 17% market share respectively). Since November 2012 the market is in contango, contrary to the beginning of 2012.

Silver – precious by-product
Nearly one fifth of KGHM revenues come from sale of silver. The global production of this metal is well spread. Based on our estimates the HHI ratio for the biggest 20 silver producers (52% of market) in 2011 was 152 indicating highly competitive marketplace. For copper industry HHI ratio amounted to 335 (64% of market) -

[2] W.G. Davenport, M. King, M. Schlesinger, A.K. Biswas, Extractive Metallurgy of copper, Pergamon 4th Edition, p. 387

Figure 9: Mined copper production in 2017E (kt)



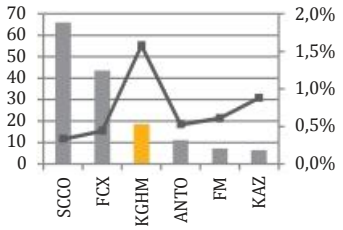
Source: Companies reports, Team estimates

Figure 10: Peers basic statistics for 2012E

	C1 (US c / lb)	EBITDA margin (%)	NI margin (%)
KGHM	124	33 39	20 29
FCX	150	54 56	34 19
SCCO	65		
ANTO	102		
FM	150	42	9
KAZ	143	33	11

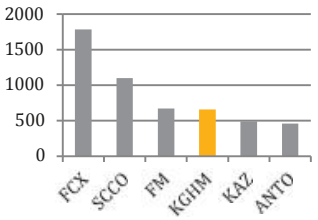
Source: Companies reports

Figure 11: Cu base (LHS, mn t) and grade (RHS)



Source: Companies reports

Figure 12: KGHM and the peer group attributable mined copper production in 2017E (kt)



Source: Companies reports, Team estimates

Figure 13: Turnover and trading volume of KGHM relative to the Peer Group in 2012

	Turnover (mn $US)	Volume (mn)	ASO (%)
FCX	655	17,9	1,89
SCCO	64	2,1	0,25
KGHM	41	1,1	0,53
ANTO	35	1,9	0,19
FM	35	1,7	0,37
KAZ	30	2,3	0,43

Source: Team estimates

still indicating high competition. The supply of silver in 2011 was in 73% provided by mine production (although it is often mined as a by-product) and in 25% from scrap. Demand for silver only in 55% comes from industrial applications. Other usage include jewellery, coins, photography and silverware. More diversified sources of demand act in favour of silver whose prices did not decline as significantly as copper prices in the end of 2008.

KGHM has been one of the global leaders in the copper industry for a long time, but it was not sooner than in March 2012 (acquisition of Quadra FNX was formally approved by the board at that time) when the **Company started operating worldwide.** Having the largest copper deposit in Europe was enough to conduct successful business locally, in the environment of a decade-long growth in commodity prices. This, however, spurred diversified conglomerates to intensify explorations and enlarge the scale of operations what has ended up with impressive pipeline of projects (3.6mnt of incremental supply until 2017E) (see appendix 25). KGHM joined global expansion late and it makes difficult for the Company to significantly outperform its competitors in coming years. Based on our research, however, it will remain among **TOP 10 mined copper producers in 2017E**.

Strong position in the peer group

We perceive KGHM as a **single-product manufacturer** (refined copper, with silver as a major by-product), **moderately-high volume producer** (426.7kt in 2011), **well established and properly managed holding** with **great ambitions for the future** (700kt of copper in 2018). This is why we place the Company in line with such giants as Freeport McMoRanCopper&Gold(FCX), Southern Copper Corporation (SCCO),Antofagasta PLC (ANTO), First Quantum Minerals (FM) and Kazakhmys (KAZ) (see appendix 27 for comparables selection criteria). KGHM is the middle point in such combination and it is rather impossible it will overtake the first two companies or be overtaken by the latters in terms of ore reserves, copper base or revenues in coming years. It constitutes 12% of the peer group mined copper production and should stay on this level until 2017E (see appendix 26). All companies, with the exception of ANTO and KAZ, conduct operations on a global scale (see appendix 28) what creates opportunities for further expansion when new deposits are discovered.

Recoverable metal in reserves up to 23.8mnt (+28%) until 2017

KGHM rank **#3 in terms of metal recoverable from own reserves** (18.6mnt, 2011) and **#1 in terms of ore grade** (1.58%) as compared with the peer group. Because the Company has not had an access to open pit mines until 2012, it suffered relatively high cost of extraction (124 USc/lb or 2728 USD/t in 2012E). In the future, C1 Cash Cost is expected to decrease ca. 20**%** thanks to the engagement in projects in Chile (Sierra Gorda) and Canada (Afton Ajax, Victoria). Those projects alone should **increase metal base by 4.13mnt** (+22%) in coming 5-years period, while other operating mines acquired with Quadra (Robinson, Morrison and Franke) add another **1.1mnt** (+6% this year and total increase of 28% between 2011-2017E) (see appendix 11 and 12).

Mined copper production jumped to 522kt (+24%) in 2012

Based on Company fillings we estimated that mined copper production rose by 102kt in 2012 thanks to operations conducted by KGHM International (increase of 24%), what would give the Company **3rd place among selected competitors** and **8th position globally** with **3.2% market share**. Production in 2013E should decrease slightly (5.5%) due to the planned furnace refurbishment at Glogów smelter and rebound significantly in years 2014E and 2015E when Sierra Gorda starts production. Having on mind the balance of costs (higher production from low-cost open pit mines against increasing costs of exploitation underground deposits in Poland) we do not expect major changes in KGHM's margins, although improvement is desirable when production from foreign assets gains momentum. Currently, however, our estimate of **35% EBITDA margin** for FY2012 is below 43% peer group average, although the Company looks better in terms of **Net Income margin** reaching **23%** vs 19% peer group average.

Projects in pipeline to deliver 155kt until 2017

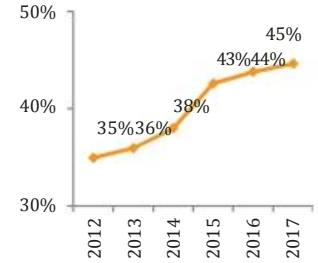
As of the end of FY2012 KGHM has fully financed and permitted project in Chile **(Sierra Gorda)**, with first **production scheduled for 2014**. It will be the 8th biggest open-pit mine in that country (Chile alone contributes 33% to global supply), located in close neighbourhood to the biggest copper mines in the world (see appendix 29). Sierra Gorda will supply 230kt of copper annually (50% is attributable to KGHM) and reach its full production capacity in 2015E, together with the biggest projects worldwide (see appendix 25). **Afton-Ajax** project in Canada is after Bankable Feasibility Study and is on the way to **start production in 2015E**, supplying additional **40kt**(cooperation with Abacus Mining & Exploration Corp.). We expect that KGHM will be able to mine ca. **662kt of copper in 2017E**. It gives the Company **6% CAGR** of production with **overall increase of 26%** as compared with 2012E and constitute almost **57% growth** as compared with 2011, when the Company did not operate globally. In our view, such performance gives KGHM stable **4th position among its peers** and **9th among top industry leaders in 2017E** What is more, there is still place for growth, as the Company strategy assumes **700kt (+6.5%) of copper** from own resources **to be reached until 2018.**

Very liquid and well performing stocks

KGHM is one of the leading companies listed at Warsaw Stock Exchange and contributes ca. **14%** (as of Jan 2013) to WIG20 – Polish Blue Chip index. It has **above average liquidity** as measured by turnover (consistently among TOP5) and is **6p.p. more volatile** than the market as measured by standard deviation (18%). This risk, however, is compensated by **high stock returns**, which **outperform market since April 2009** (bottom of recession) on a monthly basis (we are referring to all data translated into USD). KGHM shares outperform peer group as well, with **average daily turnover of USD 40mn** and **average daily volume of 1.1 mn shares**, which constitute **about 0.53% of Average number of Shares Outstanding (ASO)**. Only Freeport provides more liquidity to its investors while the other companies stay far behind KGHM. **5Y 21%CAGR of stock price** is outstanding if compared with MSCI World (-4%) or peers median (5%), giving KGHM **total increase of 157%** since Jan 2008 (not including dividends).

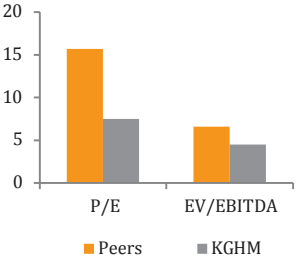
Investment Summary

Figure 14: EBITDA margin in estimated period



Source: Team estimates

Figure 15: P/E and EV/EBITDA in 2012E for KGHM and its peers

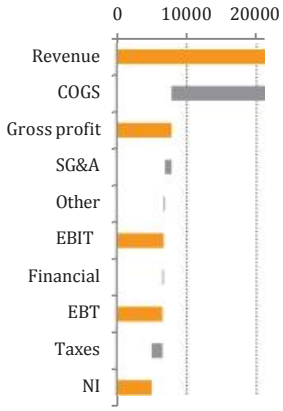


Source: Team estimates, Bloomberg

Figure 16: Relation of CAPEX to CFO (bn PLN)

Source: Company's reports, Team estimates

Figure 17: P&L in 2012E (PLN mn)



Source: Company data

Good entry point

We issue a BUY recommendation for KGHM Polska Miedź S.A. with a target price PLN 220 and 18.62% upside from current price level. KGHM has strong position on domestic market and in the last year acquired many international projects, that are expected to add 58% growth in Cu production during next 5 years. Investors reacted enthusiastically to international expansion, as KGHM's capitalization rose from March 2012 (date of acquisition of Quadra FNX) till February 2013 by over +60% to PLN 38bn (USD 12 bn). We expect the growth of stock to be continued, as KGHM is still undervalued comparing to its peers: 52% discount with respect to P/E and 32% discount with respect to EV/EBITDA in 2012E. Projected steady growth and advantageous perspectives for lowering C1 cost level (according to management statement approximate decrease by 20% in long term) should enable further strengthening of the Company's position on the global copper market.

Valuation methods

We derived our target price by combining DCF valuation and multiple pricing with equal weights. In our opinion there is no reason for different treatment of any of those two methods. The peer group was chosen in a rigorous manner and we believe that comparison to selected companies is fully justified.

New projects add value and reduce risk

Pipeline of new projects assures increase of production volume and provides cooperation potential (details regarding synergy effects are in appendix 13). New projects do not only increase the volume of copper extracted, but also allow KGHM to diversify in terms of geographical extraction and mineral base. Mines in other parts of the world are expected to diminish company's risk, because projects are located in more stable and business friendly-environments (measured with Doing Business Index[3]). We believe that large discount of KGHM in comparison to its peers will be substantially reduced thanks to higher growth perspectives and significant risk reduction. From valuation point of view, the risk again will be reduced due to falling values of beta.

We identify the Cu prices and USD/PLN exchange rate to be main drivers for the volatility of earnings. In our report we based them on the World Bank Commodity Price Forecast and analysts' consensus from EMIS database. Forecast levels of those two catalysts are expected to assure revenue CAGR ca. 2% and NI CAGR of 3% in years 2012E-2017E. The second factor significantly affecting the structure of revenues is the increasing share of metals other than copper and silver from 3% in 2012Eto 17% in 2017E. This may protect KGHM in case of disadvantageous market conditions in copper market.

Strong financial position and high dividends

KGHM is currently the least indebted mining company among its peers. We project it will get more debt in the forecast period, as outlays for new project will require on average PLN 3.3bn yearly. However, the target D/A ratio in 2017E is forecast at ca. 11% (comparing to ca. 0% in 2011), with still possibilities to employ more debt. KGHM will maintain its strong financial position and high overall cash generation ability (for details please refer to Financial Analysis section). This will enable the Company to pay high dividends (estimated median dividends per share to be paid in period 2013E-2017E will amount to PLN 16.91 comparing to 2012 PLN 28.34 per share and 2011 PLN 14.90 per share). In years 2008-2012 median value of dividends per share was PLN 11.68 with median 10.76% dividend yield. Despite high projected outlays for acquired projects and payouts of dividends, KGHM will still be able to remain active on the possible mining M&A ground (due to high CFOs and debt incurrence possibilities).

Good copper market prospects

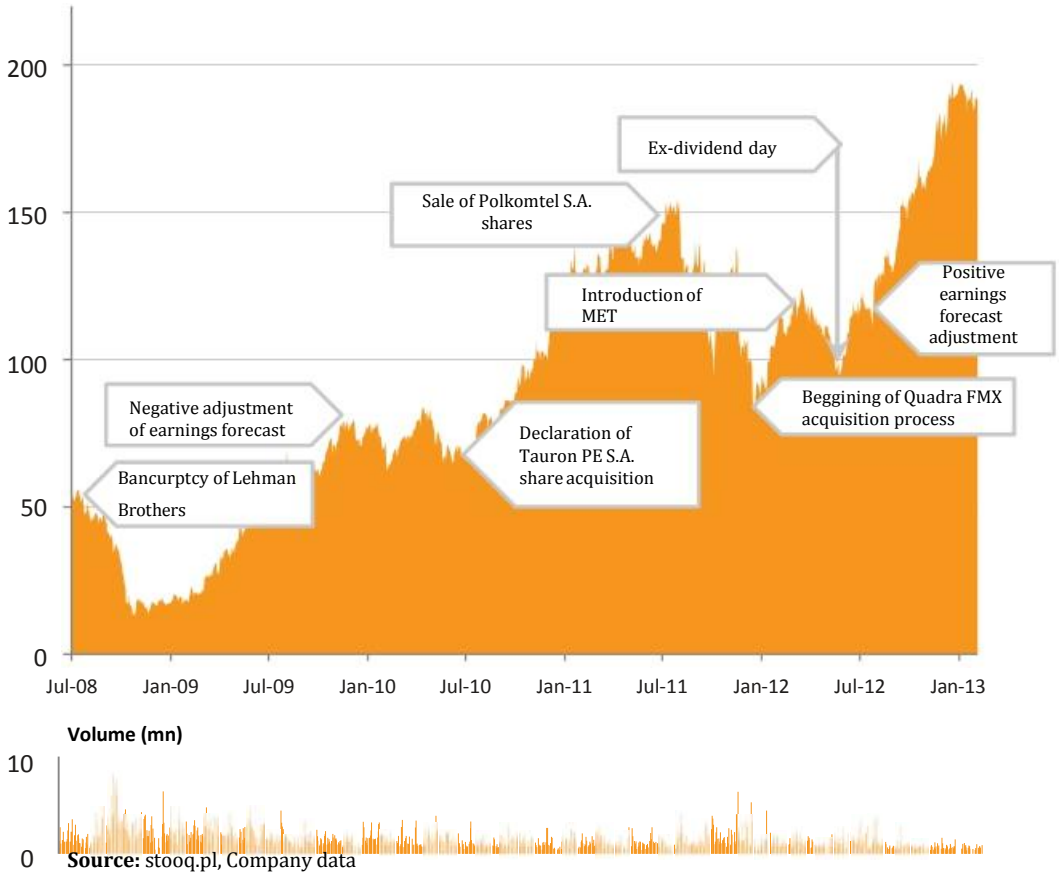
Quadra FNX acquisition was for KGHM like shift to higher gear, the copper market also expands to new markets (BRICS countries) to maintain demand and keep prices stable. Although China's GDP growth rate is forecast to be no longer double-digit, the planned country's expansion of urbanization on beyond the seaside areas combined with development of emerging economies should be a buffer for future copper prices. The forecast long-term price, although ca. 15% lower than the LME 2012 average, is still 2.4x higher than the lowest price in last 5 years and over 5x higher than in last 20 years. However, high copper price is a stimulus for new mining projects which in effect may lead to copper surplus.

Possible investment risks

Besides the influence of market risk(Cu prices and USD/PLN exchange rate) investors should be aware of other possible adverse influences: high share of fixed costs in the production process, strong labour unions forcing higher wages (the second highest part of operating costs), possible delays of starting extraction from new projects, influence of State Treasury to enter less profitable business ventures. We identify main risks in Investment Risk section.

3The ease of Doing Business Index is an index created by the World Bank.

Figure 18: KGHM's share price and news flow since July 2008



Source: stooq.pl, Company data

Valuation

We have considered two standard approaches to value KGHM – Discounted Cash Flow (DCF) model and comparable company multiple pricing.

DCF Valuation

We used Discounted Cash Flow Model: Free Cash Flow to the Firm (FCFF) - this method is suitable for KGHM because the Company is going to change its capital structure from no debt to target capital structure during forecast period. According to our detailed DCF analysis we expect the target price of PLN 248. The DCF model is sensitive mostly to the following factors:

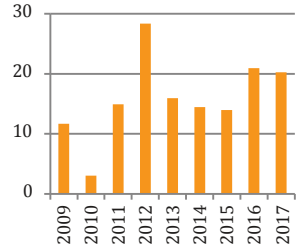
- **Sales :** The forecast of growth in sales is based on increasing ore exploration in KGHM International's mines. Polish mines capacity shall be constant due to the underground mines specificity. Sale of copper is the most important component of total sales, however its share declines from approximately 77% in 2012E to 70% in 2017E. This fall is due to different type of ore structure in new mines, where the ore contains higher amount of other metals (production forecasts are presented in details in appendix 7.1, 8 and 9)

- **Residual growth rate is based on:**(1) condition in the global economy (rising GDP growth rate –appendix 22), (2) development of KGHM internationally in new, prospective projects, (3)future revenues from realization of energy projects(according to current Company strategy, 30% of revenues in the future will be earned from such projects), (4) high expected return on equity in years 2013E-2017E (median value of 20.5%). Taking into account the aforementioned factors we established the residual growth rate of FCFF at 1%. We believe it to be a conservative estimate below long-term growth of GDP and below median of analysts' estimates of residual growths for copper mine companies. We deem terminal growth rate to be only 1%, since KGHM at the moment has less robust pipeline of projects as compared to its peers and copper prices are expected to decline.

- **Dividend policy:** It is assumed that KGHM will still pay high dividends (in period 2008-2012 the median dividend yield was 10.76% and median payout ratio was 50%). High payout rate will be sustained due to substantial impact of State Treasury, which has always insisted on paying high dividends. The payout policy is described in appendix 7.5.

- **Capex:** Due to new growth projects in Sierra Gorda, Afton-Ajax and Victoria, future capital expenditures will be significant. They are all based on Company's reports and Feasibility Studies. Those expenditures, according to our calculations, will be on average PLN 3.4bn yearly.

Figure 19: Dividend paid (PLN/share) historical and estimated



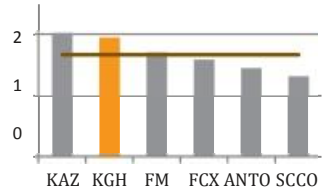
Source: Company data, Team estimates

Figure 20: Components of WACC

Risk free rate	3.44%
Beta	1.94-1.39
Market risk premium	5%
Country risk premium	1.5%
Cost of debt	6.2%

Source: Team estimates, market data

Figure 21: Peer group's betas regressed against MSCI World Index



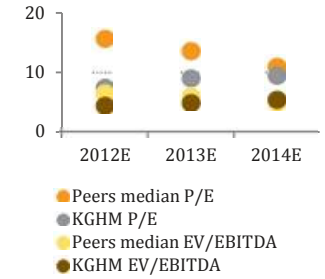
Source: Team estimates

Figure 22: Doing Business Index 2013

Rank	Country
3	United States
17	Canada
37	Chile
55	Polan d

Source: World Bank

Figure 23: Forward multipliers



Source: Team estimates, Bloomberg

Figure 24: Monte Carlo – price distribution

Source: Team estimates

- **WACC:** The cost of equity was calculated using CAPM model. We utilized 10-year government bond risk-free rate of 3.44%, the adjusted beta, which is changing from 1.94 in 2012 (KGHM price in USD regressed against MSCI World Index) to 1.39 in residual value calculation (reflecting substantial drop in risk by diversification of both mineral base and geographical location, additionally reduced by starting projects in more business-friendly environments). The sum of market and country risk premium is equal to 6.5% (based on A. Damodaran's estimation[4]). The after-tax cost of debt was calculated using value of 6.2% for KGHM and marginal tax rate. Cost of debt was estimated using Company data from financial statements, in which KGHM states its possible cost of loans as WIBOR + 1-4 p.points. For more details about components of WACC and its assumptions please refer to appedix7.4.

Peer group pricing: the discount case

Having previously chosen appropriate peer group, we conducted multipliers pricing using benchmark P/E and EV/EBITDA ratios, both based on two-year forward medians. There was a long-term discount observed on KGHM's market price relative to its peer group in the past. There were number of factors supporting this discount in previous years, such as:

- higher risk of KGHM, measured with systematic risk that was higher than peer's median (1.95 vs. 1.68 as measured by beta based on MSCI World Index),
- no organic growth, focus on local business only, without expanding capacity,
- influence of major shareholder being the State Treasury,
- lower multipliers on average for the WSE than for exchanges where peers are listed (country risk).

Although the historical discounts amounted to 52% for P/E and 50% for EV/EBITDA, we consider that the business environment of the Company has changed significantly at the beginning of 2012 when KGHM started operating globally. Currently, it has two operating mines in the US and one in Chile as well as it is involved in new projects in Chile and Canada. All countries mentioned are more business friendly than Poland (as measured by the Doing Business Index), have well developed infrastructure and possess copper reserves much bigger than KGHM does in Poland. Hence, diversification should reduce the risk in long-term perspective with projects in pipeline adding 58% production growth to be realized during the next 5 years.

However, it is rather unlikely that the State Treasury will diminish its ownership stake in the Company or multipliers for will increase sharply to close the gap (37% with respect to P/E) between exchanges in London, New York and Toronto. There are 15 other companies from 7 different sectors listed on WSE where the State Treasury excises considerable power, which are currently traded at approx. 20% discount to relevant peers (team's research based on 100 comparable companies found on aforementioned markets). None of them, however, have such growth opportunities or face undergoing operational changes as KGHM does. Furthermore, there are already two blue-chips listed on WSE controlled by the State Treasury and either operating internationally (PKN Orlen) or managed by globally-recognised parent (PKO BP/UniCredit) which do not trade at a discount at all. Hence, we consider it to be possible for KGHM to squeeze its valuation gap in relation to peers in the future.

Nevertheless, there are at least two years ahead until the Company utilizes profits from its international expansion. This is why we assigned 25% and 20% discount (equally for both multipliers, in accordance to their similar historical discount medians) in 2013E and 2014E respectively, even though KGHM has already been outperforming PKN and PKO regularly in terms of profitability since 2007(not to mention the remaining 13 companies controlled by the State Treasury). The discount should fall to median discount of companies with State Treasury ownership, because of relatively high stake of this body in the shareholder structure and its big impact on business carried out in KGHM. Additionally, execution of all planned projects in two years time will not make KGHM as diversified as its peers. Therefore, we deem it as reasonable to expect the discount of 20% to still exist in 2014E. If KGHM develops new projects and State Treasury sells its stake in the Company, there will be a justified reason for discount to disappear.

We treat both P/E and EV/EBITDA equally in our valuation, as there is no evidence of predominance of one over the other as well as we assigned equal weights for years taken under consideration. The price we obtained in such combination is equal to PLN192.1 per share, what results in PLN 220 when combined with DCF using 50-50 weighting procedure (please see appendix 6)

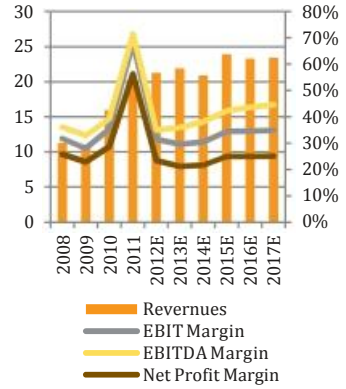
Risks to target price

DCF model relies mostly on terminal value, which in turn is dependent on terminal growth rate, copper price and USD/PLN rate in the long term. Utilized terminal growth rate was chosen in a relatively conservative manner, but failure of new mines and inability to find new attractive projects may adversely affect this factor. Long-term copper prices and exchange rates are also very important and practically infeasible to be calculated with reasonable precision in long term, therefore we deem them as imposing risk to our model. We performed Monte Carlo simulation in order to check to what extent our target price may be influenced by changes in those variables and we obtained a mean price of **PLN 233.15**, which is close to our valuation model (see appendix 31). Multiple model is mainly dependent on KGHM's growth opportunities, risks and profitability.

4Aswath Damodaran is a Professor of Finance at the Stern School of Business at New York University, best known as the author of several widely used academic and practitioner texts on Valuation

Financial Analysis

Figure 25: Stable margins (PLN bn)

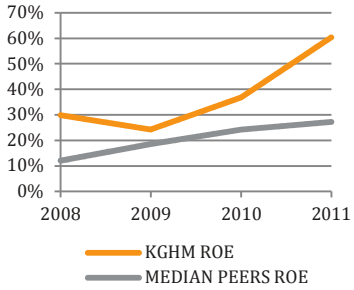


Source: Team estimates, Company Data

Figure 26: DuPont Analysis for 2012E & 2016E (Appendix 17)

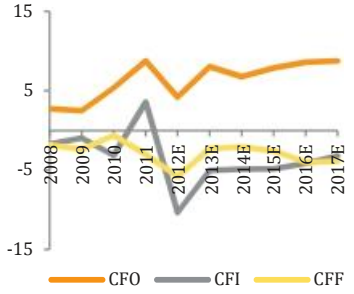
Source: Team estimates.

Figure 27: Higher ROE as compared to peers



Source: Team Estimates, Company Data

Figure 28: Cash flow pattern



Source: Team Estimates, Company Data

Sustainable earnings

For KGHM, year 2011 was a record in terms of both revenues and net income. The realised earnings CAGR in years 2007-2011 was ca. 24% (2011 NI: PLN 11 334.52mn, 148% YoY). Impressive results were mainly driven by favourable level of copper and silver prices, as well as USD/PLN exchange rate as well as nonrecurring items, namely sale of Polkomtel S.A. and Dialog S.A.(they were telecom companies treated as portfolio investments). However, we forecast deterioration of the results with following drivers: introduction of Mineral Extraction Tax (for more details about MET please refer to appendix 16) and lower levels of copper and silver prices. We expect steady growth of earnings in the mid-term (forecast NI ca. 3% CAGR in 2012E-2017E), based on assumed forecast levels of metal prices and budgeted production as well as launch of new mining projects (Sierra Gorda in Q3 2014E, Afton Ajax in 2015E; 2015E NI growth year YoY is expected to be ca. 32% due to increased production volume). We forecast NI in 2012E to be significantly lower than the one from year 2011(ca. -56% YoY). The main reason for such state of matter is the fact that 2012 is the first year with introduced MET which significantly deteriorates the net result. In years 2013E and 2014E we expect further decrease of NI, however not as substantial as in 2012E (NI 2013E: -7.16%, 2014E: -1.96%). Main drivers of slight decreases in 2013E and 2014E are identified as lower Cu prices and unfavourable USD/PLN exchange rate. However we maintain the view that forecast level of earnings will enable the continuation of attractive dividend policy, practiced by KGHM so far.

Mid and long-term sound level of margins

Although in the long term the Company is going to reduce its average cost of copper production (low expected costs of production in Sierra Gorda – due to utilisation of low-cost open pit technology), in short-term we expect main margins to deteriorate slightly, however remain at sound level comparing to historical performance of KGHM as well as its peers. In mid-term we forecast margins to recover, as in years 2015E and 2016E the effect of lower Cu production cost in new mining projects will be in effect. After impressive year 2011, EBITDA margin was 71.4%, we expect EBITDA margin to be ca. 35% in 2012E and to grow sustainably through all years of forecast to the level of approximately ca. 45% in 2017E.

DuPont analysis – drivers of profitability

In the analyzed historical period, KGHM exhibited high return on equity(2010 ROE 36.75%, 2011 ROE 60.3%). Previously, the main drivers of such high level of profitability where mainly net income margin, equity multiplier as well as total assets turnover. Our analysis indicate impaired ROE forecasts (2012E ROE 22.21%, 2013E ROE 20.51%) mainly due to lower net income margin and lower equity multiplier, however we evaluated expected levels of ROE to be still attractive comparing to historical performance of the Company (See Figure no 29). We forecast ROE in 2017E to be 19.12%. DuPont analysis suggests the most important driver for sustaining future level of return on equity to be financial leverage, calculated as ratio of asset divided by equity. Hence, we conclude forecast increase of the Company's leverage to have positive influence on profitability. Second driver appears to be asset turnover, which indicates the better utilisation of Company's resources(increase in sales due to larger asset base will be bigger than the growth of the asset base itself).For extended DuPont analysis see appendix 17

Robust cash generating abilities

In the analyzed historical period (2008-2011) KGHM presented positive CFO and negative CFI due to high level of CAPEX. We predict this trend will hold in the forecast period. In years 2008 – 2011 KGHM presented negative CFF which was due to high level of dividends. Additionally KGHM was able to generate internally all the necessary cash for covering investments (except year 2012when the Company incurred debt in form of cash loan for covering the dividend payout). Moreover, KGHM constantly managed to present positive cash conversion cycle. In our opinion this trend will continue to be present in the future.

The Company liquidity ratios remained at high levels (Current ratio 2010: 2.57 2011: 4.54). We expect future level of liquidity ratios to be sufficient in projected period (Current ratio 2012E: 2.34 2017E: 2.10) For more financial ratios please see appendix 4 .

In the period of forecast, we predict the ratio of CFO/CAPEX to be significantly higher than 100% (2012E: 141% 2017E: 383%), however possible external sources of financing are taken into account as necessary for sustaining robust dividend policy. We predict that overall cash sufficiency, measured with ratio of CFO/(Dividend paid + Debt Repayment + Fixed Asset Investment), will maintain at the level of 1 (enough cash for covering all required projects for growth development).

Earnings quality indicator (computed as CFO/(NI + D&A +ΔNWC) has been above 1 in previous years (year 2011 is an outlier due to nonrecurring events included in NI, namely sell of Polkomtel and Dialog S.A.). We expect relation of CFO/(NI + D&A +ΔNWC) above 1 to be continued in the forecast period.

Structure of financing. High potential for debt financing

In previous years the Company was financing its resources entirely with equity (insignificant revolving loans were incurred). Recently management stated possibility of incurring debt (management considers several options: long term bank loan, domestic bonds issuance, euro bonds issuance). In our opinion the incurrence of debt would favourably influence the overall KGHM's cost of capital and profitability ratios, especially taking into account sound financial position as well as cash generation ability. We forecast increased debt financing, debt to equity ratio is estimated to rise from ca. 7.22% in 2012E to ca. 15.98% in 2017E.

Corporate Governance and Social Responsibility

KGHM's corporate governance and corporate social responsibility (CSR) are overall highly rated

KGHM shows great efforts in improving its relations with shareholders, clients and employees. It can be shown by Company's high quality of annual reports, creation of audit, remuneration and strategy committees and introduction of Company's own code of ethics. To objectively estimate the KGHM resources, the Company commissioned Micon International Limited to prepare an independent research on resource base, which was issued in 2013. We deem such actions create additional upside potential for KGHM, as compared to companies that lack special focus on corporate governance and CSR.

Corporate governance. We estimated the quality of corporate governance by applying Principles of Corporate Governance developed by Organization for Economic Cooperation and Development (OECD). KGHM's final score was 8.4 out of maximum 10 points. We value this score as relatively high. For detailed calculation methodology please refer to KGHM's corporate governance and corporate social responsibility in appendix 32.

Corporate social responsibility. High quality is shown by publication of CSR report for years 2010-2011 and inclusion of KGHM in RESPECT Index since its establishment in 2009. KGHM has historically been striving to improve its ecological side, by effectively introducing new eco-investments and pro-environmental solutions (in years 2010 and 2011 KGHM spent over PLN 300mn on eco-projects). More information on RESPECT Index, its importance and environmental issues of KGHM is shown in appendix 32.

Conditional drivers of additional upside

Reduced engagement in shareholders structure of Polish State of Treasury. We expect this is one of the most important potential events that might release additional upside potential. As suggested in multiple valuation part, we forecast the certain amount of discount against peers to hold in the future. Possible less control of State Treasury over the Company may influence favourably the general operations of the Company.

New acquisitions in the area of core operations. As the official strategy of the Company suggest, we may expect the management to consider new investments in the copper market, both through mining companies acquisition or acquisition of copper deposits. With purchase of Quadra FNX (currently KGHM International) the Company entered the group of global players on the copper market. Potential strengthening or even increasing its international position may translate into positive stock price changes.

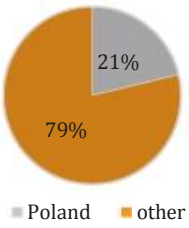
Successful investment in the area of energy production. As indicated by the management, the Company currently introduces the strategy of diversification of revenue sources. The main area that KGHM is going to develop is its side projects is energy production. The strategic goal to be reached is to gain certain level of independence in terms of energy supply for polish mining facilities as well as gain on the external sale of energy.

Investment risks

Probabilities of the following risks and possible impact on the Company price are presented in appendix 33.

MARKET RISK: Metal price assumptions - fluctuations of copper and silver prices
Revenues depend on the factor that cannot be fully controlled by the Company: copper market price. A 10% change in the long-term copper price would change our valuation by 16% due to high operating leverage and terminal value sensitivity. Due to the fact that 20 % of revenue comes from sale of silver, its price fluctuations can also have impact on our target price. Nevertheless, the influence is estimated to be not as significant as in case of copper. Based on our research, changes in KGHM's share prices are correlated in 51% with changes in copper prices, what is less than the average for the other companies in the sector (please see appendix 30).

Figure 29: Revenues breakdown - domestic sales and export 2011



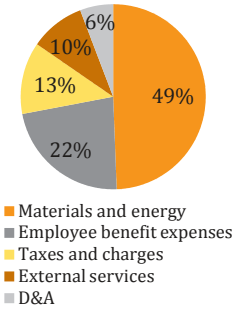
Source: Company Data

MARKET RISK: USD currency assumptions - fluctuations of exchange rates
About 79% of the Group's income and costs are related to foreign currency transactions. Moreover, even domestic transactions are influenced by exchange rate fluctuations, because copper price for all buyers is based on LME price. For this reason, the USD/PLN rate changes have significant impact on the size of income from sales. Strengthening of the domestic currency has a negative impact on the profitability of export and domestic sales.

MARKET RISK: Poland enters the Euro zone
If Poland entered the Euro zone during our forecast 5-year period (which is possible but not much probable) the exchange rate risk would significantly decrease, because USD/PLN is a more volatile currency than USD/EUR. This situation could have positive impact on revenues volatility.

ECONOMIC RISK: Global macro – drop in GDP growth rate
The demand for copper depends mostly on the economic climate. This is caused by strong correlation of house building industry and the GDP growth rate. As the significant amount of copper (41%) is used in construction and household appliances, a decline in GDP growth rate may lead to a decrease in the long term market price of Cu and as a consequence decrease revenues.

Figure 30: 2012 Q3 expenses by nature



Source: Company data

ECONOMIC RISK: Demand assumptions – influence of China
The largest share of the global demand for copper in the amount of 39% is created by high needs of China (details presented in appendix 18). However, there is a possibility that the future increase in China demand is inaccurately estimated (possible changes in both directions).

ECONOMIC RISK: Competition - oversupply
There are numerous new expansion projects in the pipeline, which are going to be realized especially in 2015(refer to: appendix 25). Due to this fact, we are expecting an increase in copper supply in the mid-term. That situation may lead to decrease of copper price.

OPERATIONAL RISKS: Assumptions about the quality of ore
On the basis of professional geological researches, it is assumed that the ore in Poland contains 1.59% copper. However, this assumption may be estimated with error. It is possible that after reaching deeper layers, the ore quality may be lower. In this case, the extraction process may become unprofitable because of smaller amount of copper in ore and higher extraction cost. Another constraint is the problem about difficult conditions such as high temperature in lower layers, which may make the ore impossible to explore.

OPERATIONAL RISKS: Increase in energy, labour and exploration costs
Increase in those costs can adversely affect future margins obtained by KGHM. However, the changes in exploration and energy costs can be easily predicted by the management. In 2012, the labour cost is estimated to increase by 8%, although according to KGHM's annual report it is supposed to increase only by 5.3%. Because 89% of all employees are members of labour unions (data as of December 2011), they have a strong negotiating position that allows to force the management to rise compensation through industrial actions. Labour costs make up 22% of KGHM costs, therefore material and unexpected changes in compensation level can influence the Company's profitability. What is more, that actions might decrease the extraction itself and, in consequence, have a negative effect on the Company's financial results.

OPERATIONAL RISKS: Updates in the growth projects (Afton-Ajax, Sierra Gorda, Victoria)
There is risk connected with new information regarding: progress, obstacles causing delays in new exploration projects, higher amount of capital expenses to be incurred, uncertain amount of copper content in the ore. We carried out sensitivity analysis, which took into account risk of other production volume than forecast in the model and different EBITDA margin than expected (which is influenced by the start of new mines, ore diversification, etc.). For results please refer to appendix 34.

POLITICAL RISK: Changes in environmental policy
Recent changes in the EU environmental law have introduced new stricter rules. Their implementation result in incurring additional costs and the necessary investments. KGHM will also be covered by the system of allowances to trade CO_2 emission rights in the future (possible expenses connected with technology adjustments and emission rights).

POLITICAL RISK: Influence of the State Treasury
The State Treasury, which holds 31.79% of the share capital, can have substantial impact on many aspects of the Company's activities. Due to this shareholder, KGHM is under government's pressure. This may influence dividend policy and particular strategic plans(possible acquisitions and investments). However, strong position of main shareholder is a prevention from hostile takeovers, making them impossible. Additionally, in case of strong financial disturbances KGHM may be supported by cash injection from the government. Yet, there is still a possibility that it may sell its stake of KGHM's stocks.

POLITICAL RISK: extension of the mining concessions in Poland
In 2013 Company's mining concessions will expire. Since KGHM is the owner of the whole mining infrastructure it is almost certain that concessions from the Polish government will be granted. However, there is a risk that due to the current good condition of KGHM higher fees could be imposed.

Team disclosure:
We assign a BUY rating when a security is expected to deliver returns of 15% or greater over the next twelve months. A SELL rating is given when the security is expected to deliver negative returns over the next twelve months, while a HOLD rating implies flat returns over the next twelve months.

Appendix 1:Statement of financial position

BALANCE SHEET (PLN '000 000)	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
I. Fixed Assets	**9 509**	**12 125**	**11 697**	**21 490**	**25 220**	**28 495**	**31 503**	**33 542**	**34 523**
1. Intangible assets	76	87	151	150	150	150	150	150	150
2. PPE	5 938	6 551	7 278	7 818	8 840	9 644	10 317	10 869	10 468
3. PPE Projects	0	0	0	8 245	9 939	12 477	14 837	16 373	17 800
4. Long-term investments	3 218	5 041	4 015	4 853	5 865	5 803	5 763	5 716	5 670
5. Long-term receivables	110	87	84	106	109	105	120	116	117
6. Long-term deferred charges and accruals	167	360	168	316	316	316	316	316	316
II. Current Assets	**4 444**	**7 704**	**17 556**	**7 384**	**7 207**	**6 758**	**8 055**	**8 358**	**10 072**
1. Inventories	1 890	2 011	2 356	3 452	2 973	2 839	3 390	3 300	3 322
2. Short-term receivables	1 315	2 394	1 503	2 678	2 256	2 155	2 465	2 400	2 416
3. Cash & Cash equivalents	975	2 596	12 836	902	1 625	1 412	1 847	2 305	3 981
4. Short-term investments	264	703	862	353	353	353	353	353	353
ASSETS	**13 953**	**19 829**	**29 253**	**28 874**	**32 428**	**35 253**	**39 558**	**41 899**	**44 595**
Stockholders' Equity	**10 404**	**14 456**	**23 136**	**21 809**	**23 358**	**25 065**	**28 255**	**29 886**	**31 763**
I. Liabilities	**3 549**	**5 373**	**6 118**	**7 065**	**9 070**	**10 187**	**11 303**	**12 013**	**12 832**
Long-term liabilities	**1 704**	**2 380**	**2 250**	**3 912**	**5 018**	**6 129**	**6 757**	**7 388**	**8 031**
1. Long-term payables	17	14	12	47	48	45	50	49	49
2. Long-term loans	12	8	0	1 570	2 570	3 570	4 070	4 570	5 070
3. Long-term liabilities due to employee benefits	1 098	1 128	1 216	1 314	1 419	1 532	1 655	1 787	1 930
4. Other long-term liabilities	577	1 229	1 022	982	982	982	982	982	982
Short-term liabilities	**1 845**	**2 993**	**3 868**	**3 153**	**4 052**	**4 058**	**4 547**	**4 625**	**4 801**
1. Short-term payables	1 376	1 728	1 828	2 182	2 854	2 725	3 013	2 934	2 953
2. Short-term loans	6	3	0	5	5	5	5	5	5
3. Short-term liabilities due to employee benefits	93	93	107	107	116	125	135	146	158
4. Other short-term liabilities	369	1 169	1 933	858	1 077	1 203	1 393	1 541	1 685
EQUITY + LIABILITIES	**13 953**	**19 829**	**29 253**	**28 874**	**32 428**	**35 253**	**39 558**	**41 899**	**44 595**

Source: Team estimates

Appendix 2: Income statement

INCOME STATEMENT (PLN '000 000)	2 009	2 010	2 011	2012E	2013E	2014E	2015E	2016E	2017E
Revenues	**11 061**	**15 945**	**20 097**	**21 290**	**21 893**	**20 906**	**23 920**	**23 287**	**23 444**
COGS	7 127	8 617	9 878	13 448	14 232	13 403	14 372	13 973	14 000
Gross profit	3 933	7 328	10 220	7 842	7 661	7 503	9 548	9 315	9 443
Gross profit margin	*36%*	*46%*	*51%*	*37%*	*35%*	*36%*	*40%*	*40%*	*40%*
SG&A	736	671	856	927	953	910	1 041	1 014	1 021
Profit from sales	3 197	6 657	9 364	6 915	6 708	6 593	8 506	8 301	8 422
Other operating income	871	711	5 093	1 916	1 970	1 882	2 153	2 096	2 110
Other operating expenses	969	1 730	769	2 129	2 189	2 091	2 392	2 329	2 344
Operating profit (EBIT)	3 098	5 638	13 688	6 702	6 489	6 384	8 267	8 068	8 188
EBITDA	3 646	6 254	14 360	7 440	7 867	7 986	10 131	10 167	10 453
EBITDA margin	*33%*	*39%*	*71%*	*35%*	*36%*	*38%*	*42%*	*44%*	*45%*
D&A	548	615	672	737	1 378	1 602	1 864	2 100	2 265
%Capex	*47%*	*51%*	*46%*	*25%*	*34%*	*41%*	*48%*	*66%*	*99%*
Financial income	0	0	0	0	0	0	0	0	0
Financial expenses	32	33	34	168	247	307	345	374	405
EBT (loss)	3 067	5 606	13 654	6 534	6 242	6 077	7 922	7 694	7 783
TAX	526	1 037	2 319	1 544	1 609	1 535	1 937	1 879	1 890
actual tax rate	*17%*	*18%*	*17%*	*24%*	*26%*	*25%*	*24%*	*24%*	*24%*
Profit (loss) of minority shareholders	0	0	0	0	0	0	0	0	0
Net profit (loss)	**2 540**	**4 569**	**11 335**	**4 990**	**4 633**	**4 542**	**5 985**	**5 815**	**5 893**
margin	*23%*	*29%*	*56%*	*23%*	*21%*	*22%*	*25%*	*25%*	*25%*
Earnings Per Share PLN	13	23	57	25	23	23	30	29	29
Dividend per share	11,7	3,0	14,9	28,3	15,5	14,2	14,0	20,9	20,1
Payout ratio	*80%*	*24%*	*65%*	*50%*	*62%*	*61%*	*61%*	*70%*	*69%*

Source: Team estimates

Appendix 3: Statement of cash flows

STATEMENT OF CASH FLOW (PLN '000 000)	2 009	2 010	2 011	2012E	2013E	2014E	2015E	2016E	2017E
Net profit (loss)	2 540	4 569	11 335	4 990	4 633	4 542	5 985	5 815	5 893
D&A	548	615	672	737	1 378	1 602	1 864	2 100	2 265
Change in Net Working Capital	-622	-258	1 565	-1 917	1 573	107	-574	75	-19
Other	22	421	-4 804	381	466	516	584	607	640
CFO	**2 487**	**5 347**	**8 768**	**4 192**	**8 049**	**6 767**	**7 859**	**8 597**	**8 779**
CAPEX	-1 162	-1 217	-1 460	-2 983	-4 094	-3 943	-3 897	-3 188	-2 291
Interest received	6	5	12	0	0	0	0	0	0
Dividends received	455	147	277	57	57	57	57	57	57
Other investments	-246	-2 060	4 760	-7 415	-1 000	-1 000	-1 000	-1 000	-1 000
CFI	**-947**	**-3 125**	**3 590**	**-10 341**	**-5 036**	**-4 886**	**-4 840**	**-4 130**	**-3 233**
Interest paid	0	0	0	-122	-199	-261	-292	-323	-354
Share issues	0	0	0	0	0	0	0	0	0
Proceedings from borrowings	0	0	0	5	1 000	1 000	500	500	500
Debt paid	-4	-3	0	0	0	0	0	0	0
Dividends paid	-2 336	-600	-2 980	-5 668	-3 090	-2 833	-2 792	-4 185	-4 015
Other	-4	-3	-13	0	0	0	0	0	0
CFF	**-2 344**	**-606**	**-2 993**	**-5 785**	**-2 290**	**-2 094**	**-2 584**	**-4 009**	**-3 870**
Gains due to exchange rate differences in valuation of cash and cash equivalents	**-16**	**5**	**876**	**0**	**0**	**0**	**0**	**0**	**0**
Change in cash	-819	1 620	10 241	-11 934	724	-214	435	458	1 676
Beginning balance of cash	1 794	975	2 596	12 836	902	1 625	1 412	1 847	2 305
Ending balance of cash	975	2 596	12 836	902	1 625	1 412	1 847	2 305	3 981

Source: Team estimates

Appendix 4: Key Financial Ratios

Key Financial Ratios	2009	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
Liquidity Ratios									
Current Ratio	2.41	2.57	4.54	2.34	1.78	1.67	1.77	1.81	2.10
Quick Ratio	1.38	1.90	3.93	1.25	1.05	0.97	1.03	1.09	1.41
Cash Ratio	0.53	0.87	3.32	0.29	0.40	0.35	0.41	0.50	0.83
Efficiency Ratios									
Total Asset Turnover	0.79	0.94	0.82	0.73	0.71	0.62	0.64	0.57	0.54
Fixed Asset Turnover	1.21	1.47	1.69	1.28	0.94	0.78	0.80	0.72	0.69
NWC Turnover	3.62	4.36	2.18	2.38	5.93	7.14	7.71	6.43	5.21
ACC Receivable Turnover	8.72	8.60	10.31	10.18	8.87	9.48	10.35	9.57	9.74
Days Of Sales Outstanding	41.86	42.45	35.39	35.84	41.13	38.51	35.25	38.13	37.49
Inventory Turnover	6.63	8.17	9.20	7.33	6.81	7.19	7.68	6.96	7.08
Days Of Inventory On Hand	55.06	44.66	39.66	49.79	53.56	50.73	47.52	52.43	51.56
Payables Turnover	5.31	5.63	5.75	6.44	4.53	4.02	4.57	4.08	4.19
Number of days of payables	68.75	64.83	63.48	56.68	80.54	90.74	79.91	89.44	87.15
Cash Conversion Cycle	28.17	22.28	11.57	28.94	14.15	-1.50	2.87	1.12	1.90
Profitability Ratios									
Gross Profit Margin	36%	46%	51%	37%	35%	36%	40%	40%	40%
EBIT Margin	28%	35%	68%	31%	30%	31%	35%	35%	35%
EBITDA Margin	33%	39%	71%	35%	36%	38%	42%	44%	45%
Net Profit Margin	23%	29%	56%	23%	21%	22%	25%	25%	25%
ROA	18%	27%	46%	17%	15%	13%	16%	14%	14%
ROE	24%	37%	60%	22%	21%	19%	22%	20%	19%
Solvency Ratios									
Debt Ratio	0.13%	0.06%	0.00%	5.45%	7.94%	10.14%	10.30%	10.92%	11.38%
Debt to Equity Ratio	0.17%	0.08%	0.00%	7.22%	11.02%	14.26%	14.42%	15.31%	15.98%
Financial Leverage	1.33	1.36	1.31	1.29	1.36	1.40	1.40	1.40	1.40
Interest Coverage Ratio	14 467	82 284	1 305 455	61.00	39.44	30.54	34.64	31.43	29.49
Cash Flow Ratios									
Internal financing of CAPEX (CFO/CAPEX)	214%	439%	601%	141%	197%	172%	202%	270%	383%
Overall Ratio of cash sufficiency[5]	0.71	2.94	1.98	0.48	1.12	1.00	1.17	1.17	1.39
CFO/(NI+D&A+ΔNWC)	1.01	1.09	0.65	1.10	1.06	1.08	1.08	1.08	1.08
Cash sales performance	0.22	0.34	0.44	0.20	0.37	0.32	0.33	0.37	0.37

Source: Team estimates

[5] CFO/(Dividend payments + Debt Repayments + Fixed Assets Investments)

Appendix 5: DCF analysis

	2012E	2013E	2014E	2015E	2016E	2017E	Residual
RFR	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%	3.4%
ERP	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
CRP	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Beta	1.94	1.89	1.79	1.50	1.47	1.43	1.39
Cost of equity	**16.0%**	**15.7%**	**15.1%**	**13.2%**	**13.0%**	**12.7%**	**12.5%**
Cost of debt	6.2%	6.2%	6.2%	6.2%	6.2%	6.2%	6.2%
Marginal tax rate	20.2%	20.2%	20.2%	21.2%	21.2%	21.2%	21.2%
After-tax cost of debt	**4.9%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**	**4.9%**
Weight of equity	93%	90%	88%	87%	87%	86%	86%
Weight of debt	7%	10%	12%	13%	13%	14%	14%
WACC	**15.3%**	**14.7%**	**13.8%**	**12.1%**	**11.9%**	**11.6%**	**11.5%**

(PLN mn)	2012E	2013E	2014E	2015E	2016E	2017E	Residual
NI	4 990	4 633	4 542	5 985	5 815	5 893	5 893
Interest expenses (1-marginal tax rate)	99	162	212	237	262	287	287
D&A	737	1 378	1 602	1 864	2 100	2 265	2 265
Change in NWC	-1 917	1 573	107	-574	75	-19	-19
CAPEX	2 983	4 094	3 943	3 897	3 188	2 291	2 291
FCFF	677	3 401	2 269	3 365	4 814	5 885	5 885

terminal growth rate	**1%**
Perpetuity WACC	11.5%
PLN mn	
Residual value	56 545
PV of residual value	35 454
PV of FCFF	15 091
Enterprise value	**50 545**
Net debt	949
Value of equity	**49 596**
Number of shares (mn)	200
Price at the end of 2013	**248.0**
Price at 1st March 2013	**223.8**

Source: Team estimates

Appendix 6: Multipliers pricing

P/E	2007	2008	2009	2010	2011	2012E	2013E	2014E
FCX	13.6	3.3	13.3	13.0	7.6	11.1	7.6	7.86
SCCO	13.9	10.0	30.2	26.6	10.9	15.8	14.9	13.88
ANTO	10.1	3.6	23.7	23.6	15.0	15.7	14.4	13.42
FM	11.3	2.8	13.4	126.3	16.7	18.0	13.6	10.93
KAZ	9.0	2.0	14.9	9.7	5.5	10.0	9.2	9.1
Median P/E for each year	11.3	3.3	14.9	18.3	10.9	15.7		
KGHM P/E	**5.4**	**2.0**	**9.1**	**7.5**	**2.0**	**7.5**		
Historical Discount	-52%	-38%	-39%	-59%	-82%	-52%		
MEDIAN of historical discount: (2007-2012)			**-52%**					

EV/ EBITDA	2007	2008	2009	2010	2011	2012E	2013E	2014E
FCX	6.4	3.4	5.5	5.9	3.6	5.2	3.5	3.41
SCCO	8.1	5.7	15.8	14.3	6.8	9.4	8.9	8.31
ANTO	4.6	2.5	9.2	8.6	5.4	5.8	5.7	5.1
FM	6.6	1.9	5.3	7.6	7.5	8.7	6.5	4.8
KAZ	5.6	1.8	21.3	9.9	5.3	6.6	6.0	6.05
Median EV/EBITDA for each year	6.4	2.5	9.2	8.6	5.4	6.6		
KGHM EV/EBITDA	**3.4**	**1.0**	**5.2**	**4.3**	**0.9**	**4.5**		
Historical Discount	-47%	-58%	-44%	-50%	-83%	-32%		
MEDIAN of historical discount (2007-2012E)			**-50%**					

	2013E	2014E		2013E	2014E
P/E peers median	13.6	10.9	EV/EBITDA peers	6.0	5.1
Applied discount	**-25%**	**-20%**	**Applied discount**	**-25%**	**-20%**
Target P/E	10.25	8.8	Target EV/EBITDA	4.56	4.11
EPS	23	23	EBITDA	7 867	7 936
			Cash	1 625	1 412
			ST Investments	353	353
			Debt	2 575	3 575
			Value of Equity (PLN bn)	35.3	31
Price from P/E	**237.3**	**199.8**	**Price from EV/EBITDA**	**176.4**	**154.9**
Weights for years	50%	50%		50%	50%
Weights for multipliers	50%			50%	

Price from relative valuation	**192.1**	
Weight of relative valuation	50%	
Price from DCF	**248.0**	
Weight of DCF	50%	
Price per share (end of 2013)	**220.0**	**+18.6% UPSIDE POTENTIAL**
Price per share (1 Mar 2013)	208.0	

Source: Team estimates, Bloomberg

Appendix 7: DCF assumptions

1. Volume of production

22% of Cu is from scrap (based on historical averages and Company data). Amount of ore extracted in Poland is increasing, but the copper and silver content in the ore is decreasing. Thus the final result will be the same amount of copper and silver for sale (based on Company data).

2. Cu, Ag price

	2012E	2013E	2014E	2015E	2016E	2017E	LT
Cu price USD/t	7 962	7 800	7 400	7 000	6 900	6 800	6 900
Ag price USD/troz	31.14	31	29.5	28	27.68	26.5	25
PLN/USD	3.30	3.23	3.14	3.10	3.06	3.05	3.05

Source: Team estimates based on World Bank Commodity Price Forecast (January 15. 2013), exchange rate from EMIS database (based on a analysts' consensus)

3. Cost of goods sold

Cost of goods sold are projected as share of revenues. For years 2012E-2014E we utilized historical stable level. However, after extraction starts in Sierra Gorda in 2015E, COGS are forecast to decrease. This situation is justified by changing C1 cost (cash cost connected with extraction). New mines include not only underground type, but also cheaper to explore open pit mines). According to Company data, KGHM Group C1 cost shall decline by 20% till 2018.

4. Weighted Cost of Capital

Risk free rate	10-year Polish government bond (3.44%)
Beta	Falling from 1.94 in 2012 (KGHM changes in price in USD regressed against changes in MSCI World Index) to 1.39 in residual value calculation (the average value of metal mining sector based on A. Damodaran data)
Market risk premium	5%
Country risk premium	1.5% based on A. Damodaran' s calculation
Cost of debt	Value stated at 6.2%. This factor was estimated using Company data from financial statements. KGHM states its possible cost of loans as WIBOR + 1-4 p.points. Currently, as Company has no debt we calculated the cost of debt on possible loans as the middle value of the range. The upper value of the range if approx. equal to median cost of debt for peers, but we believe that such a high value is not justified since KGHM will only start to get indebted and value of debt will not be significantly high.
Marginal tax rate	Tax rate weighted by the amount of EBT from the particular country (Canada, Chile, Poland). In Chile and Canada in districts where KGHM operates or plans to operate the tax rate is equal to 25%. In Poland the rate differs, because in order to calculate tax, MET needs to be added to EBT. Before the introduction of MET, median effective tax rate in years 2007-2011 was approximately 17%.
Capital structure	**During years 2012E-2017E:** actual capital structure, which approaches target weights. KGHM is going to incur debt in order to finance new projects and possibly to enable even higher than anticipated dividends (possible scenario if Polish government has problems with budget deficit). **In residual value:** target capital structure, based on median average structure of peers. KGHM will gradually incur new debt in 2013E-2017E, approaching peer debt structure.

Source: Team estimations

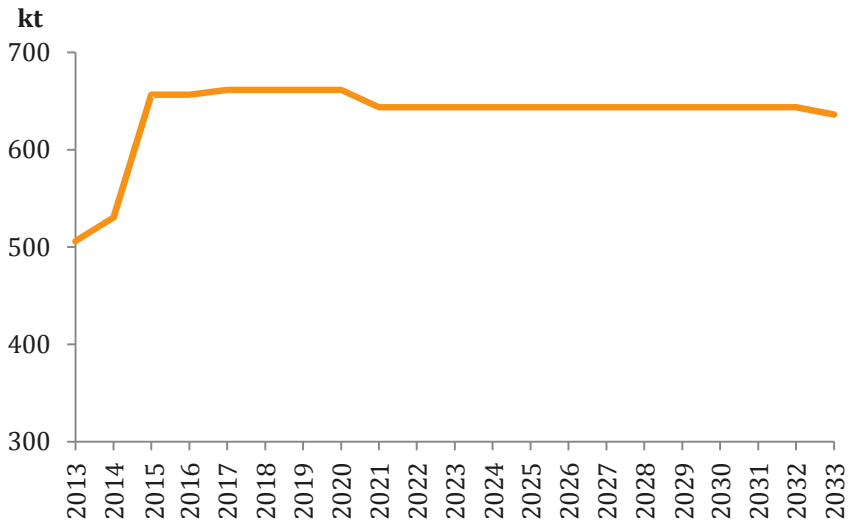
5. Dividend policy

Net profit (mn PLN)	scale of dividend payout	MIN	MAX
up to 700	no dividend		
700 - 1 700	200 + 50% of amount over 700	200	700
1 700 - 3 700	700 + 60% of amount over 1 700	700	1 900
over 3 700	1 900 + 100% of amount over 3 700	1 900	unlimited

Source: Company data

6. New acquisitions or joint venture investments assumed in years 2015E-2017E in order to provide 700kt Cu in the long run (KGHM strategy)

Annual Cu production (KGHM +KGHM International) without new acquisitions



Source: Company data, Team estimates

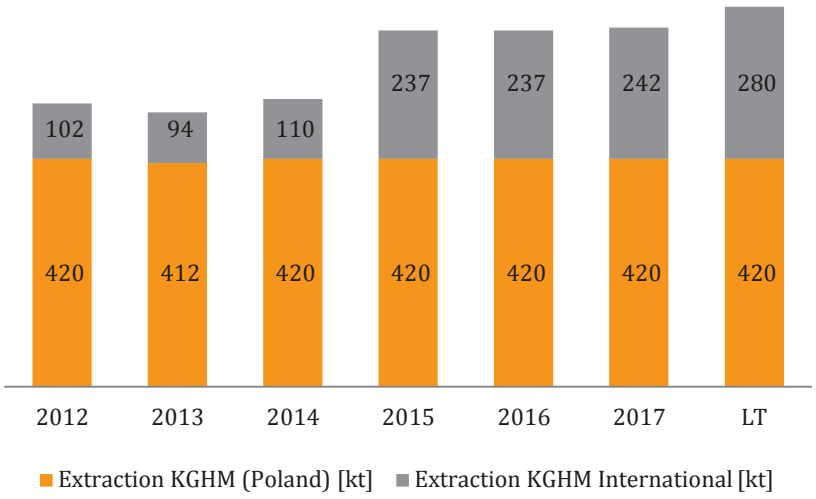
7. Other

TAX	Weighted by production from particular country (rate in Poland: 19%, rate in Chile and Canada: 25%)
Inflation	2.5% anchored by the National Bank of Poland
Depreciation & Amortization	Line depreciation based on historical rate in KGHM and KGHM International

Source: Company data

Appendix 8: Extraction volume

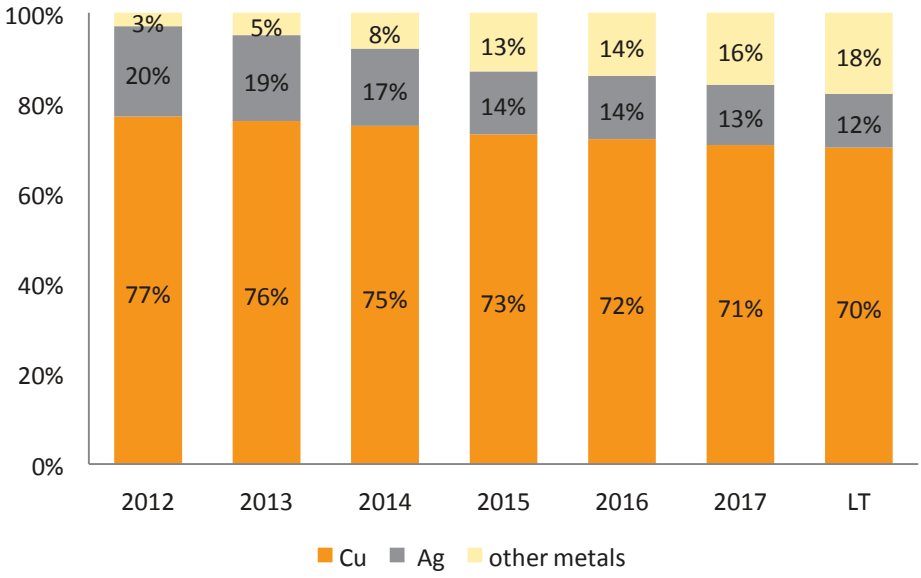
There will be furnace repairment in the Głogów smelter in 2013. We forecast this will cause 5.5% drop in the production.



Source: Company data, Team estimates

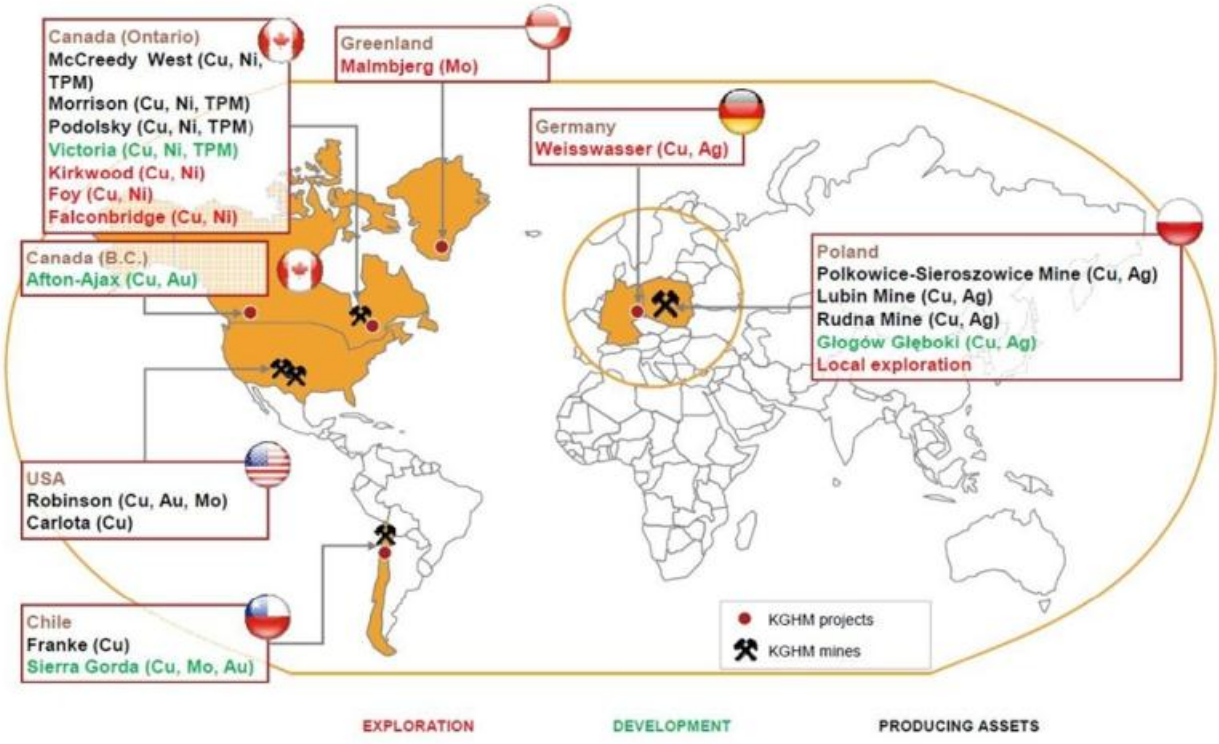
Appendix 9: Estimated revenues structure changes

Changing structure of revenues due to the different type of ore in Canadian and Chilean open pits mines (higher amount of other metals). Additionally, silver price is going to decrease in the nearest years according to the World Bank's forecast.



Source: Company data, Team estimates

Appendix 10: KGHM & KGHM International global mines portfolio



Source: Company data

Appendix 11: Operating mines

		KGHM			KGHM International					
		Lubin	Polkowice-Sieroszowice	Rudna	Robinson	Franke	Morrison	McCreedy West	Carlota	Podolsky
LoM (years)		47	32	24	48	22	8	4	1	0
Location		Poland	Poland	Poland	USA	Chile	Canada	Canada	USA	Canada
Mine type		under-ground	underground	under-ground	open-pit	open-pit	under-ground	under-ground	open-pit	under-ground
Mineral reserves	ore (mn t)	324	369	246	110	35	0.91	0.23	41	0.46
	Cu (%)	1	1.87	1.6	0.5	0.76	8.28	0.24	0.47	3.34
	Ag (g/t)	43	46	45	-	-	-	-	-	-
	Au (g/t)	-	-	-	0.18	-	0.81	-	-	0.69
	Ni (%)	-	-	-	-	-	1.61	1.89	-	0.29
	PGM (g/t)	-	-	-	-	-	6.09	-	-	2.74
2011 Cu production (000' t)		70	195	162	43	15	18	2	11	11

Source: Company data

Appendix 12: Greenfield projects

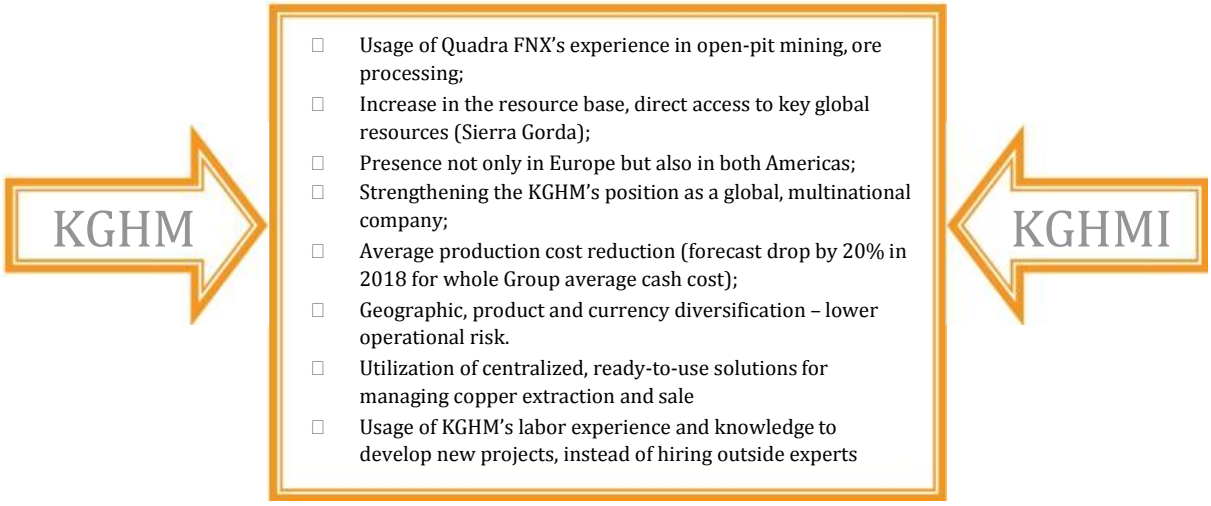
	KGHM	KGHM International	
	Afton-Ajax	Sierra Gorda	Victoria
Start of production	2015E	2014E	2016E/2017E (full production by 2020E)
Life of Mine (LoM)	23 years	20 years	16 years
Location	Canada	Chile	Canada
Mine type	open-pit	open-pit	underground
Joint Venture partner	Abacus Mining & Exploration Corp	Sumitomo	-
Stake in project	80% KGHM 20% Abacus	55% KGHM International 45% Sumitomo	100% KGHM International
Mineral reserves	~ 512 mn t ore 0.31% cuprum 0.19 g/t gold	~ 1.274.8 mn t ore 0.39% cuprum 0.024% molybdenum	~14.5 mn t* 2.5% cuprum 2.5% nickel 7.6g/t TPM (total precious metals)
Average year production	50 000 t cuprum 100 000 oz gold	230 000 t cuprum 11 000 t molybdenum 2 t gold	15 000 t cuprum 16 000 t nickel
C1 cash cost	1.28$/lbs	0.56$/lbs (years 1-5) and 1.15$/lbs (LOM)	n/a
Initial CAPEX	795 mn USD	2 877 mn USD (<2014E) 818 mn USD (expansion capital 2015E-2017E)	804 mn USD
Sustaining CAPEX (over LoM)	604 mn USD	1 038 mn USD	n/a
Status	after Bankable Feasibility Study (12/2011)	after Bankable Feasibility Study (05/2011)	after Preliminary Economic Analysis (06/2011)

* Mineral reserves will be estimated at feasibility study; amounts refer to mineral resources

Source: Company data

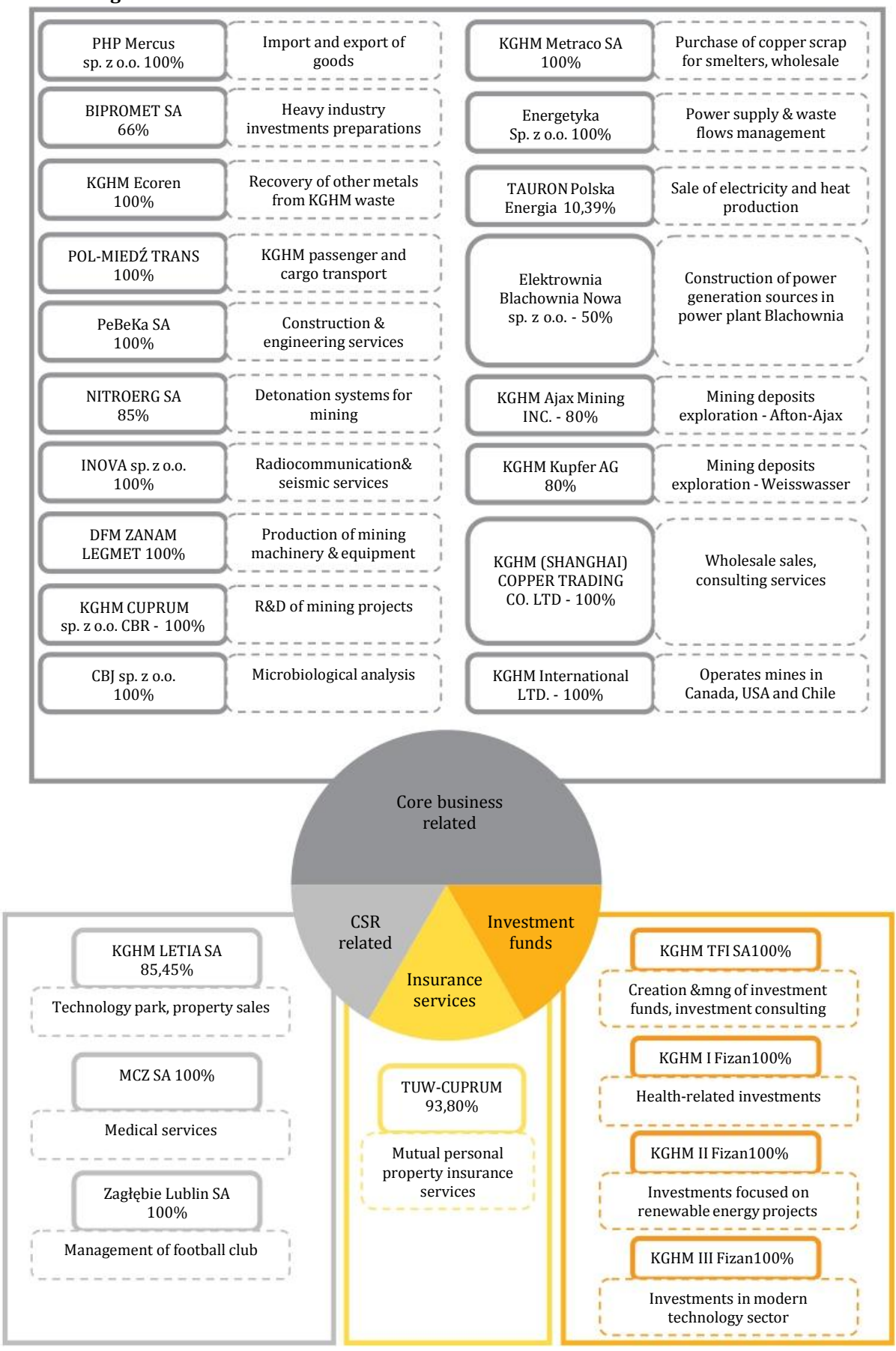
Appendix 13: KGHM and KGHM International cooperation potential

Synergies between KGHM and KGHM International will appear mostly due to best practice sharing and scale effect:



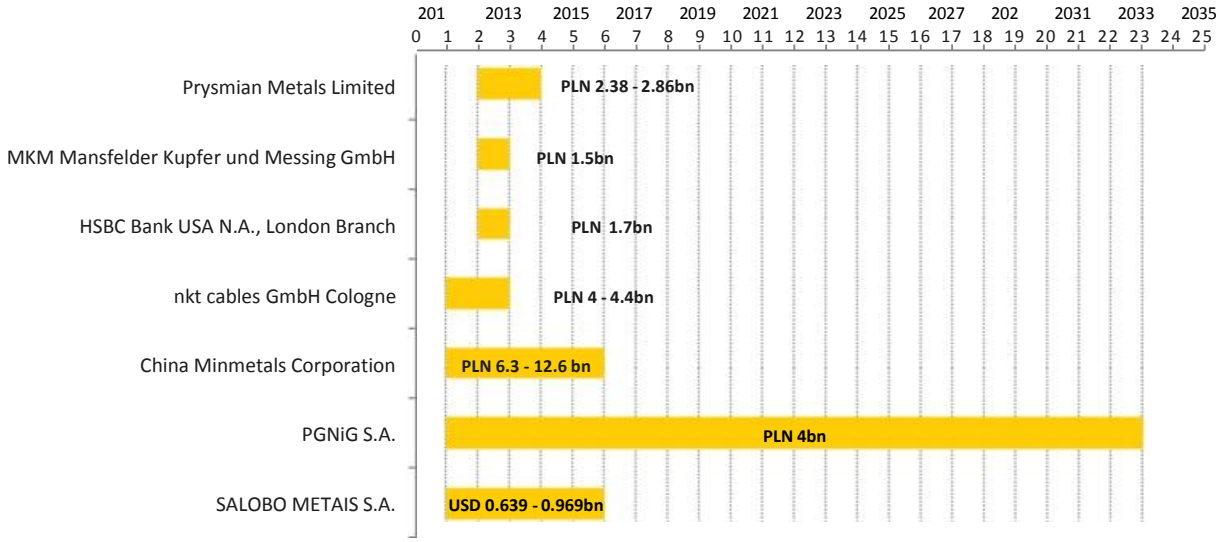
Source: Team estimates

Appendix 14: Organization structure



Source: Company data

Appendix 15: Long-term contracts



Source: Company data

Date of contract	Contractor	Term of the contract	Subject	Value
31.01.2013	Prysmian Metals Limited	2013-2014	copper rod sale	2.38 - 2.86 bn PLN*
28.01.2013	MKM Mansfelder Kupfer und Messing GmbH	2013	copper cathode sale	1.5 bn PLN
21.01.2013	HSBC Bank USA N.A., London Branch	2013	silver sale	1.7 bn PLN
15.06.2011	nkt cables GmbH Cologne	2012-2013	copper rod sale	4 - 4.4 bn PLN*
20.12.2011	China Minmetals Corporation	2012-2016	copper cathode sale	6.3 - 12.6 bn PLN*
30.07.2010	PGNiG S.A.	2012-2033	supply of natural gas	4 bn PLN
29.05.2009	SALOBO METAIS S.A.	2012-2016	copper concentrate purchase	0.639 - 0. 969 bn USD*

*depending on the use of quantitative options

Source: Company data

Appendix 16: Mineral Extraction Tax (MET)

On the 2nd of March 2012, Polish government introduced new tax on companies that extract copper and silver in Poland – mineral extraction tax. It came into legal effect in mid-April 2012. From that time KGHM has been obliged to pay monthly payments of MET, based on current extraction and market prices of copper and silver. Mineral extraction tax is included in costs of goods sold (COGS), therefore immediately affecting gross profit. Additionally, MET is not tax deductible, resulting in different calculation of corporate income taxes than in previous years. Effective tax rate rose in 2012E comparing to 2011 from 17% to 23.63%. Value of MET for each month consists of tax on copper and tax on silver. Tax on copper is calculated as quantity of extracted copper in concentrate (or ore) multiplied by copper price rate. Tax on silver is calculated as quantity of extracted silver in concentrate (or ore) multiplied by silver price rate. Formulas for copper and silver price rates are shown in the tables below.

MET formula for copper price rate per tonne.

Copper price (PLN)	<= 15 000	>15 000
Copper price rate	The higher of:	The lower of:
	0.005 x copper price*	PLN 16 000
	0.44 x (copper price – PLN 12 000)	0.033 x copper price + (0.001 x copper price)$_{2,5}$

*copper price is based on the monthly average of daily official settlement prices of copper on London Metal Exchange and monthly average exchange rate published by Polish central bank (NBP). Additionally, all formulas (expect for constant value of PLN 16 000) are adjusted upward in every calendar year by the rate of inflation. However, if inflation turns out to be negative, no downward adjustment in possible.

Source: Company data

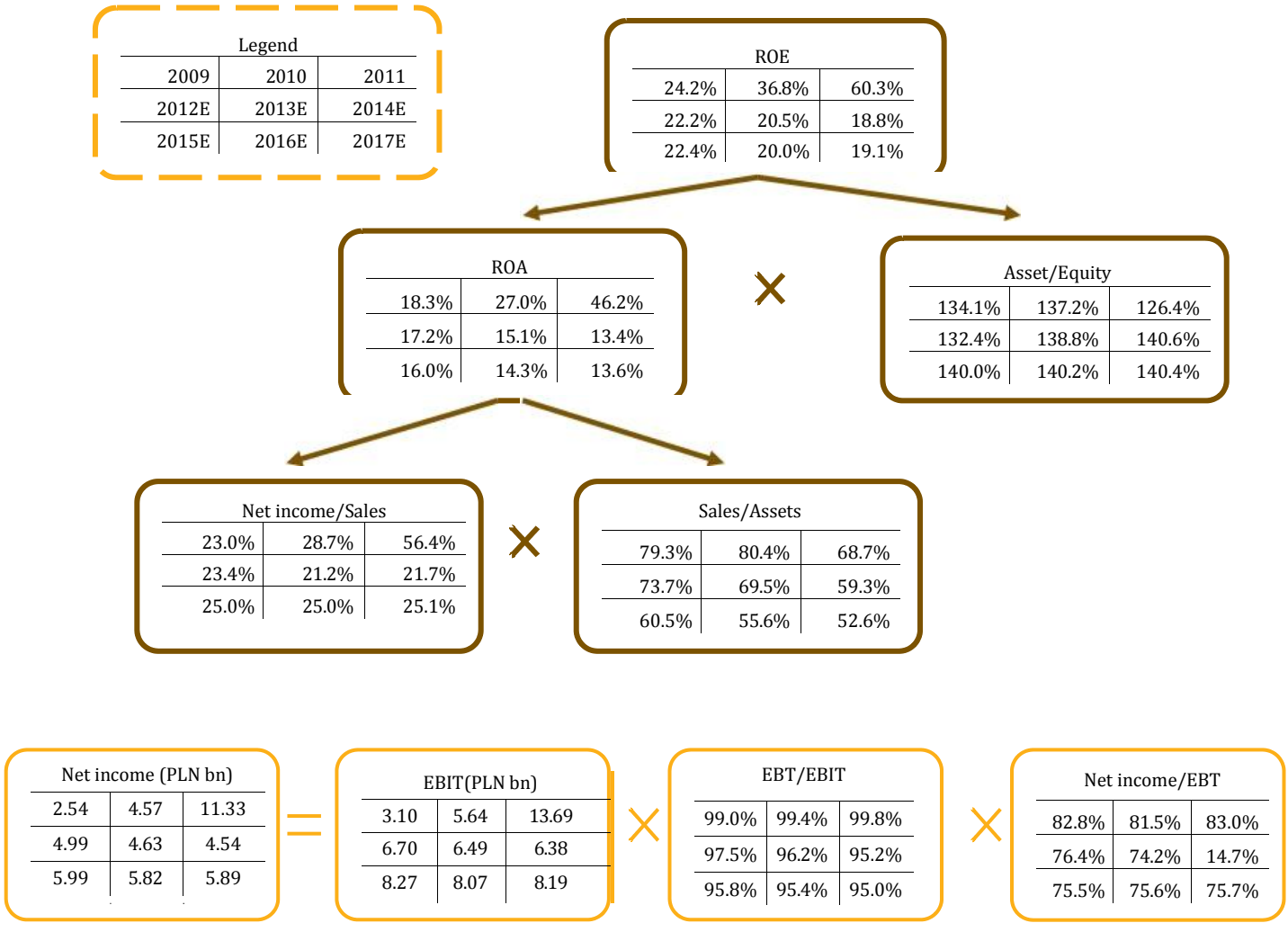
MET formula for silver price rate per kilogram.

Silver price (PLN)	<= 1 200	>1 200
silver price rate	The higher of:	The lower of:
	0.005 x silver price*	0.125 x silver price x (0.001 x silver price)4
	0.75 x (silver price – PLN 1 000)	PLN 2 100

*silver price is based on the monthly average of daily official settlement prices of silver established by London Bullion Market Association and monthly average exchange rate published by Polish central bank (NBP). It is assumed that 1 kilogram is equivalent to 32.15 troz. Additionally, all formulas (expect for constant value of PLN 2 100) are adjusted upward in every calendar year by the rate of inflation. However, if inflation turns out to be negative, no downward adjustment in possible.

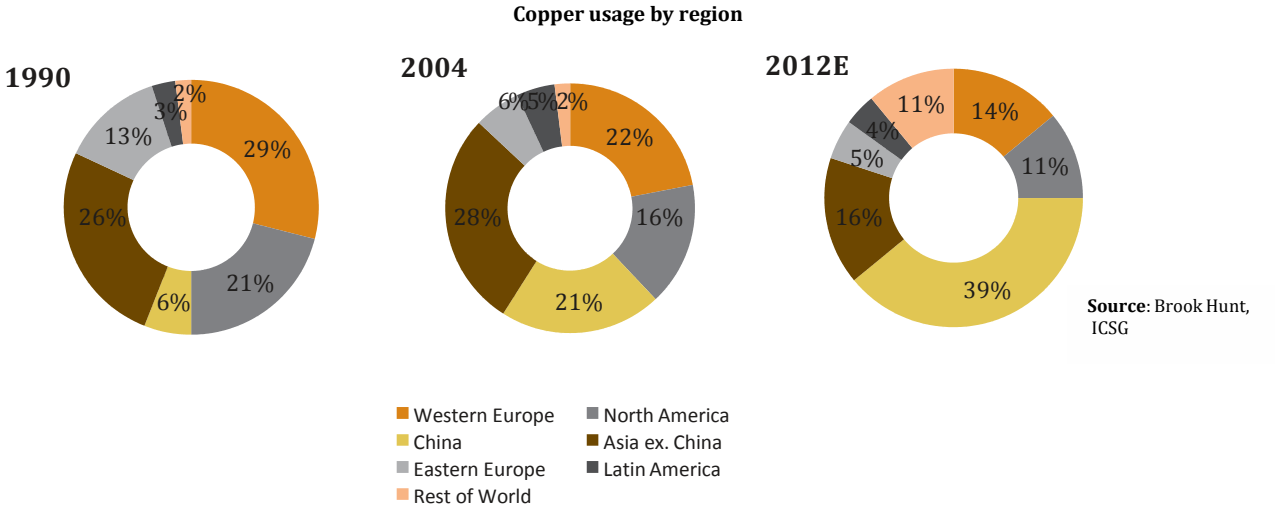
Source: Company data

Appendix 17: DuPont analysis



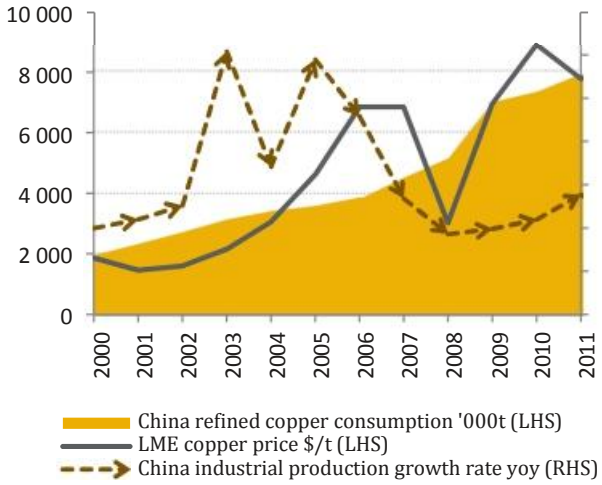
Source: Company data, Team estimates

Appendix 18: Copper consumption– the change in favour of Asia



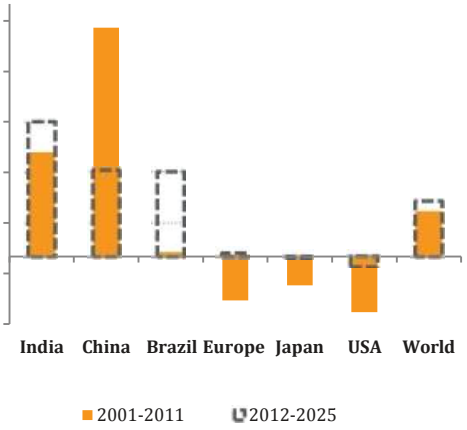
Source: Brook Hunt, ICSG

Chinese copper consumption driven by positive industrial growth rate



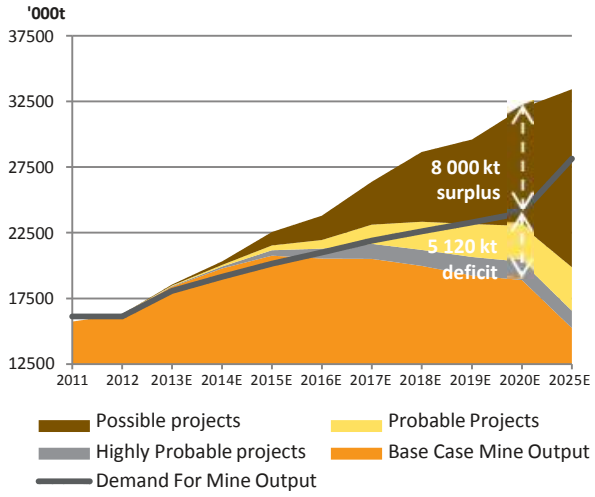
Source: COCHILCO

Refined copper consumption annual growth rate

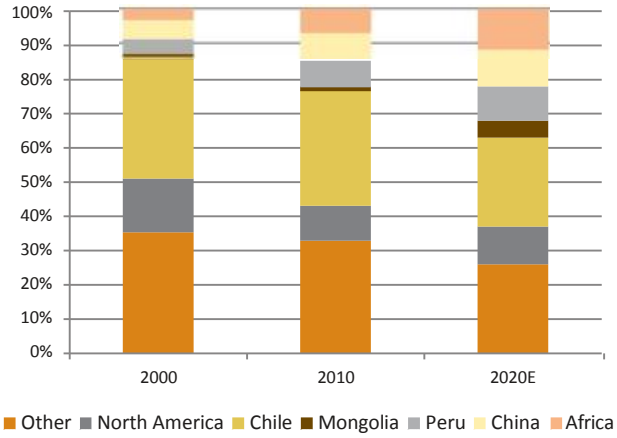


Source: Standard Bank, CIA World Factbook, Reuters

Appendix 19: High copper prices – impulse for new mining projects, new localisations



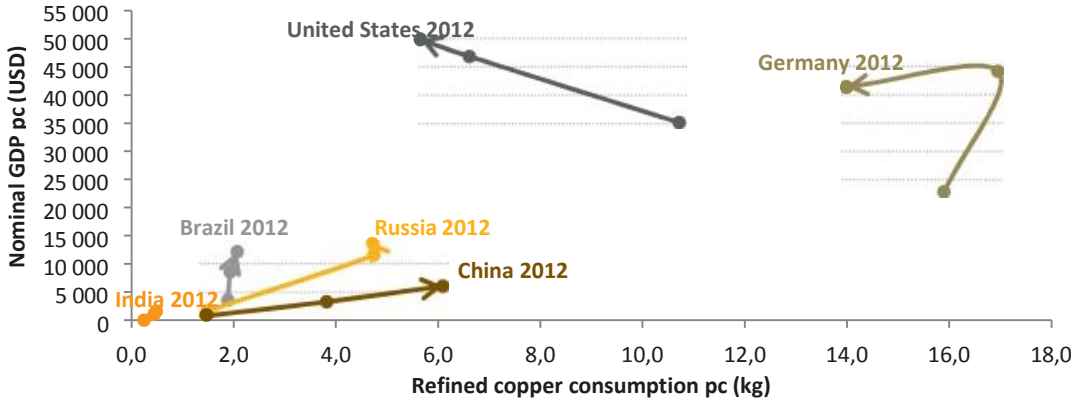
Source: Wood Mackenzie



Source: Copper Development Association, Rio Tinto

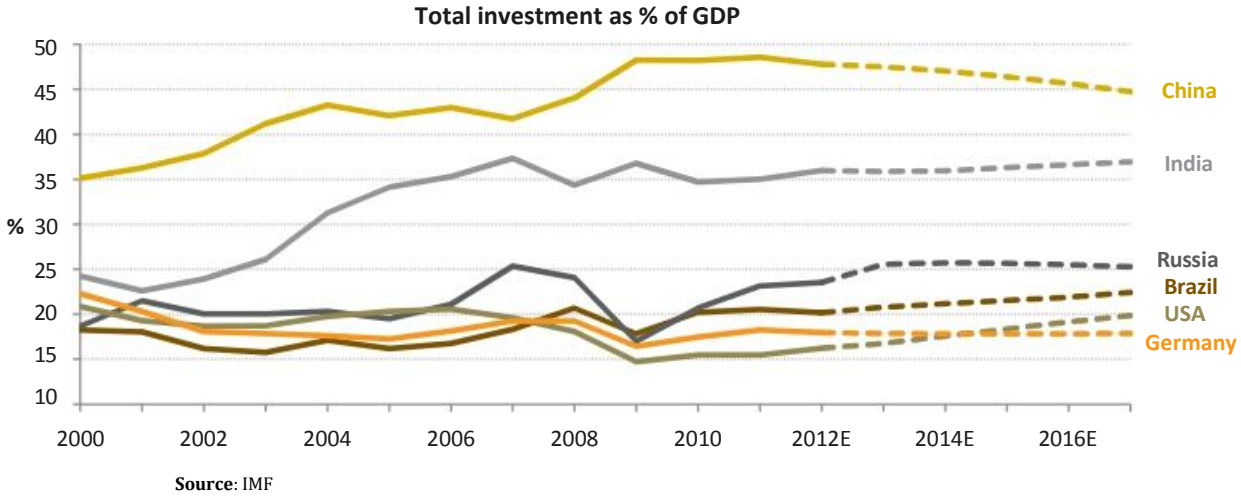
Appendix 20: Potential for copper consumption growth in China and India

1) Refined copper consumption per capita (2000, 2008, 2012)

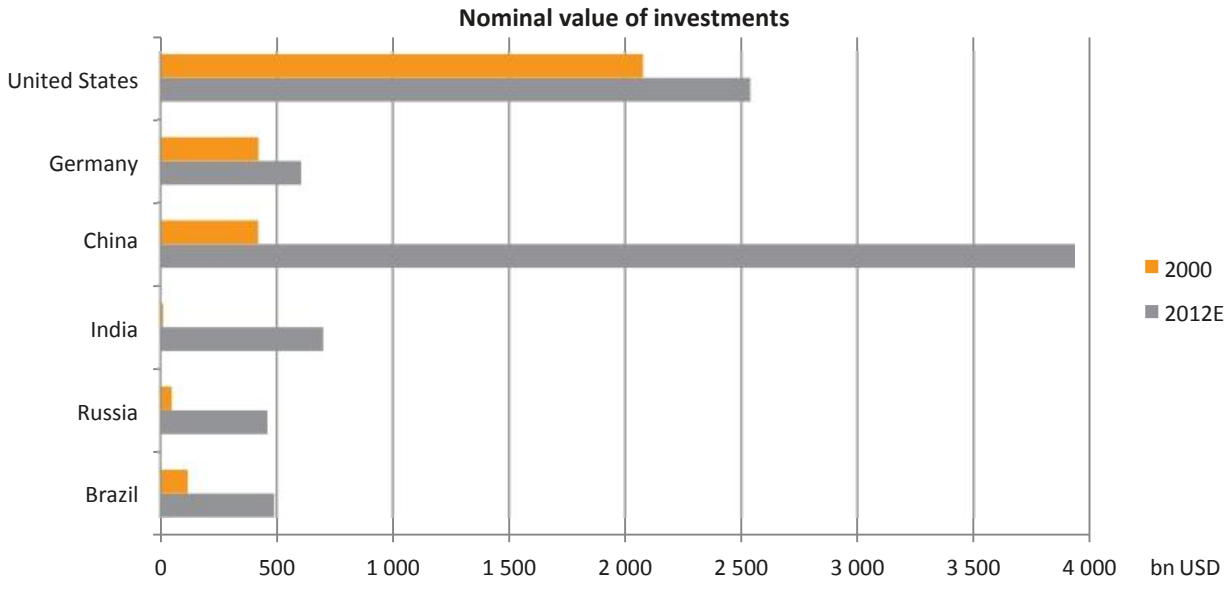


Source: ICSG, IMF, CIA World Factbook

2) Level of investments



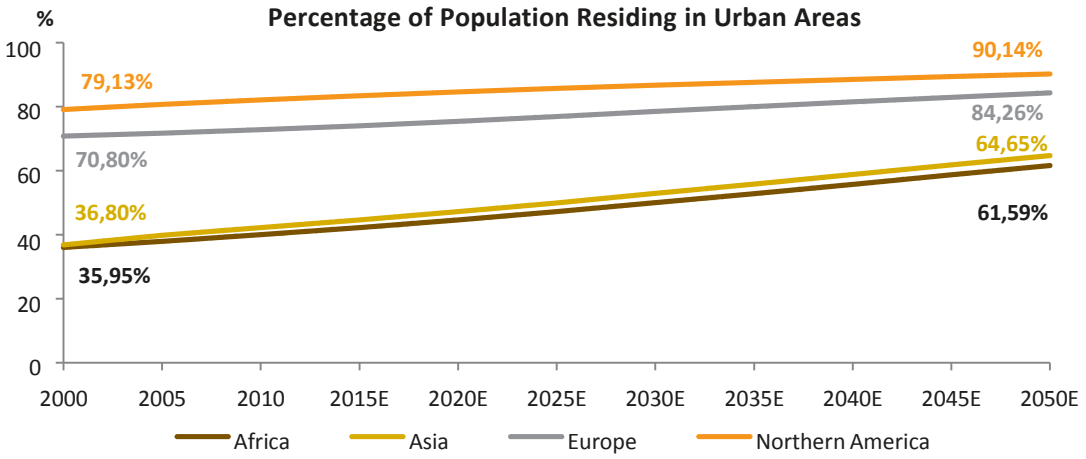
Source: IMF

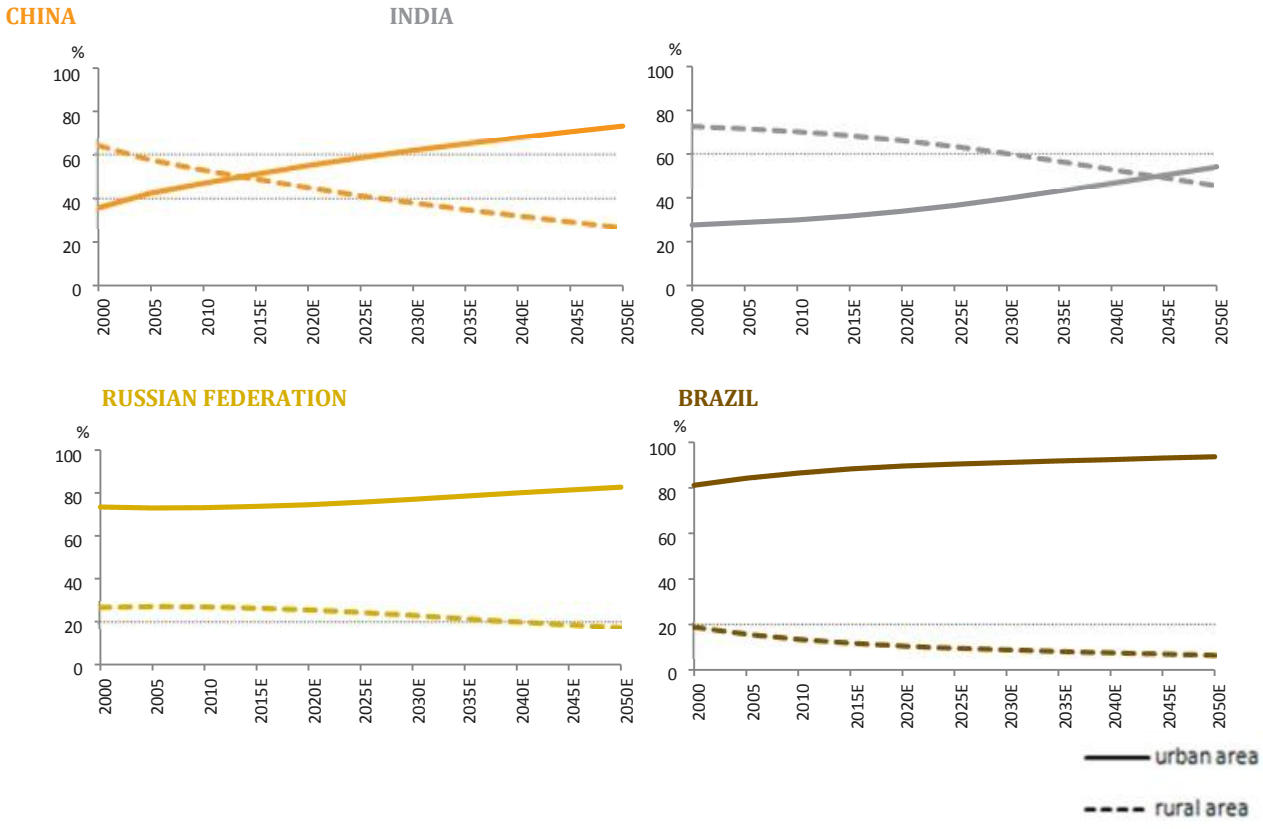


Source: IMF

3) Urbanisation

Urbanisation level both in China and India remains below the world average (51%) as contrary to those countries' GDP growth rate. Due to high urban sector contribution to GDP (60%), further urbanisation became a key point in current countries' Five-Year Plans. China set a target of building 36mn apartments by 2015E (20% country's housing market) and in September 2012 approved 55 investment projects worth $157.7bn which may become a buffer for future global copper demand. Between 2000-2012 India has shown the highest increase of nominal value of investments among BRIC countries. Country is expected to increase urban area from 30% to 50% before 2045 starting from infrastructure projects included in Eleventh Five-Year Plan.

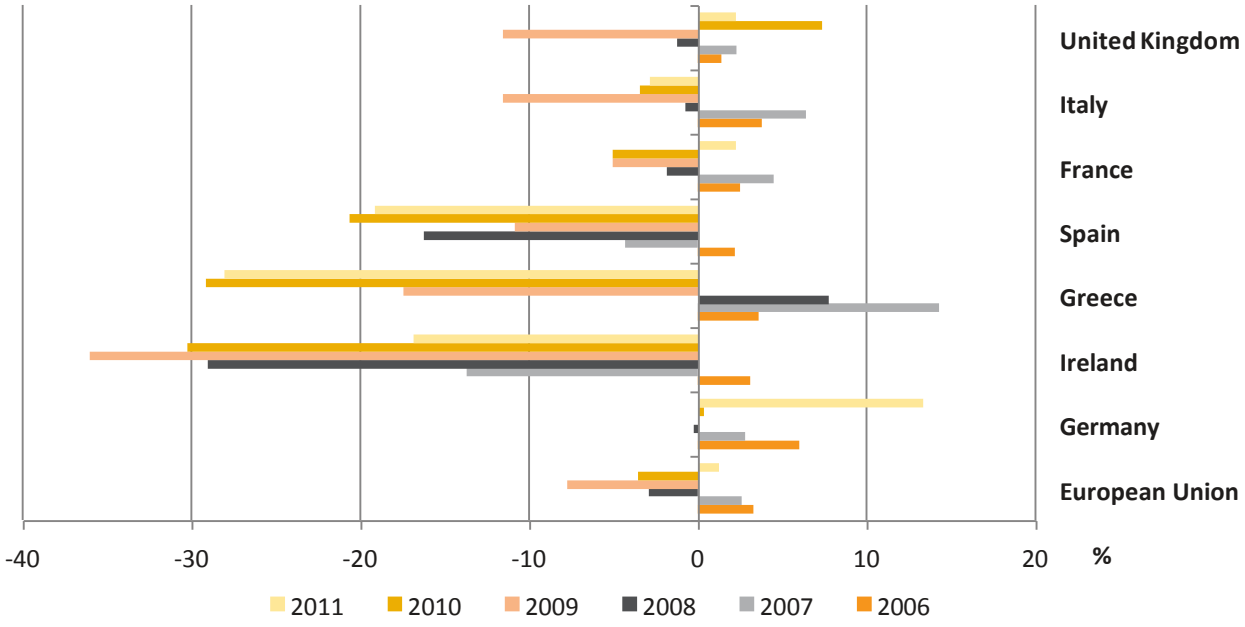




Source: United Nations data

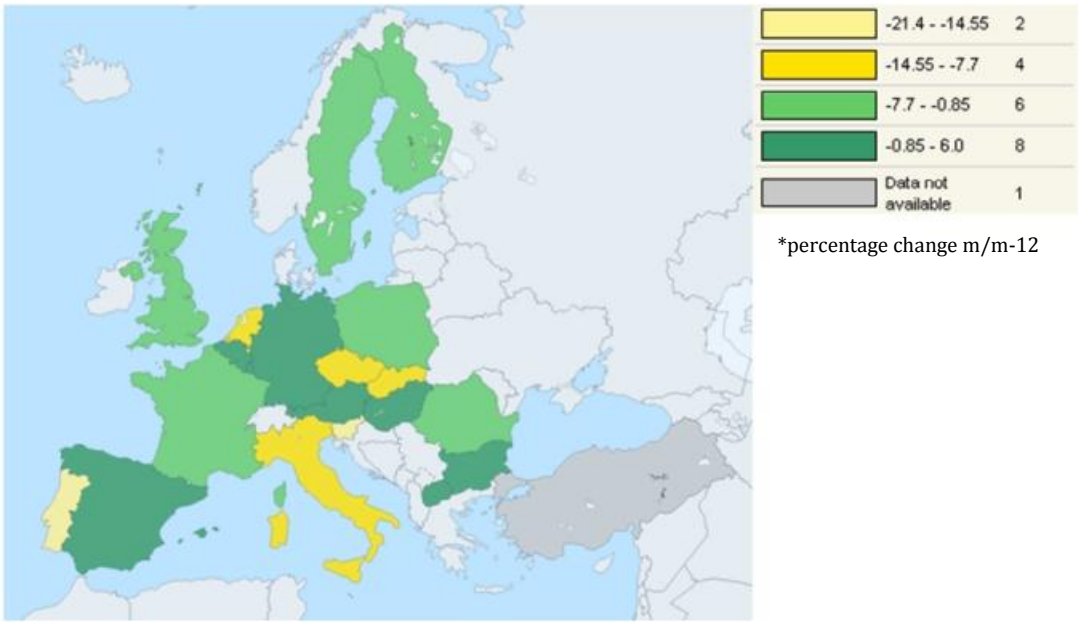
Appendix 21: European construction sector crisis

Construction production index (% change compared to corresponding period of the previous year):



Source: Eurostat

According to last reported data (October 2012) the improvement is not observed:



*percentage change m/m-12

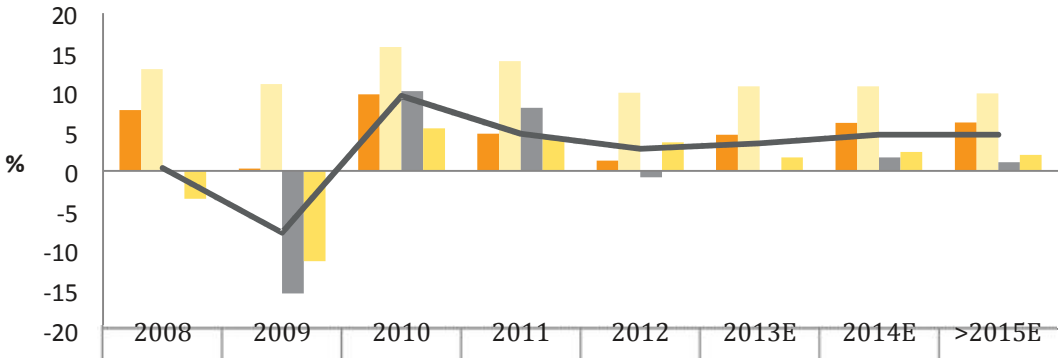
Source: Eurostat

Appendix 22: GDP and industrial production growth rate

GDP growth rate	2010	2011	2012E	2013E	2014E	2015E	2016E	2017E
United States	2.391	1.808	2.17	2.116	2.937	3.357	3.41	3.329
China	10.447	9.237	7.828	8.231	8.514	8.544	8.535	8.5
Russia	4.3	4.3	3.698	3.823	3.88	3.9	3.84	3.8
Brazil	7.534	2.733	1.474	3.952	4.197	4.203	4.109	4.138
India	10.092	6.836	4.86	5.971	6.389	6.744	6.885	6.946
Poland	3.871	4.315	2.35	2.05	2.716	3.108	3.428	3.563
EU	2.055	1.594	-0.207	0.492	1.534	1.914	2.021	2.055
World	**5.137**	**3.833**	**3.278**	**3.620**	**4.146**	**4.418**	**4.510**	**4.560**

Source: IMF

Industrial production (% change over previous year)

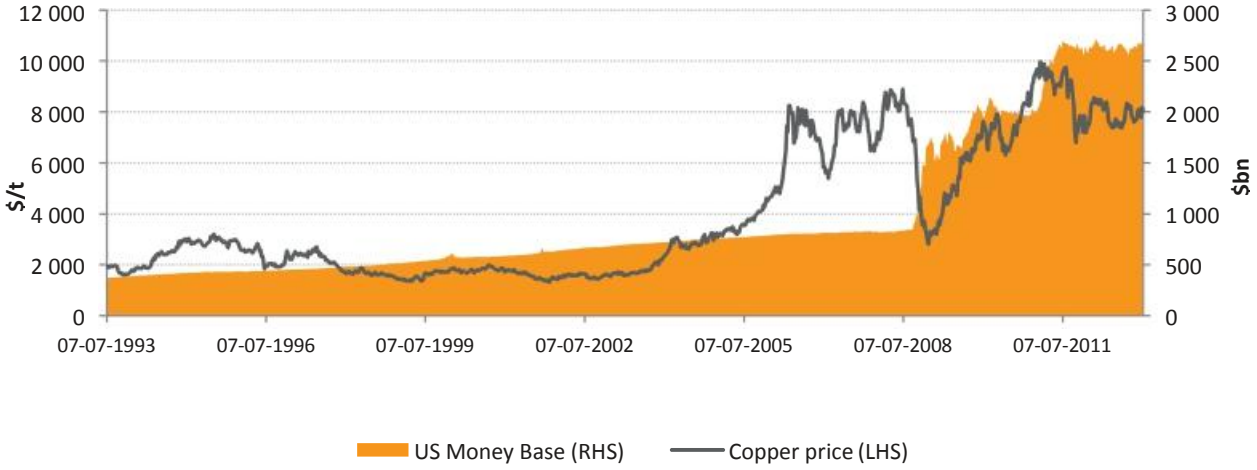


	2008	2009	2010	2011	2012	2013E	2014E	>2015E
India	7,7	0,3	9,7	4,7	1,3	4,6	6,1	6,1
China	12,9	11	15,7	13,9	9,9	10,7	10,7	9,8
Germany	0	-15,5	10,1	8	-0,8	0	1,7	1,1
United States	-3,5	-11,4	5,4	4,1	3,6	1,7	2,4	2,0
Global	0,4	-7,8	9,5	4,7	2,8	3,5	4,6	4,6

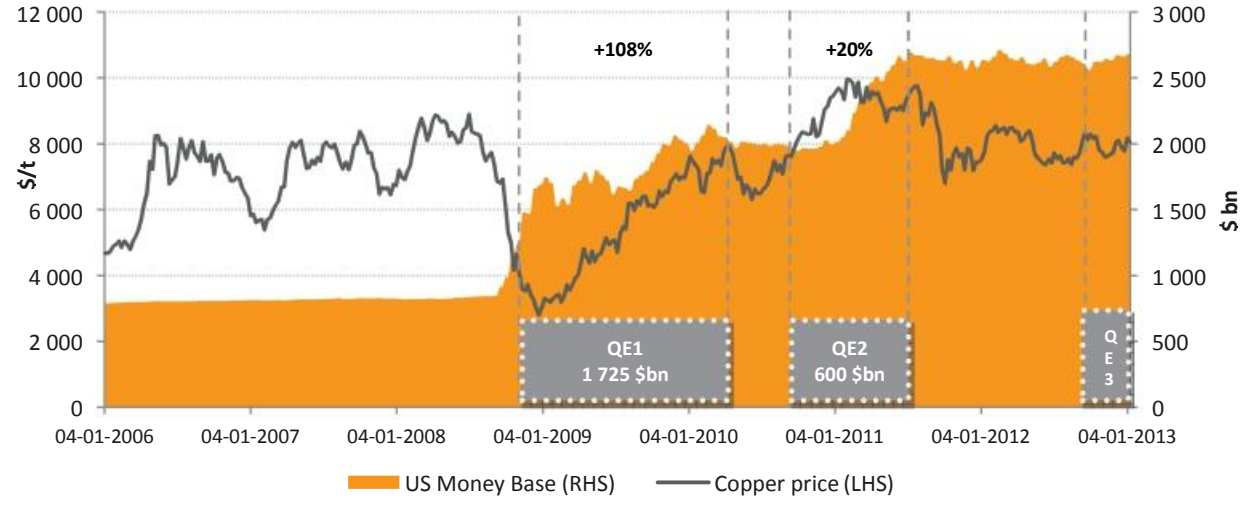
Source: Wood Mackenzie

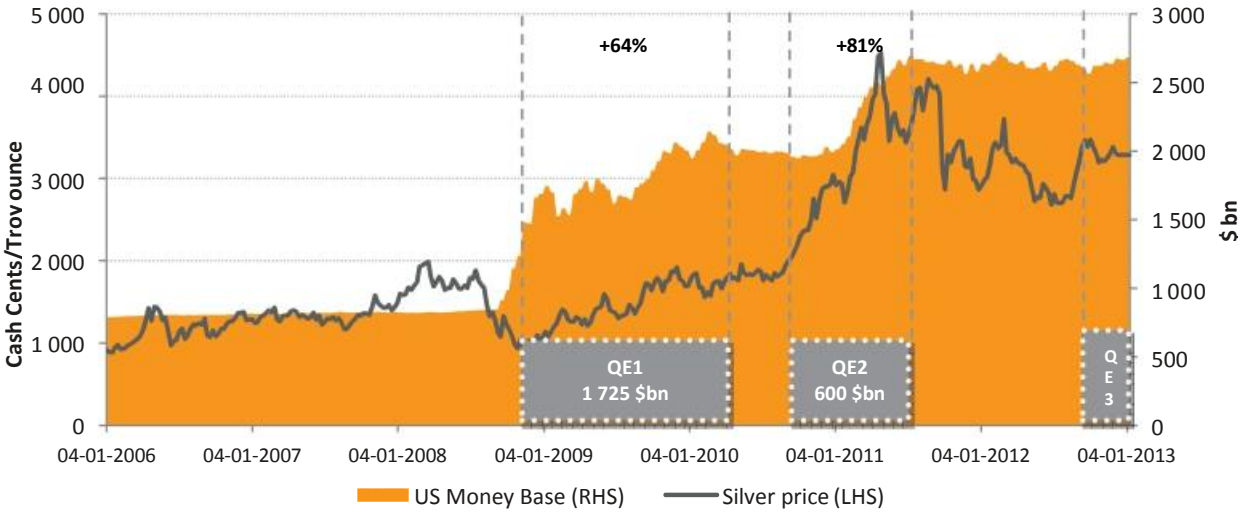
Appendix 23: Supportive quantitive easing (QE)

Below chart presents US money base and copper price at LME. Until 2005 we can observe a stable money base and copper price fluctuating between 1300 and $3200/t. Although price increase between 2005 and 2008 can be explained by tight copper inventory (less than 1 week of global consumption in official stocks), the current price is a result of enlarged money base as the inventory is not at risk. We've made a similar analysis for silver prices.



QE program was beneficial for both copper and silver prices. The next round of QE was announced 14th September 2012 but no increases in money base are observable yet.

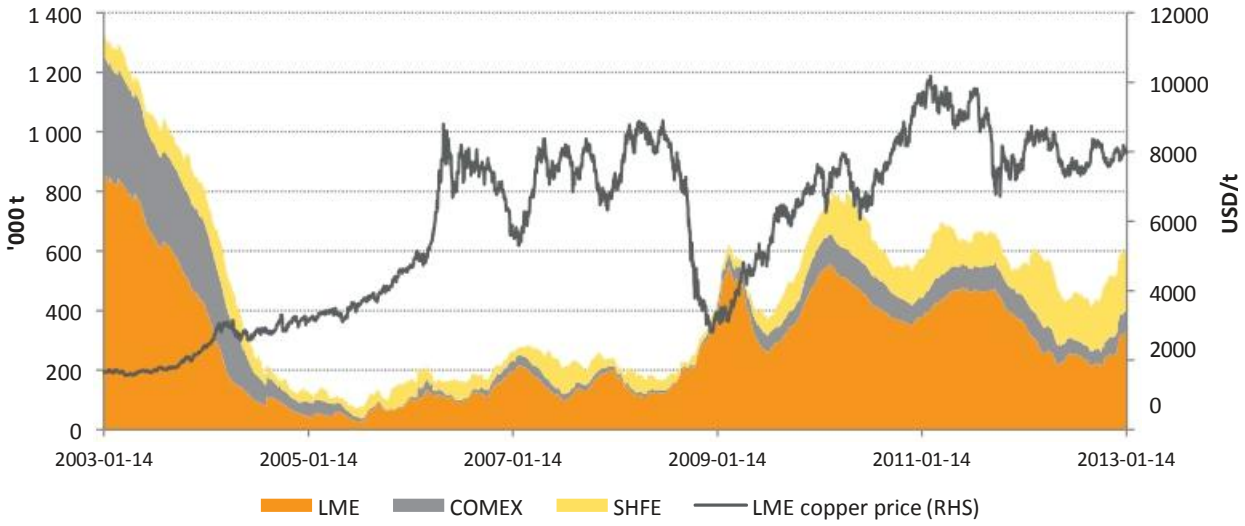




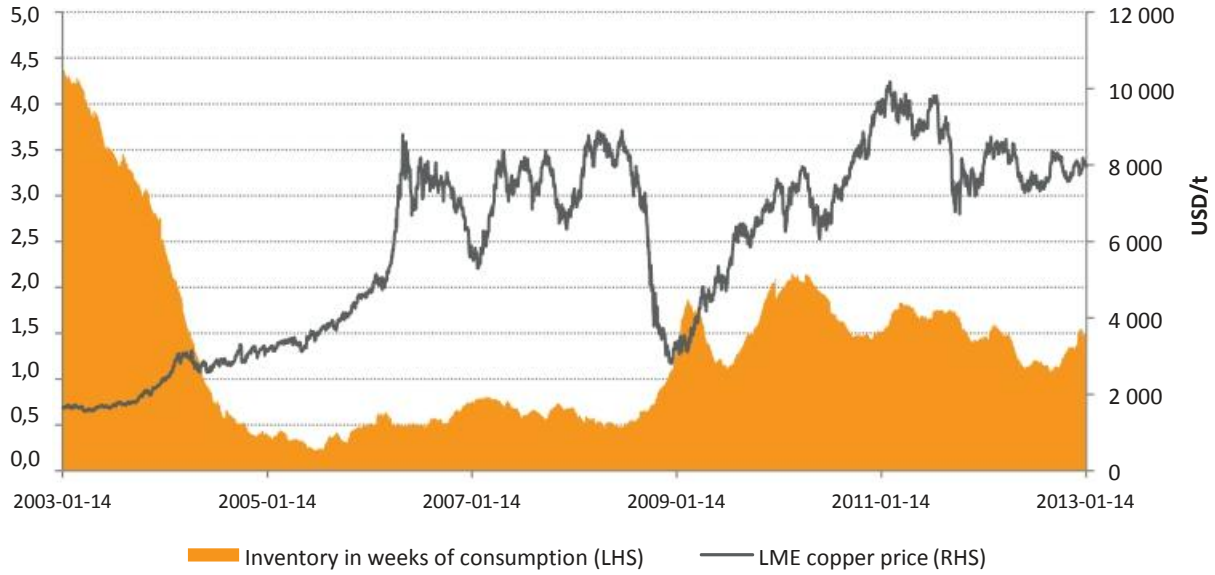
Source: Reuters, Team estimates

Appendix 24: Official stocks of copper

The level of inventory in official warehouses at the beginning of January 2013 exceeded the 2012 highs and amounted to 600kt. The non-official stocks of copper in China (not associated with SHFE) already reached 675kt in September 2012. As the forecast daily copper consumption in 2012 amounted to 56kt, such total inventory would be sufficient for 23 days. Yet, the inventory stockpiled in China is not only accounted for industrial use. In 2011 and 2012 the copper has been used widely as a collateral (80% of Chinese copper imports). Loosening credit policy and lowering the copper export tax to 17 percent (effective since July 2012)may lead to destocking of Chinese inventory.



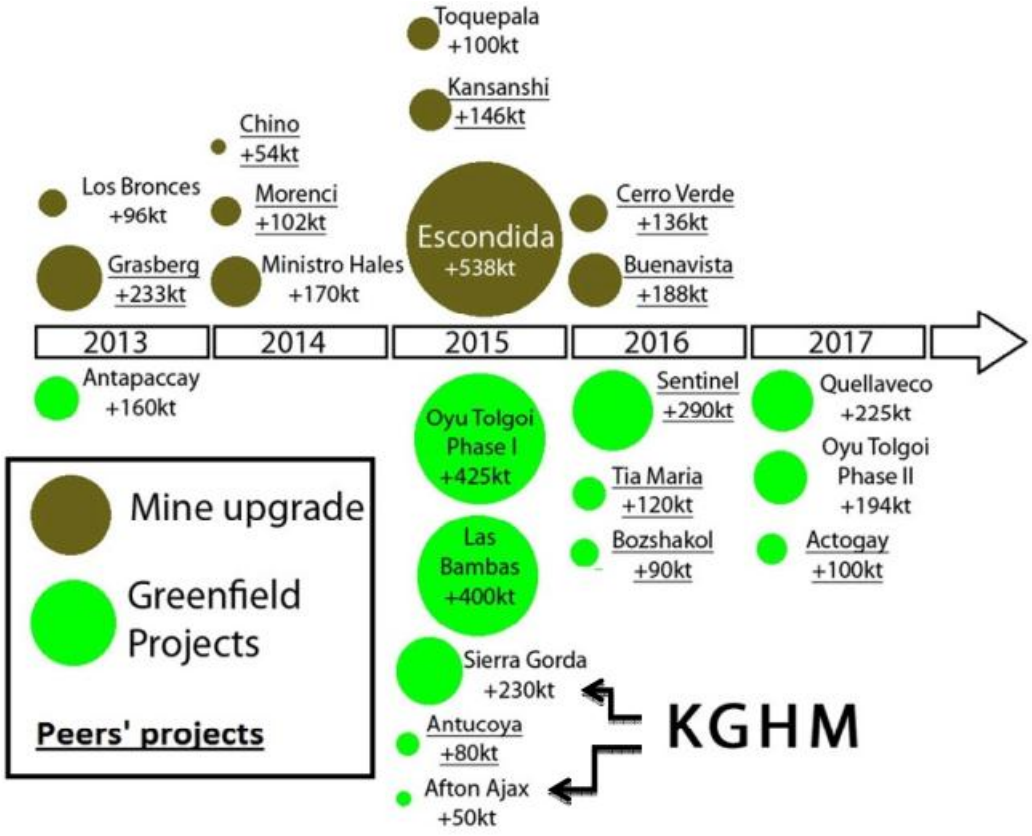
In weeks of consumption:



Source: Reuters, ICSG

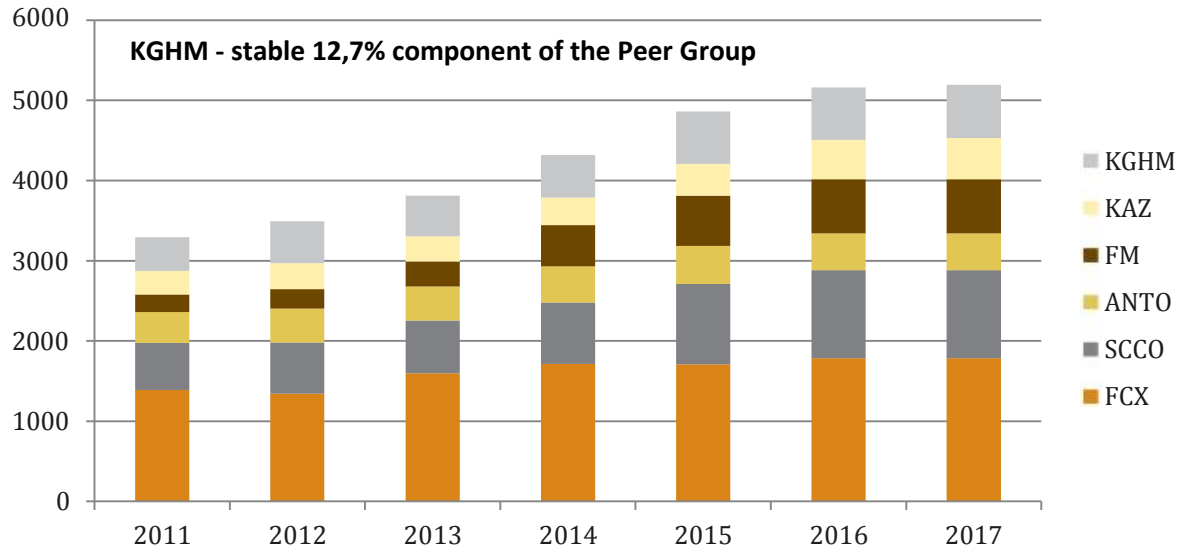
An additional distortion to copper inventory may be introduction of physically backed copper ETF.
JPMorgan obtain the SEC approval for launching physical-copper ETF. Although such instruments are already listed on LSE (ETFS Physical Copper from ETF Securities and db Physical Copper ETC from Deutsche Bank), their copper holdings represent minor part of market (ETFS Physical Copper held 2kt of copper in December 2012). The ETF to be listed on NYSE-Arca can hold max 61.8kt copper cathode. Those amount combined with still waiting for SEC approval (postponed to 22/02/2013) BlackRock max holdings of 121.2kt constitutes 80% of current LME copper stock. Physically backed copper ETF are on way also in Asia – already approved Mirae Asset Global Investment ETF.

Appendix 25: Industry projects pipeline



Source: Companies reports, Team estimates

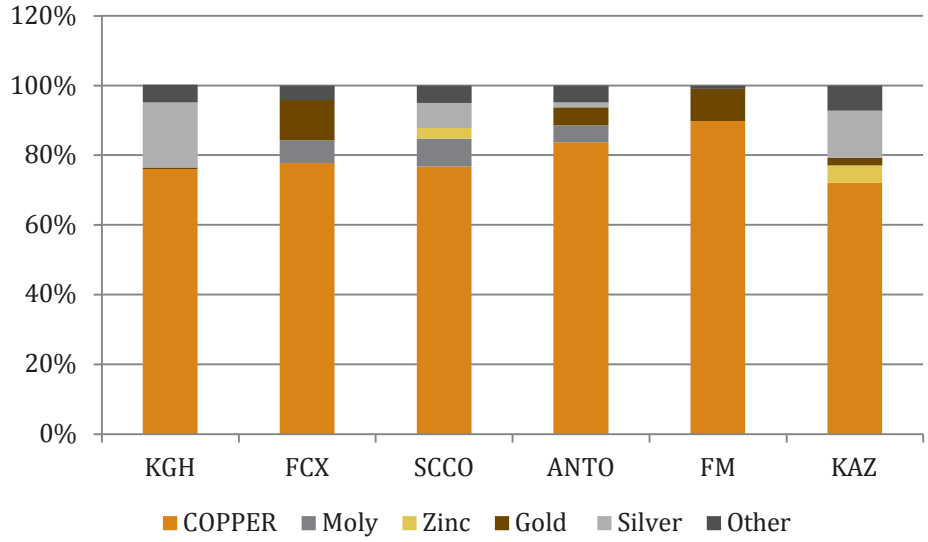
Appendix 26: Changes in mined copper production between 2011-2017E (kt)



Source: Companies reports, Team estimates

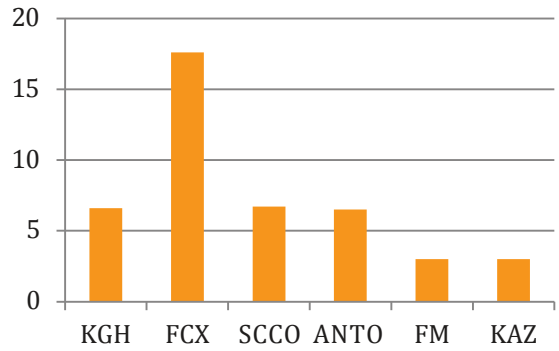
Appendix 27: Peer group selection criteria

1) Most of copper products sold should be produced from own resources
2) At least 75% revenues from copper sales in 2012E



Source: Companies reports, Team estimates

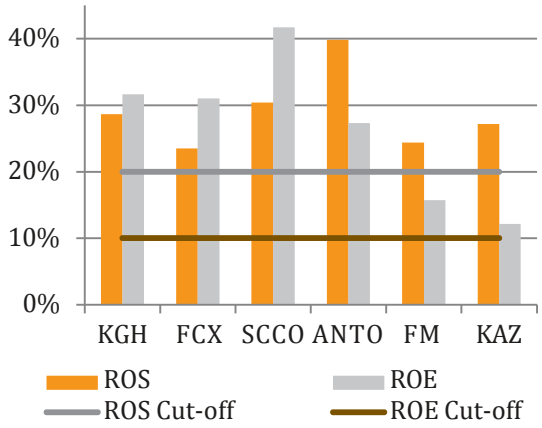
3) At least $5bn of total sales in 2012E*



* FM and KAZ are about to fulfil criterion until 2017

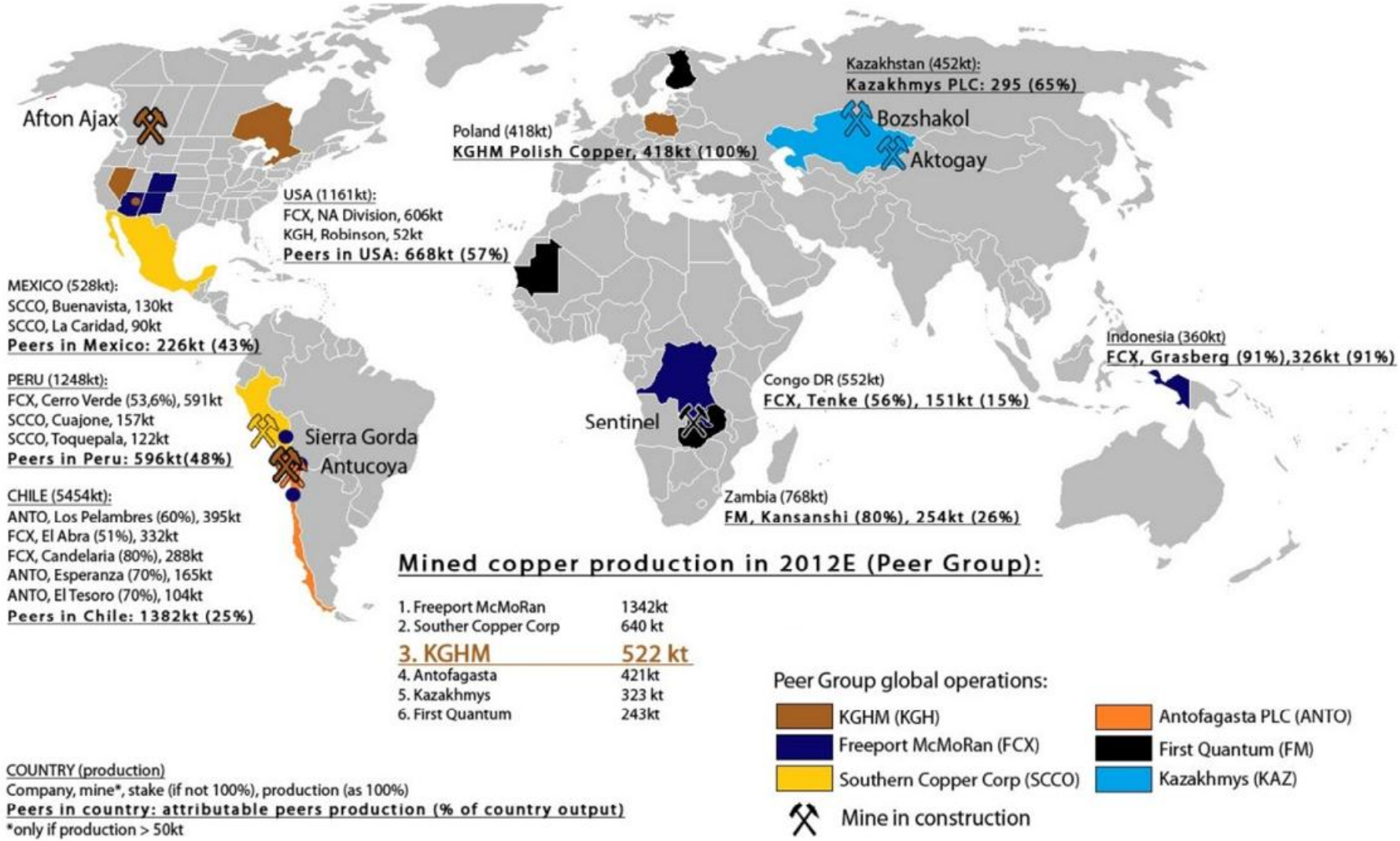
Source: Companies reports

4) 5Y ROS at least 20% and 5Y ROE at least 10%



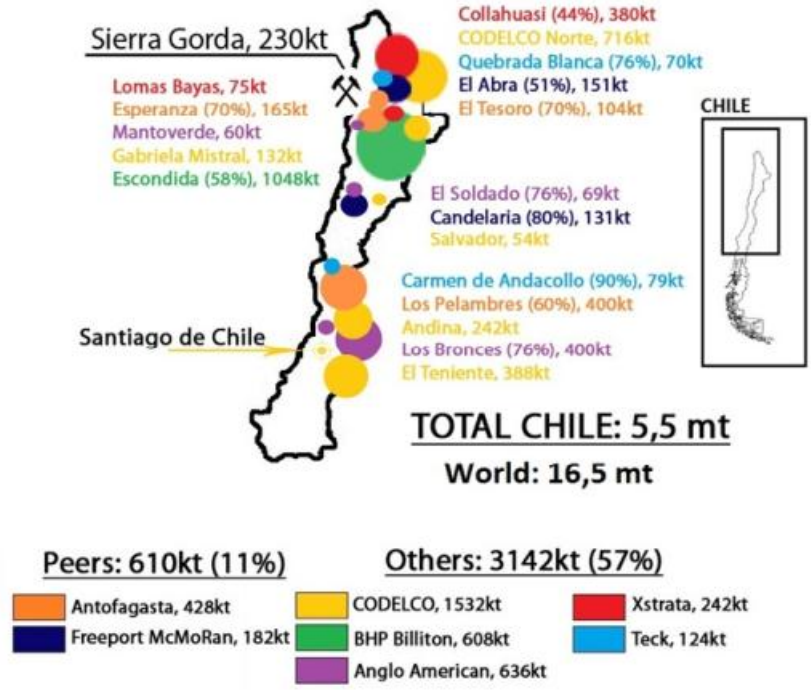
Source: Companies reports, Team estimates

Appendix 28: Position of KGHM and its peers on the global copper market



Source: Companies reports

Appendix 29: International operations in Chile



Source: Companies reports

Appendix 30: Regression analysis

Description of analysis and assumptions

We conducted a simple regression analysis for checking the correlation of changes in KGHM stock prices with changes of Cu prices. The analysis was expanded on the industry competitors. The dependent variable was defined as daily change in stock prices of each company, while the independent variable was the daily change of Cu prices. Both variables where derived from prices denominated in USD. Analyzed period was the same for every regression(2007-2012). To complement the analysis we conducted t-test for correlation coefficient, and with 5% level of significance we may conclude that all the correlation coefficients are statistically different from 0.

Conclusions

The main goal of this analysis was to check how strong is the correlation of KGHM's stock performance and copper price changes. The correlation coefficient (ρ) for KGHM stock price changes in analyzed period, occurred to be 0.51. This indicated significant, positive relationship. Additionally we wanted to check whether KGHM differs significantly, in the manner of this relationship, from the industry competitors. The conclusion is that there are no significant differences. All analyzed companies present positive correlation of their price changes with Cu price changes. The mean correlation coefficient was 0.56 and median was 0.6. This indicates that KGHM's price changes are correlated with copper price changes slightly below the mean and median of the industry competitors.

Company Name	Ticker	R_2	ρ	T-Stat for ρ
KGHM	**KGH**	**0.26**	**0.51**	**22.37**
Freeport	FCX	0.29	0.54	24.28
Southern Copper	SCCO	0.29	0.54	24.09
Antofagsta PLC	ANTO	0.44	0.66	33.35
First Quantum	FM	0.26	0.51	22.39
Kazakhmys	KAZ	0.40	0.63	30.92
Rio Tinto	RIO	0.36	0.60	28.52
BHP Billiton	BLT	0.40	0.63	31.14
Xstrata	XTA	0.38	0.62	29.94
Anglo American PLC	AAL	0.39	0.63	30.41
Vedenta resources	VED	0.36	0.60	28.28
Teck Resources Limited	TCK.A	0.22	0.47	20.17
MMC Norlisk Nickel	GMKN	0.13	0.36	14.58

Source: Team estimates

Appendix 31: Monte Carlo simulation

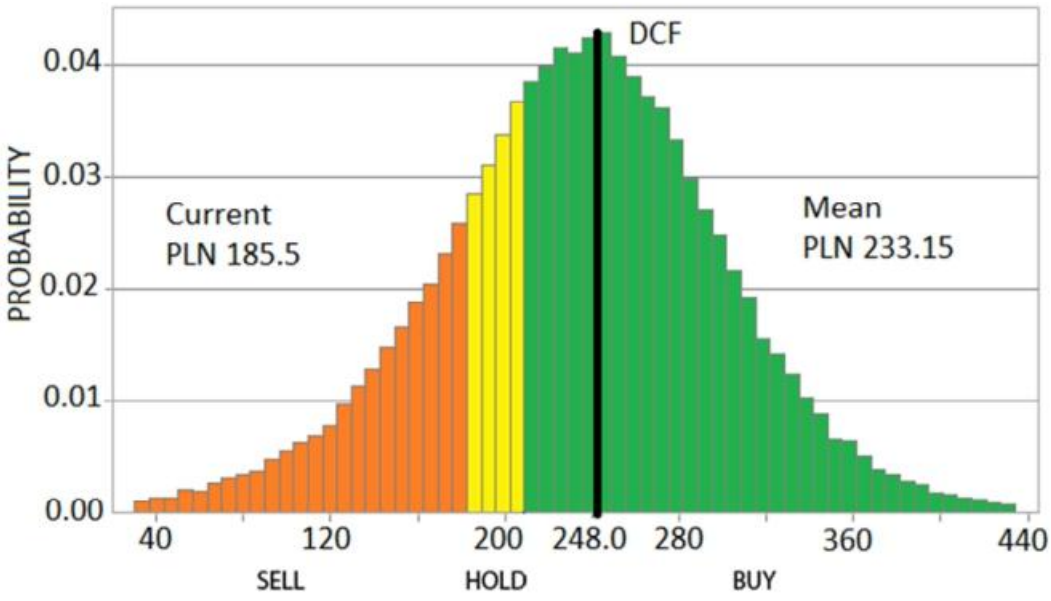
As an addition to our sensitivity analysis we performed Monte Carlo Simulation in order to check, how overall changes in prices of copper and silver (two main revenue drivers) may influence our target price. We included changes in USD/PLN rates as well, since the commodity prices are denominated in USD, what constitutes additional variable having an impact on the company profitability.
Base assumptions are summarized in the table below with the methodology described in detail thereafter.

Factor	Data range	Parameters*	Distribution	SF	Explanation
P(Cu)	I2001-XII 2012 (N=3114)	=0 s=0,2787 EK=1,1432	Student's t with 5df	2.015	Gives annual rates of returns in range of +/- 55,75% with 99% probability. Returns in historical data sample never crossed that level from below
USD/PLN		=0 σ= 0,1427 EK=1,4254			Gives annual rates of returns in range of +/- 28,54% with 99% probability. Returns in historical data sample never crossed that level from below
P(Ag)		=0 σ= 0,3163 EK=1,3148			Gives annual rates of returns in range of +/- 65,27% with 99% probability. Returns in historical data sample never crossed that level from below

- Time period selected for variables computation starts with Jan 2001, the first full year since Poland introduced the floating currency exchange rate regime and ends with the end of most recent calendar year.
- There were outliers observed in data samples (especially in cases of FX-rates and silver prices), so we decided to put cap and floor on our observations equal to 99th and 1st percentile value of daily price movements accordingly. This resulted with exclusion of 64 observations from each sample.
- in all 3 adjusted samples were not statistically significant based on t-test with α=1%, and had leptokurtic shapes. Thus, we applied Student's t-distribution with 5 degrees of freedom for further analysis.
- Annualized standard deviations of returns calculated on data samples adjusted for outliers were too high to produce meaningful results (returns>0%), hence we decided to reduce them proportionally by 2.015. The scaling factor (SF) we used corresponds to 10% significance level derived from the Student's t-distribution described on 5df.

According to our estimates, the mean of KGHM's share price is cantered around PLN233.15, what supports our buy recommendation.

Monte Carlo result

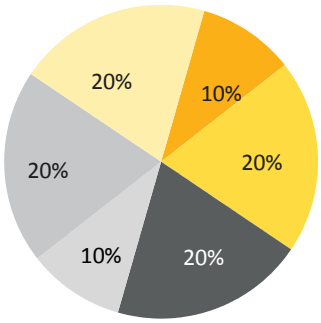


Monte Carlo summarizing statistics	
Mean	233.15
Lower range	PLN 26.75
Upper range	PLN 436.16
10th percentile	PLN 146.41
90th percentile	PLN 319.81
Upside potential	75%

Source: Team estimates

Appendix 32. Corporate governance and corporate social responsibility

Corporate governance methodology. For measuring overall condition of corporate governance in relation to KGHM we incorporated Principles of Corporate Governance developed by Organization for Economic Cooperation and Development (OECD). The factors taken into account are shown below. On the graph below there is show the weight for each criterion of OECD.



Source: Team estimates

OECD Criteria	KGHM's score for each criterion	KGM's score after applying weights
Applying foundations for an effective corporate governance framework	10	1
Shareholders' rights	8	1.6
Equitable treatment of shareholders	8	1.6
Role of stakeholders	10	1
Disclosure and transparency	8	1.6
The responsibilities of board	8	1.6
		Sum: 8.4

Source: Team estimates

Each criterion is judged in scale 1-10. KGHM's final score was 8.4. We reckon that this number is relatively high and judge KGHM's corporate governance as of high value. However, there are still possibilities to improve this score. Most important elements that hinder ideal corporate governance in KGHM:

1. State Treasury may convene Extraordinary General Meeting if it considers convening as warranted. No other shareholder is granted such lavish right. This privilege is not dependent on the number of shares held by State Treasury.
2. Board of Directors is elected for 3 years. The best practice dictates that elections take place every year, so that members of Board make more careful decisions.
3. Board of Directors includes at least 2 employees of KGHM in all circumstances. It worsens the independence, competence and effective shareholder participation in election of board members.
4. There are impediments to live participation in General Meetings, by KGHM's failing to provide access to General Meeting on-line transmissions.

RESPECT INDEX. This index was created by Warsaw Stock Exchange (WSE) in 2009. Only 4.6% of all companies listed on WSE are part of RECPECT Index and its performance since mid-February 2012 till mid-March 2013 outperformed WIG20 (Polish index of the 20 biggest and most liquid companies) by over 12.7 percentage points. RESPECT Index contains companies that are run by management in responsible and sustainable way, are characterized by high reporting quality and investor relations. Additionally, companies need to deal in ethical manner in such areas as strategy of organization, environmental issues, employee relations and the market of products in which they operate.

Environmental issues

KGHM plans to invest in the future in more renewable energy sources. Constant enhancements and introductions of ecological activities have resulted in decreasing environmental fees and lower pollution:

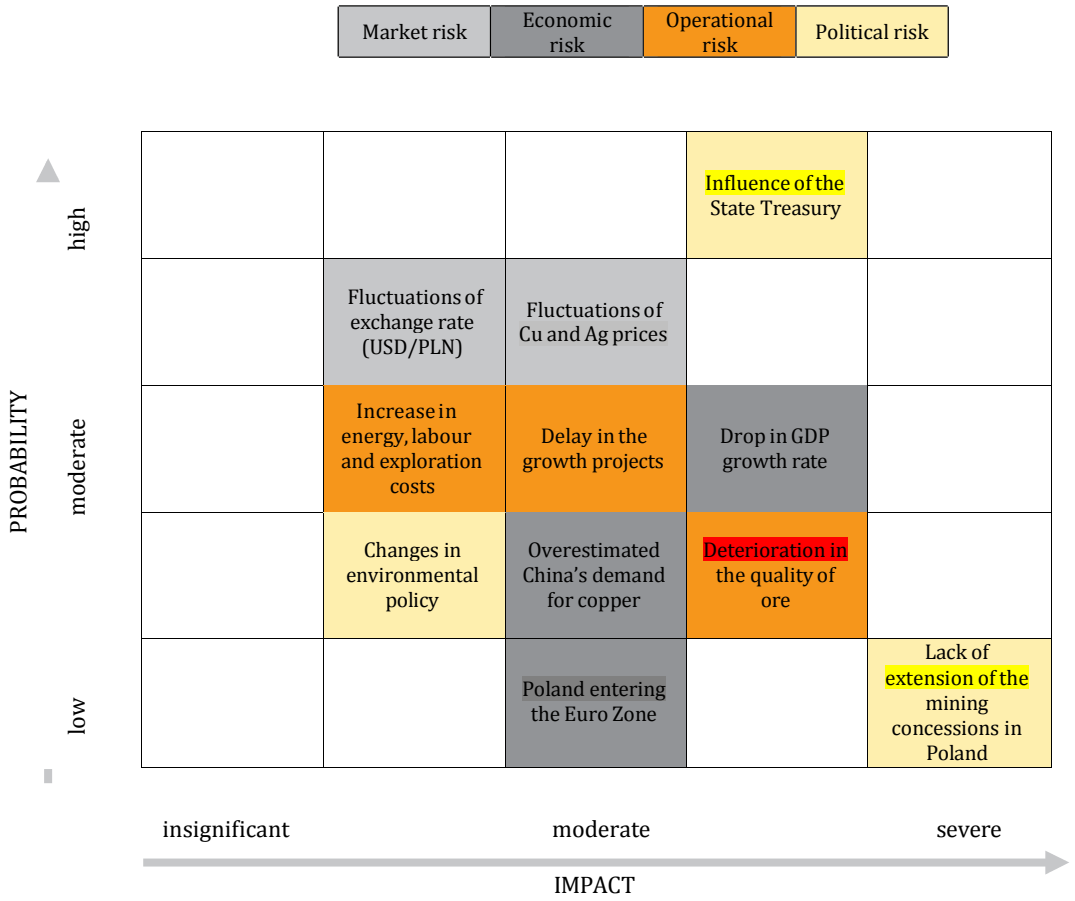
Emissions (Mg)	1980	1990	2000	2010	2011	2012
Copper	2 968	204	23	10.6	11.3	9.7
Lead	3 119	124	14	4.9	3.6	4.1
Sulphur dioxide	154 245	48 719	6 202	4 518	4 832	4 820

Source: Company data

One of the biggest challenges for KGHM is to manage safely waste management. Currently, approximately 94% of mineral material waste arises in the flotation process. Part of this material is transported to Żelazny Most (waste tailings pond and supporting industrial buildings and tree-covered land), which size is 3 400 hectares (the largest such object in Europe). To diminish possible negative consequences for environment, special protection techniques have been implemented, which were in line with specific legal and ecological requirements. Żelazny Most is dedicated not only for storage of waste material, but it also discharges properly treated water to the nearby Odra river (having regard the balance of the salt concentration in river). In the areas of copper smelters and Żelazny Most automatic immission measurement systems run continuously.
KGHM is constantly looking for economical usage of metallurgical waste: shaft slag is used in road construction, granulated slag from the electric furnace Głogów II smelter is used in the sandblasting, desulphurisation waste is used in metallurgical process, whereas lead-bearing dust and slime (which is collected in the dedusters of all three copper mines) is processed into crude lead at Głogów I.

The main investment goals related to environmental protection include:
• altering pirometallurgical technology at the Głogów smelter,
• constant modernization of all sulphuric acid plants,
• developing the Żelazny Most tailings pond and on-going actions aimed at reducing its influence on the environment,
• creation of alternative uses for flotation tailings,
• managing waste, e.g. the product of desulphurization of incinerated gas from the power plant of the Głogów smelter and smelter slag,
• maintenance of the previous protective zones.

Appendix 33: Risk matrix – major threats



Source: Team estimates

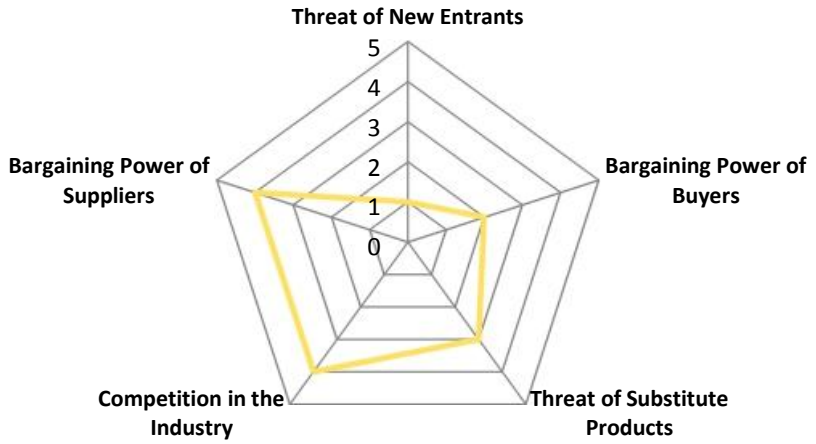
Appendix 34: Sensitivity analysis based on DCF price

Change in forecast EBITDA margin in years 2013-2017	Change in forecast production growth in years 2013-2017				
	-10%	-5%	0%	5%	10%
-10%	189	198	207	217	226
-5%	208	218	228	238	248
0%	227	237	248	259	269
5%	246	257	268	280	291
10%	265	277	289	300	312

WACC (residual)	Long-term growth rate				
	-1%	0%	1%	2%	3%
10.5%	230	246	267	292	324
11.0%	223	238	257	280	308
11.5%	217	231	248	269	294
12.0%	211	224	240	259	282
12.5%	206	218	233	250	271

Source: Team estimates

Appendix 35: Porter's five forces analysis



Final rating: **2.8**

Threat of New Entrants

1) high barriers to enter the market
2) existence of economies of scale
3) mining concession needed
4) meeting high standards of environmental protection

Bargaining Power of Suppliers

1) limited number of mining machinery and equipment producers, detonation and seismic systems
2) high power supply needs
3) specialised labour force required
4) strong position of labour unions

Bargaining Power of Buyers

1) high concentration of copper buyers
2) very low buyers' threat of backward integration
3) long term supply contracts involved
4) high importance of product to the buyers
5) low product differentiation

Competition in the Industry

1) 335 HHI ratio for 65% of copper miners indicating high competition
2) relatively large competitors
3) economies of scale
4) low product differentiation
5) capacity augmented in large increments due to growing demand
6) high exit barriers

Threat of Substitute Products

1) no perfect substitute (copper has superior characteristics)
2) higher prices of copper as compared to substitutes, for example aluminium
3) copper usage in modern technologies

The scale of the interaction:		
0 No interaction	**2** Low	**4** High
1 Insignificant	**3** Average	**5** Very high

Source: Team estimates

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