

# Mining Risk Reporting: Emerging Trends in an Evolving Risk Landscape

## INTRODUCTION

The period 2005 to 2015 has been one of intense change for the mining industry. New risks have been posed by technical innovation and frontier investments, and traditional risks continue to evolve in a period of uncertain markets and changing relationships with stakeholders.

Risk governance standards are similarly evolving, with progressive development of the standards set for the identification, mitigation, and reporting of risk.

In this context, Marsh has compiled and classified by theme the risks reported by the 50 leading global mining companies\* in 2015 and 2005 – more than 700 individual risks in each year – to identify those risk items that are emerging and changing within risk reporting, and those that are not.

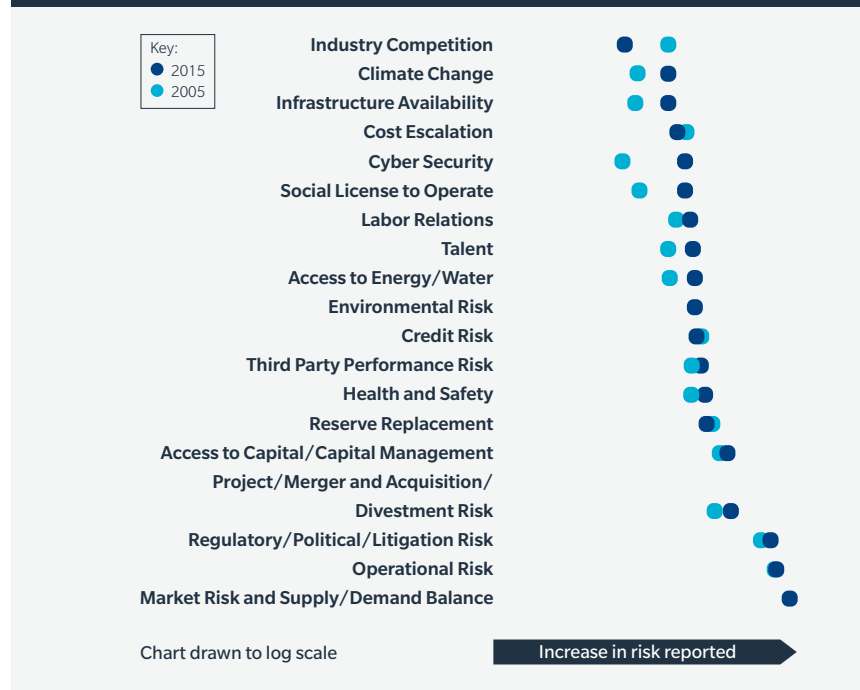
The backdrop to the changing risk landscape is the financial resilience of the mining industry, subject to a marked decline between 2012 and 2015.

As margins have declined and the free cash-flow associated with the industry becomes increasingly generated by a small pool of high-quality/low-cost assets, the ability of many mining companies to weather an external shock or internal risk event has been materially eroded, making comprehensive risk management and risk finance even more important.

Against this backdrop, the world's leading mining companies are reporting an increasingly varied range of threats, with the issues of cyber security, social license to operate, access to infrastructure and potential impacts of climate change policies exhibiting most change. Meanwhile, some traditional concerns such as competitor threat and access to reserves exhibit reduced focus, and some risk themes are notable by their absence.

**FIGURE 1 Risks reported by 50 leading mining companies, categorized by theme**

Source: Risks reported in annual reports by the top-50 global mining companies listed by sales (US\$) in 2015 and 2005.



\* in terms of sales (US\$).

## MINING COMPANIES ARE REPORTING A BROADER RANGE OF RISKS

Overall, the mining companies in our sample set have exhibited a slow increase in the number of individual risks identified and reported, with a growth in the number of principal risks reported of just under 6% between 2005 and 2015, equivalent to an additional four new risks being identified and reported each year across all 50 companies. This modest growth overall however belies the changes taking place within the industry.

### CYBER SECURITY

Cyber security has shown the highest growth of concern among mining companies, reflecting both the increasing use of networked systems in all aspects of operations, from mining through processing to marketing, and an increasing awareness of the vulnerabilities such systems represent. The remote monitoring of individual plant items by manufacturers and suppliers is now commonplace (the leading providers of gearless mill drives and draglines, for example, provide telemetric monitoring solutions) and mineral processing operations, and downstream material handling operations are now increasingly controlled from off-site centers. Risk exposure to operations, combined with data privacy threats and fraud, led to more than a third (35%) of companies reporting cyber security concerns as a principal risk in 2015, compared with just 9% in 2005.



### CASE STUDIES

High-profile cyber hacks have included data breaches, fraud, and the malicious damage of both data and physical assets. A 2015 study by Symantec identified that mining organizations were the most highly targeted sector for “spear phishing” in both 2013 and 2014, with 43.5% mining organizations subject to attack in 2014.<sup>1</sup> While data is the most common target, phishing attacks have also enabled the usurping of control systems. In December 2014, the German Federal Office for Information Security (BSI) reported that a German steel mill suffered “massive damage” after control systems were compromised following a phishing attack.<sup>2</sup>

The experience of a major gold producer provides a further illustration of the data breach threat. A gold company’s computer servers were infiltrated in June last year, exposing a wide range of sensitive and confidential information about the company, its corporate activities, and its employees.

### LICENSE TO OPERATE AND LABOR RELATIONS

Risks relating to social license to operate saw the second highest increase (148%) in reporting prevalence, following a series of global events highlighting the potential for community activism and labor relations to stall mining projects and operations. The widely publicized South African labor strikes of 2014 were a prominent example of both the impact of labor action, and the potential for labor activism contagion. A study commissioned by the National Treasury of South Africa noted the costs of the strike to the platinum industry alone as lost revenue of ZAR 23 billion and lost employee earnings of ZAR 11 billion, with the overall impact of the event equating to a 0.7% reduction in South Africa’s

GDP.<sup>3</sup> Peru, the third largest copper-producing country in the world, has an operating environment that has been recently defined by media reporting of community activism against investment projects in mining. Concerns over environmental and social impacts have been aggravated by resentment over the Government’s failure to turn record mining profits into improved living standards. The country has seen sharp increases in anti-mining activism, including protests in 2015 that led to two “state of emergency” orders and continued suspension of operations at major projects. The protests have resulted in tragic loss of life and raise the spectre of substantial write-downs for the owners of suspended projects.

<sup>1</sup> Symantec. 2015 *Internet Security Report*, available at [https://www4.symantec.com/mktginfo/whitepaper/ISTR/21347932\\_GA-internet-security-threat-report-volume-20-2015-social\\_v2.pdf](https://www4.symantec.com/mktginfo/whitepaper/ISTR/21347932_GA-internet-security-threat-report-volume-20-2015-social_v2.pdf), accessed 22 March 2016.

<sup>2</sup> German Federal Office for Information Security. “Bericht zur Lage der IT-Sicherheit in Deutschland 2014,” available at [https://www.bsi.bund.de/SharedDocs/Downloads/DE/BSI/Publikationen/Lageberichte/Lagebericht2014.pdf?\\_\\_blob=publicationFile&v=1](https://www.bsi.bund.de/SharedDocs/Downloads/DE/BSI/Publikationen/Lageberichte/Lagebericht2014.pdf?__blob=publicationFile&v=1), accessed 22 March 2016.

<sup>3</sup> Bohlmann, H.R., Dixon, P.B., Rimmer, M.T. and Van Heerden, J.H. *The Impact of the 2014 Platinum Mining Strike in South Africa: An Economy Wide Analysis*, available at [http://www.econrsa.org/system/files/publications/working\\_papers/working\\_paper\\_478.pdf](http://www.econrsa.org/system/files/publications/working_papers/working_paper_478.pdf), accessed 22 March 2016.

## REGULATORY CHANGE

Three major regulatory themes emerge from our meta-analysis of reported risk:

1. Changes to the allocation of benefits of mining activities between mining companies and host states, for example, taxation code change.
2. Exposure to loss of license awarded by host states.
3. Exposure to climate change policies, which may manifest either as loss of license, increased costs, or declining long-term market prospects/disincentives for coal products.

Certain aspects of regulatory change risk, such as exposure to loss of license, may be borne by mining companies, both as direct risk exposure, and an in-direct risk transfer cost. Loss of license coverage forms a key aspect of the political risks coverage increasingly purchased by banks in respect of commodity loan books, which is increasingly embedded within the cost of debt capital for mining corporations. Taking direct control of the risk transfer for loss of license exposures represents a meaningful opportunity for mining companies to protect themselves from a potentially catastrophic risk exposure in a fashion that may also secure relief in financing costs.

## WHAT HASN'T CHANGED: MARKET RISK AND CORE OPERATIONAL RISKS REMAIN THE BIGGEST CONCERNS

Market risk and operational risk are not only the two leading risk themes in both the 2005 and 2015 datasets, but also show consistent prevalence. The category of “market risk” adopted for the purposes of this analysis is a broad one, encompassing commodity pricing,

foreign exchange, and interest rate risk. Exogenous factors such as changing longevity assumptions have been classified in this group, to include the specific reporting of pension financing risk within this category. This latter risk is notable for its relative severity in respect of several larger, mature organizations.

A common characteristic of market risk factors is that, while they can be mitigated, they can rarely be directly managed or controlled. The manifestation of market risk directly erodes the risk bearing capacity available in respect of other risk classes, such as operational risk. The prevalence of and sensitivity to market risk therefore highlights the need for mining companies to reflect the potential erosion of risk bearing capacity by market risk factors prior to the assessment of risk tolerance and risk appetite for other risk classes.

The reporting of operational risk factors is relatively generic for larger groups; however, several specific items were notably more prevalent in 2015. The availability of infrastructure and access to water and energy, often dependencies on third-party organizations, is now highlighted with materially increased frequency.

## CONCENTRATION RISK-A FUNDAMENTAL BUT UNDERREPRESENTED RISK?

The concept of risk concentration was notable for only being reported by a small subset of companies. However, the increasing reliance of multi-site organizations on a smaller pool of profitable assets appears to be a fundamental change in risk profile for multi-site operations. In prior periods of higher margins, risk for groups of assets was more effectively distributed across multiple operations; however, risk has subsequently become concentrated as a larger share of assets become less economic, meaning a risk event at a high margin asset will likely

prove significantly more problematic for the group as a whole. This would suggest that the more granular approach to risk identification adopted by single site and smaller mid-tier producers may be increasingly relevant to larger groups, at least in relation to the high-quality assets on which operating profits are increasingly dependent.

## IS THE AVAILABILITY HEURISTIC AT PLAY?

In general, there is a high degree of stability in risk reporting, with legitimate but broad “catch-all” categories making up a significant proportion of identified risk and uncertainties. However, several examples suggest that immediate recent history is a factor in risk reporting. For example, the mining company that historically suffered a flood event that threatened the viability of the organization was alone in highlighting the specific risk of a flood event of that type. Across all companies in general, the concepts of a deterioration in China’s demand and global supply/demand imbalance were notably more prevalent in 2015 reporting than in 2005, arguably after these risks manifested. Of course, this does not undermine the significance of these risk factors going forward, but may call into question the extent to which the reporting of principal risks captures “horizon risks.”

## RISK APPETITE AND RISK TOLERANCE

Recent history has shown a material weakening of the margin enjoyed by mining companies, and, by extension, a reduction in risk bearing capacity. In effect, market risk factors have eroded the risk capital of mining companies.

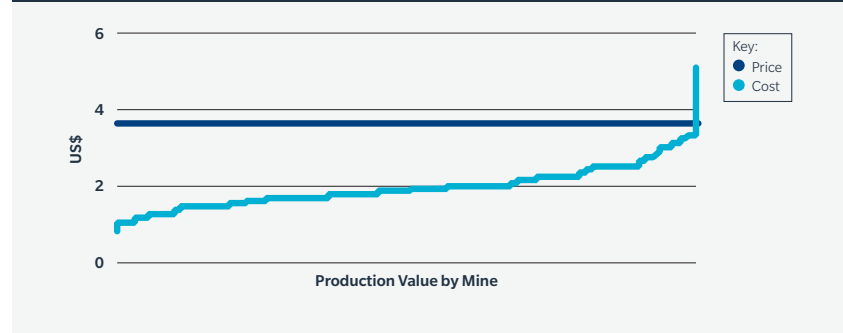
The detailed risk reporting of the leading mining companies that has been examined in this report is the result of major, sophisticated bottom-up and top-down risk identification processes. However, the review of the aggregate risk data suggests that opportunities remain within the continuous appraisal and re-appraisal of risk to identify and evaluate threats to the world's leading mining organizations, and to inform the interplay between insurable risks and insurable risk strategies and the broader risk universe.

## REGULATORY CHANGES TO RISK REPORTING

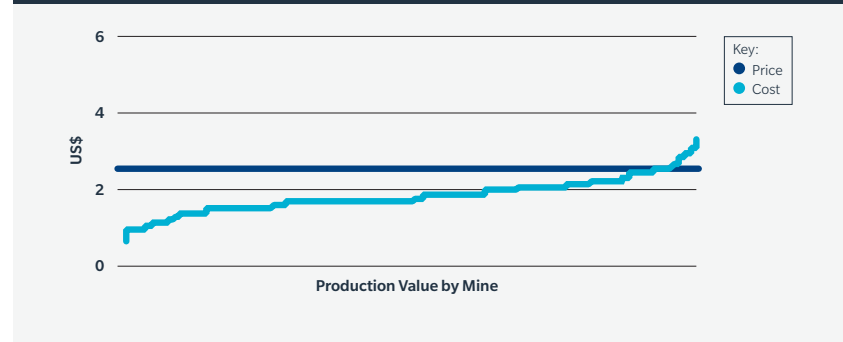
The period 2005 to 2015 also spans a period of material change in the regulatory regimes that apply to the identification and reporting of risk by publicly listed enterprises. This has impacted the way mining companies are reporting and managing their own risks. Despite the publication in 2004 of an Enterprise Risk Management guide by the Committee of Sponsoring Organizations of the Treadway Commission (COSO), an Organisation for Economic Co-operation and Development (OECD) report concluded in 2010 that “none of the existing guidance on risk management is adequate for the purpose,” and noted the tendency for governance codes to be “process-oriented.”<sup>4</sup>

A comparison of the copper cost curve and average selling price for the years 2012 and 2015 (see figures 2 and 3) illustrates the extent to which market risk has eroded margin and, by extension, risk bearing capacity.

**FIGURE 2** 2012 CU cash cost and price, \$/LB  
Source: SNL Financial



**FIGURE 3** 2014 CU cash cost and price, \$/LB  
Source: SNL Financial



The extent to which exogenous factors can undermine the risk bearing capacity of mining organizations reinforces that risk tolerance and risk appetite remain “moving targets.” They require forward-looking estimates, and must be considered as common budgets across a broad range of risk classes, straddling insurable and non-insurable risk.

<sup>4</sup> OECD. “OECD Principles of Corporate Governance,” available at <http://www.oecd.org/corporate/ca/corporategovernanceprinciples/31557724.pdf>. Accessed 22 March 2016.

This report was followed by further COSO guidance, addressing risk assessment and risk appetite, and standards laid out by the International Organization for Standardization's ISO 31 000, the current de facto risk management world standard. This has, in turn, been followed by the 2014 Financial Reporting Council's *Guidance on Risk Management, Internal Control and Related Financial and Business Reporting*.

This document states that, for those companies subject to the UK Corporate Governance Code: "The descriptions of... principal risks and uncertainties should be sufficiently specific that a shareholder can understand why they are important to the company. The report might include a description of the likelihood of the risk, an indication of the circumstances under which the risk might be most relevant to the company, and its possible impacts. Significant changes in principal risks such as a change in the likelihood or possible impact, or the inclusion of new risks, should be highlighted and explained. A high-level explanation of how the principal risks and uncertainties are being managed or mitigated should also be included."<sup>5</sup>

In other words, it is now recommended that risk reporting extend beyond identifying principal risks and explains how they are being managed and mitigated, and should also include an assessment of probability and impact.

## BEST PRACTICE IS ADVANCING

Examples of best practice risk reporting in the mining industry now include not only the identification of principal risks and mitigating strategies, but also graphic illustrations of likelihood and severity, overlaid with the parameters of risk appetite and risk tolerance.

The assessment of likelihood (probability) and severity (potential impact), and risk tolerance and risk appetite, are common features of the enterprise risk management systems in place in the world's leading organizations, and are requirements of corporate governance regulation in many jurisdictions. However, these concepts are now increasingly embedded in non-binding guidance on the reporting of risk in several jurisdictions. Recent OECD publications suggest that regulatory requirements will shift further towards more comprehensive disclosure to secure "sufficient and comprehensive information to fully inform investors of the material and foreseeable risks of the enterprise." The lack of risk appetite reporting to provide a quantitative context for risk reporting has been repeatedly identified by OECD risk governance papers, and the evolution of governance requirements towards the reporting of those aspects of risk identification and prioritization that are already required by certain codes of practice is a reasonable expectation.

Higher standards of risk reporting and more advanced risk practice over the past decade have likely had a material impact on the risk reporting by companies in this report, as the industry works toward greater reporting and a deeper understanding of risk management.

## CONCLUSION

The risk bearing capacity of all mining organizations is a finite resource, and the reporting of demands upon it has become markedly broader since 2005. In part, this reflects the emergence of new threats such as cyber risk, shifting balances in long-established relationships, such as between mining companies and stakeholders, and macro factors, such as the supply and demand balance and economic growth.

While the breadth of potential demands on risk bearing capacity is increasingly captured by risk reporting, sensitivity reporting is notably incomplete, and only exceptional organizations are moving beyond regulatory requirements to report the overlay of risk appetite and risk tolerance upon the risks to which they are exposed. We believe this area is the bedrock of effective risk mitigation strategies, and will increasingly become the forefront of regulatory developments in respect of corporate governance.

<sup>5</sup> Financial Reporting Council. *Guidance on Risk Management, Internal Control and Related Financial and Business Reporting*, available at <https://www.frc.org.uk/Our-Work/Publications/Corporate-Governance/Guidance-on-Risk-Management,-Internal-Control-and.pdf>, accessed 22 March 2016.

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