TEAM IRIS

REPORT ON
AMANGO GROUP MINING Plc

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Grooming financially qualified business leaders

UNIVERSITY OF GHANA BUSINESS SCHOOL

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EXECUTIVE SUMMARY

1. INTRODUCTION

AMANGO GROUP MINING Plc is a multinational metals and mining company with Public Investment Corporation- owned by the South African government, as its largest shareholder. AMANGO operates in 45 countries across the world and has 160,000 employees but is not considered among the top ten mining companies in the world.

TERMS OF REFERENCE

In advising the board of AMANGO on several issues facing the company, Team IRIS has prioritized the issues and provided strategic recommendations as to how to curb them. Ethical issues have been analyzed and recommendations proposed.

2. PRIORITISATION OF ISSUES

AMANGO faces a number of issues. These issues have been prioritized using SWOT analysis (**Appendix I**) and the effect on Critical Success Factors (CSF) (**Appendix II**). The issues have been prioritized as follows:

1. **Operational risk and industrial action in Australia**: This is topmost priority because issues result from catastrophic risk, and failure to address them exposes the company to more of such risk, which is currently outside the board's risk appetite. It has a large effect on Pillars A, C, D, E, F, and G of the company and is highly urgent as strike actions are already underway.

2. **Strategic joint venture in Canada:** This is second priority due to the considerable impact problems stemming from this issue have on the company's existence. This issue threatens the Environment, Socio-Political, Production, Cost and Financial pillars of the company (Pillar B, C, E, F, G) respectively.

3. **Managing divisional performance group-wide**: There is the pressing need to drastically manage company costs to promote efficiency while ensuring employees' safety and health. This issue affects the company's Safety and Health, Cost and Financial pillars (Pillar A, F, G) respectively.

4. **Balance sheet deleverage or share buyback:** The low urgency but high-impact need to take a decision on how to de-lever the balance sheet of AMANGO intertwines with the Socio-Political, People, Cost and Financial pillars of the company (Pillars C, D, F, G) respectively.

5. **Strategic disposal in Brazil:** An urgent decision needs to be made as to whether the company should dispose off one of its mines in Brazil. It affects the Socio-Political, Cost and Finance pillars of the company (Pillar C, F, G) respectively.

6. **Corporate reconstruction and reorganization:** The long-term nature of the decision to be made coupled with its minimal effect on the pillars of the company, (Socio-Political, Cost and Finance –Pillars C, F, G) respectively, makes it the least pressing issue to be tackled.

3. DISCUSSION OF ISSUES

3.1 OPERATIONAL RISK AND INDUSTRIAL ACTION IN AUSTRALIA.

Continue production in old shaft:

Mike Cutika has instructed Nigel Payne to resume work in the old shaft which faces a potential collapse and could result in increased injury and legal claims in addition to the already declining safety standards and the US$250,000 daily losses.

Close down the mine shaft and construct a new one:

Construction of a new shaft will require a total of US$140 million, and will generate a US$30.43 million pre-tax cash flow for 9 years. The new shaft will be operational in a year's time.

3.1.1 RECOMMENDATION:

a. Halt production in the old shaft and begin construction of the new shaft with required safety checks.
b. Obtain a contingent business interruption insurance to lessen impact of future such occurrences.
c. The company should take a pluralistic perspective in dealing with employee wages and safety standards.
d. The board should adopt Grunig's Excellence Theory in their public relations.

3.1.2 JUSTIFICATION:

a. Building a new shaft will generate an NPV of US$51.5 million (**Appendix V**). The crippling US$250,000 daily cost, potential injuries, and legal claims associated with continued production in the old shaft will be avoided.
b. The contingent business interruption insurance will reimburse lost profits and extra expenses resulting from business interruptions in the future.
c. The company through collective bargaining with union heads can attain a level ground for employee wages, and reassure them of their commitment to safety standards.
d. Taking a cue from Grunig's Excellence theory to prevent future cost arising from negative Public relations, the board should empower public relations as a critical management function separate from other management functions.

3.2 STRATEGIC JOINT VENTURE IN CANADA

With reviving coal prices and pro-local inclusion in the workforce, mining companies are entering into joint venture agreements with local partners to begin production of coal. AMANGO, however,

is in a JV arrangement with Cephas (Quinta) and has to decide on which surface infrastructure design to use for its first coal mining project.

3.2.1. RECOMMENDATION

a. Construct a medium size and depth surface infrastructure. (**Appendix VI**)
b. A percentage of Quinta's workforce should be natives. Also, the Public Relations office should be tasked to have continuous engagement with the aboriginal group (on social media) as recommended using Mendelow's Stakeholder Theory. (**Appendix IV**)
c. The AMANGO group should adopt the Global Reporting Initiative's Sustainability Reporting Guidelines for sustainability reporting.
d. A percentage of the division's annual profit should be channeled into Corporate Social Responsibility (CSR) in the operational community.

3.2.2. JUSTIFICATION

a. Although all three designs give positive expected returns, the medium size and depth surface structure gives the highest return which is US$18.465 million more than the next desirable option (large and deep) **(Appendix VI***)*.
b. With natives forming a percentage of Quinta's workforce, AMANGO will be taken off the radar of the aboriginal group. Additionally, the constant engagement with the aboriginal group will promote positive company image with the natives.
c. GRI's sustainability guidelines require that social, economic and environmental aspects be considered together as opposed to the traditional or Triple Bottom Line approach. Because sustainability reporting also addresses specifically how current activities are impacting the abilities of future generations to satisfy their own needs, stakeholders will be adequately informed about AMANGO's activities.
d. CSR activities stamp the good corporate citizenry of AMANGO.

3.3 MANAGING DIVISIONAL PERFORMANCE GROUP-WIDE

Following a policy to remunerate managers based on divisional performance, managers are cutting corners in order to achieve better ROCE and EBIT levels at the expense of the group's actual total profitability. As such, the board seeks to review the current system of evaluating and rewarding managers.

3.3.1 RECOMMENDATION

a. EVA should be used as a measure of managers' performance. Additionally, bonuses of divisional managers should be linked to the company's CSFs of which safety is paramount.

b. For internal decision making, marginal costing should be adopted ahead of absorption costing to solve the issue of ramping up of closing inventory. Managers should also be made fully aware that ramping up closing inventory is inventory fraud.
c. AMANGO should adopt the Central Production Planning System according to the OECD Transfer Pricing Guidelines for Multinational Enterprises and Tax administration.

3.3.2 JUSTIFICATION

a. EVA, unlike other profitability measures, is non-cumulative and shows a better reflection of performance against cost of capital. It is also difficult to manipulate since adjustments are made on a cash basis. Additionally, linking managers' bonuses to workers' health and safety will prevent managers from undermining safety standards.
b. As compared to absorption costing, marginal costing will discourage the ramping up of closing inventory at year end because gross profit will be lower. Education on the illegality of ramping up of closing stock will serve as a form of deterrence.
c. AMANGO should set cross-divisional transfer prices to control the charges of the refineries while ensuring that the variable cost of operating these refineries is at least recouped. There should be a restriction on purchases from external refineries. With these policies in place, AMANGO will become competitive in the provision of refining needs.

3.4 BALANCE SHEET DE-LEVERAGE OR SHARE BUY-BACK

AMANGO's plans to dispose off its coal and iron ore mines in South Africa, due to poor performance and gloomy economic forecasts, have been compromised. Therefore, AMANGO is considering the option of unbundling a section of its property portfolio; which will also reduce operating cost significantly.

Option 1: Use the proceeds from the unbundling to de-lever their balance sheet.

Option 2: Institute a share buy-back scheme with the proceeds.

3.4.1 RECOMMENDATION

a. AMANGO should use the proceeds from the sale of property to de-lever the balance sheet.
b. AMANGO, through the "chamber of mines", should negotiate for better terms of the new mining law and charter.

3.4.2 JUSTIFICATION

a. For option 1, gearing ratio of AMANGO reduced from 53.7424% to 46.2982% as compared to option 2 which increased the gearing considerably to 62.391%(**Appendix VII**). Also, the WACC for both options reduced from 7.4957% to 5.14% and 5.46% for options 1 and 2 respectively. Although both options saw a reduction, option 1 has the lower WACC which will help reduce the cost of finance of the company (**Appendix VII).** Although the EPS for option two is higher, option 1 is chosen because it reduces the net

debt to US$9,917.35 million in line with the target set in the company's 3-year viability plan.

b. As discussed in the PESTEL analysis **(Appendix III**), the new mining law and charter will have a huge impact on AMANGO's activities in South Africa.

3.5 STRATEGIC DISPOSAL IN BRAZIL

With an unfavorable business environment, AMANGO plans to dispose off its 100% equity stake in AMA NOBIUM FOASTATOS LIMITADA (in short: AMA-NP). AMANGO has received a US$1500 million purchase offer from China Molybdenum Co. Ltd (CMOC). The first part of this payment (BRL1, 452 million) is to settle AMA-NP's intra-group debt and the second part of the payment is to acquire AMANGO's 100% equity.

3.5.1 RECOMMENDATION

Accept CMOC's bid to buy AMANGO's niobium phosphates in Brazil.

3.5.2 JUSTIFICATION

CMOCs bid settles US$450 million of AMA-NP's debts leaving a total of US$1049.88 million for the equity of AMA-NP. Per every US$100 million AMA-NP is earning, CMOC is willing to pay 45% more which is a good sale for AMA-NP. Also, per the net assets of AMA-NP, CMOC is paying 10.21% more which is advantageous to AMA-NP. Finally, per the discounted cash flow of AMA-NP, the consideration CMOC is paying is 3.47 times the equity value of AMA-NP. (**Appendix VIII**)

Additionally, the political atmosphere does not seem favorable for AMANGO's activities as indicated by the PESTEL analysis. (**Appendix III**)

3.6 CORPORATE RECONSTRUCTION AND REORGANISATION

The PIC seeks to make investments that increase shareholder value while making positive socioeconomic impact. The Board needs to identify the core and non- core assets to help in their assets disposal. The board is faced with two options:

Viewpoint 1: Focus the portfolio on Diamonds, PGMs, and Copper where AMANGO currently has a competitive edge, and manage the other assets for disposal over time.

Viewpoint 2: Maintain or broaden current portfolio.

3.6.1 RECOMMENDATION

1. Keep Diamonds, PGMs and Coal and make extra investments in Copper.
2. Sell off Iron ore and Manganese, Niobium phosphates, and Nickel.

3.6.2 JUSTIFICATION

1. The BCG matrix, the Ashridge model, and the GE product screen (**Appendix IX**) all indicate strongly the need to keep Diamonds and PGMs. Although coal is not as strongly indicated to be kept, the GE product screen which considers more factors gives good reasons for Coal to be maintained, especially with the prospect of price and demand increases and the ongoing capital injection in Canada (**STRATEGIC JOINT VENTURE IN CANADA**). Copper, although a grey area, should be kept because of its high fit with the group's parenting skills and resources.
2. After detailed analysis, all three matrices (**Appendix IX**) point towards the sale of Niobium, Iron and Manganese, and Nickel.

4. ETHICAL CONSIDERATIONS

These ethical issues have been identified:

- Health and safety concerns in Australia
- Fair working conditions in Australia
- Public relations in Australia
- Operational Indiscipline

4.1. HEALTH AND SAFETY CONCERNS IN AUSTRALIA

AMANGO is faced with the dilemma of balancing expense control with the health and safety interests of employees. As such, corners are being cut on safety measures. Employee unions are raising concerns and a strike across countries could greatly harm profitability.

4.1.1. Recommendation

1. AMANGO should recruit Health and Safety Professionals (HSPs) to ensure that health and safety standards are strictly adhered to at the various divisions of the company.
2. A forum should be organized immediately to apologize to employees and to rebuild their confidence in the operational procedures of AMANGO.

4.1.2. Justification

1. Health and safety standards were breached due to the lack of strict supervision, and conflict of interest. Therefore, some employees, other than managers, should be assigned solely towards ensuring the health and safety of employees.
2. Employees are key stakeholders who help drive the company's objectives. They may have lost trust that AMANGO would offer protection from occupational health hazards and this may affect productivity.

4.1.3. Action plan

1. Organize a forum immediately for the public and employees.

2. Recruit a permanent Health Service Personnel.

4.1. FAIR WORKING CONDITIONS IN AUSTRALIA

AMANGO Coal Australia has to find a fine balance between reducing labor costs, full utilization of resources and responsible employee treatment.

4.1.1 Recommendation

1. AMANGO Coal Australia should organize a forum with employees to negotiate wage increase calls and also to explain the directive to "radically restructure" the organization.
2. Injured employees should be compensated before being laid off.

4.1.2 Justification

1. The employees, as stakeholders, deserve to receive enlightenment on the group's policies.
2. According to the International Labor Organization (ILO) workers need to be compensated for work-place injuries.

4.1.3 Action plan

1. Organize a forum immediately for the public and employees.
2. Institute a scheme to compensate employees who have suffered work place injuries. All employees should also be insured against work-related injuries.

4.2. PUBLIC RELATIONS IN AUSTRALIA

AMANGO has had the opportunity to use PR to manipulate and alter information relating to the collapse of the mines in Australia.

Recommendation

1. AMANGO should avoid the use of press agentry and employ the use of the public information model as proposed by Grunig's Excellence Theory.
2. AMANGO should issue a press release; fully discussing happenings and reassuring the public of its commitment to health and safety standards.

Justification

1. Both the public and employees, as stakeholders, deserve to know the truth about events at AMANGO. Failure to disclose such information is tantamount to a breach of trust.
2. A press release will ensure that information is thoroughly distributed.

Action plan

1. Issue a press release providing the public with information on the mine collapses.

4.4 OPERATIONAL INDISCIPLINE

AMANGO's managers are practicing inventory fraud by ramping up closing inventory.

Recommendation

1. AMANGO's managers should use marginal costing as indicated in **3.3.2 c**

APPENDICES

Appendix I SWOT ANALYSIS

STRENGTHS	WEAKNESSES
• Listing on both London Stock exchange and Johannesburg stock exchange, and operations in 45 countries worldwide gives AMANGO more access to capital. • Leading auditing firm- Del Tsu Incorporation as auditor and PIC being the largest fund manager in Africa improves corporate image. • Strong mission and vision statement. • Associate of chamber of mines and organizations gives AMANGO bargaining power.	• Low credit ratings due to junk status • Management inefficiencies and operational indiscipline • Limited financial capacity • Highly leveraged balance sheet.
OPPORTUNITIES	**THREATS**
• Operations in 45 countries around the world. • Barriers to entry in mining industry: **a.** Economies of scale **b.** Huge capital requirement for start- ups • Strategic homogeneity and heterogeneity in the industry. • Industrial unrest in Australia.	• Highly unionized labor force means labour has power to disrupt operations. • Exchange rate risk induced by multinational operations. • Threat of takeover by competitors due to poor performance. • Threat of losing shareholders to competitors due to relatively higher profit margins(profitability) of competitors. • Possibility of commodity prices being unable to recover in the future. • Removal from blue chip equity index.

Appendix II CRITICAL SUCCESS FACTORS/ AMANGO'S PILLARS OF VALUE

CRITICAL SUCCESS FACTORS(weights)/ Mission statement Pillars	Managing divisional performance group wide	Strategic JV decision in Canada	Strategic disposal in Brazil	Balance sheet deleverage or share buy-back	Operational risk and industrial action in Australia	Corporate reconstruction and reorganization
(A). Safety and Health(30%)	5				6	

(B). Environment(20%)		6				
(C). Socio-political(15%)		5	3	4	6	2
(D). People(13%)				5	6	
(E). Production(10%)		5			6	
(F). Cost(7%)	*	*	*	*	*	*
(G). Financial(5%)	*	*	*	*	*	*
TOTAL EFFECT	**1.5**	**2.45**	**0.45**	**1.25**	**4.08**	**0.3**
RANK	**3RD**	**2ND**	**5TH**	**4TH**	**1ST**	**6TH**

*Level of effect on the Critical success factors cuts across.
Value key (6-highest, 1-lowest).
Ranking has been done in ascending order.
Total effect is the product of weighted average effect on critical success factors.

Appendix III PESTEL ANALYSIS

POLITICAL/LEGAL

- Change of presidency in Brazil resulting in changes in fiscal policies and BRICs arrangements
- South African government's black empowerment scheme
- New mining charter that requires AMANGO to return mining permits for re-assignment; AMANGO faces a possible revocation of their mining permit in South Africa
- Deaths in Australia mines

ECONOMIC

- Decline in commodity prices due to the shift of China's economy from infrastructure to consumption
- Inability to divest due to lack of market for assets
- Downgrade of credit rating status to junk
- PIC threat to offload shares
- Lack of operational discipline in the organization

SOCIO CULTURAL

- Mine crash in Australia
- Aboriginal group in Canada
- Managers cutting back on health and safety checks

TECHNOLOGY

- New mine construction in Canada

ENVIRONMENTAL

- Increased CO_2 emissions and new water consumed.

Appendix IV MENDELOW'S STAKEHOLDER ANALYSIS MATRIX

	LOW INTEREST	HIGH INTEREST

HIGH POWER	KEEP SATISFIED • OTHER GOVERNMENT • CREDIT RATING AGENCIES	KEY PLAYERS, KEEP CLOSE • PIC • SOUTH AFRICAN GOVERNMENT • SHAREHOLDERS • EMPLOYEES
LOW POWER	MONITOR • GENERAL PUBLIC • MINING TOWN POPULATION	KEEP INFORMED • ABORIGINAL GROUP IN CANADA • CMOC • MEDIA

Appendix V COMPUTATION OF NPV

Computation of Weighted Average cost of capital;

WACC (r)= $\left(\frac{equity}{total\ capital} * return_{equity}\right) + \left(\frac{debt}{total\ capital} * (1 - tax) return_{debt}\right)$

WACC (r)= $\left(\frac{21342}{52013} * 0.1212\right) + \left(\frac{30671}{52013} * (1 - 0.31) 0.062\right)$

WACC (r)= $(0.41032 * 0.1212) + (0.5897 * 0.04278)$ WACC (r) = 0.07495

NPV= $\sum \frac{cash\ inflows}{1+r} - cash\ outflow$

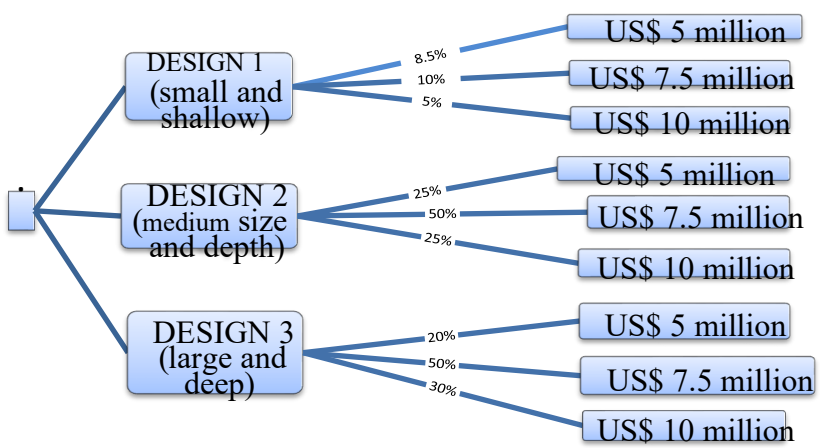
NPV= $constant\ cash\ inflow \left(\frac{(1+r)^n}{r}\right)$ – cash outflow

NPV= $30.43\left(\frac{1-(1+0.075)^{-9}}{0.0075}\right)$

NPV= 180.5670-129.0642

NPV=US$51.5028 million

Appendix VI DECISION TREE FOR QUINTA'S PROJECT



	DESIGN 1	DESIGN 2	DESIGN 3

Probable Demand	(5*85%) + (7.5*10%) + (10*5%)= **5.5 million**	(5* 25%) + (7.5* 50%) + (10* 25%)	(5* 20%) + (7.5*50%) + (10* 25%)
Probable Revenue	5* US$ 50.24 **= US$ 276.32 million**	7.5* US$ 50.24 **= US$ 376.8 million**	7.25* US$ 50.24 **= US$ 364.24 million**
Total Cost	US$ 75+ (US$ 26.38*5.5) **=US$220.09 million**	US$ 87.5 + (US$ 26.38*7.5) **= US$ 285.35 million**	US$ 100 + (US$ 26.38*7.25) **= US$ 291.255million**
Probable Profit	= **US$56.23 million**	= **US$91.45 million**	= **US$72.985 million**

Probable Revenues= (Demand* Selling Price)
Total Cost = Fixed Cost+ (Variable Cost*Demand)
Probable profit= Probable Revenue- Total Cost

Appendix VII BALANCE SHEET DE-LEVERAGE OR SHARE BUYBACK

Total property portfolio	18,030
50% residential apartment	9,015
71% up for sale	6,400.65
29% not up for sale	2,614.35

OPTION 1

Use the total proceeds to reduce medium and long term borrowings.

	Borrowings and other Financial Liabilities	PPE	Sales Proceeds
	USD	USD	USD
Balance at 2016	16,318	29,621	-
Sales Proceeds	6,400.65	(6,400.65)	6,400.65
Repayment of liability			(6,400.65)
Balance after adjustment	**9,917.35**	**23,220.35**	**Nil**
Amount relatable to two-year(medium) term loan		1,758.35	

OPTION 2

Use the total proceeds from sale of assets in a share buy-back.

	Borrowings and other financial requirements	PPE	Called-up shares	Retained Earnings
	USD	USD	USD	USD
Balance at the end of 2016	16,318	29,621	772	28,301
Sale proceeds		6,400.65		(5,973.94)
Share buyback(1706.84*0.25)			426.71	
Balance at the end of 2016 after adjustment	**16,318**	**23,220.35**	**345.29**	**22,327.06**

GEARING EFFECT

	Before Adjustment 2016	**Option 1**	**Option 2**
LTD (Borrowings and other liabilities	24,815	18,414.35	24,815
Total Capital(Total Assets – Current liabilities)	46,174	39,773.35	39,773.35
Gearing Ratio	**53.7424%**	**46.2982%**	**62.391%**

IMPACT ON EARNINGS PER SHARE

	Current Values	Option 1	Option 2
Earnings for 2016(Loss)	(5842)	(5842)	(5842)
Add: Interest saved on medium term loans			
6400.65*6.2%*69%		273.8198	
Add Reduction in Credit spread			
0.3%*8159*69%		16.88913	
Less: Property rent(6400.65*14%*69%)		(618.30279)	(618.30279)
Adjusted Earning	**(5842)**	**(6169.59386)**	**(6460.30279)**

ADJUSTED EARNINGS PER SHARE

	Current	Option 1	Option 2
Adjusted Earning	(5842)	(6169.59386)	(6460.30279)
Number of shares	3088	3088	1381
Adjusted EPS	**(1.89)**	**(1.998)**	**(4.678)**

RE-COMPUTATION WACC:

Current WACC: 7.4957%(**Appendix V**)

OPTION 1

$$= \left(\frac{11580}{(11580 + 9917.35)} * 6.057\%\right) + \left(\frac{9917.35}{(11580 + 9917.35)} * 5.9\% * 0.69\right)$$
$$= \mathbf{0.0514} \ = \mathbf{5.14}\%$$

OPTION 2

$$= \left(\frac{9979.8375}{9979.8375+9917.35} * 6.641\%\right) + \left(\frac{9917.35}{9979.8375+9917.35} * 6.2\% * 0.69\right)$$
$$= \mathbf{0.0546} = \mathbf{5.46}\%$$

Appendix VIII BUSINESS VALUATION

	BRL	USD
Non-Current Assets	3,719.00	1,152.89
Net Current Assets	806.00	249.86
Long term Liabilities	(1,452.00)	(450.12)
Net Assets	3,073.00	952.63
EBITDA	163.70	50.75
Underlying EBIT	159.75	49.52
Finance Charge	(3.96)	(1.23)
Tax	(49.51)	(15.35)
Earnings	106.28	32.95
BRL/USD = 0.31		
Capital Weights based on CMOCs data *Values in USD*		
	Book Value	**Market Value**
Ordinary Equity	500.00	2900.00
Preference Share	200.00	270.00
Bond	1200.00	1165.05
Total Capital	**1,900.00**	**4,3350.05**
Equity	700.00	3,170.00
Debt	1,200.00	1,165.05
Equity Weight	37%	73%
Debt Weight	63%	27%
WACC CALCULATION		
Risk		3%
Market Risk Premium		5%
Beta		1.824%
Cost of Equity (Ke)		12.12%
Cost of debt (Kd)		6.00%
Tax		31%
Based on:	Book Value	Market Value
WACC	7.1%	10.0%

AMOUNT IN MILLIONS

DISCOUNTED CASHFLOW – Free cash flow to firm (FCFF)			
	2016	Terminal Value	
EBIT	159.75		
Less: Tax(31%)	(49.52)		
Add: Depreciation	3.95		
Less: Working Capital + Capital Expenditure	(103.23)		
	10.95	**1,074.48**	6% Sustainable Growth rate
Discounted FCFF		977.02	1 – year discounting
	BRL	USD	
EV	977.02	302.87	
Les: Net debt	-	-	
Equity Value(Without synergy)	**977.02**	**302.87**	
+			
Synergies	282.30	87.51	
= Equity Value(With synergies)	**1,259.31**	**390.39**	
MARKET VALUATION (P/E)			
AMA-NP Earnings	106.28	32.95	
P/E Ratio	13	13	
Equity Value	**1,381.64**	**428.31**	
Cost Synergies (Economies of Scale)			
Annual Savings (after-tax)	28.16	8.73	
Total Savings (Perpetuity)	282.30	87.51	

Amount in USD millions	$ million
CMOC Consideration	
Total Consideration	$1,500.00
Intra-group debt settlement	$ 450.12
Equity Purchase Value	$1,049.88
Deal Multiples (Market Valuation)	
AMA-NP Earnings (Standalone)	32.95
AMA-NP Earnings (with synergies)	41.68
Implied Multiple (P/E) - Standalone	31.87 times
Implied Multiple (P/E) - with synergies	25.19 times

CMOC Multiple (P/E)	13.00 times
Purchase Premium - Standalone	145.12%
Purchase Premium - with synergies	93.78%

CMOC is buying AMA-NP at 145% premium to their prevailing P/E ratio
CMOC is buying AMA-NP at 94% premium to their prevailing P/E ratio

Net Book Valuation

AMA-NP Net Assets	952.63
CMOC Equity Offer	1,049.88
Purchase Premium	10.21%

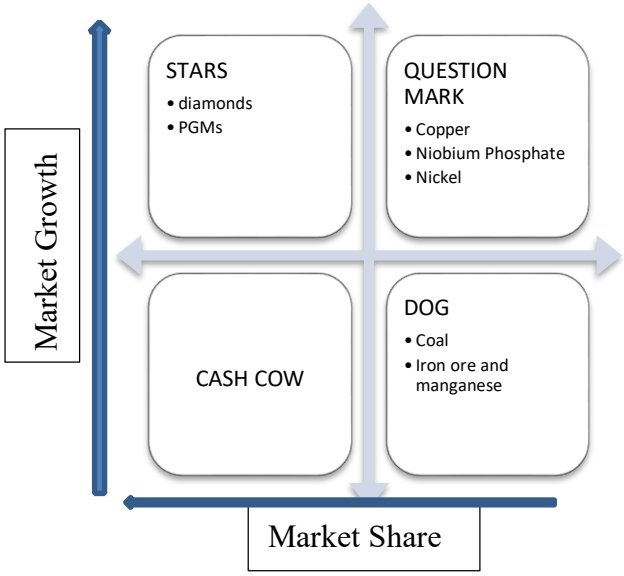
CMOC is buying AMA-NP at 10.21% premium to their prevailing Net Assets (Revalued)

DCF Valuation

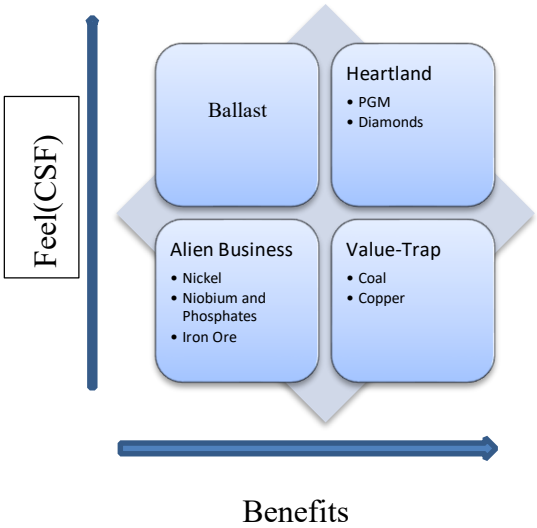
AMA-NP Equity Value ($) - Standalone	302.87
AMA-NP Equity Value ($) - with synergies	390.39
CMOC Equity Offer	1,049.88
Purchase Premium - Standalone	3.47
Purchase Premium - with synergies	1.69

CMOC is buying AMA-NP 3.47x times their Equity Value based on DCF (Standalone)
CMOC is buying AMA-NP 1.69x times their Equity Value based on DCF (including synergies)

Appendix IX BOSTON CONSULTING GROUP(BCG) MATRIX



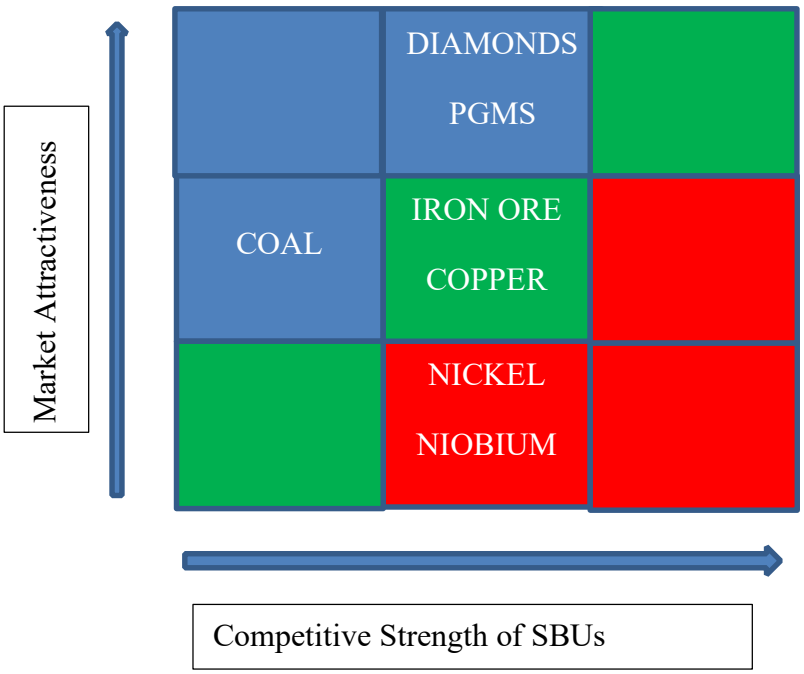
ASHRIDGE MODEL



Ballast – Liquidate whilst getting higher returns as they can move to Alien business.

Alien Business – Shut the segment down although it may provide value.
Heartland – There should be much attention given to this category as the business gains a lot.
Value-Trap – Prices may never increase for this category.

GENERAL ELECTRIC PRODUCT SCREEN



Legend:

Blue: Grow or Invest

Green: Earn selectively

Red: Divest or Harvest