# Ma'aden

## Underweight

## Challenging times ahead

| | |
|---|---|
| **Price (SR)** | **14.3** |
| **12-month target price (SR)** | **10.9** |
| Potential downside (%) | ↓ **(23.4)** |

**The Saudi Arabian Mining Company (Ma'aden) faces challenges as all its five operational gold mines are expected to shut down over 2010-14, the planned aluminum project confronts financial obstacles, and the phosphate business, the facilities for which are under construction, is likely to result in low returns on capital**

### Stock details

| | |
|---|---|
| 52-week range H/L (SR) | 30.5/10.2 |
| Market cap ($mn) | 3,515 |
| Shares outstanding (mn) | 925 |
| Listed on exchanges | Tadawul |

| **Price perform (%)** | **1M** | **3M** | **12M^** |
|---|---|---|---|
| Absolute | (14.9) | 16.8 | (28.8) |
| Rel. to market | (6.9) | 11.8 | 10.2 |

| **Avg daily turnover (mn)** | **SR** | **US$** |
|---|---|---|
| 3M | 200.6 | 53.5 |
| 12M | 290.4 | 77.4 |

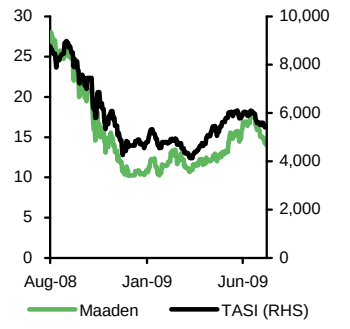
| | |
|---|---|
| **Reuters code** | 1211.SE |
| **Bloomberg code** | MAADEN AB |
| **Website** | www.maaden.com.sa |

### Valuation multiples

| | 08 | 09E | 10E |
|---|---|---|---|
| P/E (x) | 36.5 | 53.1 | 182.8 |
| P/B (x) | 0.6 | 0.8 | 0.8 |
| EV/EBITDA (%) | 227.6 | 102.0 | 109.0 |
| Div yield (%) | NA | NA | NA |

Source: NCBC Research estimates

### Share price performance




Source: Bloomberg

### Financials

| | | 2008 | 2009E | 2010E | 2011E | CAGR 08-11 (%) |
|---|---|---|---|---|---|---|
| Revenues | SR mn | 460 | 621 | 644 | 2,655 | 79.4 |
| Normalized EBITDA | SR mn | 57 | 127 | 119 | 1,143 | 172.0 |
| Normalized net income | SR mn | 260 | 244 | 71 | 124 | (22.0) |
| Total debt | SR mn | 820 | 6,844 | 10,878 | 13,973 | 157.3 |
| Equity | SR mn | 16,827 | 17,070 | 17,138 | 17,257 | 0.8 |
| EBITDA margin | % | 12.4 | 20.4 | 18.4 | 43.1 | |
| Net margin | % | 56.6 | 39.2 | 11.0 | 4.7 | |
| Reported RoE | % | 1.5 | 1.4 | 0.4 | 0.7 | |
| Adjusted RoE ^ | % | 4.7 | 2.5 | 0.8 | 1.6 | |

Source: Company, NCBC Research estimates
^ Adjusted RoE refers to normalized income divided by equity, net of all cash and short term investments

- **Diminishing gold business.** Ma'aden's total mineral resources comprise 10mn ounces of gold, of which only 1.3mn is classified as reserves. Gold sales, which constitute nearly the entire current revenues, declined from 203,655 ounces in 2005 to 127,744 in 2008. Ma'aden had estimated gold production to reach 182,000 ounces in 2008; however, the actual number fall 25% short of management's guidance. Ma'aden's all five operational mines are expected to shut down over 2010-14. These factors lead us to believe that Ma'aden is less a long-term gold play, the gold business contributing only 4% to our enterprise value sum-of-the-parts valuation
- **Low return from the phosphate business.** We expect Ma'aden Phosphate Company (MPC) to come on stream in H2 2011 and generate good margins, given its integrated model. Nevertheless, given our estimates of small earnings relative to the SR17bn required capital expenditure, we expect MPC to generate low returns on investment
- **Aluminum project does not appear feasible in the near-term.** Considering the tight credit markets and the absence of an equity partner, we estimate that the Ma'aden can mobilize only 15-20% of the SR39bn required for the aluminum project. Additionally, based on the feasibility study in the IPO prospectus, the project is likely to have a negative net present value (NPV), assuming a discount rate of 8% or more. Both these factors raise concerns on the economic feasibility of the project. We do not incorporate the project in our model
- **Ma'aden's RoE does not cover cost of equity.** Revenue and earnings are expected to increase sharply in 2011 and 2012, driven by the phosphate project. However, the company's RoE will remain lower than its cost of equity, even after adjusting for cash and investments
- Ma'aden's stock price has risen 34% YTD vis-à-vis a 14% rise in the TASI. We believe Ma'aden's current price is unsustainable given the company's fundamentals. We initiate coverage on Maaden with an **Underweight** rating and a 12-month target price of SR10.9 using sum-of-the-parts (SOTP) valuation, with a downside potential of 23.4%

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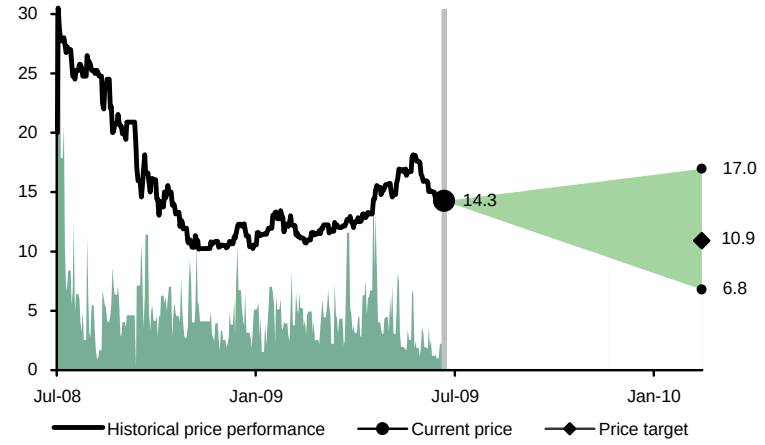
**Please refer to the last page for important disclaimer**

# Investment scenarios

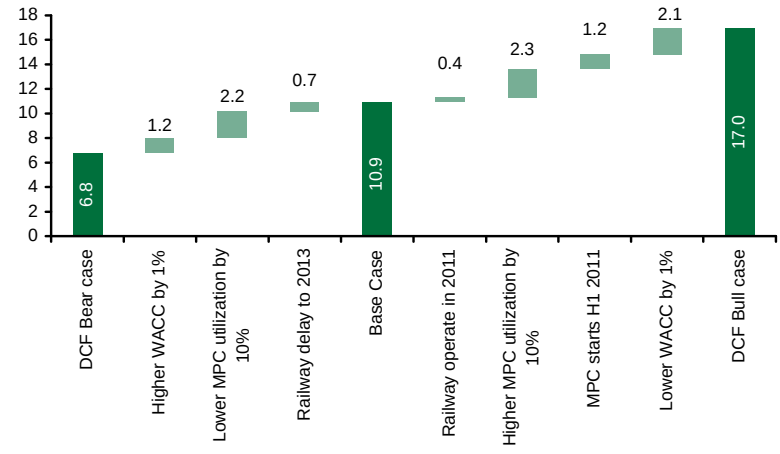
**Historical and expected price performance (three scenarios)**




Source: NCBC Research estimates

| | |
|---|---|
| **Price target: SR10.9** | Our price target is based on sum-of-the-parts approach for Ma'aden's different units. We use DCF to value the following units: Ma'aden Gold Co, Ma'aden Phosphate Co, and Ma'aden corporate (including Ma'aden Industrial) discounted at the company's cost of capital. We value earnings from cash and short-term investments separately at a different discount rate |
| **DCF bull case: SR17.0** | In this scenario, we factor in that Ma'aden will commission phosphate production in H1 2011 with 95% utilization (additional 10% compared to base case) and that the company will use the North-South railway from the beginning instead of trucks. We use a cost of capital of 10.37% |
| **DCF base case: SR10.9** | We expect gold business to decline until it reaches zero in 2015 and we expect phosphate to commission production in H2 2011 with 85% utilization. Ma'aden is assumed to use trucks to transport phosphate concentrate from Al-Jalamid to Ras Al-Zour in the first 6 months and the North-South Railway thereafter |
| **DCF bear case: SR6.8** | In this scenario, we assume a utilization rate of the phosphate project that is 10% lower than our base case, presuming 18 months delay of the North-South Railway and value the company using 12.37% discount rate. |

**Higher utilization can have significant impact on Ma'aden's price**




Source: NCBC Research estimates

**Why underweight?**

- **Diminishing gold reserves.** The current five operational mines are expected to deplete over 2010-14. In the absence of large economical new mines, we do not consider Ma'aden a significant long-term gold play
- **Phosphate project to generate low return.** Despite expected high margins, driven by the integrated production model and access to cheap feedstock sources, in our view, the project will generate low return on investment due to a large capital base supporting relatively small earnings
- **Large investments yet to be made.** The company projects the phosphate project to require capex of SR17bn; we estimate that only SR6.2bn has been invested until now
- **The aluminum project does not appear feasible in the near term.** We do not expect the aluminum project to materialize in the near term due to financing difficulties and uncertain economic feasibility of the project, given the current conditions of the aluminum industry
- **RoE does not cover cost of equity.** Despite reasonable profit margins and the use of leverage, we expect Ma'aden to generate low return on equity due to low asset turnover, as significant investment is required to support small earnings
- **Large Zakat expense due to cash balance.** When Ma'aden was owned by the Government, it did not pay Zakat (Islamic tax). However, Ma'aden will file Zakat returns annually beginning 2009. In 1Q-09 Zakat expense reached 88% of EBT, mainly driven by high cash balances, which are subject to Zakat. We expect this to continue going forward
- **Significant price rally.** Ma'aden's stock price increased 34% YTD, compared with 14% in TASI, resulting in an overvalued market price, in our view

**Upside risks**

- **Aluminum project going through.** Improved economic feasibility for the aluminum project through lower costs of development and considerably better industry fundamentals, in addition to securing SR25-30bn of additional project financing, could result in an upside potential.
- **New gold discoveries.** The gold business represents a small proportion of Ma'aden's value. However, significant discoveries can have a positive impact
- **Cross-border expansion.** If Ma'aden decides to transfer the excess cash intended for the aluminum project to cross-border expansion through different strategies, this could have a positive upside potential, hence an upside risk to our view

# Investment view

- **From a gold miner to a diversified mining company?** The Government of Saudi Arabia established Ma'aden in 1997 to capitalize on the Kingdom's mineral resources. Since then, Ma'aden has been active in gold exploration and mining in the Kingdom. To diversify away from gold mining, Maaden planned two major expansion ventures—phosphate and aluminum—with a combined capex of SR56bn (USD15bn). To finance the projects, Ma'aden went public in July 2008, raising SR10.5bn (USD2.8bn) and it plans to finance the balance through JVs and debt

**Actual gold production in 2008 was 25% below management's guidance**

- **Diminishing gold mining business.** Since its inception, Ma'aden's revenue stream has solely depended on gold mining in Saudi Arabia. Besides the current five operational mines, Ma'aden has Ad Duwayhi, a development property in the Kingdom's central region with high uncertainty associated with the economic and technical feasibility of the mine, in our view

  Gold sales declined from 203,655 ounces in 2005 to 127,744 ounces in 2008. Actual gold production in 2008 was 146,000 ounces or 25% lower than management's estimate of 182,000 ounces. This, along with the expectation that the five operational mines would be shut down over 2010-14, leads us to believe that Ma'aden will not be able meet the production targets it indicated earlier. We believe the company's gold business is diminishing and that Ma'aden is not a significant long-term gold play.

**All five operational mines will be shut down over 2010-14**

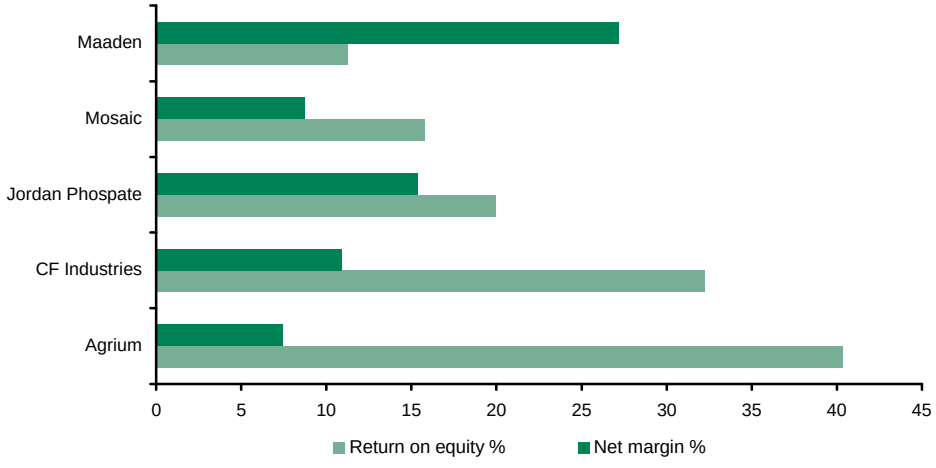
- **Good margins for phosphate, but low returns.** Ma'aden established a 70:30 JV with SABIC to mine phosphate in the north and ship it by rail (under construction) to Ras Al-Zour in the east to produce 2.9mn tons of Diammonium Phosphate (DAP). We expect the business to start operation in H2 2011.

  Given Ma'aden Phosphate Co (MPC)'s integrated model and access to cheap feedstock, we expect it to have cost advantage over other producers, which would result in superior margins. We estimate that the phosphate business would contribute 76% of Ma'aden's fair enterprise value (EV).

**The phosphate project would have low returns on capital despite high margins**

  Despite good margins, we expect Ma'aden to generate low returns on investment due to the huge capital requirements for the project. Our estimates for the project's earnings indicate that Ma'aden's sustainable RoE is lower than that of peers despite profitability, which could indicate a negative NPV for the phosphate project.

**Exhibit 1: Despite superior margins, Ma'aden's RoE appears low vs. industry peers^**




Source: Bloomberg, NCBC Research estimates
^ Margins and returns for comparable companies are based on three years rolling average

The following table supporting our analysis illustrates the estimates of an independent report by a minerals expert provided in Ma'aden's IPO prospectus. Employing these estimates and using linear extrapolation, we obtain a negative NPV for the project using 10% as a discount rate, which, in our opinion, is more appropriate for the phosphate business, given the cyclical nature of the sector, and the current global environment.

**Using higher discount rates could result in a negative NPV for the phosphate project**

**Exhibit 2: Company estimates indicate a significant downside risk for the phosphate project**

| Discount rate % | NPV (USD mn) | NPV (SR mn) |
|---|---|---|
| 9 | 231 | 866 |
| 8 | 651 | 2,441 |
| 7 | 1,139 | 4,271 |
| 6 | 1,530 | 5,738 |
| 5 | 2,150 | 8,063 |

Source: Company, NCBC Research

- **Aluminum project does not appear feasible in the near-term.** Ma'aden's plan of becoming a fully integrated primary aluminum producer (from mine to metal) currently faces challenges. The project, according to the company's earlier plan, would have required an investment of SR39bn (USD10.4bn). However, we believe that in the current environment, the project is not feasible in the near-term owing to two factors — **economic profitability and financing ability**

  The company planned to use a highly leveraged structure (70:30 debt:equity) to finance the project along with a 51:49 JV with Rio Tinto Alcan. In Dec 08, due to the global economic crisis, Rio Tinto Alcan faced financial difficulties and pulled out of the deal. Since then, Ma'aden has not made progress in firming up a finance deal for the project due to absence of full equity commitment and tightening credit conditions.

**Ma'aden planned equity stake only covers 15.3% of required investments in the aluminum project**

**Exhibit 3: Ma'aden's planned equity stake only covers 15.3% of total required investments**

| | Required funds (SR bn) | Contribution (%) | Secured |
|---|---|---|---|
| Ma'aden | 6.0 | 15.3 | Yes |
| Rio Tinto Alcan | 5.7 | 14.7 | No |
| **Total equity** | **11.7** | **30** | |
| Debt | 27.3 | 70 | No |
| **Total** | **39.0** | **100** | |

Source: Company, NCBC Research estimates

We believe the company will face impediments in financing the project unless the credit markets show a strong improvement and another partner steps in. If we assume an economic recovery in 2010 or late 2009, we believe it would still take some time for 'potential' debt and equity financiers to step in for the project to materialize.

**Given the adverse economic environment and the gloom surrounding the aluminum industry, the project does not appear economically feasible in the near-term**

Moreover, the aluminum industry is facing significant difficulties due to slowing demand, resulting in steep price declines. The drop in utilization and selling prices has led to major capacity shutdowns in the global aluminum industry.

An independent minerals expert's report in Ma'aden's IPO prospectus indicated the NPV estimates of Ma'aden's aluminum project. Using a low discount rate of 8% would result in a negative NPV according to these estimates. Thus, the project does not appear economically viable, particularly in current market conditions.

**Exhibit 4: Company estimates indicate a significant downside risk for the aluminum project**

| Discount rate % | NPV (USD mn) | NPV (SR mn) |
|---|---|---|
| 9 | (690) | (2,588) |
| 8 | (113) | (424) |
| 7 | 614 | 2,303 |
| 6 | 1,538 | 5,768 |
| 5 | 2,721 | 10,204 |

Source: Company, NCBC Research

- **Strong balance sheet?** On the face of it, Ma'aden's balance sheet appears strong because of the huge un-invested cash piles and short-term investments sitting on the balance sheet. (Based on our discussions with management, we understand that these are Murabaha investments.)

**High off-balance sheet capital commitments indicates that significant cash is yet to be used for capital expenditure**

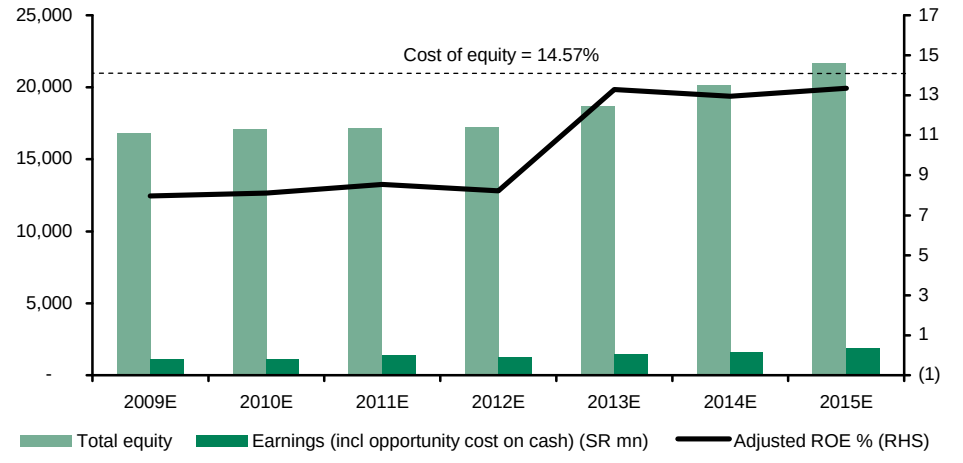
Although we believe that Ma'aden has secured all necessary financing for the phosphate business, a look at the company's balance sheet shows that most of the expected capex required for the phosphate is yet to flow into fixed assets. This indicates that most of the capex has not been made. High off-balance sheet capital commitments (SR10.9bn as of 1Q-09) support this view. (*Please refer to page 16 for additional analysis)*

In our model, we estimate the company's return on equity over 2009-15, which leads us to believe that the company's value would diminish due to holding of large cash balances and investments. We believe that over the forecast period, Ma'aden would be unable to generate a sufficient return on its cash balance and investments to match its cost of equity.

**We estimate that Ma'aden's RoE will remain below cost of equity due to the large capital base supporting relatively small earnings**

Moving a step further, we assume that the company would generate returns on cash and investments that match its cost of equity which, although improbable, is an interesting argument to explore. RoE remained lower than cost of equity, as the below chart illustrates.

**Exhibit 5: Ma'aden RoE is lower than its cost of equity**




Source: NCBC Research estimates

**In Q1-09, Zakat expense was 88% of EBT and is expected to remain high due to large cash balances**

- **Zakat expenses to further hit cash base.** As a state owned enterprise, Ma'aden did not historically pay Zakat. Zakat expense (required by all Saudi companies operating in KSA) is 2.5% of the Zakat base and can differ significantly from earnings. However, limited understanding of Zakat calculations has led many analysts to assume 2.5% of earnings before Zakat (EBT). In our view, this is a significant understatement of the expected Zakat expense

We have split the Zakat base into two components: adjusted income and balance sheet items (relevant items). The adjusted income results in a variable component of Zakat expense whereas the balance sheet items result in a fixed component of the Zakat expense. In our opinion, the fixed component is a cause for concern since it can remain high even when the company does not report earnings.

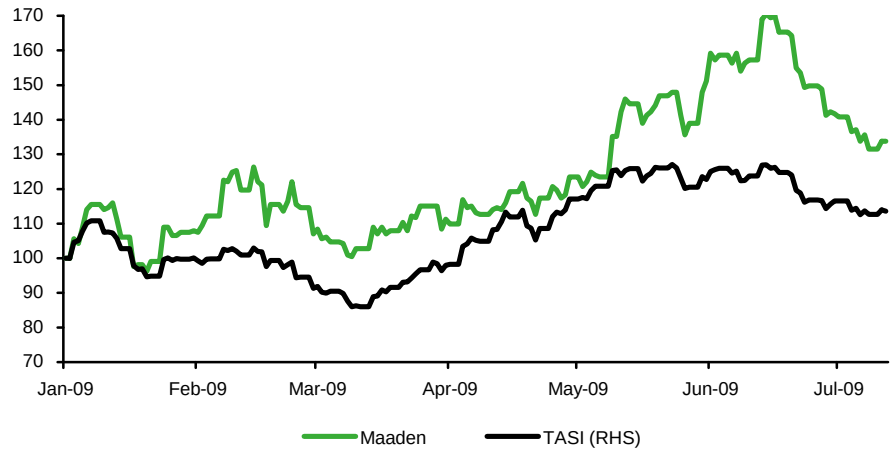
In 1Q-09, Ma'aden recorded around 88% of EBT as Zakat expense. Based on our analysis, the huge cash and short-term investments balances, which are subject to 2.5% Zakat rate, were the primary drivers of this abnormally high Zakat rate as a percentage of EBT. Given the expected decline in earnings in 2009 and 2010, we expect Zakat expense to remain high as a percentage of EBT.

- **Stock price increased more than double the market YTD:** Ma'aden's IPO price was SR20 per share and the stock increased sharply on listing, reaching a historical high of SR30. However, as market awareness about the difficulties facing the aluminum project (which represented a significant portion of the IPO value) increased, the stock declined to around SR10 per share by end-2008.

**Ma'aden's price increased 34% YTD relative to 14% increase in TASI.**

Ma'aden's stock price, however, increased 34% YTD reaching SR14.25 and outperformed the index by 20%.

**Exhibit 6: YTD price movement vis-à-vis TASI (Rebased, December 31, 2008 = 100)**




Source: Bloomberg, NCBC Research

To reach the fair value of the company, we use sum-of-the-parts methodology, in which we value gold, phosphate, income from cash and investments, and corporate costs independently *(Please see valuation section Page 9)*.

**We believe the stock is currently overvalued and does not account for the future challenges facing the company**

In our opinion, the current market price does not factor in the probable delay in the aluminum project, the expected low returns from phosphate and the depleting gold reserves. **We initiate coverage on Ma'aden with an Underweight rating and a price target of SR10.9, indicating a downside potential of 23.4%.**

# Investment upside risks

- **Discovery of new gold reserves:** A potential upside risk is the discovery of new gold reserves, either in the operational mines, development property, or new mines. Ma'aden recently increased the exploration budget, which could result in new discoveries. However, most of Ma'aden's gold assets cannot be classified as reserves, indicating that current geological evidence (and economic feasibility) has not been established (Please refer to Appendices 1 and 2 for more details)
- **Cross border expansions:** Ma'aden's exploration activities have focused on resources within the Kingdom of Saudi Arabia. In case of cancelation of the aluminum project or a significant delay in the same, the company would be left with a large cash balance. To boost profitability, Ma'aden could start moving across the border through greenfield investments, acquisitions, JVs, or strategic cooperation agreements
- **Aluminum project:** In our model, we do not incorporate the aluminum project, as we do not expect it to materialize in the near-to-medium term. A potential upside risk is the project going through in the near-to-medium term. However, even if the project financing were resolved, economic feasibility of the project remains to be proven, which could otherwise, have a negative impact on the company's value
- **Better-than-expected performance of the phosphate project:** Earlier-than-expected commissioning of operations, higher utilization rate, higher selling prices, or faster deployment of rails to transport phosphate from north to east could lead to better-than-expected performance of the phosphate project. However, these factors could be worse than expected and could have an additional downside potential as well

# Contents

# Valuation methodology

Since Ma'aden has different units, each with different ownership structures, we use a sum-of-the-parts valuation to arrive at the enterprise value and discounted cash flows (DCF) to value each unit. We value earnings from cash and short-term investments independently, employing a different discount rate.

Since most of Ma'aden's revenue and earnings are expected to accrue from 2011 onward; we do not use relative valuation at this stage.

## Cost of capital and terminal growth

We use two discount rates, one for Ma'aden's core operations and another to value earnings from cash and short-term investments.

We estimate Ma'aden's cost of capital to be 11.37%, based on the following assumptions:

- Risk-free rate based on US 10-year Treasury yield of 3.4% (as of July 2009)
- Adjusted beta of 1.1 based on industry average as Ma'aden does not have a long track recorded as a public company
- Market risk premium for the US of 8.5% and adjustment by 2.1% for Saudi Arabia, resulting in a Saudi market risk premium of 10.6%
- Long-term sustainable debt to capital of 30%

**Exhibit 7: Weighted Average Cost of Capital (WACC) for core operations**

| | |
|---|---|
| **Equity risk premium (%)** | **10.6** |
| Risk free rate (%) | 3.4 |
| Beta | 1.1 |
| **Cost of equity (%)** | **14.57** |
| **Cost of debt (%)** | **3.9** |
| Debt to Capital ratio (%) | 30.0 |
| **WACC (%)** | **11.37** |

Source: NCBC Research estimates

**For earnings from cash holdings, we use a different discount rate.** We use the risk-free rate plus 2% (representing the risk spread), resulting in a discount rate of 5.4% for cash earnings.

Beyond our forecast horizon, we use a terminal growth of 2%, except for the gold unit, which we assume would be discontinued in 2015. As highlighted in our Investment Risks section (*please refer page 7*), significant gold discoveries would provide upside to the gold unit.

# Sum-of-the-parts

We estimate Ma'aden's Enterprise value (EV) using the SOTP method by discounting expected free cash flows to the firm (FCFF) for each unit (excluding earnings from cash and short-term investment balances). We forecast earnings until 2018 and we assume a terminal growth of 2% thereafter, except for the gold unit, which we assume would be discontinued in 2015. We value earnings from cash and short-term investments separately at a different discount rate.

To arrive at Ma'aden's equity value, we adjust the enterprise value by adding cash and investments and deducting debt and debt-like items. The table below summarizes Ma'aden's SOTP valuation.

**Exhibit 8: Sum-of-the-parts summary valuation**

| | Unit | EV | Ownership (%) | EV Ma'aden | EV (%) |
|---|---|---|---|---|---|
| Ma'aden Gold Company | SR mn | 450 | 100.0 | 450 | 3.9 |
| Ma'aden Phosphate Company | SR mn | 12,589 | 70.0 | 8,813 | 76.5 |
| Ma'aden Corporate | SR mn | (2,669) | 100.0 | (2,669) | (23.2) |
| Income from cash and investments | SR mn | 4,928 | 100.0 | 4,928 | 42.8 |
| | | 15,299 | | 11,522 | 100.0 |
| **Total enterprise value attributable to Ma'aden** | **SR mn** | **11,522** | | | |
| Cash and short term investments | SR mn | 7,422 | | | |
| Debt outstanding | SR mn | (6,844) | | | |
| End of service and employees savings plan | SR mn | (85) | | | |
| License fees payable | SR mn | (70) | | | |
| Provision for mine closure | SR mn | (66) | | | |
| Minority interest (Q1-09) | SR mn | (1,786) | | | |
| **Ma'aden equity value** | **SR mn** | **10,093** | | | |
| Shares outstanding | Million | 925 | | | |
| **Fair value per share** | **SR** | **10.9** | | | |
| Downside potential | % | (23.4) | | | |

Source: NCBC Research estimates

Our valuation indicates that Ma'aden is currently overvalued relative to its intrinsic value of SR10.9 per share. Given the company's current market price, we expect a 23.4% downside over the next 12-months.

We run a sensitivity analysis of the DCF valuation to the Weighted Average Cost of Capital (WACC – which we use as a discount rate for Ma'aden's core operations) and terminal growth rate assumptions, as summarized in the table below.

**Exhibit 9: Sensitivity analysis**

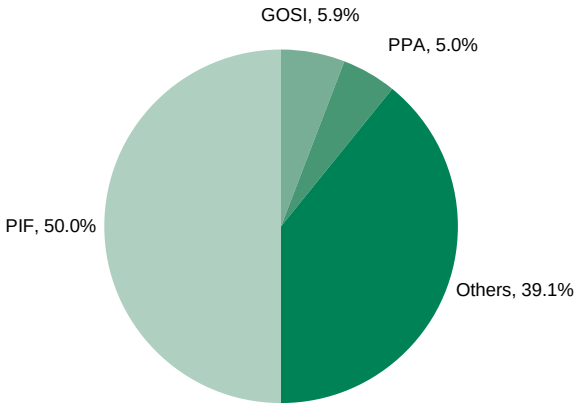
| | | WACC % | | | | | |
|---|---|---|---|---|---|---|---|
| | | **9.0** | **10.0** | **11.0** | **11.37** | **12.0** | **13.0** |
| **Terminal growth %** | **1.0** | 14.6 | 12.5 | 10.8 | 10.2 | 9.4 | 8.3 |
| | **1.5** | 15.3 | 13.0 | 11.1 | 10.6 | 9.7 | 8.5 |
| | **2.0** | 16.1 | 13.5 | 11.5 | **10.9** | 10.0 | 8.7 |
| | **2.5** | 16.9 | 14.1 | 12.0 | 11.3 | 10.3 | 9.0 |
| | **3.0** | 17.9 | 14.8 | 12.5 | 11.8 | 10.7 | 9.2 |

Source: NCBC Research estimates

# Current ownership structure

Prior to the IPO, Ma'aden was 100% owned by the government. Currently, 60.9% of the company is owned by the Government through three agencies: Public Investment Fund (PIF), General Organization for Social Insurance (GOSI) and the Public Pension Authority (PPA).

**Exhibit 10: Ma'aden is currently 60.9%-owned by the government**




Source: Tadawul, NCBC Research

# Ownership restriction/accessibility

- Investors residents in Saudi Arabia (Saudi/GCC/Foreigners) — No restrictions
- GCC investors not residents in Saudi Arabia: — No restrictions
- Non-GCC (foreign) investors: — Allowed only through swaps

## Ma'aden - Consolidated

The Saudi Arabian Mining Company (Ma'aden) was established by the Saudi Government in 1997 to capitalize on the Kingdom's minerals resources. The company has been focusing on gold mining, which comprised 100% of its revenue in 2007 and 92% in 2008. However, Ma'aden plans to diversify its operations in the next few years. The company went public in July 2008 through which it raised SR10.5bn (USD2.8bn) to finance its new expansion projects.

**Phosphate is Ma'aden's value driver**

The most important project and value driver for Ma'aden's share price is the phosphate project, in our view. The project is a JV between Ma'aden (70%) and SABIC (30%), becoming a fully integrated phosphate fertilizer project, giving the company a significant advantage vs. peers. Construction for the phosphate facility is currently in progress and we expect operations to start in H2 2011. The main risk is potential delays in the North-South Railway project and the Ras Al-Zour seaport.

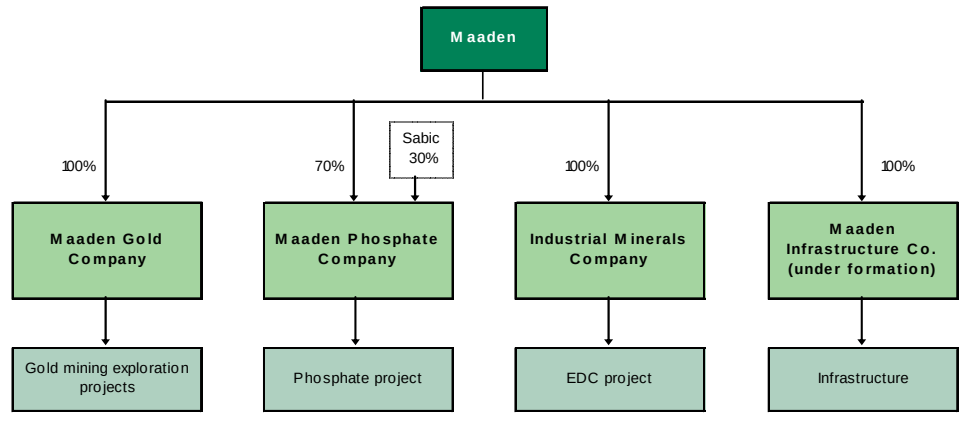
Ma'aden's largest planned diversification is the aluminum project (an integrated mine-to-metal producer) with an estimated capex of SR39bn (USD10.4bn). The project was planned as a JV between Ma'aden (51%) and Rio Tinto Alcan (49%), both representing 30% of required financing and the balance was intended to be financed through debt. In Dec 08, Rio Tinto Alcan faced financing difficulties and backed out of the deal. Although Ma'aden announced that it would go ahead with the project, the situation is surrounded with complexities.

**We do not expect the aluminum project to materialize in the foreseeable future**

Given the current aluminum prices, the massive capital requirement, and difficulty in obtaining enough financing due to the current tight credit market, we do not expect the aluminum project to take off in the foreseeable future.

In addition to phosphate and aluminum, Ma'aden established Ma'aden Industrial Company (100% owned) to further diversify the company's revenue stream. Kaolin and low grade bauxite started production in 2008 with capacities of 50,000 and 250,000 tons respectively. This comprised 7% of Ma'aden's total revenue in 2008. Ma'aden Industrial Company is developing a magnesite mine in the north of the Kingdom, and according to management, construction would begin in 2009. However, these projects are smaller than the gold and phosphate projects and are not expected to have a material impact on Ma'aden's value.

**Exhibit 11: Organization structure of Ma'aden**




Source: Company , NCBC Research

# Revenue analysis

**Gold:** Gold volume sales have been falling since 2005 due to declining reserves of the operational mines. Between 2005 and 2007, Ma'aden locked in selling prices through forward contracts, which resulted in selling prices of USD423 per ounce, around 50% less than the market price. Consequently, Ma'aden decided to close these hedging positions, which resulted in significant losses of SR446mn in 2007. **This allowed the company to sell at the market price, which pushed the revenue 88% higher in 2008, despite the 12.5% volume decline.**

**Actual gold production in 2008 was 25% lower than the management's forecast**

In the prospectus, Ma'aden forecast gold production at 182,000 ounces in 2008 and 183,000 ounces in 2009, at their peak, since mines closures would lead to volume declines. (*Please refer to Ma'aden Gold section on page 17 for more details)*. However, actual 2008 production was 25% lower than forecasted. We believe 2009 production will also display a similar trend.

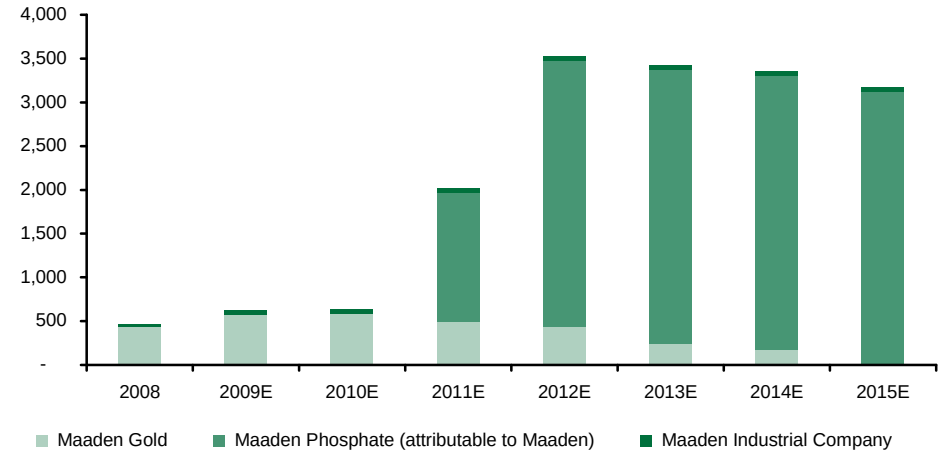
We believe management forecast is optimistic. Hence, we have discounted Ma'aden's estimate of gold production by 10% and we use this to estimate gold revenue over 2009-2014. This estimate implies 32% growth in gold revenue in 2009, which is the peak based on Management numbers.

**We believe the market has already priced in the expected growth in revenue stream, underpinned by the commencement of the phosphate project in 2011**

**Phosphate:** The phosphate project that is currently under construction is critically important to Ma'aden. We expect the project to go on stream in H2 2011, leading to growth in consolidated revenue by more than 300% in 2011, and more than 80% in 2012 because of the full year impact. We believe that these numbers are already factored in the current market price.

**Aluminum:** We have not factored in the aluminum project in our forecast because we do not expect the project to take off in the foreseeable future. The project is at its early conceptual stage. The capacity and required capex for the project are not yet clear because the company is reviewing the scale and cost of the project. Moreover, the ownership structure that will affect the value attributable to Ma'aden is not clear, since the company has not yet decided on how it will execute the project.

**Exhibit 12: Phosphate business will constitute the majority of revenue going forward**




Source: Company, NCBC Research estimates

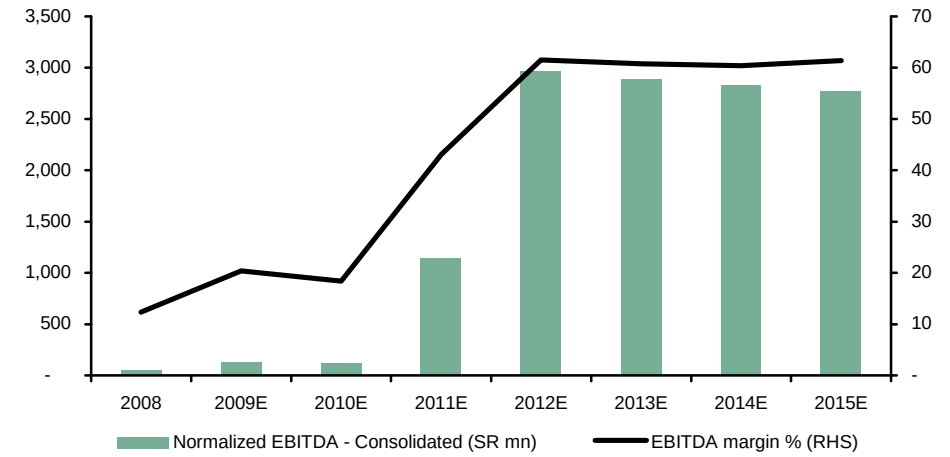
# Profitability analysis

Currently Ma'aden's costs mostly relate to gold production. Thus, in the next two years, margins would continue to be driven by the performance of Ma'aden Gold Company. From 2011 onwards, however, Ma'aden's margins will begin to depend almost solely on the phosphate business.

**Gold margins are expected to improve despite earnings decline, led by improved ore grades following the closure of the low-grade mines**

The company's earnings are expected to grow sharply over the forecast horizon mainly because of the expected growth in revenues, driven by the phosphate business. We believe that the current low margins are mainly due to the rising cost of gold? mining per ton, amplified by declining ore grade. Low ore grade has a negative impact on cost of production per ounce. Nevertheless, due to the expected closure of some of the low-grade mines, we expect margins to improve because costs per ounce will reduce; however, this improvement will be in tandem with a decline in earnings, until the commencement of the phosphate project.

**Exhibit 13: EBITDA and EBITDA margins are expected to grow in the forecast horizon**




Source: Company, NCBC Research estimates

**The fully integrated model of the phosphate project , which has the benefit of access to cheap feedstock, would result in high margins**

The phosphate project that would commence operations in H2 2011 is expected to generate high EBITDA margins. This would be driven by the company's integrated production model, which will give it a high control over cost of production. This would largely be because of control over cost of raw material, since MPC will be mining phosphate ore from deposits and will purchase subsidized natural gas and oil from Saudi Aramco.

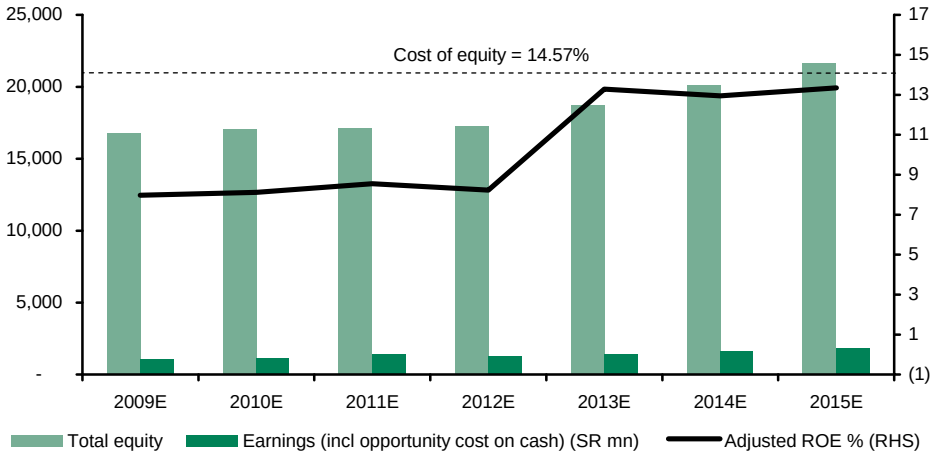
We expect MPC to perform well compared with integrated or non-integrated international peers. Integrated producers usually have a cost advantage over non-integrated producers, given their control over input costs (phosphate ore in this case). Further, Ma'aden has access to natural gas (the main input for ammonia which is used in phosphate fertilizers as well) at a subsidized price. This gives the company a distinct edge over the integrated producers as well.

However, net profit margin will not be as attractive as the EBITDA margin, owing to three factors. First, due to large capex, depreciation expenses are expected to be high in the early years of operations. Second, the project relies heavily on debt financing, resulting in high interest charges. Finally, the high Zakat expense — this expense reached 88% of Ma'aden's overall EBT in Q1-09 *(Please refer to page 41 for more discussion)*.

As mentioned earlier, although Ma'aden's margins are expected to be high, its return ratios are expected to be muted, given a large capital base supporting relatively small earnings. Ma'aden went public in 2008 and raised significant cash to finance the aluminum and phosphate expansions. However, in our view, aluminum is currently out of the reckoning at least in the foreseeable future. Thus, the massive capital base currently supports one revenue source — the phosphate business. Ma'aden's net income will remain small relative to the company's equity base. Even assuming that the company is able to earn its cost of equity on cash and short-term investments, its earnings (economic earnings) will not cover cost of equity. We illustrate the results of this analysis in the chart below:

**Despite the estimated high margins, Ma'aden will not be able to earn its cost of equity due to a large capital base and relatively small earnings**

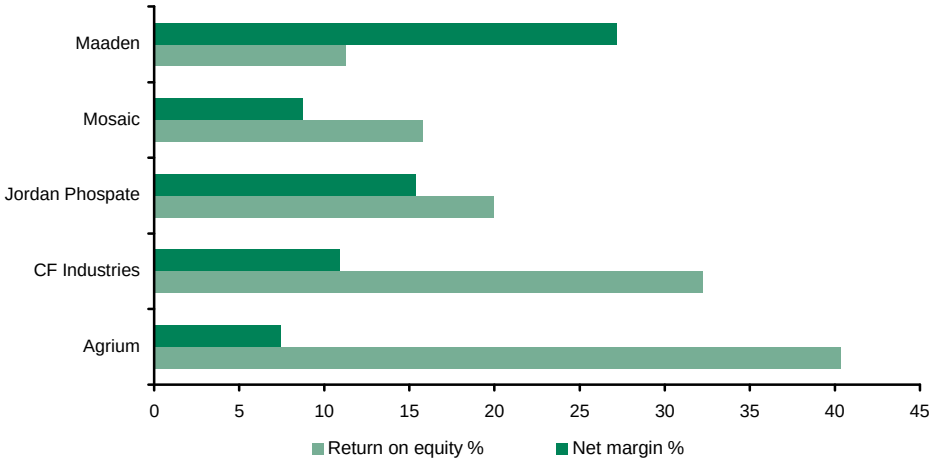
**Exhibit 14: Ma'aden will not be able to earn its cost of equity**




Source: Company, NCBC Research estimates

A look at international peers provides more insight into this analysis. Ma'aden will be able to generate good net income margin compared with other phosphate producers due to the cost advantage. However, Ma'aden's estimated sustainable RoE is much lower than competitors, considering its large capital base that supports relatively small earnings.

**Exhibit 15: Despite superior margins, Ma'aden RoE is low compared to industry peers^**




Source: Bloomberg, NCBC Research estimates
^ Margins and returns for comparable companies are based on three years rolling average

# Funding requirements

Our analysis of Ma'aden's consolidated accounts and its estimated funding requirements, alongside available financing leads us to believe that the company has secured all necessary financing for its current operations and for the phosphate project. We have factored in currently available credit that will be used for the phosphate project and have not assumed additional future debt.

**Exhibit 16: We believe that Ma'aden has secured all necessary financing (excluding the aluminum project)**

| | | 2009E | 2010E | 2011E | 2012E | 2013E | 2014E | 2015E |
|---|---|---|---|---|---|---|---|---|
| Cash & short term investments | SR mn | 7,422 | 7,833 | 9,569 | 8,895 | 10,040 | 11,180 | 12,806 |
| CAPEX | SR mn | (8,439) | (3,232) | (1,628) | (1,797) | (113) | (108) | (82) |
| Changes in working capital | **SR mn** | (1,821) | (589) | (371) | (582) | 57 | 25 | 473 |
| **Excess (shortage) cash** | **SR mn** | **(2,837)** | **4,012** | **7,570** | **6,515** | **9,984** | **11,097** | **13,197** |
| Unutilized credit | SR mn | 7,733 | 3,700 | 605 | 1,325 | 2,576 | 3,827 | 5,078 |
| **Excess liquidity (Excl aluminum)** | **SR mn** | **4,896** | **7,712** | **8,175** | **7,840** | **12,560** | **14,924** | **18,275** |
| **Aluminum funding deficit** | **SR mn** | **(34,104)** | **(31,288)** | **(30,825)** | **(31,160)** | **(26,440)** | **(24,076)** | **(20,725)** |

Source: Company, NCBC Research estimates
^ The table is based on consolidated accounts for Ma'aden

**Excluding the aluminum project, we believe that Ma'aden has secured all the necessary financing**

The table above illustrates our estimates of Ma'aden's financial resources and expected required investments over 2009-15. Our model indicates that Ma'aden will not be able to finance the aluminum project on its own. The SR39bn estimate for the aluminum project, we believe, exceeds Ma'aden's financial capabilities. Even after considering a 20% discount on the required investments, adjusting for the decline in material costs, we believe that the project would require total investment that exceeds Ma'aden's current financial resources.

# Management track-record and credibility

Ma'aden is 60.7% owned by the Government of Saudi Arabia. This is a major source of strength for the company. The tenet of Ma'aden's establishment has been the crucial role envisaged for it by the Saudi government of consolidating the government-owned mining projects and turning them into commercially viable ventures with private sector participation.

With the Saudi Government as its parent, Ma'aden enjoys its support. However, as a privatized company, Ma'aden is gradually moving away from a bureaucratic model into a commerce-driven, profit-maximizing model.

# Corporate governance and investor-friendliness

**Strong financial disclosures place Ma'aden among the most financially transparent companies**

Strong financial disclosures place Ma'aden among the most transparent companies in Saudi Arabia and make it an investor-friendly. Ma'aden strives to go beyond regulatory and legal requirements of the Saudi law and prioritizes corporate governance, standards of conduct and compliance, and reporting. Ma'aden provides a detailed breakdown of accounts even in its quarterly reports.

We believe that Ma'aden can improve its disclosure norms by highlighting its operational performance. For instance, it could provide more details on the status of current projects, and latest estimates of mine reserves.

# Ma'aden Gold Company

**Ma'aden currently has five operational mines and a developing property**

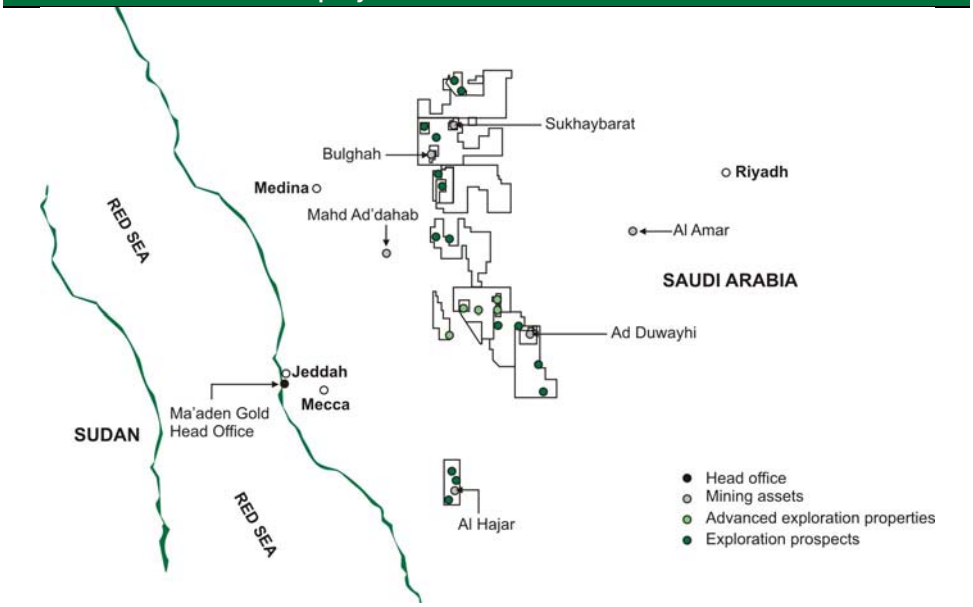
Ma'aden's revenue base is currently driven almost entirely by gold mining. The Ma'aden Gold Company (a 100%-owned subsidiary based in Jeddah), operates five mines and is developing a mining property in Al Duwayhi, in addition to five exploration projects.

## Mines overview *(Refer to appendix 2 for details of Ma'aden's mineral resources)*

Gold assets are classified into two categories: mine assets and exploration assets. In this section we present only the mine assets. The following is a summary discussion of the five operational mines and the developing mining property:

- **Mahd Ad'dhahab –** operational mine located in the west of Saudi Arabia in Al Madinah Province; mining is carried out by underground methods with total tunnel development in excess of 60km. Operations are expected to shut down in 2013
- **Sukhaybarat –** located in Al Madinah Province and is 250km north of Mahd Ad'dhahab; the mine is not operational anymore and currently comprises a processing facility for ore transported from Bulghah mine. All operations will likely cease in 2014
- **Bulghah –** located in Al Madinah Province and 65km south of Sukhaybarat processing plant; it comprises an open-pit mine, which mines lower grade ore for processing at the Bulghah heap leach facility and higher grade ores for processing at the Sukhaybarat processing facility. Operations are expected to cease in 2010

**Exhibit 17: Ma'aden Gold Company**




Source: SRK Consulting, Microsoft Encarta, NCBC Research

- **Al Ammar –** located in Riyadh Province, 195km southwest of Riyadh city; it comprises an underground mine and commenced production in January 2008. The mine is expected to be fully depleted by 2014
- **Al Hajar –** located in Asir Province, 710km southwest of Riyadh; it comprises a closed open-pit mine and heap leach facility, which is currently re-processing previously stacked and leached material. The mine was commissioned in 2001 and it continued mining and processing until depletion in 2006. All operations are expected to shut down in 2011

- **Ad Duwayhi –** is a development property on which a pre-feasibility study was completed in April 2007. The study investigates the construction of an open-pit mining operation. However, securing sufficient water supplies is the key constraint to the development of the mine

  To secure the water supply, Ma'aden will either develop a local water-well which would probably not provide sufficient water supplies or construct a 500km pipeline from Taif city (west of Saudi Arabia). The development of the pipeline is contingent on the technical and economic feasibility of the project, which is expected to be completed by 4Q-09. **Unless Ma'aden finds other significant gold reserves close to Ad Duwayahi, it would be difficult to justify the cost of the pipeline.**

**All of Ma'aden's operational gold mines are expected to shut down over the next few years**

**Exhibit 18: Ore reserves of the operational five mines (as reported by Ma'aden^)**

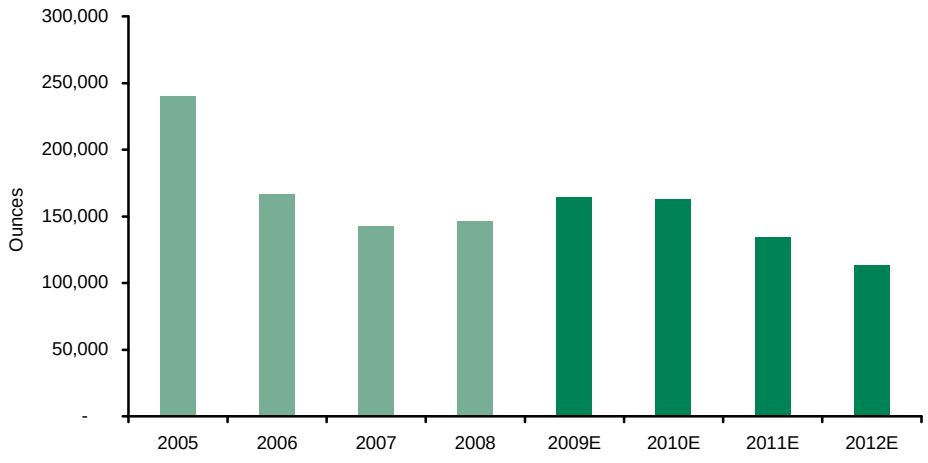
| Mine | Tonnage | Grade (gram/ton) | Gold content (ounces) | Expected closure |
|---|---|---|---|---|
| Mahd Ad'Dahab | 1,239,000 | 8.70 | 347,000 | 2013 |
| Al Ammar | 1,350,000 | 9.90 | 429,000 | 2014 |
| Bulghah | 16,768,000 | 0.80 | 428,000 | 2010 |
| Sukhaybarat | 164,000 | 0.40 | 2,000 | 2014 |
| Al Hajar | 2,143,000 | 1.30 | 87,000 | 2011 |
| **Total Ore Reserves** | **21,664,000** | **1.87** | **1,293,000** | |

Source: Company, NCBC Research
^ These numbers represent company estimates as of June 2007. In the 2008 annual report, Ma'aden stated that proven reserves reached 1.3mn ounces (from the 1.293mn ounces as of June 2007) with no further information provided

## Gold production

Ma'aden's gold sales (in ounces) have been falling since 2005, dragged by declining reserves. In 2007, Ma'aden estimated gold production to reach 182,000 ounces in 2008 and peak at 183,000 ounces in 2009 before declining due to depletion. However, Ma'aden's actual production in 2008 fell short by 25% to 146,000 ounces. To estimate future production, we have assumed a 10% discount to management's estimate.

**Exhibit 19: Ma'aden estimates gold production will peak in 2009 due to mines closure**




Source: Company, NCBC Research estimates

## Revenue and costs

With declining volumes, as shown in our forecast, gold revenue is expected to dip over the forecast period. Our price assumption is based on the consensus forecast for gold prices. Although we expect mining costs to keep rising, we expect a significant decrease in the cost per ounce of gold in 2011, due to a rise in ore grade following the closure of Bulghah, a low- grade mine.

**Exhibit 20: Gold revenue and cost**

| | | 2007 | 2008 | 2009E | 2010E | 2011E | 2012E |
|---|---|---|---|---|---|---|---|
| Gold revenue | SR mn | 244 | 429 | 567 | 590 | 498 | 438 |
| Cash cost | SR mn | 221 | 337 | 440 | 505 | 326 | 305 |
| **Summary assumptions** | | | | | | | |
| Volume | Ounces | 146,284 | 127,745 | 164,700 | 162,900 | 134,100 | 113,400 |
| Gold price | USD/ounce | 445 | 896 | 918 | 966 | 991 | 1,029 |
| Cash production cost | USD/ounce | 305 | 488 | 314 | 369 | 340 | 295 |

Source: Company, NCBC Research estimates

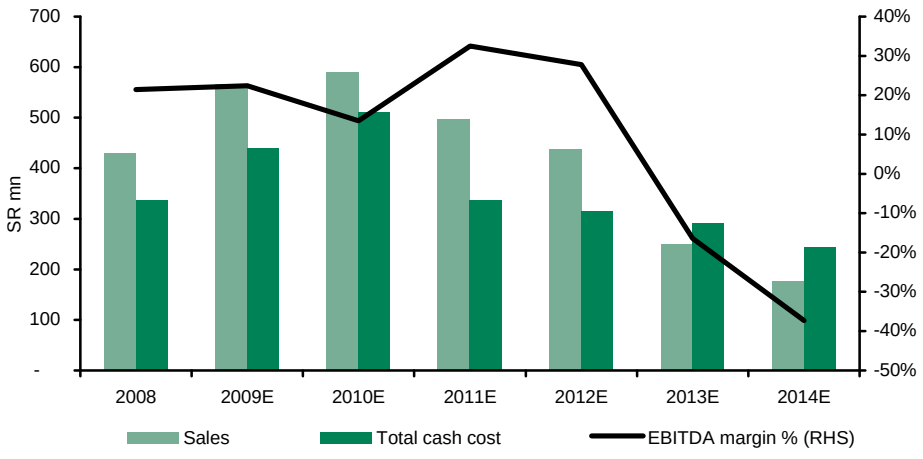
**After the expected closure of the low-grade Bulghah mine, gold margins are expected to improve despite expected absolute decline in earnings**

The expected decline in volume would have an impact on total revenues and total direct costs of production, which are expected to drop over the forecast horizon. With the likely closure of the low-grade Bulghah mine, average gold grade would increase in 2011, reducing costs per ounce. We believe this would offset the impact of the rising proportion of general and administrative costs in the company's cost structure, having a positive impact on gold EBITDA margins.

After the closure in 2013 of the high-grade Mahd Ad'Dhahab mine, gold EBITDA margin is expected to decline sharply due a significant fall in revenues, coupled with relatively constant fixed costs (mostly comprising general and administrative costs).

In our model, we have not forecast revenues or costs beyond 2014 since we expect all the five operational mines to be fully depleted, and we assume collection of all receivables, liquidation of inventory, and settlement of all obligations (including environmental costs of mines closure) in 2015.

**Exhibit 21: EBITDA margin will fluctuate with ore grade changes due to closure of mines**




Source:, Company, NCBC Research estimates

# Ma'aden Phosphate Company

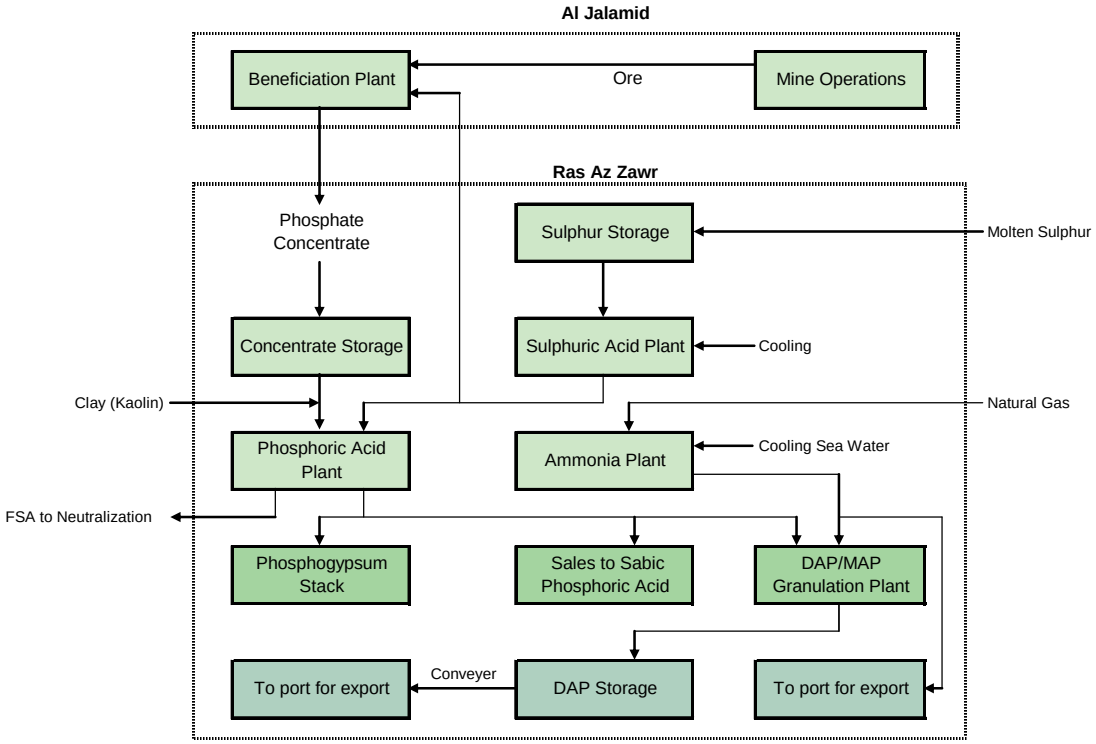
Ma'aden Phosphate Company (MPC) was established in 2007 as a 70:30 JV with SABIC, the Saudi petrochemical giant. MPC will exploit phosphate deposits in the north of Saudi Arabia and will capitalize on the Kingdom's cheap energy sources to produce diammonium phosphate (DAP), the most-widely applied phosphate-based fertilizer.

## Fully-integrated DAP producer

**The fully integrated model will give MPC a cost control advantage over non-integrated producers**

Production of DAP requires three basic inputs: phosphate rocks, natural gas, and sulfur. A high degree of control on the supply chain lends cost efficiency to a company's operations. In recent years, prices of all the basic inputs skyrocketed, leaving non-integrated producers disadvantaged. MPC will be a fully integrated producer of DAP giving it an edge over peers.

**Exhibit 22: MPC will be a fully integrated producer of phosphate fertilizers**




Source: Company, NCBC Research

MPC will mine phosphate ore and process it into phosphate concentrate in Al Jalamid (north). It will transport the concentrate via the North-South Railroad that is currently under development to Ras Al Zour chemical complex (east). The following is MPC's planned capacity.

**Exhibit 23: Ma'aden plans to start production in 2011**

| | Capacity | % internally consumed | Planned completion |
|---|---|---|---|
| DAP | 2,920 | 0.0 | Oct 2010 |
| Phosphoric Acid | 1,520 | 89.0 | Sep 2010 |
| Ammonia | 1,090 | 62.0 | Oct 2010 |
| Sulfuric Acid | 4,660 | 83.0 | Sep 2010 |
| Phosphate beneficiation | 5,020 | 100.0 | Jun 2010 |
| Ore mining | 11,600 | 100.0 | Dec 2009 |

Source: Company, NCBC Research estimates

## Al Jalamid site

**Ma'aden will mine for phosphate in the Al Jalamid in the north and ship the phosphate to processing plants in the east**

Phosphate deposits are located in Al Jalamid in the north of Saudi Arabia. The company estimates that measured resources amount to 534mn tons of phosphate. However, only economically feasible resources are classified as proven reserves, which stand at 223mn tons. According to the Life-of-Mine plans (LoMp), proven reserves are expected to deplete in 20 years, assuming 6mn tons of phosphate ore are mined every year. MPC is licensed by the Government to utilize the site for 30 years.

The mined ore would be processed into phosphate concentrate at a facility that can process 11.6mn tons of ore, to ensure production of 5.02mn tons of phosphate concentrate.

The infrastructure at the Al Jalamid site includes diesel-powered electrical generators and transmission facilities, water supply for industrial and residential use, transportation, warehouses, office building, and residential facilities for mineworkers. (Most employees will live in nearby cities, except a few who will be stationed at the site).

## Ras Al Zour chemical complex

**In the east, Ma'aden will process the phosphate concentrate and will purchase natural gas from Aramco to produce sulfuric acid, phosphoric acid, ammonia and diammonium phosphate**

The main facilities in Ras Al Zour (90km north of Jubail in the Eastern Province) include a chemical complex to produce sulfuric acid, phosphoric acid, ammonia, and DAP, besides infrastructure.

**The sulfuric acid plant** has a capacity of 4.66mn tons per annum, using three production lines each with a daily capacity of 4,500 tons (total of 13,500 tons per day and 345 days a year). Aramco is expected to supply 1.5mn tons of molten sulfur to the plant annually. Most of the production of sulfuric acid would be used for captive purposes to produce phosphoric acid.

**The phosphoric acid plant** has an annual capacity of 1.52mn tons with three production lines, each with a daily capacity of 1,460 tons (total of 4,380 tons per days and 347 days a year). To ensure continuity of production, the plant will have sufficient capacity to store 14 days of phosphate concentrate that would be transported from the Al Jalamid processing plant). However, the storage capacity of sulfuric acid is sufficient only for a day. This is a minor concern because if the sulfuric acid plant were to shut down for more than a day, it would interrupt phosphoric acid production. Most of the production of phosphoric acid will be used internally to produce DAP.

**The Ammonia plant** has a capacity of 1.09 mn tons per year (3,300 tons per day and 330 days a year). The plant design will use the same technology used by SAFCO (Saudi Arabian Fertilizers Company – *please refer to our SAFCO initiation of coverage note dated 4 April 2009*) in its fourth expansion plant that went on stream in 2007. Around 60% of the production is expected to be used internally to produce DAP and the remaining is expected to be exported after satisfying domestic demand.

**The DAP plant at** Ras Al Zour, which has an annual capacity of 2.9mn tons will produce DAP at two independent plants, each having two production lines. Two of the four production lines are designed to produce monammonium phosphate (MAP), if economically feasible. Design storage capacity (for both DAP and/or MAP) will be 200,000 tons. This may not be sufficient, given that demand for DAP/MAP is seasonal and further, if the company decides to produce both DAP and MAP, which need to be stored separately. However, Ma'aden intends to increase storage capacity to 300,000 tons and can increase storage capacity to 600,000 tons, if need be.

# Required infrastructure

MPC would need appropriate infrastructure to carry out its operations smoothly, entailing huge investments. **We believe this a major area of concern** because the economic and technical feasibility of the phosphate project would depend on the infrastructure. It is important to note that the major infrastructure requirements — a seaport and a railway connection, would be developed by the Saudi Government through different agencies with no financial obligation on Ma'aden. We list below the infrastructure required for the project and our assessment of the expected time of completion:

**Ras Al Zour Sea port** will be developed and maintained by the Saudi Ports Authority (a Government agency) in Ras Al Zour, to support both the aluminum and phosphate projects. The berthing facilities have been designed to handle vessels of up to 70,000 dwt and will have a liquid cargo berth, dry bulk berth, and a general cargo berth.

In February 2008, the Saudi Ports Authority signed an agreement with China Harbor Contracting and Engineering (partnered with Rafid Group, a local company) to build the port at an estimated cost of SR2.2bn (USD590mn); the project is expected to be completed in 2010. There are signs of progress in this project and we assume in our model that it will be completed according to schedule.

**The completion of the Railway project is an integral part of MPC's business model and any delay can jeopardize the project's economics**

**North-South Railway,** which links the mine in the north and the chemical complex in the east will cover a total distance of 2,400km (map below), whereas the distance for mineral transportation will be 1,486km (including bauxite mines in Al-Zubairah). The railway would be built by the Public Investment Fund (a Government agency) through Saudi Company for Railways (SAAR), a holding company set up in 2006.

**Exhibit 24: North-South railway project**


Source: Company, NCBC Research

The North-South Railway is scheduled for completion in 2010 and contracts have been awarded. According to management, if the railway project were not ready by the time MPC commissions operations, Ma'aden would have to rely temporarily on trucks to transport phosphate from Al-Jalamid in the north to Ras Al Zour in the east.

Although the contracts have been awarded, we have concerns on the actual progress of the project. We expect MPC to become operational before the railroad is ready. Thus, we believe Ma'aden would need to rely on trucks for transportation, which would have a significant adverse impact on the project's economics. **In our base case scenario, we assume that Ma'aden will use trucks to transport phosphate concentrates in the first six months and the railway thereafter.**

Other infrastructure projects that are being built by Ma'aden include: power and desalination plants with 160MW and 400,000 $m^3$ capacity respectively; power transmission systems; a sea water cooling facility; natural gas distribution network; a water and sewage system; security systems; and housing units for employees. Ma'aden has estimated the cost of these projects at around SR2.8bn (USD755mn).

## Marketing arrangements

**MPC will capitalize on SABIC's global network to market and sell its products**

MPC signed several agreements with both SABIC and Ma'aden. For the first 15 years, SABIC will sell 77% of MPC's DAP production through its global network and Ma'aden will handle the balance 23%. Both will charge MPC a marketing fee for their effort. In addition, SABIC will be responsible for selling 100% of excess ammonia (not consumed internally) for the first 15 years. According to Ma'aden, SABIC has agreed to sell 100% of excess phosphoric acid as well.

After 15 years both SABIC and Ma'aden will sell DAP and ammonia according to their proportion of ownership in the company (70% Ma'aden 30% SABIC). However after five years, Ma'aden has the right to claim its 70% share in marketing both ammonia and DAP. SABIC is expected to target customers in Asia and the Indian subcontinent.

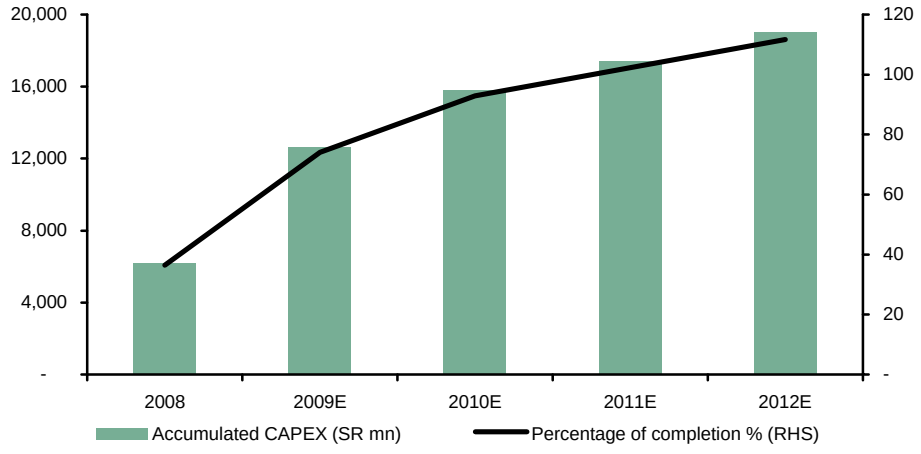
## Capital expenditure

**Significant capital expenditure is yet to be made to complete the project**

Ma'aden estimated required capital expenditure on the phosphate project at SR17 or 20bn after factoring in inflation and financing costs. By mid 2007, Ma'aden awarded a number of contracts on a fixed-price, turnkey basis, amounting to more than 70% of the total CAPEX.

We estimate that the company incurred capex of SR6.2bn (around 40% of the expected total capex) by end 2008. We see significant capex being incurred over the next few years. The chart below represents our estimate of future cash outflows.

**Exhibit 25: Estimated capital expenditure and expected completion schedule**




Source: NCBC Research estimates

# Financing

**MPC has already secured all the necessary financing for the project**

To finance the significant required capital expenditure for the phosphate project, Ma'aden had gone in for an IPO in July 2008 and raised around SR10.5bn (USD2.80bn), initially planned to fund both the phosphate and aluminum projects.

In addition to equity financing, in 2008, MPC secured financing facilities of USD3.89bn from a number of sources. The largest contributor was the Public Investment Fund (PIF), which provided USD1.07bn for a 16-year period with a four-year grace period. The loan is denominated in dollars and costs 0.5% above LIBOR. By end 2008, Ma'aden utilized 20% of the loan. The table below summarizes the financing facilities:

**Exhibit 26: Financing facilities available to Ma'aden Phosphate Company (1Q-09)**

| Source of financing | Unit | Secured | Utilized (Q1-09) | Rate (%) |
|---|---|---|---|---|
| Public Pension Fund (PIF) | USD mn | 1,067 | 445 | LIBOR + 0.5% |
| Saudi Industrial Development Fund (SIDF) | USD mn | 160 | - | Not announced |
| Commercial banks | USD mn | 2,661 | 1,255 | LIBOR + 0.5% to 1.15% |
| **Total** | **USD mn** | **3,888** | **1,700** | |

Source: Company, NCBC Research

Based on our analysis of the company's financial position and capital expenditure, we do not expect any additional funding requirements for the phosphate project in the future.

# MPC's expected performance

**We expect production to begin in H2 2011 with 85% operating rate**

MPC has not started operations yet and according to Management, the project will commence operations early 2011. Potential delays could put off commencement of operations to 2012. In our model, we assume production would begin in H2 2011, with risk to the downside.

## Sales

MPC will produce DAP, ammonia, phosphoric acid, sulfuric acid, and phosphate rock and will sell the entire DAP production. In addition, MPC will sell all excess production of ammonia, phosphoric acid, and sulfuric acid that is utilized in the production of DAP. We assume that all phosphate rock produced would be consumed internally. Our forecast of sales to third parties would depend on the production flow, as discussed earlier. Our assumption of utilization rates is in line with long-term industry level utilization.

**Exhibit 27: Phosphate project – sales volume assumptions (consolidated)**

| | Unit | 2011E | 2012E | 2013E | 2014E | 2015E | 2016E |
|---|---|---|---|---|---|---|---|
| **Capacity** | | | | | | | |
| DAP | Tons | 2,920 | 2,920 | 2,920 | 2,920 | 2,920 | 2,920 |
| Ammonia | Tons | 1,090 | 1,090 | 1,090 | 1,090 | 1,090 | 1,090 |
| Phosphoric acid | Tons | 1,520 | 1,520 | 1,520 | 1,520 | 1,520 | 1,520 |
| Sulfuric acid | Tons | 4,660 | 4,660 | 4,660 | 4,660 | 4,660 | 4,660 |
| **Utilization** | **%** | **85.0** | **85.0** | **85.0** | **85.0** | **85.0** | **85.0** |
| **Sales to third party ^** | | | | | | | |
| DAP | Tons | 1,241 | 2,482 | 2,482 | 2,482 | 2,482 | 2,482 |
| Ammonia | Tons | 178 | 356 | 356 | 356 | 356 | 356 |
| Phosphoric acid | Tons | 69 | 138 | 138 | 138 | 138 | 138 |
| Sulfuric acid | Tons | 345 | 690 | 690 | 690 | 690 | 690 |

Source: Company, NCBC Research estimates

^ Capacity is assumed to come on stream in H2 2011, thus the table represent half year impact in 2011

The difficult part of forecasting sales is in the estimation of selling prices. The project is expected to come on stream in 2011, making it difficult to reasonably estimate prices for ten years in our forecast horizon. Although we use our base-case price forecast in our valuation (*please refer to the industry and business dynamics section page 38*), we provide a sensitivity analysis of the sales numbers to changes in both prices and utilization.

**The sensitivity of sales to utilization rates and price assumption poses a significant risk, which is amplified by the length of the forecast horizon**

**In our view, the vast sensitivity of sales to our price and utilization assumptions poses high investment risk, given that production would commence two years from now.** In the table below, we tested sales sensitivity to changes in both price and utilization. We standardized the numbers by making our base case equal 100, to make it easier to interpret the results of the sensitivity table.

**Exhibit 28: Sensitivity of sales to price and utilization assumptions**

| | | Price scenarios | | | | |
|---|---|---|---|---|---|---|
| | | 40% lower | 20% lower | Base | 20% higher | 40% higher |
| Utilization rate (%) | **70.0** | 59.9 | 79.9 | 99.8 | 119.8 | 139.8 |
| | **80.0** | 60.0 | 80.0 | 99.9 | 119.9 | 139.9 |
| | **85.0** | 60.0 | 80.0 | **100.0** | 120.0 | 140.0 |
| | **90.0** | 60.0 | 80.0 | 100.1 | 120.1 | 140.1 |
| | **95.0** | 60.1 | 80.1 | 100.1 | 120.1 | 140.1 |

Source: NCBC Research estimates

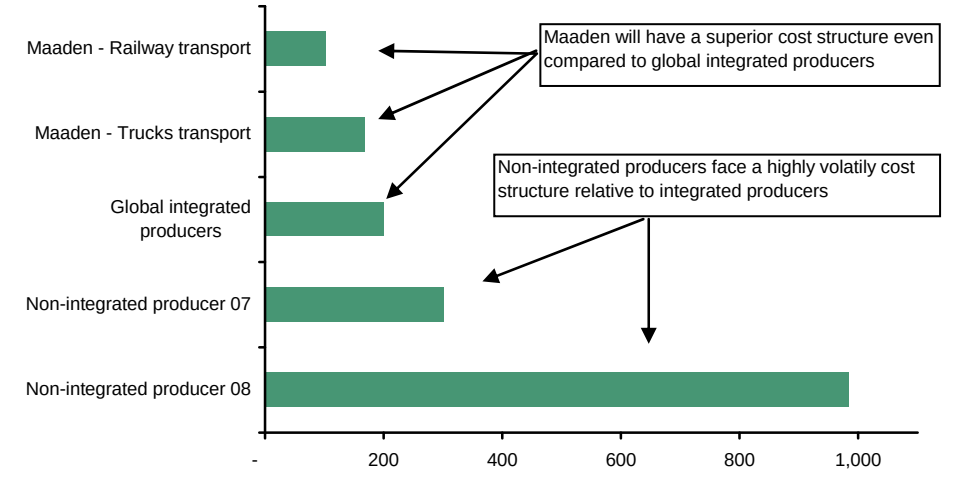
## Cost structure analysis and margins

As an integrated producer, MPC is better placed to manage costs vis-à-vis non-integrated producers.

**MPC will have a superior cost structure even compared with integrated producers, due to access to cheap energy sources**

A non-integrated producer would face fluctuations in raw material prices. Captive supply of most raw materials insulates Ma'aden from this. Further, Ma'aden would enjoy better margins vis-à-vis integrated producers too, because of its superior cost structure arising from the procurement of natural gas and oil at a subsidized price from Saudi Aramco.

**Exhibit 29: Ma'aden will have a significant cost advantage over competitors**




Source: NCBC Research estimates

By analyzing the cost flow, we identified three main inputs that would drive the project's cost structure — **phosphate ore, sulfur, and natural gas, representing 50% of DAP cost of production**. In addition to these three inputs**, transportation costs** would have a significant impact on the project's economics. Cost of transportation of phosphate concentrate from Al-Jalamid in the north to Ras Al-Zour in the east would depend on the mode of transportation. Ma'aden plans to use the North-South Railway (currently under construction). However, we expect delays in completion of the railway project. Thus, we assume that Ma'aden will resort to its alternative plan of using trucks in H2 2011 and would use railroad in 2012 thereafter. It is important to note that the ammonia and sulfuric acid costs listed in the table below are independent of the mode of transportation.

**Exhibit 30: Estimated cost per ton**

| | Unit | 2011E | 2012E | 2013E | 2014E | 2015E |
|---|---|---|---|---|---|---|
| DAP | USD/ton | 167 | 100 | 101 | 102 | 102 |
| Ammonia | USD/ton | 85 | 89 | 90 | 91 | 91 |
| Phosphoric acid | USD/ton | 307 | 159 | 160 | 162 | 162 |
| Sulfuric acid | USD/ton | 19 | 21 | 21 | 21 | 21 |

Source: NCBC Research estimates

**Our cost estimates, excluding the impact of transportation, are line with management's guidance**

Our estimate of cost of production of DAP is higher than Ma'aden's estimate of USD98.0 per ton in 2011 because, in our model, we have assumed the cost differential owing to the mode of transportation, which affects the cost of phosphoric acid, hence, cost of DAP. However, our estimate is in line with the management's guidance on cost of production in 2012 onwards.

Ma'aden's integrated model and access to subsidized natural gas and oil, we believe, make MPC a high-margin business. However, our assumption of transportation by trucks in the first six months has a negative impact on the company's estimated margins in 2011. From the table above, the cost of producing one ton of DAP will be 67% higher in 2011 relative to 2012 as we assume that the company will use truck in the first 6 months and then switch to the rail to transport phosphate from the north to the east.

Ma'aden currently generates almost all of its revenue from gold mining. The company issued an IPO to raise capital for new projects and end revenue dependence on a single source.

Ma'aden had earlier announced plans to invest in a fully-integrated, phosphate-based fertilizers plant in Ras Al-zour that would capitalize on phosphate deposits in the north of Saudi Arabia. The company also announced that it would set up an integrated aluminum project depending on bauxite deposits in Al-Zubirah in Qassim Province (north of Riyadh).

As already discussed, we believe the aluminum project would not come on stream in the foreseeable future and we have not factored in this project in our earnings model. Thus, we limit the *Industry and business dynamics* section to gold mining and phosphate fertilizers.

# Gold market overview

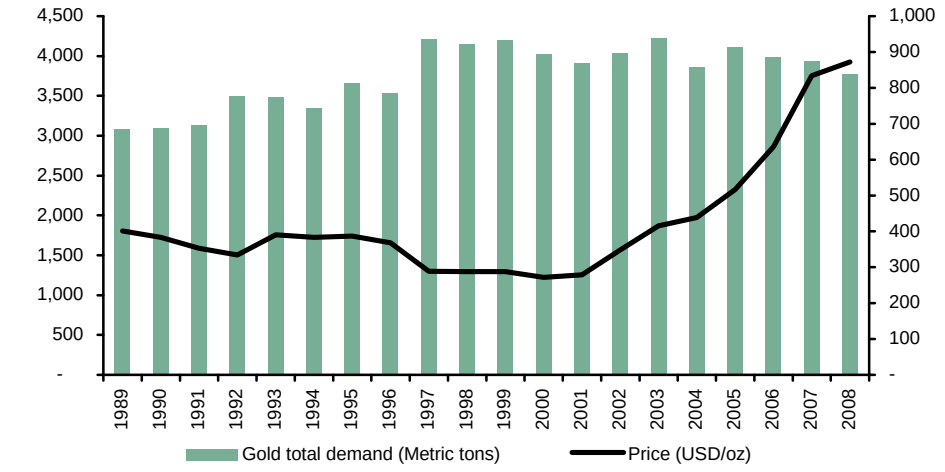
Gold market is a perfectly competitive market, because gold being a homogeneous product, the producers cannot pursue a differentiated strategy to maximize profits. Thus, reining in costs is perhaps the only alternative available to gold mining firms. This makes the market participants 'price takers', with no individual having significant influence on the supply-demand balance. Historically however, since currencies were linked to gold before the end of the Bretton-Woods system in 1970s, and central banks across the world built substantial gold reserves that gave them the power to influence the gold markets. This makes gold more sensitive to central banks' decisions (and the IMF) to buy or sell gold.

## Demand for gold

**Declining demand for jewelry has kept demand from growing despite rising investment demand**

Total demand for gold is driven by: demand for jewelry, investment demand, and industrial and dental demand. Total demand for gold has increased from 1,656 tons in 1983 to 3,948 tons in 2007 (CAGR 3.85%). Over the same period, gold price increased at annual rate of 3.45% from USD382 per ounce in 1983 to USD834 in 2007. It is important to note, though, that demand for gold has flattened since 1997.

**Exhibit 31: Demand for gold increased at 3.85% per annum between 1983-2007**




Source: GFMS, Bloomberg, NCBC Research

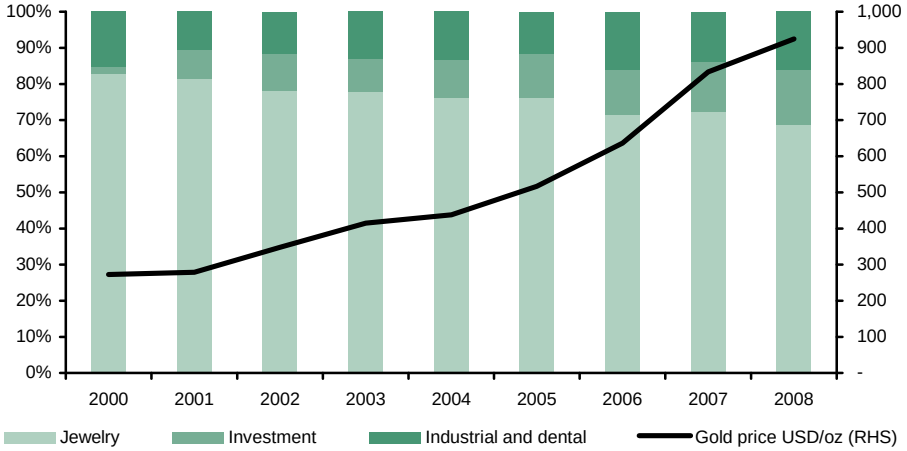
According to precious metals consultants GFMS, jewelry demand, the major demand component, stood at 3,126 tons, or 82% of total demand for gold in 2000. Since then, however, jewelry demand decreased in both absolute terms and as a percentage of total demand,

reaching 2,401 tons in 2007, or 74% of total demand for gold. That decline will depress total demand for gold. Industrial and dental demand declined marginally at 2% per annum, from 513 tons in 2000 to 461 tons in 2007, but it maintained a steady proportion to total demand around 13% over the period.

**Investment demand contribution to total demand for gold increased from 4.3% in 2000 to 12.4% in 2007**

On the other hand, investment demand for gold has increased significantly in absolute and relative terms, from 165 tons in 2000 to 403 tons in 2007 (from 4.3% to 12.4%).

**Exhibit 32: Investment demand represented 15% in H1 2008, up from 2% in H1 2000 ^**

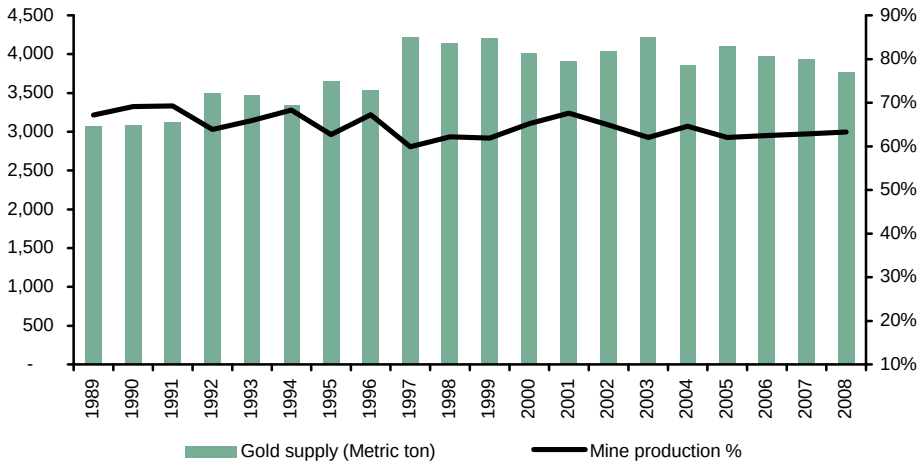



Source: GFMS, Bloomberg, NCBC Research
^ Note: The chart is based on mid year data points (First half of each year)

# Supply of gold

Gold supply has grown marginally at 1.5% per annum during 1989-2007. The largest source of supply has been mine production, comprising more than 60% over the entire period, followed by old gold scrap. Official sector sales, according to GFMS, have fluctuated significantly over the years from a minimum of 3% and a maximum of 18% over 1989-2007.

**Exhibit 33: Supply of gold remained steady and mine production comprised more than 60%**




Source: GFMS, Bloomberg, NCBC Research

# Gold prices

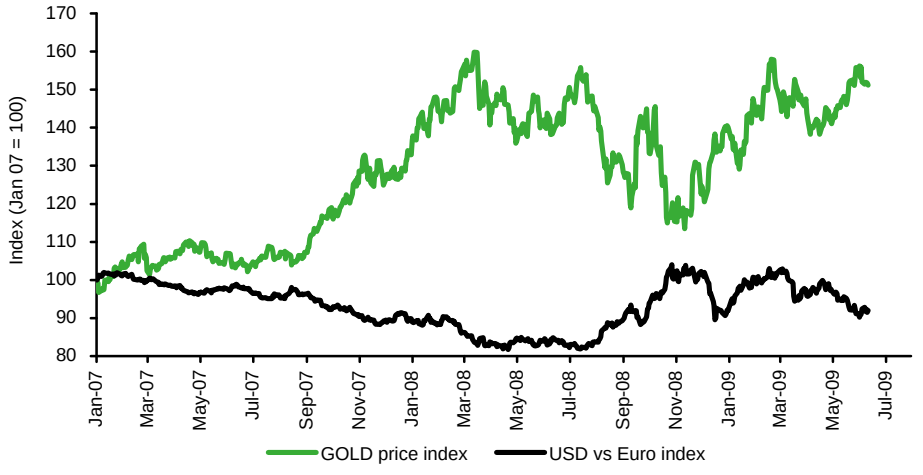
Gold prices increased significantly since 2001 before they peaked in early 2008. At the beginning of the global crisis, gold prices declined, driven by two factors: 1) Gold is a constituent of several commodity indices that faced selling pressure, which directly reflected on gold prices, since a number of funds started liquidating some of their holdings, including gold; 2) Many investors started selling their gold holdings to generate cash for liquidity, which put more pressure on market prices. However, we believe these two factors have already played out and are not relevant anymore.

**Deflationary fears due to the global economic recession create a short-term cap on gold prices, but fears of long term inflation can trigger a rally in the future**

**Gold prices tend to move in tandem with inflation, in the long run.** The rise in gold prices in the past few years is partially attributable to the inflationary environment characteristic of recent years, with gold serving as a hedge against inflation. Because of the recent drop in commodity prices due to the global economic crisis, deflation fears might have a negative impact on gold prices in the short term. However, the massive fiscal stimulus packages announced by governments around the world and the quantitative easing programs by central banks globally increased fears of inflationary pressure in the long term as and when the economic cycle turns. These factors might put an upward pressure on gold prices, going forward.

**Gold prices have exhibited a negative correlation with the US dollar.** The decline of the US dollar against major currencies over the past few years is also one of the factors responsible for the increase in gold prices. Gold is traded in dollar terms, with its 'dollar value' increasing when the dollar declines against other currencies.

**Exhibit 34: Gold price moves inversely with the US dollar exchange rate**

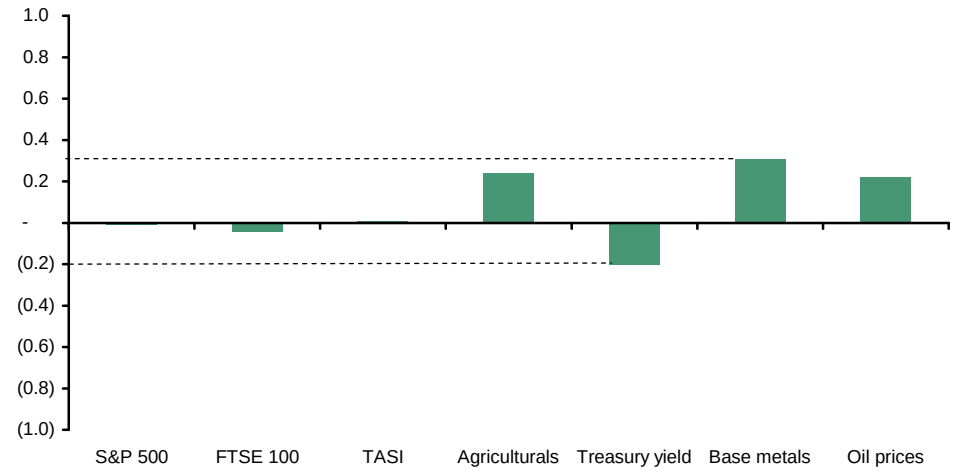



Source: Bloomberg, NCBC Research

This tendency of moving inversely against the USD/Euro, which also holds true for USD/GPB and USD/Yen, has contributed to the recent decline in gold prices as the dollar recovered some of the losses it incurred in the past few years.

**Gold price does not correlate with other asset classes.** Due to the different, and unique determinants of gold supply and demand, gold prices have shown very little correlation with other asset classes. Equities, for instance, which are affected by business cycles, have shown almost no correlation to gold prices, indicating the low sensitivity of gold prices to economic cycles. This phenomenon encourages investors to consider gold as a safe haven for investment in times of high uncertainty.

**Exhibit 35: Gold has low correlation coefficient with other asset classes (1996-2008)**




Source: Bloomberg, NCBC Research

**Gold prices are expected to rise marginally in the future**

Going forward, futures prices of gold indicate that gold prices will remain around current levels with no significant movement in either direction.

**Exhibit 36: Future prices indicate a marginal increase in gold price over the next few years**

| | Unit | Current | 3Q-09E | 4Q-09E | 2010E | 2011E | 2012E |
|---|---|---|---|---|---|---|---|
| Median forecast | USD/oz | 913 | 922 | 925 | 950 | 824 | 744 |
| Futures price | USD/oz | 913 | 956 | 956 | 966 | 991 | 1029 |

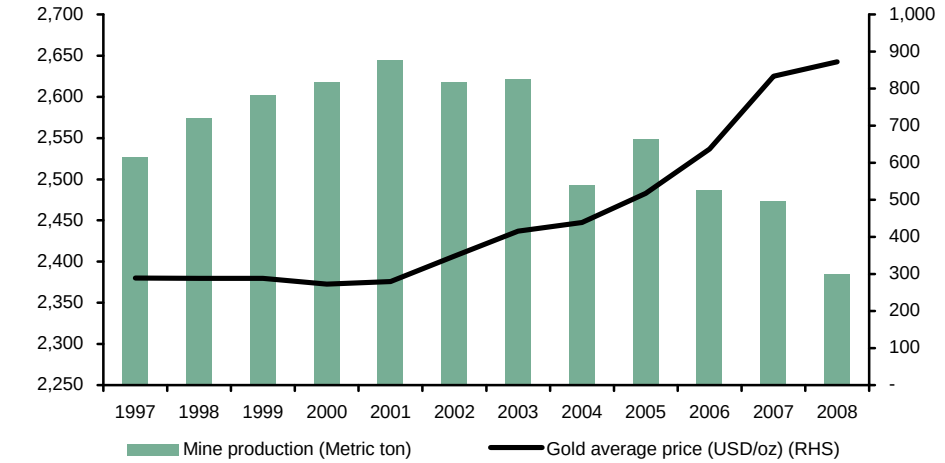
Source: Bloomberg

# Gold mining

**Declining supply from primary gold mines has depressed gold supply**

According to GFMS, mines production comprised 63% of total gold supply. Primary gold mines (in which gold accounts for more than 65% of the mine's revenue) comprise around 85% of total mines production with the remaining 15% supplied from mines where copper and silver are the primary metals and gold is a by-product of the mining process. Gold production has been declining at 1.5% annually between 2001 and 2008 from 2,645 MT to 2,385 MT (around 10% over the period). In 2008, output from gold mines globally declined by 3.6%. The chart below illustrates the decline in gold production over the last few years.

**Exhibit 37: Global mine production has been declining over the last few years**



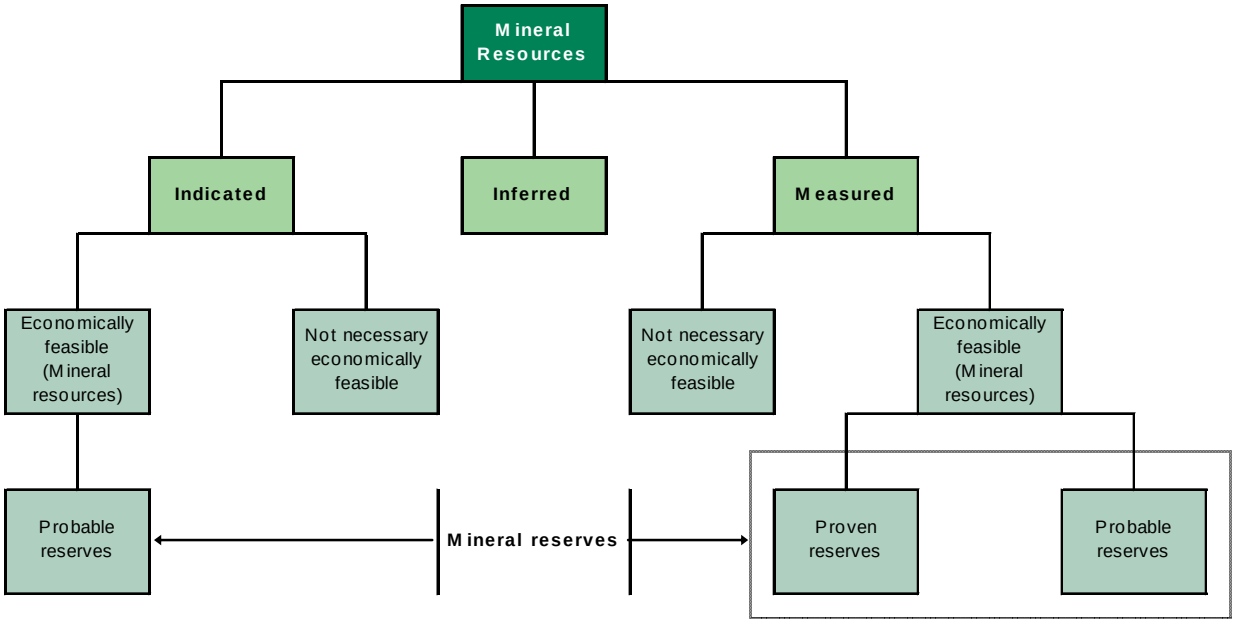

Source: GFMS, Bloomberg, NCBC Research

# Ore reserves and mineral resources

Gold ore is usually quoted in terms of both tonnage and grade. Grade refers to the concentration of gold per ton of ore and is quoted in grams per ton. Grade is an important factor because it has a bearing on the economic feasibility of mining. For instance, if cost of mining per ton is taken as constant, cost of gold mined per ounce is higher for mines with lower grade.

Mineral resources in general can be classified into three groups (see chart below and Appendix 1 for definitions). **For valuation purposes, only ore reserves (both proven and probable) are considered as they are economically feasible for mining.** Until further evidence is found, other mineral resources are not incorporated as their quantity and grade are not considered reliable and their economic feasibility not yet reasonably clear.

**Exhibit 38: Mineral resources classification (Please refer to Appendix 1 for definitions)**




Source: NCBC Research

# Phosphate fertilizers overview

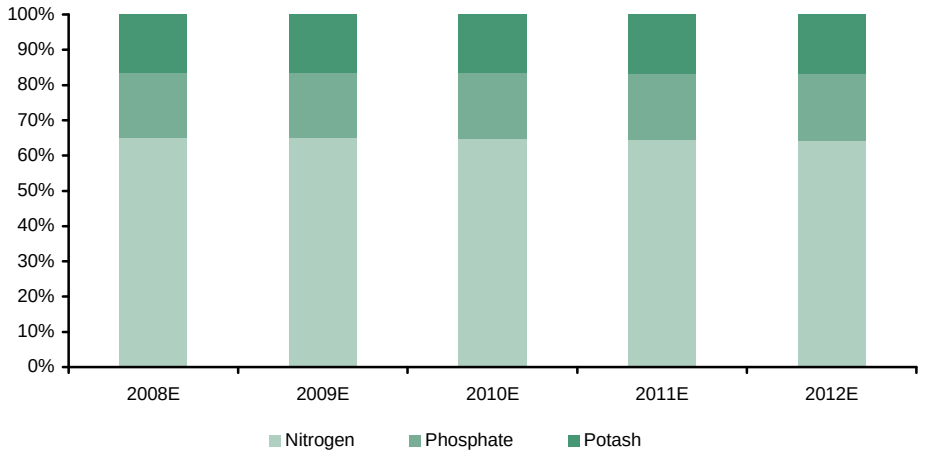
## Types of fertilizers

In general, fertilizers can be broadly classified into three categories:

1. Nitrogen-based fertilizers (N)
2. Phosphate-based fertilizers ($P_2O_5$)
3. Potash-based fertilizers ($K_2O$)

Fertilizers are usually graded based on their content of the three different nutrients. The nutrient breakdown is usually referred to as N-P-K, depending on nutrient composition of a fertilizer. For example, urea N-P-K composition is 46-0-0, which means 46% of urea is nitrogen and does not contain any phosphorus or potash.

**Exhibit 39: Fertilizers consumption by category**




Source: IFA, NCBC Research estimates

**The different types of fertilizers cannot be regarded as substitutes**

The three categories of fertilizers cannot be regarded as direct substitutes. Nitrogen fertilizers are used to improve and maintain crop yield and biomass. Hence, farmers apply nitrogen fertilizers annually.

On the other hand, potash and phosphate fertilizers are applied less frequently because (i) they are mainly used to improve the crop quality and immunity from diseases and they do not necessarily increase yield, (ii) the soil can store these fertilizers for a longer period, compared with nitrogen fertilizers.

**Exhibit 40: Comparison between Phosphate and Nitrogen fertilizers**

| | Phosphate | Nitrogen |
|---|---|---|
| Base product | Phosphate rock | Ammonia |
| Availability of raw material | Limited | Abundant (natural gas) |
| Greenfield development time | 3-4 years | 3 years |
| Cost of new capacity per million ton | USD1.5bn | USD1.0bn |
| Main cost drivers | Natural gas, sulfur, phosphate rock | Natural gas |

Source: PotashCorp, NCBC Research Estimates

# Demand for fertilizers

Farmers are usually cautious about application rate of fertilizers in times of uncertainty. Agricultural prices have declined significantly in 2008, which will influence the farmers' reluctance to invest in fertilizers in the short term. Additionally, farmers usually finance their fertilizer purchase through banks. This has become a problem, given the current credit crisis.

The consumption of nitrogen-based fertilizers, however, is not expected to decline as much as phosphate and potash. This is because phosphate and potash remain in the soil for longer periods relative to nitrogen; moreover, nitrogen is essential to improve yield while phosphate and potash improve the quality and immunity of crops.

In 2007 and the first half of 2008, fertilizers consumption was up 4.7%, according to IFA, on the back of strong agricultural commodity prices. In H2 2008, however, IFA estimated a 2.2% decline in fertilizer consumption, driven by 8.2% and 4.7% decline in potash and phosphate consumption respectively, partially offset by a 0.5% rise in consumption of nitrogen fertilizer.

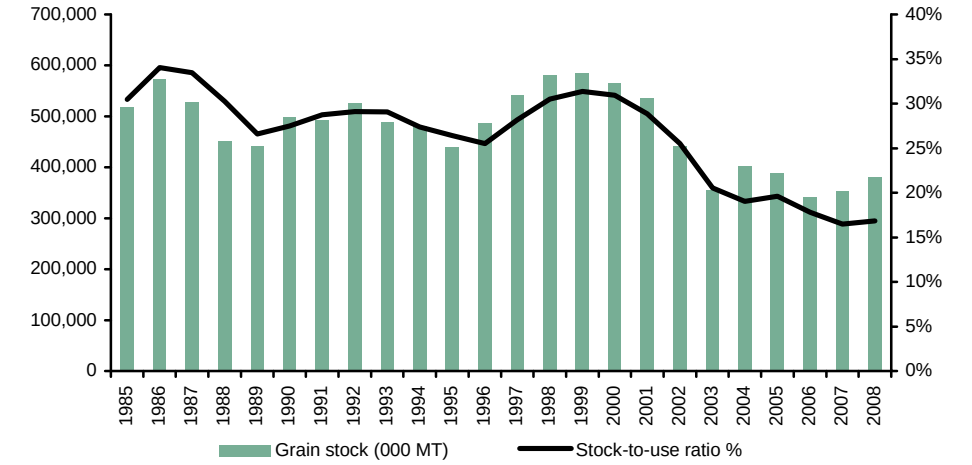
**Long-term fertilizer demand is expected to rise, driven by demographics and agricultural production fundamentals**

**Regardless of cyclical movements, fertilizer demand fundamentals remain intact** because of structural agricultural drivers. Since we expect MPC to start operation in 2011, long-term fundamentals are more relevant in Ma'aden's case.

Going forward, growth in demand would be driven by the growth in agricultural production. Our estimates show that global agricultural output has been growing at 2.2% annually since 1961. However, we expect a higher growth rate going forward, due to the following factors:

- **Population growth and diet changes in developing countries.** Growth in developing counties such as China, India, and South America created a new middle class, which resulted in higher consumption levels of agricultural products. The higher consumption is driven by a shift toward more protein-based diets, which in turn generate demand. Meat production is a grain-intensive business. According to USDA, 7kg and 2kg of grain are required to produce 1kg each of beef and chicken respectively
- **Continued growth in urbanization in developing nations.** Because of the significant increase in opportunities in cities in low-income countries (especially in Asia), the population started moving from villages and towns to large cities. This growing rate of urbanization in countries such as China and India resulted in a decline in agricultural capacity. The rate of urbanization is expected to keep growing in the future, given the unprecedented economic growth in south Asian countries
- **Grain stocks and stock-to-use ratio are at historically low levels.** Because of the production deficit in the past few years, grain stock levels declined to historically low levels that can only support two months of world consumption. According to USDA, stock-to-use ratio declined from 30% in 2000 to around 15% in 2008. Given the rising demand for grains, restocking will be difficult. Thus, we do not expect a change in the ratio in the medium term

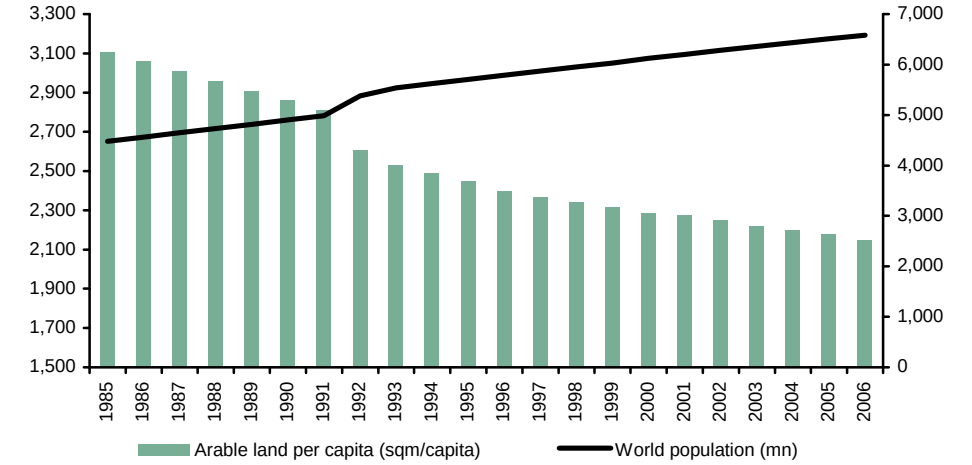
**Exhibit 41: Production deficit pushed grain stocks and stock-to-use ratio to their current level**




Source: USDA, NCBC Research

- **Diminishing arable land per capita.** Although arable land remained almost constant in absolute terms, the continuing population growth resulted in a declining arable land per capita. This created pressure on farmers to improve yields; this resulted in yields actually increasing by more than 240% since 1961 due to technological advances and application of more fertilizers. With no signs of a change, this trend is expected to continue going forward

**Exhibit 42: Arable land per capita has been declining over time (sqm/capita)**




Source: FAO, NCBC Research

# Demand and supply of phosphate fertilizers

**Growth in supply of phosphate fertilizers is expected to outstrip demand growth**

According to IFA estimates, demand for phosphate fertilizers declined 4.7% in H2 2008 due to the global economic crisis. We have not incorporated the impact of the crisis on demand-supply situation in our analysis because we expect Ma'aden's capacity to come on stream in H2 2011.

The long-term forecasts indicate a rise in demand, driven by higher consumption of both fertilizers and non-fertilizer. Food and Agriculture Organization (FAO) estimates an annual growth of 3.7% in demand over the next few years. On the supply side, however, production capacity is estimated to grow by a much higher rate at 5.1% per annum over 2008-2012. The

bulk of the expected growth in supply would come in 2012 when the full-year impact of Ma'aden's capacity coming on stream would be felt.

Owing to supply growth outpacing growth in demand, excess supply is expected to increase over the forecast period.

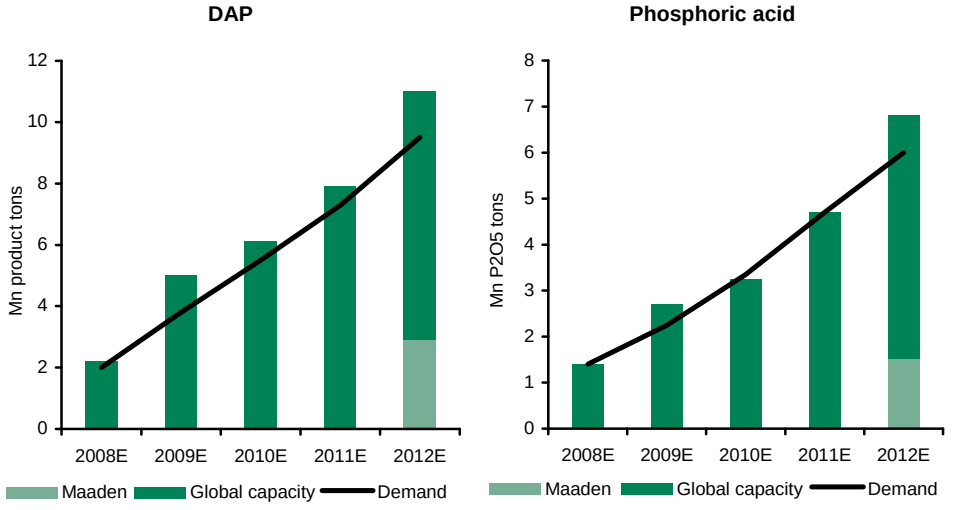
**Exhibit 43: Growth in supply of phosphate fertilizers outpaces demand**


Source: FAO, NCBC Research estimates

**Ma'aden is expected to contribute around 25% of incremental supply growth between 2008-12**

As discussed earlier, most of Ma'aden's incremental capacity is expected to go on stream in 2012. This is true for both phosphoric acid and DAP, as illustrated in the charts below. The charts highlight the cumulative incremental (not absolute) capacity and incremental demand over the next few years.

**Exhibit 44: Ma'aden's project comprises 25% of expected incremental capacity over 2008-2012**




Source: PotashCorp, NCBC Research estimates

**According to industry sources, Ma'aden's new project has deterred potential investments in the phosphate industry** because, in a bid to maintain acceptable production utilization rates, players are avoiding encouraging excess capacity growth, which could depress prices.

## DAP and MAP

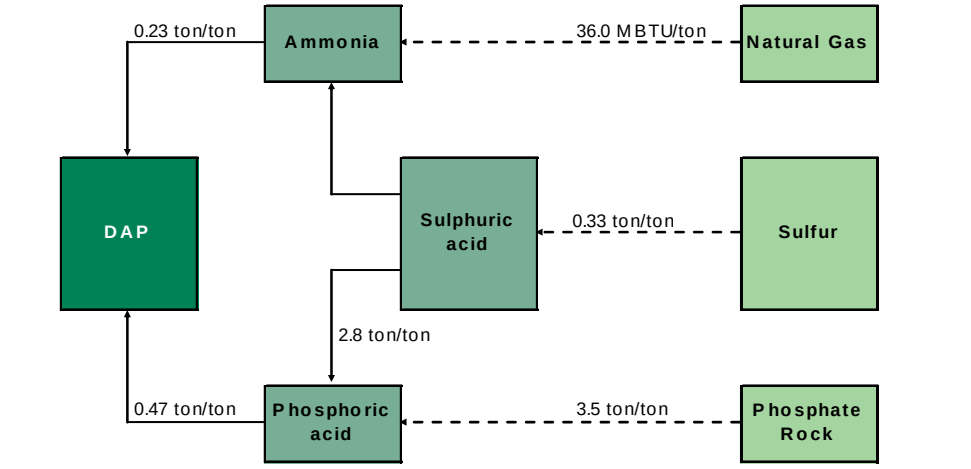
Diammonium phosphate (DAP) and monammonium phosphate (MAP) are phosphate-based fertilizers with nutrient contents of 18-46-0 and 13-52-0, respectively. DAP and MAP producers can generally be classified as integrated or non-integrated producers.

The production process of DAP or MAP starts with mining of phosphate rock and processing the rock into phosphate concentrate, and into phosphoric acid, following the addition of sulfuric acid. Phosphoric acid is then mixed with ammonia to produce DAP or MAP. The difference between DAP and MAP is the concentration of each component.

**In DAP production, value can be created through an integrated production model**

The chart below summarizes the production process of DAP, providing insights into its cost structure and cost drivers.

**Exhibit 45: A simplified DAP production process ^**




Source: NCBC Research
^ input/output ratios are approximates and vary with technology used and the efficiency of production

## Ammonia

Ammonia is the building block for all nitrogen-based fertilizers and for some phosphate fertilizers such as DAP and MAP, due to its high nitrogen content. Nearly 85% of ammonia is used in fertilizers, leaving 15% for industrial uses such as application in detergents, textiles, oil refineries, and paper production. Urea is the largest source of demand for ammonia, resulting in a high correlation between the two products.

The main feedstock in ammonia production in the Middle East is natural gas, comprising the largest cost bucket in the production of ammonia. However, naphtha, which is derived from oil, is used in some parts of the world due to cost factors. India, which is currently the largest consumer of urea, is one such example.

## Phosphate rock

Phosphate rock is most important in the production of phosphate-based fertilizers. Phosphate ore is mined from underground deposits and then processed to into phosphate rock, which can be applied directly into the soil (mostly acidic soil) or it is more commonly used in the production of phosphoric acid.

**Exhibit 46: Phosphate rock producers globally**


Source: PotashCorp, Fertecon

**Although Morocco ranks third after China and the US in terms of phosphate rock production, it has more impact on global markets**

Although China is the largest producer of phosphate, followed by the US, Morocco has a significant impact on the global phosphate market. According to industry sources, China consumes most of its phosphate production at home and US production has been declining by 6 million tons annually over the past five years. The export and import data reveal that the top five exporting countries account for 80% of exports globally, of which Morocco accounts for 62% followed by Jordan, Syria, CIS, and Algeria. Imports are fragmented, with the top five counties contributing slightly more than 40%. Of this, India imports 50%, followed by the US.

Phosphate, the main input in the production of phosphoric acid, occupies a significant proportion in the DAP cost structure. Thus, controlling the cost of phosphoric acid here implies control over DAP production cost. In 2008, cost of DAP more than doubled for a non-integrated producer due to rising prices of phosphate rock and in turn phosphoric acid.

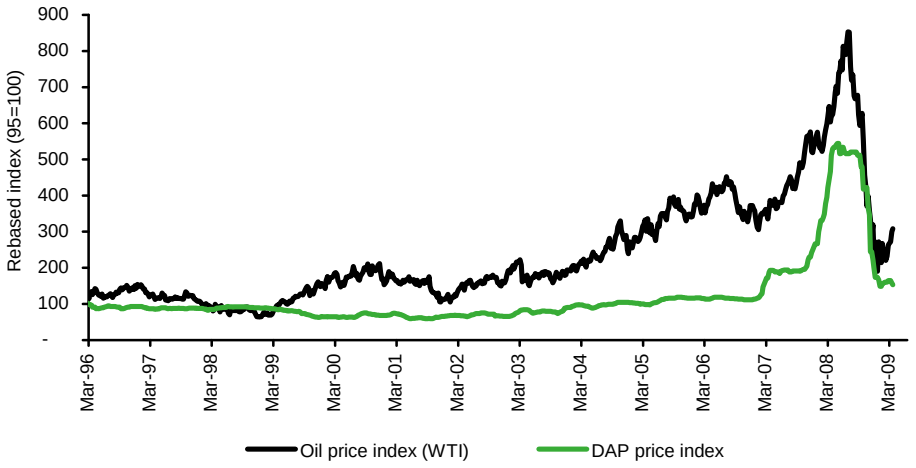
Ma'aden will extract phosphate ore from captive mines and process it into phosphate concentrate in the north and use the concentrate to produce phosphoric acid in the east. **This will isolate Ma'aden's cost structure from fluctuations in market prices of phosphoric acid or phosphate rock.**

# Prices of phosphate-based fertilizers

Prices of phosphate fertilizers are driven by supply-demand conditions. Both demand and supply, as discussed earlier, have been growing steadily over the past few years. This is reflected in the steady levels of prices until 2007.

In 2007, prices started growing exponentially, recording unprecedented high levels. Although different fertilizers could have different factors contributing to the increase, oil and natural gas prices were a common driver. Both oil and natural gas prices increased dramatically in 2007 and 2008 before peaking in mid 2008. Since then, their prices have dropped sharply to current levels. **We attribute the majority of the decline in prices of phosphate fertilizers to the decline in prices of oil and natural gas.**

**Exhibit 47: DAP and oil prices moved in tandem in 2007 and 2008**




Source: Bloomberg, NCBC Research

Phosphate rock prices is another key component in phosphate fertilizer pricing. Phosphate rock prices remained almost constant over the past decade until 2007 and 2008 when prices more than quadrupled. It is difficult to explain the magnitude of the increase. Nevertheless, the fundamental drivers of the increase in phosphate rock prices have been the tightening of the supply-demand situation and declining production in the US (the second largest producer after China), coupled with increasing demand from India and China.

**Energy prices, agricultural commodity prices, and supply-demand balance are the driving forces of prices, going forward**

Forecasting future prices to arrive at a valuation for MPC is difficult, considering that the project is going to commence operations in 2011, at the earliest. To forecast DAP prices going forward; we built our model around four drivers:

- **Oil futures.** Oil prices can increase cost of production of phosphate fertilizers, which producers pass to customers. We use forward prices as our best estimate of how cost-push forces would affect prices in the future
- **Agricultural commodity forecasts.** Rising (declining) prices of agricultural products increase (decrease) farmers' incentive to use more fertilizers, particularly phosphate and potash, since their annual application is not necessary. We use forward prices of agricultural products to determine demand for phosphate fertilizers
- **Supply-demand forecasts.** We use expected supply-demand forecasts to judge expected rise or fall in prices. Although we expect Ma'aden to commence operations in 2011, the full impact is expected to occur in 2012 as we assume that Ma'aden would commence

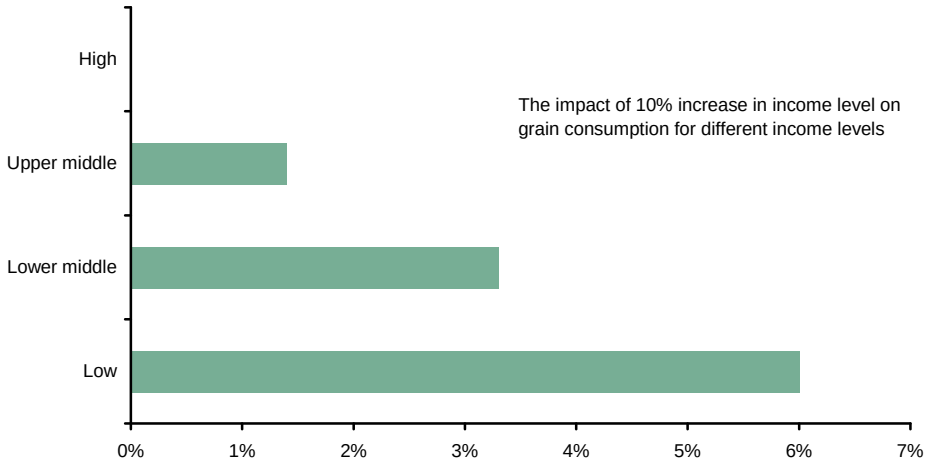
operations in Q4-11*(Please refer to demand supply section discussed earlier for further details of the supply-demand situation)*

In case of supply side dynamics, oil futures indicate a probable rise in prices, which will have a positive impact on phosphate fertilizers prices due to its cost-push impact. However, global capacities are expected to increase with Ma'aden alone contributing to around 25% of incremental capacity. In this scenario, producers would find it difficult to pass the entire rise in costs to customers, because excess supply would widen in the future, leading to producers focusing more on maintaining high utilization rates.

**For high-income countries, demand for agricultural products rises less than proportionally with rising income levels, until it reaches almost zero**

On the demand side, future prices of agricultural products show a small increase, compared with other commodities. FAO forecasts that **prices of agricultural products are expected to remain high in the next decade relative to the past ten years.** However, the World Bank forecasts a long-term decline in the prices of agricultural products as developing countries such as India and China reach higher levels of income, and demand for agricultural products is characterized by low income elasticity for high income countries. The chart below illustrates the impact of a 10% increase in income level on grain demand, based on World Bank estimates. At high income levels, demand becomes a function of population growth, We are of the view that prices will increase in the future, nevertheless, at a lower rate.

**Exhibit 48: Income elasticity of demand declines as countries achieve higher income levels**




Source: World Bank, NCBC Research

We forecast prices of phosphate fertilizers to grow from their current level mainly due to the expected rise in energy prices, which will affect costs for producers globally. However, the expected rise in excess supply will pressurize producers to absorb a part of the increase in costs to maintain high levels of utilization, which will come at the expense of margins. Ma'aden, however, will remain unaffected by the rising costs of energy as it secures feedstock from Saudi Aramco at a fixed price, leading to high margins.

**Exhibit 49: Prices are expected to grow marginally in the future**

| | Unit | Current | 2011E | 2012E | 2013E | 2014E | 2015E |
|---|---|---|---|---|---|---|---|
| DAP prices | USD/ton | 285 | 360 | 371 | 382 | 393 | 393 |
| Ammonia | USD/ton | 170 | 274 | 283 | 286 | 289 | 289 |

Source: Bloomberg, NCBC Research estimates

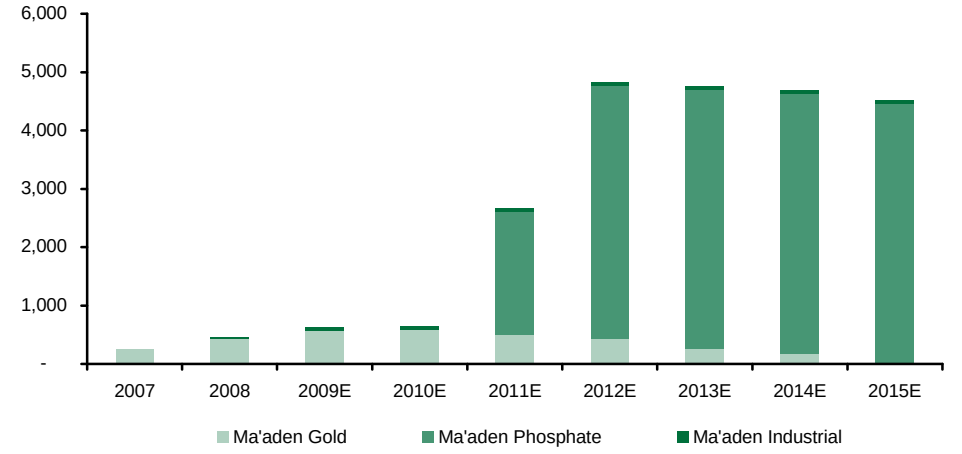
# Financial performance

## Sales

Maaden currently generates almost all of its revenues from the gold mining unit. However, gold contribution to total revenue would be negligible from H2 2011 onwards as the gold mines will gradually deplete and as the phosphate project comes on stream. According to the company's reports, all operational mines are expected to deplete by 2014.

Although Ma'aden will report 100% of phosphate revenue in the consolidated income statement, **only 70% of these revenues are attributable to Ma'aden from a valuation perspective, with 30% attributable to SABIC**.

**Exhibit 50: Ma'aden consolidated revenue (SR mn)**

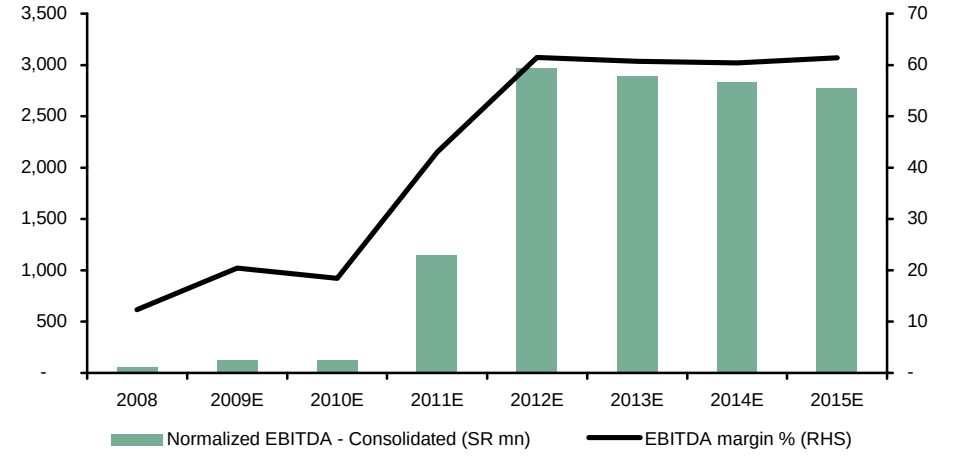



Source: Company, NCBC Research estimates

## Profitability and margins

Ma'aden would depend on gold mining until H2 2011. Due to low-grade ore, gold margins remained low in 2008, but are expected to improve going forward. Margins are expected expand significantly in H2 2011 with the phosphate project going on stream, helping Ma'aden leverage the advantage of full integration and access to cheap sources of feedstock.

**Exhibit 51: Ma'aden consolidated EBITDA (SR mn)**




Source: Company, NCBC Research estimates

However, despite these high margins, Ma'aden's RoE will be low, given that it does not cover the company's cost of equity. This is due to the massive investments required to generate profits from MPC. *(Please refer to pages 14-15 for more discussion)*.

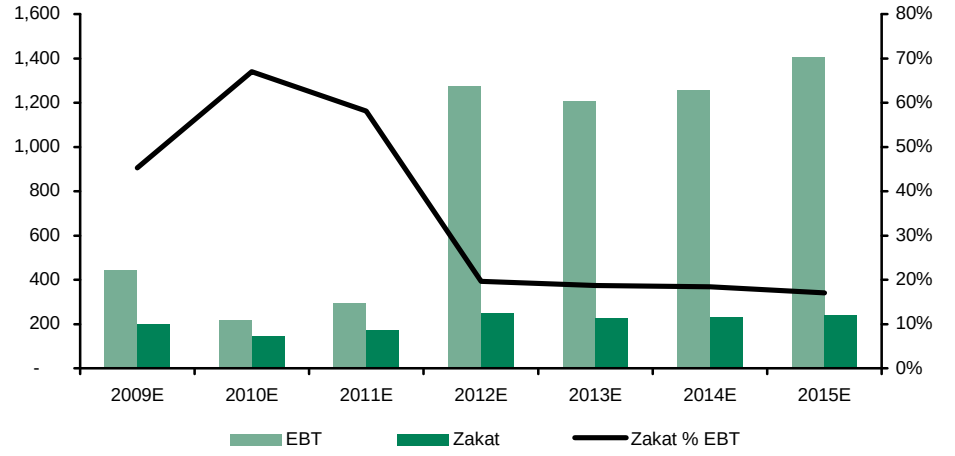
## Zakat expense

Since its inception in 1997 and until the IPO in 2008, Ma'aden did not pay Zakat (Islamic tax required by the Saudi law) as it was owned by the Government. However, beginning 2009, Maaden will start filing for Zakat, which is 2.5% of the Zakat base.

Several reports assume a applicable Zakat expense at 2.5% of EBT; although this is a good approximation, it is not true in Ma'aden' case. In our model, we calculate Ma'aden's Zakat base and find it much higher than 2.5% of EBT. This is because of the large cash and investment balances, which are included in the Zakat base calculation, that are subject to 2.5% Zakat rate.

In a low interest rate environment, cash balances can have an adverse impact on income for Saudi companies. Unless interest rate exceeds 2.5% (the Zakat rate) the company would make losses by holding cash. In 1Q-09, Maaden reported Zakat expense reaching 88% of EBT. The chart below illustrates our forecast of Zakat expense. Because of the expected increase in profit in 2011, coupled with declining cash balances, Zakat expense, as a percentage of EBT, is expected to decline, but would continue to remain high.

**Exhibit 52: Zakat expense will remain high as % of EBT (SR mn)**




Source: Company, NCBC Research estimates

## Net profit

Despite the high EBITDA margin, net profit will be much lower due to the large depreciation charges expected in the early stage of the project lifecycle. Moreover, net income would be negatively impacted by interest charges on the loans the company took to finance the phosphate project. This will be partially offset by interest income from large cash and short-term (Murabaha investments).

# Profitability ratios

As discussed earlier in the report, Ma'aden will have a low RoE despite the high margins because of the massive required investments. We provide a breakdown of RoE drivers using DuPont analysis:

**Exhibit 53: DuPont breakdown of RoE**

| | Unit | 2008 | 2009E | 2010E | 2011E | 2012E | 2013E | 2014E | 2015E |
|---|---|---|---|---|---|---|---|---|---|
| Net profit margin | % | 56.6 | 39.2 | 11.0 | 4.7 | 21.2 | 20.6 | 21.9 | 25.8 |
| Asset turnover | Times | 0.02 | 0.02 | 0.02 | 0.08 | 0.15 | 0.14 | 0.14 | 0.13 |
| Equity multiplier | Times | 1.27 | 1.52 | 1.72 | 1.89 | 1.77 | 1.66 | 1.55 | 1.44 |
| **Return on Equity** | **%** | 1.5 | 1.4 | 0.4 | 0.7 | 5.5 | 4.9 | 4.7 | 5.0 |

Source: Company, NCBC Research estimates

RoE is expected to remain low over our forecast horizon:

- **Net profit margin:** Although net profit margin is expected to be low in the next couple of years, it is expected to exhibit an upward trend as depreciation charges decline and the company gains experience and maturity in the sector
- **Asset turnover:** This is the real source of drag on RoE. The company will have a large amount of assets supporting relatively small sales (of around 14% of assets)
- **Equity multiplier:** The company's dependence on leverage will have a positive impact on RoE, although not sufficient enough to offset the impact of low asset turnover

# Fixed asset investment

Ma'aden has started a large investment program in both Al Jalamid and Ras Al-Zour owing to the phosphate business expansion. In Al Jalamid, the company has to invest in developing the mine, the beneficiation plant, and infrastructure. In Ras Al Zour, the company is building a number of chemical plants (DAP, Ammonia, Phosphoric acid, Sulfuric acid) and related infrastructure. The table below shows the company's planned capex for the whole project. We estimate that the company has already incurred capex of SR6.2bn (As of 1Q-09).

**Exhibit 54: Required capex at the beginning of the project**

| | | |
|---|---|---|
| Sulfuric acid | SR'000 | 1,879,500 |
| Phosphoric acid | SR'000 | 2,410,500 |
| DAP | SR'000 | 1,811,250 |
| Ammonia | SR'000 | 3,558,375 |
| Concentrate | SR'000 | 1,316,250 |
| Mining CAPEX | SR'000 | 12,750 |
| Gypsum warehouse | SR'000 | 412,500 |
| Ras Al-Zour power & water | SR'000 | 934,500 |
| Ras Al-Zour infrastructure | SR'000 | 1,896,000 |
| Jalamid infrastructure | SR'000 | 859,125 |
| Project manager | SR'000 | 750,000 |
| Others | SR'000 | 1,200,000 |
| **Total** | **SR'000** | **17,040,750** |

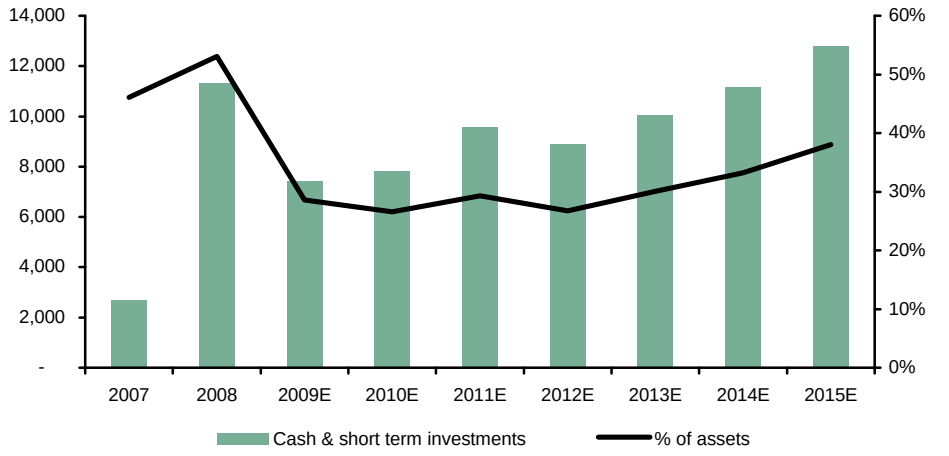
Source: Company, NCBC Research estimates

# Cash and investments

In the IPO in 2008, Ma'aden raised around SR10.5bn for the aluminum as well as the phosphate project. However, as discussed earlier, Ma'aden has not made any progress in the aluminum project. That resulted in significant cash and short-term investments in the company's accounts. Based on our discussion with the management, we understand that these short-term investments represent Murabaha investments mostly with Saudi banks.

Unless the management finds a use for these cash balances, the company will not be able to create a positive economic value by holding these cash balances because returns on these accounts do not match the company's cost of capital.

**Exhibit 55: Cash and short term investments (SR mn)**




Source: Company, NCBC Research estimates

# Leverage

To finance the phosphate project, MPC signed a number of financing agreements, as discussed earlier. Other subsidiaries do not carry any debt balances. Below, we reproduce the financing table discussed in page 25.

**Exhibit 56: Financing facilities available to Ma'aden Phosphate Company (1Q-09)**

| Source of financing | Unit | Secured | Utilized (Q1-09) | Rate (%) |
|---|---|---|---|---|
| Public Pension Fund (PIF) | USD mn | 1,067 | 445 | LIBOR + 0.5% |
| Saudi Industrial Development Fund (SIDF) | USD mn | 160 | - | Not announced |
| Commercial banks | USD mn | 2,661 | 1,255 | LIBOR + between 0.5%, 1.15% |
| **Total** | **USD mn** | **3,888** | **1,700** | |

Source: Company, NCBC Research

# Appendix

## Appendix 1 – Definitions

**Mineral Resources:** This refers to concentration of material of intrinsic economic interest in the earth's crust with reasonable prospects for eventual economic extraction. The location, quantity, grade, geological characteristics and continuity of a mineral resource are known, estimated, or interpreted from specific geological evidence and knowledge. Mineral resources are sub-divided in the order of increasing geological confidence into **Inferred, Indicated**, and **Measured** categories.

**Inferred Mineral Resources:** This refers to that part of a mineral resource for which quantity, grade, and mineral content can be estimated on the basis of geological evidence and limited sampling. These estimates are reasonably assumed but not verified for geological and grade continuity. They are based on information that may be of uncertain quality and reliability.

**Indicated Mineral Resources:** This refers to that part of a mineral resource for which quantity, grade and mineral content can be estimated with a reasonable level of confidence. It is based on exploration, sampling, and testing of information, gathered through appropriate techniques, and drill holes that are spaced closely enough for geological and grade continuity to be assumed.

**Measured Mineral Resources:** This refers to that part of a mineral resource for which quantity, grade and mineral content can be estimated with a high level of confidence. It is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques. The locations are spaced closely enough to confirm geological and grade continuity.

**Ore Reserves:** This refers to the economically mineable part of a measured and/or indicated mineral resource. It includes diluting materials and allowances for losses, which may occur when the material is mined. Ore reserves are sub-divided in order of increasing confidence into: **probable ore reserves** and **proven ore reserves.**

**Probable Ore Reserves:** This refers to the economically mineable part of an indicated, and in some circumstances, a measured mineral resource. It includes diluting materials and allowances for losses that may occur when the material is mined. A probable ore reserve has a lower level of confidence than a proven ore reserve but is of sufficient quality to serve as the basis for a decision on the development of the deposit.

**Proven Ore Reserves:** This refers to the economically mineable part of a measured mineral resource. It includes diluting materials and allowances for losses that may occur when the material is mined. A proven ore reserve represents the highest confidence category of reserve estimate.

# Appendix 2

| Exhibit 57: Ma'aden Mineral Resources | | | |
|---|---|---|---|
| **Reserve** | **Tons (000)** | **Gram/ton** | **Ounces** |
| **Proven** | | | |
| Mahd Ad'Dahab | 447 | 10.6 | 153 |
| **Probable** | | | |
| Mahd Ad'Dahab | 792 | 7.6 | 194 |
| Al Amar | 1,350 | 9.9 | 429 |
| Bulghah | 16,768 | 0.8 | 428 |
| Sukhaybarat | 164 | 0.4 | 2 |
| Al Hajar | 2,143 | 1.3 | 87 |
| **Ore Reserves** | | | |
| Mahd Ad'Dahab | 1,239 | 8.7 | 347 |
| Al Amar | 1,350 | 9.9 | 429 |
| Bulghah | 16,768 | 0.8 | 428 |
| Sukhaybarat | 164 | 0.4 | 2 |
| Al Hajar | 2,143 | 1.3 | 87 |
| **Mineral Resources** | | | |
| **Measured** | | | |
| Mahd Ad'Dahab | 344 | 21.3 | 235 |
| Ad Duwayhi | 7,222 | 2.8 | 648 |
| Subtotal | 7,566 | 3.6 | 884 |
| **Indicated** | | | |
| Mahd Ad'Dahab | 727 | 13.4 | 313 |
| Al Amar | 1,864 | 11.3 | 679 |
| Bulghah | 21,537 | 0.8 | 561 |
| Sukhaybarat | 164 | 0.4 | 2 |
| Al Hajar | 2,143 | 1.3 | 87 |
| Ad Duwayhi | 6,359 | 5.7 | 1,169 |
| Advanced Exploration Projects | 31,636 | 2.3 | 2,369 |
| **Measured + Indicated** | | | |
| Mahd Ad'Dahab | 1,071 | 15.9 | 549 |
| Al Amar | 1,864 | 11.3 | 679 |
| Bulghah | 21,537 | 0.8 | 561 |
| Sukhaybarat | 164 | 0.4 | 2 |
| Al Hajar | 2,143 | 1.3 | 87 |
| Ad Duwayhi | 13,581 | 4.2 | 1,817 |
| Advanced Exploration Projects | 31,636 | 2.3 | 2,369 |
| **Inferred** | | | |
| Mahd Ad'Dahab | 174 | 16.8 | 94 |
| Al Amar | 141 | 9.5 | 43 |
| Bulghah | 2,431 | 0.7 | 56 |
| Ad Duwayhi | 3,493 | 2.7 | 299 |
| Advanced Exploration Projects | 54,528 | 2 | 3,448 |
| **Mineral Resources** | | | |
| Mahd Ad'Dahab | 1,245 | 16.1 | 643 |
| Al Amar | 2,005 | 11.2 | 722 |
| Bulghah | 23,968 | 0.8 | 617 |
| Sukhaybarat | 164 | 0.4 | 2 |
| Al Hajar | 2,143 | 1.3 | 87 |
| Ad Duwayhi | 17,074 | 3.9 | 2,116 |
| Advanced Exploration Projects | 86,163 | 2.1 | 5,817 |
| **Total Mineral Resources** | **132,762** | **2.3** | **10,004** |

Source: Company, NCBC Research

# Financials

## Key financials

| (SR mn) | 2008 | 2009E | 2010E | 2011E | 2012E | 2013E |
|---|---|---|---|---|---|---|
| **Income statement** | | | | | | |
| Net sales | 460 | 621 | 644 | 2,655 | 4,823 | 4,758 |
| % change | 88.5 | 35.0 | 3.7 | 312.0 | 81.7 | (1.3) |
| Gross profit | 221 | 283 | 269 | 1,134 | 2,563 | 2,459 |
| SG&A | (309) | (235) | (280) | (511) | (568) | (581) |
| Operating profit | (88) | 47 | (11) | 623 | 1,995 | 1,878 |
| EBITDA | (0.2) | 127 | 119 | 1,143 | 2,966 | 2,891 |
| % change | NA | NA | (6.4) | 863.3 | 159.4 | (2.5) |
| Dep. & Amortization | (88) | (79) | (130) | (520) | (972) | (1,013) |
| Murabaha income | 290 | 397 | 223 | 227 | 239 | 267 |
| Interest expense | - | - | - | (559) | (530) | (480) |
| Minority interest | 2 | 1 | 3 | 4 | (429) | (459) |
| Pre-tax profit | 203 | 445 | 214 | 296 | 1,275 | 1,206 |
| Tax (Zakat) | - | (201) | (144) | (172) | (250) | (225) |
| Reported net income | 203 | 244 | 71 | 124 | 1,025 | 980 |
| Normalized income | 260 | 244 | 71 | 124 | 1,025 | 980 |
| % change | 23.9 | (6.4) | (70.9) | 74.7 | 728.2 | (4.3) |
| **Balance sheet** | | | | | | |
| Cash | 4,145 | 2,714 | 2,864 | 3,499 | 3,253 | 3,671 |
| Short term investments | 7,190 | 4,708 | 4,968 | 6,070 | 5,642 | 6,369 |
| Current assets | 12,496 | 8,711 | 9,118 | 11,225 | 10,951 | 12,003 |
| Net fixed assets | 8,863 | 17,222 | 20,324 | 21,432 | 22,258 | 21,358 |
| Other assets | - | - | - | - | - | - |
| Total assets | 21,358 | 25,933 | 29,442 | 32,657 | 33,209 | 33,361 |
| Current liabilities | 3,573 | 1,870 | 1,266 | 1,262 | 1,056 | 1,019 |
| Total debt | 820 | 6,844 | 10,878 | 13,973 | 13,253 | 12,002 |
| Other liabilities | 139 | 149 | 160 | 165 | 189 | 190 |
| Total liabilities | 4,531 | 8,863 | 12,304 | 15,400 | 14,498 | 13,211 |
| Share capital | 14,500 | 14,500 | 14,500 | 14,500 | 14,500 | 14,500 |
| Minority interest | 639 | 639 | 636 | 632 | 1,060 | 1,519 |
| Reserves & surplus | 1,688 | 1,931 | 2,002 | 2,126 | 3,150 | 4,131 |
| Shareholders' equity | 16,827 | 17,070 | 17,138 | 17,257 | 18,711 | 20,150 |
| Total equity & liab | 21,358 | 25,933 | 29,442 | 32,657 | 33,209 | 33,361 |
| **Cash flow statement** | | | | | | |
| Cash flow from op. (a) | 3,028 | (1,499) | (391) | 828 | 2,373 | 2,989 |
| Cash flow from inv.(b) | (11,249) | (5,794) | (3,188) | (2,729) | (1,370) | (839) |
| CAPEX | (6,416) | (8,276) | (2,927) | (1,628) | (1,797) | (113) |
| Free cash flow (a+b) | (8,220) | (7,292) | (3,579) | (1,901) | 1,003 | 2,150 |
| Cash flow from fin.(c) | 11,181 | 5,861 | 3,729 | 2,536 | (1,250) | (1,731) |
| Debt | 820 | 6,024 | 4,034 | 2,536 | (1,250) | (1,731) |
| Equity addition | 10,500 | - | - | - | - | - |
| Dividends | - | - | - | - | - | - |
| Net chg. in cash (a+b+c) | 2,961 | (1,431) | 150 | 635 | (246) | 419 |
| Cash at start of the year | 596 | 4,145 | 2,714 | 2,864 | 3,499 | 3,253 |
| MPC cash balance | 588 | - | - | - | - | - |
| Cash at end of the year | 4,145 | 2,714 | 2,864 | 3,499 | 3,253 | 3,671 |

Source: Company, NCBC Research estimates

# Key financials (contd.)

| Key ratios | 2008 | 2009E | 2010E | 2011E | 2012E | 2013E |
|---|---|---|---|---|---|---|
| **Per share ratios (SR)** | | | | | | |
| Reported EPS | 0.30 | 0.26 | 0.08 | 0.13 | 1.11 | 1.06 |
| Normalized EPS | 0.38 | 0.26 | 0.08 | 0.13 | 1.11 | 1.06 |
| FCF per share | (12.1) | (7.9) | (3.9) | (2.1) | 1.1 | 2.3 |
| Div per share | - | - | - | - | - | - |
| Book value per share | 24.8 | 18.5 | 18.5 | 18.7 | 20.2 | 21.8 |
| **Valuation ratios (x)** | | | | | | |
| P/E (normalized) | 36.5 | 53.1 | 182.8 | 104.7 | 12.6 | 13.2 |
| Implied P/E (normalized) | 28 | 41 | 142 | 82 | 10 | 10 |
| P/FCF | (1.2) | (1.8) | (3.6) | (6.8) | 12.9 | 6.0 |
| P/BV | 0.6 | 0.8 | 0.8 | 0.8 | 0.7 | 0.6 |
| EV/sales | 28.1 | 20.8 | 20.1 | 4.9 | 2.7 | 2.7 |
| EV/EBITDA (normalized) | 227.6 | 102.0 | 109.0 | 11.3 | 4.4 | 4.5 |
| Div yield (%) | - | - | - | - | - | - |
| **Profitability ratios (%)** | | | | | | |
| Gross margins | 48.0 | 45.5 | 41.7 | 42.7 | 53.1 | 51.7 |
| Operating margin | (6.8) | 7.6 | (1.7) | 23.5 | 41.4 | 39.5 |
| Normalized EBITDA margins | 12.4 | 20.4 | 18.4 | 43.1 | 61.5 | 60.7 |
| Normalized profit margins | 56.6 | 39.2 | 11.0 | 4.7 | 21.2 | 20.6 |
| RoE | 1.5 | 1.4 | 0.4 | 0.7 | 5.5 | 4.9 |
| RoA | 1.2 | 0.9 | 0.2 | 0.4 | 3.1 | 2.9 |
| **Liquidity ratios** | | | | | | |
| Current ratio | 3.5 | 4.7 | 7.2 | 8.9 | 10.4 | 11.8 |
| Quick Ratio | 3.5 | 4.5 | 7.0 | 8.6 | 9.9 | 11.3 |
| **Operating ratios (days)** | | | | | | |
| Inventory | 143.9 | 141.5 | 140.2 | 35.6 | 26.5 | 24.8 |
| Receivables outstanding | 16.7 | 16.1 | 16.0 | 43.0 | 46.6 | 48.0 |
| Payables outstanding | 329.0 | 228.9 | 216.4 | 64.0 | 48.1 | 46.5 |
| Operating cycle | 160.6 | 157.7 | 156.2 | 78.6 | 73.1 | 72.8 |
| Cash cycle | (168.4) | (71.2) | (60.2) | 14.7 | 25.0 | 26.2 |

Source: Company, NCBC Research estimates

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| | | | |
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| | |
|---|---|
| Overweight: | Target price represents expected returns in excess of 15% in the next 12 months |
| Neutral: | Target price represents expected returns between -10% and +15% in the next 12 months |
| Underweight: | Target price represents a fall in share price exceeding 10% in the next 12 months |
| Price Target: | Analysts set share price targets for individual companies based on a 12 month horizon. These share price targets are subject to a range of company specific and market risks. Target prices are based on a methodology chosen by the analyst as the best predictor of the share price over the 12 month horizon |

**OTHER DEFINITIONS**

| | |
|---|---|
| NR: | Not Rated. The investment rating has been suspended temporarily. Such suspension is in compliance with applicable regulations and/or in circumstances when NCB Capital is acting in an advisory capacity in a merger or strategic transaction involving the company and in certain other situations |
| CS: | Coverage Suspended. NCBC has suspended coverage of this company |
| NC: | Not Covered. NCBC does not cover this company |

**IMPORTANT INFORMATION**