KSA PETROCHEMICAL SECTOR

Feedstock advantage and expansion efforts drive growth

1. Onto the next phase of growth

The Saudi petrochemical industry witnessed considerable growth over the past decade, barring the global credit crisis in 2008. The sector’s net income increased at a compounded annual growth rate (CAGR) of about 35.2% over 2001–2011, benefiting from capacity expansion and low production costs amid high petrochemical prices and demand. Petrochemical producers capitalize on the availability of feedstock at a relatively low rate compared to their global counterparts. Moreover, Saudi Arabia is in close proximity to major markets in Asia and Europe.

Petrochemical producers have made significant investments over the past decade to leverage the Kingdom’s natural gas reserves and build world-class petrochemical facilities (figure 2). Capital expenditure increased at a CAGR of 21.3% over 2001–2011. Prior to the crisis, though capex was increasing due to attractive prices and demand dynamics, it decelerated at the end of 2008. Currently, projects (worth over $11 billion) focusing on the production of more complex downstream petrochemical products, are under execution in the Kingdom. For instance, Saudi International Petrochemical Co (Sipchem)’s Phase 3 expansion plan is expected to add products such as ethylene vinyl acetate, low density polyethylene, ethyl acetate and butyl acetate. In addition, Sahara’s and Tasnee’s affiliates are undertaking petrochemical projects to manufacture acrylic acid and its derivatives such as butyl acrylate, glacial acrylic acid and super absorbent polymers in the Kingdom. With producers’ sustained focus on expansion, the industry is expected to garner a 15% share in the global petrochemicals market by 2015 compared to the current 8%.
2. KSA economy & petrochemical companies

Petrochemical sector – key driver of the Saudi economy

The non-oil sector accounted for 42% of the Kingdom’s GDP in 2011—the petrochemical industry is the biggest contributor to non-oil exports from Saudi Arabia (figure 3). The industry is labor-intensive and downstream expansion could further boost employment opportunities. This initiative has been highly incentivized and is in line with the government’s mandate to employ the burgeoning young population.

Figure 3. Composition of non-oil exports in Saudi Arabia (2010)

Source: SAMA

SABIC is the leading petrochemical player in the Kingdom

Among the 14 listed petrochemical companies in the Kingdom, Saudi Basic Industries Corporation (SABIC) is the largest player with a production capacity of 69 million tons and market value of ~$70 billion. Globally, the company is the largest producer of ethylene glycol and MTBE, and second-largest manufacturer of methanol. Also, SABIC is the third-largest producer of polyethylene and fourth-largest producer of polypropylene worldwide. The company aims to increase its annual production capacity to over 130 million tons by 2020. In line with this, SABIC is undertaking various expansion projects to add petrochemical products such as polyurethane, polycarbonate, methyl methacrylate (MMA) and polymethyl methacrylate (PMMA).

The exhibit below depicts production capacity and market capitalization of the 14 petrochemical companies listed on Tadawul.
3. Key growth factors

Access to low-cost feedstock

The Saudi government has subsidized ethane feedstock prices and capped it at $0.75/mm Btu for petrochemical producers. Moreover, other feedstock, such as propane and butane, are supplied at a discount to the market price. As a result, petrochemical producers in the Kingdom are considered among the most cost-competitive companies across the globe. Also, producers are in a better position to withstand any decline in prices or demand compared to their global peers. As a result, Saudi producers are in a better position to withstand any price decline and demand weakness when compared with their global peers.

Global economic recovery

Petrochemicals find application mainly in industrial and consumer products. Thus, demand for petrochemicals moves in tandem with global economic growth. The current global macroeconomic environment remains highly uncertain (the Euro Area’s economy is still mired by financial difficulties and is expected to contract this year). The IMF recently cut its global growth forecast and expects global real GDP to grow 3.5% in 2012 relative to 3.9% in 2011. Anticipated slowdown in the Chinese economy is a key concern for petrochemical producers worldwide as the country is the largest end market for such products. The IMF expects China’s real GDP to grow 8.0% in 2012 vis-à-vis 9.2% the previous year.
Nevertheless, economic conditions are expected to improve over the long-term as governments in developing economies focus on lowering fiscal deficits and highly indebted European nations try to retain debt levels within manageable limits by undertaking austerity measures. According to the IMF’s estimate, growth in global real GDP would reach 4.7% in 2017 from 3.5% estimated in 2012. In Asia, developing countries, considered to be the major consumer markets for the Kingdom’s petrochemical products, are expected to lead recovery with an annual growth rate of nearly 8% over 2013–2017.

**Strong demand from Asia, mainly China and India**

Asia is the largest export destination for the Saudi petrochemical sector. In 2010, the region accounted for 55% of the Kingdom’s petrochemical exports. In terms of population, China and India accounted for roughly 37% of the global population in 2010; both countries are likely to experience strong demand for petrochemicals. Factors such as large population base and rising disposable income in GCC countries are set to boost demand for plastics in the coming years. Currently, consumption in India is about 6 kg per capita, significantly lower than the global average of about 24.6 kg per capita. Though per capita plastics consumption has reached about 22.8 kg in China, sustained growth in the country’s GDP provides further upside potential. China and India are expanding their in-house petrochemical production capacities to reduce dependence on imports. However, the incremental capacity addition is not expected to keep pace with higher growth in demand.

**Oil prices remain steady**

Petrochemical prices are largely determined by prevailing oil prices since naphtha, the widely used feedstock, closely tracks oil price movements. Crude oil prices are expected to remain below $95 a barrel in the near- to medium-term with the US Energy Information Administration (EIA) estimating the average West Texas
Intermediate (WTI) crude oil prices to be $92.83 per barrel in 2012 and $88.50 per barrel in 2013. Low oil prices will put pressure on petrochemical prices; also there exists an anticipated weakness in demand in the near-term which is a cause for concern. However, any recovery in the global economy should boost oil prices, and along with low production costs, petrochemical producers’ margins are likely to expand in the long term.

Figure 6. Crude oil prices ($/bbl)

Source: EIA; Note: Prices are annual averages, 2012 and 2013 prices are projections

Large project pipeline

The Saudi petrochemical industry has expanded rapidly over the past decade and has a significant project pipeline, which would continue to sustain this growth with the inclusion of downstream products. Petrochemical projects totaling over $11 billion have been undertaken in Saudi Arabia. It includes Phase 2 expansion of Petro Rabigh (at a cost of $6.7 billion) to add 17 new products to the portfolio. Moreover, Sadara petrochemical complex, a joint venture between Saudi Aramco and Dow Chemical, entails the construction of 26 facilities (at a cost of $20 billion) for the production of a wide range of petrochemical products using low-cost feedstock from Saudi Aramco.

Favorable government policies

The Saudi government is actively promoting the sector’s diversification and greater downstream expansion for increasing the production of value-added products. This move is expected to enhance the profitability of local producers as well as generate employment opportunities for a large young population. The Kingdom has followed an astute industrial policy through which large industrial port cities, such as Jubail and Yanbu, are considered to be an ideal environment for the growth of petrochemical companies. Saudi Arabia is a key investment destination among foreign investors as they are subjected to low taxes and property registration costs. The government offers project financing through specialized government credit institutions like Saudi Industrial Development Fund (SIDF). Losses are allowed to be carried forward indefinitely producing a strong
incentive for investment in sector which has a long gestation period. The government in an effort to boost industrial activity has exempted custom duty on imported machinery and equipment meant for industrial usage.

4. Trends in the petrochemical sector in KSA

Petrochemical exports move in tandem with global growth

Petrochemical exports from Saudi Arabia have grown consistently over the last decade, with the exception of a decline in 2009 due to the global economic crisis. In terms of value, petrochemical exports expanded at a CAGR of 23.9% over 2003–2010. Moreover, by volume, exports aggregated 31.97 million tons in 2011 compared to 26.19 million tons in 2009, implying a growth rate of 10.5%. This could be primarily ascribed to a rise in petrochemical exports expanding the production base due to robust demand from Asia. Currently, global uncertainty has led to a decrease in demand for petrochemicals. Consequently, higher-cost production regions across the globe are likely to be impacted. Nevertheless, producers in Saudi Arabia enjoy a low-cost advantage and are in a better position to deal with this situation. However, prices are likely to remain under pressure that, in turn, could impact the value of exports and the financial performance of Saudi producers.

Figure 7. Saudi petrochemical exports ($ million)

<table>
<thead>
<tr>
<th>Year</th>
<th>Value ($ million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>4,312</td>
</tr>
<tr>
<td>2004</td>
<td>4,979</td>
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<tr>
<td>2005</td>
<td>11,215</td>
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<tr>
<td>2006</td>
<td>12,250</td>
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<tr>
<td>2007</td>
<td>14,359</td>
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<tr>
<td>2008</td>
<td>16,657</td>
</tr>
<tr>
<td>2009</td>
<td>14,125</td>
</tr>
<tr>
<td>2010</td>
<td>19,348</td>
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</tbody>
</table>

Source: SAMA

Large-scale capacity expansion

The petrochemical industry in KSA has expanded rapidly over the past decade. Companies have diversified their operations to maximize returns by capitalizing on rising oil prices and low production costs. These efforts have been supported by the government, which aims to create employment opportunities for a large young population. According to UN estimates, about 57% of the population was under the age of 30 in 2010. The
Kingdom has the strongest project pipeline among all of the GCC countries, with projects worth over $11 billion currently in the execution phase. Jubail and Yanbu are the hub for petrochemical developments.

**Prices of petrochemicals correlated with oil prices**

Prices of petrochemicals and oil, which reached a peak in 2008, are correlated. Since then, most petrochemicals have made a smart recovery accompanied by a rise in oil prices and an improvement in global economic conditions. Polystyrene posted YTD growth\(^1\) of 28.2% and polypropylene prices increased 6.6% this year; however, other chemicals like ethylene fell 18.7%, and propylene price declined 19.5% this year. Petrochemical prices are expected to remain weak in the near term due to the ongoing uncertainty about global economic growth.

![Figure 8. Prices of major petrochemicals ($/ton)](source:Bloomberg)

Prices of ethylene, propylene and their derivatives are expected to remain under pressure in 2012 due to uncertainty in global markets. However, the outlook for the medium and long term appears optimistic supported by an increase in demand from emerging markets and global economic recovery. However, methanol prices are likely to remain strong in 2012 as there has been limited expansion worldwide and global supply has been impacted by the sanctions imposed on Iran. Similarly, Mono ethylene glycol (MEG) prices are expected to remain stable in 2012 due to planned plant shutdowns and consistent demand.

The price of titanium dioxide is expected to rise strongly in the medium term due to tight supplies and higher raw material costs. The TiO2 market is likely to be constrained on the supply side as no major capacity additions are expected in the near-term due to high cost of investments.

\(^1\) YTD growth has been measured upto 13\(^{th}\) July, 2012.
Ammonia prices may continue to increase in the near- to medium-term, due to tight availability, reduced shipments from Iran and anticipation of continued demand from Asia. However, availability is expected to be impacted by the ongoing and imminent plant shutdowns in the Middle East, a major supplier to Asia.

Urea prices remained strong in the first and second quarters of 2012 due to strong demand from the agricultural sector. Prices are likely to remain firm in the short- to medium-term on continued demand.

**Shift toward high value intermediate products and derivatives**

Local petrochemical majors are shifting from the production of basic petrochemicals, such as ethylene, polyolefins, polyethylene and polypropylene, to specialty chemicals and plastic polymers. This is ascribed to the diversification of earnings sources and stabilization in earnings (downstream product prices are less cyclical in nature). This transition is accompanied by other necessary changes such as a shift from lighter feedstock (ethane) to heavier feedstock (naphtha). Saudi Arabia General Investment Authority (SAGIA) is strongly encouraging the captive use of olefins by petrochemical producers to enhance the value of their exports and boost employment. Local producers are increasingly collaborating with international peers to gain technical know-how in terms of setting up facilities that can produce higher value petrochemical derivatives. Saudi Aramco, which has been primarily involved in oil refining, is developing a petrochemical project with US major, Dow Chemical (Sadara Chemical); also, the company plans to expand Petro Rabigh, its existing refining and petrochemical joint venture with Sumitomo Chemical, a Japanese firm.

**Lower dependence on ethane as feedstock**

Petrochemical producers are gradually shifting from using ethane as a feedstock to alternatives such as naphtha and heavier gases (propane and butane). New plants in the Kingdom use mixed feedstock (including ethane, propane and butane) mainly due to scarcity of ethane. Saudi Aramco, the sole supplier of ethane in Saudi Arabia, discontinued the allocation of ethane to new petrochemical projects in 2006. Moreover, ethane feed cracker offers a limited range of petrochemical output compared to a mixed feed cracker. Companies such as Yansab, Saudi Kayan and Petrochem have petrochemical complexes which operate on a mix of feedstock such as ethane, propane or butane.

**Increasing number of joint ventures with foreign players**

In the downstream sector, diversification initiatives require substantial capital inputs and greater technical know-how, thus leading to a larger number of joint ventures between Saudi petrochemical producers and foreign firms due to the availability of cheaper feedstock, government incentives and the Kingdom’s strategic location. SABIC has entered into agreements with Exxon Mobil and Sinopec for setting up facilities to produce a mix of petrochemical products including polymers. Similarly, Sipchem is jointly working with South Korea-based Hanwha Chemical on its Phase 3 expansion project, while Sahara Petrochemical Company and National Industrialization Company (Tasnee) have formed a joint venture with Germany-based Evonik Industries AG to build a super absorbent polymer facility in the Kingdom.
Consolidation

Local producers, supported by strong balance sheets, are eyeing acquisition opportunities worldwide to diversify their product mix and gain access to new markets. Saudi petrochemical producers need to develop distribution channels in the US and Europe to enhance their marketing abilities. Sipchem acquired Aectra (a trading and marketing firm in Switzerland) in the latter part of 2011; consequently, the company gained immediate access to experienced marketing, logistics and trading expertise in the European market. Other key strategic acquisitions include SABIC’s takeover of GE Plastics for $11.6 billion in 2007 and thereby adding high-performance plastics to its product range. Moreover, the acquisition of DSM Petrochemicals in 2002 strengthened SABIC’s presence in important European markets; consequently, it became the leader in the Dutch petrochemicals industry.

5. KSA petrochemical companies among the most competitive in the GCC region

Lowest cost producers among GCC players

The GCC region possesses around 60% of the world’s oil reserves and approximately 40% of the natural gas reserves enabling it to become an important and highly profitable petrochemical hub. The region produces around 16% of the world’s petrochemical output or approximately 105 million tons. Given GCC’s proximity to major demand centers in Asia (such as China and India), it has an edge over its American and European counterparts. In the GCC region, Saudi Arabia alone is responsible for nearly 60% of the total petrochemical production. Moreover, Saudi petrochemical companies are competitively placed due to a favorable cost structure. The government offers ethane at $0.75/MMBtu, which is the lowest in the region.

Attractive investment option among GCC peers

The Saudi government has played a pivotal role in the development of the petrochemical industry—it was among the foremost in the region to permit private sector investments in the industry. As a result, several global companies, such as Exxon Mobil, Dow Chemical, Chevron Phillips and Sumitomo Chemicals, established their presence in the Kingdom. This was a key enabler in diversifying the petrochemical product portfolio by adding more complex products such as specialty chemicals and engineering thermoplastics. In terms of the value of petrochemical projects currently under execution, Saudi Arabia is the leader in GCC. Based on BMI’s estimates (figure 9), the Kingdom would continue to remain the leader in ethylene production, which is forecasted to reach 16.5 million tons by 2016. Moreover, the government has built world-class industrial cities (Jubail and Yanbu) for setting up huge petrochemical complexes. Also, the government has increased focus on building key infrastructural facilities, such as roads, to further aid the industry’s growth.
6. Financial performance

Improve in in profitability for most petrochemical companies

Gross and net margins for the petrochemical industry stood at 42.3% and 26.1%, respectively, in 2005. However, the economic crisis dented margins, which fell to their lowest in the past decade in 2009—gross margins declined to 21.5%, while the net margin stood at a meager 6.8%. Since then, margins have recovered gradually, but are well below their pre-crisis levels.
Most petrochemical companies in the Kingdom increased their returns over 2009–2011. As evident from the graph below, Saudi Arabia Fertilizer Company (SAFCO) had the highest ROA and ROE (43.9% and 50.1%, respectively) in 2011. This has been ascribed to a rise in the prices of urea and ammonia. Also, by controlling costs, SAFCO has been able to post stronger gross, operating and net profitability margins.

**Figure 11. ROA of Saudi petrochemical companies**

Source: Zawya

**Figure 12. ROE of Saudi petrochemical companies**

Source: Zawya
Reasonable valuation of stocks

Most companies are currently trading in the P/E range of 8–13. SABIC is trading at a leading P/E of 9.1, with a leading ROE of 19.7%. SAFCO is trading at a leading P/E of 11.5, with a leading ROE of 47.5%. YANSAB is trading at the lowest leading P/E ratio of 8.1, but appears promising with a high leading ROE 25.0%.

Figure 13. P/E vs. ROE of Saudi petrochemical companies

Source: Bloomberg; Note: Size of the bubble is representative of the company’s market capitalization

KSA petrochemical sector index has outperformed TASI

The Tadawul All Share Petro Index (SASEPETR) has moved in tandem and over time even outperformed the Tadawul All Share Index (TASI). However, SASEPETR fell much more sharply than the TASI due to the global economic crisis in 2008–2009; nevertheless, with the onset of global recovery in 2009, it rose faster than the overall index. The current fall in oil prices will have a negative impact on the performance of petrochemical companies. However given the strong fundamentals of the petrochemicals industry, SASEPETR should continue outperforming the TASI.
Company update - Advanced Petrochemical Company

Advanced Petrochemical Company (APC)’s net income dipped 65.3% in Q2 2012 compared to the same quarter of 2011. The company witnessed a steep fall in product prices and a decline in sales volumes. The financial performance was also affected by the planned shutdown of its two polypropylene plants to carry out routine and preventive maintenance for three weeks with effect from 1 May 2012. Each polypropylene plant has a production capacity of 225,000 tpa. Polypropylene prices are expected to remain under pressure owing to the uncertain global demand scenario painting a grim outlook for the pure-play polypropylene producer, at least over the short term.

APC focused on global expansion by entering into a joint venture with Bayegan Group, a Turkish international trading firm, to develop a propane dehydrogenation (PDH) and polypropylene (PP) plant in Turkey at an investment of $1 billion. APC would hold 70% equity stake in the venture. The facility, scheduled for completion by 2015, is expected to produce 500,000 tons of polypropylene per annum that is almost 30% of the current polypropylene imports in Turkey. The company currently produces 450,000 tons of polypropylene per year. Turkey is the world’s second-largest polypropylene importer and this venture is likely to offer APC closer access to an important clientele. Also, the company would complement its technical expertise in terms of setting up and operating large petrochemical facilities with Bayegan’s marketing skills and knowledge of the Turkish market.
7. Key issues & challenges

Higher feedstock costs

Saudi Arabia has one of the largest natural gas reserves in the world which is currently subsidized by the government for local petrochemical producers. Apart from the petrochemical industry, natural gas has found many applications that, in turn, has increased its consumption. However, Saudi Aramco, the leading supplier, has discontinued the allocation of natural gas to new customers due to a shortage. Investors believe the prices of ethane feedstock, which was offered at a subsidized rate of $0.75/mm Btu until date, may not be sustainable and would be raised to about $1.25–1.5/mm Btu in 2013. This would adversely impact the margins of local petrochemical producers. However, greater efficiencies and higher feedstock prices worldwide could enable producers to remain competitive, albeit to a lesser extent.

The industry is increasingly switching to using heavier liquid feedstock (such as naphtha, propane and butane) to help producers add more downstream products to their portfolios. Such feedstock is expensive vis-à-vis ethane as well as in terms of building and maintaining the plants. This switch would have a greater impact on pure-play producers than those having a more diversified portfolio of products.

Project delay/cancellations

Rapid expansion initiatives of most producers are considered to be large-scale and highly capital-intensive in nature. Successful completion of new facilities would significantly boost the existing capacity. However, there is a risk of these projects being delayed if companies are not able to secure financing due to a rise in borrowing costs. Saudi Aramco may have to incur higher funding costs as several of its projects (in association with Sumitomo Chemical and Dow Chemical) are running short of cash. Inability to secure feedstock could also be detrimental for a number of new planned facilities. Projects could also be shelved on lower global demand for petrochemicals if an economic recovery is delayed more than expected.

China’s increasing self-reliance

The petrochemicals industry in China is one of the fastest growing industries in the world. According to BMI’s estimates, the country would have an ethylene capacity of 21.56 million tons per annum (mtpa) by the end of 2012 which is expected to rise to 31.7 mtpa by 2016. Sinopec expects its ethylene capacity to rise from the current 9.5 mtpa to 12–13.5 mtpa in 2015. Companies are increasing capacities to lower their dependence on imports. This could reduce demand for Saudi petrochemical products as China is one of its major export markets.

Global economic downturn

Demand for petrochemicals is closely linked with growth in the global economy. However, economic recovery from the financial crisis in 2008 is not complete. Eurozone is facing increased macroeconomic uncertainty as most nations are running high fiscal deficits and have accumulated large debts. The IMF recently cut down
global growth forecast to 3.5% this year on the back of Eurozone worries. This contagion can easily spread across the world leading to a decrease in petrochemical consumption. Consequently, the petrochemical industry in KSA, a major supplier to the global petrochemicals market, could be adversely impacted.

Anti-dumping claims

Saudi Arabia has been the subject of several anti-dumping and anti-trust allegations leveled by European and Asian countries as they claim the subsidized feedstock available to Saudi producers gives them an unfair advantage in the global marketplace. India had imposed anti-dumping duties on polypropylene imports from Saudi Arabia in November 2010 which was only revoked in January 2012. Before this Saudi petrochemical producers have faced anti-dumping probe by China on methanol imports. Though these charges were revoked after the investigation, the Chinese government is still levying an anti-dumping charge of 4.5% on Sipchem’s Butanediol imports. These measures have had an adverse impact on the competitiveness of Saudi petrochemical products in key overseas markets.

Shale gas drives the petrochemical industry in North America

The discovery of vast shale gas resources has reversed the fortunes of the North American petrochemical industry. Approximately 32% of the natural gas reserves in the US comprise shale gas. EIA forecasts shale gas production to increase from 5.0 trillion cubic feet (tcf) in 2010 (23% of the total US dry gas production) to 13.6 tcf in 2035 (49%). The industry has become more competitive due to the reliance on this stable and low-priced feedstock source vis-à-vis global competitors who depend on naphtha as feedstock. Currently, natural gas prices have declined to $2/mm Btu from over $10/mm Btu in 2008. As a result, the North American petrochemicals industry is only second to the Middle East in terms of competitiveness. However, just how well the US is able to harness this lucrative feedstock source in the face of stringent environmental regulations remains to be seen.

8. Outlook

The near-term outlook for the Saudi petrochemicals sector warrants caution due to the current global macroeconomic uncertainty, which is expected to cap global demand for and prices of petrochemicals. This could exert pressure on margins of Saudi petrochemical producers. Nevertheless, the sector’s earnings are expected to stabilize in the long-run as firms undertake greater diversification initiatives to reduce their risk profile. A shift to the production of value-added products would lead to the next phase of growth, which is expected to be more stable as margins of downstream products are relatively less volatile. Companies are increasing the use of alternative feedstock to expand the product portfolio as well as their presence in foreign countries by entering into partnerships with local players.
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