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Summary of Speaker Presentations
Young & Partners Senior Chemical Executive Seminar
“Strategic, Financial, and Shareholder Issues for Chemical Executives”
September 27, 2007
Yale Club Ballroom
50 Vanderbilt Avenue - New York City

- 7:30 a.m. **Registration and Continental Breakfast**
- 8:00 a.m. **State of the Chemical Industry**
Peter Young, President, *Young & Partners*
- 8:30 a.m. **Private Equity: What Value Has Been Created?**
David M. McKenna, Partner, *Advent International Corporation*
- 9:00 a.m. **The Future of the European Chemical Industry: Prosperity or Retreat?**
Jean-Pierre Clamadieu, Chief Executive Officer, *Rhodia S.A.*
- 9:30 a.m. **The U.S. Chemical Industry: A Contrarian Strategic View and Strategy**
J. Brian Ferguson, Chairman and Chief Executive Officer, *Eastman Chemical Company*
- 10:00 a.m. **Coffee Break**
- 10:30 a.m. **CEO Roundtable**
Moderator: Peter Young, President, *Young & Partners*
Jean-Pierre Clamadieu, Chief Executive Officer, *Rhodia S.A.*
J. Brian Ferguson, Chairman and Chief Executive Officer, *Eastman Chemical Company*
David M. McKenna, Partner, *Advent International Corporation*
- 11:30 a.m. **The Middle East: Regional Developments and Their Effect on Global Strategies**
Michael R. Gambrell, Executive Vice President, Basic Plastics and Chemicals, Manufacturing & Engineering, *The Dow Chemical Company*
- 12:00 p.m. **Luncheon Speakers**
Current Chemical Strategic, M&A and Financial Trends
Peter Young, President, *Young & Partners*
Tools for Achieving Growth: The Management of Innovation
Dr. Gary S. Calabrese, Vice President and Chief Technology Officer, *Rohm and Haas Company*
- 1:30 p.m. **Globalization and Consolidation: An Industry Case Study**
John S. Gaither, Chairman, President and Chief Executive Officer, *Reichhold Inc.*
- 2:00 p.m. **Petrochemicals: Developments in Asia**
Kamal P. Nanavaty, President, Cracker and Polymers Sector, *Reliance Industries Limited*
- 2:30 p.m. **The State of the Petrochemical and Plastics Industry: A Look Back to Look Forward**
Gary Adams, President, *CMAI*
- 3:00 p.m. **Chemical Industry Stock Prices: Will They Stay Up?**
Mark R. Gulley, Senior Specialty Chemicals Analyst, *Soleil Securities Group*
- 3:30 p.m. **Closing Comments**

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Summaries of the Speaker Presentations

(These summaries were prepared by Young & Partners and were not reviewed by the speakers.)

DINNER SPEAKER

Private Equity in Chemicals

Joshua Harris, President and Founding Partner, Apollo Management, L.P.

In order to attain its primary objective of generating above-average returns for its investors, a private equity firm will typically invest in opportunities with the following characteristics: high return on invested capital, high free cash flow, leveragability, good industry structure and strong management. The typical investment vehicle used by a private equity firm is a leveraged buyout (“LBO”) which involves the high-use of leverage. In general, for every dollar of equity invested, a private equity firm will obtain \$4-\$5 of debt financing from banks or the high yield market. Private equity firms generally target a 5-year investment period with 20-25% equity return, which is made possible by the overall low cost of capital due to leverage. The valuations of any private equity transaction, therefore, will be driven by the availability of financing. Since 2000, LBOs have grown from 3% of the M&A market to over 30% of the market in 2006. Approximately \$600 billion of buyout deals were completed in 2006, up 150% from 2005 with the average size of the top 10 deal increasing over 400% from 2004-2006.



Apollo’s deep industry expertise allows it to capitalize on opportunities as a strategic investor. The Company’s fully integrated business model entails knowledge sharing and idea generation from a “library” of information shared by each business. The company invests in four main industries: packaging, chemicals, cable and leisure. Through its strategic initiatives, the Company has been able to invest successfully across economic cycles with a focus on distressed buyouts during recessionary periods and traditional and corporate partner buyouts in expansionary periods. However, the company primarily focuses on “sole sponsored transactions”.

The chemical industry is Apollo’s largest industry focus area, with more than one-third of the firm’s investments in the sector. Over the past 10 years, the Company has completed chemical transactions in excess of \$16 billion. Apollo’s current chemical portfolio includes four control investments (including Berry/Covalence, Hexion/Huntsman, and Momentive) with an aggregate 2007 revenue and EBITDA of \$22 billion and \$3 billion, respectively. All of the Company’s chemical investments have had positive returns, and most have had full or partial realizations. Upon each acquisition, many of the same disciplines and procedures from Apollo’s “playbook” are implemented which immediately begin to drive value creation. The key features of Apollo’s playbook include: (i) board oversight by Apollo professionals and key industry managers; (ii) rigorous focus on cost through continuous improvement practices; (iii) renewed focus on working capital reduction/savings; (iv) thorough EH&S practices/standards audits and necessary implementation of additional safeguards, and (v) increased management focus as a result of standalone/carveout processes and equity incentives. Apollo’s chemical portfolio of companies, playbook, and experience uniquely positions it for additional investment in the industry.

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CONFERENCE SPEAKERS

State of the Chemical Industry

Peter Young, President, Young & Partners

If you step back from the details of individual companies and sectors, you will note that the chemical industry is doing quite well from a profitability point of view. After years of difficult earnings, the industry has fared well overall since the end of 2003, although there are significant differences amongst industry sectors. Stock valuations have been healthy since 2004, going from a discount to the market to a significant premium today. In addition, the industry has done a very good job in the last number of years of trying to focus on new technologies whether it is nanotechnology or biotech to find ways perhaps to reinvent the industry much like the industry re-invented itself after WWII with the invention of some critical products such as plastics that were engines of tremendous growth and prosperity.



Companies have been restructuring their businesses not only defensively to turn around ailing operations and business portfolios, but offensively ahead of the effect of structural changes in the industry or to accomplish a change in their business mix and shareholder value. Private equity has been a partner in this restructuring. Today's chemical industry is significantly different from an industry that, in the past, tended to be slow to react and to be more defensive when it came to restructuring. In particular, the industry is aggressively moving to capture global shifts in markets (growth of the Chinese market and competition) and to defend against rising feedstock costs and geographic shifts (higher natural gas and oil prices and the shift of basic petrochemical feedstock capacity growth to the Middle East). Even in the area of public perception of the industry, progress is being made.

However, the industry is facing real challenges such as: (i) the fragile global economic growth profile, particularly with regard to the downturn in the housing market in the U.S., the disruptions related to the debt market crisis, and record oil prices; (ii) the potential for a disruption of growth in China; (iii) ongoing structural changes that are creating strategic challenges with the shift of growth and production to China/India and expansions of capacity in the Middle East; (iv) the U.S. and European chemical industries loss of market share and relative cost positions to the Middle East and emerging Asia capacity; (v) the military and political fragility of the Middle East; (vi) public policy and sentiment in Europe and the U.S. towards the chemical industry; and (vii) the ongoing maturity of the chemical industry and the net effect on industry growth.

Private Equity: What Value Has Been Created?

David M. McKenna, Partner, Advent International Corporation

Advent International is one of the largest middle-market buyout firms in the world. The company's average deal size is between \$500 million and \$1.5 billion. The company currently invests about \$5 billion actively in this area since there is often a better opportunity to create value than in some of the larger companies that already have a lot of resources and excellent management accomplished this. The global aspect of Advent is probably its most important strategic advantage. Thus, for a middle-market firm, the company has 15 offices around the world and 100 investment professionals in those offices representing 18 nationalities. So, for the amount of capital under management, Advent is very resource intensive. The company has a lot of partners per dollar of invested capital and puts a lot of resources into its deals.



Advent has been a consistent, long-term investor in the chemical industry with about 20 chemical LBO investments in its history. Private equity has been a major player in M&A and has, since 2003, driven about 50% of all M&A activity in the chemical industry. There are a couple of reasons for this development. One is just the amount of capital managed by private equity firms and the other is that there is an increasing set of expertise within the firms. There was also an

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opening when corporations and corporate M&A slid off at the end of the nineties early 2000s, which allowed private equity to step into the industry and become a major player. So, why does private equity invest in the chemical sector? Chemical LBOs present major challenges including: cyclical, capital intensity, inconsistent return on capital employed, environmental liabilities, and, oftentimes, a difficult exit. However, despite these challenges, chemical LBOs have been very profitable. Chemical LBOs have actually outperformed LBOs in many other sectors over a long period of time. So, people have been making money. Limited partners in private equity firms review these results and understand that over a long period of time the chemical LBO has actually generated a consistently high return and that is part of the value.

What part of the value created by private equity is attributable to cycle timing vs. actual value creation? Cyclical in the chemicals industry creates opportunistic buying situations. Since 1998, about half of private equity deals were done in cyclical lows. In the last downturn, LBO valuations multiples fell at the same time that earnings did. Indeed, some of the best recent chemical deals were struck in the downturn (eg. HT Troplast/Advent, Carlyle; Celanese/Blackstone, Apollo, Goldman Sachs). Since 1998, the "other half" of chemical LBOs were struck at cycle high points, and many of these have also been successes. So the activity of private equity has gone on across the cycle and there have been healthy multiples paid at cycle high earnings. So, the question becomes: "When you take cycle timing away from the private equity investor, what is he relying on to create value?" Jack Welsh may have answered it best when he stated: "Private equity almost always creates a thriving business. It makes a company's vision clear and goals measurable. It tightly aligns goals with compensation systems. And it creates an exciting ownership mentality unleashing renewed passion from employees. And it does all those things fast." These dynamics are at work in Advent's portfolio.

Specifically then what is the toolkit for private equity? The toolkit relates to the alignment of goals and incentives. It goes to private equity being able to get probably more compensation in the hands of good management than the typical public company can mainly because of leverage and the fact that the equity stock options when leveraged can enhance the return. There is a clear focus on earnings growth probably not too much different than a public corporation but active supportive governance on maybe a smaller enterprise could be a differentiation from a corporate board. When you are talking about private equity board you are generally talking about a couple of industry experts. Private equity partners also typically invest a large portion of their net worth into the deals. There is a lot of focus, and there isn't any other agenda or corporate overhead above that board. Additionally, with the use of financial leverage and the sense of urgency which happen in any type of acquisition, whether it be corporate or private equity, really add to the energy that enables and provides the toolkit to enhance value.

Some strategies that private equity use in the chemical area include: complicated corporate carveouts, accelerated market consolidation, strategic portfolio building, and restructuring and operational improvement. Any one deal will probably have two or three of these elements in it. Overall, about 50% of the value that has been created in private equity has been cycle timing and 50% has been from its toolkit and these strategies. The returns have been excellent. Chemical LBOs have outperformed returns of both other LBOs and publicly traded chemical companies.

The Future of the European Chemical Industry: Prosperity or Retreat?

Jean-Pierre Clamadieu, Chief Executive Officer, Rhodia S.A.

The challenges that the chemical industry is facing in Europe are, to some extent, quite similar to the challenges that the North American chemical industry is facing. So the answer to the question, "The Future of the European Chemical Industry: Prosperity or Retreat?" is probably neither one nor the other but a slow erosion which gives some clear signals to companies operating in Europe, and especially for European headquartered companies, on what should be done to address this issue.



If you look at the current situation, Europe accounted for approximately 29% of global chemical sales in 2006 making it the leader in terms of chemical production, a little bit ahead of NAFTA (25%) and Asia (24%), excluding Japan. If you look at how the European market share has moved over the years, you start to see the slow erosion from 32% of market share in 1996 to 29% in 2006. The NAFTA region is experiencing a development similar to Europe's, slow reduction in

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market share in the chemical industry, which on a global basis is increasing quite significantly. Conversely, you see that Asia, excluding Japan, has been gaining market share from 14% in 1996 to 24% in 2006. It is anticipated that by 2015 China will become the world's largest market with a 22% market share whereas Western Europe will account for approximately 21% and the U.S., 22%. One-third of specialty chemicals profits are expected to move to Asia. Targets for Asian competition include APIs, adhesives and sealants, specialty surfactants and some flavors. More protected segments include specialty coatings, service-intensive industrial and institutional cleaners, fragrances, and certain advanced materials.

The structural changes in Europe create significant challenges for the chemical industry. Some of these challenges include: demographic trends, transformation from an industry-based to a service-based economy, strong environmental regulations including aggressive CHG emissions reduction targets and product safety (REACH), EU energy policy not yet firmly established (security of supply, deregulation etc.) and the impact of new technologies (eg. biotech). The options for European chemical players are limited.

Overall the European chemical industry can maintain its profitability through continuous restructuring and productivity efforts, but it is unlikely to generate the growth that shareholders expect. Winners in this new era of the chemical industry will be those that: focus on the right market/technology segments, effectively adapt their European footprint; build a solid growth platform in Asia/China, and secure strategic alliances to speed up Asian developments.

The U.S. Chemical Industry: A Contrarian Strategic View and Strategy

J. Brian Ferguson, Chairman and Chief Executive Officer, Eastman Chemical Company

When most people hear the word “contrarian”, they think of the investor who does the opposite of what most other investors are doing. The contrarian sells when most investors buy, and vice versa. In a more general sense, the contrarian is someone who goes counter to the views most people have, and even disputes the conventional wisdom. Let us determine how a chemical company can use unconventional wisdom to succeed in the marketplace.



Let us start with the changing value chain. The chemical industry is a fragmented industry compared to other basic industries. In the last decade, however, the industry's suppliers and customers have become much larger and more powerful. In addition, competition has increased in the last decade with new entrants into the market, companies with lower labor costs in Asia and lower raw materials cost in the Middle East. The industry is also heavily regulated now and likely to become more so in the future as concerns about the environment in general and global warming in particular increase. Finally, in recent years the U.S. industry has seen the costs of domestic raw materials skyrocket. Everyone in the industry has had to scramble to cope with these developments, and the industry has developed conventional wisdoms about future business strategies. The key elements of these conventional wisdoms consist of: moving operations overseas, depending on cheaper labor and raw materials, and relying on the standard chemical manufacturing business model.

As a midcap company with its most profitable assets planted firmly in the United States and lacking the long-standing relationships to leverage with the big players in the Middle East or China, Eastman recognized that the mandates stipulated by conventional wisdom would not work for the company. In order to remain a viable entity, maximizing its prized resources of its people and technology, the company has decided to stay in the U.S. and invest in large basic chemical assets. The company does not plan to rely on overseas for raw materials. Instead, its technology will allow the company to use low-cost solid hydrocarbons, coal and petroleum coke, which have the advantage of being plentiful, relatively inexpensive, and present in the U.S. Moreover, management believes that the technology will allow it to procure these materials at costs that make them globally advantaged to gas and oil-based raw materials. The company's reliance on coal and petcoke also makes it much easier to manage risk, a factor that plays to the company's strengths. For example, Eastman has broad, in-depth experience developing and using gasified coal. The company pioneered the first commercial U.S. chemicals from coal facility in 1983. The company's more than two-decade availability record of more than 98% is exceptional for any coal-fed facility. Eastman has developed extensive expertise in the management, execution, and commissioning of major capital projects.

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The company's contrarian strategy puts it in a great position to address public policy concerns about climate change. The company has also defied the conventional wisdom when it comes to its chemical manufacturing business model. Thus, instead of trying to place a bet on the market conditions 20 years from now, the company wants to sell the products that it is going to produce in a major new plant before turning over the first shovelful of dirt. This approach is not so contrarian for some private equity companies and industrial gas companies, but it does violate the conventional wisdom for the more typical large chemical commodities.

For Eastman, the slogan "Greener, Smarter, Cheaper" sums up its contrarian strategy.

CEO Roundtable

The Middle East: Regional Developments and Their Effect on Global Strategies

Michael R. Gambrell, Executive Vice President, Basic Plastics and Chemicals, Manufacturing & Engineering, The Dow Chemical Company

At Dow Chemicals, sales outside the United States are delivered by 23,000 employees and more than 120 manufacturing sites in 36 countries spread across the globe. When one considers the total Dow population, 49% of its total employee base is outside of the U.S. today and so are more than 50% of its total manufacturing sites.

Dow's new business model is focused on transforming the company into one that can deliver earnings consistency and growth across the cycle. On the Basics side, the company is mobilizing to drive down costs and enable growth, mostly through Joint Venture deals with strategic partners. Growing through JVs gives Dow a number of benefits including: investing in new world-scale assets at lower cost to Dow; gaining access to the low-cost feedstocks that are urgently needed to stay competitive; partnering with strong regional players which enables Dow to share the costs and risks with them and rapidly gain a foothold in emerging regions – faster than Dow could on its own. Creating new joint ventures also frees up cash, allowing Dow to invest in its higher margin Performance businesses. JVs are nothing new to Dow. The company's first JV was just after World War II. Its experience has made its JV activities solid contributors to its financial performance, with particular strength in the past few years driven both by growth in existing JVs like Dow Corning and newer JVs like OPTIMAL, EQUATE, Ras Tanura, and Ras Lanuf.



Risk is essential to growth, and is nothing new to Dow. The Company has long participated in regions viewed as risky, even in Texas, which many of its leaders back in the Thirties really did think was a different country! But, they had the courage and foresight to take the leap and expand Dow into a company that today participates in every quartile of risk, and in most regions of the world. Now, more than ever, Dow needs to continue to demonstrate the courage to expand into emerging regions, and to do it before the competition does. The company has no recourse ... not if it wants to stay in the game.

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Current Chemical Strategic, M&A and Financial Trends

Peter Young, President, Young & Partners

Historically, chemical company shares have underperformed the broader market indices in absolute and relative terms due to disappointing earnings and returns, lower growth prospects, and negative public perceptions of the industry. In addition, the financial critical mass phenomenon documented by Young & Partners in early 1999 continued, until recently, to be a factor suppressing the P/Es of small to mid-size chemical companies. The chemical industry, as a result, was chronically valued below general market indices. The gap closed considerably from 2000 to 2004 as the overall stock market retreated and chemical company stock prices improved. By the end of 2004, the chemical industry had achieved P/E parity with the market.



Since 2004, the Specialty Chemical, Basic Chemical and Fertilizer companies have outperformed the overall market and are trading at higher PE ratios. The exception has been Diversified Chemicals. Specialty chemical companies have been trading at similar or lower P/Es relative to the commodity chemical companies, a dramatic reversal from historical trends in 1995 and earlier when they commanded 50% to 60% premiums. Diversified chemical companies, on the other hand, plunged to a significant discount to both specialty and commodity pure play companies.

The M&A market in chemicals was very active in 2006. Forty-two billion dollars of deals were completed in 2006, versus \$33 billion for all of 2005. The number of completed deals greater than \$25 million in value reached 78, moderately higher than the 72 deals completed in 2005, but well off the record of 85 in 2004. The surge in worldwide dollar volume was driven heavily by the \$16.5 billion (Enterprise Value) acquisition of BOC by Linde that closed in the third quarter. Valuations went down in basic chemicals with EBITDA multiples for basic chemical transactions averaging 7.1x versus 8.2x in 2005. For specialty chemical transactions, average EBITDA multiples increased to an average of 10.5x in 2006 versus 9.6x in 2005. In 2006, 16% of the number of deals were done by financial buyers, down from 28% for all of 2005. Their share of dollar volume also fell to 17% from 36% for all of 2005. More aggressive industrial buyers contributed to this loss of share by financial buyers. Unfriendly acquisitions and activist shareholders are historically unusual in the chemical industry. However, the hostile takeover of Engelhard by BASF and the unfriendly takeover of BOC by Linde clearly indicate that industrial buyers are willing to be aggressive.

Twenty-nine billion dollars of deals were completed in 2007 through August as a result of \$14 billion of closed transaction in just the months of July and August. Numbers of completed deals greater than \$25 million in value reached 52 in 2007 through August with 13 deals closing in July and August. The SABIC acquisition of GE Plastics on August 31 for \$11.6 billion was the driver of the two month increase in dollar volume.

Debt financings has historically been driven by M&A related borrowings and refinancings. Given the fairly healthy volume of M&A activity over the last number of years, debt financings have been reasonably strong. Non-bank debt financing globally in chemicals was \$21.5 billion in 2006, well ahead of the \$11.8 billion for all of 2005. A large part of this volume was the refinancing of senior bank debt by Ineos related to the late 2005 purchase of Innovene from BP. High yield debt was very strong with \$13.3 billion of the \$21.5 billion total. Private placements were also a heavy component of the totals. Non-bank debt financing globally in chemicals was \$9.1 billion in the first half of 2007, on par with the total last year on an annualized basis. A large part of this volume was M&A related financing. High yield debt was less important than last year at only \$2.5 billion of the \$9.1 billion total. Private placements were also a smaller component of the total at only \$2.8 billion. However, the debt issuance and trading crisis that developed in July will have a major impact on debt issuance for the rest of 2007.

Global chemical equity issuance has historically been very modest due to low chemical company valuations and the limited equity finance needs of chemical companies. With an improvement in the stock market's view of chemicals and the equity issuance market, there was a pick-up in chemical equity offerings overall and in IPOs in 2004. Volume surged in 2005 to \$6.3 billion of issuance on 18 offerings, seven of which were IPOs (\$4.0 billion of proceeds). In 2006 there were 18 offerings worth \$7.9 billion. Eight offerings were IPOs totaling \$5.5 billion. Most of those IPOs were in Europe and in Asia, a sharp contrast to 2005. IPOs in the U.S. and particularly in U.S. commodity and diversified chemicals

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slowed in accordance with the historical two to three year chemical IPO peaks. The surge in Asian, Middle Eastern and European IPO activity has been due to a combination of two factors: the need for capital and the desire for public trading liquidity in growth areas such as Asia and the Middle East and the effect of Sarbanes Oxley on issuance in the U.S. that has pushed IPOs to international financial centers. In addition, the minimum size for IPOs has continued to increase such that very few small IPOs are getting done. In the first half of 2007 there were 12 offerings worth \$3.8 billion completed. Seven offerings were IPOs totaling \$2.4 billion and heavily commodity chemical in nature. All were outside of the U.S. One deal dominated – the \$1.8 billion IPO of Saudi Kayan Petrochemical that was offered in Saudi Arabia. This is a continuation of the trend where IPOs are continuing, but primarily in Asia and the Middle East

Tools for Achieving Growth: The Management of Innovation

Dr. Gary S. Calabrese, Vice president and Chief Technology Officer, Rohm and Haas Company

Rohm & Haas is a specialty materials company with sales of approximately \$8 billion. The company delivers hi-tech innovations to customers in more than 100 countries. The company has nearly 2,000 scientists, engineers and technicians in more than 100 manufacturing and technical centers around the world and spends \$300 million/year on R&D.



Growth through innovation at Rohm and Haas is all about improving existing or designing new products that allow its customers to differentiate *their* products in the marketplace. In order for the company to achieve its targeted objectives of 35% of total Gross Profit coming from new products, that is, those commercialized in the last five years, it has shifted the focus of research projects, and has invested more money in new technology and step-out opportunities. At the same time, the company has concentrated on fewer high-impact projects, with the aim of reducing the cycle time from idea generation to commercialization.

Rohm and Haas' top 8 to 10 projects are tracked monthly by the Executive Council at Rohm and Haas to ensure that it resources key programs properly and delivers results quickly. Within its industries, the company spends a high percentage of sales in R&D—approximately 4 percent—or \$263 million for the entire company last year. The company has made a dramatic shift in spending on step-out growth projects—from just 11% in 1997 to nearly 40% in 2004. Although this percentage varies from year to year, it continues to operate this level of step-out spending at 30-40% of total R&D.

This level of investment has already begun to generate returns for Rohm and Haas, and the company is maximizing its spending by leveraging the investment with outside funding from government organizations including the Department of Energy and the Department of Defense. Such grant initiatives align the company in collaborative relationships with national laboratories, key academic institutions, and other industrial partners.

For companies seeking to focus on innovation, the following guidelines may prove helpful: (i) categorize the types of innovation to get the proper portfolio balance; (ii) Avoid the pitfall of over engineering existing product lines; (iii) don't expect too many "home runs" but do place some prudent bets; (iv) be open to creating new business models; and (v) make sure you have a bold learning organization with engaged senior management.

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Globalization and Consolidation: An Industry Case Study

John S. Gaither, Chairman, President and Chief Executive Officer, Reichhold Inc.

In the 1940s and 50s after WWII, the chemical industry experienced rapid growth. Raw materials were abundantly available, the NA chemical infrastructure was growing and expanding, Europe and Japan were rebuilding. The response of the industry to this period of growth was to invest and expand. In the 1960s and 1970s, this expansion continued with double-digit growth with the U.S. and Europe dominating. Japan was beginning to grow in importance and favorable demographics was beginning to come into play as baby boomers entered the marketplace and created demand. The NA chemical industry prospered. There was low-cost natural gas and a robust stock market that fed capital expansion providing currency for mergers and acquisitions. The response was again to invest/acquire/expand both domestically and internationally. Then came the 1980s and 1990s and growth began to slow a little bit with the product life-cycle curve flattening out. We started to see lower cost overseas sourcing for all kinds of different products and the quality of these products improving significantly. There was also cross-border M&A activity. The response was a bit different though with cost reduction, consolidation, and globalization. Today the chemical industry is a mature industry with excess capacity, the U.S. feedstock advantage gone, specialties becoming commodities and easy credit until a few months ago. The response of the industry now is a bit different with restructuring/consolidation, cost reduction, streamlining of operations, and globalization with the realignment of manufacturing assets by region.



There has been a lot of restructuring in the resins business (eg. Akzo Nobel sold its Ink Resins business to Hexion, Dainippon Ink & Chemicals sold its resins business to Reichhold in an MBO). It appears that divesting companies have benefited. Also, the divested businesses appear to be healthier in new hands with focus being the key. Private ownership has also been a benefit in that it eliminates some short-term pressures of public companies. There has also been some consolidation with Hexion being the largest. Some of the benefits of consolidation have been new complementary technology and additional geographic markets to the acquirer. There has also been globalization in the resins industry driven by the need to access fast-growth markets and to follow the customer as well as responding to the realignment of manufacturing assets by region. One must be aware though of the risks inherent to globalization such as host country stability, cultural differences, recruitment and the protection of intellectual property.

Reichhold is a resins company that was founded 80 years ago. In the 1950s, '60s, and 70s, the company experienced dramatic growth with a focus on North America, which was at the time a fast-growing market. The overseas activities were limited to J/Vs, licensees, and exports. In the 1980s, the company underwent significant restructuring activities, including some divestitures and acquisitions and the decentralization of Reichhold into a divisional structure. In 1987 Dainippon Ink and Chemical acquired Reichhold. In 2005 Reichhold's management acquired the company in an MBO with DIC providing the seller financing. This was a beneficial deal for DIC which enabled them to become a more focused operation and get rid of a business that had become burdensome to them. The MBO was also good for Reichhold with management/owners turning around the business to improve performance, resulting in a business that generates positive EBITDA.

Management is focused on growing Reichhold, creating value with a long-term view, and keeping the company intact. The company's strategy consists of growing share in mature markets, globalization by coordinating closely all functional activities on the international businesses and expanding in rapidly growing developing countries (Eastern Europe, Turkey, India, Dubai and China).

Restructuring, consolidation, and globalization, the primary responses to maturing homeland markets, have been useful tools in helping the resins industry not only to survive but, in some cases, to thrive.

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Petrochemicals: Developments in Asia

Kamal P. Nanavaty, President, Cracker and Polymers Sector, Reliance Industries Limited

The world is passing through a dramatic transformation both in terms of content and scale and this is really being driven by recent developments in the Asian economies. The combined share of China and India in the global economy is today, in terms of GDP basis, ahead of the U.S.; and we believe that in the foreseeable future, China will overtake the economy of the U.S. This world economic resurgence is really being driven by the underprivileged, who are beginning to participate in mainstream economic growth. This will change the paradigm of the business in the coming years and decades. It is, therefore, no wonder that commodity prices, real estate prices, and the stock markets are literally booming across the world and moreso in Asia. The investments that are done in Asian economies, in developing economies are being done with a view to exporting back, with the idea of serving the European and American markets, the more developed markets.



The global economy is resilient today so that even if America slows down, the world won't stop. We hear about the possible slowdown of the U.S. economy, the high cost of energy, the subprime mortgage crisis but notwithstanding all are unlikely to lower the global growth, unlike what we have experienced in the past. We believe the global economy is probably much more resilient than ever been before. We believe this resiliency has a profound impact on our industry as well. The fundamentals of our industry, which are crude price and operating rates, really determine the supply/demand balance and the operating rate which, in turn, determines the price. The crude prices are further dependent on world economy, the geopolitical situation, and of course the most important aspect is the sentiment which plays a very important role in determining prices.

A couple of fundamental changes have happened. Both crude and gas prices have been consistently rising. The healthy demand of global economic growth has really caused the price of energy products to be constantly on the rise. Prices of both crude oil and natural gas have at times reached unprecedented levels. On the other hand, however, the ME gas continues to be at a steady pace and this has really attracted a steady amount of new investments. On the other side, there is a risk premium on oil that we believe will continue. We have had some weather related accidents in North America and other places, pipeline sabotage in Chechnya and Iraq, Iran and the confrontation over nuclear weapons and possible UN sanctions, infrastructure sabotage in Saudi Arabia, labor and ethnic tensions in Nigeria. These are some of the factors that cause crude prices to wobble as we have seen. The perceived geopolitical risks are also reflected in the oil premium that the oil producing countries are extracting today. So the crude cocktail is really nothing but economy plus politics and the fundamentals that go into it. The increased E&P costs and the low replacement costs produce difficult results. There has been no major discovery for many years. On the other hand, the demand has remained strong.

So, against this backdrop what is happening to our building blocks, namely ethylene and propylene? The building blocks are expected to grow significantly over the short term in response to strong demand. By 2010, Asia will have more than 50% of global ethylene capacity. The major ethylene capacity additions are expected to be made in the Middle East and China. The industry is shifting to Asia driven by feedstock availability in the Middle East, economies of scale and low labor costs in China, and growth in per capita income and large population with rising aspirations in India. More than 96% of ethylene capital expenditures in the next five years will be dominated by Asia. The Middle East crackers are causing a major shift in the cost curve. However, there are some major concerns related to the projects that will be built in Asia that relate to: higher project capex, feed delays, project execution time, availability of skilled resources, equipment supply constraints and cost overruns.

Some of the future trends that we envision in petrochemicals entail looking at other sources such as natural gas, synthetic gas, chemicals from methanol and coal as alternatives to crude as petrochemical feedstocks. While natural gas is an obvious choice, coal as an alternative is also being vigorously explored as a viable alternative. We believe these explorations will begin to yield results in 2015 and beyond. If we look at Asia, we believe there will be some de-linking of regions taking place in Asia combining both feedstock advantage and market access. The petrochemicals competitive advantage literally is the feedstock, market access, operating costs, scale of operations, project management skills and all this add up to make petrochemicals a really vibrant industry.

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Reliance is the largest private sector company in India with revenues of about \$25.5 billion and net profit of \$2.5 billion. Approximately 66% of revenue comes from Refining, 32% from Petrochemicals, and 2% from others. Over a 30-year period the company has experienced tremendous growth with a revenue CAGR of 30% over this period, profit CAGR of 21%, and EBITDA CAGR of 23%. In terms of global ranking, the company ranks #179 in terms of net profit, and #269 in terms of net sales.

The State of the Petrochemical and Plastics Industry: A Look Back to Look Forward

Gary Adams, President CMAI

The basic chemicals, plastics and synthetic fibers industry emerged from the worst and most extended period of lackluster earnings since the early 1980s and has flourished for three years (2004-2006). The length of time required for the market to reach recovery conditions led to unprecedented and widespread consolidations, mergers and business closures. Additionally, the large, low operating cost facilities being added in "New Gulf" countries have caused investment risk aversion in other regions, concentrating new supply sources.



Demand has witnessed an unprecedented rebound and appears to be on a relentless path although moderate over-supply is appearing in select product markets. Consequently, the general industry is enjoying an extended up-cycle period, albeit muted by high energy values. A significant difference in the quality of earnings has emerged with the olefins and polyolefins chain remaining very attractive while other chains have reverted to weaker conditions. Wide arbitrage opportunities are opening up heretofore protected markets such as the U.S. to increasing import pressures, especially from finished goods.

Industry-wide earnings will remain somewhat elevated through what remains of 2007, followed by a downward correction late in 2008, based more on market-share emotions than on fundamentals. As the supply position reverts back to surplus, trough conditions will reappear. CMAI's forecasts suggest the next down-cycle (2009-2012) will be significantly less severe than before.

Chemical Industry Stock Prices: Will They Stay Up

Mark R. Gulley, Senior Specialty Chemicals Analyst, Soleil Securities Group

Chemical stocks have outperformed the market since 3Q00 with relative valuations during that period improving. However, much of the relative out-performance has been in "aggies" (Ag-techs & fertilizers). Specialty names have done well while diversified names have lagged.



The industrial economy has been an inflation beneficiary. The economy has performed solidly since the end of the 2001 recession with growth now trending back to the mean. Strong foreign currencies have also helped to drive this growth. The Agricultural economy has also been a significant inflation beneficiary. The well-publicized and controversial ethanol boom drives corn and has created ag-inflation that has extended to other crop prices. Growers have opened their wallets to lock in better yields. The housing market on the other hand has been a deflation victim.

Stock prices have been outperforming due primarily to global growth within BRIC countries, in particular, driving volumes. The commodity boom and industry consolidation, which have reduced the number of players, have also contributed to the increase in stock prices.

A review of the four principal chemical industry categories (Ag-tech, Fertilizer, Diversified, and Specialty) will demonstrate how the different sectors have benefited or not from this economic cycle. Fertilizer stocks have outperformed handily since 2000 with relative P/E now at a high of 2.26x. Ag-tech stocks have also outperformed

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handily since 2000 with a relative P/E now at a high of 1.71x. Specialty stocks have outperformed since 2000 with a relative P/E now at 1.6x. Diversified have outperformed only modestly since 2000 with a relative P/E now at 1.47x.