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Summary of Speaker Presentations
Young & Partners Senior Chemical Executive Seminar
“Strategic, Financial, and Shareholder Issues for Chemical Executives”
September 25, 2008
Yale Club Ballroom
50 Vanderbilt Avenue - New York City

- 8:00 a.m. **Registration and Continental Breakfast**
- 8:30 a.m. **The State of the Chemical Industry**
Peter Young, President, *Young & Partners*
- 9:00 a.m. **Structural Changes in the Chemical Industry: A Corporate Perspective**
James J. O’Brien, Chairman and Chief Executive Officer, *Ashland Inc.*
- 9:30 a.m. **Perspectives on the Chemical Industry in China**
Heinz Haller, Executive Vice President, Performance Plastics and Chemicals, *The Dow Chemical Company*
- 10:00 a.m. **Petrochemicals in Latin America: An Evolving Picture**
Pedro Wongtschowski, President and Chief Executive Officer, *Ultrapar Participações S.A.*
- 10:30 a.m. **Coffee Break**
- 11:00 a.m. **CEO Roundtable**
Moderator: Peter Young, President, *Young & Partners*

James J. O’Brien, Chairman and Chief Executive Officer, *Ashland Inc.*

Heinz Haller, Executive Vice President, Performance Plastics and Chemicals, *The Dow Chemical Company*

Pedro Wongtschowski, President and Chief Executive Officer, *Ultrapar Participações S.A.*
- 12:00 p.m. **Luncheon Speaker**
Current Chemical Strategic, M&A and Financial Trends
Peter Young, President, *Young & Partners*
- 1:30 p.m. **The Strategy of China Plus One**
Alice Young, Partner and Chair, Asia Pacific Practice, *Kaye Scholer LLP*
- 2:00 p.m. **Private Equity Investing in Chemicals: Lessons Learned and Outlook**
Tom Kichler, Managing Director, *One Equity Partners*
- 2:30 p.m. **The Structural Upheaval in Chemicals**
David Witte, Executive Vice President, *Chemical Market Associates, Inc. (CMAI)*
- 3:00 p.m. **The Debt Crisis and its Impact on Chemicals**

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Kyle Loughlin, Managing Director and Team Leader, *Standard and Poor's*

3:30 p.m. **Closing Comments**

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 and The Impact of the Debt Crisis

Chin Chu, Senior Managing Director, *The Blackstone Group*

I have the luxury of covering both the financial (FIG) sector and the chemical sector at Blackstone and when I was a speaker at the Young & Partners conference two years ago, both sectors were doing much better than today, especially the financial sector. First, let's discuss the financial sector and weave it into the private equity and understand what has happened that has led us to this crisis today.

As with many previous bubbles, it all starts with housing. If you look back 20 to 30 years you have housing appreciating annually at 6%-7%. If you look at the growth from 2000-2007 in many of the hot markets you will see the housing prices appreciated by 350% in a seven year period. This equates to a 22% compound average growth rate. If you were to normalize the growth in the housing market to get back to the average annual growth rate, you would have to correct prices by approximately 40%-50%, especially in markets such as Los Angeles, Miami, Las Vegas and much of the South West. This crisis was further exacerbated by the lending standards to the consumer, which not only kept pace with the housing bubble but actually accelerated the housing bubble. The lenders, which started with the banks and then to the non-banks; started offering prime mortgages, then near prime, called all-day loans, then on to sub-prime loans that eventually led to more creative lending strategies such as 10% to 5% to 0% down, negative amortization and then various ARM's. This creativity spurred more and more consumer buying of homes.

So what we have today is a housing market crash that is taking down banks, which is taking down Wall Street. It is not only the housing market, you also have the consumer buyer effect with looser lending standards on credit cards and auto loans. Because of the wealth that consumers felt, they were buying more expensive cars and spending heavily using their credit cards.

In the U.S. today, you have \$31 trillion in household consumer debt of which \$10.5 trillion is due to the core mortgage sector. We believe the write downs will be at least 7%-8% in this asset class alone. That is approximate \$700-800 billion of write downs. If you think about this in terms of a company's market capitalization with a multiple of 10x to 12x, you get enormous levels of fictitious earnings effectively that these lenders booked over a seven year period. Additionally, when you add other consumer products such as commercial mortgage, credit card and auto lending, they combine to equal about \$12 trillion of the \$31 trillion. We believe approximately 5% has not yet been written down, but will be over the near term. This equals another \$600 billion. Collectively, this equals \$1.4 trillion in write-downs that are going through the system today.

This \$1.4 trillion write down is approximate 10% of our GDP. When you compare this to past bubbles such as the great depression, which was only 2.5% of U.S. GDP, and the Japanese banking crisis, which was about 4% of Japan's GDP, it is very significant.

So how does this all impact the chemical industry, the auto industry, and the private equity industry? Private equity has benefited in previous years from the credit boom. In 2001, the average price for a private equity deal was 6.1x EBITDA with 3.6x debt and the rest equity. This is quite different from 2007 which had an average price of 9.9x EBITDA and



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6.2x debt. We believe deals will be cheaper; we believe they will have less leverage, around 4.54x; we think we will see smaller deals of around \$4-\$5 billion because the available lending is closer to \$3 billion. We think we will see lower activity as well. This will be good for private equity because pricing will come down to normal levels versus the 9.9x in 2007.

Going forward, we believe that private equity deals will change. We have seen three stages of private equity. The first stage of private equity can be classified by financial engineering with very little equity. The second stage of private equity was based on multiples arbitrage. Firms would buy companies at 6x EBITDA and sell them at 9x EBITDA and use leverage to help them obtain the multiple arbitrage. Today, private equity is entering a different phase where private equity is more operationally focused. Today every private equity firm has CEO's on the board or in management. We (Blackstone) have a set of CEO's we don't use to manage the companies but to advise on specific industries and sectors.

To close, we see private equity doing well in the future. We see us being more competitive with the strategic players in the market as we begin to grow with depth in specific industries. Finally, private equity has gone public. I think you will see this trend continue and for the private equity firms to act like regular Wall Street public firms but the change is that alternative asset firms are growing by 15%-16% versus the traditional Wall Street firm growing by 4%-5%.

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CONFERENCE SPEAKERS

State of the Chemical Industry

Peter Young, President, *Young & Partners*

Before we begin, I felt it was important discuss the current financial crisis . One is unable to comment on the state of the chemical industry without referencing what is happening in the financial sector. The magnitude of the global financial crisis has deepened in just the past two weeks alone, with the collapse of Lehman and Bear Stearns. What originally started as a mortgage security related problem affecting those institutions who sold, packaged or held mortgages and mortgage securities has now spread to a much wider variety of credit products.



Because companies must mark-to-market their investments, investment banks, banks and insurance companies are losing their ability to provide loans and extend other forms of credit to an increasingly broader set of companies and individuals. The bankruptcy of Lehman Brothers, the sale of Merrill Lynch to Bank of America, the government take over of Fannie Mae and Freddie Mac, and the other major signs of a financial meltdown have rattled the equity and debt markets. It is expected that the flight to safety on the part of investors and financial institutions will continue. This is being fostered by the unwillingness to extend credit, even with major central bank injections of liquidity, and will have a very negative effect on the global economies and on the cost and availability of credit, even to strong industrial companies. Recessions are looming in Europe, Japan and U.S. There are also signs of slowing economic growth in Asia. Thus, the expected net result will be a negative economic and financial effect on the chemical industry. Although this crisis may not affect the long-term strategic direction of chemical companies, there will be a painful period in the near to medium term.

In our overall assesment, stock valuations have been healthy since 2004, but the premium over the market multiples has dissapeared and our indices show alignment with the overall market, while the diversified chemical companies continue to be punished. In addition, financial critical mass continues to hurt smaller companies. Smaller companies show lower PE multiples and we believe this is a structural problem that we expect will continue.

Many companies have been restructuring their businesses not only defensively, but offensively ahead of structural changes in the industry. New technologies and innovations are being aggressivley pursued and very welcomed – the chemical industry in the past has been guilty of only implementing incremental applications, but today much more money is going towards R&D for new advances within the chemical sector.

The Y&P U.S. chemical stock price indices, with the exception of fertilizes, have performed poorly this year in absolute terms but performed well relative to the overall market. Similarly, the European chemical indices have performed poorly, but have also outperformed the respective market indices. As one could expect, the PEs of commodity and specialty chemical companies have commanded a premuim as of late over the diversifieds, this was not the case prior to 2000-2001, where the diversifieds traditionally commanded a premium.

When speaking of financial critical mass within the chemical industry, this slide demonstrates that the larger you are, the more willing the market will offer a PE premium over that of your smaller competitors. If you are a \$5 billion plus chemical company you receive a higher PE, this is a structural function of the equity markets. This is important to this audience because if you are thinking of making a major change to your business to become mre of a pure play with the thinking you will command a higher PE, you may have a net effect of zero if your market capitlization goes too low.

To end, the current downturn in the global economic conditions, disruptions related to the financial market crisis, and still high oil and natural gas prices will continue, at least in short term, to plague chemical companies. There will likely be a disruption of growth in China and other parts of Asia as the pending credit crisis which began in the U.S. begins to affect other parts of the world.

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Structural Changes in the Chemical Industry: A Corporate Perspective

James J. O'Brien, Chairman and Chief Executive Officer, *Ashland Inc.*

Today's topic will cover the the corporate perspective as it relates to the structural changes in the industry and what we observe at Ashland. In 2007, global chemical output reached \$3.2 trillion with the bulk being produced in the Asia Pacific region, followed by Western Europe and then the U.S. As we all all know, the landscape is continuing to change. The economies are growing in the middle east regions and as the middle class continues to grow, we will see greater demand for our products. Recently, our inputs have become more costly and as we transport our products around the world the industry is consolidating to seek scale. Recent examples include Ashland's purchase of Hercules, BASF's recent announcement that they will acquire CIBA, and Dow's announced acquisition of Rohm and Haas.



At Ashland, we believe that, like oil, clean water is becoming an increasingly scarce commodity and that as the environmental movement goes more mainstream we will continue to call for major structural changes. So how are we going to face these changes as everyone is in a rush to become green?

Some of the major structural changes we face are: increased globalization; volatile energy prices; a shift to emerging markets with seismic growth – especially now that China has become a dominant player; consolidation to gain scale and efficiency, and; innovation cycles and continuous changes in the capital markets.

Globalization for me means interconnection, and how businesses think about business and do business. In 1997, 31% of Ashland's sales was intercontinental, in 2007 that figure grew to 43%. Competition has intensified as we compete not just for customers, but also for employees and resources. One of the most exciting aspects of globalization is the growth in global markets. The barriers that have fallen as a result of information technology and telecommunications have revolutionized the world we live in and allow us to remain more interconnected. Ashland is placing key management in key regions rather than operating from the U.S. We have moved certain headquarters from Ohio to Europe, putting us squarely between our main markets of North America and the emerging markets in Asia. Some of the potential implications are that companies must have global insight and cannot act divisionally. Companies need to remain competitive and have tighter cost models that must benefit the end consumer. With the rapid growth in emerging markets we also need to deal with the dislocation of supply and demand and think of ways we can adapt to bringing suppliers and consumers closer together. Also, with globalization comes increased competition with the likes of SABIC and others.

Rising energy costs are causing U.S. and Western Europe to become increasingly challenged. The implication is a shift to move closer to cheaper feedstock and energy sources. This is also driving joint ventures to share the cost of production, and the risk. Companies are also developing alternative feedstocks, such as bio-based feedstocks. This is also causing the shift to emerging markets and these areas such as the MEAA are enjoying very strong growth looking out to 2010. In these emerging markets, water is becoming increasingly scarce, and at Ashland, we believe that those who can deliver clean water will prosper. Ashland plans to be there and our commitment to this was demonstrated with the recent purchase of Hercules.

On the capital markets side of things, we are in the midst of extensive change, some more suddenly and others that will take place over the coming decade. The advent of private equity has been important although it sometimes is the recipient of poor publicity. Private equity has helped us focus on costs and quickened the pace of necessary consolidation. Investor profiles have changed as well. Hedge funds demand more near term results which may be good in some aspects, but it needs to be balanced with the long-term needs of individual companies.

As taken from the ACC, innovation cycles starting back in 1850 last approximately 50 years. During this cycle that is reaching maturity, the focus has been mainly on petroleum based products. Looking forward we see more nanotechnology and biotechnology or other alternative resources as the next wave of the innovation cycle. The implications for this new innovation cycle are that we must make sure that R&D dollars are being appropriately allocated. We must be sure that we are investing in venture relationships where new thinking is occurring. To conclude, we need to enter new markets that will be the next mega trends such as water, clean air and green materials.

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Perspectives on the Chemical Industry in China

Heinz Haller, Executive Vice President, Performance Plastics and Chemicals, *The Dow Chemical Company*

I would like to share with you some perspectives about China, both Dow in China and the opportunities in China in general. I have overall responsibility for Dow's operations in the Pacific.

The timing of this talk is perfect for me since I was one of thousands in attendance at the Olympics in China. What a coming out party that was for them! Imagine, just 20 years ago China was an entirely different country – just dipping its toes in the global marketplace to use a Michael Phelps metaphor.

Earlier this year, the Financial Times opened a story about China with this comment: *"The world is changing China, but China is also changing the world."* I don't think anyone can disagree.

A quick look at some numbers tells the story. Many of you in this room know from experience that investment in China is booming. In 2007, foreign direct investment increased by almost 14% and today totals \$83 billion. Compare that to 1998, just 10 years ago, when that same figure was \$45 billion – almost double in 10 years. As the fastest growing country in the world, China reciprocates as the biggest exporter at \$1.2 trillion in exports, a number that has increased exponentially in the last 10 years, when it was just \$183 billion in 1998.

One of the more interesting developments out of China comes in the form of mergers and acquisitions. Let me give you a few examples:

- China's state-owned bank, ICBC, recently spent \$5.5 billion for a stake in South Africa's Standard Bank
- TCL Holdings, a major electronics company in China, bought the German company Schneider Electronics
- China Netcom made one of the bigger acquisitions with its \$1 billion purchase of Asia Global Crossing
- Lenovo is now the owner of IBM's personal computer division

From the lens of the chemical industry and Dow, I would like to comment on what all this means today. Let's start with a look at what China is doing well. Corporations are excelling across industries – electronics, telecommunications, steel, international banking, and, let's add the 3rd largest industry in China, the chemical industry. Today there are more than 100,000 chemical companies in China, two national chemical industrial parks and 50 provincial industrial parks. Total industry output is valued at US \$7.4 trillion, or 6% of China's GDP. China chemical manufacturers are operating in many of the same markets in which Dow has a presence – ethylene, polyethylene, polypropylene – and one of their largest – herbicides, increased 33% last year. By some estimates, China's chemical industry accounts for 35 to 40% of the global demand growth for chemicals. China has committed to investing more than 1 trillion Yuan, which is equivalent to over \$145 billion dollars, in the coal chemistry segment alone by 2020. Additional investment plans center on other resource-based industries such as salt chemistry, and more traditional segments such as soda ash, chlorine and organic chemicals.

Dow already has a presence in China – covering all major market segments. Our bond with China grows stronger every year. That country is a significant contributor to our current success and a key component of our strategic growth agenda.

We have invested more than \$500 million in the region in recent years and have plans to invest another \$400 million. And in 2005, Dow was the first foreign, invested enterprise located in a free trade zone, to receive official approval to extend its trading and distribution rights in China. Most of our focus has been on Zhangjiagang, in the Yangtze River Delta.

Additionally, we are currently conducting a joint feasibility study with Shenhua Group, China's largest coal producer, to build an integrated manufacturing facility to convert coal to olefins. The complex will use state-of-the-art technology to make use of the abundant coal and salt resources in that area. The success of the project will provide Dow and Shenhua



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with a new and viable way to produce chemicals. In another energy play, we recently signed a memorandum of understanding with Dragon Power Company to jointly study the potential and value of biomass waste power generation projects in China. I expect these projects are only the beginning.

Our China Center fundamentally is home to the best people and technologies – all brought together under one roof to enhance our ability to serve China and to a certain extent our Asian customers. We expect people to begin moving into the new China Center by the end of the year.

Part of the Shanghai facility includes a research and development hub that will include over 60 labs that meet the needs of a range of industries including coatings, building & construction, electronics, automotive, and personal care to name just a few. This is a fully integrated R&D center working on cutting edge problems, not merely a tech services lab like so many others have.

With that, we are going to reduce our environmental footprint and carbon dioxide emissions as well as our cost to produce. The EPI market in China has grown at a rate of about 28% over the past 3 years and is expected to continue at 12% annually. Dow plans to invest in EPI in order to deliver to our customers on a global basis all while demonstrating our commitment to both China and our corporate sustainability goals.

China is the biggest emitter of carbon dioxide and will soon be the world's largest consumer of energy. In 2006, the country consumed 32% of the world's steel, 25% of the world's aluminum, 23% of the world's copper and more than 7% of the world's oil. In fact oil consumption jumped 33% just since 2000.

For its part, in 2007 China's State Council released three plans on energy efficiency and climate change, and is encouraging new environmental and energy-saving technologies in several industries. We know that policymakers hope to tie energy efficiency and environmental protection to job performance reviews for officials and also to the ability to secure bank loans. Proposed new energy laws could also boost investment in clean and renewable energy.

China's investment in R&D is now second only to the U.S. Since 1999, China's spending on R&D has increased by an average of more than 20% each year. The country recognizes the fundamental role that innovation will play in its long term success and, I think, sees the importance of helping companies protect their Intellectual Property. As for us, R&D is a critical component of our growth strategy. With this strategy, we must be able to innovate with confidence that our patents and inventions are protected. Our experience so far has been positive, but enforcement remains a challenge.

We are committed – through chemistry -- to the betterment of global humanity. This commitment drives all of our strategy for growth and profitability – in China and everywhere else in the world where we have operations.

There will always be debate about whether China is moving fast enough or too fast. But, when you consider that the country only embarked on its journey of economic reform 30 years ago, I think we can give it a decent grade for progress.

This is history in the making and China knows it. We are working together effectively and we believe the future holds great promise.

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Petrochemicals in Latin America: An Evolving Picture

Pedro Wongtschowski, President and Chief Executive Officer, *Ultrapar Participações S.A.*

The petrochemical industry takes about five percent of world fuel production. Of the proven oil reserves today, 1.2 billion barrels, Latin America accounts for 10% for a total of 123 billion barrels - with 71% coming from Venezuela, 10% from Brazil, 10% from Mexico, and the other 9% from smaller countries. Brazil might have some additional reserves as recently discovered in the salt fields. Some say there may be as much as 13-15 billion barrels, but this may actually be as high as 50 billion barrels of oil.

Looking at production and consumption, Venezuela is a major exporter, using only about 20% of its capacity. Brazil is a net importer, and Mexico is a net exporter. Most of the smaller producers such as Ecuador and Argentina have typically been net exporters.

Similar to the regional oil picture, natural gas reserves in Latin America account for about 5% of the world's reserves, with Venezuela being the largest. Venezuela accounts for approximately 2/3rds of the region's reserves, followed by Bolivia, Trinidad & Tobago (who also happens to be a large chemical producer based on natural gas to methanol production), then Mexico and Peru. Brazil has no major reserves other than those recently discovered. Production and consumption is a bit different for natural gas than oil. Venezuela is net neutral as are most Latin American countries with the exception of Mexico and Brazil being net importers. Trinidad and Tobago and Bolivia are net exporters.



If you look at the chemical industry as a whole, of the \$3.2 trillion dollars of worldwide production, Latin America accounts for approximately 7%, or \$222 billion. Brazil is somewhere between \$80-\$90 billion of this production. Looking at the industry today, starting with Brazil, the majority of production comes from the northeast of the country called Camacari, starting with a 1.3 mty ethylene cracker and a series of downstream products. In this region, Braskem is the major player, followed by Oxiteno and some other smaller regional producers of downstream products from ethylene. The second largest cracker is located in the south of the country and accounts for approximately the same amount of ethylene, 1.2 mty, which then further produces large amounts of propylene and polyethylene. In a place called Maua you have a sub-cracker producing 500 kty of ethylene and other downstream products. Finally, the last cracker you have is an ethane cracker in Rio Dijenaro. This cracker is integrated into a Polyethylene plant and in addition with two polypropylene plants which use refinery properties.

In Mexico, you basically have PEMEX being the only player in ethylene production. PEMEX has three crackers, 2 with 600 kty and one smaller facility. These facilities then feed to other facilities that offer downstream products. There are some independent players in this space, such as Indelpro, which is a joint venture between BASF and a local group ALFA. You also have a new player, Mexichem, producing PVC and expanding throughout South America.

Looking at Argentina, you have Dow as the major Ethylene producer and supplying to various players for downstream products such as styrene, polypropylene, and PVC. You also have 400 kty of Methanol production from natural gas in the region by YPF. In Venezuela, you have similar production capacities for ethylene but slightly higher for methanol producing 1.5 mty of methanol that supports various downstream players in the regional market. Then finally, you have Columbia which is a major player in PVC.

To review some of the major growth areas for Latin America as we look towards the future, you have two types of projects, those based on fossil fuels and those based on renewable energy sources. One of the biggest fossil projects right now is in Brazil by COMPERJ. The company is producing an ethylene chemical refinery with capacities of up to 1.3 mty of ethylene and large amounts of propylene derivatives as well as glycols, butadiene and xylene. Some renewable projects in Brazil are leveraging sugarcane ethanol to produce ethylene and various downstream products. In Mexico, additional PEMEX ethane/propane crackers are being built with ethane capacity nearing 1.0 mty. In Venezuela, PDVSA is expanding their ethylene production using fossil energy supplies. Between the joint ventures expected to come online and the expansion of PDVSA, the country should expand capacity to over 2.3 mty.

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Ultrapar is a leading niche player in a variety of businesses such as fuel distribution, EO production and logistics for special bulk cargo solutions. The company recently launched the first fatty acids plant in the region, producing glycols and polyols. To continue to remain competitive we plan to implement a simple strategy: For commodities we will be near the raw materials to maintain cost advantages and for specialties, we will be closest to our end markets to provide superior technical support.

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CEO Roundtable

Moderator:

Peter Young, President, Young & Partners

Panel Members:

James J. O'Brien, Chairman and Chief Executive Officer, *Ashland Inc.*

Heinz Haller, Executive Vice President, Performance Plastics and Chemicals, *The Dow Chemical Company*

Pedro Wongtschowski, President and Chief Executive Officer, *Ultrapar Participações S.A.*

(Please note, this is just one of the questions from the round table panel discussion)

Question: What is your company observing with regard to the global economy and the effect it is having on the chemical industry? Do you see the same signs of a recession in Europe and Japan that the economists are seeing? Do you believe the U.S. will also go into a recession? Will Asia follow?

H. Haller: There are a variety of elements affecting us today. This year has been a record year for us, but the picture began to change in July. Although July was alright, we began to see signs of a weakening environment. We also saw China slowing as the Olympics was going on and a slower degree of development and demand was expected post the Olympic Games. In Europe we see signs of a recession in Southern Europe, but not in Eastern Europe, such as Germany. The Middle East appears to be steady with an increase in exports.

We believe the third quarter is not going to look good, specifically the U.S.. As for the fourth quarter, it will be all hands on deck as we see consumption slow down because we believe the consumer is already carrying a heavy debt load. Going into the fourth quarter will be a very interesting time to watch and see what happens as we move into the New Year.

J. O'Brien: I agree with many of the points made by Heinz. As far as a recession is concerned, I believe it depends on what industries you are serving. If you are serving the housing or automotive industries, it feels more like a depression than a recession for those industries and members.

I believe the U.S. economy is so diverse that it will be difficult to get a classic two quarter slow down. As for Ashland, it felt as though we were in a recession starting back in November with respect to the U.S., although we did see strength in Europe and Asia.

The weak US dollar really enabled Ashland to take advantage of exports from Europe. Meanwhile, Asia is becoming the wild card. It is unclear whether they can sustain the demand they have had in the recent past. They themselves seem a bit unsure as they have just lowered their central bank rates.

Pedro Wongtschowski: I will offer the perspective of a company whose activities are based in Latin America. If you look at internal consumption of Latin American countries, consumption is still growing with no indication, at least short term, that Latin America will be largely affected by the financial crisis occurring in the U.S.

We do have, in most of these countries I refer to, many export oriented businesses. These businesses will be affected to the same extent that the international market will be affected. I do believe growth will be slower than it has been regionally, but still growing.

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Current Chemical Strategic, M&A and Financial Trends

Peter Young, President, *Young & Partners*

This presentation represents a summary of the chemical industry financial trends that we do on a regular basis at Young and Partners. Our analysis is data driven so we can support our positions by with facts. Today I will cover the strategic, M&A, financial and stock market trends.



Looking at the M&A market through the first half of 2008, there were \$36 billion of deals completed in the first half versus \$55 billion in 2007. The number of completed deals greater than \$25 million reached 34, a slower annualized pace than the 81 completed in 2007. The debt crisis that started in July of 2007 and the subsequent financial crisis has had the biggest effect on the ability of financial buyers to complete deals. Otherwise, there was only a modest effect on deal activity. Seven of the deals completed were above \$1 billion in value in the first half, ahead on an annualized basis, of the eleven for 2007. Of these deals, specialty chemical deals were 56% of the total number of M&A deals versus 44% for Basic chemicals, this was a reversal from 2007. In regards to cross border transactions, in previous years the U.S. and dominated much of the activity, but since 2001-2002, you see a surge in activity in both Europe and Asia and a softening in the U.S. acquisition activity.

Moving on to debt financing, global non-bank debt financing was \$5.3 billion in the first half compared to \$18.8 billion in 2007, a significant drop on an annualized basis. High yield debt fell to only \$180 million. The market essentially is at a standstill, heavily driven by the ongoing debt crisis. Debt issuance will not change until the financial crisis eases. High yield debt issuance was very strong for a number of years. But 2007 high yield activity dropped to half of 2006 volumes with the debt crisis and collapsed in the first half of 2008.

A review of the equity and IPO market reveals somewhat similar picture. During the first half of 2008 there were only 8 equity offerings for a total of \$1.8 billion. This compares 22 offerings worth \$8.7 billion in all of 2007. The equity issuance market has slowed significantly. This was also true for IPOs with no IPOs in the first quarter and one in the second quarter (Intrepid Potash by Intrepid Mining) for \$960 million. This compares to 11 IPOs totaling \$3.5 billion in 2007. Until the overall equity issuance market recovers on a global basis, it will be difficult for chemical companies to raise public equity.

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The Strategy of China Plus One

Alice Young, Partner and Chair, Asia Pacific Practice, Kaye Scholer LLP

The strategy of China plus one assumes a company realizes that there is a need to be in China. But with this, is it necessary to be in China or can business be done in one of the other countries and allow companies to still take advantage of the current business profile in China.

Many companies enter into China for the obvious reason. China is ranked number one in the 2007 Ranked #1 in 2007 A.T. Kearney Foreign Direct Investment Confidence Index® (US ranked #3 and India #2). Given our current state of financial affairs, I suspect we may have been a little lower if this were ranked today. China is the fourth largest economy and it is expected by 2020 to be second largest economy in the world. The country has a very large consumer market with a rising middle class. Approximately 90% of the population has TVs and China is the largest cell phone and internet user (210 million in 2007), larger than the United States. Half of the users in China are believed to be on broadband.



China is now a member of the WTO – they are phasing-out restrictions on imports; on trading, distribution and retail limits to allow foreign ownership; on foreign investments restrictions, and; on tariff reductions. They have removed the VAT on sulfur as of May 2008. There is now extraordinary political stability in China. The country has specific government goals they are willing to implement, such as the previously mentioned \$145 billion coal R&D investment – they will follow through with this. From an infrastructure perspective, we already know this is outstanding. The Olympic showcase displayed the way they can get things done and coordinate an enormous amount of creativity and development.

There are some negatives of doing business in China right now. In January of 2008, China implanted new labor laws. You can only hire an employee for two short terms and then you must hire someone full time. If that employee is fired, they will get unemployment benefits guaranteed. The country is also dealing with rising energy costs, impacted more by the use of coal than oil. IP enforcement in China is still difficult, but the system is improving. A lot of this depends on where you are and who you are. You are seeing more local Chinese companies suing each other over IP infringement, and this is a clear sign that the legal system is getting better. One of the biggest problems is the aging workforce. In China you see a tremendous amount of migrant worker unrest. It is very hard for an employer to retain skilled employees and remain competitive as the amount of skilled workers becomes smaller and the demand rises.

So, what are the alternatives to China? Mature markets in Japan offer expertise but high costs and a sluggish economy. South Korea is the 10th largest economy but has high labor costs, and North Korea can become an issue. Singapore offers strong IP protection and a skilled workforce, but has a small population of only four million people and very few raw materials.

India has 1.1 billion people with a median age of 24 and is the second fastest growing economy in the world, and the fourth largest economy. The country is currently the fourth largest petrochemical producer and looking to significantly increase their position. To support this initiative in petrochemicals, they are reducing the import duties on basic chemicals and plastics to 10%. The country has a large consumer market and a rising middle class. Some negatives are poor infrastructure, corruption and extremely high inflation (>12%). English is commonly used, but it really depends on your location within the country.

Vietnam is another alternative to China. The country was ranked #12 in 2007 A.T. Kearney FDI Confidence index. The country has a low median age of 24 with cheap labor and cheap land. Vietnam has been a WTO member since 2007 and offers low corporate income tax rates. Some problems, as you might expect, are the poor infrastructure, a high inflation rate and a small population.

Another alternatives is Thailand, offering decent infrastructure and legal reform but some political instability; Indonesia offers a surprising amount of stability but a very vast geographical region of islands making transport difficult.

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Looking forward, companies need to focus on these regions where they are comfortable with the political risks, labor force nuances, system logistics, foreign currency risks, and infrastructure development just to mention a few. We will continue to globalize and companies need to decide if this is a positive or a negative for them.

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Private Equity Investing in Chemicals: Lessons Learned and Outlook

Tom Kichler, Managing Director, *One Equity Partners*

At One Equity Partners we have invested \$800 million in six transactions within the chemical industry that we have turned into \$4.3 billion dollars over the course of five years. What I would like to discuss today is explain what we did that we think is repeatable, regardless of whether we are in a bull or bear market.

In three of the last five years, sponsor lead transactions represented over 50% of the deal value in the chemical industry. We included sovereign wealth funds as part of these sponsor lead figures and this may skew the figures from what you may have seen in the past. Private Equity has been in both big and small transactions. Private Equity investment in the chemical industry is typically 10% of the overall investments; for One Equity chemicals represents 20% of our overall investments in the last four years. One Equity invests in concepts rather than what is available for sale today. We also focus on partnering with corporations and value creation.



For us, we invest heavily in the chemical industry because we believe that this is where the money will be made. Over the years, if you look at the investments made by private equity firms into chemical companies you will see they have earned anywhere from one to eight times the original equity invested in chemical companies. With historically strong returns versus the public markets, it makes it a little easier to fuel equity fund raising. As I mentioned, many of the extraordinary returns were driven by market conditions rather than real corporate improvements. We believe that if you look at some of the more popular deals about 40% created returns based on market conditions. This is measured by whether the sponsor did anything to the corporation that would have lead to a change in value, such as a major restructuring of the product portfolio or streamlining the operations and distribution networks. So with this, there is a huge tail wind behind private equity with earning two to three times on exit. We do not believe this can continue across all industry groups.

The LBO market has been cyclical since the beginning, starting with investing with sophistication, to financial engineering and now on to maturing industries. I believe, based on the cycle we are in, that the chemical industry provides a better opportunity than other industries. However, the financing environment has changed dramatically since June 2007 with high yield basically shutting down. This is constraining for new LBO's. The current LBO financing market has a reduction in supply leaving opportunistic refinancing to remain at a minimum. Incremental demand will deliver new avenues of capital formation such as hedge funds or private equity firms. Moreover, the terms, pricing and structures are migrating to a more investor friendly environment such as stronger covenants that include maintenance levels with reasonable cushions.

Looking at the reason why private equity was able to outbid strategics in 2007, you see that the weighted average cost of capital was approximately 40 bps below that of a strategic buyer. This was an anomaly. Today we have to find better opportunities as our weighted average cost of capital is about 150 bps higher than that of a strategic buyer. This means that in today's, and I believe tomorrow's environment, private equity firms are going to have to do more in order to improve companies to make a decent rate or return.

This is how One Equity came up with our approach of investing in concepts, not deals; partner to create value, and; focus on the long-term value creation. One Equity's investing thesis in the chemicals sector is to buy specialty chemicals with high gross margins of >25%; have the right sector dynamics, and execute an attractive concept such as consolidating a sector into three major players. When we review the chemical industry, we do not look at the sector as a whole, but we group it into specialties in resins, compounding and coatings.

To conclude, we do not see prices falling through the floor. We do see some of the over extended pricing dropping to more normal levels. In the 1990's one half of the deals were greater than 9x EBITDA; today we see the majority of deal being completed in the 7.5x to 8.5x within the chemical sector. In addition, we do see emerging markets as an opportunity for the chemical industry.

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The Structural Upheaval in Chemicals

David Witte, Executive Vice President, *Chemical Market Associates, Inc. (CMAI)*

Today I am going to discuss the structural upheaval that has been happening for some time now within the chemical sector. We are at the end of a beneficial up-cycle for the petrochemicals sector. The industry has enjoyed an extended period of strong earnings despite high costs. There is a significant amount of new capacity coming online and producers are fighting a losing battle to regain up-cycle quality margins.

For this new cycle, companies are going to face a new set of challenges. Companies will have a strong dependence on emerging market growth, which could be dampened by other more mature economies slowing. We see the industry facing a rapid increase in capital costs. Finally, we see a transformational shift of supply/demand patterns. And as we are already seeing, products will generally follow the most cost-effective path to market. Today, that market is China. US imports from China has risen dramatically over the past ten years, from about 2% to approximately 13% in 2007. The increasing pace of finished goods imports overcomes domestic market growth in Europe and the Americas and this is causing a steady decline in chemicals and plastics sales. Strong exports lead the way to a rising domestic demand as we have seen in China.



In summary, the down-cycle for chemicals productions is upon us. Cycle breadth will depend on economic growth going forward. That outlook is cloudy. Exports to the developed world remain an integral piece of developing economies' demand and emerging markets will be the primary vehicle for filling out surplus capacity.

A quick review of alternative energy sources and feedstocks. The relative energy values are providing new industry dynamics where low cost production is key to long-term viability. Most of the industry is driven by market based energy and feedstock advantaged producers, mainly in Middle East. There is a relative advantage improving in Southeast Asia and USGC with shifting dynamics between crude oil, coal and natural gas. High oil makes natural gas and coal look cheap. Coal is a versatile feed for many chemicals such as ammonia, methanol and oxo's along with their derivatives. Right now, with all the coal gasification projects occurring around the world, the US is the leading producer with Eastman Chemical being the supplier. Low-cost or stranded gas operations will continue to have substantial margin. Alternative feedstocks such as coal have hit the vanguard, especially where politics and the environment are aligned.

Let us look at the rising capital costs and the impact it is having on the chemical industry. Capital escalation is occurring across multiple value chains. One reason for the massive spending is the build up of the Middle East. Oil and gas production, refining and petrochemical investment is approximately \$200 billion, with total investment in the regional construction reaching approximately \$1 billion by 2010. An additional factor causing higher capital costs is higher raw material costs. Taking carbon steel as an example, the price per ton has inflated by four and one half time from 2002 to 2006. Another example is the shortage of skilled labor in construction crafts. For engineering labor, the average age is higher and there is a shortage of experienced personnel. On a bright note, CMAI does believe we are nearing a top for basic material costs.

In summary, major petrochemical markets are transitioning from peak to trough cycle conditions. We are looking for lower profits and falling prices. The economic outlook is cloudy at best and the cycle length is dependent on continued growth in BRIC's consumption. Attractive relative feedstock values for coal and gas play a large role in emerging trade patterns and new supply and this could change the landscape dramatically. Rising and regionally variable capital costs present challenges to investment decisions in the short term and trade patterns continue to evolve as product flows react to changes in market demand and economic returns.

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The Debt Crisis and its Impact on Chemicals

Kyle Loughlin, Managing Director and Team Leader, *Standard and Poor's*

Today I am going to discuss the current debt crisis and how it is playing out across the chemical sector. Before I do that, I wanted to take a look at the current capital market conditions and how they have deteriorated over the past year.

In the first half of 2007, GDP was 3.8%, total US buyout volume was \$528 billion, the number of corporate defaults was 12 and high yield bond issuance reached \$186 billion. Comparing this with the first half of 2008, you see GDP at 1.7%, total US buyout volume at \$125 billion, corporate defaults reached 37 and high yield bond issuance was only \$67 billion.

Today, credit spreads and risk premiums have widened. Right now, the market is pricing in a lot more volatility and the higher borrowing costs are making their way throughout companies in the US. The current baseline for US default in 2009 is expected to be 5%, up from an all time low of 1% in 2007. We currently need about 80 more defaults to meet the current baseline and we are on track with approximately eight defaults per month from issuers.

In the North American chemicals sector we rate everything from Dupont and Dow to commodity companies like Georgia Gulf. The median for this sector has dipped from a BBB 1999 to a BB-. The chemicals sector has witnessed a decade of transformation. From 1998-2002 ratings trended sharply lower and it was a period of large scale acquisitions. At the same time, debt increased to fund US capacity expansions, but internally we saw companies with operating weakness due to the economy, severe raw material spikes, and excess capacity. During 2003-2007 we began to see stronger operating results but external and internal pressures remained. Counterintuitive rating trends began to develop as we saw strong results but an increase in the number of downgrades. In an effort to regain ratings and overall strength, companies began to diversify and deemphasize their commodity positions. Companies also increased investments in cost advantaged growth regions.

Now, in 2008 we see divergent trends with vulnerability at the bottom of the ratings scale. Overall, the balance sheets for chemical companies are in good shape. With some of the speculative grade companies credit fundamentals, refinancing risk and liquidity take center stage. So far in 2008 there have been 13 downgrades and nine upgrades.

Looking out at some of the investment grade issuance that took place with the LBO action of the early to mid 2000's, we see 69% of the debt maturing beyond 2012; this is a favorable profile at this point. At this point, few companies are vulnerable but this number is moving up as we get closer to maturity. We estimate 5% is very likely, and 10% is somewhat likely.

In summary, the good news is many companies in the chemical sector are reporting satisfactory earnings and the balance sheets of many chemical companies are in good shape. Industrial gases and specialty players remain resilient in downturn economic cycles, and you have seen portfolios become strengthened and diversified, such as Huntsman, Eastman and Dow just to name a few. Of these and other companies, the geographic dispersion is a strong plus.

The bad news is, as everyone knows, our credit cycle is weak. We continue to have a heightened focus on financial flexibility, refinancing risk, covenants and counter party risk. Right now, the petrochemical cycle is weakening with capacity additions and slower growth. We continue to see raw material and energy pressures as we are at the cycle bottom. And to finish, there are more B rated companies out there today than anytime in the recent past and this obviously creates more risk for defaults.

