

## CHAPTER 4

### ANALYSIS AND RESEARCH FINDINGS

#### 4.1 Macroeconomic Analysis

The U.S. economy is the largest national economy in the world, with an estimated 2008 gross domestic product (GDP) of US\$14.3 trillion (23% of the world total based on nominal GDP). The US has the largest and most technologically powerful economy in the world. US firms are ahead in technological advances, especially in computers and in medical, aerospace, and military equipment. The response to the terrorist attacks of 11 September 2001 showed the remarkable resilience of the economy.

In this market-oriented economy, private individuals and business firms make most of the decisions. US business firms enjoy greater flexibility than their counterparts in Western Europe and Japan in decisions to expand capital plant, to lay off surplus workers, and to develop new products.

There are many factors that make up the US economy. The overall growth and current status of the economy can be seen by analyzing the Gross Domestic Product, and discuss the factors that causes it to rise and fall.

Soaring oil prices in 2005-2006 threatened inflation and unemployment, yet the economy continued to grow. The United States is the third largest producer of oil in the world, as well as its largest importer. Imported oil accounts for about two-thirds of US consumption

##### 4.1.1. Gross Domestic Product (GDP)

The GDP is the total aggregate income of the United States. It is comprised of consumption, investment, government spending, and net exports. The most important of which is consumption.

Every year Gross Domestic Product (GDP) in the US keeps growing as can be viewed in Table 4.1. The rise in GDP in 2004 is higher than the rest of the year; this was caused by substantial gains in labor productivity. From 2001 until

2004 the growth of GDP increased, and it started to decrease in 2005. This happened because of Hurricane Katrina that caused extensive damage in the Gulf Coast region in August 2005, but still the impact on overall GDP growth for the year is small. In 2006 consumption in the United States has been less than expected mainly due to low consumer confidence. Consumers spent \$48,398, on average, in 2006, a 4.3-percent increase over the previous year. This was a more moderate increase than the 6.9-percent growth in spending in 2005 and the 6.3-percent increase in 2004.

Table 4.1  
Gross Domestic Product

	GDP						Annual Growth Rates					
	2001	2002	2003	2004	2005	2006	2001	2002	2003	2004	2005	2006
<b>World</b>	32236.23	32834.13	33682.79	35013.40	36205.35	37577.42	1.50	1.85	2.58	3.95	3.40	3.79
<b>World Less US</b>	22345.53	22785.33	23381.79	24337.40	25202.35	26258.02	1.84	1.97	2.62	4.09	3.55	4.19
<b>North America</b>	10628.90	10811.21	11076.45	11475.38	11824.25	12163.42	0.83	1.72	2.45	3.60	3.04	2.87
<b>United States</b>	9890.70	10048.80	10301.00	10676.00	11003.00	11319.40	0.75	1.60	2.51	3.64	3.06	2.88

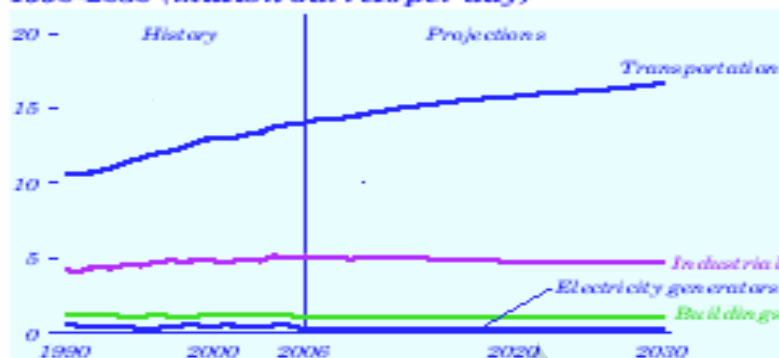
Source: World Bank World Development Indicators, adjusted to 2000 base and estimated and projected values developed by the Economic Research Service

The outlook for U.S. petroleum consumption shows transportation use leads growth in liquid fuels consumption. The effects of technology improvements are expected to increase the efficiency of motor vehicles and aircraft, but the projected growth in demand for each mode outpaces those improvements as the demand for transportation services grows in proportion to increases in population and Gross Domestic Product.

U.S. consumption of liquid fuels totals 22.8 million barrels per day in 2030 in the Annual Energy Outlook 2008. That is an increase of 2.1 million barrels per day over the 2006 total (see figure 4.1). All of the increase is in the transportation sector, which accounts for 73 percent of total liquid fuels consumption in 2030, rose from 68 percent in 2006.

Figure 4.1

**Figure 87. Liquid fuels consumption by sector, 1990-2030 (million barrels per day)**



Liquid Fuels Consumption by Sector 1990-2030 (million barrels per day)

Source: [http://www.eia.doe.gov/oiaf/aeo/excel/figure87\\_data.xls](http://www.eia.doe.gov/oiaf/aeo/excel/figure87_data.xls)

#### 4.1.2. Unemployment Rate

Americans are working, inflation is under control and wages are increasing with December unemployment rate at 4.4% and non-farm employment increased by 167,000 in December, according to the U.S. Department of Labor. The wages surge was 4.2% in 2006 and the annual unemployment rate came in at 4.6%.

U.S. economy continues to produce steady, sustainable employment growth with strong wage gains for America's workers. The number of unemployed persons (6.8 million) was about unchanged in December, and the unemployment rate held at 4.4 percent. Over the year, these measures declined from 7.3 million and 4.9 percent, respectively.

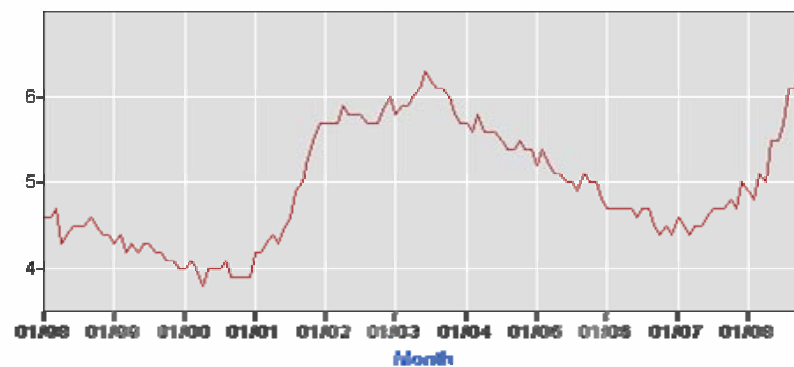
Table 4.2

U.S. Unemployment Rate

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	4.2	4.2	4.3	4.4	4.3	4.5	4.6	4.9	5	5.3	5.5	5.7
2002	5.7	5.7	5.7	5.9	5.8	5.8	5.8	5.7	5.7	5.7	5.9	6
2003	5.8	5.9	5.9	6	6.1	6.3	6.2	6.1	6.1	6	5.8	5.7
2004	5.7	5.6	5.8	5.6	5.6	5.6	5.5	5.4	5.4	5.5	5.4	5.4
2005	5.2	5.4	5.2	5.1	5.1	5	5	4.9	5.1	5	5	4.8
2006	4.7	4.7	4.7	4.7	4.7	4.6	4.7	4.7	4.5	4.4	4.5	4.4

Source: Bureau of Labor Statistics

Figure 4.2



U.S. Unemployment Rate

Source: Bureau of Labor Statistics

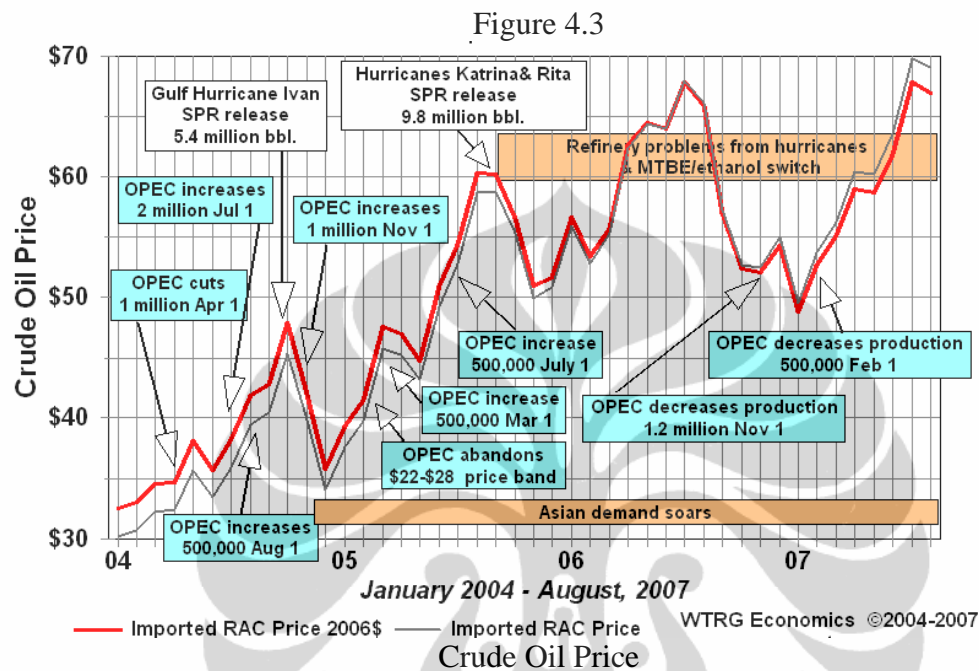
According to data from the National Science Foundation (NSF) Scientists and Engineers Statistical Data System (SESTAT), the percentage of scientists and engineers not in the labor force remained about the same between 2003 and 2006, although the scientists and engineers labor force expanded by almost 800,000 individuals. These general trends across the entire S&E labor force indicate a stronger labor market for scientists and engineers in 2006 than in 2003.

The fact that the labor market for engineers are stronger shows how big and fast the development for oil and gas industry as one of industries that absorb engineers as their human resources. This can also mean the demand for these human resources is high, so it is also a high competitive for oil and gas companies to recruit the good quality engineers. The engineer itself is usually more attracted to work in a big size oil and gas company which has a big project. This is one of the reasons why a lot of oil and gas companies involve in acquisition transactions.

#### 4.1.3 Inflation

Raising prices mean that consumers are less likely to purchase goods and services, and it also causes concern amongst them. Higher crude oil prices directly affect the cost of gasoline, home heating oil, manufacturing and electric power generation. According to the Energy Information Administration (EIA) an independent statistical agency of the U.S. Department of Energy (DOE), 96% of transportation relies on oil, 43% of industrial product, and 21% of residential and

commercial, and (only) 3% of electric power. However, if oil prices rise, then so does the price of natural gas, which is used to fuel 14% of electric power generation, 73% of residential and commercial, and 39% of industrial production.



Source: EIA, WTRG Economics

As oil price rose sharply in 2005 and in the first half of 2006 (figure 4.3), worldwide consumption, including that of USA, had fallen. The supply of oil started to outpace the demand. When speculators noticed belatedly the oversupply of oil, they took the price of oil down sharply. However, as oil price drops, the demand of oil in US is picking up again and so is the oil import of China. The demand of oil will catch up with the supply. When speculators notice the situation, again belatedly, they will push up oil price anew. This will panic oil users, they will start to overstock oil, market of oil will tighten, and speculators will bid up the price of oil further. This vicious cycle will create another round of skyrocketing oil price. The increase of crude oil price in 2005 and mid of 2006 caused a high inflation rate in 2005 and 2006. In the contrary, the decrease of the crude oil price in 2007 caused a low inflation rate in 2007.

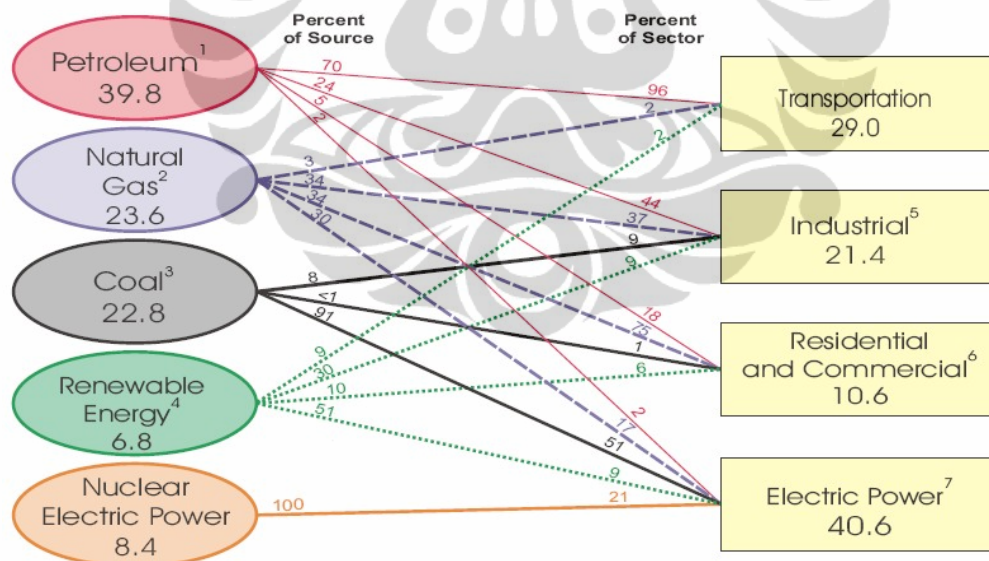
Table 4.3  
U.S Inflation rate

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVE
2008	4.28%	4.03%	3.98%	3.94%	4.18%	5.02%	5.60%	5.37%	4.94%	3.66%			
2007	2.08%	2.42%	2.78%	2.57%	2.69%	2.69%	2.36%	1.97%	2.76%	3.54%	4.31%	4.08%	2.85%
2006	3.99%	3.60%	3.36%	3.55%	4.17%	4.32%	4.15%	3.82%	2.06%	1.31%	1.97%	2.54%	3.24%
2005	2.97%	3.01%	3.15%	3.51%	2.80%	2.53%	3.17%	3.64%	4.69%	4.35%	3.46%	3.42%	3.39%
2004	1.93%	1.69%	1.74%	2.29%	3.05%	3.27%	2.99%	2.65%	2.54%	3.19%	3.52%	3.26%	2.68%
2003	2.60%	2.98%	3.02%	2.22%	2.06%	2.11%	2.11%	2.16%	2.32%	2.04%	1.77%	1.88%	2.27%
2002	1.14%	1.14%	1.48%	1.64%	1.18%	1.07%	1.46%	1.80%	1.51%	2.03%	2.20%	2.38%	1.59%
2001	3.73%	3.53%	2.92%	3.27%	3.62%	3.25%	2.72%	2.72%	2.65%	2.13%	1.90%	1.55%	2.83%

Source: <http://www.inflationdata.com/>

To control inflation, government raises the interest rate. High interest rates reduce the present value of future cash flows, thereby reducing the attractiveness of investment opportunities. For companies which need a big expenditure and use debts to fund it, such as oil and gas companies, it means a higher interest expense on their debts which result in lower net income.

Figure 4.4



U.S. Primary Energy Consumption by Source and Sector, 2007

Source: Energy Information Administration, *Annual Energy Review 2007*, Tables 1.3 and 2.1b-2.1f, and 10.3

From the consumer's point of view, demand for high priced consumer durables such as automobiles which are commonly financed is highly sensitive to

interest rates because it will affect the interest payments. The decrease in automobiles demand will decrease the oil and gas demand as transportation is the sector that takes the big part of oil consumption in the States as can be seen in Figure 4.4.

#### **4.1.4 Interest Rates**

Based on the list of Central Bank discount rate for all countries which provides the annualized interest rate a country's central bank charges commercial, depository banks for loans to meet temporary shortages of funds, U.S. still has relatively lower interest rate compare to most of other countries which is 4.83%. In fact, only few countries that have lower interest rate than U.S., this including Switzerland, Japan, South Korea, China, and some others.

Lower interest rates encourage investment and consumption demand. This becomes one of the factors that explain why U.S. has the highest GDP in the world together with European Union.

#### **4.2 Industry Analysis**

The market for oil and gas will be analyzed considering companies engaged in exploration, development, production, refining, storage, transportation and marketing of oil & gas as players, and retailers as buyers. Drilling activity across the globe has been strong in 2004, increasing the demand for support services. With oil and gas prices high, production companies have the resources to pay well for services and equipment. Companies providing support services have also been able to charge premium prices for operating in less stable oil producing nations, including Iraq, Nigeria, Russia, and Venezuela.

The current demand for oil and natural gas products is not likely to go away any time soon. While prices have declined from the peak they reached in 2004, they started to rise again in 2005 and can be expected to remain high, to the benefit of the industry. Sustained high prices will provide movement to ongoing research into alternative fuels, but it will take considerable time for any alternative to become as commonplace as oil and gas are today.

About 75 percent of the production of crude oil or natural gas is reported by the top 50 operators.

#### **4.2.1 Threat of the entry of new competitors**

Oil and gas companies are typically large, highly vertically-integrated, multinational companies, which use the large scale of their production and distribution networks to reduce costs and enhance profitability. The substantial capital outlay and fixed costs of the equipment required for large-scale drilling and production operations present a high barrier to entry, especially for companies running offshore operations. There is a constant threat of retaliation.

The massive oil and gas companies present in the market may undertake a price war in order to prevent a new player from entering the market, especially when the future of the oil and gas market is believed to be slowly diminishing within the next 20-30 years.

There is also a significant regulatory environment within the oil and gas industry, which is restrictive to the entry of players into the market. Permission to explore new fields and extract oil and gas is generally in the gift of national governments, and obtaining it may be a lengthy process. Government licensing restricts activity within the market with respect to the location of drilling and production in a bid to protect the environment, and drilling is prohibited in offshore regions along the North Atlantic coast, most of the Pacific coast, most of the eastern Gulf of Mexico, and part of the Alaskan coast.

The large capital outlay required, stringent environmental regulations and present significant barriers to entry make the threat of new competitor moderate to low.

Analysis of the threat of new entrants into the oil and gas refining and marketing industry is complicated by the fact that it is possible for companies to operate in one or more parts of the supply chain. Although entrance into the oil refining sector is possible for independent players, barriers to entry are high. Oil refineries are exceptionally high value assets and oil refining is a highly complicated process requiring highly technically skilled employees.



The oil and gas refining and marketing sector is dominated by large vertically integrated and multi-national companies such as Gazprom, Centrica, Royal Dutch, Shell and Exxon Mobile Corporation. The influence of these large companies within the sector produces significant competitive pressures, accentuating high barriers to entry and producing a high degree of rivalry.

However, independent oil refiners may have an advantage over the vertically integrated 'big oil', as they are not committed to purchasing crude-oil from an upstream part of the same company and can therefore minimize input costs.

Reduced profitability of refining operations in the previous ten years has seen a significant increase in the independent oil refining. It is comparatively easy for companies to enter the marketing sector of the supply chain, although the influence of the leading oil companies within the sector produce significant competitive pressures.

The gas refining and marketing sector in many countries is unbundled, with companies typically involved in production, supply infrastructure or marketing.

Gas production and refining is typically integrated with that of oil and therefore has equivalent barriers to entry.

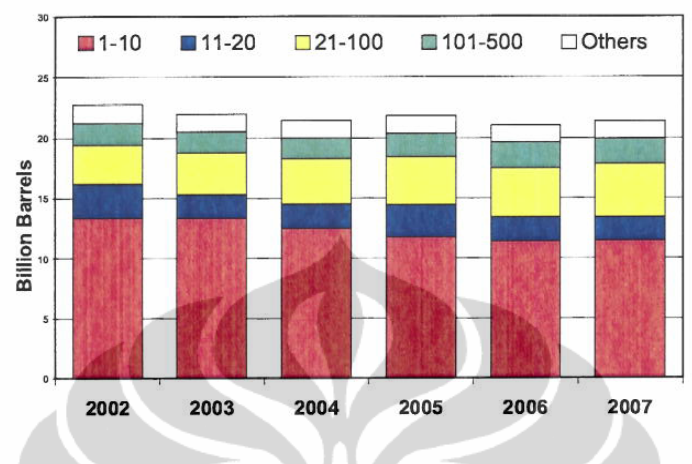
Supply infrastructure provision is typically provided by a limited number of companies under license or by a nationalized entity and naturally has high barriers to entry. With respect to gas marketing, the lack of switching costs for end-users, combined with the increasing popularity of energy provider switching, increases opportunities for the entrance of new companies. Overall, the threat of new entrants with respect to the gas and oil refining and marketing sector is moderate.

#### **4.2.2 The Intensity of Competitive Rivalry**

The crude oil proved reserves reported by Operator Production Size Class 1-10 for 2002 through 2007 have changed from 13,346 million barrels to 11,437 million barrels or a decrease of 14 percent. The 10 largest producing companies in

2007 had 54 percent of U.S. proved reserves of crude oil. The 20 largest oil and gas producing companies in 2007 had 63 percent of proved reserves of crude oil.

Figure 4.5

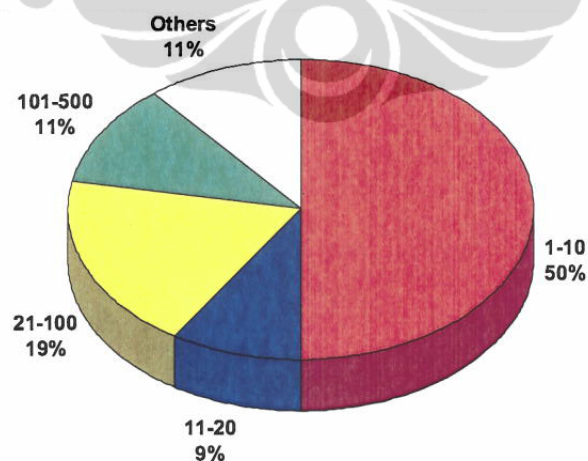


Crude Oil Reserves by Operator Size Class, 2002-2007

Source: Energy Information Administration U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves 2007 Annual Report

Crude oil production reported for 2006 to 2007 has increased from 1,652 million barrels to 1,691 million barrels or 2 percent. The 20 largest oil and gas producing companies had 59 percent of U.S. production of crude oil in the United States in 2007.

Figure 4.6



Crude Oil production by Operator Size Class, 2007

Source: Energy Information Administration U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves 2007 Annual Report

Figure 4.5 and figure 4.6 show the oil and gas industry are dominated by top 10 players such as BP, Chevron, ConocoPhillips, Shell, Occidental Petroleum, Aera Energy, Anadarko Petroleum Company, ExxonMobil, Apache, and Plains Exploration & Production (see attachment 2). These top 10 oil and gas companies produced 50% of crude oil of U.S total crude oil production (see Table 4.4) and have 53.7% of crude oil proved reserves from total published crude oil proved reserves (see Table 4.5).

Table 4.4  
Crude Oil Production by Operator Production Size Class, 2002-2007

Size Class	2002	2003	2004	2005	2006	2007	2006-2007 Volume and Percent Change	2002-2007 Volume and Percent Change	2007 Average Production per Operator
Class 1-10	1,037	1,047	986	912	820	846	25	-191	84.589
Percent of Total	55.3%	55.8%	54.2%	52.6%	49.7%	50.0%	3.1%	-18.4%	
Class 11-20	233	205	180	178	170	157	-13	-76	15.691
Percent of Total	12.4%	10.9%	9.9%	10.3%	10.3%	9.3%	-7.8%	-32.7%	
Class 21-100	240	272	303	293	309	318	9	78	3.979
Percent of Total	12.8%	14.5%	16.6%	16.9%	18.7%	18.8%	2.9%	32.6%	
Class 101-500	181	178	172	178	173	187	14	6	0.467
Percent of Total	9.7%	9.5%	9.5%	10.3%	10.5%	11.1%	8.0%	3.2%	
Class Other (13,274)	184	175	178	173	179	183	4	-1	0.014
Percent of Total	9.8%	9.3%	9.8%	10.0%	10.8%	10.8%	2.2%	-0.4%	

Source: Energy Information Administration U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves 2007 Annual Report

Table 4.5  
Crude Oil Proved Reserves by Operator Production Size Class, 2002-2007

Size Class	2002	2003	2004	2005	2006	2007	2006-2007 Volume and Percent Change	2002-2007 Volume and Percent Change	2007 Average Reserves per Operator
Class 1-10	13,346	13,355	12,454	11,775	11,352	11,437	85	-1,908	1,143.711
Percent of Total	58.9%	61.0%	58.3%	54.1%	54.1%	53.7%	0.8%	-14.3%	
Class 11-20	2,817	1,907	2,053	2,659	2,048	1,933	-115	-884	193.274
Percent of Total	12.4%	8.7%	9.6%	12.2%	9.8%	9.1%	-5.6%	-31.4%	
Class 21-100	3,230	3,483	3,711	3,915	4,066	4,412	346	1,182	55.155
Percent of Total	14.2%	15.9%	17.4%	18.0%	19.4%	20.7%	8.5%	36.6%	
Class 101-500	1,817	1,705	1,761	1,969	2,111	2,136	25	320	5.340
Percent of Total	8.0%	7.8%	8.2%	9.1%	10.1%	10.0%	1.2%	17.6%	
Class Other (13,274)	1,468	1,440	1,393	1,439	1,395	1,399	3	-69	0.105
Percent of Total	6.5%	6.6%	6.5%	6.6%	6.7%	6.6%	0.2%	-4.7%	

Source: Energy Information Administration U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves 2007 Annual Report

Oil and gas companies are typically large scale operations, with few activities in alternative industries, high fixed costs, and high exit barriers. Despite the current very fast market growth caused by the rising demand for the product, the estimations for the next 20-30 years suggest a decline in the use of oil and gas, switching to more environment friendly, cheaper and renewable alternative sources. These combine to produce a high level of rivalry.

Major players within the global oil and gas refining and marketing sector are large vertically integrated multi-national companies such as Gazprom, Exxon Mobile and Royal Dutch Shell. Such companies have large scale operations, with few activities in alternative industries, high fixed costs, and high exit barriers. These combine to produce a high level of rivalry.

#### **4.2.3 The Threat of Substitute Products**

The threat of substitutes to players in the oil and gas market is weak overall. For power generation, the most important substitutes are coal and nuclear power. An important use for natural gas other than power generation is in heating and as a car fuel, and electricity is a substitute here (but oil and gas is also used to create the electricity). Oil has few significant substitutes for vehicle fuels or petrochemicals, although some plant-based alternatives are attracting interest. Switching costs for these substitutes are generally high.

However, their benefits may become more apparent as concern over greenhouse gas emissions rises. Also, as reserves of oil and gas decline over the following decades, it is expected that the threat of substitutes will increase substantially as alternative fuels become more readily available and oil and gas products become increasingly expensive. However, for now, dependence on oil and gas is on the rise and although attempts to substitute the fossils fuels are in progress the replacement of oil and gas is not wholly gaining ground.

#### 4.2.4 The Bargaining Power of Customers

Oil and gas products are largely undifferentiated products, which strengthens buyer power.

Buyer power within the oil and gas market is considered as moderate. There are different products, and therefore there are various buyers at several levels within the oil and gas supply chain.

- Oil's Large Integrated Buyers

With respect to oil, the overall picture is complicated by the fact that major oil and gas companies have highly vertically integrated operations throughout oil exploration, production, refining, transportation and marketing. Such a high level of integration strengthens buyer power. This applies to crude oil's large integrated oil buyers whose power is significantly higher than independent refineries

- Oil's Independent Refineries

Independent refineries are crude oil's independent buyers where there are not committed to purchase crude oil from an upstream part of the same company.

However, the fact that oil is an international product as well as the fact that oil products have limited differentiation, grants buyers a degree of choice and therefore power, although supply contracts, usually the long terms ones, produce significant switching costs. Buyers of refined oil products include fuel retailers and chemical companies. The products based on refined oil are more differentiated and therefore buyer power is significantly lower than for crude oil.

The natural gas market can be separated into producers, which are commonly large integrated oil and gas companies, local distribution companies, and natural gas marketers. Liquefied natural gas (LNG) is playing an ever-increasing role. Like all natural gas, LNG is cleaner than coal or oil, and it offers an opportunity to diversify supplies, which increases buyer power.

The oil and gas refining and marketing sector are the largest segment of the oil gas and consumable fuels market. Buyers with respect to the oil and gas refining and marketing sector are defined as end-user consumers. Leading players within the oil refining and marketing market are typically vertically integrated oil

companies with interests from oil exploration and production, through to fuel retailing. The relatively small number of players in the sector combined with the large number of consumers lessens buyer power. However, refined oil products such as diesel and petrol, are typically commodities lacking in differentiation and therefore brand loyalty is low.

The overall picture is complicated somewhat within the gas market due to the unbundling in many countries of gas production, transportation and marketing activities. This benefits end-user consumers as it promotes price competition within the gas retail market, which has had the effect of facilitating provider switching behavior in many countries, reducing customer loyalty. Overall buyer power with respect to the oil and gas refining and marketing sector is moderate.

#### **4.2.5 The Bargaining Power of Suppliers**

Major suppliers in this market are:

- Oil and gas companies
- Service Company which is offering equipment and services such as seismic acquisition and processing; formation evaluation; well testing, directional drilling, well cementing and stimulation; artificial lift and well completions, consulting, software and information management. These companies are represented by Baker Hughes, Technip, Schlumberger, and Halliburton to name a few.

Generally there are a small number of large equipment & services companies which, combined with high demand from the oil and gas industry, and enhance their supplier power.

Moreover the technology needed and the specificity of the oil and gas industry requires high quality of raw inputs, the importance of which strengthens supplier power even further. However, many larger oil and gas companies have backward integrated oil and gas services operations, and use third-party services companies to supplement their own activities. This, combined with the high importance of the oil and gas industry to supplier revenues, reduces supplier power. Overall supplier power is assessed as moderate.

### 4.3 Corporate Analysis

Analysis for Kerr-McGee is focused on three things. First is the competitive analysis where position of Kerr-McGee in oil and gas industry is being analyzed. The second one is operational analysis where the going concern of Kerr-McGee is being analyzed, including post acquisition. The last one is the financial analysis where the capital expenditures and the financial structure of Kerr-McGee will be analyzed and the growth of the income will be predicted based on the forecasting demand and oil price.

#### 4.3.1 Competitive Analysis

Industry Environment and Competition in oil and gas industry is highly competitive. Kerr-McGee competes with a large number of other oil and gas companies for attractive acquisition, exploration, exploitation and development opportunities. Kerr-McGee adds application of new technologies to improve recovery from existing fields and acquisitions to their proved reserves through successful exploration and development. Kerr-McGee has a well-balanced portfolio of high-quality oil and gas assets that provides a large inventory of repeatable, low-risk exploitation projects and high-potential exploration opportunities. Kerr-McGee makes significant investment in skilled personnel and technology to successfully execute their exploration, development and exploitation activities and identify tactical acquisition and trade opportunities.

Kerr-McGee's oil and gas asset portfolio includes major positions in two large resource plays, the Greater Natural Buttes area in Utah and the Wattenberg field in Colorado, which provide an ongoing source of predictable proved reserve addition opportunities and organic production growth, complementing the exploration program. Kerr-McGee focuses the exploration efforts in basins where working commercial hydrocarbon systems are known to exist, such as the deepwater Gulf of Mexico. The facilities Kerr-McGee operates in the deepwater Gulf of Mexico provide Kerr-McGee with a significant competitive advantage by enabling them to efficiently employ a hub-and-spoke concept of satellite

exploration and exploitation of nearby opportunities. Another competitive strength for the company is the ability to profitably develop smaller offshore oil and gas discoveries that might have previously been considered uneconomic.

Due to higher recent commodity prices, the industry is facing significant challenges in the cost and availability of key goods and services. Costs for drilling rigs and well services have increased markedly during 2005, and continue to increase in 2006. In many instances, there are not enough drilling rigs or materials to meet demand, regardless of price. To address this challenge, Kerr-McGee has employed its supply chain management expertise both to control costs and to ensure the execution of its exploration and development programs. Kerr-McGee has executed multiyear contracts to secure deepwater drilling rigs to carry out exploration and development programs for 2006 and much of 2007.

The availability of personnel with critical skills also is a major industry concern. The combination of industry demographics, with many experienced personnel now nearing retirement, and strong demand for petro-technical personnel, has resulted in a tight, highly competitive labor market. The company utilizes a combination of competitive compensation and benefits, along with challenging and rewarding work assignments, to remain an attractive employer for critical petro-technical personnel.

Table 4.6 presents data for independent oil and gas producers. Referring to the table 4.6, it can be seen that Kerr-McGee had the highest income in 2005 with the highest growth from 2004 which shows Kerr-McGee was in good position compare to the other independent oil companies. Even compare to net income of some integrated oil companies such as Marathon, Amerada Hess, Murphy, and Chevron.



Table 4.6  
Financial Performance of Independent Oil Companies  
(Millions of dollars)

	Net Income		Net Income		Revenues		Revenues		Oil Production (000 b/d)		Gas Production (MM cf/d)	
	2005	% change	2004	% change	2005	% change	2004	% change	2004	% change	2004	% change
Devon	2,920	34.2	2,176	25.3	10,742	16.9	9,189	25.0	279	21.3	2,433	2.8
Unocal			1,208	87.9			8,204	26.0	159	-0.6	1510.0	-14.4
Anadarko	2,466	54	1,601	24.4	7,086	16.8	6,067	18.4	230	-0.4	1741.0	-1.2
Burlington	2,683	75.7	1,527	27.1	7,584	35.0	5,618	30.3	151	36.0	1,914	0.8
Apache	2,616	57.3	1,663	49.0	7,584	42.2	5,333	27.3	242	12.6	1,235	1.5
Kerr-McGee	3,240	702	404	84.5	6,966	34.5	5,179	23.8	159	5.3	921	21.2
EDG	1,252	103.9	614	46.5	3,620	59.4	2,271	30.1	33	22.2	1,036	7.8
XTO	1,152	126.8	508	76.4	3,518	80.6	1,948	63.7	30	57.9	835	20.0
Pioneer	535	70.9	313	-23.8	2,460	33.2	1,847	43.5	69	19.0	685	18.4
Newfield	348	11.5	312	56.0	1,762	30.2	1,353	33.0	21	23.5	666	9.3
Chesapeake	880	100.4			4,655	72.2						
<b>Total</b>	<b>18,092</b>	<b>75.20</b>	<b>10,326</b>	<b>37.3</b>	<b>55,977</b>	<b>19.1</b>	<b>47,009</b>	<b>27.4</b>	<b>1,373</b>	<b>12.6</b>	<b>12,976</b>	<b>3.8</b>

Source: Oil Daily, Profit Profile Supplement, vol. 55, no. 39, February 28, 2005 & vol. 56, no. 46, March 9, 2006, p. 11.

#### 4.3.2 Operational Analysis

Kerr-McGee has remained on track to deliver its planned program of drilling approximately 680 development wells in 2006.

In the Greater Natural Buttes area, Kerr-McGee operates eight rigs and has interest in four additional rigs that are actively drilling. The company drilled approximately 65 development wells in the area during the first three months of 2006, with a 100% success rate, and remains on track to execute its planned program for the year, which includes 220 wells.

In the Wattenberg field, the company currently operates five rigs and, during the first quarter, completed approximately 135 activities of the planned 430 activities for 2006.

In the southern region, Kerr-McGee continues to experience positive results from drilling activities in the Frost and Braulia fields in Starr County, Texas. The company now has completed eight development wells in the two fields. Total net production from the Frost and Braulia fields is approximately 40

MMCFE/d. The company currently is evaluating the potential to drill an additional 15 to 18 wells in the area during 2006.

In the deepwater Gulf of Mexico, Kerr-McGee has interests in three subsea developments that will be tied in to the Independence Hub platform in the ultra-deep waters of the Atwater Valley area in the eastern Gulf of Mexico. By accelerating development activities at their two large resource plays in the Rocky Mountains, and continuing the success in the deepwater Gulf of Mexico and South Texas areas, Kerr-McGee have added stability and predictability, increasing their confidence about Kerr-McGee's ability to grow our reserve base at a competitive Finding, Development and Acquisition cost.

Kerr-McGee's largest property concentrations are in the deepwater Gulf of Mexico and onshore in the Rockies. Its Gulf properties include 504 deepwater blocks comprising seven operated and three non-operated producing fields, five operated and three non-operated discoveries in various stages of development, and four additional prospects expected to be drilled in 2006

Table 4.7  
Anadarko, Kerr-McGee, and Western Gas U.S. Crude Oil and Natural Gas Reserves and Production, 2005

	Anadarko	Kerr-McGee	Western Gas Resources	Anadarko/Kerr-McGee/Western Gas Total	U.S. Total	Share of U.S. Total			
						Anadarko	Kerr-McGee	Western Gas Resources	Anadarko/Kerr-McGee/Western Gas Total
<b>Oil and Natural Gas Liquids (million barrels)</b>						<b>Percent</b>			
Production	37	33	0	70	2,493	1.5	1.3	0	2.8
Reserves	708	322	4	1,034	29,300	2.4	1.1	0	3.5
<b>Dry Natural Gas (billion cubic feet)</b>						<b>Percent</b>			
Production	414	351	62	827	18,565	2.2	1.9	0.3	4.4
Reserves	6,578	3,633	896	11,107	192,467	3.4	1.9	0.5	5.8

Sources: Company information: Anadarko Petroleum Corp, 2005 report to the Securities and Exchange Commission on Form 10-K (March 3, 2006); Kerr-McGee Corp. 2005 report to the Securities and Exchange Commission on Form 10-K (March 3, 2006); and Western Gas Resources Inc., 2005 report to the Securities and Exchange Commission on Form 10-K (February 28, 2006); and U.S. totals: BP p.l.c., *BP Statistical Review of World Energy 2006* (June 2006), pp. 6, 8, 22, and 24 (Natural gas production is converted from cubic meters to cubic feet at the rate of 1 cubic meter equals 35.315 cubic feet).

Table 4.7 shows comparison of crude oil and natural gas reserves and production of Kerr-McGee (target company in this merger and acquisition), Western Gas Resources (another target company that has also been acquired by Anadarko Petroleum Company right after Anadarko completed Kerr-McGee acquisition), and also Anadarko Petroleum Company (acquiring company) as a part of U.S. crude oil and natural gas reserves and production in 2005.

Table 4.8 shows the comparison as a part of foreign crude oil and natural gas reserves and production in 2005. The result of the acquisitions would bring the company into industry leading positions because of the combination of properties in the deepwater Gulf of Mexico and the Rockies, two of the fastest growing oil and natural gas producing regions in North America.

Table 4.8  
Anadarko, Kerr-McGee, and Western Gas Foreign Crude Oil and Natural Gas Reserves and Production, 2005

	Anadarko	Kerr-McGee	Western Gas Resources	Anadarko/Kerr-McGee/Western Gas Total	Foreign Total	Share of Foreign Total			
						Anadarko	Kerr-McGee	Western Gas Resources	Anadarko/Kerr-McGee/Western Gas Total
<b>Oil and Natural Gas Liquids Production (million barrels)</b>						<b>Percent</b>			
Canada	3	0	0	3	3,047	0	0	0	0
Algeria	24	0	0	24	2,015	1.2	0	0	1.2
China	0	40	0	40	3,627	0	1.1	0	1.1
<b>Oil and Natural Gas Liquids Reserves (million barrels)</b>						<b>Percent</b>			
Canada	40	0	0	40	16,500	0.2	0	0	0.2
Algeria	324	0	0	324	12,200	2.7	0	0	2.7
China	0	362	0	362	16,000	0	0.8	0	0.8
<b>Dry Natural Gas (billion cubic feet)</b>						<b>Percent</b>			
Canada	102	0	0	102	6,550	1.6	0	0	1.6
<b>Dry Natural Gas (billion cubic feet)</b>						<b>Percent</b>			
Canada	1,332	0	0	1,332	56,150	2.4	0	0	2.4

Sources: Company information: Anadarko Petroleum Corp, 2005 report to the Securities and Exchange Commission on Form 10-K (March 3, 2006); Kerr-McGee Corp. 2005 report to the Securities and Exchange Commission on Form 10-K (March 3, 2006); and Western Gas Resources Inc., 2005 report to the Securities and Exchange Commission on Form 10-K (February 28, 2006); and Foreign totals: BP p.l.c., *BP Statistical Review of World Energy 2006* (June 2006), pp. 4, 6, 20, and 22 (Natural gas production is converted from cubic meters to cubic feet at the rate of 1 cubic meter equals 35.315 cubic feet).

The acquisition that Anadarko made with Kerr-McGee was the second largest acquisition happened in oil industry in 2006 as can be seen from table 4.9. Based on 2004 filing of U.S. Securities and Exchange Commission Form 10-K, the post transaction Anadarko would have been the second largest producer of natural gas and the seventh largest producer of crude oil and natural gas liquids in the United States.

Table 4.9

<b>Value of Mergers, Acquisitions, and Related Transactions by FRS Companies, 2006</b> (Million Dollars)		
<b>Acquiring Company</b>	<b>Assets Acquired</b>	<b>Reported Value of Acquisition</b>
ConocoPhillips	Burlington Resources	33,900
Anadarko	Kerr-McGee	19,100
Anadarko	Western Gas Resources	5,425
Occidental	Vintage Petroleum	3,979
ConocoPhillips	Lukoil investment	2,700
Lyondell Chemical	Remaining interest in Houston refinery from CITGO	2,606
Devon	Chief Holdings, LLC	2,200
Occidental	Plains Exploration	861
Apache	BP properties in the Gulf of Mexico	845
Apache	Operations of Pioneer Natural Resources in Argentina	703
ConocoPhillips	Rockies Express pipeline	480
Hess	West Mediterranean Block 1 Concession in Egypt	413
Burlington	T-BAR-X	400
Apache	Interests in seven concessions in the Tierra del Fuego	396
Hess	Waha concessions in Libya	359
Marathon	Leasehold acquisition in the Piceance Basin of Colorado	354
ChevronTexaco	5 percent stake in Reliance Petroleum Ltd.	301
XTO	Producing properties in East Texas and Mississippi	300
Chesapeake	Chaparral Energy	280
Apache	Interest in eight fields in the Permian Basin	269
Chesapeake	Frac Tech Services	254
ConocoPhillips	Refining assets from Societe Generale in the US	215
Sunoco	Minority interest in cokemaking operation	155
Chesapeake	Martex Drilling	150
XTO	Producing properties in the Barnett Shale	108
BP America	Wind power business - Greenlight Energy Inc	98
Dominion	Pablo Energy LLC from Cactus Feeders	91
Chesapeake	Energen Resources	75
Sunoco	Pipeline system from Alon USA Energy	68

Source: <http://www.eia.doe.gov/emeu/perfpro/tab06.htm>

From this fact, it can be expected that operational activities will be bigger which lead the crucial need of efficiency of exploration and developments efforts which has been expected to be fulfilled by the acquisition

### **4.3.3 Financial Analysis**

Revenues in oil and gas industry mostly arise from oil and gas sales. The other revenues may also arise from the sales of oil and gas properties related to divestiture. The revenues are affected by two things. Those are the price of the oil and gas and also the volume of the production of the oil and gas.

From the comparison in table 4.10, it can be seen that there was a very high increase in net income from 2004 to 2005 which was 694.80%. This happened as a part of the divestiture program of Kerr-McGee where they sold North Sea oil and gas business in 2005, realizing cash proceeds of \$3.3 billion (net of cash transferred to the purchasers and transaction costs) and pretax gain on sale of \$2.2 billion. Income from discontinued operations for 2005, 2004 and 2003 reflects income from operations of the North Sea business, partially offset by operating losses of Tronox's discontinued forest products operations.

There are other factors that also have an impact to the very high increase in net income from 2004 to 2005. In 2005, oil and gas prices have been rising and making favorable market conditions contributed to revenue growth. Of the \$1.5 billion revenue increase in 2005, \$1 billion reflects higher average realized sales prices for oil and natural gas.

Operating expenses did not increase as high as the revenues. Compare to the 35% increase in revenues from 2004 to 2005, operating expenses only increased 16%. This caused even a higher increase for operating income from 2004 to 2005.

Income from continuing operating was much higher in 2005 compare to 2004. One of the items that caused this was other income that arised in 2005 from other income which includes gain on sale of nonoperating interest in gas

processing facility. In total, the increase for income from continuing operating was around 260%, very high compare to the increase in 2003 which was only 70%.

Table 4.10  
Financial Performance

(Millions of dollars, except per-share amounts)	December 31		Change Analysis		Dec 31 2003	Change Analysis	
	2005	2004	Amount	Percent		Amount	Percent
<b>Revenues</b>	\$ 5,927	\$ 4,398	\$ 1,529	<b>34.77%</b>	\$ 3,289	\$ 1,109	<b>33.72%</b>
Operating Expenses	4,302	3,719	583	<b>15.68%</b>	2,874	845	<b>29.40%</b>
Operating Income	1,625	679	946	<b>139.32%</b>	415	264	<b>63.61%</b>
Interest expense	253	244	9	<b>3.69%</b>	250	(6)	<b>-2.40%</b>
Loss on early repayment and modification of debt	42	-	42		-	-	
Other income (expenses)	104	(34)	138		(25)	(9)	<b>36.00%</b>
Income from Continuing Operating before Income Taxes	1,434	401	1,033	<b>257.61%</b>	140	261	<b>186.43%</b>
Benefit (Provision) for Income Taxes	(488)	(137)	(351)	<b>256.20%</b>	15	(152)	-
<b>Income from Continuing Operating</b>	<b>946</b>	<b>264</b>	<b>682</b>	<b>258.33%</b>	<b>155</b>	<b>109</b>	<b>70.32%</b>
Income (loss) from discontinued operations, net of taxes	2,265	140	2,125	<b>1517.86%</b>	99	41	<b>41.41%</b>
Cumulative effect of change in acc. Principle, net of taxes					(35)	35	
<b>Net Income</b>	<b>3,211</b>	<b>404</b>	<b>2,807</b>	<b>694.80%</b>	<b>219</b>	<b>185</b>	<b>84.47%</b>
Basic Earning per share	7.22	2.09	5.13	<b>245.45%</b>	1.55	1	<b>34.84%</b>
Diluted earning per share	7.07	2.08	4.99	<b>239.90%</b>	1.54	1	<b>35.06%</b>

Source: Kerr McGee Corp/DE, 10-K, March 15, 2006

During 2003 until 2005 Kerr-McGee has a stable current ratio. The current ratio is always below 1, however, this is not indicative of a lack of liquidity, as Kerr-McGee maintains sufficient current assets to settle current liabilities when due. This is significantly affected by current liabilities associated with financial derivatives. At December 31 every year, Kerr-McGee records net current derivative liabilities for contracts that will effectively adjust the cash flows to be realized upon the sale of the future oil and gas production. Because those sales have not yet occurred, the associated accounts receivable are not yet reflected in the Consolidated Balance Sheet.

Table 4.11

## Financial Condition and Liquidity

	2005	2004	2003
Current Ratio	0.8	0.8	0.8
Debt to total capitalization	0.42	0.41	0.58
Ratio of earnings to fixed charges	5	2.5	1.6

Source: Kerr McGee Corp/DE, 10-K, March 15, 2006

There is a decrease in debt to total capitalization as a result of debt repayments made using cash proceeds from the divestitures of North Sea oil and gas business which occurred in the fourth quarter of 2005. Ratio of earnings to fixed charges is doubled in 2005 compare to 2004, which means the ability of Kerr-McGee to make interest payment and rental expense representative of interest is better in 2005.

Table 4.12

## Cash Flows

(Millions of dollars)	2005	2004	2003
Net cash provided by operating activities	\$ 3,103	\$ 2,050	\$ 1,518
Net cash provided by (used in) investing activities	2,081	(1,262)	(951)
Net cash used in financing activities	(4,210)	(851)	(520)

Source: Kerr McGee Corp/DE, 10-K, March 15, 2006

Increase in cash flows from operating activities in 2005 over 2004 is primarily attributable to higher average realized oil and gas sales prices with higher oil and gas sales volumes also. The average realized sales prices on a barrel of oil equivalent basis increased by 41% from \$29.49 in 2004 to \$41.50 in 2005. Additionally, the cash flow from operating activities in 2005 was favorably affected by lower expenditures for environmental remediation and lower contributions to the company's pension and postretirement benefit plans. The environmental remediation expenditures decrease each year as the impact of implementing new technologies, creating cleaner fuels and funding ongoing environmental initiatives. These increases were partially offset by higher cash

outflows for income taxes and interest, as well as higher operating expenditures to reflect primarily higher oil and gas production volumes and rising costs of services and equipment within the oil and gas industry.

Increase in cash flows from operating activities in 2004 over 2003 is contributed by the merger with Westport in June 2004 which increased oil and gas production on a barrel of oil equivalent basis over 2003. Average prices realized increased by 13% and environmental remediation cash expenditures were lower compared to the prior year. These increases were partially offset by higher contributions made to postretirement and pension plans and higher expenditures for operating costs due to the Westport merger.

Cash flows from investing activities in 2005 is positive as the result of North Sea oil and gas business' sale while capital expenditures as a part of cash flow from investing activities increased from the prior year. The increase in 2005 capital expenditures is contributed by higher capital spending associated with Westport properties, higher capital spending in the Gulf of Mexico due to facility expenditures, development drilling activities at discoveries area in the Atwater Valley area and higher development expenditures for Constitution and exploratory appraisal drilling in Alaska.

In 2004, capital expenditures also increased due to the additional exploitation and development activities following the Westport merger in June 2004.

Cash flows used in financing activities in 2005 is much higher as a result of \$4,751 millions repayment debt from the sale of North Sea oil and gas business, Kerr-McGee's interest in the Javelina processing facility and funds distributed by Tronox to Kerr-McGee in connection with the IPO. Additionally, the cash flows were also used for repurchasing of Common Stock.



#### 4.3.4 Strategy Analysis

Kerr-McGee's strategy is to enhance value for their stockholders through the development of a well balanced portfolio of high quality oil and natural gas assets that provides a large inventory or repeatable, low risk exploitation projects and high potential exploration opportunities.

In 2005, Kerr-McGee made some strategic decisions to reposition Kerr-McGee as a pure play exploration and production company and enhance value for the stockholders, including divestitures of lower growth or shorter life and higher decline oil and gas properties and the separation of the chemical business. In selecting their portfolio, Kerr-McGee is trying to retain oil and gas assets that offer the greatest stability and growth opportunities, with reduced capital intensity.

Realizing their biggest assets in Rocky Mountain and Gulf Mexico, Kerr-McGee focuses on development on these areas and tries to set a high impact targets in proven hydrocarbon basins with a track record of delivering world-class discoveries.

This refined strategy is believed to stabilize the growth of production and reserves Kerr-McGee has and also to stabilize the Company's financial and operating result.

#### 4.4 Valuation Analysis

The last analysis in this thesis is valuation analysis where Kerr-McGee will be valued using Free Cash Flow to Firm method. This method is chosen because there was volatility in debt to total capitalization in the last three years where in 2005 the debt was only around 40% from total capitalization while in 2003 the debt almost reached 60% from total capitalization. To start the valuation, there will be assumptions being used in the calculation.

#### 4.4.1 General Valuation Assumptions

Some general assumptions which are being used as a base for the Free Cash Flow to Firm valuation of Kerr-McGee are:

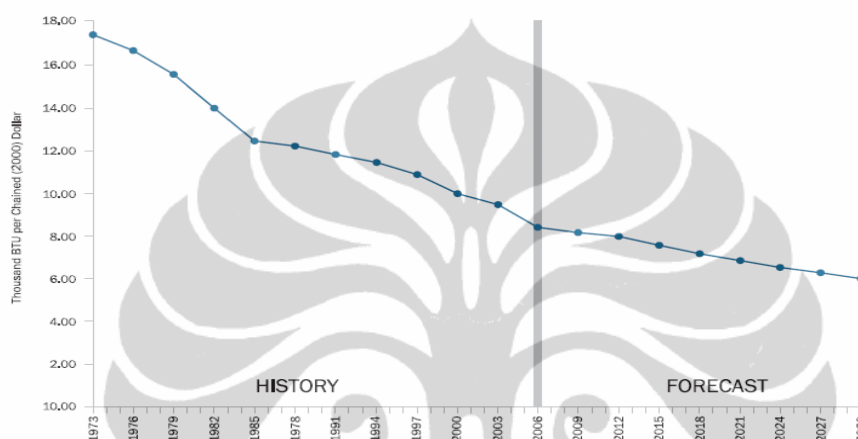
1. The valuation will be used to estimate the fair value of the Kerr-McGee stock price at the time Anadarko Petroleum Company announced the merger. This value then will be compared to the price which Anadarko Petroleum Company spent to acquire Kerr-McGee.
2. The last Financial Statement that will be used to forecast in this thesis is Kerr-McGee's Annual Financial Report which is known as Kerr-McGee Corp/DE, 10-K which was published on March 15<sup>th</sup> 2006.
3. The forecast for free cash flow will be done for five years, considering the nature of the industry where product prices are very volatile which adversely affect results of operations and cash flows of the company. Therefore, to avoid the bias that might arise, the forecasting will only be done for five years and for the rest of the going concern period terminal value will be used.
4. This forecast and valuation is done as if it was still the period when Anadarko Petroleum Company acquired Kerr-McGee which means all forecast is done using historical data that is available until 2005 only.

#### 4.4.2 Forecasting Earning Before Interest and Taxes

Revenues in oil and gas industry are affected by two dominant factors. Those factors are production of the oil and gas and also the price of oil and gas. Not like in other common industries, oil and gas industry is quite "special" for their volatility prices and markets. The company's results of operations and cash flows are highly dependent upon the prices of and demand for oil and gas. As has been showed in Figure 4.3, the price has been volatile and is likely to continue to be volatile in the future. While the price is forecasted to be increase, the demand is forecasted to be decrease as being showed in Figure 4.7.

New energy source available to use is the reduced demand brought about by greater energy efficiency and conservation. Significant progress has been made in the past and is expected to be more in the future. The consumption of energy today for every dollar of Gross Domestic Product is only about half consumption back in 1980.

Figure 4.7



### Future U.S. Energy Demand per Dollar of GDP

Source: EIA, Monthly Energy Review, March 2008

- The table below shows the historical and projection for oil and gas production in Kerr-McGee.

Table 4.13

### Oil and Gas Production

	History			Projection				
	2003	2004	2005	2006	2007	2008	2009	2010
Production oil and gas (thousands barrels per day)	183	236	270	260	280	300	321	343
Total oil production	79	96	109	156	168	180	192	206
Total gas production	104	140	161	104	112	120	128	137
Total gas production (MMcf per day)	629	836	962	621	669	716	766	820
Days in period	365	366	365	365	365	366	365	365
<b>Total oil production in a year (thousands barrels)</b>	<b>28,835</b>	<b>35,136</b>	<b>39,785</b>	<b>56,940</b>	<b>61,320</b>	<b>65,792</b>	<b>70,205</b>	<b>75,120</b>
<b>Total gas production in a year (MMcf)</b>	<b>229,585</b>	<b>305,976</b>	<b>351,130</b>	<b>226,817</b>	<b>244,264</b>	<b>262,079</b>	<b>279,658</b>	<b>299,234</b>

Source: Writer

In 2005, the oil production volumes of Kerr-McGee increased significantly to 109 Mboed due to a full year of production from few fields in China which began production in July 2005. Also contributing to the increase were Westport properties that were acquired in late June 2004; while the gas production increased primarily to 962 MMcfd as a result of a full year of production from Westport fields and higher production from fields in the deepwater Gulf of Mexico. However as a result of the 2005 oil and gas property divestitures and the pending sale of Gulf of Mexico shelf properties, production in 2006 is expected to decline, as stated in Management's discussion and analysis of financial condition in 10-K Kerr-McGee's Annual Report 2005. From this statement and from external analysts' data, the estimation oil and gas production for 2006 and 2007 is set for 260 MBoed and 280 MBoed respectively. The total production in 2008 until 2010 was projected based on expectation of the management as stated in the Annual Financial Report March 12, 2006 and also from some analysts' point of view and some experts' opinions, which is 7% growth per year.

2. The oil price increased 46% from 2004 to 2005, and still expected to continue increase. But considering the decrease in demand of oil and gas, the increase is expected not to be as high as in 2005. The projection of the oil and gas price was based on the Credit Suisse estimation on oil price adjusted to Kerr-McGee's average price and the effect of the hedge.

Table 4.14  
Crude Oil and Natural Gas Price

	History			Projection				
	2003	2004	2005	2006	2007	2008	2009	2010
Average sales price including hedge								
crude oil (per barrel)	26.24	29.38	42.89	50.40	48.46	48.46	48.46	43.00
natural gas (per Mcf)	4.56	5.24	6.66	6.49	6.25	6.00	5.75	5.75

Source: Writer

2. By multiplying the estimation production by estimation average oil and gas price, the exploration and production revenues are estimated, as it can be seen in Table 4.15.
3. Operating costs and expenses are projected using the total of production, assuming if the production increases, then the costs and expenses will also increase.

As a result of exploration and production revenues subtracted by operating costs and expenses and then adding back the interest expenses, Earning Before Interest and Taxes are projected as shown in table 4.15.

Table 4.15  
Earning Before Interest and Taxes

(Millions of dollars)	2003	History 2004	2005	2006	2007	Projection 2008	2009	2010
	Exploration and production revenues	1,799	2,632	4,049	4,342	4,498	4,761	5,010
Operating costs & expenses	1,193	1,635	2,180	2,267	2,442	2,620	2,795	2,991
Income from continuing operations	606	997	1,869	2,075	2,057	2,141	2,215	1,960
Interest expense	250	244	253	164	190	183	176	170
<b>EBIT</b>	<b>856</b>	<b>1,241</b>	<b>2,122</b>	<b>2,239</b>	<b>2,247</b>	<b>2,325</b>	<b>2,391</b>	<b>2,129</b>

Source: Writer

#### 4.4.3 Free Cash Flow to the Firm Projection

Free cash flow to the firm (FCFF) is obtained from earning before interest and taxes (net out taxes) subtracted by capital expenditures and changes in working capital and by adding back the depreciation. Therefore all the items to obtain FCFF need to be projected.

1. The capital expenditures are calculated as proportion of the EBIT while the amounts of the capital expenditure itself was taken only from continuing exploration and production operations without taking the

discontinued business and operations into accounts. Based on the historical proportion capital expenditures to EBIT (as a result of continuing operations only), the future capital expenditures are projected. The future capital expenditures are expected to be 70% from EBIT.

2. The changes in working capital are also obtained by the same way. Only non-cash items in current assets are included in the calculation while the cash and investments in marketable securities from current assets are backed out. Along with this, all interest-bearing short term debt and the portion of long term debt that is due in the current period are also backed out from current liabilities. The result of the calculation of current assets subtracted by current liabilities is then being projected as a percentage of EBIT based on the percentage at Kerr-McGee's history. The future working capital are expected to be 35% from EBIT.
3. Projected EBIT (net of taxes) is subtracted by projected net capital expenditures and projected changes in working capital as can be seen in Table 4.16 and the projected Free Cash Flow to the Firm is obtained.

Table 4.16  
Free Cash Flow to the Firm

	History			Projection					
	2003	2004	2005	2006	2007	2008	2009	2010	2011
(Millions of dollars)									
- Capital Expenditures	964	1,114	1,604	1,567	1,573	1,627	1,674	1,491	
+ Depreciation Expense	399	636	838	832	1020	995.47	1,062.25	1,136.60	
- Change in Working capital			162	90	3	27	23	(92)	
Free Cash Flow to the Firm			472.52	652.94	927.33	875.21	943.36	1,143.00	948.21

Source: Writer

4. The FCFF valuation is done using two stages growth. For this valuation, the terminal value should be calculated. The terminal value is obtained by dividing free cash flow to firm for period 2011 by cost of capital in stable growth period subtracted by stable growth rate. Therefore the free cash

flow to firm period 2011 needs to be projected as well. This free cash flow is obtained by multiplying the projected 2010 free cash flow by reinvestment rate and the stable growth rate. The stable growth rate was taken from the oil and gas companies which have been in productions stage for years' growth rate based on experts in oil and gas industry's opinion, which is 2%.

#### 4.4.4 Weighted Average Cost of Capital

Weighted average cost of capital (WACC) is needed to present value the projected free cash flow. The components of WACC are cost of debt and cost of equity.

1. The weighted of average of long term debt of Kerr-McGee which contains of weighted average interest rate of fixed-rate debt, weighted average interest rate of variable rate debt, and weighted average of notes payable is used as the cost of debt, which is 7.4%. The details of the debts can be seen in attachment 1.
2. Riskless rate is taken from the 10 year t-bond rate in 2006, which was 4.7002%, as it can be seen in table 4.17. The data in the table is used for internal calculations for CAPM in Temasek Holdings Company Singapore.
3. The amount of risk premium for 2006 was 4.9%, also can be seen in table 4.17 from the same source.

Table 4.17

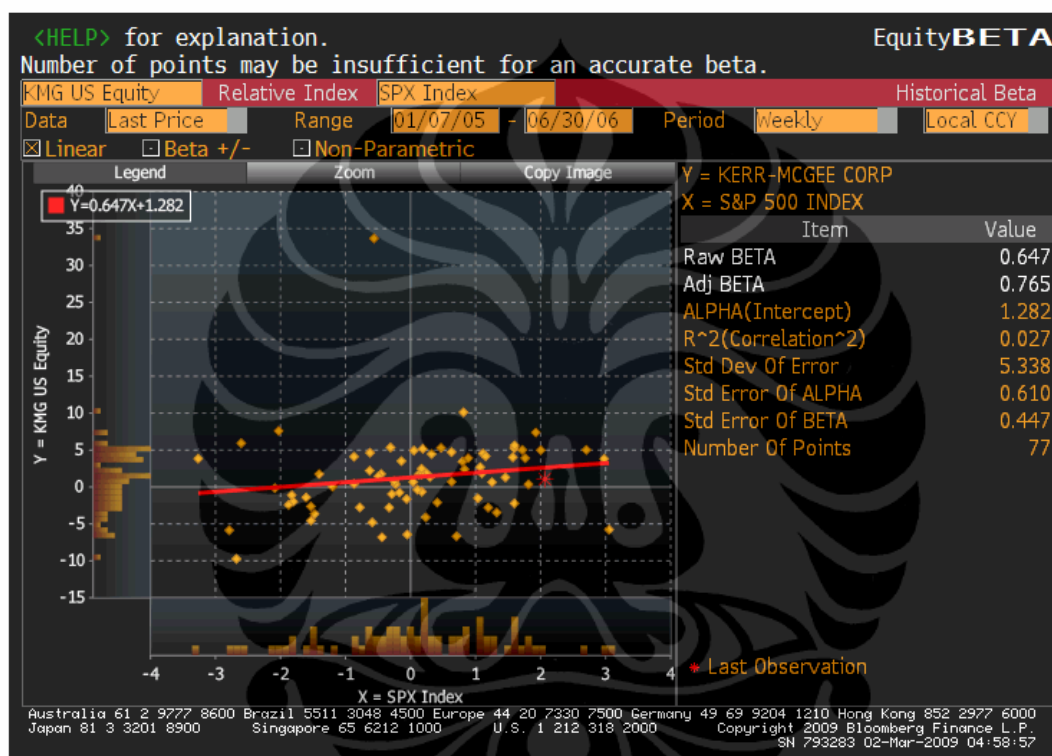
10-yr Bond Return for the Year and the Rolling 30 Years Geometric Risk Premium

	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>
CAPM ( $k_e$ )										
Risk-free Rate ( $R_f$ %)	6.4%	5.1%	5.1%	3.8%	4.2%	4.2%	4.4%	4.7%	4.0%	2.2%
Rolling 30 Years Geometric Rp Ovi	6.1%	4.9%	3.7%	2.9%	5.1%	4.3%	4.1%	4.9%	4.5%	1.4%

Source: Internal Source Temasek Holdings

4. Beta is taken from 2 years period which is believed enough for capturing the cycle of the business where oil and gas price increased almost 50% in 2005. Based on the data from Bloomberg, the beta for Kerr-McGee from 2005 until 2006 was 0.647.

Figure 4.8



Beta Kerr McGee

Source: Bloomberg

5. The cost of equity is obtained by using Capital Asset Pricing Model (CAPM) where riskless rate is added by beta multiply risk premium. The result is 7.87%.
6. The portion of equity and debt is obtained by estimating Kerr-McGee's target. The Annual Financial Statement 10-K, March 15, 2006 states that management of Kerr-McGee would use the cash flow from operating and also cash inflow from divestitures of lower growth or shorter life and higher decline oil and gas properties to repay debt in 2006 as it has been



done in 2005 from the divestitures of North Sea oil and gas business. Therefore in this valuation, the proportion of debt and equity used is 0.35 and 0.65 respectively.

7. Tax rate is taken from the effective tax rates for continuing operations for both 2005 and 2006, which is 34%.
8. From these all component WACC is obtained for 6.83%.

The summary of these WACC components are shown below.

Table 4.18  
WACC Components

Risk Free Rate	4.70%
Market Risk Premium	4.90%
Beta	0.647
Cost Of Debt	7.40%
Tax Rate	34%
<b>Cost of Capital</b>	
Cost Of Common Equity	7.873%
After Tax Debt Cost	4.884%
Equity portion	0.65
Debt portion	0.35
<b>Weighted Avg Cost Of Capital</b>	<b>6.83%</b>

Source: Writer

#### 4.4.5 Value of the Firm

After having the result of the terminal value 21,756.18 (million of dollars) and projected free cash flow to the firm as shown in table 4.16, all these results are being discounted to get the present value. The result of this present value is showing the value of the firm, which is 19,325.90 (million of dollars) the result of total amount of PV of FCF and PV of terminal value. (See table 4.19).

Table 4.19  
Value of the Firm

(Millions of dollars)	
PV of FCFF	\$3,687.69
PV of terminal value	\$15,638.21
Existing liabilities	2,825
<b>Equity Value</b>	<b>16,500.90</b>
O/S Shares	234,412,964
<b>Price per Share</b>	<b>70.39243</b>

Source: Writer

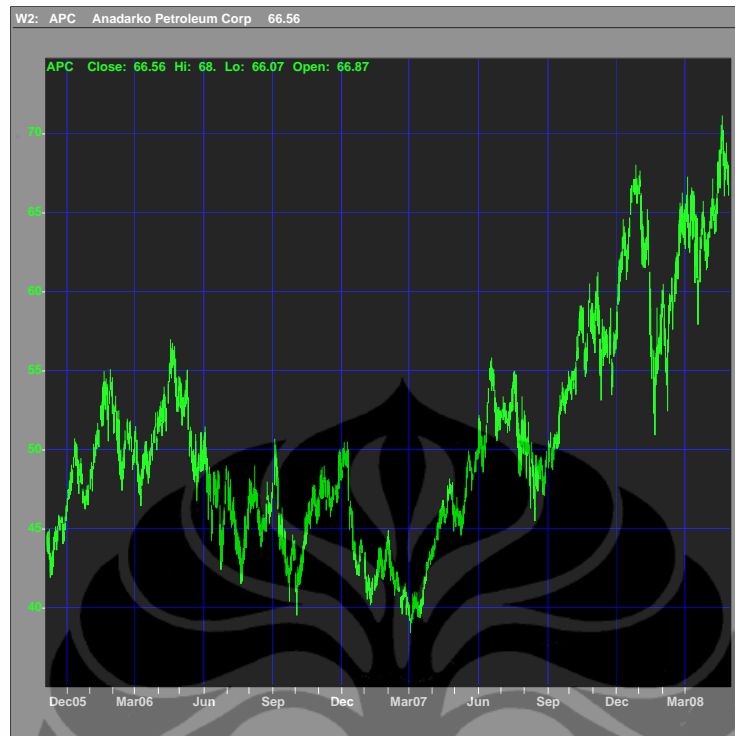
By subtracting the value by the existence liability which is 2,825 (million of dollars), the value of the equity is obtained, which is 16,500.90 (million of dollars). The value of the stock per share can be searched out by dividing this value by the amount of shares outstanding, which are 234,412,964 shares. From the valuation, it can be seen that the price stock per share is \$70.39, only 11 cent lower from \$70.50 which is the price that Anadarko Petroleum Company paid in acquiring Kerr-McGee, which means that there were no mispricing in this transaction.

Also need to be noted that this valuation, eventhough resulting in almost the same amount as the one that has been made in the past by internal analyst in Anadarko Petroleum Company, is made using non-internal data from neither Kerr-McGee nor Anadarko Petroleum Company. The valuation is done by using published datas that can be obtained by external parties of Kerr-McGee and Anadarko Petroleum Company.

#### 4.5 Non-Financial Factors

The result of the valuation using FCFF above showed that the price Anadarko Petroleum Company paid to acquire Kerr-McGee was proper. Figure 4.9 shows the price of Anadarko Petroleum Company in the market after the acquisition kept falling until below \$40.00 per share and this happened until March 2007 while Kerr-McGee was getting stronger as can be seen in figure 4.10.

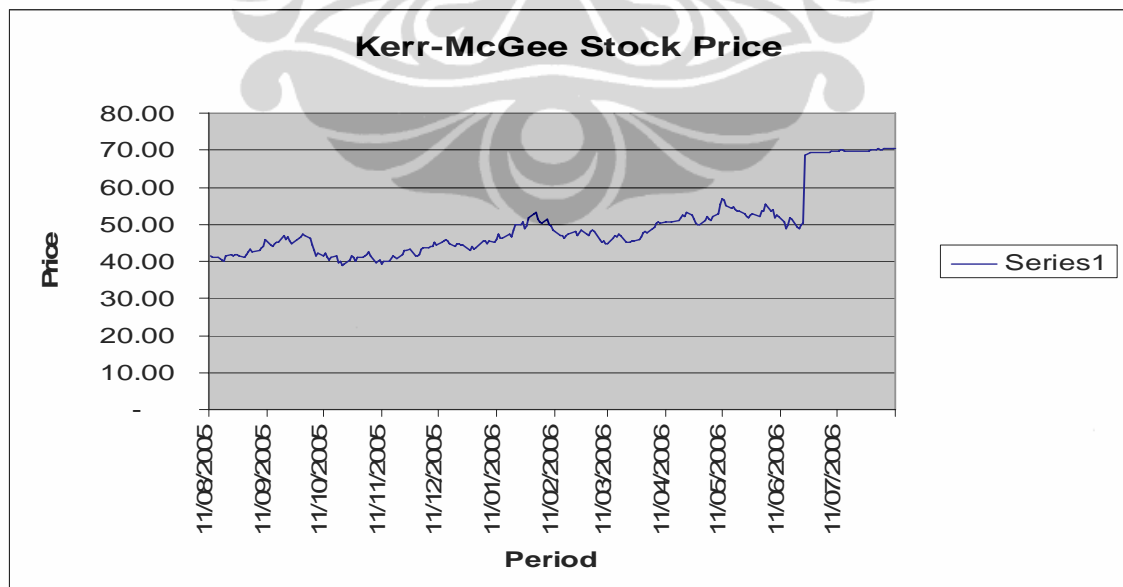
Figure 4.9



Market Price of Anadarko Petroleum Company

Source: Market Browser

Figure 4.10



Market Price of Kerr-McGee

Source: Bloomberg

Market price for Kerr-McGee on June 22, 2006 was \$50.30 per share, and right after the acquisition announcement on June 23, 2006, the market price increased more than 36% to \$68.61 per share. At the completed transaction date August 10, 2006, Kerr-McGee's market price raised up until \$70.47. While in Anadarko Petroleum Company, the market price on June 22, 2006 was \$48.39 per share, and at the announcement day it decreased became \$44.9 per share. At the completed transaction date, Anadarko Petroleum Company's market price was \$47.24, a bit higher than the market price at the day of the acquisition announcement, but still lower than the market price before the announcement which showed a negative reaction in market.

This analysis result leads to the fact that there are other factors that influence merger and acquisition process in oil and gas industry. Most of these factors are non-financial factors which have been summarized from some oil and gas literatures, some conversations with the experts who have been working for years in oil and gas companies and from some facts that can be found from experiencing working in oil and gas company.

#### **4.5.1 Risks**

High risk that has to be faced by oil and gas companies is one of the factors that affects market price. Revenues in oil and gas companies heavily depend on product prices and market that are volatile which affect results of operations and cash flows of the company. The prices received by the company for oil and gas production are dependent upon numerous factors that are beyond its control.

Some of these factors are:

- Worldwide supply and consumer product demand which also depends on the price and availability of alternative fuels
- Governmental regulations and taxes; and the stability of political and economic conditions of foreign governments; international conflict and civil disturbances. This global factor really affects the successful of

operations by oil and companies because of the nature of the business that needs to have portfolio all around the world to capture the higher opportunities to increase the production.

- Overall economic environment
- Company size plays an important part in pricing of international oil companies. Company size may have a positive reputation effect on governments' discretionary licensing decisions for oil and gas deposits. Large and prospective operatorships, which also are skill and resource demanding, are often awarded to the largest companies. Moreover, larger firms may have larger financial power and risk capacity. Additionally, the existence of economies of scale and scope will favor the largest companies. On the other hand, large companies may be slow and face higher co-ordination costs, and may miss out on benefits of focusing strategies and specialization. The result that size matters in the pricing of oil and gas companies makes their theoretical valuation difficult. Equity value estimates calculated using theoretical valuation models such as Discounted Cash Flow may not agree with market values, unless the effects of size are corrected for.
- Risks in oil and gas exploration, development and production activities, such as accidents or miscalculations. Drilling operations may be delayed or cancelled as a result of numerous factors which may be beyond the company's control, such as weather conditions, compliance with environmental, shortage in the delivery of equipment and services

#### **4.5.2 Oil and Gas Reserves**

A non-accounting variable, namely the size of oil and gas reserves, became increasingly more important in explaining valuation. The future success of the company in oil and gas industry depends on its ability to find, develop or acquire additional oil and gas reserves that are economically recoverable.

After considering debt, the company should believe that it has sufficient cash flow from operations to fund capital expenditures, because if these sources are not sufficient, its ability to find and develop oil and gas reserves maybe adversely affected and its interests in some of its oil and gas properties maybe reduced. Further, if oil and gas prices increase, finding costs for additional reserves could also increase, making it more difficult to replace reserves on an economic basis.

#### **4.5.3 Synergies**

It is very hard to combine two or more different companies into one. When they are combined, sometimes synergies are not developed between the companies. The employees need time to adjust with the new culture of the other company which acquired their company and also in the contrary the employee of the acquiring company needs to adapt the new culture of the company they acquired. In Kerr-McGee and Anadarko Petroleum Company's case, market also saw this as one of the risks that may disturb operational activities after the companies merged.

