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DEPARTMENT OF FINANCE

Finanční analýza společnosti PetroChina Company Limited  
Financial Analysis of PetroChina Company Limited

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## Bachelor Thesis Assignment

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### Description:

1. Introduction
2. General Frame and Theoretical Concept of the Financial Analysis Methods
3. Description of the PetroChina Company Limited
4. Application of Selected Methods and Results Evaluation
5. Conclusion

Bibliography  
List of Abbreviations  
Declaration of Utilization of Results from the Bachelor Thesis  
List of Annexes  
Annexes

### References:

HIGGINS, Robert. *Analysis for Financial Management*. 9th ed. New York: McGraw-Hill/Irwin, 2008. 448 p. ISBN 978-0077297657.

ORMISTON, Aileen M. and Lyn M. FRASER. *Understanding Financial Statements*. 9th ed. New York: Prentice Hall, 2009. 288 p. ISBN 978-0136086246.

ZAPPE, Ch. S., CH. ALBRIGHT and W. WINSTON. *Data Analysis and Decision Making*. 4th ed. New York: South-Western College Pub, 2010. 1061 p. ISBN 978-0538476126.

Extent and terms of a thesis are specified in directions for its elaboration that are opened to the public on the web sites of the faculty.

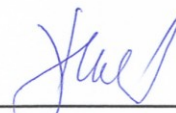
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Herewith I declare that I elaborated the entire thesis, including all annexes,  
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# 1 Introduction

Financial analysis is an important part of financial management. As a financial manager, it is necessary to know current and previous development of the company, which can be expressed by different financial analysis methods.

The aim of the bachelor thesis is evaluation of financial position of PetroChina limited using the selected financial analysis methods and pyramidal decomposition of return on equity.

PetroChina is one of the biggest companies in the world and has the dominance position of Oil and gas producers and vendors in china. The business scope of Petro China including Oil and gas business; Engineering and technical services; Petroleum Engineering Construction; Petroleum Equipment Manufacturing; Financial Services; Transportation Services; New Energy Development. As a result, it is necessary to have a comprehensive analysis of PetroChina.

There are five chapters included in the thesis: Introduction; General frame and theoretical concept of the financial analysis method; Description of the Petro China Company Limited; Application of selected methods and evaluation of results; Conclusion.

Chapter 2 is the theoretical part. It describes the basic principal of corporate finance and the concept of the financial analysis methods, which will be used in chapter 4. So it can be said that the chapter 2 is the theoretical foundation of practical part and conclusion part. In this chapter, it shows the general frame of financial method. And the general frame of financial method is common-size analysis and financial ratio analysis. Besides, it discusses how to use the financial ratio to analyze the three main financial statements, which includes balance sheet, income statement, cash flow statement and some other information sources to take the financial analysis. At last, it also introduces the pyramidal decomposition of return on equity.

Chapter 3 is the description takes the description of the PetroChina Company Limited. In order to have a better analysis of the company, it is necessary to have a comprehensively knowledge of the company. As results, the chapter 3 describes the PetroChina's background, main business field and financial characteristics.

Chapter 4 is the practical part, which is also the most important part of this thesis. By using the method introduced in theoretical part and the financial date from balance sheet, income statement and cash flow statement of the company, the company's performance during fiscal 2008 to 2012 is analyzed. Besides, it makes a comparison of the result in different fiscal years to analyze the develop trend and find out which year has the better performance. It also compares the results of PetroChina with the Sinopec, which is also one of the biggest petroleum companies in China, to get a more reliable conclusion.

Chapter 5 is the conclusion part, which gives the recommend to PetroChina and makes a conclusion of the bachelor thesis.

## **2 General frame and theoretical concept of the financial analysis methods**

### **2.1 General frame of the financial analysis**

In order to have a good understanding of a company's financial condition, it is necessary to have the financial analysis. There are many different techniques to conduct the financial analysis. As a result, we need to find out the appropriate method in analyzing different aspect.

In general, there are five common methods of financial analysis: Horizontal analysis; Vertical analysis; Ratio analysis; Decomposition of selected ratio; Security analysis.

Financial analysis is influenced by company activities, for example, quantity and quality of production, marketing and selling activities, activity of research and so on.

Financial analysis usually has three steps, identification of basic indicators of financial situation, deeper analysis of causes of development and makes draft of actions.

At first, when identification of basic indicators of financial situations, we need to framing the question, in other word, it is to identify what the question is. For example, how well the assets of the company are used for the investment. Whether a company is profitable based on whether net income is positive and so on.

Then, understanding what questions does the each method aimed at. For example, financial ratios are used to evaluate the company's financial condition and performance. When analyzing the company's financial condition, the financial ratio is a good choice.

When take deeper analysis of causes of development, we need to find out the necessary data for each question. The quantifiable data can be found from balance sheet, income statement, and cash flow statement. The unquantifiable information can be found from company's annual report. For examples, when examine the changes in profitability, choose the vertical common-size analysis, then using the income statement make out the



various expenses and net income as percentage of revenues during a period. It is easier to see the proportions of income and expenses and how those proportions changed over the years.

In general, a very useful source for finding the data is company's annual report, which includes financial statements, management's discussion and footnotes. From the annual report, the past performance of the company can be seen by its cash flow and income flow, besides; the current financial condition can be seen by balance sheet (assets, liabilities, and equity). However, it is not enough sometimes, some industry and economic index or data are also needed to have a better understanding and make a further prediction.

At last, make draft of actions, review it and check whether conclusions reached and recommendations given earlier need any revisions or not on the basis of updated information.

## **2.2 Theoretical concept of the financial analysis methods.**

In this section, it will show the techniques of evaluating the financial data of the company. The techniques will help us to analysis the present financial condition and performance of the company as well as the future's. The tools include:

### **2.2.1 Common-size analysis**

The common-size analysis is used to analysis financial statement of the company. It is very useful to compare the company present performance with previous. And it also helps to compare the company with others.

#### ***Vertical Common-size Analysis***

Vertical analysis is often used in one base financial statement, when comparing the data with other years and other companies.

Vertical analysis calculates the percentage of every item in the financial statement. It shows the relationship between every item with the total and also shows the changes over time. For examples, in balance sheet, we usually compare each item to total assets and the

percentage of the total assets.

The vertical analysis selects a key item in the financial statement as a benchmark. Restate the amount to be 100. Then calculate how much percent the other items take of the base item. However, the horizontal analysis calculates the amounts on financial statements over the past year. For examples, in the income statement, we usually compare the each item to sales.

The vertical analysis is used to see the change of the relationship between each item and the total during a period. While the horizontal analysis shows the economic evolution of individual items of financial statement of the company.

When use the vertical analysis, the percentage is computed by using the following formula:

$$\text{Percentage of base} = \frac{\text{Amount of individual item}}{\text{Amount of base}} \cdot 100 \quad (2.1)$$

### *Horizontal analysis*

The horizontal analysis, it is also called common-base-year analysis. It sets the base year as a benchmark. Then restate other years to the base. As a result, it can compare the change of the data over time clearly and we can also compare the data with other company.

There are two ways to perform the horizontal analysis: absolutely comparison and percentage comparison.

$$\text{Absolute change} = I_{ap} - I_{ap-1} = \Delta I_{ap} \quad (2.2)$$

$$\text{Relative change} = \frac{I_{ap} - I_{ap-1}}{I_{ap-1}} = \Delta \frac{I_{ap}}{I_{ap-1}} \quad (2.3)$$

where  $I_{ap}$  is value of selected item in actual period and  $I_{ap-1}$  is value of selected item before actual period.

The absolutely change can help us find out which value of item changes the most. The relative change helps us to compare the different companies and different years.

The horizontal analysis will be helpful for us to analysis the trend of data; we can see the different companies' financial condition during a period time. So it is an important tool for shareholders, the investors and the competitors.

When use the horizontal analysis, we can not only analyze all the items in the financial statement, but also the certain item. For examples, if we want to analysis the profitability of the company, we can analyze the net profit ratio by the horizontal analysis.

### **2.2.2 Financial ratio analysis**

Financial ratio analysis is a very useful tool to analyze the company's financial condition and performance.

There are four different types in financial ratio analysis: The activity ratios, liquidity analysis, solvency analysis and profitability analysis. As a result, it is important for us to choose the right type when we analyze different questions.

#### *Profitability analysis*

The Profitability analysis shows whether a company is profitable based on whether net income is positive, which is one of the most frequently used tools of financial analysis of the company. They are used to judge how efficiency the firm is using its assets. So it is important to both company's manager and owner. There are two types of profitability analysis, margins and returns.

Margin, it compares components of income with revenues. It shows what makes up the company's income. Usually it is expressed as a portion of each dollar of revenues.

**Gross profit margin.** It shows the gross profit to revenues, which indicates the

company's financial health. Usually, an adequate gross margin means the company has ability to pay its operating and other expense and build for the future and the gross profit margin is supposed to be stable,

$$\text{Gross profit margin} = \frac{\text{Gross profit}}{\text{Total revenue}} \quad (2.4)$$

**Operating profit margin.** It shows the operating income (i.e., income before interest and taxes) to revenues. By analyze the change in this margin over time or quarterly figures to those of its competitors; it can indicate the company's financial health. And the higher margin means a better financial health of the company.

$$\text{Operating profit margin} = \frac{\text{Operating income}}{TR} \quad (2.5)$$

where  $TR$  is total revenue.

**Net profit margin.** It shows the net income to revenues. Net profit is calculated by revenue minus all expense. It is usually used for internal comparison and a lower margin means a higher risk and worse control over its costs compared to its past and its competitors.

$$\text{Net profit margin} = \frac{\text{Net income}}{\text{Total revenue}} \quad (2.6)$$

**Pretax profit margin.** It reflects the effect of leverage and other non-operating income and expenses on profitability. The higher pretax profit margin is the better. The trend of the margin indicates which way the company's profitability is headed.

$$\text{Pretax profit margin} = \frac{EBT}{TR} \quad (2.7)$$

where  $EBT$  is earning before tax.

**Return-on investment ratios.** It compares benefits generated from investment.

Operating return on assets it shows the operating earnings to assets

$$\text{Operating return on assets} = \frac{\text{Operating income}}{\text{Average total assets}} \quad (2.8)$$

**Return on assets (ROA).** It measures net income to assets and indicates the company's net profit generated invested in total assets. ROA may vary substantially between different industries, so it is usually used in comparing with company's previous number and with the similar company.

$$\text{ROA} = \frac{\text{Net income}}{\text{Total assets}} \quad (2.9)$$

**Return on capital (ROC).** It measures net income to total capital. And it indicates how effective a company is in turning capital into profits. The ROC is a useful tool of calculate the return generated exclusively by the business operation itself.

$$\text{ROC} = \frac{\text{Net income}}{\text{Total capital}} \quad (2.10)$$

where total capital is the sum of long-term capital.

**Return on equity (ROE).** It is the net income to shareholders' equity. It is also used to compare the companies with other companies which are in the same industry.

$$\text{ROE} = \frac{\text{Net profit}}{\text{Total equity}} \quad (2.11)$$

### *Activity ratios*

When evaluate the company's investment and how well the assets are used. The activity ratios can be used. The activity ratios are a measurement of calculating how effectively assets are used by the company. There are two types of activity measures: turnover ratios and numbers of days.

Turnover ratios are used to measure how many times during the period the company has effectively used its assets to produce a benefit. And numbers of day's measures is used to measure an approximation of how long it takes to recoup the company's investment.

**Inventory turnover.** It measures the cost of goods sold to inventory. It indicates how efficiency the company uses inventory and it can be also compared with other company in the same industry. Usually, the high inventory ratio shows a good balance of inventory and cost of goods sold.

$$\text{Inventory turnover} = \frac{\text{Cost of good sold}}{\text{Average inventory}} \quad (2.12)$$

**Receivables turnover.** It shows the total revenue to average accounts receivable. And the ratio shows how long it takes customers to pay on average during a period. Usually, the high receivables turnover shows the stringent credit or relative policies of the company's. A low receivables turnover indicates the company's credit and collection procedures may have questions. Therefore, it is useful in making company's credit policy.

$$\text{Receivable turnover} = \frac{\text{Total revenue}}{\text{Average account receivables}} \quad (2.13)$$

The net credit sales can be obtained from income statement of the company. And average account receivables figure can be calculated by dividing the sum of beginning and ending accounts receivable by 2 which can be found in balance sheet.

**Number of days receivable**, it measures the average time customers of company's take to pay for purchase. If the result is low, it means the company has a high liquidity.

$$DR = \frac{\text{Account receivables}}{TR} \cdot 365 \quad (2.14)$$

where  $DR$  is the number of days of receivables.

**Total asset turnover**, it is the ratio of revenues to total assets. The ratio is used to measure how efficiency the company is using its assets. Usually, the higher ratio is better.

$$\text{Total asset turnover} = \frac{TR}{\text{Total assets}} \quad (2.15)$$

where  $TR$  is total revenue.

**Working capital turnover**. It compares revenues with working capital and sees how efficiently working capital is employed. Working capital is current assets minus current liabilities. It is used to fund operations and purchase inventory by the company.

$$\text{Working capital turnover} = \frac{\text{Total revenue}}{\text{Average working capital}} \quad (2.16)$$

### *Liquidity analysis*

Liquidity refers to the company's ability to satisfy its short-term obligation or current liabilities, it includes accounts payable, wage payable and current liabilities. And liquid assets mean the assets that can be converted into cash quickly. In financial statement, it is listed as current assets.

Liquidity ratio measures the company's ability to generate cash to meet its immediate needs. There are three ratios, including the current ratio, the quick ratio, and the cash ratio.

**Current ratio.** It is the ratio of current assets to current liabilities. It measures the company's obligation to satisfy its current liabilities with its current assets. When the current ratio is 1, it indicates the book value of its current assets exactly equals the book value of its current liabilities. If the ratio is higher, it means a higher level of liquidity. On the contrary, if the ratio is lower, it means a lower level of liquidity. The recommended value average is 1.5-2.5.

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}} \quad (2.17)$$

**Quick ratio.** It shows the company's ability to satisfy current liabilities with its most liquid assets. A higher quick ratio indicates a greater liquidity. From the quick ratio we can know that some current assets cannot be converted into cash easily. The recommended value average is 1.0-1.5. It reflects that the company may be not to sell the entire inventory for the amount equal to its carrying value. As a result, when inventory is not liquid, quick ratio is better to indicate than current ratio.

There are two common ways to calculate the quick ratio.

$$\text{Quick ratio} = \frac{\text{Cash} + \text{SMI} + \text{Receivable}}{\text{Current liabilities}} \quad (2.18)$$

where *SMI* is the short-term market investments.

$$\text{Quick ratio} = \frac{\text{Current assets} - \text{Inventory}}{\text{Current liabilities}} \quad (2.19)$$

**Cash ratio.** It shows the company's ability to meet its current obligation with the cash and cash equivalents. In this ratio, we consider whether the company can pay off the short term obligation without selling inventory. Usually, the recommended value of it is more than 0.2.

$$\text{Cash ratio} = \frac{\text{Cash} + \text{SMI}}{\text{Current liabilities}} \quad (2.20)$$

In general, the higher of the liquidity ratio are the better for company to meet its



short-term obligation. However, if the company has too much current assets and more than it needs, it means the company does not use its resources efficiently.

### *Solvency analysis.*

Solvency indicates the company's ability to meet its long-term obligation. And we use solvency ratio to indicate a company's level of financial risk which is arising from the company's obligation to meet required payments under its financing agreements. As a result, we can use the solvency analysis to forecast the company's future business prospects. There are two types of solvency analysis, component-percentage solvency ratios and coverage ratio.

Component-percentage solvency ratios are used to assess how reliant a company is on debt financing. We calculate them by comparing the amount of the debt to the total capital or equity capital of the company. The amount of debt can be measured in short-term debt and long-term debt.

**Debt-to-assets ratio.** It measures the percentage of total assets financed by total debt. The higher debt indicates a higher risk, which is dangerous for the company.

$$\text{Debt-to-assets ratio} = \frac{\text{Total debts}}{\text{Total assets}} \quad (2.21)$$

**Long-term debt-to-assets ratio.** It shows the percentage of the company's asset financed with long-term debt. The long-term debt includes obligations that over a year. The obligations may be in the form of interest-bearing debt such as debt or other long-term liabilities. The higher long-term debt means lower liquidity and weaker solvency and it also indicates that the company is less independent on debt to grow their business.

$$\text{Long-term debt-to-assets ratio} = \frac{\text{Long - term debt}}{\text{Total assets}} \quad (2.22)$$

**Debt-to equity ratio.** It shows the amount of debt capital relative to equity capital. Typically the data from the prior fiscal year is used in the calculation. The higher ratios mean

a higher risk and weaker solvency which is similar to previous two solvency ratios.

$$\text{Debt-to-equity ratio} = \frac{\text{Total debts}}{\text{Total shareholders' equity}} \quad (2.23)$$

**Financial leverage.** It shows the amount of total assets support for each money unit of equity. It is also called the equity multiplier. The higher leverage also means a higher risk but it not always bad. Sometimes it can increase the shareholders' return on investment and tax advantages with borrowing.

$$\text{Financial leverage} = \frac{\text{Total assets}}{\text{Total shareholders' equity}} \quad (2.24)$$

Coverage ratio measures the company's ability to meet its financial obligations. Usually, the higher coverage ratio means a better ability of the company to satisfy its obligation.

**Interest coverage ratio.** It measures the earning available to meet the interest obligation with the interest obligation. When the ratio is lower than 1.5, it company may have problem to meet interest expense.

$$\text{Interest coverage ratio} = \frac{\text{EBIT}}{\text{Interest payment}} \quad (2.25)$$

And the interest burden is a function of the company's capital structure, we can also calculate interest payments burden by:

$$\text{Interest payment burden} = \frac{\text{Interest payment}}{\text{EBIT}} \quad (2.26)$$

where *EBIT* is earning before interest payment and taxes.

**Fixed-charge coverage ratio.** The assessment of the coverage of financial obligations may be expanded to include other obligation. When the ratio is below than 1, it means the

company has trouble in paying its fixed charges.

$$\text{Fixed-charge coverage ratio} = \frac{\text{EBIT} + \text{Lease payment}}{\text{Interest payments} + \text{lease payments}} \quad (2.27)$$

**Cash flow coverage.** It measures the number of a company's cash flow generated from operations with its interest payments and taxes could cover its interest payments. The data of OCF can be found in cash flows. The low ratio can indicate poor cash generation or too much debt of the company.

$$\text{Cash flow coverage} = \frac{\text{OCF} + I + T}{I} \quad (2.28)$$

where *OCF* is cash flow from operation; *I* is interest payment and *T* is taxes payments.

**Cash-flow-to-debt ratio.** It measures the company's operating cash flow to its total debt. The higher percentage ratio means the better ability of the company's to meet its total debt.

$$\text{Cash-flow-to-debt} = \frac{\text{OCF}}{\text{Total debt}} \quad (2.29)$$

where *OCF* is cash flow from operation, *I* is interest payment and *T* is tax payments.

### 2.2.3 Pyramidal decompositions of ROE

Pyramidal decomposition enables to analyze what drives the value of financial ratios. The pyramidal decomposition of ROE is useful to measure the reasons for changes in ROE over time for a company.

$$\text{ROE} = \frac{\text{Net income}}{\text{Equity}} = \frac{\text{net income}}{\text{revenues}} \cdot \frac{\text{Revenues}}{\text{Total assets}} \cdot \frac{\text{Total assets}}{\text{Equity}} \quad (2.30)$$

It can also be interpreted as:

$$\text{ROE} = \text{net profit margin} \cdot \text{assets turnover} \cdot \text{financial leverage.} \quad (2.31)$$

From the formula, it shows that the company's ROE is influenced by its net profit margin, total assets turnover and financial leverage.

*Method for quantification of influence*

By analyzing the influence quantification, it enables to analyze indicators, whose change has caused change in the basic ratio. And it can also quantify which component ratio contributed most to the total change. There are two different methods to analyze.

**Method of gradual decomposition**, it used to quantify the change in the basic ratio caused by change in the component ratio. And in the case of decomposition, there are three component ratios that influence the basic ratio. It can be calculated as:

$$\begin{aligned} \Delta X_{a1} &= \Delta a_1 \cdot a_{2.0} \cdot a_{3.0} \\ \Delta X_{a2} &= a_{1.1} \cdot \Delta a_{2.0} \cdot a_{3.0} \\ \Delta X_{a3} &= a_{1.1} \cdot a_{2.1} \cdot \Delta a_{3.0} \end{aligned} \quad (2.32)$$

X is basic ratio;  $\Delta X$  means absolutely change in the basic ratio. And a means component ratio,  $\Delta a$  means absolutely change in the component ratio.

**The logarithmic method**, the advantage of this method is it only needs one formula for the impact quantification no matter how many component ratios it has. The impact of the i-th component ratio on the change in the basic ratio is calculated as follows:

$$\Delta X_{ai} = \frac{\ln I_{ai}}{\ln I_x} \cdot \Delta X \quad (2.33)$$

where X is basic ratio,  $\Delta X$  is absolutely change in the basic ratio.  $I_x = \frac{X_1}{X_0}$  is index of

change in basic ratio.  $I_a = \frac{a_{1.1}}{a_{1.0}}$  is index of change in component ratio.

### **3 Description of the PetroChina limited**

The PetroChina limited (also called PetroChina) is the largest procedure and distributor in oil and gas industry of China. It is also one of the biggest companies which own maximum sales revenue in China. Sponsored and established exclusively by the China National Petroleum Corporation, PetroChina limited was set up in November 5, 1999.

As the largest procedure and distributor in oil and gas industry of China, the PetroChina limited widely engaged in the business of oil and natural gas, mainly including: Exploration, development, production and sale of crude oil and natural gas; Refining of crude oil and petroleum products, production and marketing of basic petrochemical products, derivative chemical products and other chemical products; production and marketing of primary petrochemical products, derivative chemicals and other chemicals; transportation of natural gas, crude oil and refined oil, and marketing of natural gas

Exploration, development, production and sale of crude oil and natural gas are an important business of PetroChina. The company has a dominant position in China for its Oil and gas resources, with a number of large oil fields such as Daqing, Liaohe, Xinjiang, Changqing and Sichuan. The Daqing oil region is China's largest oil region, which is also one of the world's most prolific oil and gas origin. In 2011, the company keeps to grow the project called increasing the reserves, and had an important discovery and deep major breakthrough in Sichuan, Bohai and Chaidamu. Based on SEC reserves caliber, the D & M Company assessed that the new discoveries of oil in the domestic throughout the year proved reserves 9,851 million tons, natural gas proved reserves of 1,217 billion cubic meters. Reserve replacement is in good condition.

The next business is refining of crude oil and petroleum products, production and marketing of basic petrochemical products, derivative chemical products and other chemical products. In 2011, a number of key Refining and Chemical projects were put into operation. The capacity of a crude oil processing for the company reached 155 million tons. Refining

business overcomes organizational difficulties of production, used the market-oriented method to adjust and optimize the product structure timely. The proportion of high-grade gasoline and efficient products were 96.7% and 30.5%. Chemical business meets the market demand, optimizing production program and increasing marketable products, producing 3.467 million tons of ethylene. Development 75 grades of new products. The company also strengthens the comprehensive benchmarking of international advanced level and 20 major technical and economic indicators hit a historically high level. The yield of light oil, ethylene yield maintains a leading position.

As for derivative chemicals and other chemicals, Oil sales take various measures to mobilize resources and strengthen transporting organization. Consolidate and strengthen the largest producer and supplier position for fuel oil and asphalt in the domestic market. The market continued to optimize the layout of the lubricants business, to enhance the overall capacity of making profit. Intensify efforts to develop marketing networks and newly developed 1,330 gas stations. When Nansha and Zhuhai putted into use, it enhanced the control of the southern market.

The last one is transportation of natural gas, crude oil and refined oil, and marketing of natural gas. Natural gas sales increased significantly for the gas imports. Domestic market share reached 71.5%. Domestic backbone network construction accelerated, East Gas Pipeline project completed and put into use. Central Asian gas arrive the Pearl River Delta region, camphor - Xiangtan branch lines supply the gas officiate to the Hubei and Hunan provinces. Independent design and construction of Jiangsu and Dalian LNG completed and put into operation.

PetroChina has a two-step plan of “build a strong competitive international energy companies” business objectives. The first step: "Eleventh Five-Year" period, continued to adhere to keep an effective and rapid development and focus on core business. Expanding emerging energy business, to maintain a leading position in the overall strength of the company, and strive to build the company into an international energy company. Step Two: To 2020, making the international operations obtain a qualitative leap, improve the ranking in the

world's oil companies. And making the profit growth and return on investment meet international standards in the industry. Becoming one of the major global producers and seller's petroleum and petrochemical and becoming an international energy company with strong competitiveness.

The company's development strategies are as follows:

**Resource Strategy:** The Company seeks to maximize oil and gas resources, diversification strategy and ordered to take over as the basic point. Put the oil and gas in the same position. Strengthening domestic market and expanding overseas market.

**Market Strategy:** The Company seeks the continued market dominance and maximum efficiency; make full use of the advantages of economies of scale and downstream integration; consolidate the mature markets, expand efficient markets, explore strategic markets, develop international markets, and constantly enhance competitiveness in domestic and international markets.

**Internationalization strategy:** According to active and steady, mutual benefit and win-win principle, Combining resources, market, technology and capital. Developing the oil and gas business as well as increasing international cooperation The company focus on strengthening the overseas oil and gas exploration and development, prudent, and have an effective and appropriate development of the downstream business. Besides, the company should expand the scale of international oil and gas trade, and let the company become strong international competitiveness multinational companies.

**Development direction of PetroChina:** During "Twelve Five" period, PetroChina is still in an important period. The company will implement a sound business strategy, highlighting the core oil and gas business; fostering the development of new advantages to seize the high ground and constantly improving the company's growth in order to build a green, international and sustainable company.

To be an environmentally friendly company, PetroChina should provide more

high-quality, clean and efficient energy. In particular, the company is planning to develop natural gas, make the natural gas business become the company's highlights and new economic growth pillar.



## 4 Application of selected methods and results evaluation

### 4.1 Horizontal and structure analysis of financial statement

In this chapter, it will make a horizontal and structure analysis of financial statement during fiscal 2008 to 2012. All the data in this chapter is calculated according to the company's financial statement which can be found in annual report. Structure analysis is calculated according to formula 2.1. Horizontal analysis is calculated according to the formula 2.2 and 2.3.

#### 4.1.1 Analysis of balance sheet.

##### *Horizontal analysis*

Horizontal analysis of balance sheet is based on company's balance sheet, it will analyze the company's absolutely and relative change during fiscal 2008 to 2012

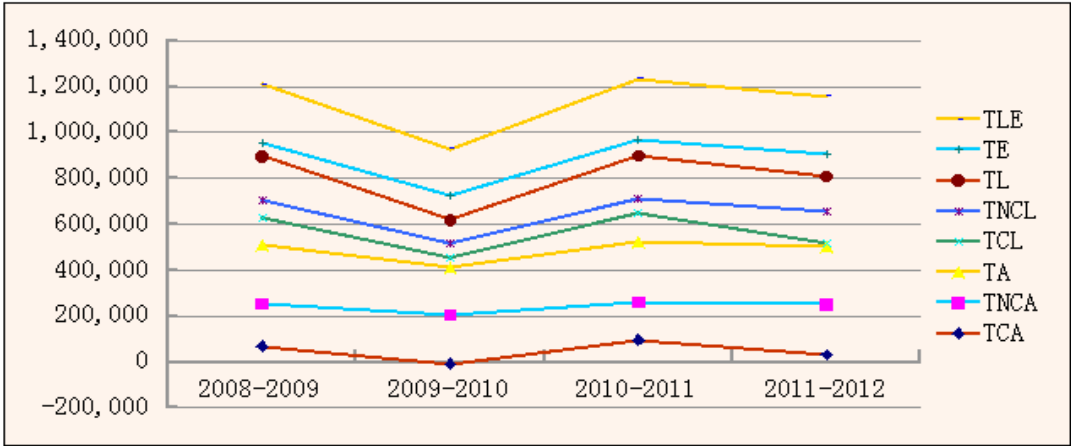
Table 4.1: Annual change in Balance sheet (2008-2012) unit: RMB million

	2008-2009		2009-2010		2010-2011		2011-2012	
	Absolute change	Relative Change	Absolute change	Relative Change	Absolute change	Relative change	Absolute change	Relative change
TCA	69,437	30.87%	-7,991	-2.71%	96,319	33.63%	31,621	8.26%
TNCA	184,616	19.01%	214,190	18.53%	164,780	12.03%	219,689	14.31%
TA	254,053	21.24%	206,199	14.22%	261,099	16.76%	251,310	13.11%
TCL	122,902	46.26%	41,183	10.60%	130,302	30.32%	14,710	2.63%
TNCL	71,290	86.16%	62,588	40.63%	58,380	26.95%	138,398	50.33%
TL	194,192	55.74%	103,771	19.13%	188,682	29.19%	153,108	18.34%
TE	59,861	7.06%	102,428	11.28%	72,417	7.17%	98,202	9.07%
TLE	254,053	21.24%	206,199	14.22%	261,099	16.76%	251,310	13.11%

According to table 4.1, it illustrate that, the amount of total assets of the PetroChina

was increasing year by year during the 2008 to 2012. Especially from 2008 to 2009, the relatively change was 21.24%, the 30.87% increasing rate of current assets and 19.01% increasing rate of non-current assets contributed to this higher growth rate.

Graph 4.1: Absolutely change in balance sheet (2008--2012)



From fiscal 2008 to 2009, the amount of total assets of the PetroChina increased ¥254,053 million. During this period, the total current assets increased ¥69,437 million. The total non-current assets increased ¥184,616 million. From 2009 to 2010, the amount of total assets increased ¥206,199 million, or 14.22%. However, the total current assets decreased ¥7,991 million or 2.71%, which was the only negative growth during 2008 to 2012. The non-current assets increased ¥214,190 million, or 18.53%. For fiscal year 2010, the total assets increased ¥261,099 million, or 16.76%. The current assets increased 33.63%, among which, the inventories contributes most according to Annex 3. And non-current assets increased 12.03%. During 2011 to 2012, the total assets increased ¥251,310 million, or 13.11%, which was the relatively lowest growth rate compared with this five years. And current assets increased ¥31,621 million or 8.26%, the non-current assets increased ¥219,689 million, or 14.31%.

From the table 4.1, it can be also seen that, for the fiscal 2008, the total liabilities increased ¥194,192 million, which was the highest growth during 2008 to 2012. And the total current liabilities increased ¥122,902 million, or 46.26%. According to Annex 3, it can be seen, the biggest growth items are accounts payable and tax payable. The total non-current

liabilities increased ¥71,290 million, or 86.16%, which contributed a lot to the higher increase of total liabilities. For the fiscal 2009, the total liabilities increased ¥103,771 million, or 19.13%, among which, the total current liabilities increased ¥41,183 million, or 10.60%, the noncurrent liabilities increased ¥62,588 million, or 40.63%. From fiscal 2010 to 2011, the total liabilities increased ¥188,682 million, or 29.19%. The current liabilities increased ¥58,380 million, or 26.95%, the non-current liabilities increased ¥130,302 million, or 30.32%. From fiscal 2011 to 2012, the total liabilities increased ¥153,108 million, or 1,834, which was the lowest growth rate from 2008 to 2012. And the current liabilities increased only ¥14,710 million, which was much lower than others, the non-current liabilities increased ¥138,398 million, or 50.33%, According to Annex 1, the long-term borrowing contributes most to the non-current assets.

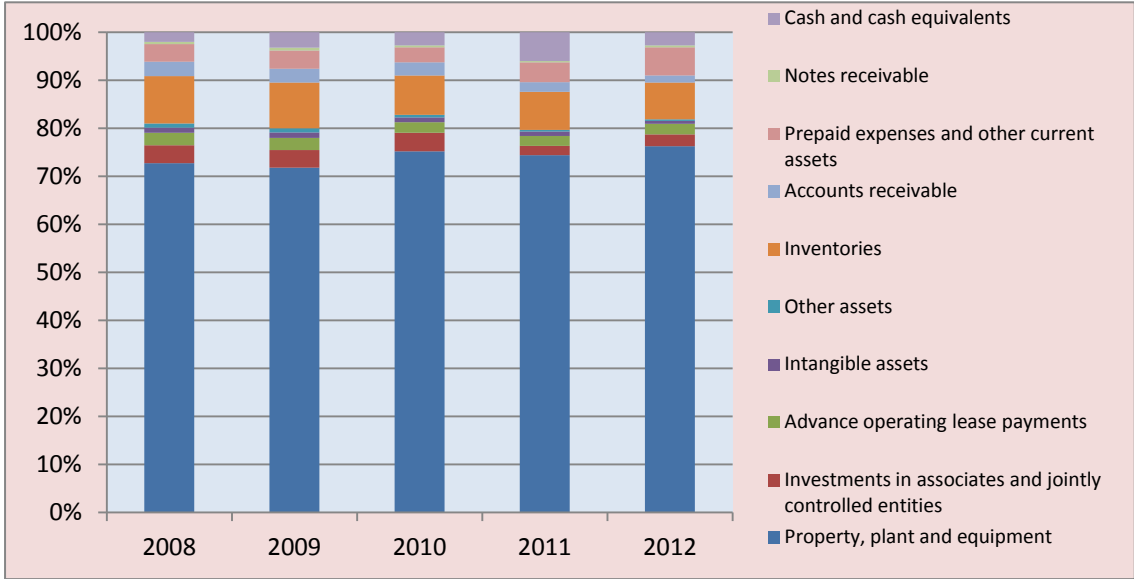
As to the total equity of the PetroChina, for the fiscal 2008, the total equity increased ¥59,861 million, or 7.06%, which was the lowest one. From fiscal 2009 to 2010, total equity increased ¥102,428 million, or 11.28%. And from fiscal 2010 to 2011, it increased ¥72,417 million, or 7.17%. And from fiscal 2011 to 2012, it increased ¥98,202 million, or 9.07%.

### *Structure analysis*

Structure analysis of assets and capital is based on company's balance sheet during fiscal 2008 to 2012. After the structure analysis, it can be seen the relationship between each item in asset to total asset during this five years.

From the chart 4.1, it illustrates some main items that consist of total assets. The items are as follows: property, plant and equipment; investments in associates and jointly controlled entities; advance operating lease payments; other assets; Inventories; accounts receivable; intangible assets; prepaid expenses and other current assets; notes receivable cash and cash equivalents.

Chart 4.1: Structural analysis of assets of the PetroChina (2008--2012)



The proportion of assets of this items changes quit stable during fiscal 2008 to 2012. It can be seen clearly that the property, plant and equipment takes up the biggest part, and even over 70% per fiscal year. The second biggest part is inventory; it takes up about 10% per fiscal year, which is much smaller than property, plant and equipment. These two items makes up almost 85% of the assets of the PetroChina per fiscal year. Although these two items changed every fiscal year, it did not influence the structure of the asset. And all of the other items take up only about 15% of the assets of the PetroChina. And it can be concluded that non-current assets which includes property, plant and equipment, Investments in associates and jointly controlled entities, advance operating lease payments, Intangible assets takes up about 80% of the total assets, which is much bigger than current-assets during fiscal 2008 to 2012.

From the table 4.2, it can be seen that the capital of PetroChina increased year by year during fiscal 2008 to 2012. In the fiscal 2008, the total liabilities and equity is ¥1,196,235 million, and in the fiscal 2012, the total liabilities and equity is increasing to ¥2,168,896 million, almost double of the fiscal 2008. Among which, the total liabilities increased from fiscal 2008 million ¥348,395 million to fiscal 2012 ¥988,148 million. And equity increased from fiscal 2008 ¥847,840 to fiscal 2012 ¥1,180,748 million.

Table 4.2: Capital structure of the PetroChina (2008-2012) unit: RMB million

	2008	2009	2010	2011	2012
Total liabilities	348,395	542,587	646,358	835,040	988,148
Total equity	847,840	907,701	1,010,129	1,082,546	1,180,748
Total liabilities and equity	1,196,235	1,450,288	1,656,587	1,917,586	2,168,896
Percentage of liabilities	29.12%	37.41%	39.02%	43.55%	45.56%
Percentage of equity	70.88%	62.59%	60.98%	56.45%	54.44%

It can be also found out that above 50% of the PetroChina's capital is made up by equity. At fiscal 2008, the equity takes up 70.88% of the capital, although the percentage decreased yearly, but it still above 50%. The percentage of equity increased year by year, in fiscal 2008, it takes up 29.12%, and it increased to 45.56% in fiscal 2012.

#### 4.1.2 Analysis of Income Statement

##### *Horizontal analysis*

This part is horizontal analysis of income statement for PetroChina during fiscal 2008 to 2012. The data is calculated based on income statement of the company. After the analysis, it can be known the absolutely and relatively change of main item in income statement.

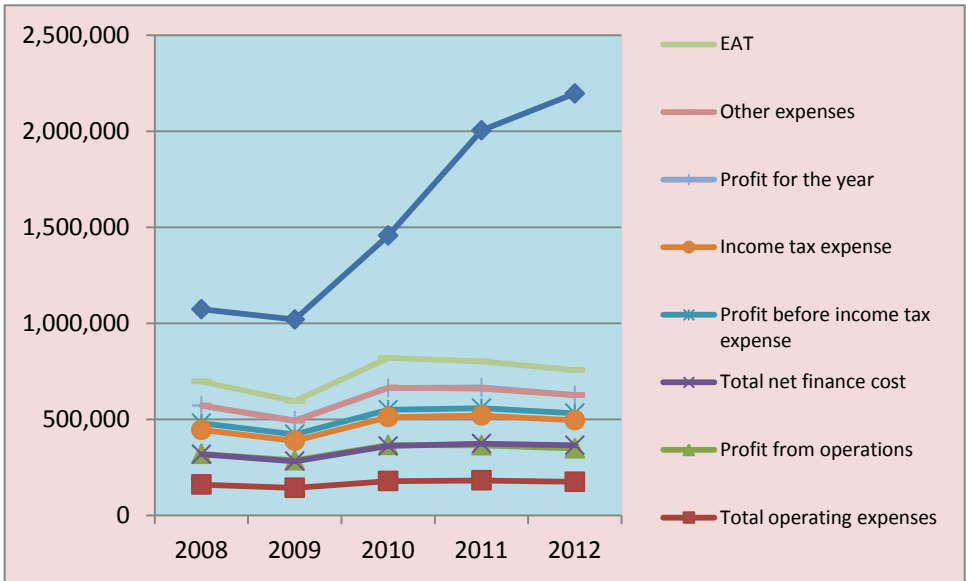
From the table 4.3, it can be seen that there was a negative development in most of items from fiscal 2008 to 2009, owing to the global financial crisis. The turnover dropped ¥53,529 million or 4.98%. The total operating expenses increased ¥37,202 million. The profit for the year dropped ¥20,243 million. But after that, the turnover development was positive. From fiscal 2009 to 2010, the turnover increased ¥437,140 million, or 42.89%, which was the biggest relatively change of turnover during fiscal 2008 to 2012. And the total operating

expenses decreased ¥401,807 million, the earnings after tax increased ¥50,376 million or 48.81%. The fiscal 2010 to 2011, the turnover kept increasing ¥547,428 million, mainly because the total operating expenses decreased ¥543,744 million. During fiscal 2011 to 2012, the turnover increased ¥191,453 million. However, the profit for the year decreased ¥15,339 million, or 10.51%.

Table: 4.3 Main items in Income statement (2008-2012) unit: RMB million

	2008-2009		2009-2010		2010-2011		2011-2012	
	absolutely change	relatively change	absolutely change	relatively change	absolutely change	relatively change	absolutely change	relatively change
TR	-53,329	-4.97%	437,140	42.89%	547,428	37.59%	191,453	9.55%
TOE	37,202	-4.07%	-401,807	45.88%	-543,744	42.56%	-199,395	10.95%
PFO	-16,127	-10.11%	44,333	30.91%	-5,316	-2.83%	-7,942	-4.35%
TNFC	-2,748	148.70%	-914	19.89%	14,658	-266.03%	6,822	74.57%
PBFT	-21,981	-13.57%	49,273	35.19%	-5,090	-2.69%	-17,404	-9.45%
ITE	1,738	-4.94%	-5,040	15.06%	257	-0.67%	2,065	-5.40%
PRY	-20,243	-15.96%	44,233	41.51%	-4,833	-3.21%	-15,339	-10.51%
OE	-398	13.50%	6,143	-183.54%	-8,202	-293.35%	5,364	-99.22%
EAT	-20,641	-16.67%	50,376	48.81%	-13,035	-8.49%	-9,975	-7.10%

Graph 4.2 Change for main items of income statement (2008-2012)



As it can be seen from the Graph 4.2, the main items of income statement have the roughly same change tendency. During fiscal 2008 to 2009, the profit had a negative growth. And this is the only year when turnover had a negative growth. But after 2009, the turnover kept increasing. And after fiscal 2010, almost all the expense decreased.

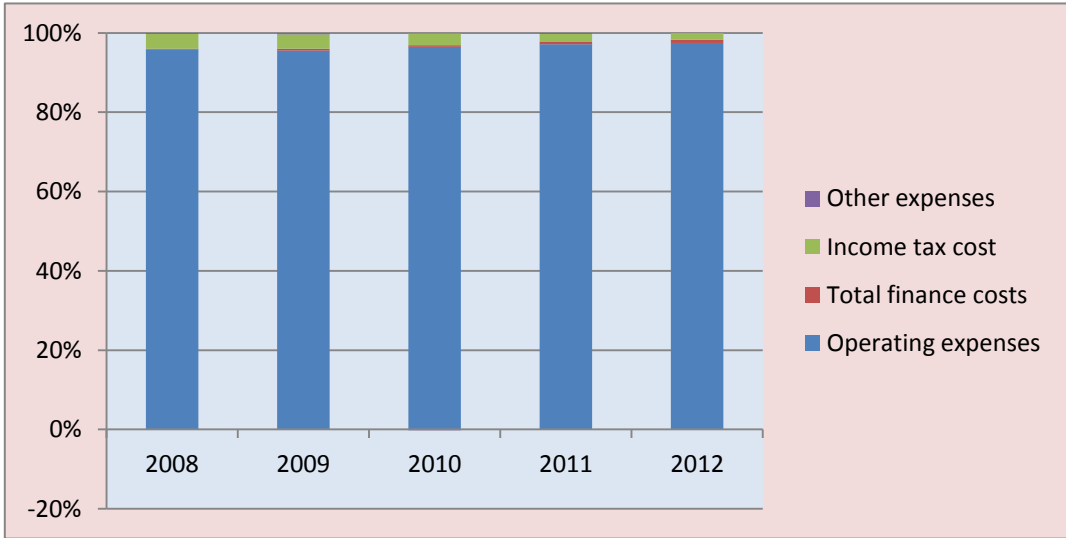
*Structure analysis*

This part is using the structure analysis to see the relationship between each item of expense or income with total expensed or income.

Table 4.4: Structure analysis of cost (2008-2012) unit: RMB million

	2008	2009	2010	2011	2012
Operating expenses	913,033	875,831	1,277,639	1,821,382	2,020,777
Total finance costs	1,848	4,596	5,510	9,148	15,970
Income tax cost	35,211	33,473	38,513	38,256	36,191
Other expenses	3,016	3,309	-2,801	5,538	169

Chart 4.2: Structure analysis of cost



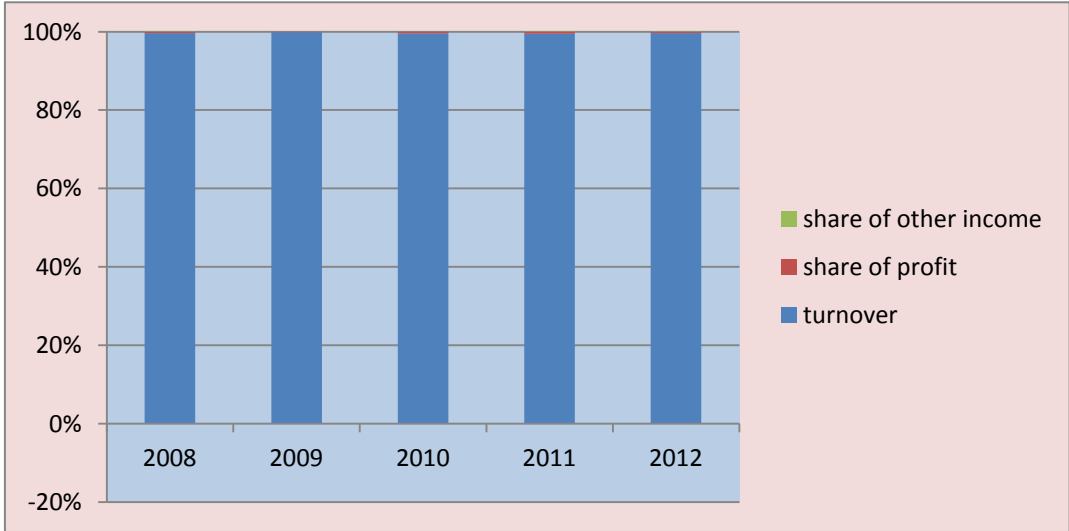
The total expenses including: operating expenses, financial expenses and other expenses. From the chart 4.2, it can be seen the operating expenses take up the majority percentage of total expenses, over 90% during fiscal 2008 to 2012. The income tax cost takes up the second largest part. In fiscal 2008, comparing with other fiscal years, the income tax cost takes up the

maximum part of total expenses, and in the fiscal 2012, it takes up the minimal part of total expenses. In fiscal 2010, as it can be seen from table 4.4, there even were a negative number of other expenses. As a result, the development of total expenses is mainly caused by the growth of operating expenses.

Table 4.5 structure analysis of income (2008--2012) unit: RMB million

	2008	2009	2010	2011	2012
Turnover	1,072,604	1,019,275	1,465,415	2,003,843	2,195,294
Share of profit	4,290	1,184	7,038	10,902	8,262
Share of other income	67	-38	-5	132	127

Chart 4.3: Structure analysis of income statement (2008—2012)



The total income is made up by three main parts: share of profit, turnover and share of other income. As it showed in chart 4.3, from the fiscal 2008 to 2012, the turnover takes up the biggest part of income, over 95% of the total income. The share of profit and share of other expense take up less than 1% of the total income. As it showed in table 4.5, in fiscal 2011, the share of profit and share of other income is ¥11,034 million in total. This is the largest number when compared with other fiscal years. In fiscal 2009 and fiscal 2010, there were even negative number of share of other income, respectively are ¥-38 million and ¥-5 million. As results, the annual development of total income is mainly because of the yearly development of turnover.



### 4.1.3 Analysis of cash flow statement

#### *Horizontal analysis*

In this part, it will use the horizontal analysis to analyze the cash flow statement of PetroChina. The cash flow can be divided by different activities, which include operating activities; investing activities and financing activities.

Table 4.6 Cash flow in different activities (2008—2012) unit: RMB million

	2008	2009	2010	2011	2012
Net CF from operating activities	177,140	268,017	318,796	290,155	239,288
Net CF used for investing activities	-216,472	-267,498	-299,302	-283,638	-332,226
Net CF from financing activities	3,777	53,077	-60,944	9,239	75,356
Total CF	-35,708	53,775	-41,216	15,436	-17,777

From the table 4.6, it can be found that, during fiscal 2008 to 2009, the net cash flow from operating activities of PetroChina increased from ¥177,140 million to ¥268,017 million, increased ¥90,877 million, or 51.30%, which was the biggest development during fiscal 2008 to 2012. Then it kept increased ¥50,778 million, or 18.95% during fiscal 2009 to 2010. However, during fiscal 2011 to 2012, it dropped ¥28,641 million. And it still dropped from ¥290,155 million to ¥239,288 million -17.53% growth during fiscal 2011 to 2012.

The net cash flow used for investing is relatively stable. During fiscal 2008 to 2009, the cash used for investing activities decreased ¥51,026 million or 23.57%, which was the biggest decreasing during fiscal 2008 to 2012. Then it kept decreasing ¥31,804 million, or 11.89% during fiscal 2009 to 2010. Then it increased from ¥-299,302 million to ¥-283,638 million during fiscal 2010 to 2011, increasing ¥15,664 million or 5.23%. During the fiscal 2011 to 2012, it increased from ¥283,638 million to ¥332,226 million, increased ¥48,588 million.

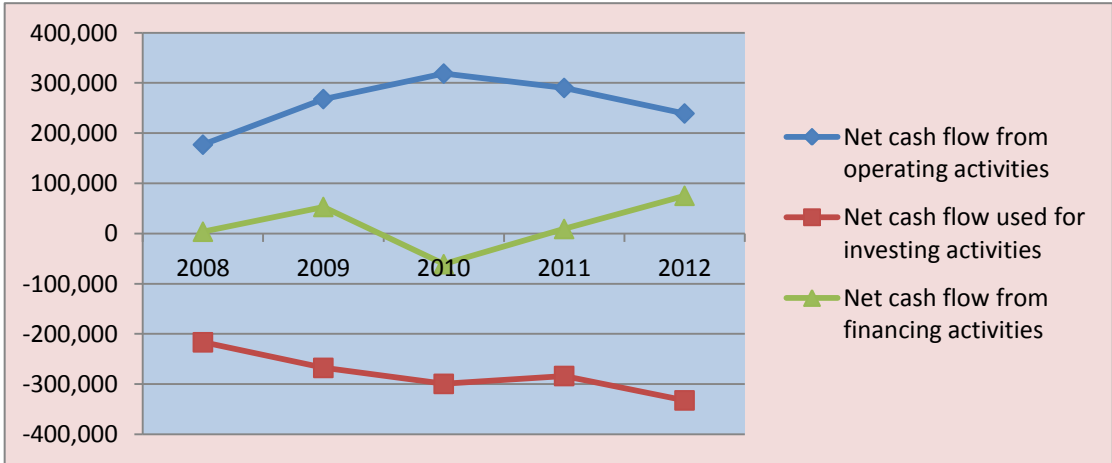
The net cash flow from financing activities has a relatively big fluctuation. It changed a lot every fiscal year. During fiscal 2008 to 2009, the number increased ¥49,300 million, or

1305%. However during fiscal 2009 to 2010, it decreased from ¥53,077 to ¥-60,944 million, dropped ¥114,021 million, or 215%, which was the biggest drop during fiscal 2008 to 2012. From fiscal 2010 to 2011, it increased ¥70,183 million or 115%. And during fiscal 2011 to 2012, it increased ¥66,027 million or 715%.

Table 4.7 Change of different activities (2008—2012) unit: RMB million

	2008-2009		2009-2010		2010-2011		2011-2012	
	Absolute Change	Relative change	Absolute change	Relative change	Absolute change	Relative change	Absolute change	Relative change
Operating Activities	90,877	51.30%	50,778	18.95%	-28,641	-8.98%	50,867	-17.53%
Investing activities	-51,026	-23.57%	-31,804	-11.89%	15,664	5.23%	-48,588	-17.13%
Financing activities	49,300	1305.2%	114,021	214.8%	70,183	115.2%	66,027	715.6%

Graph: 4.3 Change of different activities (2008-2012) unit: RMB million

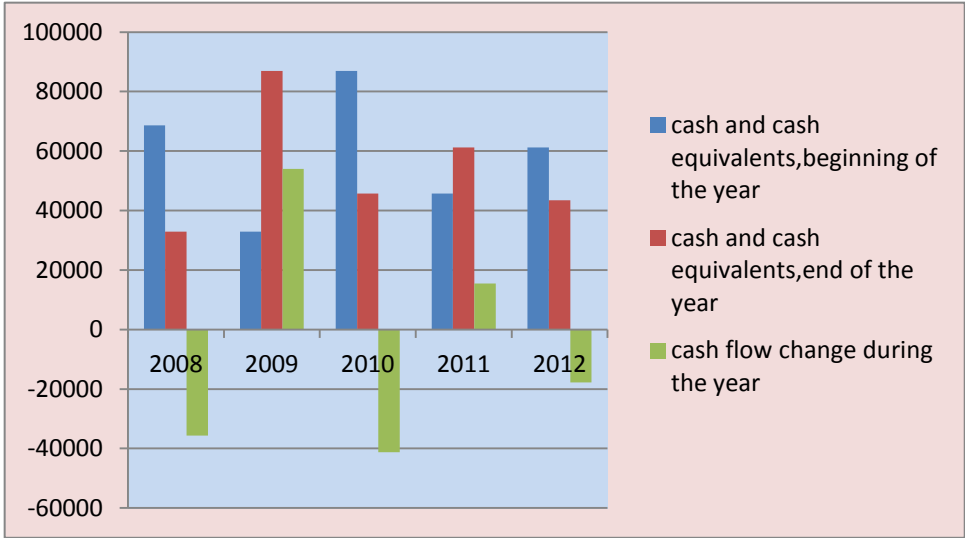


From the graph 4.3, the cash flow changes a lot every year, the fiscal 2008 and 2010 and 2012, there was a negative cash flow. And the fiscal 2009 and 2011, there was a positive cash

flow, which means the cash and cash equivalents at the end of the year was bigger than the beginning of the year.

From the horizontal analysis of the cash flow, the change of company’s liquidity conditions can be seen clearly.

Chart 4.4 Horizontal analysis of cash flow (2008—2012) unit: RMB million



*Structure analysis*

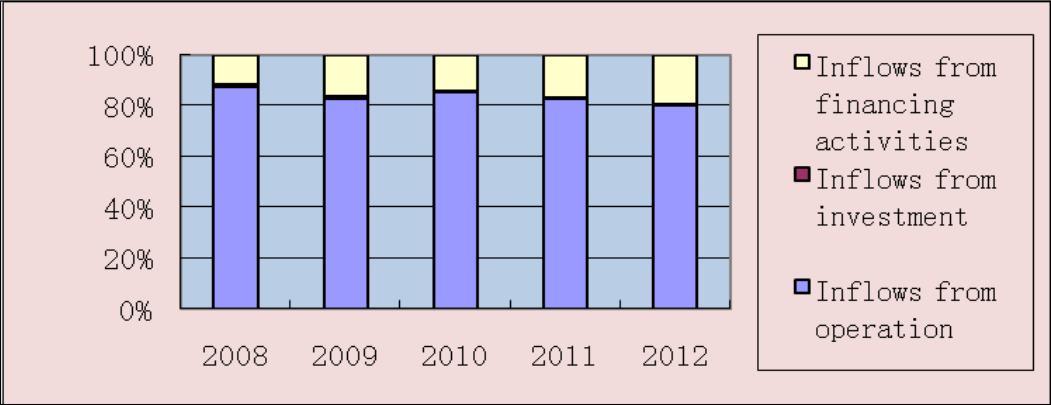
In this part, the cash flow is divided into inflows and outflows. It will use the structure analysis to see the relationship between each item with total inflows and outflow.

Table 4.8: Cash flow in different activities (2008-2012) unit: RMB million

	2008	2009	2010	2011	2012
Inflows from operation	1,277,939	1,195,878	1,705,200	2,342,486	2,563,886
Inflows from investment	18,252	18,196	12,146	14,977	24,945
Inflows from financing activities	166,158	232,952	276,437	473,837	609,341
Total inflows	1,462,349	1,447,026	1,993,783	2,831,300	3,198,172
Outflows from operation	1,101,136	927,861	1,386,404	2,052,331	2,324,598
Outflows from investment	234,512	285,694	311,448	298,615	357,171
Outflows from financing activities	192,297	179,875	337,381	464,724	533,985
Total outflows	1,527,945	1,393,430	2,035,233	2,815,670	3,215,754

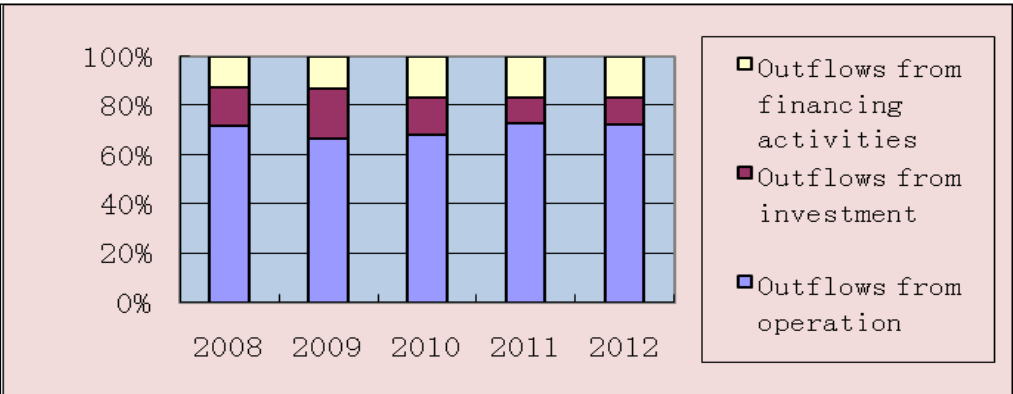
As it showed in table 4.8, the cash flow is divided into inflows and outflows. The item is divided by different activities, which includes operating activities, financing activities and investing activities.

Chart 4.5 Structure analyses of inflows (2008—2012)



From the chart 4.5, it can be seen that inflows from operation takes up over 80% of the inflows, it means the cash inflows mainly depends on operation activities. As the table 4.8 shows, in fiscal 2008, the inflows from operating is ¥1,277,939 million of the total inflows ¥1,462,349 million. The inflows from financing activities take up over 10% of the cash inflows. And inflows from investment only take up about 2% of the cash inflows. The total inflows which showed in table 4.8, is mainly rely on the inflows from operating.

Chart 4.6 Structure analyses of outflows (2008—2012)



From the chart 4.6, it can also be seen that outflows from operation takes up the biggest part, which takes up about 70% of the cash outflows. For example, as the table 4.5, the

outflows from operating in fiscal 2009 are ¥1,101,136 million of the total outflows ¥1,527,945 million. The outflows from investment take up about 10% of the cash outflows, which is almost the same with percentage of outflows from financing activities. Just the same with total inflows, the total outflows which can be seen from table 4.5, is mainly depends on the outflows from operating.

## **4.2 Analysis of key financial ratios**

### *Profitability analysis.*

Profitability is the net result of a number of policies and decisions. Profitability ratios are used to indicate a company's overall efficiency and performance.

The profitability analysis includes two types, margins and returns. The margins are used to imply company's ability to convert sales money into profits at various stages of measurement. The returns are used to measure the overall efficiency of the firm in generating returns for its shareholders. The margins include operating profit margin, net profit margin and tax profit margin. The returns include return on investment ratios, return on assets and return on equity.

Operating profit margin measures operating income divide to total revenue, it usually used to indicate company's pricing strategy and operating efficiency. A higher margin means a better condition.

From the table 3.2, it can be seen the operating profit margin of PetroChina is much higher than Sinopec, which implies a better financial condition of PetroChina compared with Sinopec during fiscal 2008 to 2012. The operating profit margin of PetroChina declined year by year, from 14.88% to 7.94%, because the operating income increases much slower and even negative increased during fiscal 2011 to 2012. However, the total revenue keeps increasing with a faster rapid.

Net profit margin is calculated by net income divided by revenues. The higher margin implies the company has a better control over its cost. When increasing the earning only is not enough to increasing the net profit margin, the company should control the costs as well. Only the sales increased at a greater rate than costs, will the margin be higher.

Table 3.2: Operating profit margin (2008-2012) unit: RMB million

	2012	2011	2010	2009	2008
Operating income	174,519	182,461	187,777	143,444	159,571
Total revenue	2,195,296	2,003,843	1,465,415	1,019,275	1,072,604
Operating profit margin %	7.94	9.11	12.81	14.07	14.88
Sinopec %	3.16	4.03	5.30	5.96	-1.80

Net profit margin is calculated by net income divided by revenues. The higher margin implies the company has a better control over its cost. When increasing the earning only is not enough to increasing the net profit margin, the company should control the costs as well. Only the sales increased at a greater rate than costs, will the margin be higher.

Table 3.3: Net profit margin (2008-2012) unit: RMB million

	2012	2011	2010	2009	2008
Net income	130,578	140,553	153,588	103,212	123,853
Total revenue	2,195,296	2,003,843	1,465,415	1,019,275	1,072,604
Net profit margin %	5.95	7.01	10.48	10.13	11.55
Sinopec %	2.38	3.07	4.02	4.76	1.80

From the table 3.3, it can be seen that the net profit margin of PetroChina is higher than Sinopec, which indicates the PetroChina has a better control over its cost than Sinopec. The net profit margin of PetroChina is relatively stable during 2008 to 2010, and has the same margin from 2009 to 2010, due to the same change rapid of net income and total revenue. However, the net income has a negative growth during fiscal 2010 to 2012, from ¥153,588

million to ¥130,578 million, and the total revenue keep increasing from ¥1,456,415 million to ¥2,195,296 million. As a result, the margin keeps decreasing from 10.48% to 5.95%.

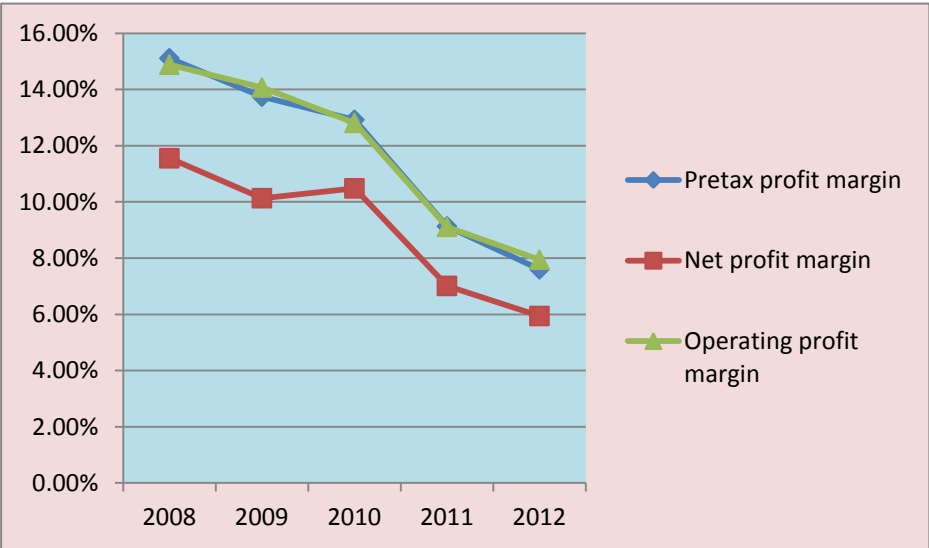
Pretax profit is used to measure the percentage of earnings before tax take up of total revenues. The higher pretax profit margin implies more profitable of the company.

Table 3.4: Pretax profit (2008-2012) unit: RMB million

	2012	2011	2010	2009	2008
Earnings before tax	166,811	184,215	189,305	140,032	162,031
Revenue	2,195,296	2,003,843	1,465,415	1,019,275	1,072,604
Pretax profit margin %	7.60	9.13	12.92	13.74	15.11
Sinopec %	3.16	4.03	5.30	5.96	-1.80

As it seen from the table 3.4, the pretax profit of PetroChina is much higher than Sinopec during fiscal 2008 to 2012, which also indicates more profitable of PetroChina. However it can also be seen that the pretax profit margin decreased year by year, from 15.11% to 7.60%, just as the other three margins. The main reason is that the negative increasing of earning before tax, except a slightly growth of fiscal 2009 to 2010. And the faster growth of total revenue as mentioned before.

Graph 3.1: Change of profitability ratio



It can be seen from the graph 3.1; the margin of PetroChina has the same change trend during fiscal 2008 to 2012. The number of pretax profit margins roughly the same with operating profit margin. It can also be seen that the margins keep decreasing except fiscal 2009.

The other type of profitability analysis is return. Firstly, it is the return on capital. The ROC can imply how well the company use capital to general return. It is especially useful for companies which invest lots of capital, such as PetroChina.

From the table 3.5, we can see the ratio of PetroChina decreased from 13.31% to 9.72% during fiscal 2008 to 2009, due to the decrease of net income, which from ¥123,853 million to ¥103,212 million. Then the ratio improved from 9.72% to 12.52% during fiscal 2009 to 2010, but then it kept decreasing from 12.52% to 8.19% during fiscal 2010 to 2012, because the net income keep decreasing from ¥153,588 million to ¥130,578 million and total capital keep increasing from ¥1,226,632 million to ¥1,594,089 million.

Table 3.5: Return on capital (2008-2012) unit: RMB million

	2012	2011	2010	2009	2008
Net income	130,578	140,553	153,588	103,212	123,853
Total capital	1,594,089	1,357,490	1,226,632	1,062,189	930,564
Return on capital %	8.19	10.35	12.52	9.72	13.31
Sinopec %	7.32	8.65	10.25	7.15	6.21

Return on assets is used to calculate dividing a company’s annual earning by its total assets. It implies how efficient the company is in using its assets to generate earning. The ROA for public companies can vary substantially and be highly dependent on the industry.

From the table 3.6, it can be seen that from the fiscal 2008 to 2012, the ROA of PetroChina is higher or equal with Sinopec, which implies the PetroChina is more efficient in using its asset to general earning. And the trend of ROA of PetroChina is similar with Sinopec.



It can also be seen that from fiscal 2008 to 2012 the ROA is decreasing from 10.35% to 6.02%, due to the slower and negative growth of net income. But the total assets are keeping increasing with faster rapid, which from ¥1,196,235 million to ¥2,168,896 million.

Table 3.6: Return on assets (2008-2012) unit: RMB million

	2012	2011	2010	2009	2008
Net income	130,578	140,553	153,588	103,212	123,853
Total assets	2,168,896	1,917,586	1,656,487	1,450,288	1,196,235
Return on assets	6.02	7.33	9.27	7.12	10.35
Sinopec	5.32	6.80	7.80	7.39	3.47

Return on equity is used to measure how much profit the company generate with the money shareholders have invested. It is a useful tool for comparing the profitability of the company to others in the same industry. Higher growth companies usually have a higher ROE.

From the table 3.7, it can be seen that the ROE of PetroChina is higher than Sinopec in fiscal 2008, but then it is a little lower than Sinopec, which shows except fiscal 2008, the PetroChina has a lower growth than Sinopec.

Table 3.7: Return on equity (2008-2012) unit: RMB million

	2012	2011	2010	2009	2008
Net income	130,578	140,553	153,588	103,212	123,853
Total equity	1,180,748	1,082,546	1,010,129	907,701	847,840
Return on equity %	11.06	12.98	15.20	11.37	14.61
ROE of Sinopec %	12.80	15.93	17.43	17.25	9.24

The ROE of PetroChina improved from fiscal 2009 to 2010, from 11.37% to 15.20%, due to the faster growth of net income from ¥103,212 million to ¥153,588 million and slower growth of total equity. But then, the net income keep decreasing from ¥153,588 million to

¥130,578 million, but the total equity keep increasing, as a result, the ROE decrease from 15.20% to 11.06%

Graph 3.2: Change of profitability ratio



From the graph 3.2, it can be seen, the return on asset is lower than return on equity, because the total equity is lower than total asset. The return ratios of PetroChina in 2012 are lower than 2008's, which is not a good trend. The lower ratios imply a worse position of PetroChina.

### *Activity analysis*

Activity ratio is used to measure how well the assets are used and evaluate how well the company does in putting its investment to use. This section includes Turnover and Operating cycles.

Inventory turnover shows that over a period, how many times a company inventory is sold and replaced. The lower turnover usually implies worse sales and excess inventory. So a lower turnover is usually a worse sign. If the turnover is high, it usually implies either strong sales or ineffective buying. As usual, companies that sale perishable items have higher

turnover. The inventories can be found in balance sheet and the cost of goods sold can be found in income statement.

From the table 3.8, it can be seen that the inventory turnover of PetroChina is lower than the Sinopec, which indicates the PetroChina has a worse sales and excess inventory compared with Sinopec during fiscal 2008 to 2012. The inventory deteriorated from 2008 to 2009 because of the global financial crisis, and the average inventories increased from ¥90,790 million to ¥114,781 million, however, the cost of goods sold decreased from ¥683,677 million to ¥633,100 million. With the recovering of the economics, the turnover improved from 2009 to 2011 from 6.16 to 8.99. But it deteriorated significantly from 2011 to 2012 from 8.99 to 8.25, due to the relatively slower growth of cost of goods sold, from ¥1,425,284 million to ¥1,634,819 million and stable growth of inventories from ¥182,253 million to ¥214,117 million.

Table 3.8: Inventory turnover (2008-2012) unit: RMB million

	2012	2011	2010	2009	2008
Inventories	214,117	182,253	134,888	114,781	90,790
Turnover	2,195,296	2,003,843	1,465,415	1,019,275	1,072,604
Inventory turnover	8.25	8.99	7.77	6.16	7.63
Inventory turnover of Sinopec	11.25	11.63	10.31	8.75	12.56

Working capital turnover which can be calculated as formula 2.16 shows the company’s effectiveness in using its working capital to generate sales. The working capital is the current assets minus the current liabilities. Usually, when the working capital turnover ratio is higher, it means the better of the company in using short-term assets and liabilities to support sales. But if the turnover ratio is too high, it means the company’s capital is not enough to support its sales growth. Usually, the industry and particular circumstance of the business decide the right level of the working capital turnover.

Table 3.9: Working capital turnover (2008-2012) unit: RMB million

	2012	2011	2010	2009	2008
Current assets	414,332	382,711	286,392	294,383	224,946
Current liabilities	574,748	560,038	429,736	388,553	265,651
Working capital	-160,416	-177,327	-143,344	-94,170	-40,075
Total revenues	2,195,296	2,003,843	1,465,415	1,109,275	1,072,604
Working capital turnover	-13.65	-11.30	-10.22	-10.82	-26.76

From the table 3.9, it can be seen that the working capital turnover ratio was negative during 2008 to 2012 due to the negative working capital. Although the current assets has an increasing trend this fiscal five years, from ¥224,946 million to ¥414,332 million, but it still cannot cover the growth of the current liabilities which increase from ¥256,651 million to ¥574,748 million. The negative working capital shows that PetroChina has trouble in using short-term assets and liabilities to support sales and is not enough to support the exploration and development capital investment needed. The turnover ratio improved since the 2008 to 2010, from -26.76 to -10.22 it was a good symptom. Then it has a little decrease during fiscal 2010 to 2012, from -10.22 to -13.65.

Receivable turnover calculates the total revenue dividing by average receivable during a period. The receivables can be found in balance sheet. And receivable turnover measures the efficiency of a company in collecting its credit sales. It is usually compared with industry average, when the turnover is higher than the industry, it means its credit extension and accounts receivable collection is more efficient. It is useful for company's policy.

From the table 3.10, it can be seen that the receivable turnover of PetroChina is lower than Sinopec, which indicates that accounts receivables collection and credit extension of PetroChina is less efficient compared with Sinopec during this fiscal five years. But at the end of 2012, the turnover of this two companies are much closer. The turnover of PetroChina deteriorated from 2008 to 2010 from 60.90 to 39.72, due to the bad environment of international petroleum industry. The total revenue increase from ¥1,072,604 million to

¥1,465,415 million, but the account receivables has a more quickly growth, from ¥16,756 million to ¥45,005 million, almost three times growth. Then it improved from 2010 to 2011 from 39.72 to 40.55, due to the much bigger growth of total revenue, from ¥1,465,415 million to ¥2,003,843 million. But then it deteriorated from 2011 to 2012 from 40.55 to 37.06, because of the slower growth of total revenue.

Table 3.10: Receivable turnover (2008-2012) unit: RMB million

	2012	2011	2010	2009	2008
Revenue	2,195,296	2,003,843	1,465,415	1,019,275	1,072,604
Account receivables	64,650	53,822	45,005	28,785	16,756
Receivables turnover	37.06	40.55	39.72	44.76	60.90
Sinopec	39.77	49.22	54.91	67.96	80.82

Total assets turnover shows how efficiency the company using its assets, which can be calculated as the formula 2.15. Usually, the higher total assets turnover means the company generates more revenue per unit assets. The total assets turnover is often used to compare between two companies in the same industry.

Table 3.11: Total assets turnover (2008 --2012) unit: RMB million

	2012	2011	2010	2009	2008
Revenue	2,195,296	2,003,843	1,465,415	1,019,275	1,072,604
Total assets	2,168,896	1,917,586	1,656,287	1,450,288	1,196,235
Total assets turnover	1.07	1.12	0.94	0.77	0.98
Sinopec	2.34	2.37	2.07	1.66	1.97

From the table 3.11, it can be seen that the total assets turnover of PetroChina is much lower than Sinopec. The ratio of Sinopec is almost double of the PetroChina's during the fiscal 2008 to 2012. It shows that PetroChina generates less revenue per unit assets compared with Sinopec. The total assets turnover of PetroChina decreases from 0.98 to 0.77 during fiscal 2008 to 2009, due to the growth of total assets, and revenue is relatively stable. Then the ratio increases from 0.77 to 0.12 during fiscal 2009 to 2011, because of the faster growth

of revenue, which from ¥1,019,275 million to ¥2,003,843 million, about double growth. Then the ratio decreased during fiscal 2011 to 2012, from 1.12 to 1.07.

The number of days of receivables computed based on receivable turnover. The number of days of receivables is the length of time between a sale-when an account receivable is created-and the collection of account receivable in cash. The less of the days means a higher liquidity of the company.

From the table 3.12, we can see the number of days of receivables of PetroChina is shorter than Sinopec during this fiscal five years. It means the liquidity of PetroChina is higher and the management work has a higher efficiency than Sinopec. But it is getting much more closer, in the fiscal 2008, the numbers of days receivables of PetroChina is 6 while the Sinopec is 13, however, in the end of 2012, the number of days receivable of PetroChina is 10 while the Sinopec is only 11. And the days of receivables improved from 2008 to 2010, from 6 days to 9 days. During 2009 to 2012, the days were relatively stable with the average value of 9.

Table 3.12: Number of days of receivables (2008-2012) unit: RMB million

	2012	2011	2010	2009	2008
Account receivables	64,650	53,822	45,005	28,785	16,756
Revenue	2,195,296	2,003,843	1,465,415	1,019,275	1,072,604
Number of days receivables	10	9	9	8	6
Sinopec	11	12	15	20	13

*Liquidity analysis*

Liquidity is used to measure how quickly the company assets can be converted into cash. When the credit is lent or extended to a company for a short period, it is necessary to know whether the company will have enough cash to repay it. Besides, the figures of liquid assets are more reliable. As a result, it is important to measures liquidity. In this part, liquidity of PetroChina will be analyzed to see whether it has ability to manage its current assets as well

as debt. There are three ratios to measure liquidity: current ratio, quick ratio and cash ratio.

Current ratio according to the formula 2.17 is used to indicate the company’s ability to pay short-term obligations. The higher current ratio means the company is more capable to pay its obligations. If the ratio is under 1, it implies that the company is unable to pay off all the obligations. And the recommended ratio is between 1.5 and 2.5.

From the table 3.13, it can be seen that the current ratio of PetroChina as well as Sinopec are less than 1, it means their ability to pay off its short-term obligation is low. The petroleum industry business cycle is relatively long and the low inventory turnover is related to the low current ratio. However, PetroChina does have ability to pay off its debt because it has a good reputation which means it can borrow money from bank whenever it has shortage of money. The low current ratio shows the PetroChina has a radical operating strategy. But it will be better for PetroChina to increase its current ratio.

We can also see that the current ratio of PetroChina is lower than Sinopec in fiscal 2010 and 2011, but in the other fiscal years, it is higher than Sinopec. The current ratio of PetroChina deteriorated from 2008 to 2010, from 0.85 to 0.67, due to the faster growth of current liabilities from ¥265,651 million to ¥429,736 million, while current assets is relatively stable, from ¥224,946 million to ¥286,392 million. Then the ratio improved from 2010 to 2012, from 0.67 to 0.72. The current assets increased much faster during 2008 to 2012, from ¥224,946 million to ¥414,332 million. The current liabilities also keep increasing but much slower during 2008 to 2012, from ¥265,651 million to ¥574,748 million.

Table 3.13: Current ratio (2008-2012) unit: RMB million

	2012	2011	2010	2009	2008
Current assets	414,332	382,711	286,392	294,383	224,946
Current liabilities	574,748	560,038	429,736	388,553	264,337
Current ratio %	72.09	68.34	66.64	75.76	85.10
Sinopec	69.91	76.35	76.61	62.79	57.32

Quick ratio is used to measure company's ability to satisfy its short-term obligations with its most liquid assets. When calculating quick ratio, the current assets do not include inventories. So it will be more conservative than the current ratio. If the quick ratio is higher, it means the company's liquidity position is better. The recommended standard is between 1.0 and 1.5.

From the table 4.14, it can be seen that quick ratio of PetroChina is higher than Sinopec, which indicates that PetroChina's liquidity position is better than Sinopec. The quick ratio of PetroChina as well as Sinopec is much lower than recognized standards (1.0-1.5). There are two main reasons for the low ratio, firstly, as for the petroleum industry, the percentage of inventory take up of the current assets almost 40%. As the inventories subtracted, the quick ratio will obviously decline. Besides, affected by 2008 global financial crisis, the inventory increased, as a result, the quick ratio kept decreased.

The quick ratio of PetroChina deteriorated from fiscal 2008 to 2010, from 54.46% to 35.26%, the reason is that the total quick assets is relatively stable, from ¥134,156 million to ¥151,504 million, however, the current liabilities increased a lot, from ¥246,337 million to ¥429,736 million. The ratio is relatively stable during fiscal 2010 to 2012, which is from 36.26% to 34.84%.

The low quick ratio implies the structure of current assets was irrational in recent five years; the percentage of liquid assets take up in the current assets was relatively lower. The position of company's liquidity was not very well.

Table 4.14: Quick ratio (2008-2012) unit: RMB million

	2012	2011	2010	2009	2008
Inventories	214,117	182,253	134,888	114,781	90,790
Current assets	414,332	382,711	286,392	294,383	224,946
Total quick assets	200,215	200,458	151,504	179,602	134,156
Current liabilities	574,748	560,038	429,736	388,553	246,337
Quick ratio %	34.84	35.79	36.26	46.22	54.46
Sinopec %	26.65	28.94	28.53	15.81	20.43



Cash ratio is used to measure company’s ability to satisfy the current obligation with the cash and cash equivalents. There is no doubt that cash and cash equivalents are the most liquid assets of the company. As a result, the cash ratio is the most conservative ratios compared with the other liquidity ratios. When deciding how much debt, the cash ratio is very useful to creditors. And the recommended value is 0.2

From the table 3.15, it can be seen that the cash ratio of PetroChina is much higher than Sinopec, about twice as much. It indicates the PetroChina is better in satisfying the current obligation with cash and cash equivalent than Sinopec during this fiscal five years. But both of the companies’ cash ratios are lower than 0.2.

Table 3.15: Cash ratio (2008-2012) unit: RMB million

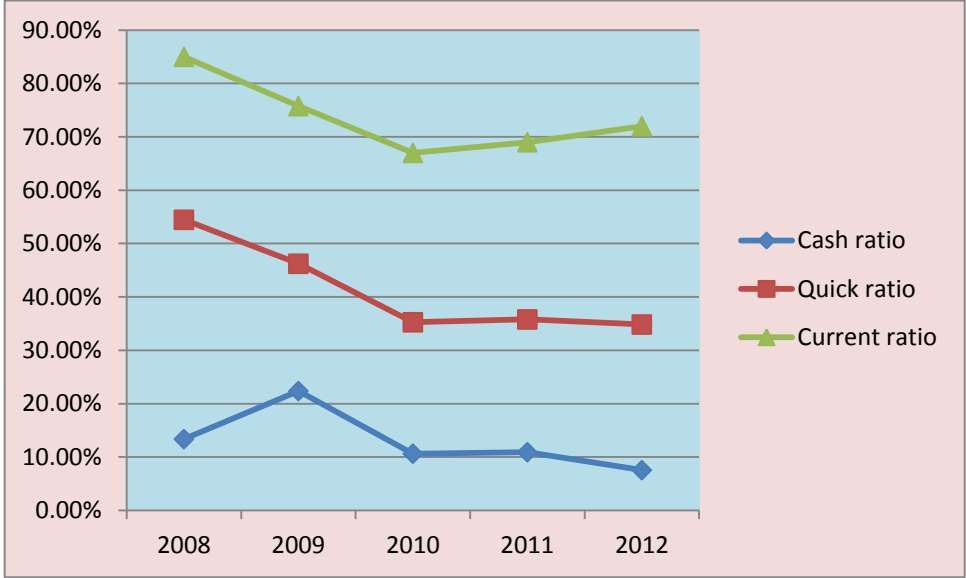
	2012	2011	2010	2009	2008
Cash and cash equivalents	43,395	61,172	45,709	86,925	32,944
Current liabilities	574,748	560,083	429,736	388,553	246,335
Cash ratio %	7.55	10.92	10.64	22.37	13.37
Cash ratio of Sinopec %	2.20	5.87	5.57	3.31	2.98

It can also be seen that the cash ratio of PetroChina improved from 2008 to 2009, due to the double growth of cash assets which is from ¥32,944 million to ¥86,925 million, And the current liabilities growth relatively slower from ¥246,335 million to ¥388,553 million. Then the ratio deteriorated from 2009 to 2012. Because of the lower increase of the cash assets and the faster increase of the current liabilities. The cash ratio was relatively stable during 2010 to 2012. The recognized standards of cash ratio are 20%. The cash ratio of PetroChina was lower than 20% except 2009. The 2008 and 2009 was in the reasonable range of changes. It indicates the PetroChina’s ability to repay the debt is strong. In total, compared to the Sinopec, which is also one of the biggest petroleum companies in China, the liquidity ratio of PetroChina is higher, and the ability to pay off the debt is higher.

From the graph 3.2, it can be seen that the change trend of three liquidity ratios are similar. We can conclude that cash ratio is the most conservative one, while the current ratio is the least conservative one. Besides, from the graph 3.1, it can also be seen that the PetroChina

had the best liquidity in 2008, and lowest liquidity in 2010 and it is relatively stable during 2010 to 2012. And in 2012, the liquidity is lower than 2008, which is not a good phenomenon.

Graph 3.3: Change of liquidity ratio



*Solvency analysis*

Solvency ratio measures the company’s ability to meet its long-term debt and the interest on the debt. Just as the same with liquidity, the solvency is also used to refer the company’s financial health. But it is not the same; the solvency shows the company’s ability to pay long-term assets while liquidity shows the company’s ability to meet short-term obligations and to sell assets quickly to convert to cash.

Solvency ratios are used to assess a company’s level of financial risk. There are two types of solvency ratios: component-percentage solvency ratios and coverage ratios. In general, we use component-percentage solvency to assess how reliant a company is on debt financing. Besides, we use coverage ratios to assess the company’s ability to meet the obligations that arise out of the debt financing, for examples, lease payments, principal repayment and interest.

Debt to assets ratio is used to measure the total debt divide to total assets. From the table 3.16, it can be seen that the debt to assets ratio of PetroChina is lower than Sinopec during this fiscal five years, which indicates PetroChina has lower risk than Sinopec. Both of the companies' debt to assets ratio keep increasing this fiscal five year, which implies the financial risk are improving year by year from fiscal 2008 to 2012. The Chinese economist believes the reasonable standard for PetroChina is 50%, and during fiscal 2008 to 2012, the debt to assets ratio of PetroChina is lower than 50%.

From the table 3.16, it can be seen the total assets of PetroChina are growing year by year as well as the total debt. However, the total debt growth faster than total assets, during fiscal 2008 to 2012, the total debt is from ¥348,396 million to ¥988,148 million, almost three times growth, and the total assets is from ¥1,196,235 million to ¥2,168,896 million, about double growth. As a result, the debt to assets ratio improved from 2008 to 2012, from 29.12% to 45.56%. And it is relatively stable from 2009 to 2010 and 2011 to 2012.

Table 3.16: Debt to assets ratio (2008-2012) unit: RMB million

	2012	2011	2010	2009	2008
Total assets	2,168,896	1,917,586	1,656,487	1,450,288	1,196,235
Total debt	988,148	835,040	646,358	542,587	348,395
Debt-to assets ratio %	45.56	43.55	39.02	37.41	29.12
Sinopec %	55.86	54.91	54.06	53.77	53.35

Long-term debt to assets ratio is used to measure the percentage of company's long-term debt to total assets. In general, long-term debt is over one year. From the table 3.8, it can be see, the long-term debt to assets ratio of PetroChina is lower than Sinopec except fiscal year 2012, which implies the PetroChina has higher liquidity and stronger solvency than Sinopec during fiscal 2008 to 2011.

As it can be seen from table 3.17, due to the fast growth of long-term debt, which from ¥82,744 million to ¥413,400 million, almost five times growth, and the growth of total asset is

much slower, only about double growth. The long term debt to assets of PetroChina approved from fiscal 2008 to 2012, from 6.92% to 19.06%. The growth of long term to assets ratio implies that PetroChina are more dependent on long-term debt during this fiscal five years.

Table 3.17: Long-term debt to assets (2008-2012) unit: RMB million

	2012	2011	2010	2009	2008
Long-term debt	413,400	275,002	216,622	154,034	82,744
Total assets	2,168,896	1,917,586	1,656,487	1,450,288	1,196,235
Long-term debt to assets %	19.06	14.34	13.08	10.62	6.92
Sinopec %	16.01	16.84	21.12	19.22	18.90

Debt to equity ratio is used to measure the company's total liabilities divide to shareholders' equity. The higher ratio usually means the company is more aggressive in financing its growth with debt. And capital-intensive industries usually have a high debt-to equity ratio than others.

Form the table 3.18, it can be seen that the debt to equity ratio of PetroChina is lower than Sinopec during this fiscal five years which implies the long-term financial position of PetroChina is better than Sinopec. And we can also see the ratio of PetroChina improved year by year, from 41.09% to 83.69%, due to the faster growth of total debt, which from ¥348,395 million to ¥988,148 million, almost three times growth. And the total shareholder's equity is relatively stable, growth from ¥847,840 million to ¥1,180,748 million.

Table 3.18: Debt to equity ratio (2008-2012) unit: RMB million

	2012	2011	2010	2009	2008
Total debt	988,148	835,040	646,358	542,587	348,395
Total shareholder's equity	1,180,748	1,082,546	1,010,129	907,701	847,840
Debt to equity ratio %	83.69%	77.14%	63.99%	59.78%	41.09%
Sinopec %	127.06%	122.11%	118.25%	116.30%	114.34%

Financial leverage is used to measure the total assets to total equity. From the table 3.19, we can find that the financial leverage is the sum of debt to equity ratio and 1, so this ratio has a same change trend as debt-to equity ratio. The growth of financial leverage of PetroChina, from 1.14 to 1.84, is mainly because the faster growth of total assets and slower growth of total shareholder's equity.

Table 3.19: Financial leverage (2008-2012) unit: RMB million

	2012	2011	2010	2009	2008
Total assets	2,168,896	1,917,586	1,656,487	1,450,288	1,196,235
Total shareholder's equity	1,180,748	1,082,546	1,010,129	907,701	847,840
Financial leverage	1.84	1.77	1.64	1.60	1.41
Sinopec	2.27	2.22	2.18	2.16	2.14

Just as the debt-to assets ratio, the financial leverage of PetroChina is lower than Sinopec during this fiscal five years, which also implies the lower risk and stronger solvency of the PetroChina.

Coverage ratio is the other type of solvency ratios. Interest-coverage ratio is used to measure the company's earnings before interest and taxes divide to interest payment. It can imply how easily a company can pay interest on outstanding debt. If the ratio is lower, it means the company is more burdened by debt expense. The recommend level is higher than 1.5.

From the table 3.20, it can be seen that the interest coverage ratio of both companies during this fiscal five years are higher than 1.5. Especially the interest coverage ratio of PetroChina is much higher than 1.5, it indicates the PetroChina has no problem in meeting interest expense and the financial health is good. But we can also see the ratio decreased a lot from fiscal 2008 to 2009, from 55.62 to 27.56, due to the growth of interest payment from ¥2,963 million to ¥5,272 million and the EBIT decrease from ¥164,976 million to ¥145,304 million. Then it has a little improve from 27.56 to 30.95. However, after fiscal 2010, it keeps

decreasing to 10.18. The interest coverage ratio of PetroChina in fiscal 2012 is much lower than fiscal 2008, which is not a good trend.

From the graph 3.5, it can be see that the financial leverage has a growth tendency and it is relatively stable during fiscal 2008 to 2012.

Graph 3.5: Change of financial leverage (2008—2012)

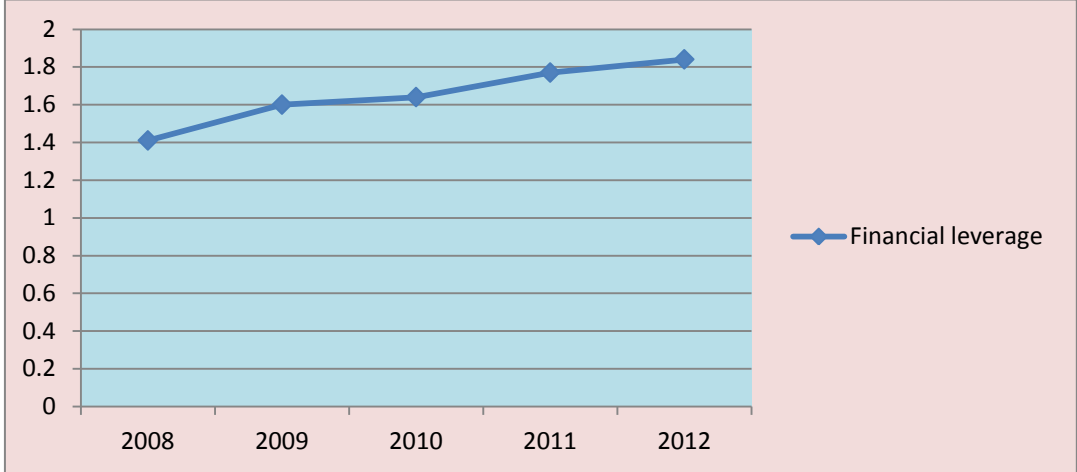


Table 3.20: Interest coverage ratio (2008-2012) unit: RMB million

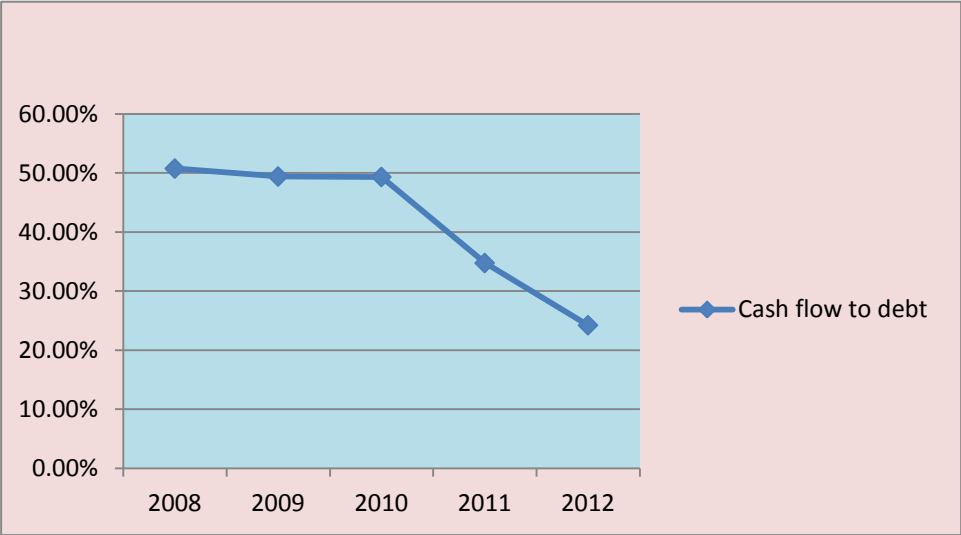
	2012	2011	2010	2009	2008
Interest payment	18,164	10,886	6,321	5,272	2,963
EBIT	184,975	195,101	195,626	145,304	164,976
Interest coverage ratio	10.18	19.92	30.95	27.56	55.62
Sinopec	10.18	16.68	15.92	12.41	3.72

Cash flow to debt ratio is used to measure the company’s operating cash flow to its total debt. It indicates the company’s ability to cover total debt with yearly cash flow from operations. The higher ratio means the better ability of the company to meet its total debt.

As it showed in table 3.21, the cash flow to debt ratio of PetroChina is higher than Sinopec, which implies a better ability of PetroChina to satisfy the total debt. The ratio was relatively stable from 2008 to 2010, from 0.51 to 0.49, due to the growth rapid of cash flow

from operating and total debt is similar. But then the ratio decreased during fiscal 2010 to 2012, from 0.49 to 0.24. Because the decreasing of cash flow from operation, from ¥318,796 million to ¥239,288 million. And the total debt is keep increasing during this period, from ¥646,358 million to 988,148 million.

Graph 3.6: Cash flow to debt (2008-2012)



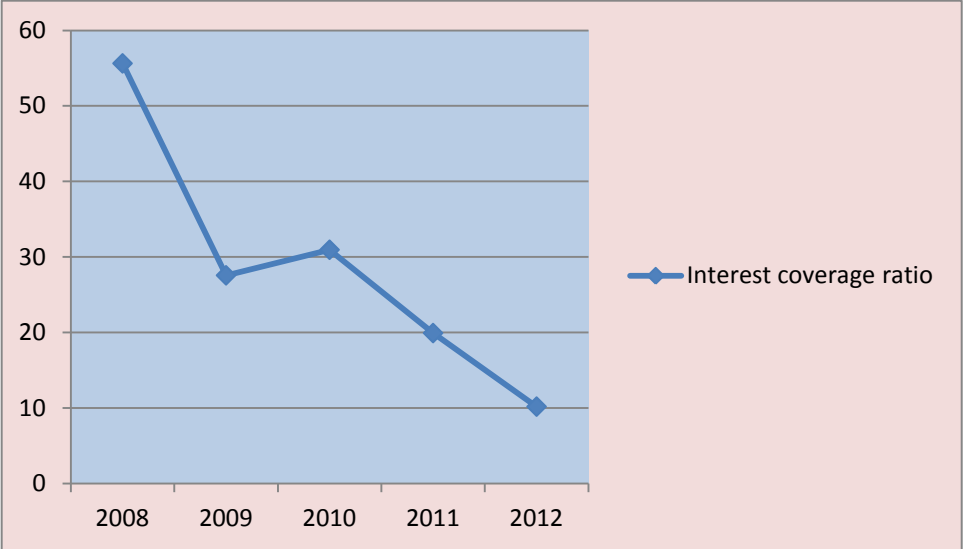
As it showed in graph 3.6, the cash flow to debt ratio decreasing rapidly from fiscal 2010 to 2012, and during fiscal 2008 to 2010, it is relatively stable. The lower ratio means the worse ability of meeting total debt.

Table 3.21: Cash to debt (2008-2012) unit: RMB million

	2012	2011	2010	2009	2008
Cash flow from operating	239,288	290,155	318,796	268,017	176,803
Total debt	988,148	835,040	646,358	542,587	348,395
Cash flow to debt %	24.22	34.75	49.32	49.40	50.75
Cash flow to debt of Sinopec %	21.02	23.98	32.07	34.25	19.26

From the graph 3.6, it can be see that the decreased a lot during fiscal 2008 to 2012, especially from fiscal 2008 to 2009. In fiscal 2009, it has a slightly growth, but then it keep decreasing during fiscal 2010 to 2012.

Graph 3.6: Change of interest coverage ratio



### 4.3 Decompositions of ROE

When use the ratio analysis, sometimes it will miss the forest for all the trees. The company may also need a framework to tie together the company's profitability, its use of debt, its efficiency of using assets. In this case, the Du Pont equation is needed, which breaks ROE into three parts. Profit margin is net income divided by sales. Total assets turnover, known as sales divided by total assets. Equity multiplier is total assets divided by common equity.

These three parts can also indicate company operation. Profit margin Measure Company's profitability, which shows company's ability to generate profit and control cost. Total assets turnover Measures Company's operating efficiency, which shows the company's ability of using total assets to generate sales revenue. Equity multiplier measures company's financial leverage, which shows how much the company is relying on debt.

From the formula 2.30 and 2.31, it can be realized that profit margin and total assets turnover can be affected by price of the product, the amount of sales, and the cost per unit and



so on. Also, the equity multiplier can be affected by ratio of debt or equity of the company. Thus, after a good analysis of the relationship between various ratios of the company, the company will be more effective in investing and getting highest return on given risk.

Besides, as the formula 2.30 and 2.31 show, from analysis decomposition of ROE, it can be know how well the company is in managing assets and debt. And it can also be easily seen that the improvement of ROE can be done by improving profit margin, total assets turnover and or change the equity multiplier.

From the table 4.31, the ROE of PetroChina during fiscal 2008 to 2012 can be seen. In the fiscal 2008, the ROE is 0.14. Then it decreased 0.02 to 0.12 in fiscal 2009, and increased 0.03 to 0.15 in fiscal 2010. Then it keeps decreasing 0.02 since 2010 to 2012. And the ROE is 0.11 in the fiscal 2012. The highest ROE of PetroChina is 2010 and the lowest is 2012.

Table 4.31 ROE of PetroChina (2008 – 2012)

	2008	2009	2010	2011	2012
ROE %	14.7	11.5	14.4	12.9	11.2
Absolute change %	0	-3.2	2.9	-1.5	-1.7
Index of change	0	0.782	1.252	0.896	0.868

There are two methods to analyze: method of gradual change, which enable to quantify the change in the basic ratio caused by change in the component ratio. Logarithmic decomposition method just needs one formula for the impact quantification, regardless of how many component it has.

**Logarithmic method**

2008 vs. 2009

It can be seen from table 3.36, the ROE of PetroChina decreased during fiscal 2008 to 2009, the profit margin decreased -2.37% from 0.12 to 0.10. The total assets turnover in fiscal 2008 is 0.87, then decreased 2.46% to 0.72. Only financial leverage increase 1.65%, from

1.41 to 1.60. It can also be seen that the total assets turnover of -2.45% has the biggest influence on total change of -3.2%.

Table 3.32: Logarithmic method on 2008 to 2009

	a2008	a2009	Ia	$\Delta X_{ai}$
a1=EAT/REV	0.12	0.10	0.833	-2.37%
a2=REV/Assets	0.87	0.72	0.828	-2.45%
a3=Assets/Equity	1.41	1.60	1.135	1.65%
Sum	×	×	×	-3.2%

2009 vs. 2010

As it seen from table 3.37, the ROE increased during fiscal 2009 to 2010, the profit margin has no change. The total assets turnover increase 2.56% from 0.72 to 0.88, which has the biggest influence on total change. And financial leverage also increased 0.38%

Table 3.33: Logarithmic method on 2009 to 2010

	a2009	a2010	Ia	$\Delta X_{ai}$
a1=EAT/REV	0.10	0.10	1	0
a2=REV/Assets	0.72	0.88	1.22	2.56%
a3=Assets/Equity	1.60	1.64	1.03	0.38%
Sum	×	×	×	2.9%

2010 vs. 2011

During fiscal 2010 to 2011, the ROE decreased 1.5%. The factor profit margin decreased 5% from 0.10 to 0.07, which has the biggest influence on total change. The total assets turnover increased 2.33%, from 0.88 to 1.04. And the financial leverage also increased 1.09%

Table 3.34: Logarithmic method on 2010 to 2011

	a2010	a2011	Ia	$\Delta X_{ai}$
a1=EAT/REV	0.10	0.07	0.700	-5.00%
a2=REV/Assets	0.88	1.04	1.181	2.33%
a3=Assets/Equity	1.64	1.77	1.079	1.09%
Sum	×	×	×	-1.5%

2011 vs. 2012

From the table 3.39, it can be found that the ROE decreased 1.7%. The decrease of profit margin -1.84% from 0.07 to 0.06 contributes most to the total change of -1.7. The total assets turnover also decreased 0.34%. Only financial leverage increase 0.38%, from 1.77 to 1.84.

Table 3.35: Logarithmic method on 2011 to 2012

	a2011	a2012	Ia	$\Delta X_{ai}$
a1=EAT/REV	0.07	0.06	0.857	-1.84%
a2=REV/Assets	1.04	1.01	0.971	-0.34%
a3=Assets/Equity	1.77	1.84	1.03	0.38%
Sum	×	×	×	-1.7%

Table 3.41: The level of influence factor

	2008-2009	2009-2010	2010-2011	2011-2012
	LM	LM	LM	LM
a1=EAT/Rev	2	3	1	1
a2=Rev/Assets	1	1	3	2
a3=Assets/Equity	3	2	2	3

As it can be seen from the table 3.41, from fiscal 2010 to 2012, the profit margin is the

highest level influence factor. Owing to no change of profit margin from fiscal 2009 to 2010, it has the lowest level. And during fiscal 2008 to 2009, both of the profit margin and total

Assets turnover have the big influence on total change. And it obviously that financial leverage is the lowest level of influent factor during fiscal 2008 to 2009 and fiscal 2011 to 2012. And from fiscal 2009 to 2010 and fiscal 2010 to 2011, it is in the second place. As for the total assets turnover, it has highest level during fiscal 2008 to 2010, and the second place during fiscal 2011 to 2012, and lowest level from fiscal 2010 to 2011.

#### 4.4 Evaluation of results

According to the financial analysis of the PetroChina, there are some recommend and conclusions.

At first, the profitability ratios of PetroChina are pretty good during fiscal 2008 to 2012, which indicate the PetroChina has a good efficiency and performance this fiscal five years. And compared with Sinopec, the margins are much higher; it shows that at various stages of measurement the PetroChina is more able to convert sales money into profit. And returns of PetroChina do not have much difference with Sinopec. The worst ratios of PetroChina are in fiscal 2009, mainly because of the global economic crisis. After that, the PetroChina has a good performance in fiscal 2010. But during fiscal 2010 to 2012, there is a slightly decrease of profitability ratios. The company has to make efforts to improve its efficiency and profitability change this downward trend and keep the lead position in petroleum industry of china.

Besides, the majority ratios of activities ratios keep decreasing during fiscal 2008 to 2012. The lower turnover shows the worse sales and excess inventory of the company.

Both of the liquidity ratios and solvency ratios are have the downward trend during fiscal 2008 to 2012. The best position is in fiscal 2008, before the global economic crisis, which shows the effect of crisis has not totally disappeared for PetroChina. As results, in order to improve the financial condition, the PetroChina has a lot of work to do to make a better use of its investment, to improve the ability of meeting its short-term and long-term obligations.

At last, this chapter makes a clear financial analysis during fiscal 2008 to 2012. It points out how well the company's performance and financial condition. And which aspects should the company be cautious about. Generally speaking, the company has recovered from big recession but still has much to do to make a better growth. There should still be a good prospect in future.

## 5 Conclusion

After the description and financial analysis of PetroChina, it can be concluded as follows.

As first, the PetroChina limited is one of the largest companies in China. It is also the largest procedure and distributor in oil and gas industry of China. The company evolves much business of oil and natural gas. Meanwhile, it keeps developing some more business activities. During fiscal 2008 to 2012, the company kept increasing the sale of crude oil and natural gas to gain more profit. In next five year, the company intends to expand the overseas market and increasing international cooperation. Besides the economical target, the company spares no efforts to be an environmentally friendly company.

In addition, as for financial performance, generally speaking, the PetroChina limited has a good efficiency and performance during fiscal 2008 to 2012. According to the fact that the profitability ratios of the company has a good result and the ratios are higher than Sinopec's. On the other hand, the downward trend of liquidity and solvency ratios show that the company's ability of meeting short-term and long-term obligation is going weaker. Also the majority ratios of activities ratios have a downward trend. The company should pay attention to it.

After the description and financial analysis of PetroChina, it can be seen clearly how well the company acts during fiscal 2008 to 2012. Although the company was affected by the global crisis, but as the chapter 4 shows, the company has recovered step by step from the big recession. Besides, as it known by chapter 3, the company has a two-step plan of "build a strong competitive international energy companies". Also the company has excellent development strategies for future development. As a result, it can be say the future of the PetroChina limited is blight.

## Bibliography

### *Professional Books:*

1. Richard A. BREALEY and Stewart C. MYERS: *Principles of corporate finance*. 5<sup>th</sup> edition. New York: McGraw-hill, 1996. 998 p. ISBN 0-078-007417-8
2. Michelle R. CLAYMAN , Martin S. FRIDSON and George H. TROUGHTON. *Corporate finance, a practical approach*. 1<sup>st</sup> edition. Publisher: John Willey, 2008, 451 p. ISBN 987-470-19768-4
3. OPMISTON, Aileen M. And Lyn M. FRASER. *Understanding financial statements*. 9<sup>th</sup> edition. New York: Prentice Hall, 2009.288 p. ISBN 978-0136086246
4. ZAPPE, Christopher S., ALBRIGHT Christian and Wayne WINSTON.*Data Analysis and Decision Making*. 4<sup>th</sup> edition. New York: South-Western College Pub,2010.1061 p. ISBN 978-0538476126

### *Electronic Resource:*

5. Annual Reports of PetroChina Limited. Available on official website  
[http://www.petrochina.com.cn/Ptr/Investor\\_Relations/Periodic\\_Reports/Annual\\_Report/?CO\\_LLCC=1560583704&](http://www.petrochina.com.cn/Ptr/Investor_Relations/Periodic_Reports/Annual_Report/?CO_LLCC=1560583704&)
6. Financial ratio tutorial. Available on  
<http://www.investopedia.com/university/ratios/>

## **List of Abbreviations**

TCA	Total current assets
TNCA	Non-current assets
TA	Total assets
TCL	Total current liabilities
TNCL	Total non- current liabilities
TL	Total liabilities
TE	Total equity
TLE	Total liabilities and equity
TR	Turnover
PFO	Profit from operations
TNFC	Total net finance cost
PBIT	Profit before income tax expense
ITE	Income tax expenses
PRY	Profit
OE	Other expenses



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## **Annexes**

Annex 1	Income statement
Annex 2	balance sheets
Annex 3	Cash flows

**Annex 1: Income statement (All amounts in RMB millions unless otherwise stated) (1/1)**

	2012	2011	2010	2009	2008
Turnover	2,195,296	2,003,843	1,465,415	1,019,275	1,072,604
Operating expenses					
Purchases, services and other	(1,411,036)	(1,227,533)	(795,525)	(492,472)	(562,851)
Employee compensation costs	(106,189)	(97,162)	(83,304)	(65,977)	(62,167)
Exploration expenses, including exploratory dry holes	(23,972)	(23,908)	(22,963)	(19,398)	(21,879)
Depreciation, depletion and amortization	(151,975)	(138,073)	(113,209)	(92,259)	(94,759)
Selling, general and administrative expenses	(74,692)	(69,969)	(74,239)	(65,423)	(59,617)
Taxes other than income taxes	(254,921)	(266,343)	(184,209)	(135,465)	(124,132)
Other income, net	2,008	1,606	(4,189)	(4,837)	12,372
Total operating expenses	(2,020,777)	(1,821,382)	(1,277,638)	(875,831)	(913,033)
Profit from operations	174,519	182,461	187,777	143,444	159,571
Exchange gain	3,339	2,662	1,685	552	1,774
Exchange loss	(3,208)	(3,598)	(2,857)	(1,335)	(2,855)
Interest income	2,063	2,674	1,983	1,459	2,277
Interest expense	(18,164)	(10,886)	(6,321)	(5,272)	(3,044)
Total net finance costs	(15,970)	(9,148)	(5,510)	(4,596)	(1,848)
Share of profit of associates and jointly controlled entities	8,262	10,902	7,038	1,184	4,290
Profit before income tax expenses	166,811	184,215	189,305	140,032	162,013
Income tax expense	(36,191)	(38,256)	(38,513)	(33,473)	(35,211)
Profit for the year	130,620	145,959	150,792	106,559	126,802
Currency translation differences	(151)	(5,408)	2,687	(3,500)	(2,676)
Fair value loss from available-for-sale financial assets, net of tax	(18)	(130)	114	191	(340)
Other comprehensive loss, net of tax	(42)	(5,406)	2,796	(3,347)	(2,949)
Total comprehensive income for the year	130,578	140,553	153,588	103,212	123,853
Profit for the year attributable to:					

**Annex 1: Income statement (All amounts in RMB millions unless otherwise stated) (1/2)**

Owners of the company	115,326	132,961	139,992	103,387	114,453
Non-controlling interests	15,294	12,998	10,800	3,172	12,349
	130,620	145,959	150,792	106,559	126,802
Total comprehensive income for the year attributable to:					
Owners of the company	115,340	129,055	143,186	102,067	113,044
Non-controlling interests	15,238	11,498	10,402	1,145	10,809
	130,578	140,553	153,588	103,212	123,853

**Annex 2 Balance sheet (All amounts in RMB millions unless otherwise stated)**

	2012	2011	2010	2009	2008
Non-current assets	1,569,888	1,372,007	1,238,599	1,075,467	900,424
property, plant and equipment					
Investments in associates and jointly controlled entities	80,042	70,739	64,137	28,223	28,850
Available-for-sale financial assets	1,800	1,832	1,979	2,343	2,034
Advance operating lease payments	56,162	48,229	36,155	30,236	26,280
Intangible and other assets	41,521	38,854	25,453	18,017	10,694
Total non-current assets	1,754,564	1,534,875	1,370,095	1,155,905	971,289
Current assets					
inventories	214,117	182,253	134,888	114,781	90,685
Accounts receivable	64,450	53,822	45,005	28,785	16,810
Prepaid expenses and other current assets	79,539	72,358	51,822	59,595	69,557
Notes receivable	9,981	12,688	5,955	4,268	4,319
Cash and cash equivalents	43,395	61,172	45,709	86,925	33,150
Total current assets	414,332	382,711	286,392	294,383	224,946
Current liabilities					
accounts payable and accrued liabilities	351,456	302,600	270,191	204,739	156,780
Income taxes payable	12,708	18,310	22,169	9,721	1,271
Other taxes payable	59,337	101,430	35,108	25,242	13,930
Short-term borrowings	151,247	137,698	102,268	148,851	93,670
Total current liabilities	574,748	560,038	429,736	388,553	265,651
Net current liabilities	-160,416	-177,327	(143,344)	(94,170)	(40,705)
Total assets less current liabilities	1,594,148	1,357,548	1,226,751	1,061,735	930,584
Equity					
Equity attributable to owners of the company: share capital	183,021	183,021	183,021	183,021	183,021
Retained earnings	603,808	556,717	499,288	424,067	378,473
Reserves	277,181	263,007	256,617	240,135	229,416
Total equity attributable to owners of the company	1,064,010	1,002,745	938,926	847,223	790,910
Non-controlling interest	116,738	79,801	71,203	60,478	56,930
Total equity	1,180,748	1,082,546	1,010,129	907,701	847,840
Non-current liabilities					
long-term borrowings	293,774	180,675	131,352	85,471	32,852
Asset retirement obligations	83,926	68,702	60,364	44,747	36,262
Deferred tax liabilities	22,286	20,749	21,515	21,449	12,466
Other long-term obligations	13,412	4836	3,391	2,367	1,164
Total non-current liabilities	413,400	275,002	216,622	154,034	82,744
Total equity and non-current liabilities	1,594,148	1,357,548	1,226,751	1,061,735	930,584

**Annex 3: Cash flow (All amounts in RMB millions unless otherwise stated) (3/1)**

	2012	2011	2010	2009	2008
Cash flows from operating activities					
Cash received from sales of goods and rendering Of services	2,552,815	2,332,019	1,699,461	1,190,291	1,255,128
Refund of taxes and levies	3,966	3,974	616	2,212	14,270
Cash received relating to other operating activities	7,105	6,493	5,123	3,375	10,237
Sub-total of cash inflows	2,563,886	2,342,486	1,705,200	1,195,878	1,279,635
Cash paid for goods and services	-1,704,242	-1,529,811	-957,898	-603,992	-725,616
Cash paid to and on behalf of employees	-108,031	-96,866	-82,737	-67,310	-67,389
Payments of taxes and levies	-433,420	-345,082	-270,819	-191,803	-255,722
Cash paid relating to other operating activities	-78,905	-80,572	-74,950	-64,756	-53,768
Sub-total of cash outflows	-2,324,598	-2,052,331	-1,386,404	-927,861	-1,102,495
Net cash flows from operating activities	239,288	290,155	318,796	268,017	177,140
Cash flows from investing activities					
Cash received from disposal of investments	15,392	4,082	2,294	11,909	11,323
Deregistration of wholly owned subsidiaries to					
Cash received from returns on investments	8,946	10,058	9,003	2,208	6,460
Sub-total of cash inflows	24,945	14,977	12,146	18,196	18,256
Cash paid to acquire fixed assets, oil and gas					
Properties, intangible assets and other long-term assets	-330,861	-288,457	-272,292	-267,112	-224,194
Cash paid to acquire investments	-26,310	-10,158	-39,156	-18,582	-10,534
Sub-total of cash outflows	-357,171	-298,615	-311,448	-285,694	-234,728
Net cash flows from investing activities	-332,226	-283,638	-299,302	-267,498	-216,472
Cash flows from financing activities					
Cash received from capital contributions	31,366	2,522	5,118	7,098	8,788
Including: cash received from minority					

**Annex 3: Cash flow (All amounts in RMB millions unless otherwise stated) (3/2)**

Shareholders' capital contributions to subsidiaries	31,366	2,522	5,118	7,098	8,788
Cash received from borrowings	575,558	471,072	271,022	225,456	157,916
Cash received relating to other financing activities	2,417	389	297	398	158
Sub-total of cash inflows	609,341	473,983	276,437	232,952	166,862
Cash repayments of borrowings	-448,931	-384,837	-271,532	-121,159	-98,667
Cash payments for interest expenses and Distribution of dividends or profits	-84,806	-78,430	-62,899	-57,755	-60,506
Including: subsidiaries' cash payments for Distribution of dividends or profits to minority					
Shareholders	-7,499	-3,633	-2,955	-2,425	-2,805
Capital reduction of subsidiaries	-21	-1,239	-2,368	-671	-3,754
Cash payments relating to other financing activities	-227	-218	-582	-290	-158
Sub-total of cash outflows	-533,985	-464,724	-337,381	-179,875	-163,085
Net cash flows from financing activities	75,356	9,259	-60,944	53,077	3,777
Effect of foreign exchange rate changes on					
Cash and cash equivalents	-195	-313	234	179	-112
Net (decrease) / increase in cash and cash equivalents	-17,777	15,463	-41,216	53,775	-35,667
Add: cash and cash equivalents at beginning of the Period	61,172	45,709	86,925	33,150	68,817
Cash and cash equivalents at end of the period	43,395	61,172	45,709	86,925	33,150