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Financial Analysis of China National Petroleum Corporation
Finanční analýza společnosti China National Petroleum Corporation

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 3. Characterization of a Given Company
 4. Financial Analysis of a Given Company
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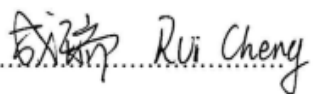

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The declaration

"Herewith I declare that I elaborated the entire thesis, including all annexes, independently"

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1. Introduction

Financial analysis is the process of evaluating businesses, projects, budgets and other finance-related entities to determine their performance and suitability. It's significant for investors and managers to evaluate a company's financial position before they make move.

The objective of this thesis is to analyze the financial position of China national petroleum corporation in the selected period. Especially we will concentrate on CNPC's running situation. Because according to report of CNPC we can basically tell that there are lot of changes of CNPC. The whole thesis includes five parts to describe different information about CNPC and some theories.

In the first chapter, it will be an introduction about the whole thesis. This chapter is going to show the whole structure of the thesis. Moreover, it will inform the reader about the basic information and headline about the thesis.

In chapter 2, it will describe the theoretical methods of financial analysis which include financial analysis, financial statement (balance sheet, income statement, cash flow statement), Common-size analysis (horizontal common-size analysis, vertical common-size analysis), financial ratio analysis (profitability ratios, liquidity ratios, solvency ratios, assets management ratios), and pyramidal decomposition. It will be extremely useful to introduce this theory. And the following calculation will all base on chapter 2.

In chapter 3, we will introduce characterization of China national petroleum corporation which means all kinds of basic information about CNPC will be mentioned in this chapter. The details will include overview of CNPC, organization structure of CNPC, major events of recent years, some profile of CNPC (mission, values, strategy, goal) and technology and innovation of CNPC. It will be a fulfilling information for readers to get known deeper about CNPC.

In chapter 4, there will be a lot of financial ratios calculation according to theories of chapter 2. we will calculate different financial ratios and make the result into a table and figure. So, we can easily compare the situation in different years. we will explain why this ratio is increasing or decreasing as well. And it will be a small analysis after each calculation. Hence, we can see more details about the financial situation of CNPC.

Finally, in chapter 5, it will be a conclusion in the end of this thesis. We will summarize what we found about CNPC. Also we will summarize the main work about this thesis.

2. Description of the Financial Analysis Methodology

In this chapter, we will introduce the theoretical methods of financial analysis to explain the basic definition and correct usage of these methods. This chapter is the basis for subsequent analysis of selected companies. The three main methods are routine analysis, financial ratio analysis and pyramid decomposition.

Main sources of this chapter are from Alice C Lee et al. (2009).

2.1 Financial Analysis

Financial analysis is the process of reviewing and analyzing company financial statements to make better economic decisions. These statements include the income statement, balance sheet, cash flow statement, and statement of changes in equity. Financial statement analysis is a method or process that involves specific techniques for assessing an organization's risks, performance, financial status, and prospects. In some ways, it is like accounting. But they have major differences. That is, financial analysts use accounting information differently than accountants. For accountants, they are focused on the preparation of financial statements based on generally accepted accounting principles. In contrast, financial analysts use it to assess the company's performance and predict its future financial condition. Analysts use ratios to help us identify key financial relationships that may be difficult to identify.

Effective financial analysis must include the following four interrelated steps. First, we should determine the economic characteristics of the industry in which the company is located. For different industries, we always use different criteria to assess their financial status. Second, we must understand and purify the company's financial statements. It is well known that there are significant differences between the purpose of preparing financial statements and the purpose of financial analysis. Therefore, to facilitate financial analysis, it is important to adjust and revise the original financial statements. Third, we can use many scientific methods to analyze and evaluate the company's financial status. The most important thing is that financial performance should be compared with industry characteristics, business strategies or plans, recommended values, and even the macroeconomic environment. Finally, financial results allow us to understand the health of the company. Then it be a forecasting material on the future development trend of the company and can give some suggestions based on the advantages and disadvantages.

The goals of financial analysis can be summarized in two aspects. On the one hand, it can assess past performance and measure current financial conditions so that we can know at which

stage the company is. In addition, based on past financial data observations, we can find some problems and make some strategic adjustments. On the other hand, these financial reports are, to a certain extent, a database that can help us predict the overall development trend of the company and give us some valuable ideas. The goal of financial analysis is to provide a reliable basis for financial users to make decisions.

It is used by various stakeholders such as credit and equity investors, governments, the public and decision makers within the organization. These stakeholders have different interests and apply various technologies to meet their needs. For example, stock investors are interested in the long-term profitability of the organization and the sustainability and growth of possible dividend payments. Creditors want to ensure that the interest and principal of an organization's debt securities (such as bonds) are paid at maturity.

Financial analysis is not only a financial manager's tool, but also can be effectively used by investors, lenders, suppliers, employees and customers. Commonly used financial statement analysis methods include basic analysis, DuPont analysis, horizontal and vertical analysis, and use of financial ratios. Historical information combined with a series of assumptions and adjustments to financial information can be used to predict future performance.

2.2 Financial statements

The financial statements are the periodic structure of the company's financial status, operating results and cash flows. For investors, it provides information about profitability and dividend policies to help them make the right investment decisions. For creditors, it provides them with information on the capital structure and the state of assets to make the right credit decisions. For the financial manager, it evaluates the performance of the company and provides the basis for the decision-making and management of the company's future production and operation. For other interested external groups, it also provides a lot of useful information about the company they want to achieve.

There are three basic financial statements which provide financial information about the company: balance sheet; income statement; cash flow statement.

2.2.1 Balance sheet

A balance sheet is a financial statement that reveals the company's financial position (assets, liabilities, and shareholders' equity) at a specific point in time.

In the figure below, the balance sheet can be divided into two blocks. On the left, it shows

us what the company owns or how the company uses its capital. On the right side, it can consist of two sub-blocks. Representing these capitals is the debt lent by creditors and ultimately must be repaid. The other is shareholder equity that represents the capital of the company's owners. All in all, the correct part tells us how the assets are financed or how the company raises the required funds. Therefore, the logic shows that after using credit financing and equity financing to obtain funds, the company converts it into daily operating assets. So, we come to a formula:

$$Total\ assets = Total\ liabilities(debt) + Owners'\ equity \tag{2.1}$$

Obviously, the asset equals the liability for surplus equity. Here we place a standardized balance sheet below and show the clear structure of this statement.

Table2.1 An example of balance sheet

BALANCE SHEET		
Item		Item
TOTAL ASSETS		TOTAL EQUITY+LIABILITIES
Long-term assets		Equity
Tangible assets		Share capital (par value)
Intangible assets		Contributed capital (excess par value)
Financial investments		Retained earnings
Other long-term assets		
Current assets		Liabilities
Inventories		Short-term borrowings
Accounts receivable		Long-term debt
Marketable securities		Accounts payable
Other short-term assets		Notes payable
Cash and cash equivalentents		Accrued expenses

Source: own elaboration according to course: Applied corporate financial management

We have three prominent parts to make up the balance sheet which is assets, liabilities and equity.

The company's balance sheet records the currency value of the assets owned by the company. It covers money and other valuables belonging to individuals or businesses. Assets can be divided into two major asset classes: tangible assets and intangible assets. Tangible assets

include various subcategories, including current assets and fixed assets. Current assets include inventory, and fixed assets include items such as buildings and equipment. Intangible assets are valuable non-material resources and rights for enterprises because they give them advantages in the market. Intangible assets include goodwill, copyrights, trademarks, patents and computer programs, and financial assets, including accounts receivable, bonds, and stocks.

Liability is a kind of capital borrowed from creditors and must be repaid after a period. In addition, it can also be divided into two subcategories. Short-term liabilities must be repaid within 12 months and used to fund day-to-day operations. The long-term debt repayment period is longer, usually more than one year. Therefore, for the enterprise, long-term debt is a stable source of funds. It is used to purchase machinery equipment and other long-term assets and expand reproduction.

Equity refers to the residual equity enjoyed by the owner after deducting assets and liabilities. It represents the investor's partial ownership of the company. One of the biggest differences is that the owners' contributions do not need to be repaid. It has three categories: capital stock, contribution capital, and retained earnings.

2.2.2 Income Statement

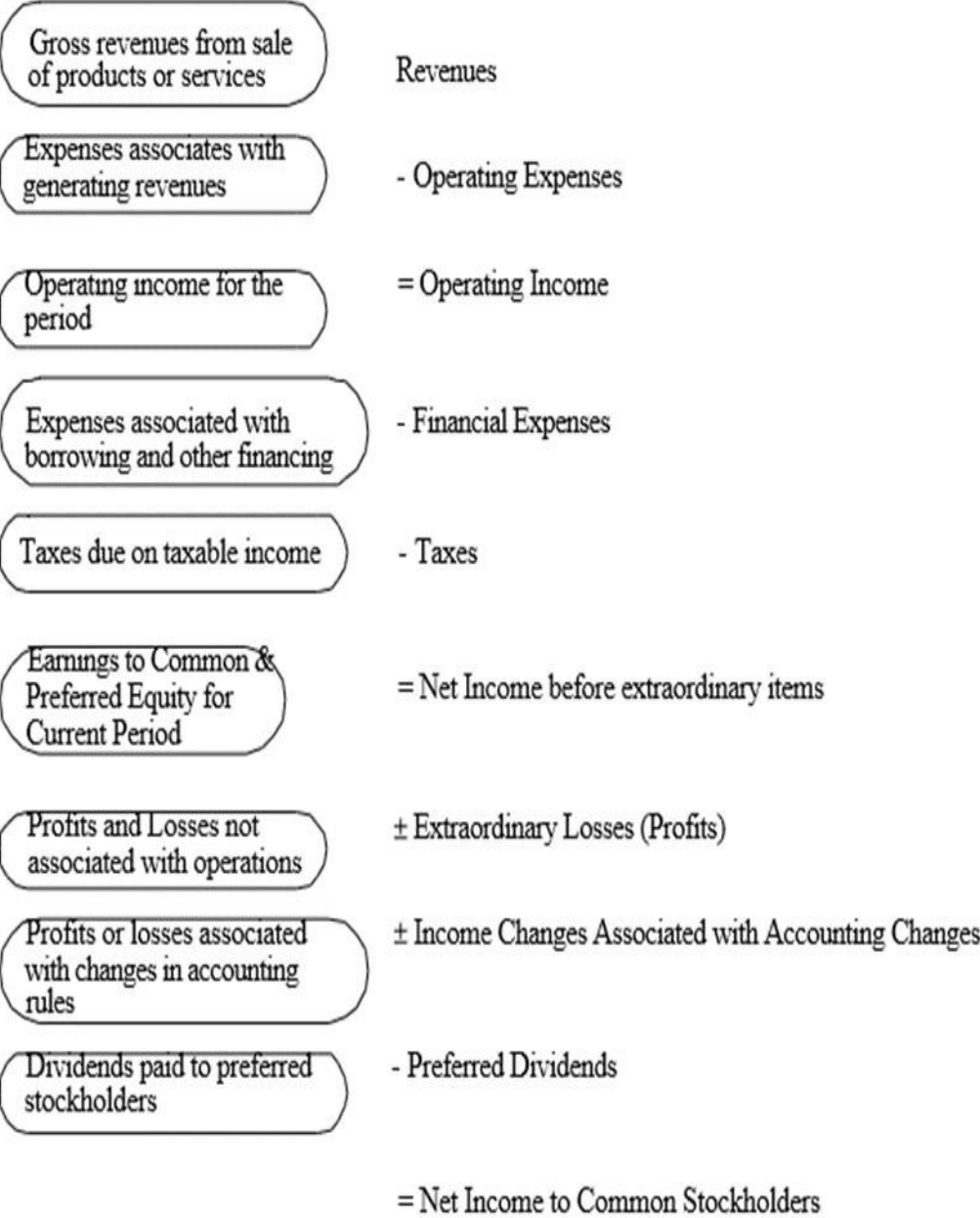
The income statement is a dynamic financial statement that reflects the company's profit and loss during a specific accounting period. It compares sales revenue, cost of sales, operating expenses, financial income, and taxation. In short, this statement reflects operating performance and assesses the company's performance.

First, we must master the basic logic between the elements in the income statement. At the same time, we should also know how to calculate the after-tax income (net income) based on a given formula. Here are the basic formulas for the income statement:

$$\text{Revenues} - \text{Cost (Expenses)} = \text{Net income/loss} \quad (2.2)$$

The income statement can show us the profitability of the business. It reports financial information related to five areas of business activity: *income*, *cost of sales*, *operating expenses*, *financing costs*, and *tax expenditures*. Its structure is shown in Figure 2.2.

Figure 2.2 Structure of the income statement



Source: Understanding financial statements

Available on: <http://people.stern.nyu.edu/adamodar/pdfiles/valn2ed/ch3.pdf>

Net revenue is earned from daily sale and service, and then the corresponding cost which is directly associated with product should be deducted. The residual is gross profit. Next, operating expenses are subtracted, such as marketing and selling expenses, administrative expenses etc. This kind of expense is always not associated with product and must be spent in the whole production. Up to here, we get the first important concept which is Operating income or *EBIT (earnings before interest and tax)* briefly. All above are called operating activities.

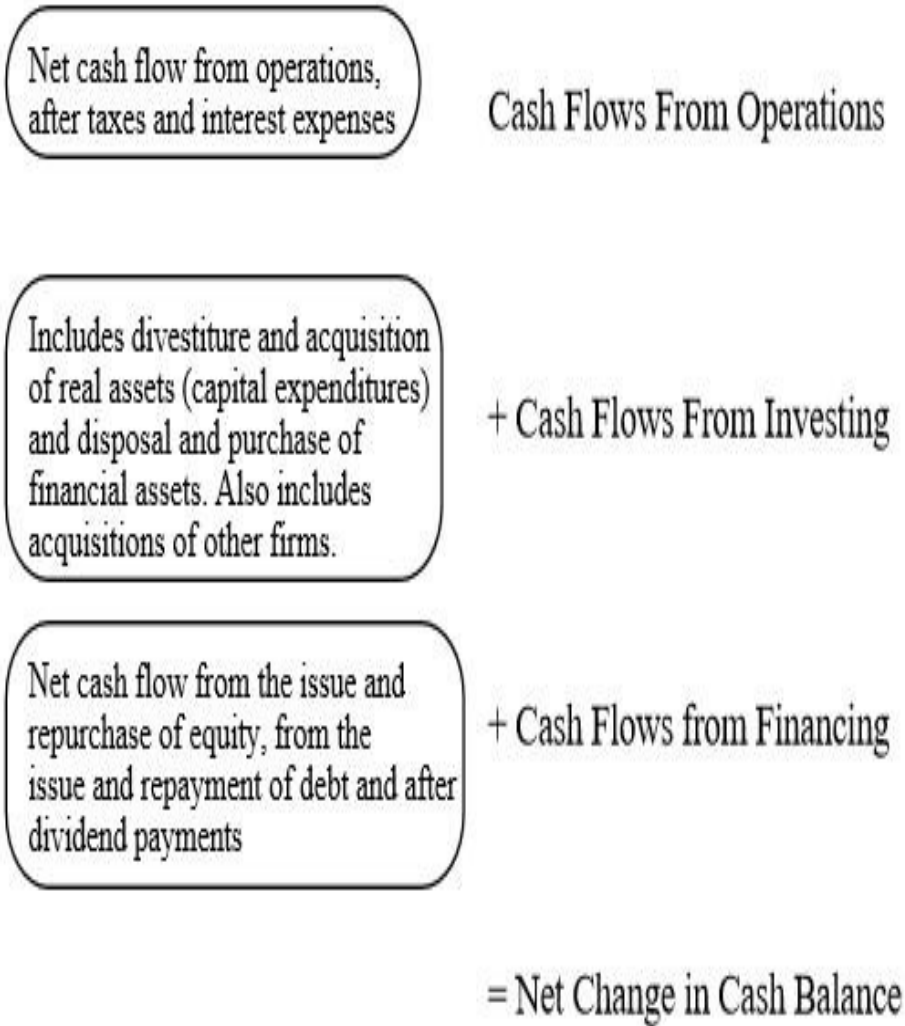
Then if we should consider debt financing, which can be called financial activities. Next step is that we need to take *EBIT* as a basis. *EBIT* surplus financial revenues which are in the form of interest received, coupon and dividend received and minus financial costs which are in the form of interest paid and coupon paid. The result is pre-tax income, or we can call it earnings before tax (*EBT*). All above are called financial activities.

The last step is that pay the taxes to government. *EBT* is multiplied by tax rate, and then we get the final net profit-earnings after taxes (*EAT*). This amount of money belongs to the company' equity holders. And *EAT* has two distributed methods. One is reinvested in the company to reproduce or expand production scale. The other one, normally for those big companies, is to pay for their shareholder in the form of dividends.

2.2.3 Cash flow Statement

A cash flow statement, also known as statement of cash flows, is a financial statement that shows how changes in balance sheet accounts and income affect cash and cash equivalents, and breaks the analysis down to operating, investing and financing activities. Essentially, the cash flow statement is concerned with the flow of cash in and out of the business. The statement captures both the current operating results and the accompanying changes in the balance sheet. As an analytical tool, the statement of cash flows is useful in determining the short-term viability of a company, particularly its ability to pay bills. And here we will offer the structure of cash flow statement as follow Figure 2.3.

Figure 2.3 Structure of the cash flow statement



Source: Understanding financial statements

Available on: <http://people.stern.nyu.edu/adamodar/pdfiles/valn2ed/ch3.pdf>

The statement of financial position is a snapshot of a firm's financial resources and obligations at a single point in time, and the income statement summarizes a firm's financial transactions over an interval of time. These two financial statements reflect the accrual basis accounting used by firms to match revenues with the expenses associated with generating those revenues. The cash flow statement includes only inflows and outflows of cash and cash equivalents; it excludes transactions that do not directly affect cash receipts and payments. These non-cash transactions include depreciation or write-offs on bad debts or credit losses to name a few. The cash flow statement is a cash basis report on three types of financial activities: operating activities, investing activities, and financing activities. Non-cash activities are usually reported in footnotes. The purpose of cash flow statement is intended to

- (1) provide information on a firm's liquidity and solvency and its ability to change cash flows in future circumstances
- (2) provide additional information for evaluating changes in assets, liabilities and equity
- (3) improve the comparability of different firms' operating performance by eliminating the effects of different accounting methods
- (4) indicate the amount, timing and probability of future cash flows

2.3 Common-size analysis

A common-sized financial statement shows a line item of a percentage of a selected or commonly used number. Creating common-sized financial statements makes it easier to analyze companies and compare them with peers. The use of financial statements of the same size helps investors discover trends that the original financial statements may not find. A common size analysis is a method of comparing the selected financial statements of a company against previous or future time periods or different company financial statements.

We can know that regular analysis focuses on the evolution of a company's period, and then gets the actual situation and development trend. This method can be divided into horizontal analysis and vertical analysis.

2.3.1 Horizontal common-size analysis

Horizontal analysis (also known as trend analysis) is a financial statement analysis technique that shows changes in the amounts of corresponding financial statement items over a period. It is a useful tool to evaluate the trend situations. The statements for two or more periods are used in horizontal analysis. The earliest period is usually used as the base period and the items on the statements for all later periods are compared with items on the statements of the base period. The changes are generally shown both in dollars and percentage. And it can be compared by two forms which are shown in the following equations (2.3), (2.4):

$$\text{Absolute change} = U_t - U_{t-1} = \Delta U_t \quad (2.3)$$

$$\text{Development of item} = \frac{U_t}{U_{t-1}} \quad (2.4)$$

where U_t is the value, t is the current period and $t - 1$ is the prior period.

Horizontal analysis may be conducted for balance sheet, income statement, schedules of current and fixed assets and statement of retained earnings. Horizontal common-size analysis focuses on the changes of financial statements data during a period to find increase or decrease of some selected indicator. It can be a time point of view to measure evolutions of a company's

financial position and give an objective evaluation.

2.3.2 Vertical common-size analysis

Vertical analysis (also known as common-size analysis) is a popular method of financial statement analysis that shows each item on a statement as a percentage of a base figure within the statement. To conduct a vertical analysis of balance sheet, the total of assets and the total of liabilities and stockholders' equity are generally used as base figures. All individual assets (or groups of assets if condensed form balance sheet is used) are shown as a percentage of total assets. The current liabilities, long term debts and equities are shown as a percentage of the total liabilities and stockholders' equity. To conduct a vertical analysis of income statement, sales figure is generally used as the base and all other components of income statement like cost of sales, gross profit, operating expenses, income tax, and net income etc. are shown as a percentage of sales. In a word, this method is an in-depth analysis of the financial structure of company. And the general formula (2.5) is as follows:

$$Proportion = \frac{U_i}{\sum U_i} \quad (2.5)$$

where U_i is the value of a given item and $\sum U_i$ is the base.

A basic vertical analysis needs an individual statement for a reporting period, but comparative statements may be prepared to increase the usefulness of the analysis.

2.4 Financial ratio analysis

Financial ratio analysis is a reasonable method of financial analysis. It converts financial data into financial ratios, analyzes the changes in these indicators or compares the results with recommended values and gives an effective assessment.

There are many advantages to using this technique. First, it can eliminate the impact of scale, compare the benefits and risks of different companies, and help investors and creditors make the right decisions. Second, when we measure all aspects of a company, financial ratio analysis always gives us several standard financial indicators. It is necessary to use them because these existing ratios have undergone numerous scientific practices that can help us successfully evaluate a company.

There are four financial ratios: profitability ratios, liquidity ratios, solvency ratios and asset management ratios. We will describe detail in the following thesis.

2.4.1 Profitability ratios

Profitability ratios measures the company's ability to make profits from existing capital. When we want to realize the profitability of the company, we do not have to scan various raw data. Instead, we can observe and analyze some key ratios and obtain reliable results. In general, the higher the profit ratio, the better the financial status of the company. However, if the ratio is low, this does not mean that the company must have a terrible behavior. The ratio is the result of the denominator and numerator comparison. Therefore, we should compare the changes of the two projects and obtain reasonable results. Here are some of the commonly used ratios.

The *operating profit* rate tells you how a company's operations contribute to its profitability. It is an indicator of the company's operational efficiency, and it reflects the ability to obtain profit through operations in consideration of costs and expenses associated with business operations. The higher the profit rate, the stronger the company's operating capability.

To calculate the company's *operating profit* rate equals operating income, or we can call it *earnings before interest* and revenue. All the data we need can be found in the income statement. The *operating profit rate* formula (2.6) is as follows:

$$OPM = \frac{EBIT}{Rev} \quad (2.6)$$

The net profit rate measures the percentage of the entity's net income as a percentage of total revenue. It represents the proportion of remaining sales after adjusting for all related expenses (operating expenses, interest expenses, taxation, and preferential share income distribution), and shows the amount of income each company receives from converting into US dollars. Obviously, we expect a high net profit rate, which means that the company's net profit is high.

To calculate the company's net profit rate equals net profit, or we can call it profit after tax. All the data we need can be found in the income statement. The *net profit rate* formula (2.7) is as follows:

$$NPM = \frac{EAT}{Rev} \quad (2.7)$$

Return on assets shows the company's profitability relative to its assets. It measures the efficiency of company management in using its assets to generate revenue. So, if this ratio is high enough, it tells us that this company has succeeded in gaining investment. What we need to note is that this public ratio may be quite different and will be highly dependent on the industry. Therefore, when we evaluate the *return on assets* of a company, we would better compare it with previous figures or companies in the same industry.

Calculation: The company's *return on assets* is equal to *EBIT* divided by assets. All the data we need can be found on the balance sheet and income statement. The formula of *return on assets* (2.8) is as follows:

$$ROA = \frac{EBIT}{A} \quad (2.8)$$

Equity returns measure the returns of stock investors. This ratio tells us how much profit the company can bring to the money shareholders. The higher the percentage, the higher the return on investment. Like *ROA*, we need to compare this ratio in the same industry.

To calculate: The company's *return on equity* is equal to the after-tax income divided by its investment equity. All the data we need can be found on the balance sheet and income statement. The equity return formula (2.9) is as follows:

$$ROE = \frac{EAT}{Equity} \quad (2.9)$$

2.4.2 Liquidity ratios

The liquidity ratio measures the company's ability to pay its immediate or short-term debt. In other words, it compares the amount of current assets and short-term liabilities. If a company has sufficient current assets relative to its short-term liabilities, we can conclude that the company is highly liquid. As we all know, short-term debt is usually used to meet the needs of daily production funds. So, which level should we maintain? Here, we should introduce a *cash conversion cycle (CCC)*: the time interval between the receipt of payment for a sold product and the payment of cash for purchase of a production resource. The *CCC* is a time interval due to the shortage of funds due to accounts receivable before accounts receivable. Therefore, in this case, additional sources of working capital in the form of short-term liabilities are required to continue production. Therefore, we can maintain a certain degree of liquidity adjustment based on our short-term debt and obtain the best liquidity ratio. Here are some of the commonly used ratios.

The *current ratio* measures the company's ability to use *liquid assets* to repay its *current liabilities*. In terms of *current ratio*, *current assets* include inventory, cash, accounts receivable and marketable securities. It should exceed 2:1. (Stocks will not be transferred to cash soon.) To calculate: The company's *current ratio* is equal to *current assets* divided by *current liabilities*. All the data we need can be found on the balance sheet. The *current ratio* formula (2.10) is as follows:

$$Current\ ratio = \frac{current\ assets}{current\ liabilities} \quad (2.10)$$

The *quick ratio* measures the company's ability to use short-term liquid assets to repay short-term debt. Proportionately, current assets include cash, accounts receivable and marketable securities. It should be more than 1:1 (even if half of the current assets cannot be quickly converted into cash, we can also ensure that all short-term liabilities can be repaid). Calculation: The company's *quick ratio* is equal to (*current assets - inventory*) divided *current liabilities*. All the data we need can be found on the balance sheet. The speed ratio formula (2.11) is as follows:

$$\text{Quick ratio} = \frac{\text{current assets} - \text{inventories}}{\text{current liabilities}} \quad (2.11)$$

The *cash ratio* is a measure of the company's ability to pay, using its total *cash and cash equivalents* to meet its *current liabilities*. We believe that liquid assets are cash, so this ratio is the most stringent standard for liquidity assessment. In the *cash ratio*, current assets include cash and marketable securities (sell only one day). To calculate: The company's *cash ratio* is equal to (*cash + securities*) divided by *current liabilities*. All the data we need can be found on the balance sheet. The *cash ratio* formula (2.12) is as follows:

$$\text{Cash ratio} = \frac{\text{cash} + \text{marketable securities}}{\text{current liabilities}} \quad (2.12)$$

In general, if the liquidity ratio is high, it means that the company has a strong ability to convert assets into cash. Therefore, the high liquidity ratio indicates better short-term solvency. However, different industries have different properties and characteristics. Therefore, the requirements for the liquidity ratio level are different. For example, commercial retailers often require large amounts of liquid assets to invest in inventory compared to manufacturing. In addition, corporate business and financial management also play an important role in the liquidity ratio.

2.4.3 Solvency ratios

Solvency ratio is a measure of the company's ability to repay long-term obligations to creditors and bondholders. As mentioned earlier, long-term debt includes long-term borrowings (bank loans or bond issues) and equity financing (issuing stocks). Therefore, from the perspective of the solvency ratio, we can recognize the company's financing method.

The higher solvency ratio indicates that the company has good credit. Otherwise, the company may default. For creditors and investors, the solvency ratio is closely watched by them. Because the ability of solvency and its funds can be repaid. Therefore, solvency largely reflects the degree of business risk of the company. Here are some common ratios.

The *debt ratio* shows the company's total liabilities as a percentage of total assets. In other

words, this ratio reflects the proportion of assets provided by creditors or how many assets are financed through debt. At the same time, it measures the level of risk of providing funds to the company. The lower ratio is more favorable than the higher ratio. Because it shows that the current debt is relatively low. Lender is less risky.

To calculate the company's *debt ratio* equals *total debt* divided by *total assets*. All the data we need can be found on the balance sheet. The *debt ratio* of formula (2.13) is as follows:

$$\text{Debt ratio} = \frac{\text{total debts}}{\text{total assets}} \quad (2.13)$$

However, all industries have their own debt level benchmarks. 0.5 is a reasonable ratio. A *debt ratio* of 0.5 is generally considered less risky. Because this means that the company's assets are twice the liabilities. After maturity, the company has enough assets to repay all its debts. If the *debt ratio* is 1, it means that the total debt is equal to the total assets. Therefore, the company must sell all its assets to pay off its debt. Obviously, this is a highly leveraged company with a high risk. When companies borrow more money, the *debt ratio* will increase. As creditors are always worried about being repaid, they will no longer lend money to the company. Therefore, companies with high *debt ratios* are more willing to seek equity financing to develop their businesses.

We must note that different entities have different requirements on *debt ratios*. From the perspective of the creditor, if the asset (capital) is provided by the debt as a large proportion of the total assets (capital), it means that the creditor will bear the major risk. In this case, the creditor is in a disadvantageous position. Therefore, creditors want the proportion of debt as low as possible. From the perspective of investors, they prefer high *debt ratios*. This is because if a company's assets are mainly financed by debt, this means that the capital is mainly in the form of bank loans. This capital can be taxed. Therefore, if the company has more loans, tax cuts will have a huge impact on reducing costs (in the form of taxes). Another reason is that if the total assets are mainly financed by debt, investors can use low capital (equity) to control the company. From the perspective of managers, they hope that the *debt ratio* can maintain a high level. While controlling financial risks, through debt financing, expanding production scale and obtaining higher profits.

The debt-to-equity ratio is the financial leverage ratio that indicates the structure of the capital (assets). It tells us the ratio of total liabilities to corporate shareholders' equity. Creditors and investors pay attention to this ratio because it shows the operating preference of a company. Maybe it prefers debt financing operations or prefers to use its own equity.

To calculate the *debt-to-equity ratio* of the company is equal to *the total debt* divided by

equity. All the data we need can be found on the balance sheet. *Debt to equity* ratio formula (2.14) is as follows:

$$\text{Debt to equity} = \frac{\text{total debt}}{\text{equity}} \quad (2.14)$$

If the *debt to equity* ratio is equal to 1, it means that half of the company's assets are financed by debt and half by equity. If the ratio is higher than 1, it means that the company's main assets are financed through debt. In this situation, the company's debt burden is heavy. The growth trend in debt-to-equity ratio should be alarmed because it means that the company relies on operating debt. In general, a low debt-to-equity ratio is advantageous because it represents a lower business risk.

Interest coverage measures the company's income before interest and taxes can pay its interest payment obligations. If this ratio is too high, we must realize that the company's management strategy is relatively conservative. It should increase financial leverage to expand its operating scale. If the ratio is higher than 1, it means that the company can pay its interest payments. However, if this ratio is less than 1, it means that the company's profits cannot even pay interest. In this case, the company's default risk is extremely high. *Interest coverage* is a useful indicator for assessing the security of certain companies' investment funds. However, it also has some deficiencies in that the value of the ratio is based on current income and interest payments. Therefore, it focuses on the ability to pay interest on a short-term basis. Low business risk.

Calculation: The company's *interest coverage* is equal to the *interest and tax revenue in addition to interest before payment*. All the data we need can be found in the income statement. The formula for *interest coverage* (2.15) is as follows:

$$\text{Interest coverage} = \frac{\text{EBIT}}{\text{Interest paid}} \quad (2.15)$$

2.4.4 Assets management ratios

The asset management ratio measures the efficiency with which companies use their assets to generate revenue and cash. The assets the company operates involve many areas such as materials, inventory, and accounts receivable. Therefore, how a company manages them to make more operating cycles and gain more profits becomes crucial. Therefore, the asset management ratio can serve as a good indicator of the company's management utilization.

Before introducing some basic asset management ratios, we need to understand the company's operating cycle. First, we will use cash to purchase materials as input, and then we will enter the production process. After these two processes, the final product will be completed

at the total cost. (For example, = 50) Then we sell them to suppliers and immediately receive cash or credit receivables. (For example, = 60) So far, the first cycle of operation has been completed, and finally we got 10. Here are some of the commonly used ratios.

The average receipt period shows the number of days that accounts receivable can be converted into cash. As mentioned above, there are two forms of income. When a company sells its products, it may receive cash or accounts receivable that will always require some time to be converted into cash. Of course, we all expect to get cash. But we usually sell credit. The ratio of accounts receivable to income determines the company's turnover. If this ratio is too high, it may lead to a drop-in liquidity. In the event of an emergency, the company may face a business turnover crisis. Therefore, the low value of the *average collection period* is favorable

Calculation: The company's *average collection period* is equal to (*Accounts receivable, except revenue*), and then multiplied by the date (360). All the data we need can be found on the balance sheet and the income statement. The formula for the *average collection period* (2.16), as follows:

$$ACP = \frac{\text{Accounts receivable}}{\text{Revenues}} \cdot 360 \quad (2.16)$$

This is followed by the *receivables turnover rate (ART)*. It shows how fast the company collects credit and measures the number of times receivables are collected or "rolled over" in one year. The equation is that the *average turnover of accounts receivable* is equal to the *income of accounts receivable* divided by *Rev.* As follows:

$$ART = \frac{\text{Revenues}}{\text{Account receivable}} \quad (2.17)$$

Inventory turnover represents the number of times the company can sell and replace entire batches of inventory over a period. In other words, it measures the speed at which the company sells its inventory, which is usually compared to the industry average. The high value of this figure tells us that in a certain period, the company can sell a lot of goods and it works well. The low value of this number may be due to two reasons. The first reason is the low demand for inventory. Another reason is that we store too much average inventory in warehouses. In this case, the inventory holding costs will increase, which indicates that the company's inventory is poorly managed.

Calculation: The company's *inventory turnover* is equal to *the cost of goods sold* divided by *average inventory*. All the data we need can be found on the balance sheet and income statement. The *inventory turnover* formula (2.17) is as follows:

$$IT = \frac{\text{costs of goods sold}}{\text{average inventory}} \quad (2.18)$$

Total asset turnover measures the efficiency with which companies develop their assets to generate revenue. This ratio represents the value of the proceeds generated per dollar of assets. The higher the ratio, the better the company performs. With a certain level of investment (assets), a higher percentage of companies can get more profits. However, we must be vigilant. If this rate of increase is accompanied by fixed income, then this indicates that the company may cancel many fixed assets in the current period. With the same analysis, if the company's asset turnover has been at a relatively low level. We can deal with some useless assets to reduce the value of total assets to increase this ratio.

To calculate the company's *asset turnover* is equal to *revenue* divided by *total assets*. All the data we need can be found on the balance sheet and income statement. The asset turnover formula (2.18) is as follows:

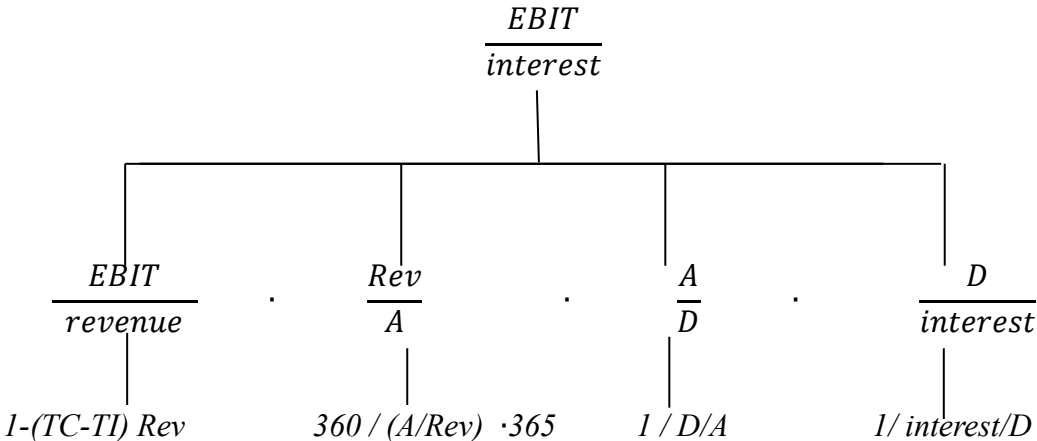
$$TAT = \frac{\text{revenues}}{\text{total assets}} \quad (2.19)$$

2.5 Pyramidal decomposition

Pyramid decomposition is a financial analysis technique that breaks down the basic ratio into multiple component ratios. This basic step is to obtain a logical structure that tells us which factors affect the value of the base ratio. Then, we can use impact quantification to analyze the effect of the composition ratio change on the basic ratio and obtain the sequence of the factors. In the end, we can find the most influential factors and make targeted improvements for the company.

In this article, we will focus on the company's solvency. Therefore, we choose interest rate coverage as the basic ratio for in-depth analysis. Figure (2.1) shows this selected ratio of pyramid decomposition.

Figure 2.1 pyramidal decomposition of $EBIT/interest$



As we can see in the figure above, $EBIT/interest$ is the basic ratio at the highest level. The second level contains four direct factors that drive changes in the value of the underlying ratio. They are $(EBIT / Rev)$; $((Rev) / A)$; $(Advertisement)$; $(D / Interest)$. For the third level, there are many sub-factors that directly affect the second-level factors and their indirect effects on the base ratio. For example, $(TC-TI) * Rev$ influences EIT / Rev . Correspondingly, changes in $EBIT/Rev$ will affect the basic ratio $EIT / interest$. In this way, we can analyze what is the value of promoting financial ratios, and then propose some targeted recommendations for the company to improve. We will introduce some ways to influence the quantification to help us assess the condition of the factors.

2.5.1 Method of gradual changes

This method is suitable for absolute changes in component ratios. The relationship between the basic rate change caused by the absolute change in the ratio of each component and the change of the static other ratio was analyzed. It obeys one principle: Although we multiply the ratio of the absolute composition of the analysis and other components. But for other component ratios, we have two options: one is period 0 (the former), and the other is period 1 (the latter). So, this principle tells us that if this component ratio has been analyzed, we should take the value of the first period. If this component ratio is not analyzed, we should take the value of the 0th period. The formula (2.20) is shown as follows:

$$\begin{aligned}
 \Delta X_{a1} &= \Delta a_1 \cdot a_{2.0} \cdot a_{3.0} \\
 \Delta X_{a2} &= a_{1.1} \cdot \Delta a_2 \cdot a_{3.0} \\
 \Delta X_{a3} &= a_{1.1} \cdot a_{2.1} \cdot \Delta a_3
 \end{aligned}
 \tag{2.20}$$

Among them, the symbol X represents the basic ratio, the symbol ΔX represents the absolute change of the basic ratio, the average component ratio, and the symbol A represents the absolute

change of the component ratio. Finally, the symbol ΔX_{a1} represents the absolute change in the basic ratio, which is due to the component ratio change.

3. Characterization of a Given Company

In this chapter, author will introduce the basic information about China national petroleum corporation, such as overview, organizational structure, major events, industries.

3.1 Overview of China national petroleum corporation

CNPC is one of the most significant enterprises and major oil and gas producers and suppliers in China. According to the State Council's institutional reform plan, CNPC was established on the basis of the former China National Petroleum Corporation in July 1998 Large petroleum and petrochemical enterprise groups, which are state-authorized investment institutions and state-controlled companies, are integrated oil companies that integrate upstream and downstream businesses with foreign trade, production and marketing and operate in accordance with the modern enterprise system and operate across regions, industries and transnationalities. In 2015, the country produced 111.43 million tons of crude oil and produced 95.48 billion cubic meters of natural gas. The Company processed 151.32 million tons of crude oil and produced 103.69 million tons of refined oil products. At the same time, it obtained rights and interests of overseas oil production of 16.423 million tons and natural gas production of 2.59 billion cubic meters. In the whole year, it achieved sales revenue of 20168 billion yuan and a profit of 82.5 billion yuan. Throughout the year, China newly added 728.17 million tons of proved geological reserves of oil and 572 billion cubic meters of proven natural gas. The new proven reserves of oil and gas surpassed 1 billion tons for 9 consecutive years.

As the largest crude oil and natural gas producer and supplier in China, CNPC's businesses include oil and gas exploration and development, refinery and petrochemicals, pipeline transportation, oil and gas refining and petrochemical products sales, petroleum engineering and technical services, petroleum mechanical processing and manufacturing, oil trading and other fields , Dominating the Chinese oil and gas production, processing and markets. In 2008, PetroChina ranked No. 5 in the integrated ranking of the 50 major oil companies in the world by the Petroleum Intelligence Weekly in the United States, ranking No. 6 in Fortune's 2011 Fortune 500 companies ranking. In Buffett Magazine Among the top 100 Chinese listed companies in 2009, they won the first prize in the "All-Star Award of the 25 Most Admired Companies in China". In the "Top 500 Chinese Enterprises in 2011", the Company ranked No. 2 with an operating income of 1,465,415 million yuan. In 2013, it won the 2013 China Brand Top 500 jointly released by China Institute of Brand Value, the Central Commission of State

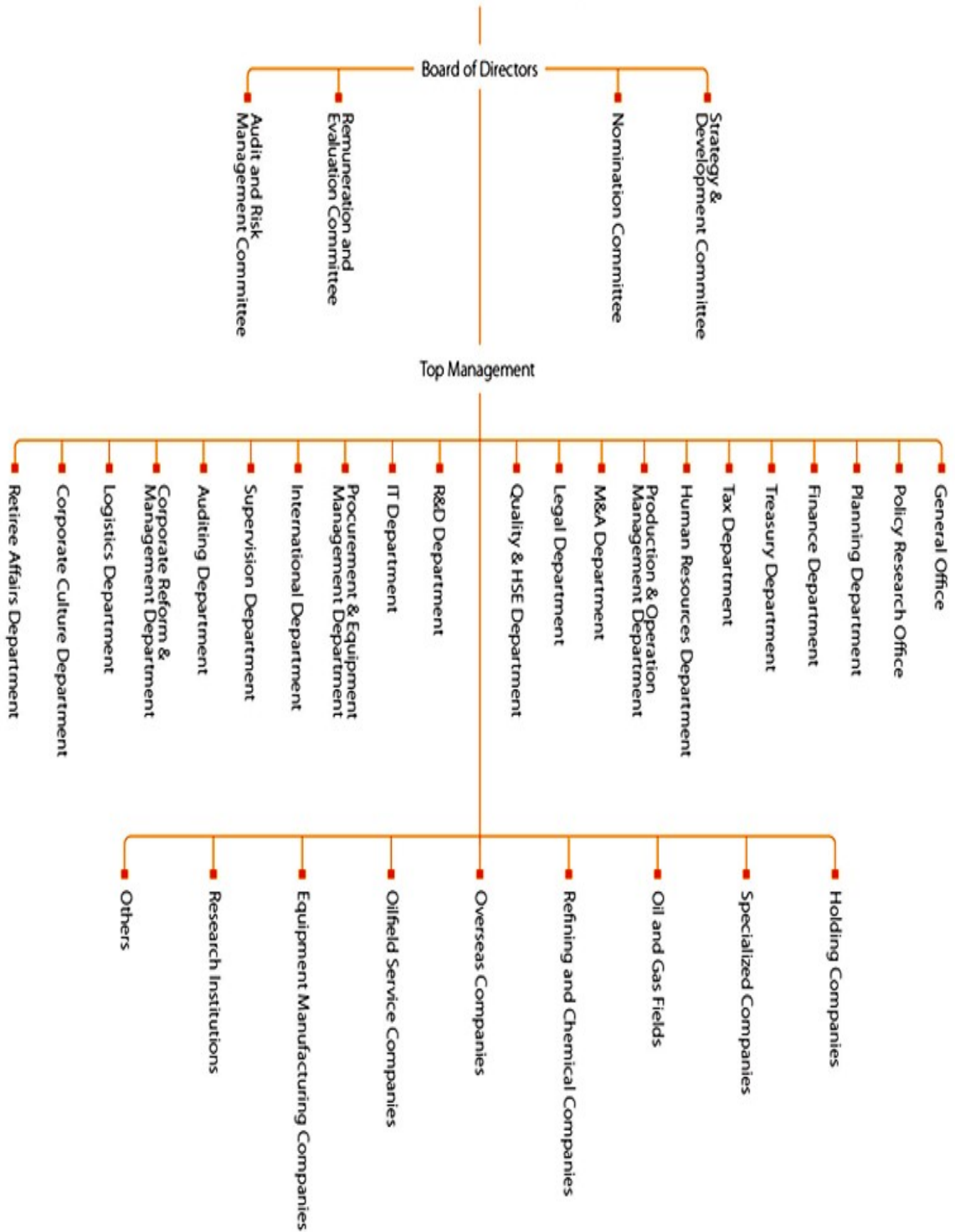
Investigation and the China Net Focus.

In the new phase of the new century, CNPC is implementing a whole new set of development strategies under the guidance and support of the strategy of large national corporations and large groups as well as the relevant policies. CNPC aims at the advanced level of the international petroleum industry, accelerating the construction of a prominent and core business Competitive large multinational oil companies, continue to maintain the rank of the world's largest oil company.

3.2 Organizational Structure of China national petroleum corporation

CNPC is an international corporation. It play an important role in the market. And behind all this famous title, let's see the organizational structure of CNPC

China National Petroleum Corporation



Source: Organizational Structure of CNPC

Available on: http://www.cnpc.com.cn/en/organization/about_common.shtml

3.3 Major events of corporation

In January 8,2012, CNPC, Shenergy (Group) Company Limited and Yangkou Port Company Limited signed a framework agreement on the Rudong-Haimen-Chongming Gas Pipeline. Under the agreement, a three-party JV will be established to invest in, build and operate the pipeline. The pipeline will be 89.5 kilometers long, with a designed annual delivery capacity of 2.4 billion cubic meters.

In March 13,2012, CNPC signed an agreement with Eni to purchase a 28.57% share of Eni East Africa, whereby indirectly holds a 20% interest in Mozambique's Block 4. The two sides also signed a joint study agreement on unconventional hydrocarbon development at the Rongchangbei block in China's Sichuan Basin.

In June 6,2013, A framework agreement on integrated cooperation in the Pacific Refinery and upstream development was signed with Ecuador's Coordinating Ministry for Strategic Sectors, Ministry of Finance, Petro Ecuador and the local Amazon Company. Under the agreement, CNPC will take a share in the construction of the Pacific Refinery project and participate in the exploration and development of Ecuador's upstream resources.

In November 18,2013, PetroChina Exploration Holdings Company Limited and CNPC International Holdings Company Limited, a subsidiary of PetroChina Company Limited, entered into an acquisition agreement with Brazil National Petroleum International (Netherlands) Company and Petrobras (Brazil) International (Spain) Company to acquire Brazil National Oil Company Energy (Peru) all the shares of the company.

In January 13,2014, China National Petroleum Exploration and Development Company acquired 20% shares of Yamal LNG held by Novartis, Russia, to complete the delivery. Novate will retain 60% interest and CNPC and Total will each hold 20% interest.

In April 21,2014, Shell signed the "China Petroleum and Shell Group Global Cooperation Agreement," agreed on a global scale, to strengthen non-conventional, deep sea, liquefied natural gas (LNG), upstream and downstream areas such as oil and gas long-term mutually beneficial cooperation.

In March 15,2015, Caterpillar signed a strategic cooperation agreement. Under the agreement, the two sides will further strengthen their cooperation in such fields as globalization, products and services, knowledge and best practice sharing, equipment manufacturing and remanufacturing, circular economy and green sustainable development.

In August 6,2015, Bank of China Co., Ltd. signed the "One Belt and One Road" strategic cooperation agreement. Both parties will further expand cooperation in such fields as financing,

cash management and international settlement, insurance and investment banking to jointly support the implementation of the development strategy of the "Belt and Road".

In January 11,2016, China Aerospace Science and Technology Group signed a strategic cooperation agreement. Both parties will carry out extensive cooperation in such fields as oil and gas energy saving and environmental protection, oil and gas production and engineering and technology internet of things, emergency communications and enterprise Informa ionization. At the same time, both parties will strengthen core technology exchange and actively promote product research and development and industrial upgrading. Enhance cooperation in the area.

In July 7,2016, Alibaba Group signs strategic cooperation framework agreement. According to the agreement, both parties will carry out business operations in Aliyu, e-maps, Internet cars, Lynx, rookie logistics, and the PetroChina Business Parlance Office, internet payment, e-refueling card, internet finance, membership sharing and point exchange, joint marketing and other fields Extensive cooperation. Earlier, the two sides have already started cooperation in Alipay service window recharging and Alipay bar code payment and made positive progress.

3.4 Industries of China national petroleum corporation

There are nine major industries in. China national petroleum corporation.

o Exploration & Production

We find and extract oil and gas from underground by various technical means.

o Natural Gas & Pipelines

We produce and deliver natural gas to end users via a 50,836km-long gas pipeline network, and also operate 18,132km crude pipelines and 10,086km oil products pipelines.

o Oilfield Services

We provide services in geophysical prospecting, drilling, well logging, mud logging and downhole operations.

o Manufacturing

We produce equipments for exploration and production, oilfield services, pipeline construction, refining and chemical processing, and offshore engineering.

o Finance

Our financial operations are mainly specialized in fund management, financing and insurance.

o Refining & Chemicals

We process over 150 million tons of crude and produce almost 5 million tons of ethylene.

o Marketing & Trading

We sell and buy crude oil and petroleum products, basic petrochemicals, derivative chemicals and other chemicals.

o Engineering & Construction

We design and construct oil and gas field production facilities, pipeline, storage tank, refinery and chemical plant, and offshore engineering.

o New Energy Development

Development and utilization of new energy is an important approach to cope with energy and environment challenges, and facilitate sustainable development.

Source: Major industries of CNPC

Available on: <http://www.cnpc.com.cn/en/ourbusinesses/ourbusinesses.shtml>

3.5 Profile of China national petroleum corporation

3.5.1 Mission

Caring for Energy, Caring for You. China National Petroleum Corporation's committed to "Caring for Energy, Caring for You". We strive for harmonious relationships between operations and safety, energy and the environment, corporate and community interests, and employers and employees.

We are committed to protecting the environment and saving resources, promoting the research, development and application of environmentally friendly products, fulfilling our responsibilities to society and promoting development that benefits all.

3.5.2 Values

The key values of CNPC: Dynamic, loyal, honest, committed. Achieving excellence through innovation and integrity

3.5.3 Strategy

Increasing resources: Endeavoring to maximize and diversify oil and gas resources, ensuring an orderly replacement of reserves, and maintaining the domestic leadership of our upstream business.

Expanding market: Taking full advantage of economies of scale and the integration of upstream and downstream operations to seek a dominant position in the market and maximize profits.

Seeking a greater international role: Focusing on oil and gas business, being active and prudent in enhancing international cooperation, strengthening capital operations, and expanding international oil and gas trading in a mutually beneficial way.

3.5.4 Goal

To build CNPC into a major integrated international energy corporation: Being committed to promoting technological progress and international cooperation, and developing and utilizing energy in a more efficient and environmentally-friendly way, we aim to achieve industry-leading operational performance with enhanced competitiveness and profitability by 2020 through strategic development initiatives, technological innovation, and an accelerated shift to

a new development mode highlighting quality and efficiency.

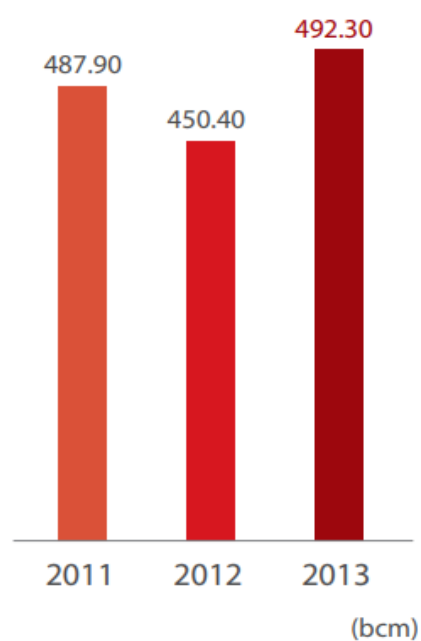
3.5.5 Business review

We will show the annual business situation from year 2011-2016 in the following part.

Newly proven oil in place
(Domestic)

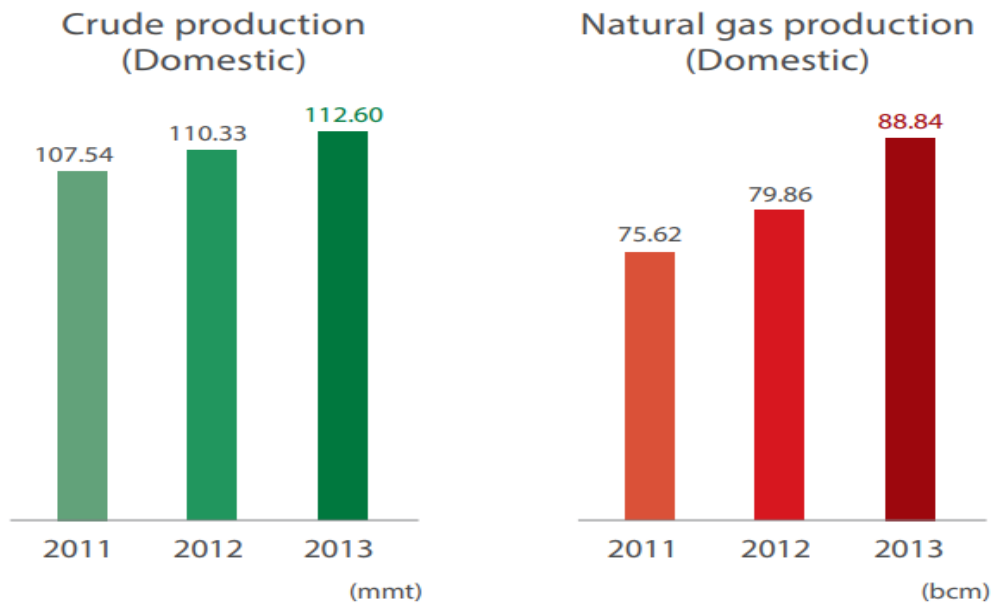


Newly proven gas in place
(Domestic)



Reserves and operating data (Domestic)

	2011	2012	2013
Newly proven oil in place (mmt)	715.12	711.00	670.13
Newly proven gas in place (bcm)	487.90	450.40	492.30
2D seismic (kilometers)	33,912	23,987	27,089
3D seismic (square kilometers)	12,954	16,105	12,477
Exploration wells	1,794	1,898	1,746
Preliminary prospecting wells	1,020	1,190	1,006
Appraisal wells	774	708	740



Refining and chemicals operating data (Domestic)

	2011	2012	2013
Crude runs (mmt)	144.84	147.16	146.02
Utilization rate of refining units (%)	91.3	89.5	86.9
Refine products output (mmt)	93.00	96.38	97.90
Gasoline	28.89	31.00	32.97
Kerosene	3.68	4.78	6.06
Diesel	60.43	60.61	58.87
Lubricating oil output (mmt)	1.57	1.84	1.89
Ethylene output (mmt)	3.47	3.69	3.98
Synthetic resin output (mmt)	5.78	6.18	6.64
Synthetic fiber output (mmt)	0.09	0.09	0.07
Synthetic rubber output (mmt)	0.61	0.63	0.67
Urea output (mmt)	4.48	4.41	3.77
Synthetic ammonia output (mmt)	3.03	2.97	2.58

Source: Business review of CNPC

Available

on:

<http://www.cnpc.com.cn/en/2013en/201407/82720378a66a413eae8faa08d8c7e43d/files/42ce54cd99694b468b280f7c45fd6172.pdf>

Reserves and operating data (Domestic)

	2014	2015	2016
Newly proven oil in place (mmt)	689.80	728.17	649.29
Newly proven gas in place (bcm)	484.00	570.20	541.90
2D seismic (kilometers)	19,170	15,909	24,885
3D seismic (square kilometers)	11,739	9,095	8,764
Exploration wells	1,584	1,588	1,656
Preliminary prospecting wells	910	924	865
Appraisal wells	674	664	791

Refining and chemicals operating data (Domestic)

	2014	2015	2016
Crude runs (mmt)	150.16	151.32	147.09
Utilization rate of refining units (%)	82.6	84.5	80.9
Refine products output (mmt)	101.84	103.69	99.32
Gasoline	34.10	36.47	33.97
Kerosene	7.14	8.34	9.32
Diesel	60.60	58.88	52.03
Lubricating oil output (mmt)	1.58	1.21	1.16
Ethylene output (mmt)	4.98	5.03	5.59
Synthetic resin output (mmt)	8.07	8.32	9.20
Synthetic fiber output (mmt)	0.07	0.07	0.06
Synthetic rubber output (mmt)	0.75	0.71	0.76
Urea output (mmt)	2.66	2.57	1.90
Synthetic ammonia output (mmt)	1.89	1.85	1.53

Source: Business review of CNPC

Available

on:

<http://www.cnpc.com.cn/en/2014enbv/201504/a603e5540a4d490d9e9e689d058263c9/files/12da23e25987431cb00aab3d69db6157.pdf>

As we can see from these data, the supply of CNPC is constantly decrease since year 2011. Through these years it loss a lot resource. And this become a potential reason why CNPC have a waterloo in year 2015. There will be financial analysis in Chapter 4 to explain the details.

3.6 Technology and Innovation of China national petroleum corporation

As the exploration and development of oil and gas proceed, there are fewer oil and gas resources that are easy to discover and tap, and the produced petroleum is becoming more inferior. To satisfy ever increasing energy demand and meet higher environmental protection standards, our technological R&D and innovation is focused on increasing the exploration success ratio of complex oil and gas reservoirs, enhancing the recovery efficiency of mature oilfields, developing unconventional hydrocarbon resources, improving the quality of refined and chemical products, and ensuring environmentally friendly operation.

We continued to improve the management system for technological innovation, optimize the allocation of R&D resources and promote in-depth scientific and technological exchanges and cooperation. This has resulted in several R&D achievements, which provide strong support to our efforts to tackle technical difficulties in the production.

We have further improved our technological research system to reallocate and leverage the innovation resources at its affiliated research institutes, technology centers and regional companies. We also accelerated the construction of technology enablement platforms, resulting in enhanced lab/testing capabilities. A total of 16 platforms were selected as state-level infrastructural enablement platforms.

3.7 Looking to the future

In the future, upholding the philosophy of innovation, coordination, green development, opening and sharing, we will expand mutually beneficial cooperation with industry peers around the globe as their preferred partner. We will continue to transform the mode of producing and utilizing energy, promote energy consumption in a low-carbon and efficient way, and vigorously develop our natural gas business, to supply quality and clean energy on a global scale and support inclusive and sustainable socioeconomic development.

We value the Myanmar market and cherish the achievements made in the project through joint efforts. Based on the Bangladesh-China-India-Myanmar (BCIM) economic corridor project, we will continue to work with our partners to ensure the safe and stable operation of

both the crude oil pipeline and gas pipeline, to deliver high-quality energy to Myanmar and facilitate local economic and social development. Meanwhile, we will push forward our efforts in environmental protection , honor our commitment to “green and clean development”, and promote harmony between people and nature.

Along with the operation of the project, we will employ more local staff and cultivate more professionals and management personnel and facilitate their development through this platform.

We will make the utmost efforts to meet oil and gas demand in the Myanmar market. In addition to running the Myanmar china Oil & Gas Pipeline Project, we will enhance our cooperation in the energy sector, promote the utilization of natural gas, and better serve local economic development with clean energy

Upholding the principle of “Mutually beneficial cooperation for common development”, we will actively communicate with our partners and stakeholders, take the economic development programs of the areas along the pipelines into full consideration, and promote public welfare in a systematic, sustainable and planned manner. We will continue to improve education and medical care as well as infrastructure development, such as water, electricity, telecommunications and roads along the pipelines, to bring more real and tangible benefits to people in the local communities.

4. Financial Analysis of a Given Company

This chapter, in some ways, is an extension of Chapter 2 and Chapter 3. We will continue to study financial analysis methodologies and China national petroleum corporation but pay more attention to make practical use of financial analysis methods to evaluate CNPC's financial performance. And CNPC is an excessively big conglomerate, in this chapter, we will focus on the whole situation. The main source of data is CNPC's annual reports which are from 2012 to 2016.

4.1 Common-size analysis

From Chapter 2, as is known to us all, common-size analysis statements can be used to examine correlation between relative items over the time and how many proportions of different items are in the same statement. The aim of common-size analysis is identified the trends and major differences. And it can be classified in two parts which is horizontal common-size analysis and vertical common-size analysis. In the next part, we will study about the balance sheet and the income statement of CNPC from view of horizontal analysis and view of vertical analysis.

4.1.1 Horizontal common-size analysis

Horizontal common-size analysis (also called trend analysis) is an analysis of the evolution of financial statements data over the time or their changes with respect to a given period as a benchmark. It can be used to analyze CNPC's change trends of financial statements data over the time. We will focus on absolute change of items in balance sheet and income statement. The first period which we start to analyze is from the end of 2012 to the end of 2013 (that is during 2012). The last period is during 2016. There are four periods during these years.

4.1.1.1 Horizontal analysis of balance sheet

This part will reveal absolute change of items in balance sheet of CNPC. It is shown in Table 4.1.

Table 4.1 Absolute change of items in balance sheet

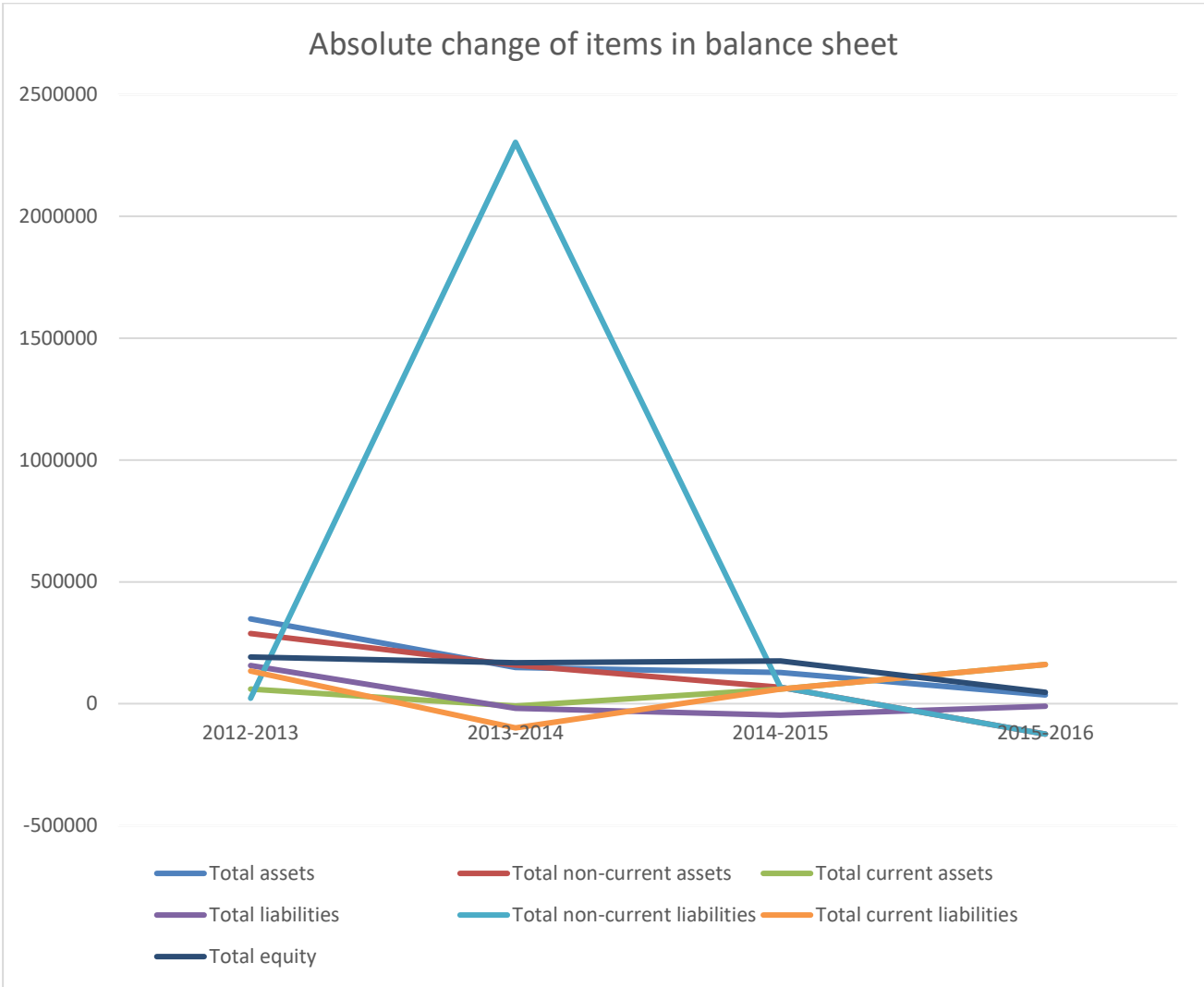
	2012-2013	2013-2014	2014-2015	2015-2016
Total assets	347939.49	148935.99	127801.94	35661.45
Total non-current assets	287905.71	158529.23	67726.82	-124983.11
Total current assets	60033.78	-9593.24	60075.12	160644.56
Total liabilities	156504.35	-18833.79	-47171.17	-10945.94
Total non-current liabilities	22246.91	2303923.27	67726.82	-124983.11
Total current liabilities	134257.45	-99441.52	60075.12	160644.56
Total equity	191435.13	167769.78	174973.11	46607.39

Source: Own calculation; unit: million RMB yuan

From Table 4.1, we can easily know that the greatest absolute change of assets, liabilities, and equity all appeared in 2013. Comparing to the end of 2012, assets increased 347939.49 million yuan, liabilities increased 156504.35 million yuan and equity increased 191435.13 million yuan. The difference between the number of absolute change of assets and liabilities is equal to the absolute change of equity. That can prove the formula that assets are equal to liabilities plus shareholders' equity. Also, we can find that assets are constantly increase during these years due to many pipeline programs have been constructed. And the total liability decrease due to CNPC has paid their debts.

We move to look at change trends of balance sheet in CNPC from 2012 to 2016 in Figure 4.1.

Figure 4.1 Absolute change of items in balance sheet



Source: Own elaboration; unit: million RMB yuan

From these two figures (one is Table 4.1, the other is Figure 4.1), we find out that CNPC really have an extremely excellent development during the given period (2012-2016). Because the absolute change of total assets is always positive, although there is a gradually smaller growth with the development of year. Moreover, it's still growth and positive. What is a surprise that the absolute change of total abilities has shown a negative tendency since year 2013. The abilities of CNPC is decreased since 2013. Which means the scale of CNPC is expand exceedingly quick. Instead the equity is increased since year 2013.

And we also can find there is a huge change of non-current assets in year 2013. There is a huge increase of this item in the balance sheet. It's because in the July 2013, CNPC have a big project that a gas pipeline between Yanning and Hubertus has finished. It starts from Yining,

Xinjian, end in Huoerguosi. Total length is 64 km, 30 billion cubic meters of gas transmission per year. It's the largest diameter coal gas pipeline. That's the reason why the non-current assets (fixed assets) have a huge leap.

Then, we can discuss horizontal analysis of income statement.

4.1.1.2 Horizontal analysis of income statement

This section will show absolute change of items in income statement of CNPC. It is displayed in Table 4.2.

Table 4.2 Absolute change of (partly) items in income statement

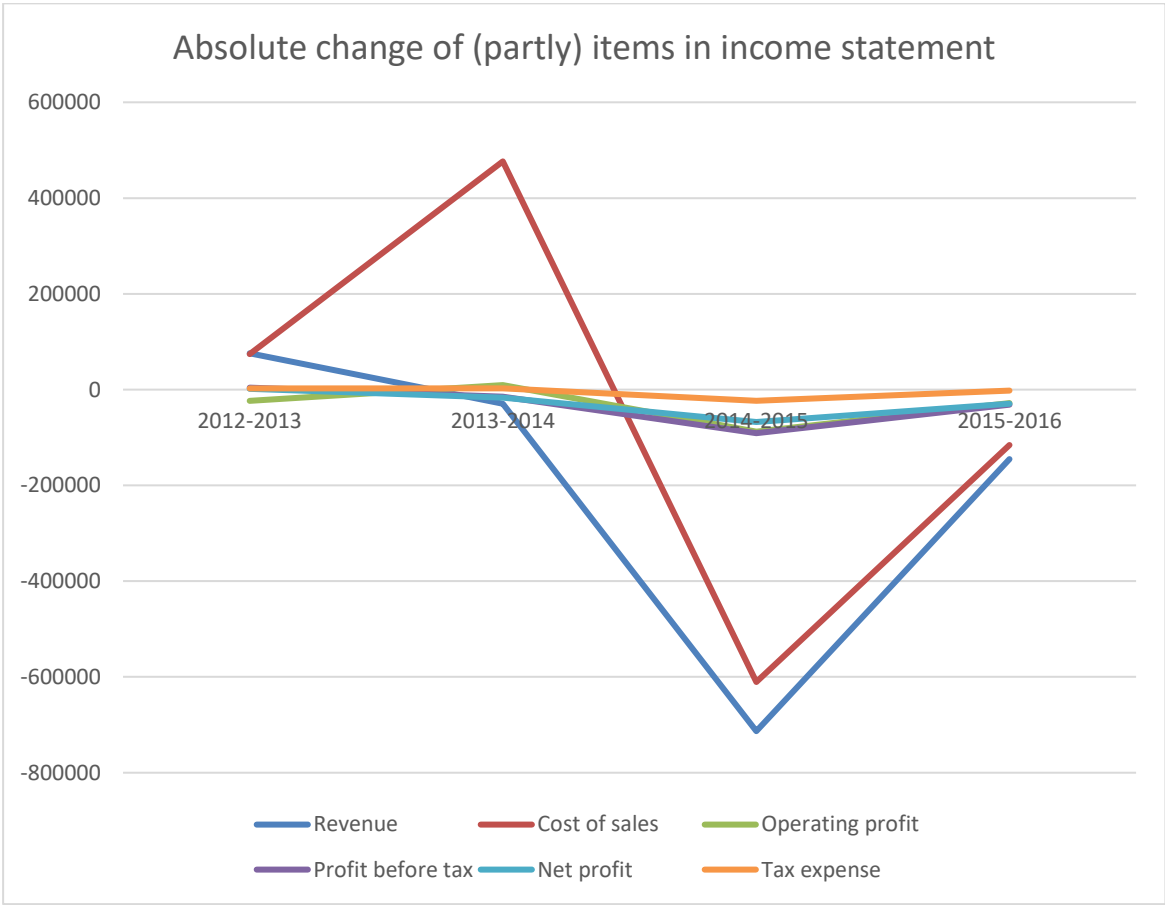
	2012-2013	2013-2014	2014-2015	2015-2016
Revenue	75823.11	-29347.25	-713199.5	-144853.76
Cost of sales	74417.44	476622	-610566.79	-115767.5
Operating profit	-23544.93	9500.83	-87782.6	-28209.81
Profit before tax	4127.39	-14617.52	-90941.13	-31737.55
Net profit	1633.48	-16936.39	-67602.8	-29448
Tax expense	2493.91	2345.87	-23338.23	-2289.55

Source: Own calculation; unit: million RMB yuan

From Table 4.2, we can find some important information. To name only a few, the greatest absolute change of revenue is 75823.11 in year 2013. Since 2013 all we can see is negative result. There is only one positive result of absolute change of net profit is appear in year 2013 as well. From year 2012 to 2016, CNPC eventually don't make much profit, instead it constantly in a loss situation.

Then, we can look at its trends' figure which is shown below.

Figure 4.2 Absolute change of (partly) items in income statement



Source: Own elaboration; unit: million RMB yuan

From the Figure 4.2 we can find some prominent information about CNPC running situation from 2012 to 2016. As we can see the absolute change of revenue and cost of sales have gone through some drastic change. There is a lot amount change on the table.

In March and October 2012, there are two projects was going to start building. The second West-East Gas Pipeline project between Hong Kong and Shen Zhen started in March. Total length of 29.04 km designed gas transmission capacity of 6 billion cubic meters pear year. This pipeline is currently the largest diameter of our submarine pipeline. And the second project which the third West-East Gas Pipeline project between Hubertus and Fu Jian started in October. Total length is 7379 km, including 1 trunk line and 8 branch lines. The designed gas transmission capacity is 30 billion cubic meters per year. That’s the reason why the cost of sales increase so much in 2012. And after that there are no some exceedingly large cost project, hence the cost goes down.

And in November, there is an event of CNPC which is the PetroChina, signed a takeover

agreement with Brazil's national oil company International (Netherlands) and Petrobras (Spain) to acquire all the shares in Brazil's Energy (Peru) Company, a subsidiary of Petrobras. That's the reason why the revenue goes down. Because the government in China have an extremely centralization of state power which can totally control the tendency of CNPC in the future. To stabilize the stable of society and play a long-term game in the international market. They use the revenue to take over the company from other country out of strategy.

In the next part, we will discuss about the vertical common-size analysis about CNPC

4.1.2 Vertical common-size analysis

Vertical common-size analysis is an analysis of the changes in the proportions of selected benchmarks. (total revenues, total assets, total liabilities, etc.) It can be used to evaluate the changes of different items in the proportions of selected benchmarks. As we all know, in the balance sheet and income statement, we take the assets and revenue as a hundred percent as a portion of whole picture. It's available for all size company because every single factor will show as a percentage of some common number.

Moreover, we will analyze the CNPC's statement by using vertical common-size analysis. The period has been given from 2012 to 2016. There are 5 years during this given period.

4.1.2.1 Vertical analysis of balance sheet

Before we have vertical common-size analysis of CNPC's balance sheet. Initially we divide the balance sheet to three parts which is assets, liability and equity. As we all know there are different parts are related with different item which we divided.

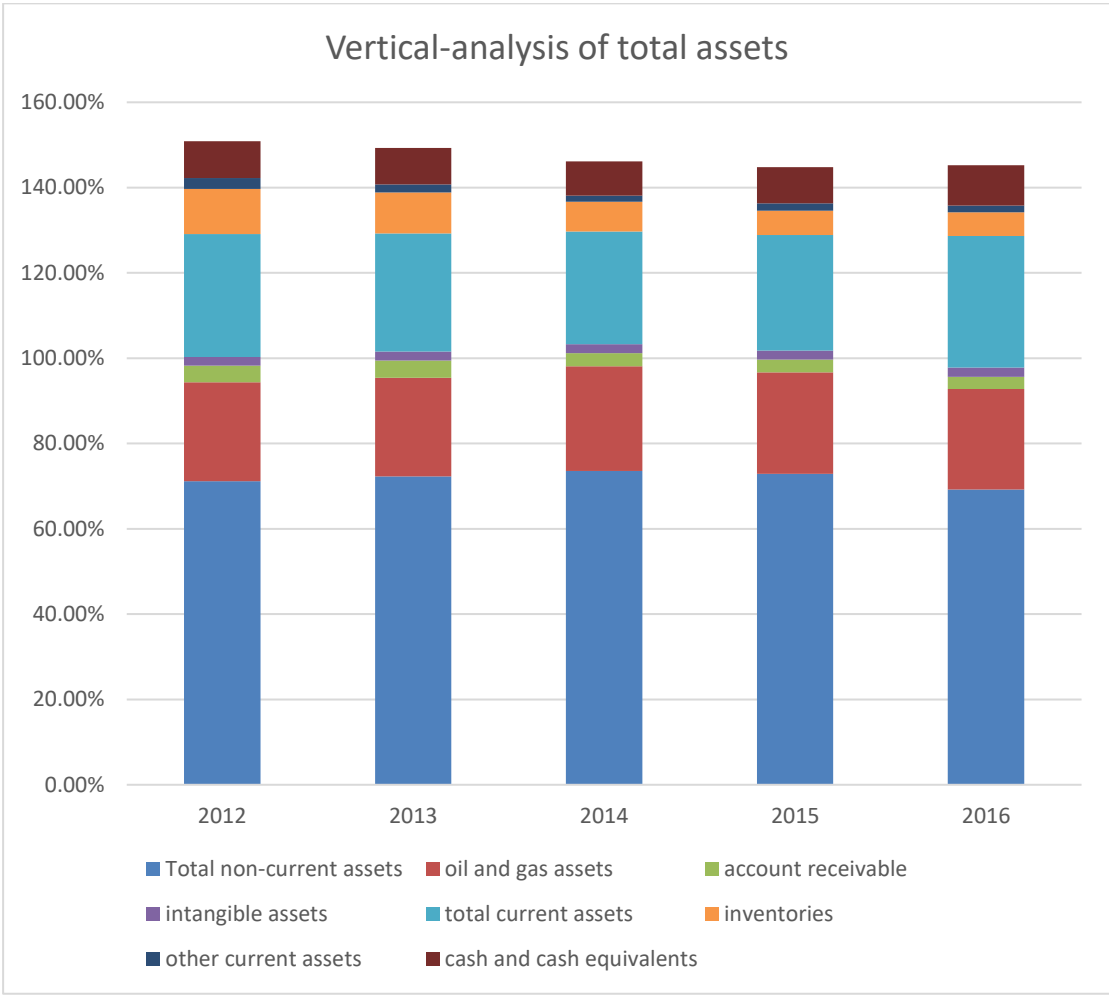
We can find these calculation and percentage change of all items in the following Figure 4.3

Table 4.3 Vertical analysis of total assets

	2012	2013	2014	2015	2016
Total non-current assets	71.21%	72.27%	73.58%	72.92%	69.21%
Oil and gas assets	23.17%	23.15%	24.56%	23.73%	23.55%
Account receivable	3.89%	4.08%	3.06%	3.04%	2.90%
Intangible assets	2.04%	2.05%	2.11%	2.13%	2.17%
Total current assets	28.79%	27.73%	26.42%	27.08%	30.79%
Inventories	10.56%	9.59%	6.59%	5.66%	5.62%
Other current assets	2.55%	1.86%	1.46%	1.73%	1.57%
Cash and cash equivalents	8.61%	8.58%	7.99%	8.50%	9.44%

Source: Own calculation

Figure 4.3 Vertical analysis of total assets



Source: Own elaboration

From these two figures, we can easily realize that the proportion of structure of each asset didn't change a lot in 5 years. In other words, the structure of these assets was stable overall in these years. It indicates that CNPC had operated steadily during these years and the development of this corporation was sustainable.

If we look at this figure carefully, we are able find that the oil and gas assets is extraordinarily stable for five years. That's important for CNPC, because they are running the business with oil and gas. And always keep these assets on a positive level is good for development. The greatest percentage is 24.56%, the minimum percentage is 23.15%. The absolute change of the oil and gas assets is seriously small. Moreover, we can find in CNPC's structure of balance sheet that the non-current assets take the largest part of the whole picture. The main reason we take the attitude that the equipment which oil and gas need is exceedingly

expensive. And the land, machine and so many fixed assets as well. And the other factor may attract our attention is the account receivable. We can find out easily that CNPC has a low level of account receivable. Because the oil and gas usually sell in China by cash or card Even you use credit card, the maturity will no longer than one month. That's why CNPC keep a low level of account receivable.

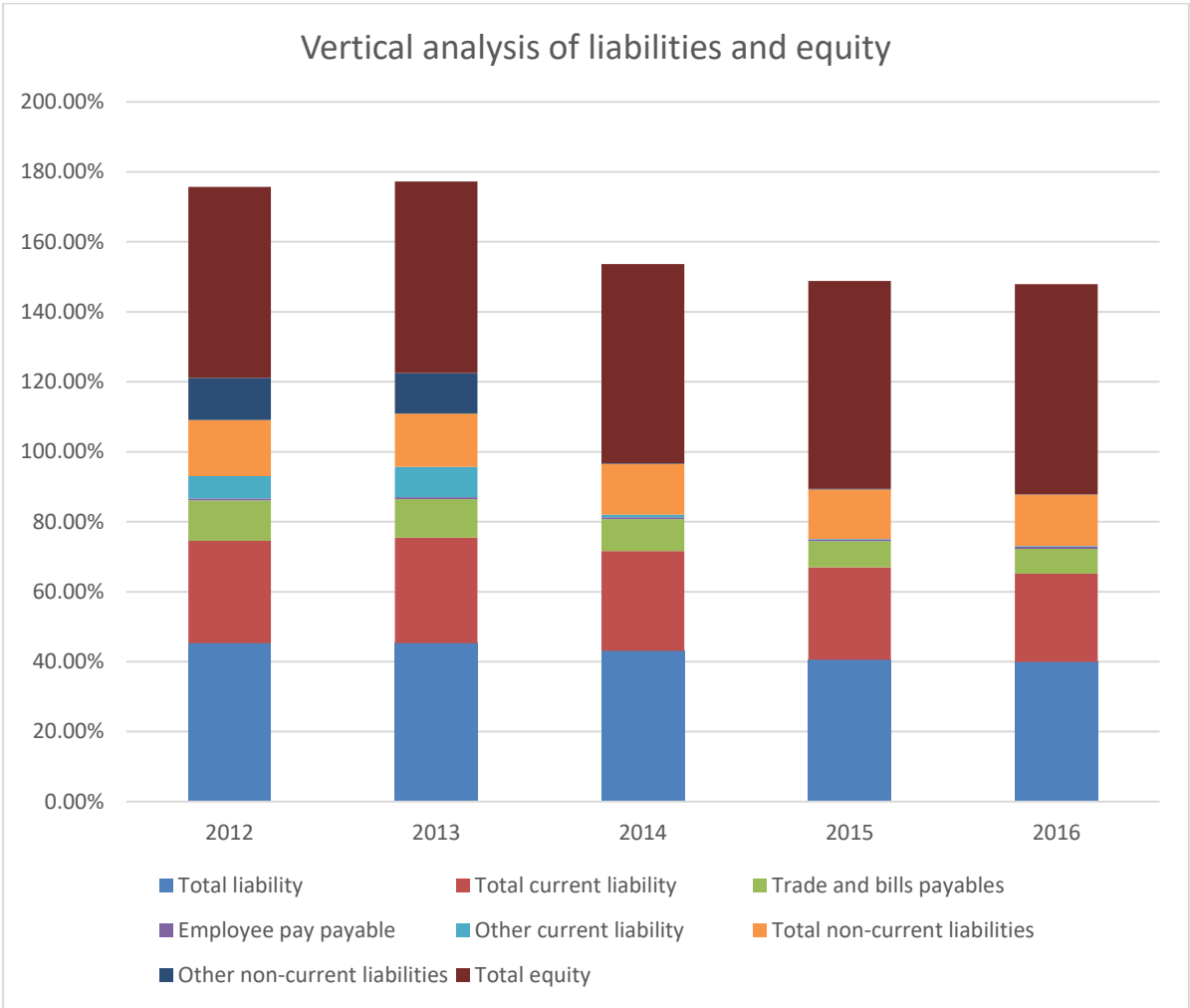
Next, we will get into the liabilities and shareholder's equity. The table and figure of vertical analysis of liabilities and equity are shown below.

Table 4.4 Vertical analysis of liabilities and equity

	2012	2013	2014	2015	2016
Total liabilities	45.32%	45.29%	43.08%	40.55%	39.93%
Total current liabilities	29.25%	30.12%	28.52%	26.38%	25.23%
Trade and bills payables	11.57%	11.05%	9.14%	7.49%	7.15%
Employee Pay payable	0.56%	0.53%	0.55%	0.53%	0.59%
Other current liabilities	6.30%	8.73%	0.69%	0.13%	0.17%
Total non-current liabilities	16.07%	15.18%	14.57%	14.17%	14.70%
Other non-current liabilities	12.00%	11.62%	0.18%	0.13%	0.05%
Total equity	54.68%	54.17%	59.92%	59.45%	60.07%

Source: Own calculation

Figure 4.4 Vertical analysis of liabilities and equity



Source: Own elaboration

From the Figure 4.4, we can find some useful information. We can identify that some factors have some obvious change with the development of year. Of course, some other important parts keep an exceedingly stable tendency.

As we can see in the figure. Total liabilities and total equity keep a stable direction for five years. And with the development of time, the total liabilities are decreasing. Hence, the total; equity is increasing. we take the attitude that it's a good thing for CNPC, because the liabilities are decrease gradually. Which means CNPC become more mobile for dealing different situation which they may meet. And the total non-current liabilities may attract our attention. For five years, the greatest percentage of this item is 12%, but it ended 0.05%. We can find out that is a huge fall. The absolute change of these two results is 11.95%. we believe this number can be describe by using shock. And from my own perspective, that's a brilliant result for CNPC. Since

year 2012, CNPC has start many pipeline building projects. It cost very much to make the non-current liabilities looks get a highly portion of the whole picture. And with the time flows, the amount become smaller and smaller. Which means CNPC has paid off all abilities.

4.1.2.2 Vertical analysis of income statement

If we want to conduct a vertical analysis of income statement, we should suppose the figure of revenues as the benchmark and all other items of income statement like cost of sales, *operating profit*, income tax expenses, administrative expenses, net profit and so on are shown as a percentage of sales.

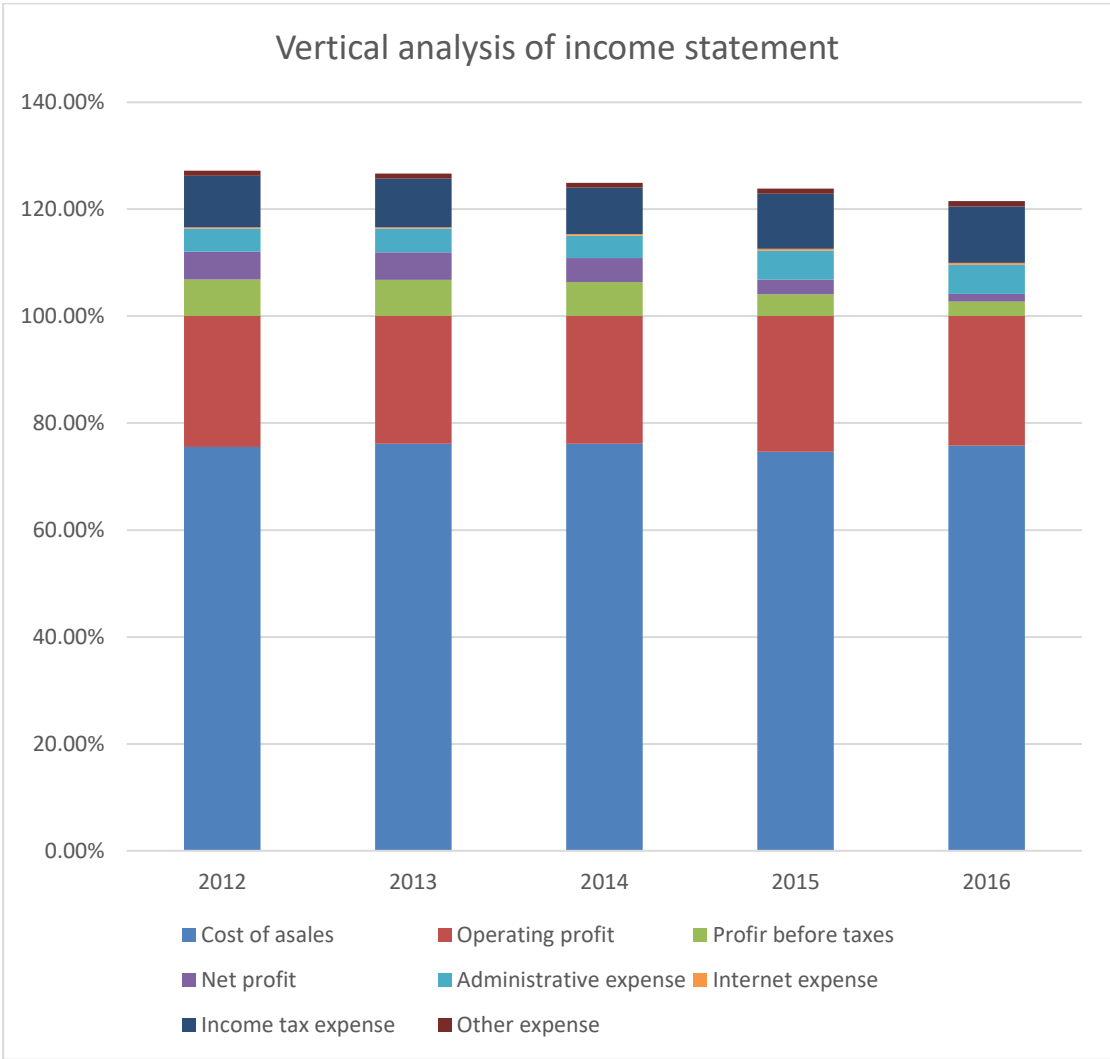
The table which we calculated is shown below. And we can also see changes of percentage about these items in Figure 4.5.

Table 4.5 Vertical analysis of income statement

	2012	2013	2014	2015	2016
Cost of sales	75.53%	76.15%	76.13%	74.65%	75.80%
Operating profit (EBIT)	24.47%	23.85%	23.87%	25.35%	24.20%
Profit before taxes (EBT)	6.85%	6.81%	6.35%	4.09%	2.71%
Net profit (EAT)	5.19%	5.10%	4.54%	2.79%	1.43%
Administrative expenses	4.33%	4.44%	4.20%	5.34%	5.48%
Other expenses	0.96%	0.99%	0.88%	0.98%	1.02%
Interest expense	0.26%	0.28%	0.26%	0.38%	0.36%
Income tax expense	9.61%	9.05%	8.71%	10.30%	10.54%

Source: Own calculation

Figure 4.5 Vertical analysis of income statement



Source: Own elaboration

As we can see some exceedingly interesting information from table 4.5 and Figure 4.5 about CNPC. CNPC is a completely monopoly corporation which control oil and gas in China. The government take bigger control of this corporation to make stable and order of society. Moreover, such a huge monopoly company don't have many profits eventually. On the contrary, the average percentage of cost of sales in the given period is 75.65% which this number is quite high compare the situation in the other similar company.

And what really astonished us is the result of net profit. From 2012 to 2016, the maximum result of net profit is only 5.19%, the minimum is 1.43%. And one more important information is that the net profit keeps decreasing in the given period. And specially in year 2015 and 2016, it reaches to an extremely low point compare to the previous years. One of reason why this

happened is the income tax expense is increasing in year 2015 and 2016. CNPC don't make much profit every year. And when the tax is increasing, there barely no profit. There is another reason as well which CNPC put a lot of attention to start new project and explore many international cooperation relationships. The main tendency of CNPC in the given period is to make move for international area.

And in the next, we will step in the extraordinarily significant part which is the financial ratios analysis. This part will bring us more details about CNPC's situation from 2012 to 2016.

4.2 Financial ratios analysis

From Chapter 2, we know some typical ratios which can be used to evaluate a company's financial performance. In this section, we will use these ratios to analyze CNPC's financial condition. The main source of data is their financial statements from its annual reports. Periods when we select are from 2012 to 2016.

4.2.1 Profitability ratios

When it comes to evaluate a company's operation condition, we usually think about the profitability of it and we want to know how much the company earn from its business activities. There are two points about the profitability we should know. One is the level of profits relative to the revenues. That means we can compare *operating profits* or net profits to total revenues. The other is the rate of return that management is earning on firm's capital. It refers to we can calculate the rate of return from investing assets and equity. Therefore, analysts evaluate the profitability of the company by calculating four ratios. They are: *operating profit margin*, *net profit margin*, *return on assets* and *return on equity*. The data which is necessary for calculation is shown in Table 4.6.

Table 4.6 Data for calculating profitability ratios

Year ended 31 December (RMB Million)					
year	2012	2013	2014	2015	2016
Revenue	2683480.3	2759303.41	2729956.16	2016756.66	1871902.9
Operating profit (EBIT)	184835.64	161290.71	170791.54	83008.94	54799.13
Net profit (EAT)	139184.91	140808.07	123844.68	56241.88	26793.88
Total assets	3409420.37	3757359.86	3906295.85	4034097.79	4069759.24
Total equity	1864110.63	2055545.76	2223315.54	2398288.65	2444896.04

Source: Annual Report of CNPC

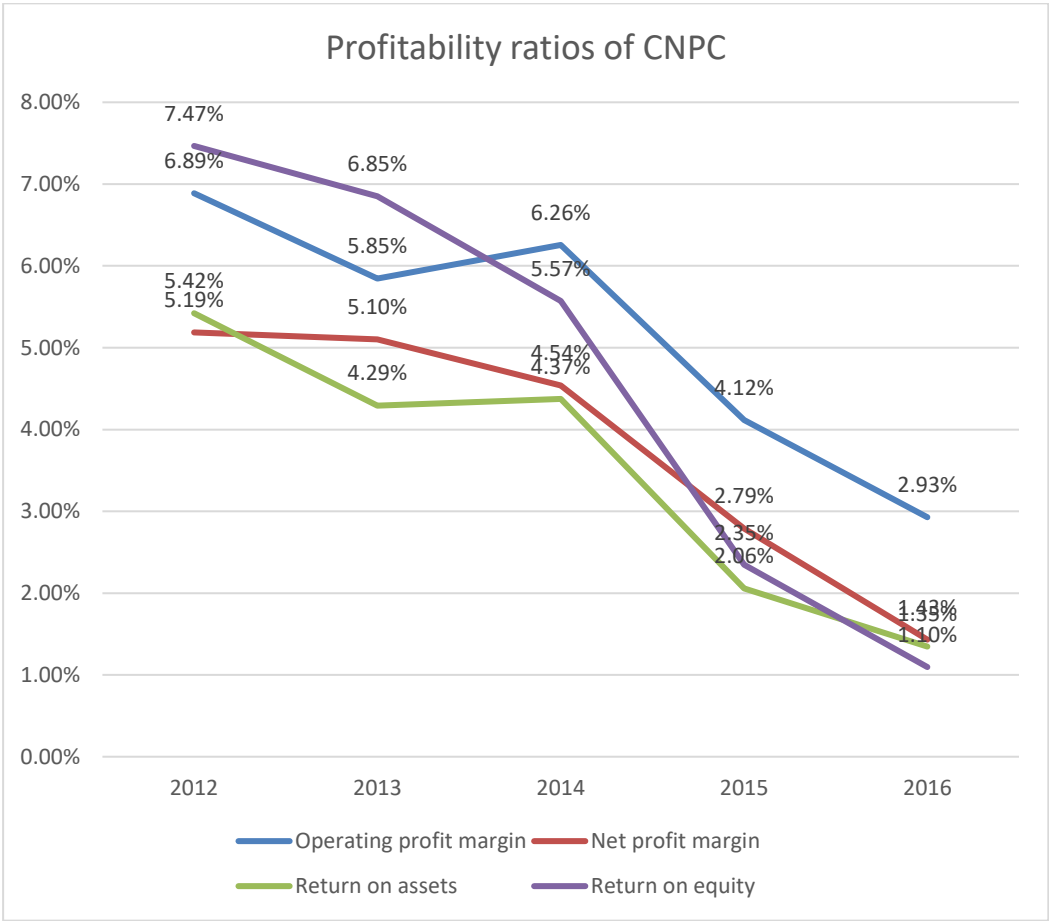
Based on Chapter 2, we can calculate these ratios by using Formula (2.6), (2.7), (2.8), (2.9). After calculation, we can get this useful information about CNPC's financial condition. The results of these ratios are shown as following and changes of these ratios can be found in Figure 4.7.

Table 4.7 Profitability ratios of CNPC

year	2012	2013	2014	2015	2016
Operating profit margin (OPM)	6.89%	5.85%	6.26%	4.12%	2.93%
Net profit margin (NPM)	5.19%	5.10%	4.54%	2.79%	1.43%
Return on assets (ROA)	5.42%	4.29%	4.37%	2.06%	1.35%
Return on equity (ROE)	7.47%	6.85%	5.57%	2.35%	1.10%

Source: Own calculation

Figure 4.6 Changes of profitability ratios



Source: Own elaboration

As we can see from table 4.7 and Figure 4.6. There is some shocking information for us. From the whole figure, all these four ratios are decreasing in the given period. And we can find it decrease amazingly fast. The greatest change is *return on equity*. In year 2012 it keeps at 7.47%, and it end 1.10% in year 2016. It's a remarkable change of CNPC.

Moreover, we can find the *operating profit margin* and *net profit margin* are constantly decrease all this years. The main reason why this happened is that China has passed the period with high price gas and oil. Another reason is mainly due to the decline in the prices of crude oil, natural gas and refined oil products compared with the same period of last year. From my own perspective, it's hard to believe CNPC have such a low profit in China. The revenue of CNPC is over 26 billion in the best situation. Even in the worst situation it over 18 billion. And the *net profit margin* is only 1.43%. we have to say it's really a shocking news for us to know. Especially with the development of China in this years, CNPC shown us a opposite tendency in this faster-develop society.

4.2.2 Liquidity ratios

Liquidity ratios measure the ability of a company to pay its immediate or short-term debt obligations by using liquid assets. In general, higher ratio is preferable. Because it means that the company has enough liquid assets compared to its short debts and has low default risks. We always use some typical ratios to measure liquidity ability of selected company. In this part, “*current ratio*”, “*quick ratio*” and “*cash ratio*” are used. And in the next, we will show the data and result of ratios calculation.

Table 4.8 Data for calculating liquidity ratios

Year ended 31 December (RMB Million)					
year	2012	2013	2014	2015	2016
Current assets	981,720.39	1,041,754.17	1,032,160.93	1,092,236.05	1,252,880.61
Current liabilities	997,345.00	1,131,602.45	1,113,966.29	1,064,269.41	1,026,691.59
Inventories	360,150.69	360,220.84	271,559.06	228,310.10	228,758.02
Cash and cash equivalents	293,696.71	322,375.35	312,079.87	342,772.93	384,370.93

Source: Annual Report of CNPC

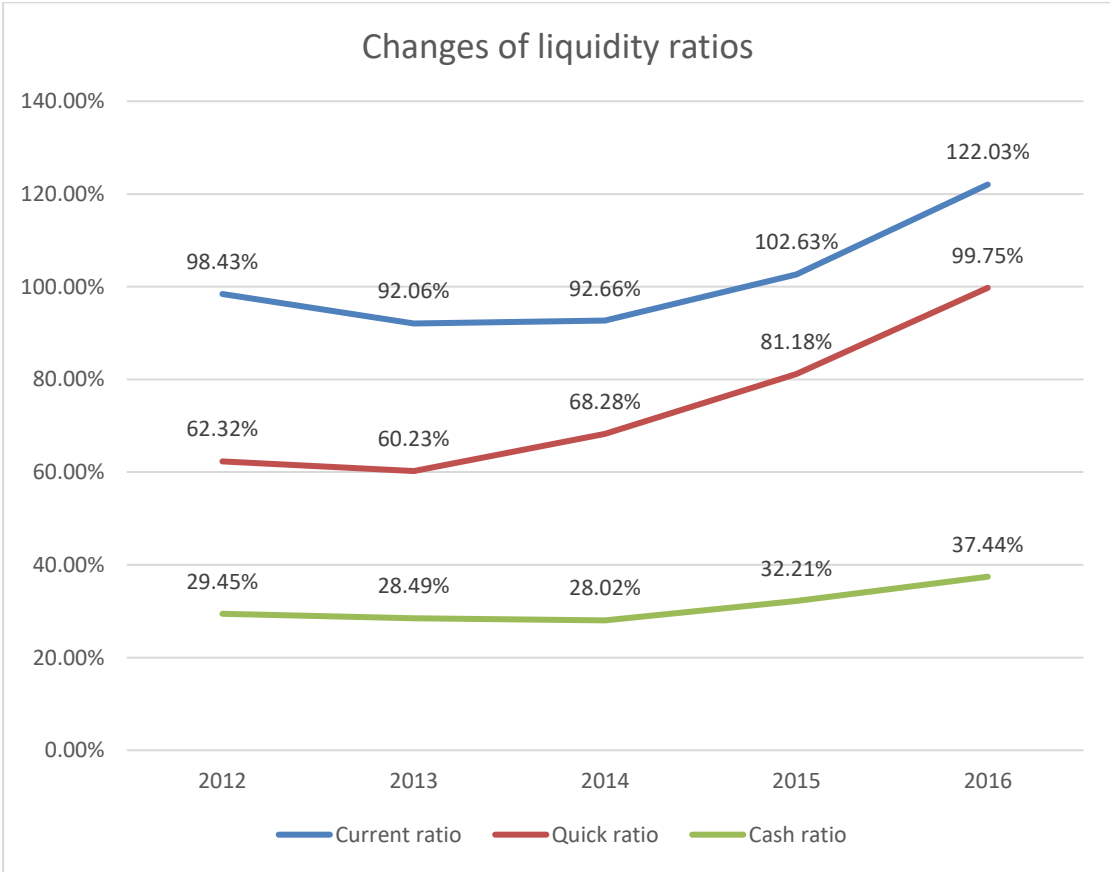
According to Chapter 2, we can calculate three liquidity ratios by using Formula (2.10), (2.11), (2.12). Because cash equivalents include: treasury bills, commercial paper, marketable securities, money market funds and short-term government bonds. Therefore, we use this data instead of marketable securities for simplifying calculation. The results of calculation are revealed in Table 4.9 and Figure 4.7.

Table 4.9 Liquidity ratios of Wanda Commercial

	2012	2013	2014	2015	2016
Current ratio	98.43%	92.06%	92.66%	102.63%	122.03%
Quick ratio	62.32%	60.23%	68.28%	81.18%	99.75%
Cash ratio	29.45%	28.49%	28.02%	32.21%	37.44%

Source: Own calculation

Figure 4.7 Changes of liquidity ratios



Source: Own elaboration

As we can see from table 4.9 and Figure 4.7, three ratios is constantly increase from 2012

to 2016 which is an excellent result for CNPC. This means the ability of transferring cash for CNPC is stronger every year.

The most attractive thing for us is that the *current ratio* really has a big float during the given period. In the first three years, it has a tendency of decreasing. And it starts to increase exceedingly fast. In 2013 it only 92.66%, in 2014 and 2015, the result is achieved to 102.63% and 122.03%. It is a big progress for CNPC. And we can notice the *cash ratio* is always increase in a gentle way as well. we take the attitude that the greatest absolute change must be the *quick ratio*. In year 2012 it only 62.32%, and it constantly increase to 99.75% in year 2016. The absolute change of *quick ratio* is 37.43%. It's a milestone for CNPC. Even in this year, CNPC's profit have decreased over 100%, but the liquidity ability of CNPC is extraordinarily strong due to the result we calculate.

4.2.3 Assets management ratios

Assets management ratios measure the efficiency of a company uses its assets to do operation cycles and earn profits. We always use some typical ratios to measure operation ability of selected company. In this part, “*inventory turnover*”, “*total assets turnover*” and “*average collection period*” are used. And here we give a table 4.10 to show the data we will use for calculating.

Table 4.10 Data for calculating assets management ratios

Year ended 31 December (RMB Million)					
year	2012	2013	2014	2015	2016
Revenue	2683480.30	2759303.41	2729956.16	2016756.66	1871902.90
Accounts receivable	132746.01	153260.31	119564.88	122464.89	118138.55
Inventories	360150.69	360220.84	271559.06	228310.10	228758.02
Cost of sales	64277.62	72350.52	73361.80	73581.19	74407.67
Total assets	3409420.37	3757359.86	3906295.85	4034097.79	4069759.24

Source: Annual Report of CNPC

Because the unit of turnover ratios are different from the unit of collection period, we'd better compare these variables separately. And base on Chapter 2, assets management (or activity) ratios can be calculated by using Formula (2.17), (2.18), (2.19). And *average collection period* can be computed by using Formula (2.16). The results of calculation as follow tables and figure.

Table 4.11 Average collection period

Year	2012	2013	2014	2015	2016
Average collection period (ACP)	17.81	20.00	15.77	21.86	22.72

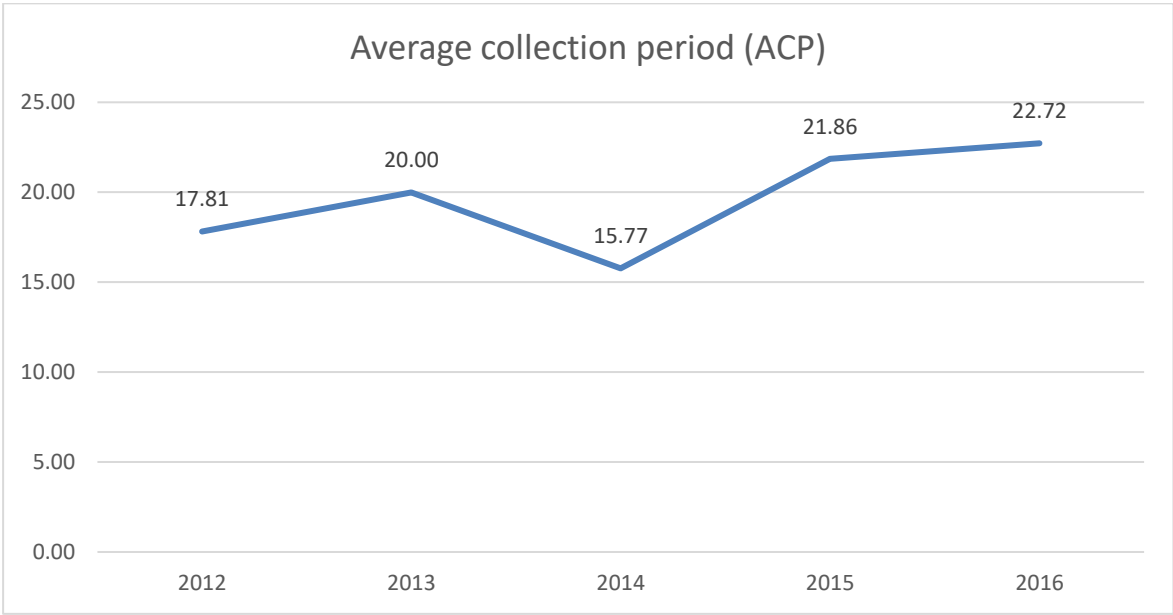
Source: Own calculation

Table 4.12 Assets management ratios of Wanda Commercial

year	2012	2013	2014	2015	2016
Accounts receivable turnover (ART)	1780.84%	1999.55%	1576.71%	2186.05%	2272.01%
Inventory turnover (IT)	17.85%	20.09%	27.02%	32.23%	32.53%
Total assets turnover (TAT)	78.71%	73.44%	69.89%	49.99%	46.00%

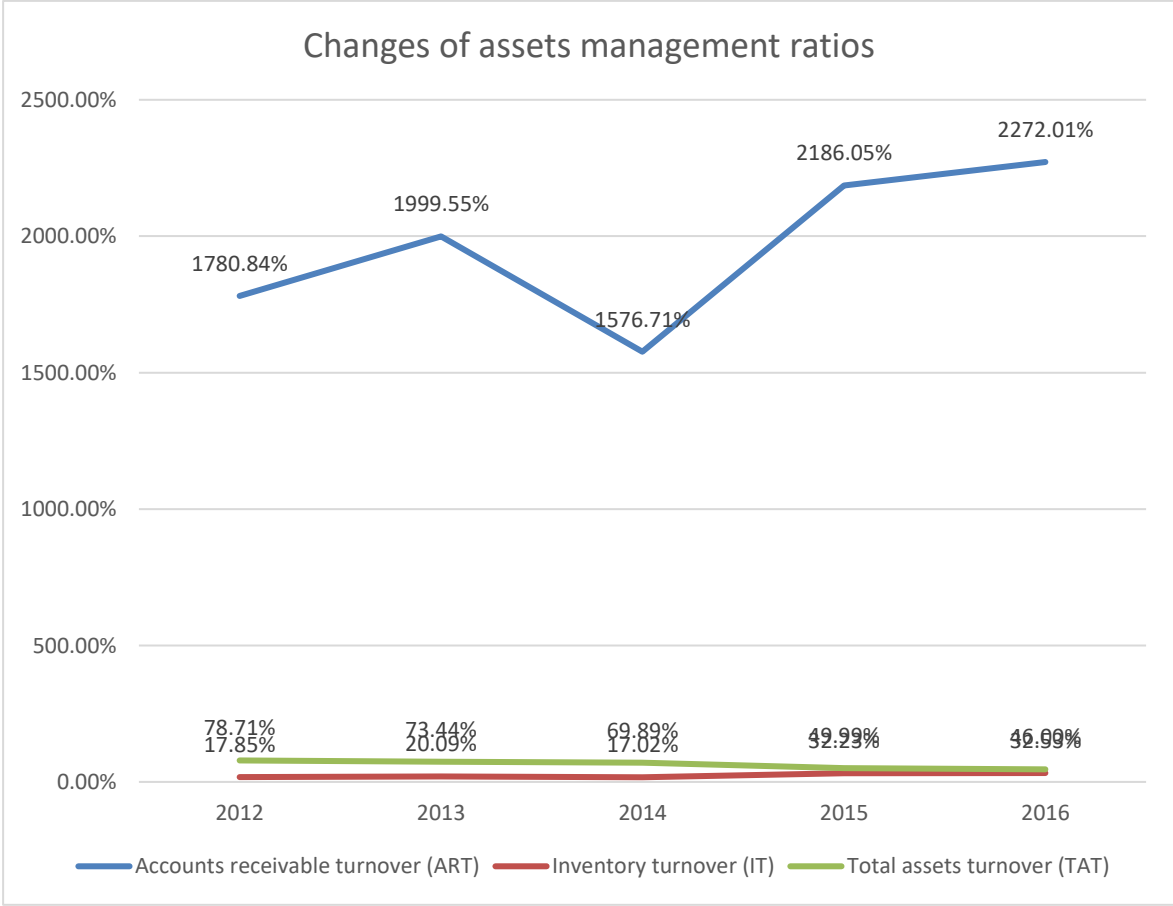
Source: Own calculation

Figure 4.8 Changes of average collection period



Source: Own elaboration

Figure 4.9 Changes of assets management ratios



Source: Own elaboration

As we can acquire from all these tables and figures, we can find some result about the Pacifist we are able to know the *average collection period* is a good situation for corporation. The minimum period only takes 15.77 days, and the maximum is 22.72 days. we take the attitude that this period is exceedingly fast for such a big corporation. Because the everyday there are a lot of money will get in and out. It can be collect in short period is good for turnover.

Moreover, in the next three major assets management ratios. We can see the *accounts receivable turnover* is show us an extraordinarily high level of accounts receivables transfer to cash. And it means CNPC has an extremely strong liquidity of its assets. The maximum reach to 2272 per year, and the minimum is nearly 1577 per year. The *inventory turnover* is keep a stable tendency in the given period. And we can find that the *inventory turnover* is reach maximum 32.53, which is an extremely good result. Because this result measure the speed of inventory and the efficiency of using cash. It will also show the ability of short-term liquidity. And the *total assets turnover* is constantly decreasing, from 78.71 in the begin and 46 in the end. It quite decreases a lot of this result. Which is a terrible news for CNPC. The *total assets turnover* measures the efficiency of running this corporation. And from the result we can know that the situation of CNPC is getting bad and there is some problem in management. We can find that in the begin is was excellent, the *total assets turnover* is control around 70, but it starts to fall 2014. And get a big decrease in year 2015 and 2016. How coincidence the same period the profit of CNPC have a big recession. For this result, there are lots of factors to influence the change of CNPC. But we have to say the total asset turnover is a sign which we can easily analyze the basic situation of this corporation.

In the next, we will explore solvency ratios of CNPC. These ratios is measure directly the safety of this corporation. It's important for us to have a deep research on these ratios.

4.2.4 Solvency ratios

Solvency ratios, also called leverage ratios, measure a company's ability to sustain operations indefinitely by comparing debt levels with equity, assets, and earnings. In other words, solvency ratios identify going concern issues and a firm's ability to pay its bills in the long term. Many people confuse solvency ratios with liquidity ratios. Although they both measure the ability of a company to pay off its obligations, solvency ratios focus more on the long-term sustainability of a company instead of the current liability payments.

The solvency ratio is the ratio of the security of the company's liabilities to the ability to repay the short-term liabilities. The size of solvency largely reflects the degree of risk of

business operations. Such ratios mainly include asset-liability ratios, *current ratios* and *quick ratios*. And to calculate the solvency ratio of CNPC. We will show the data and result which we will use and calculate in the next tables and figures.

Table 4.13 Data for calculating solvency ratios

Year ended 31 December (RMB Million)					
year	2012	2013	2014	2015	2016
Total liabilities	1545309.74	1701814.10	1682980.31	1635809.14	1624863.20
Total assets	3409420.37	3757359.86	9606295.85	4034097.79	4069759.24
Total equity	1864110.63	2055545.76	2223315.54	2398288.65	2444896.04
Operating profit (EBIT)	184835.64	161290.71	170791.54	83008.94	54799.13
Interest and bank charge paid	13580.46	12984.71	13080.53	12416.15	13921.36

Source: Annual Report of CNPC

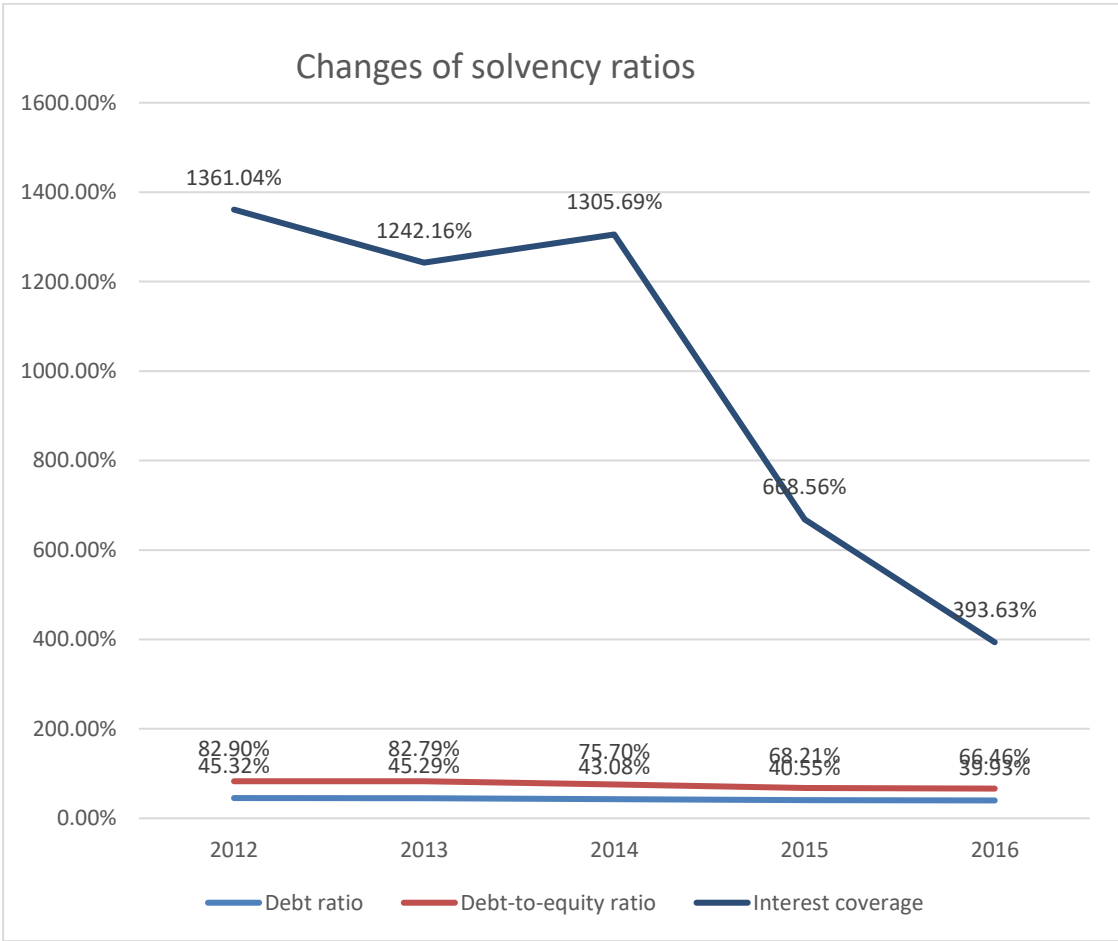
According to chapter 2, we put solvency ratio by using formula (2.13), (2.14), (2.15). And the result will put in the follow tables and figures.

Table 4.14 Solvency ratios of CNPC

year	2012	2013	2014	2015	2016
Debt ratio	45.32%	45.29%	43.08%	40.55%	39.93%
Debt-to-equity ratio	82.90%	82.79%	75.70%	68.21%	66.46%
Interest coverage	1361.04%	1242.16%	1305.69%	668.56%	393.63%

Source: Own calculation

Figure 4.10 Changes of solvency ratios



Source: Own elaboration

We can take the attitude that even CNPC have a big recession since 2015, but the *debt ratio* is deliver a message that CNPC is keep a healthy situation in these years. As we can see from table 4.14, the *debt ratio* is keep in a stable situation's maximum is 45.32% in year 2012, minimum is 39.93% in 2016. The absolute change of this *debt ratio* is small compare to the big recession which CNPC was suffering. On the contrary, as we can see the *debt ratio* even decrease a little with the time flies. And this means CNPC have more internal issues instead of external issues.

The debt-to-equity ratio can reflex our view directly. As we can see the debt-to-equity ratio is constantly decrease during the given period. At the begin is 82.90%, and it eventually end 66.46% in year 2016. This ratio reveals the extent to which corporate managers are willing to operate in debt rather than using their own equity. And its good news for CNPC. Especially when CNPC want to have a loan from bank since they have the recession. As we all known, the bank won't accept the loan request if the company have high debt-to-equity ratio. The investor and debtor are extremely interested in the debt-to-equity ratio of a company. This factors directly influence their final decision. And low debt-to-equity ratio will bring more opportunities for CNPC.

Finally, let's pay attention to the *interest coverage*. Initially, we can find out that the *interest coverage* has gone through a constantly big change during these years. And the absolute change is quite high compare to the others ratio. The absolute change reach 967.41%. The reason this ratio could have such a big fluctuation is because the big recession of CNPC since 2015. The profit of CNPC is fall like a waterloo compare to the previous business. Hence, the *interest coverage* is decrease a lot as well. Even the *interest coverage* is decrease, but we can see it always over 100% which means CNPC can pay the interest. And from the whole picture, we can find out CNPC have a strong ability for debt.

4.3 DuPont analysis

From chapter 2, we can know that DuPont analysis uses a combination of several major financial ratios to comprehensively analyze the financial status of a company. DuPont analysis is a classic method used to evaluate the company's profitability and return on shareholders' equity, and to evaluate corporate performance from a financial perspective. The basic idea is to decompose the enterprise's *ROE* into multiple financial ratio products, which is helpful for in-depth analysis and comparison of business performance.

And according to the formula of Dupont analysis, we will list the data which will be used

for calculation in the follow table.

Table 4.15 Data for DuPont analysis

Year ended 31 December (RMB Million)					
year	2012	2013	2014	2015	2016
Net profit (EAT)	139184.91	140808.07	123844.68	56241.88	26793.88
Revenue	2683480.30	2759303.41	2729956.16	2016756.66	1871902.9
Total assets	3409420.37	3757359.86	3906295.85	4034097.79	4069759.24
Total equity	1864110.63	2055545.76	2223315.54	2398288.65	2444896.04

Source: Annual Report of CNPC

Moreover, we can analyze the changes of *ROE* in CNPC by applying method of gradual changes. And there are three steps to work it out.

Initially, we need to evaluate *ROE* for every period and calculate the absolute change and change of index. Secondly, calculate three parts ratios for each period. Finally, quantify the impact of the change in three ratios on *ROE* and rank it. The results will be list on the follow tables.

Table 4.16 First step for method of gradual change

year	2012	2013	2014	2015	2016
Return on equity (ROE)	7.47%	6.85%	5.57%	2.35%	1.10%
Absolute Change		-0.62%	-1.28%	-3.23%	-1.25%
Index of the change		91.74%	81.32%	42.10%	46.73%

Source: Own calculation

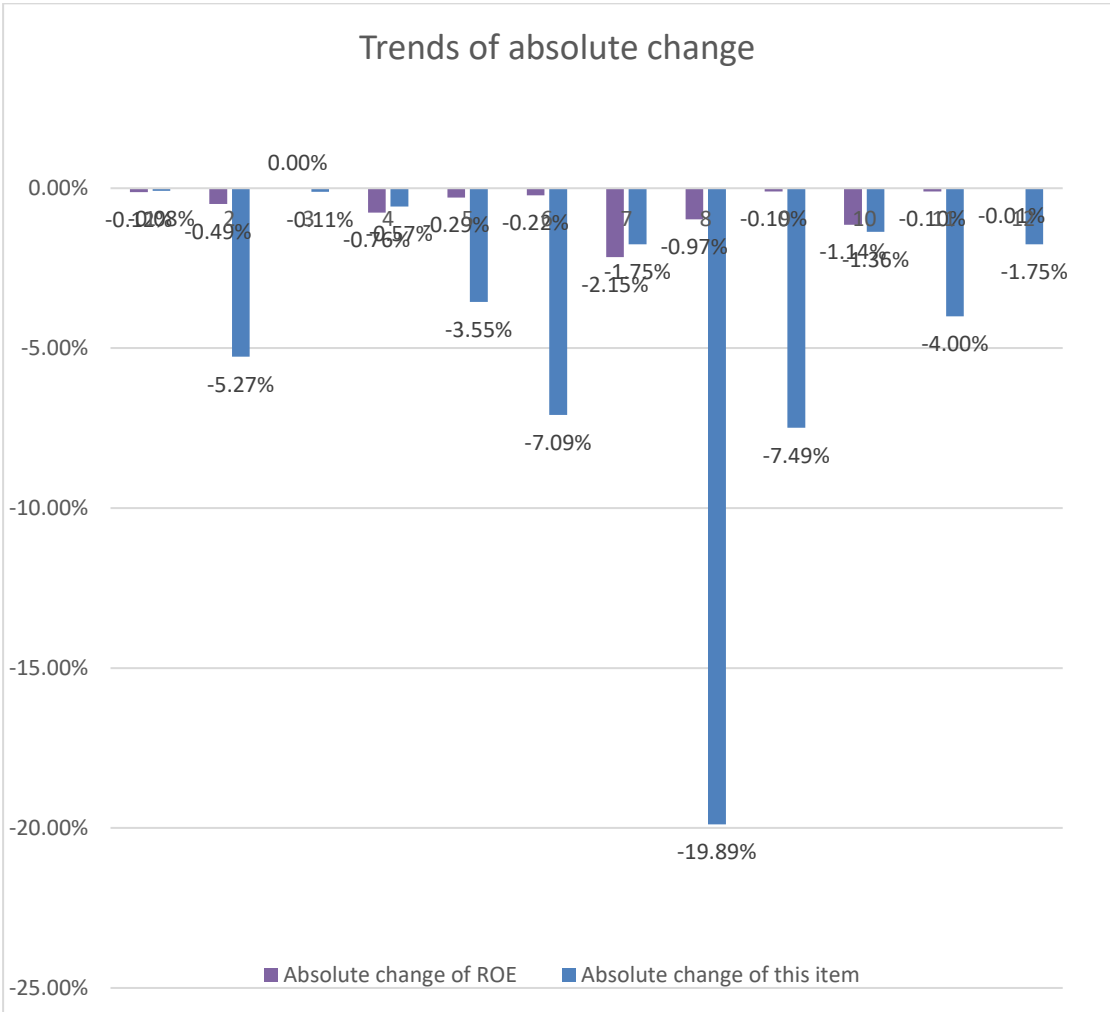
As we can see from table 4.16, the absolute change of *ROE* is constantly keep in a negative situation. And it gets bigger and bigger with the time flies. And the tendency of index of the change is constantly decrease in these years. The maximum of it is 91.74% in year 2013, the minimum result is 46.73% in year 2016. It's quite a lot of absolute changes for this part. And since we get all this information, we can move to the next table 4.17.

Table 4.17 Second and third steps for method of gradual changes

	2012	2013	Absolute change of this item	Absolute change of ROE	Order
<i>EAT/REV</i>	5.19%	5.10%	-0.08%	-0.12%	2
<i>REV/ASSETS</i>	78.71%	73.44%	-5.27%	-0.49%	3
<i>ASSETS/EQUITY</i>	182.90%	182.79%	-0.11%	0.00%	1
<i>SUM</i>				-0.62%	
	2013	2014	Absolute change of this item	Absolute change of ROE	Order
<i>EAT/REV</i>	5.10%	4.54%	-0.57%	-0.76%	3
<i>REV/ASSETS</i>	73.44%	69.89%	-3.55%	-0.29%	2
<i>ASSETS/EQUITY</i>	182.79%	175.70%	-7.09%	-0.22%	1
<i>SUM</i>				-1.28%	
	2014	2015	Absolute change of this item	Absolute change of ROE	Order
<i>EAT/REV</i>	4.54%	2.79%	-1.75%	-2.15%	3
<i>REV/ASSETS</i>	69.89%	49.99%	-19.89%	-0.97%	2
<i>ASSETS/EQUITY</i>	175.70%	168.21%	-7.49%	-0.10%	1
<i>SUM</i>				-3.23%	
	2015	2016	Absolute change of this item	Absolute change of ROE	Order
<i>EAT/REV</i>	2.79%	1.43%	-1.36%	-1.14%	3
<i>REV/ASSETS</i>	49.99%	46.00%	-4.00%	-0.10%	2
<i>ASSETS/EQUITY</i>	168.21%	166.46%	-1.75%	-0.01%	1
<i>SUM</i>				-1.25%	

Source: Own calculation

Figure 4.11 Trends of absolute change



Source: Own elaboration

As we can know from these tables and figures. From year 2012 to year 2016.all absolute change of item and ROE is negative. And this means CNPC has a big recession in these years due to the decrease of oil and gas. The *EAT* have a big recession compare the result in begin and end. *EAT* can reflect many ways of company’s situation. The absolute change of *EAT* is reach to -112391 million RMB. We can see CNPC do take a lot of loss in the given period.

A company’s leverage represents the debt level of a firm. If a company borrows too much money, it will bear much more risk. Moreover, we can find out that the leverage of CNPC is increase in the first three year. And it begins to decrease. The important point is in the highest point CNPC start to have a recession. We can not say the recession is mostly due to the debt issues. But debt issues must bring a lot of problems for CNPC. Fortunately since year 2014, with the high-speed development of economic and CNPC’s effort. CNPC has controlled the

situation which they face and make it better than before. Finally, in year 2016 CNPC has control the financial leverage in an extraordinarily reasonable range in case some accident to the corporation's really done an excellent work after 2014.

CNPC has been a difficult time in this selected time. They were going through on a big recession. The profit they make has a lot of change in every year. But even they have such a big misfortune, the profit of CNPC in year 2016 is still positive which is amazing compare to some other corporation which was going through the same situation. we take the attitude that there are only little corporation will survive if they are under this recession.

5. Conclusion

In this part, we summarize the main work in this thesis and the conclusion of CNPC.

First, we summarize the main work in this thesis. In the chapter 1 we make a headline about this thesis. And in the chapter 2, we introduce the method of financial analysis. Moreover, in chapter 3 we introduce CNPC in different perspectives. Then in chapter 4 we calculate all kinds of different financial ratios and make DuPont analysis of CNPC. And give relative comments. And in chapter 5 we give a conclusion about CNPC.

We can come to a conclusion that CNPC developed well in the selected period, even CNPC was going through a big recession in year 2015. In 2012, CNPC running very well. The revenue comes to a high level compare to previous year, and every financial ratio is in healthy position. In 2013, CNPC come to a better situation due to many pipeline projects have been constructed. The assets of CNPC have a big increase, the absolute change of assets reach to 347939.49 million RMB. In the meantime, the liabilities are starting to decrease gradually. The revenue of this year is nearly 27.95 billion RMB and it's the highest revenue as well in the selected period. In 2014, CNPC keep a stable situation due to CNPC has signed many international strategy cooperation contracts. It brings CNPC a lot of benefit from overseas. The data which from Chapter 3 can obviously show CNPC have an improvement in overseas market. And it makes CNPC have a big step for internationalization. In 2015, CNPC meet a Waterloo due to the decline in the prices of crude oil, natural gas and refined oil products compared with the same period of previous. It's a deadly damage to CNPC due to the net profit of CNPC decrease over 100% compare to the previous year. The revenue decrease 26.12% in this year and the assets nearly have no change. The *ASSET/EQUITY* reach to 168.21%, it decreases 7.49% compare to last year. The *EAT/REV* and *REV/ASSETS* reach to 2.79% and 49.99%. All this index decrease in different level, especially from the decline of *EAT/REV* we can see that CNPC under a huge loss in this year. In 2016, CNPC still in a decrease tendency because of last year influence. The range of profit and revenue decrease even more greater than year 2015. The revenue in 2016 is only 1871902.9 million RMB, net profit less than half of year 2015. But good news is that the important financial ratio and index keep in positive position which means CNPC is getting control of market.

CNPC always keep a positive position of net profit even in year 2015 and 2016. Even it's lower than previous years. And in year 2016 CNPC show a tendency that it tries to get control back which means CNPC survive from the recession. As we all know, corporation like CNPC is a special existence in the world. Because this corporation belong to Chinese government.

Due to the specialty of natural resources. It can not go broke in China. There a very classical wisdom: Too big to fall. CNPC is right on this position. Too many industries relate with gas, oil and its derivative. If some real problem come to CNPC, the government will try everything they can do to save it. Because it's not a simple problem for one corporation, it will become a nightmare if government let it develop naturally. That's the truly reason why CNPC survive.

Last but not least, we would like to share some experience that macro environment will affect microeconomics. When we select a corporation or company to analysis, we need to link our target to macro environment, relevant industries, even the whole country. Only in this way we can find the real answer for our question.

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List of Abbreviation

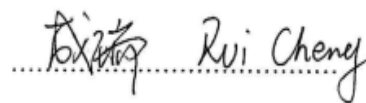
CNPC	China national petroleum corporation
ACP	Average collection period
ART	Accounts receivable turnover
EBIT	Earnings before interest and taxes
EBT	Earnings before taxes
EAT	Earnings after taxes
IT	Inventory turnover
NPM	Net profit margin
OP	Operating profit
OPM	Operating profit margin
REV	Revenue
ROA	Return on assets
ROE	Return on equity
TAT	Total assets turnover

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List of Annexes

Annex 1: Balance sheet

Annex 2: Income Statement

Annex 1: Balance sheet

Consolidated Balance Sheet

million RMB yuan.

	2011	2012	2013
Current assets			
Cash and cash equivalent	278,416.84	293,696.71	322,375.35
Tradable financial assets	3,064.12	2,323.12	8,883.41
Bills and accounts receivable	101,809.68	132,746.01	153,260.31
Prepayments	51,975.04	48,201.93	78,405.51
Other accounts receivables	55,533.84	57,788.42	48,537.46
Inventories	314,589.98	360,150.69	360,220.84
Other current assets	81,823.47	86,813.51	70,071.29
Total current assets	887,212.97	981,720.39	1,041,754.17
Fixed assets			
Available-for-sale financial assets	45,588.19	71,297.57	87,845.18
Held-to-maturity investments	138,700.62	123,563.27	128,811.40
Long-term equity investments	71,785.95	79,370.53	139,602.62
Fixed assets-net value	619,741.11	725,436.36	766,655.83
Construction in progress	319,252.25	369,470.56	395,385.97
Oil and gas assets	699,907.96	790,132.31	869,697.34
Intangible assets	60,451.38	69,707.18	76,924.93
Other fixed assets (other long-term assets)	185,235.81	198,722.20	250,682.42
Total fixed assets	2,140,663.27	2,427,699.98	2,715,605.69
Total Assets	3,027,876.24	3,409,420.37	3,757,359.86
Current liabilities			
Short-term loans	92,165.76	110,124.15	103,613.04
Bills and accounts payable	327,909.63	394,373.95	415,016.81
Prepayments	73,298.16	76,128.13	86,043.12
Employee pay payable	23,164.33	19,041.00	20,045.47
Taxes payable	132,842.21	92,768.24	85,804.27
Other payables	92,315.83	90,255.67	93,151.82
Other current liabilities	241,099.05	214,653.86	327,927.92
Total current liabilities	982,794.97	997,345.00	1,131,602.45
Non-current liabilities			
Long-term loans	29,671.92	22,633.17	13,730.29
Estimated liabilities	73,384.11	88,965.18	99,533.29
Deferred income tax liabilities	25,319.25	27,253.49	20,203.42
Other non-current liabilities	216,024.16	409,112.90	436,744.65
Total non-current liabilities	344,399.44	547,964.74	570,211.65
Total liabilities	1,327,194.41	1,545,309.74	1,701,814.10

Consolidated Balance Sheet (continued)

million RMB yuan.

	2011	2012	2013
Owners equity			
Paid-in capital	379,863.46	397,540.32	431,514.04
Capital reserves	261,852.85	265,360.66	294,806.78
Special reserves	32,442.96	31,178.59	29,559.30
Surplus reserves	841,139.88	942,093.06	1,035,602.97
General risk preparation	1,480.42	2,392.73	5,452.65
Retained profits	14,241.18	15,498.38	20,478.40
Converted difference in Foreign Currency Statements	-17,096.43	-17,826.16	-29,883.14
Total owners' equity attributable to parent company	1,513,924.32	1,636,237.58	1,787,531.00
Minority interests	186,757.51	227,873.05	268,014.76
Total owners' equity	1,700,681.83	1,864,110.63	2,055,545.76
Total liabilities and owners' equity	3,027,876.24	3,409,420.37	3,757,359.86

Consolidated Balance Sheet

million RMB yuan

	2014	2015	2016
Current assets			
Cash and cash equivalent	312,079.87	342,772.93	384,370.93
Funds lent	839.43	3,463.90	2,535.00
Financial assets at fair value through profit or loss	15,889.06	8,386.01	9,249.11
Derivative financial assets	635.02	708.88	843.09
Notes receivable	15,338.15	10,181.47	12,940.35
Accounts receivable	119,564.88	122,464.89	118,138.55
Prepayments	155,799.42	252,184.67	262,372.58
Premium receivable	68.99	83.15	93.75
Reinsurance accounts receivable	105.53	208.18	274.07
Reinsurance reserves receivable	282.62	591.67	697.62
Interest receivable	2,972.90	3,090.63	3,512.85
Dividends receivable	346.47	559.49	301.37
Other receivables	55,360.92	21,331.55	16,773.97
Financial assets purchased under resale agreements	23,680.58	27,306.75	5,844.25
Inventories	271,559.06	228,310.10	228,758.02
Non-current assets maturing within one year	586.69	681.26	142,302.86
Other current assets	57,051.34	69,910.52	63,872.24
Total current assets	1,032,160.93	1,092,236.05	1,252,880.61
Non-current assets			
Loans and advances issued	103,092.73	113,833.13	68,758.77
Available-for-sale financial assets	111,994.01	105,723.80	47,290.02
Held-to-maturity investments	105,424.55	109,347.69	82,602.47
Long-term accounts receivable	67,902.58	76,425.41	92,447.77
Long-term equity investments	136,425.59	93,055.99	107,612.58
Investment properties	983.19	1,522.27	2,258.24
Original value of fixed assets	1,505,478.94	1,656,345.50	1,725,184.01
Less: Accumulated depreciation	627,694.66	700,441.33	767,420.70
Net value of fixed assets	877,784.28	955,904.17	957,763.31
Less: Impairment of fixed assets	63,409.47	64,892.27	81,696.51

Consolidated Balance Sheet (continued)

million RMB yuan

	2014	2015	2016
Fixed assets-net value	814,374.81	891,011.90	876,066.80
Construction-in-progress	365,498.23	340,766.92	283,904.13
Project materials	6,216.90	7,865.15	8,141.70
Disposal of fixed assets	541.08	633.44	674.27
Productive biological assets	0.23	0.72	0.67
Oil and gas assets	959,201.39	957,299.20	958,466.58
Intangible assets	82,562.46	86,054.09	88,474.58
Development expenditure	1,041.12	1,480.82	1,299.82
Goodwill	7,911.06	46,258.07	46,699.93
Long-term deferred expenses	39,248.07	37,822.48	35,874.99
Deferred tax assets	22,111.00	24,618.22	29,078.09
Other non-current assets	49,605.92	48,142.44	87,227.22
Total non-current assets	2,874,134.92	2,941,861.74	2,816,878.63
Total Assets	3,906,295.85	4,034,097.79	4,069,759.24
Current liabilities			
Short-term loans	109,804.13	55,361.49	86,917.37
Borrowings from central bank	25.00	603.12	661.42
Deposits from customers and interbank	204,144.40	205,737.15	195,183.34
Borrowing funds	47,319.41	60,878.57	73,016.02
Derivative financial liabilities	370.59	793.64	561.18
Notes payable	17,584.38	18,544.14	23,067.58
Accounts payable	356,853.92	302,057.78	290,932.91
Receipts in advance	83,494.86	80,306.50	89,127.37
Funds from sales of financial assets with repurchasement agreement	12,834.15	13,147.37	7,180.54
Handling charges and commissions payable	21.42	18.21	25.36
Staff remuneration payable	21,306.06	21,311.56	24,047.74
Taxes payable	62,837.70	48,134.39	56,976.06
Interest payable	13,080.53	12,416.15	13,921.36
Dividends payable	1,263.84	1,563.13	6,678.27
Other payables	111,929.05	88,431.51	64,374.87

Consolidated Balance Sheet (continued)

million RMB yuan

	2014	2015	2016
Reinsurance accounts payable	82.10	177.30	288.98
Reserve for insurance contracts	955.84	1,532.18	1,928.84
Funds arising from acting trading of securities	0.01	0.01	0.01
Non-current liabilities due within one year	43,114.03	148,144.36	84,869.42
Other current liabilities	26,944.87	5,110.85	6,932.95
Total current liabilities	1,113,966.29	1,064,269.41	1,026,691.59
Non-current liabilities			
Long-term loan	13,323.57	17,266.61	20,583.12
Bonds payable	389,758.25	378,765.86	393,853.21
Long-term payables	7,633.45	8,163.61	6,849.00
Long-term employee remuneration payable	112.85	123.36	1,489.51
Specific payables	1,522.83	1,314.39	1,271.46
Accrued liabilities	114,240.95	124,243.92	132,281.72
Deferred income	11,222.02	12,790.39	13,675.89
Deferred tax liabilities	24,007.67	23,621.25	25,998.21
Other non-current liabilities	7,192.43	5,250.34	2,169.49
Total non-current liabilities	569,014.02	571,539.73	598,171.61
Total liabilities	1,682,980.31	1,635,809.14	1,624,863.20
Owners' equity			
Paid-up capital (or share capital)	468,007.69	486,855.00	486,855.00
Other equity instruments	109,540.88	209,511.78	209,511.78
Capital reserve	264,289.14	275,212.89	289,747.45
Other comprehensive income	-33,637.66	-44,117.41	-17,190.83
Special reserve	29,894.05	30,961.72	32,365.52
Surplus reserve	1,082,961.47	1,105,198.51	1,085,777.17
General risk provisions	7,072.37	7,752.71	8,706.33
Undistributed profit	18,143.69	8,020.88	2,233.19
Total owner's equity attributable to parent company	1,946,271.63	2,079,396.08	2,098,005.61
Minority interest	277,043.91	318,892.57	346,890.43
Total owners' equity	2,223,315.54	2,398,288.65	2,444,896.04
Total liabilities and owners' equity	3,906,295.85	4,034,097.79	4,069,759.24

Annex 2: Income statement

Consolidated Profit Statement

million RMB yuan.

	2011	2012	2013
Operating income	2,381,278.23	2,683,480.30	2,759,303.41
Income from core businesses	2,376,592.51	2,678,563.64	2,753,729.56
Income from other businesses	4,685.72	4,916.66	5,573.85
Less: Operating cost	1,716,446.17	2,026,837.02	2,101,254.46
Cost of core businesses	1,712,817.27	2,022,621.55	2,096,268.76
Cost of other businesses	3,628.90	4,215.47	4,985.70
Business tax and supertax	268,676.76	257,977.86	249,723.07
Sales expenses	61,139.91	64,277.62	72,350.51
Management expenses	120,923.24	116,260.26	122,550.66
Financial expenses	14,251.20	16,592.13	23,484.44
Loss on depreciation of assets	13,352.40	8,195.50	18,866.33
Others	26,460.65	25,735.97	27,184.82
Plus: Income from change in fair value (Loss is presented with "-")	-67.22	17.46	-44.74
Income from investments (Loss is presented with "-")	21,735.58	17,214.24	17,446.33
Operating profit (Loss is presented with "-")	181,696.26	184,835.64	161,290.71
Plus: Non-operating income	14,434.13	15,780.33	45,422.92
Less: Non-operating expense	14,406.35	16,715.87	18,686.14
Total profit (Loss is presented with "-")	181,724.04	183,900.10	188,027.49
Less: Income tax expense	51,196.20	44,725.51	47,219.42
Net profit	130,527.84	139,174.59	140,808.07
Net profit attributable to owners' equity of the parent company	105,490.19	114,802.85	113,775.07
Loss and gain from minority	25,037.65	24,371.74	27,033.00

Consolidated Profit Statement

million RMB yuan

	2014	2015	2016
Total revenue from operations	2,729,956.16	2,016,756.66	1,871,902.90
Including: Operating income	2,708,477.73	1,998,581.26	1,855,283.73
Interest income	19,302.73	16,263.99	14,272.62
Premiums earned	125.88	95.59	333.04
Handling charges and commission income	2,049.82	1,815.82	2,013.51
Total cost of operations	2,577,876.46	1,967,309.67	1,851,542.17
Including: Operating cost	2,078,216.88	1,505,437.21	1,418,917.78
Interest expenses	7,204.02	7,576.47	6,789.72
Handling charges and commission expenses	138.11	187.35	114.52
Net expenditure for compensation payments	83.55	119.04	193.99
Net amount of provision for insurance contract	91.48	200.51	240.71
Reinsurance costs	-35.21	-89.04	-57.09
Business tax and surcharges	237,755.67	207,785.05	197,241.56
Selling expenses	73,361.80	73,581.19	74,407.67
Administrative expenses	114,585.63	107,646.79	102,538.88
Finance expenses	23,123.44	4,166.32	-10,479.22
Impairments loss of assets	19,454.29	40,875.23	42,512.47
Others	23,896.80	19,823.55	19,121.18
Add: Gains from change in fair value (Loss is represented by "-")	50.07	-15.94	1.47
Gain from investment (Loss is represented by "-")	18,522.42	33,034.59	34,072.87
Exchange gain (Loss is represented by "-")	139.35	543.30	364.06
Operating profit (Loss is represented by "-")	170,791.54	83,008.94	54,799.13
Add: Non-operating income	17,983.14	15,440.45	15,437.55
Less: Non-operating expenditure	15,364.71	15,980.55	19,505.39
Total profit (Total loss is represented by "-")	173,409.97	82,468.84	50,731.29
Less: Income tax expenses	49,565.29	26,226.96	23,937.41
Net profit (Net loss is represented by "-")	123,844.68	56,241.88	26,793.88
Net profit attributable to owners of the parent company	100,798.25	44,560.43	12,406.62
Minority interest income	23,046.43	11,681.45	14,387.26
Net amount of other comprehensive income after tax	-8,001.23	-9,295.46	27,876.33
Total comprehensive income	115,843.45	46,946.42	54,670.21
Total comprehensive income attributable to owners of the parent company	95,463.35	34,080.68	39,247.16
Total comprehensive income attributable to minority interests	20,380.10	12,865.74	15,423.05