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"LIQUIDITY RISK AND ITS DETERMINANTS':
A STUDY ON OIL AND GAS INDUSTRY IN TATNEFT"

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ABSTRACT

Liquidity risk management is an important aspect in the organisation. In order to avoid efficiency, it is important for an organisation to manage liquidity risk. Hence, this study attempted to investigate the influence of firm-specific factors and macro-economic factors affecting liquidity risk of oil and gas industry in Tatneft. This study employs time series analysis from 2012 to 2016. The analysis shows that firm-specific factors (average collection period and corporate governance index score) and macro-economic factor (company's beta) influence the liquidity risk of the industry. This study suggest that the firms should manage their account receivable efficiently by establishing clear credit policy and incorporate more corporate governance elements such as transparency, accountability, fairness, and independence in the firms to make the company more efficient.

Keywords: *Liquidity risk, Average collection period, Corporate governance*

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter begins with an overview of the manufacturing industry (oil & gas) in Russia and the focused company is known as the first Russian oil company, Tatneft. This is followed by the discussion of the problem statement, the research objectives, scope of the study and lastly the organization of the study.

1.2 Overview of the Manufacturing Industry (Oil & Gas) in Tatneft

Tatneft is a Russian's oil and gas company with the headquarters in the city called "Almetyevsk", in the Republic of Tatarstan. Tatneft was mostly known as the sixth largest oil company in Russia and the first Russian oil company that has developed a contract with Syria to extract oil. Then, the contract became initial for in March 2005. Move to 2007, Tatneft company has a total proved reserves of 6.140 billion barrels of crude oil according to the audit by Miller and Lents. This has operated 77 of oil fields, that include the main field of the company known as "Romashkino", with the total output capacity of 25 million tons of oil and a hight amount of natural gas. The other main oil field is known as "Novo-Yelokhov" and "Bavly".

The Tatneft company has conducted production operations in Syria, Iran, Vietnam and this cause by 2008, Tatneft's crude oil production was 189 million barrels and expected to decreased by 1.5% in 2009 to 186 million. The main operating activities of Tatneft consist of gas and oil exploration and production, gas and oil refining and marketing, petrochemicals, industrial safety and labor protection, marketing of non-core product and banking services for its subsidiaries known as Bank Zenit and Bank Devon-Credit. The two largest holding shareholders are non-bank credit organization Closed Joint-Stock Company "National Settlement Depository" (59.55%), and Open Joint-Stock Company "Central Depository of the Republic of Tatarstan" (30.45%).

1.3 Problem Statement

Firms need to manage their liquidity risk efficiently in order to prevent insolvency. Liquidity risk refers to the risk that a company may be unable to meet short-term financial demands as well. The company needs to manage their liquidity risk efficiently in order to prevent insolvency in the future and the long-term financial demands. This circumstance usually occurs due to the inability to convert a security or company's hard asset into cash without a loss of capital and income in the process. Liquidity risk generally arises when a business company with immediately needed a cash, at the same time holds a valuable asset in hand but it is cannot trade or transfer at the market value due to a lack of buyers, or due to an inefficient market where it is difficult to bring buyers and sellers together at the same time.

Russia rating services known as Standard & Poor's has rated lowered Russian long-term sovereign credit rating outlook to negative because of projections that will need to inject more credit into the faltering Russian banking sector. In 2002, Tatneft performed the full payment to the Club of foreign investors. In the same year, the Company also obtained a loan totaling of \$500 million from CSFB and BNP Paribas at very low rates for Russian companies and with a 5-year maturity at that time for the oil industry. In 2008, the Company used to take out only short-term loans to cover cash gaps as well.

1.4 Research Objectives

Overall, this study aims to determine the company liquidity risk and its determinants of manufacturing industry (oil & gas) in Tatneft. Objectives of this study particularly are:

1. To investigate the firm-specific factors towards liquidity risk.
2. To investigate the macro-economic factors towards liquidity risk.
3. To investigate the firm-specific factors and macro-economic factors towards liquidity risk.

1.5 Research Questions

4. 1. Is there any relationship between firm-specific factors and liquidity risk?
5. 2. Is there any relationship between macro-economic factors towards liquidity risk?
6. 3. Is there any relationship between firm-specific factors and macro-economic factors towards liquidity risk?

1.6 Scope of Study

This study will focused on the Tatneft company, where is one of the top oil and gas company in Russia. There are a few biggest oil and gas companies in Russia other than Tatneft, which are Rosneft, Lukoil, Gazprom and many more. These selected companies are owned and operated by the state-owned monopoly in Tatneft. The accounting and the financial ratios was based on company annual report for 5 years (from 2012 to 2016).

1.7 Organization of the Study

Overall of this study includes of five main chapters. Chapter one provides background of study, which consists of an overview of the study, problem statement, research objectives, scope of the study, and organization of the study. Then, chapter two reviews the literature, the subject discussed in this chapter is about firms' liquidity risk and its determinants. Move to chapter three consist of details the theoretical framework, measurement of variables, research methodology and data analysis. Next, chapter four discusses the results and findings of the study, which includes the descriptive statistical analysis, correlation and diagnostic test. Finally, chapter five includes summary and conclusions of the study, implications of the study, the limitation of the study and also future suggestions.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Chapter 2 is discussion about the literature review that based on our studies. There are three sections in this chapter which were section 2.1, section 2.2 and section 2.3. In the section 2.2 explain in detail about the definition and the concept of financial risks. The section 2.3 is to deliver an awareness of the liquidity risk formation and its firm's specific factors and macroeconomic factors.

2.2 Financial Risk

Financial risk refers to the probability that shareholders will financially loss the money when they are investing in a company that has a financial problem or debt, if the company's cash flow proves inadequate to meet its financial obligations. When a company uses debt financing, its creditors are repaid before its shareholders if the company becomes insolvent. In addition, financial risk can be categorized into various types which are credit risk, market risk, operational risk, liquidity risk, and legal risk. The strong financial risk administration practices can help the oil and gas industry to advertise the firms to reduce their presentation to financial loss, and improve their capacity to contend in the market with other settled foundations (Mirakhor, 2007). The financial risk management or (FRM) include of the procedure in justifying dangers and impact of the financial execution. FRM is a procedure set up for a firm to improve the unstable changes in the business working condition, such as outside money esteems, ware costs or loan fees as well any loan related.

2.3 Liquidity Risk

Liquidity risk refers to the risk that a firm will be not able to meet with his present and future income and guarantee needs. This means that the company need a lot of cash in hand. This both are normal and unexpected that without really influence general money related condition or its day by day activities. Liquidity risk has a large increment when a business or individual with quick money required, when holds a profitable resource that cannot be exchange or offer at advertise an incentive because of an absence of purchasers.

Liquidity risk generally arises in a company when a business company with immediately needed a cash, at the same time holds a valuable asset in hand but it is cannot trade or transfer at the market value due to a lack of buyers, or due to an inefficient market where it is difficult to bring buyers and sellers together at the same time. That situation create a problem to the company operation. The firms or the company need to manage their liquidity risk efficiently in order to prevent insolvency.

Kawaguchi (2016) expressed that oil and gas part liquidity levels were not very extremely influenced and until as of late have stayed adequate. In any case, the current extended decrease in natural costs has had a significantly more injurious impact on oil and gas segment liquidity, so that there is presently a need to execute best liquidity practices. External sources of liquidity are additionally ending up less promptly available as the decrease in the oil cost has hit oil and gas organization FICO scores.

2.4 Credit risk

Credit risk is defined as the risk that occurs when borrower fails to repay the loan and lender lose the principal amount and interest associated with it (Investopedia). Credit risk occurs when the account holders fail to meet their legally binding commitments on obligations they owe an element (Ferri, 2002). Depending on business nature, certain business divisions cannot distribute with credit risk and in this manner are presented to credit risk or default chance. As indicated by Fabozzi et al (2002), credit risk evaluation includes thought of these components, default probability, credit presentation and restoration rate.

In terms of macroeconomic factors, for example, interest rate and stock index return altogether Impact Company's acknowledge risk along for frame particular elements like use, liquidity, benefit and instability. Conversely, bring down credit chance presentation implies an ideal borrowers' level with lessened odds of awful obligations and along these lines money related wellbeing in oil and gas industry. Patsula (2001) recommends that associations can characterize exchange credit into three general classes relying upon its qualities and properties which are open credit, option-term s credit and revolving charge credit.

2.5 Operational risk

Operational risk is the prospect of loss ensuing from inadequate or failed procedures, device or policies. Example, worker errors, machine failures, fraud or other criminal exercise and any event that disrupts commercial enterprise processes. Sometime Operational risk happen because of 100% merely human error. Moreover, most companies accepts that their people and procedures will inherently incur mistakes and make contributions to ineffective operations.

According to Basel Committee (2003), operational risk is basically “the risk of loss resulting from inadequate or failed internal processes, people and system or from external event”, where legal risk was also included under this risk. Jarrow, 2008 said that operational risk can be further classified into two types known as the risk arises from the error in the technology

used by the company which also includes the failure in the process and transactions and the second type, is the risk arises due to the agency cost.

Most corporation receive that their people and methods will inherently incur errors and make a contribution to ineffective operations. In evaluating operational risk, realistic remedial steps have to be emphasize in order to remove exposure and make sure profitable responses. Poor operational risk management can harm an organization's and cause financial damage. Operational risk summarizes the risks a organization undertakes when it attempts to operate within a given area or industry.

As operational risk arise due to the failure of internal control, system, human and also external event, the degree of losses can either be small or catastrophic depend on size of failure. Operational risk is very crucial especially to banking institution and it involved with the public confidence. Operational risk focuses on how things are carried out within a corporation and not always what is produced or inherent within an industry. These risks are often related with active selections concerning to how the corporation functions and what it prioritizes. While the risks are not assured to result in failure, lower production or greater standard costs, they are viewed as higher or lower depending on a variety of interior management decisions.

A study conducted by Sheila (2013), have found that there is a positive relationship between operational risk and liquidity risk. This is because operational risk happens when failures of internal processes exists while liquidity risk happens because of inability to convert assets into cash. Thus, it shows that if liquidity risk increase, the operational risk will also increase. The bank management needs to ensure that each asset that they invest must be liquid to meet the short-term obligation.

Operational ratio and operational margin are some of the ratio used to measure operational risk. Operational ratio is determined by dividing operating expenses to net sale. While for operational margin is determined by dividing earnings before interest and tax or also known as EBIT to revenue, this study conducted by Wiseman and Catanach (1997).

2.6 Profitability

Profitability is a measurement of efficiency and eventually its success or failure. Profitability is closely associated to profit, but it is the metric used to determine the scope of a company's earnings in relation to the size of the business. The performance of a firm shows the improvement level made within a period of time. Firm performance also serves as a barometer in which will measure the success of the organisation. According to research by they found that operational risk has a positive significant relationship with both ROA and ROE. Meanwhile, there is a negative relationship between both credit risk and liquidity risk with ROE. In order to determine the profitability, return on asset (ROA) and return on equity (ROE) ratio is used. ROE it is calculated by total income to common equity while for ROA is calculated by total income to total asset.

Profitability is assessed relative to costs and expenses, and it is analysed in evaluation to property to see how effective a company is in deploying property to generate sales and eventually profits. Rumelt (1974), for example, found that corporations with technically related portfolios had superior performance when compared to the average for the whole sample. However, when the profitability of the industries within which these firms competed was once controlled, the firm's profitability dropped to average relative to a weighted average for the industries in which they competed (Rumelt, 1977)

2.7 Corporate Governance

Corporate governance essentially involves balancing the interests of a company's many stakeholders, such as shareholders, management, customers, suppliers, financiers, government and the community. Corporate governance is the system of rules, practices and processes by which a company is directed and controlled. Governance refers specifically to the set of rules, controls, policies and resolutions put in place to dictate corporate behaviour. Proxy advisors and shareholders are important stakeholders who indirectly affect governance, but these are not examples of governance itself. The board of directors is pivotal in governance, and it can have major ramifications for equity valuation.

Mansi and Maxwell (2008) as cited by Almieda et al., (2014), weak corporate governance contributed towards the wasteful of investment made by the companies which is caused by that the excess of cash own by the company (high liquidity). According to Barca (1995), Italian corporate governance mechanisms are so undeveloped as to substantially retard the flow of external capital to firms. In less developed countries, including some of the transition economies, corporate governance mechanisms are practically non-existent.

Understanding corporate governance not only enlightens the discussion of perhaps marginal improvements in rich economies, but can also stimulate major institutional changes in places where they need to be made. Corporate governance mechanisms are economic and legal institutions that can be altered through the political process -sometimes for the better.

2.8 Market Risk

Market risk is the possibility of an investor experiencing losses due to factors that affect the overall performance of the financial markets in which he or she is involved. Market risk, also called "systematic risk," cannot be eliminated through diversification, though it can be hedged against. Market risk the use of the capital asset pricing model to measure risk said by Baird and Thomas (1990). The definition is consistent with Hendricks and Hirtle (1997) which emphasize that market risk is a result from adverse movement in the underlying risk factors. These factors are interest rate, exchange rates, equity or commodity prices which will bring impact the value of the on-balance sheet position and off-balance sheet position.

There are several major types of market risk which is Equity Risk, Interest Rate Risk, commodity risk and exchange rate risk. Furthermore, equity risk is the risk associated with stock prices. In many cases, stocks have higher associated risks than other investment classes such as government bonds. Some types of equities such as small cap stocks traded on emerging markets can be extremely volatile. Interest rate risk is the risk of unpredictable interest rate changes.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

Cohen and Manion (1996) has defined methodology as the technique that carry out in a research for collecting data. Research methodology is commonly used to achieve the objectives of the study by getting a good result in the end of the research. The purpose of this study conducted is to know about determinants of risk and performances in manufacturing industry of oil and gas in the country of Russia. The method that is used to collect data is Statistical Package for the Social Sciences (SPSS) version 24.

3.2 Population / Sampling Technique

The unit of analysis is the major entity or ‘who’ that is being studied in a research. For example, individuals, groups, social organizations and furthermore could be a unit of analysis in a research or study. Oil and gas organisations will be the unit of analysis in this study. While, the population in this study is the companies that focusing in the manufacturing sector of oil and gas in, which is Tatneft companies. Data from the annual reports from each company from the year 2012 until 2016 is used to measure the dependent variables (liquidity risk) and the independent variables (firm specific factors and macroeconomic factors).

3.3 Statistical Technique

The industry that we chose is manufacturing industry of the Tatneft’s oil and gas industry. Annual report from the year of 2012 to 2016 was collected to find the firm specific factors on term of profitability, liquidity, operational, credit and also to find macroeconomics factors such as interest rate, unemployment rate, inflation rate and interest for five years in order to compare the trend of economic condition from that particular year.

In doing research, the major and most common technique has been used is Ordinary least-square (OLS) regression. We used this technique to analyse data and forms the basis of other techniques. To model a particular response variable which has been recorded, basically OLS is a comprehensive modelling technique we may use. This technique can be applied to a single or multiple explanatory variables and coded categorical explanatory variables (Hutcheson, 2011). The principle stated that to minimize the squared distance between the dependent variable observed values and SRF estimated value, the sample regression function (SRF) should be constructed.

3.4 Data Analysis

In accordance to the conceptual framework of research in the future, there are one dependent variable and two independent variables in this study. The research framework are as follow:

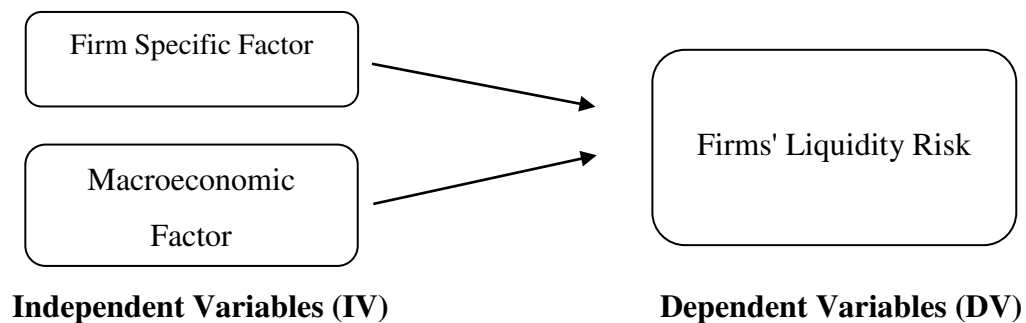


Figure 3.1 Research Framework

To determine the influence of independent variables on the dependent variable, multiple regression analysis was used. It is a regression technique which will describe the influence of the independent variables with the dependent variable. The multiple regression can be presented in the equation form as follows:

$$LR = \beta_0 + \beta_1ACP + \beta_2OPR + \beta_3ROA + \beta_4INDXS + e \dots\dots\dots \text{Equation 1}$$

$$LR = \beta_0 + \beta_1INFLA + \beta_2BETA + e\dots\dots\dots \text{Equation 2}$$

$$LR = \beta_0 + \beta_1ACP + \beta_2OPR + \beta_3ROA + \beta_4INDXS + \beta_5INFLA + \beta_6BETA + e\dots\dots\dots \text{Equation 3}$$

Table 3.1 Measurement of Variables

No	Variables	Notation	Measurement
1	Liquidity Ratio	LR	Current asset / Current Liability
2	Average-Collection Period	ACP	Account receivable / (Revenue / 360 Days)
3	Operating Ratio	OPR	Operating expenses / Net sale
4	Return on Assets	ROA	Net income / Total assets
5	Index Score	INDXS	Corporate governance elements
6	Inflation	INFLA	5-years inflation rate
7	Beta	BETA	5-years daily stock price

3.5 Statistical Package for Social Sciences (SPSS)

IBM SPSS version 24 has been used in this study to calculate the data for getting result. According to Landau & Everitt (2004), SPSS is a software that helps researchers or investigators to conduct a statistical data analysis. This software is being used mainly for social sciences but now, it becomes popular in data mining and marketing. IBM SPSS is used to conduct analysis such as descriptive statistics, bivariate statistics and numeral outcome forecast. In this study, IBM SPSS has been used for computing linear regression and correlation between the variables. The variables are based on quantitative data which were obtained from annual report of each of the five companies.

CHAPTER FOUR

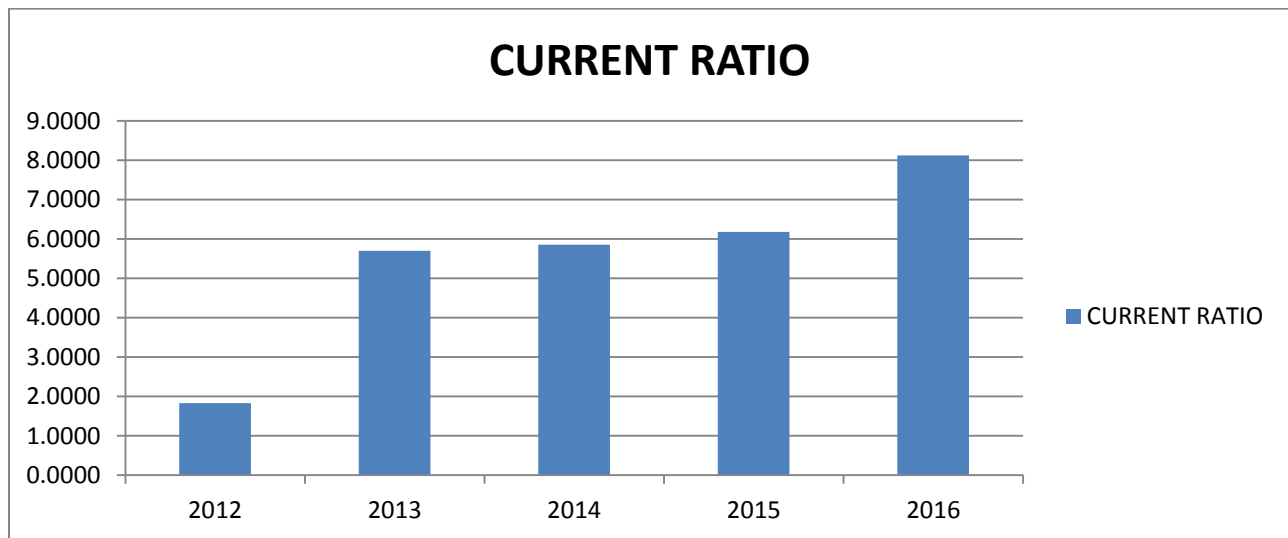
FINDINGS AND ANALYSIS

4.1 Introduction

Financial statement analysis allows researchers to identify the trend of the companies by comparing the ratios across five years period. There are three main components of financial statement; income statement, balance sheet and cash flow statement. These statements allow researchers to measure the liquidity, profitability, leverage, operational and company-wide efficiency.

4.2 Liquidity Risk

Figure 4.1 Current ratio for Tatneft company

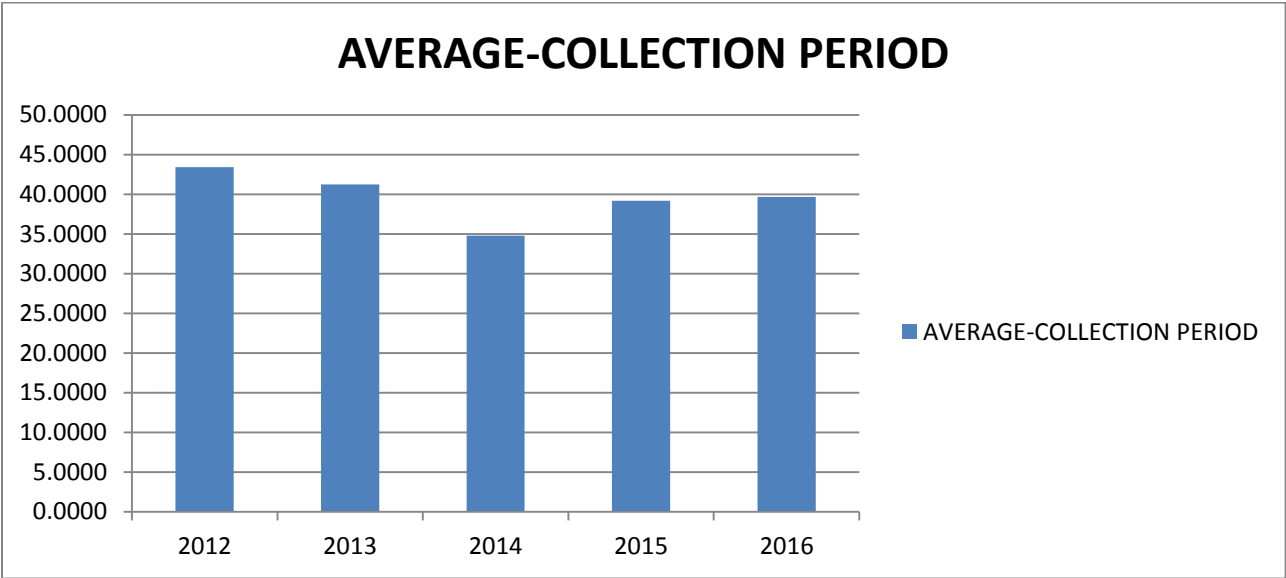


Liquidity risk happen when the company, or the financial institution unable to meet their short term debt obligation. This might happen when the investor or entity unable to convert their on hand assets into cash quickly with minimum loss. Liquidity risk is measured by computing current ratio for 5 years (2012-2016) for Tatneft company. Based on the chart above, the company has a highest current ratio in 2016 which is (8.1236 times) among all five years. It indicates that the company has RUB 8.1236 of current assets to cover its RUB 1 of current liabilities. The company has lower liquidity risk since it still able to pay its short term obligation

on time. However, too high current ratio giving a meaning that the company is inefficient in utilizing its current assets in order to generate revenue or income. Meanwhile, in 2012 the company has a lower current ratio and this is exposed to higher liquidity risk since it only has RUB 1.8332 of current assets to cover RUB 1 of current liabilities. This means that Tatneft does not have enough current assets on hand in order to pay its short term obligations when it is due. The company is considered as insolvent and can be sued for bankruptcy by creditors.

4.3 Credit Risk

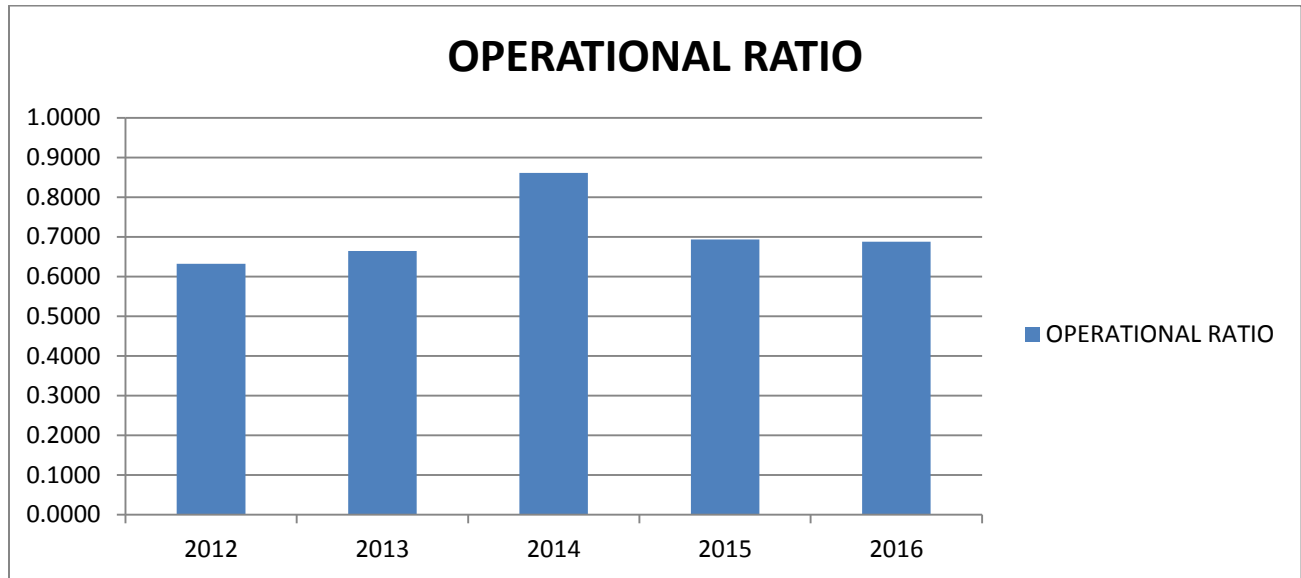
Figure 4.2 Average Collection Period for Tatneft company



Credit risk occurred when borrower default on making required payment. Credit risk is measured using average of ACP for five years (2012-2016) for the company. From the chart above, the highest average of ACP is 43.4 days in 2012. It indicates that in the 2012, Tatneft take the longest time in order to collect their money which is more than the total average of ACP within five years from 2012 until 2016 which is 39.6 days. The longer average collection period indicates higher credit risk. The risk that the company would faced is unable to pay debt of the company when due because the company have not get the money yet from their customer.

4.4 Operational Risk

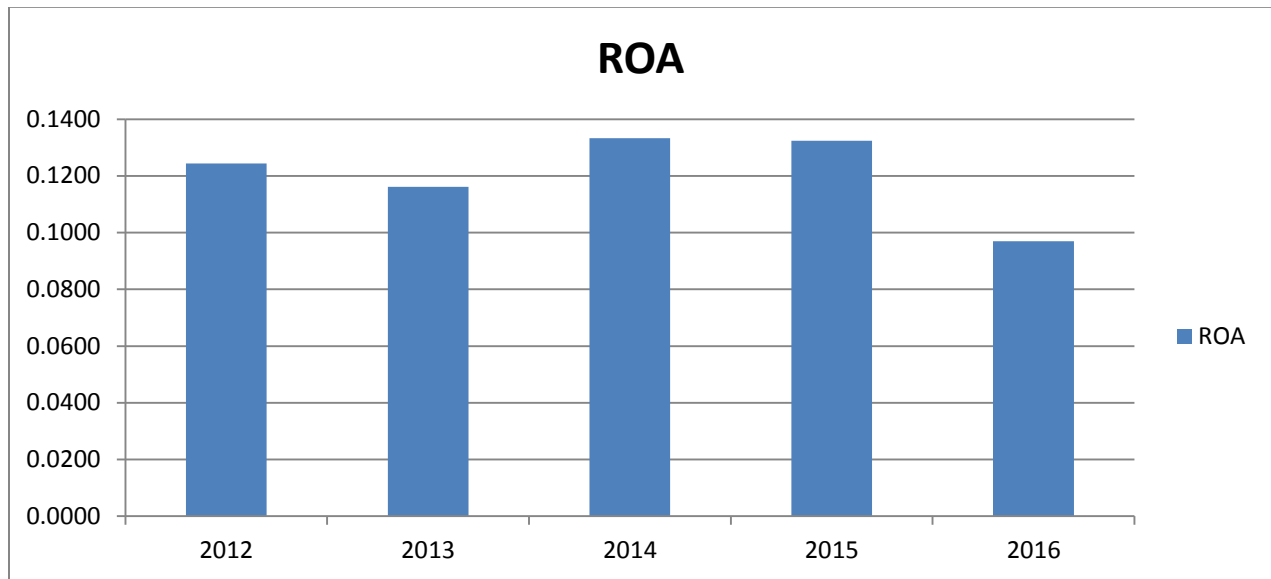
Figure 4.3 Average operational ratio for Tatneft company



Operational risk happens because of the failure in systems, processes, people, and external events in the company. If the operational risk is not been managed or controlled properly, it can become a serious risk and can cause the business become fail. Operational risk is measured by computing the average operating ratio in five consecutive years for the company (2012 to 2016). The main objective of conducting this ratio is to determine the efficiency of operational management in the company. From Figure 4.3 above, the highest operating ratio among the five companies is 2014 with 0.8610 or 86.10%. Higher operating ratio emphasise the inability of the company to manage its operation efficiently. Meanwhile, the lowest operating ratio is in the 2012 with 0.6319 or 63.19%. It indicates that the company is efficient in managing its operations.

4.5 Profitability

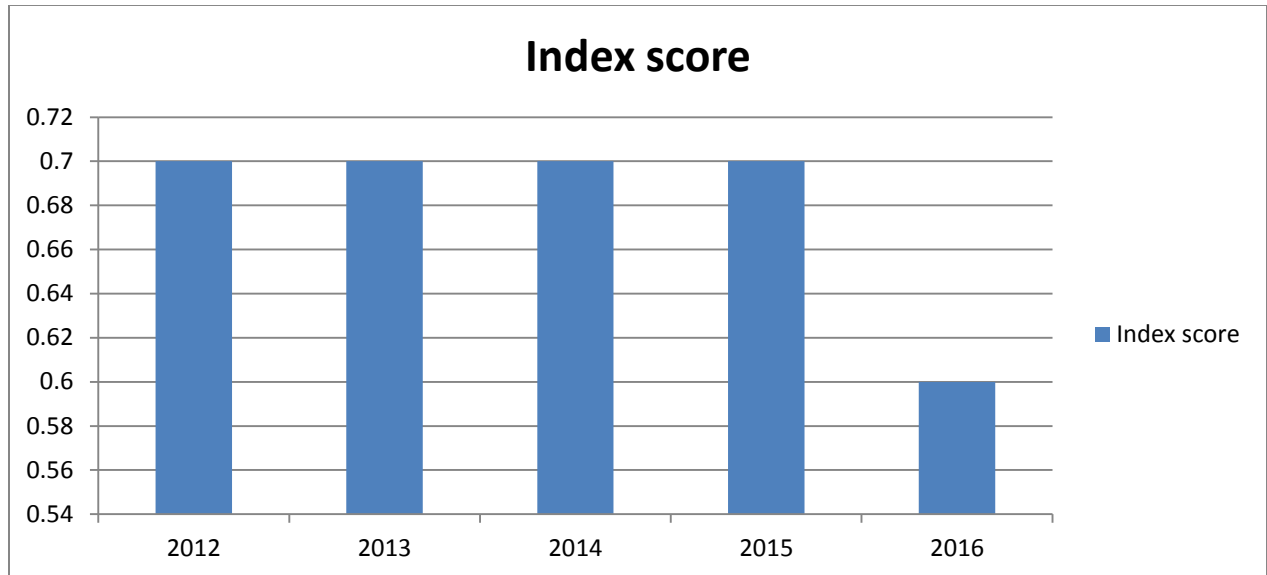
Figure 4.4 Average return on asset for Tatneft company



The figure above shows the average return on asset (ROA) in 5 years for Tatneft company. Based on Figure 4.4, it can be seen that in 2014 Tatneft has the highest average return on asset (ROA) which is 13.33 %. Following that year is 2015 which has an average ROA of 12.44 %. A high value of ROA indicates that the company is efficient in utilizing their assets to generate income. Tatneft company is efficient in generating income because the company fully utilizing their assets. Next, it can be seen that in the 2016, the company has the lowest average return on asset which is only 9.7%. The value is lower than the overall average return on asset and it indicates that this year is not efficient in utilizing their asset in order to generate income. The year 2012 and 2013 has an average ROA of 12.44% and 11.62% respectively. This also indicates that on that years, Tatneft are not so efficient in managing their asset.

4.6 Corporate Governance

Figure 4.5 Average index score for Tatneft company

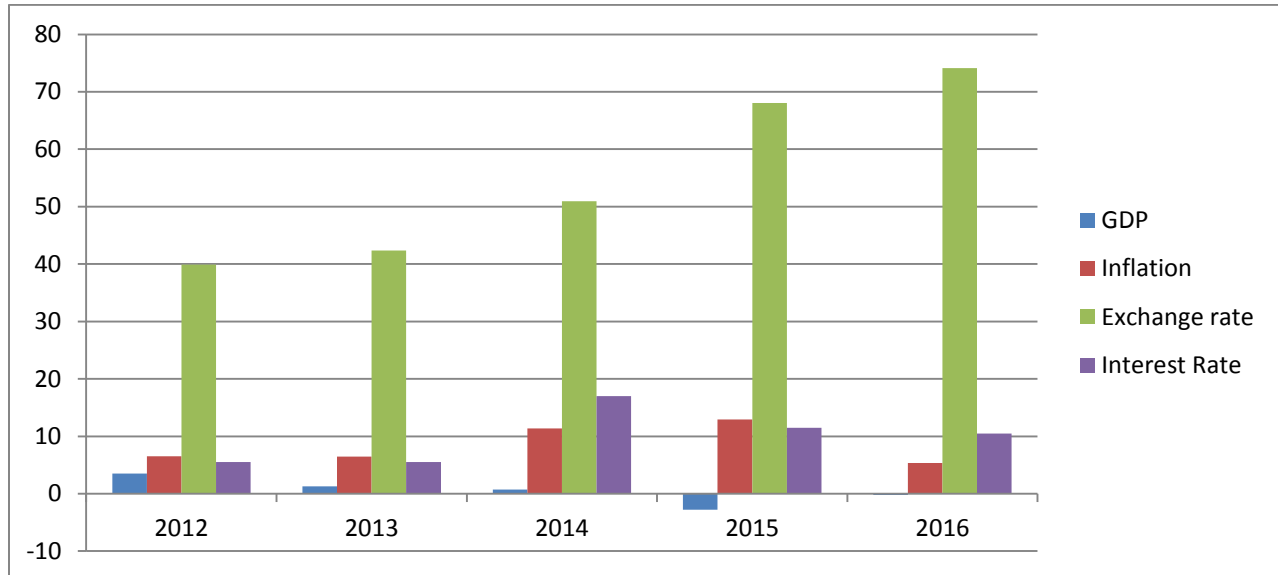


Index score were used to determine the corporate governance index of a company in order to determine the level of compliance of the Tatneft companies towards the principle of corporate governance. One of the principles is concern with transparency where the index score for every year score were value based on the annual report that can be obtained publicly. In order to calculate the index score, 9 variables were used as an indicator to determine the effectiveness of corporate governance of each company. The first variables were known as the nationality of the board, where this variable was used to determine the nationality diversification of the company's board.

The second variable concern with the qualification of the board where this variable were used to determine whether the board of director for the company are qualified enough to be in the board and provide insight and supervise the wellbeing of the company. While the third variable is concerned with gender diversity of the board and this variable were used to determine whether the company practices gender discrimination. While the other variables were concern with the availability of risk management committee, audit committee, remuneration committee, the availability of meeting conduct and also the past experience of the board related to its position in the company.

4.7 Market Risk

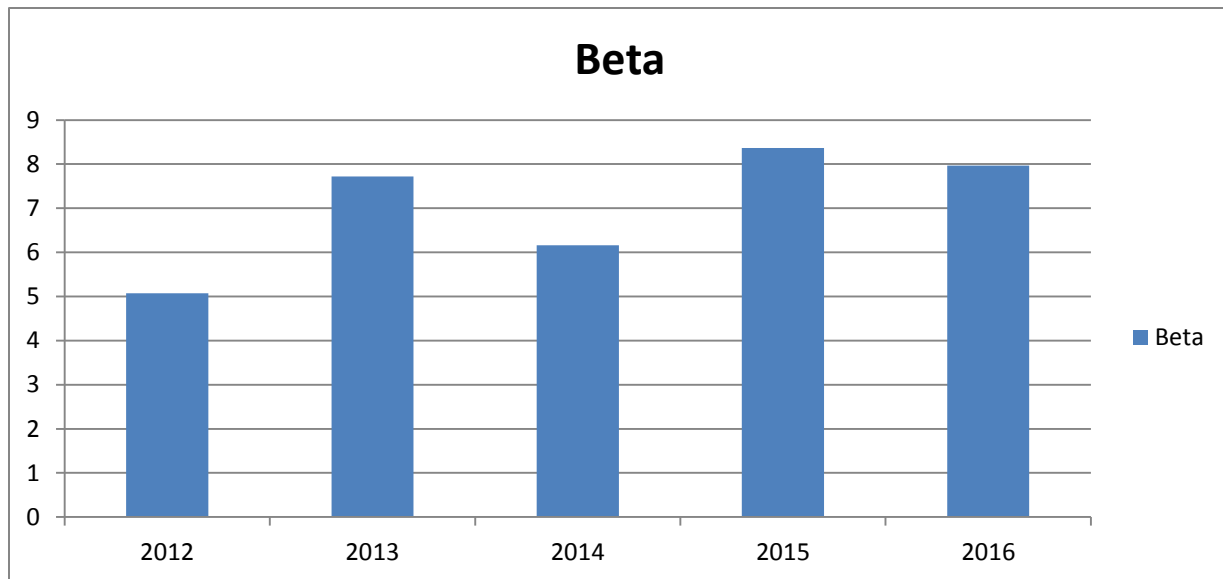
Figure 4.6 Economic factors in 5 years in Tatneft



Market risk or also known as a systematic risk is an undiversified risk. It cannot be eliminated through diversification though it can be hedged against. Changes in gross domestic product (GDP), inflation rate, unemployment rate, and interest rate are some of the market risk determinants. The graph above shows the movement of the determinants during these 5 years. GDP is used to measure the monetary value of the goods and services a country produces in a year. The highest GDP is on the 2012 which is 35% while the lowest GDP is in 2016 which is 0%. For the inflation, the highest is in 2015 with 12.91% while the lowest amount is 5.38%. Move to the exchange rate, the highest value is in 2016 the amount of 74.14% while the lowest is in 39.93% in 2012.

Next is the interest rate, the highest value is on 17% while the lowest value is on 2012 and 2013 the value is 5.5%. Overall, exchange rate has a highest value for every years compared to others elements of market risks.

Figure 4.7 Average beta for each company



Beta is one of the determinant of market risk. It measure the volatility of a security of the company as compared to the market. Beta is the slope coefficient in which is obtained through the regression analysis of the stock return of the company against the market return. Overall, it indicates how the company's equity market changes along with the changes of the overall market. The figure above shows the average beta of 5 companies for 5 years from 2012 to 2016. Beta is calculated by calculating the standard deviation of the daily price change for 5 years consecutive of each company for each year. The company stock beta will indicates the volatility of the stock and how it may deviate from the market beta.

4.8 Correlations

Table 4.1 Table of Pearson correlation

		Correlations									
		Current Ratio	ROA	Average Collection Period	Operational Ratio	Index score	Beta	GDP	Inflation	Interest	Exchange rate
Pearson Correlation	Current Ratio	1.000	-.470	-.533	.321	-.632	.815	-.796	.084	.465	.787
	ROA	-.470	1.000	-.315	.404	.886	-.336	.529	.814	.340	-.383
	Average Collection Period	-.533	-.315	1.000	-.964	.000	.152	.588	-.620	-.963	-.324
	Operational Ratio	.321	.404	-.964	1.000	.124	-.106	.517	.563	.925	.094
	Index score	-.632	.886	.000	.124	1.000	-.366	.598	.524	-.058	-.694
	Beta	.815	-.336	-.152	-.106	-.366	1.000	-.368	.155	.077	.699
	GDP	-.796	.529	.588	-.517	.598	-.368	1.000	.209	-.461	-.376
	Inflation	.084	.814	-.620	.563	.524	.155	.209	1.000	.666	.201
	Interest	.465	.340	-.963	.925	-.058	.077	.461	.666	1.000	.427
	Exchange rate	.787	-.383	-.324	.094	-.694	.699	.376	.201	.427	1.000

Pearson correlation is used to determine the relationship between dependent variable (liquidity risk) and independent variables (firm-specific variables and macro-economic variables). The table below is used as benchmark to determine the relationship between the variables.

Size of correlation	Interpretation
0.90 to 1.00 (-0.90 to -1.00)	Very high positive (negative) correlation
0.70 to 0.90 (-0.70 to -0.90)	High positive (negative) correlation
0.50 to 0.70 (-0.50 to -0.70)	Moderate positive (negative) correlation
0.30 to 0.50 (-0.30 to -0.50)	Low positive (negative) correlation
0.00 to 0.30 (0.00 to -0.30)	Negligible correlation

Table 4.2 Table of correlation benchmark

Based on Table 4.1, average collection period is strongly positive and significantly correlated to liquidity risk with p-value < 0.001. It indicates that when the average collection period increases, the liquidity risk also increases. This is because, when firms require longer time to collect back their money from customers, the firms have to keep more reserves in terms of cash and short term securities in order to meet their liquidity requirement. This will reduce liquidity problem when creditor claim their money back.

4.9 Coefficients

Table 4.3 Table of multiple regression coefficients

Coefficients ^a										
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	7.453	4.611		1.616	.137	-2.822	17.727		
	ROA	-.017	.024	-.202	-.690	.506	-.071	.037	.507	1.970
	AVERAGE-COLLECTION PERIOD	-.024	.015	-.571	-1.533	.156	-.058	.011	.313	3.200
	OPERATIONAL RATIO	3.940	1.678	.619	2.348	.041	.201	7.679	.622	1.607
	INDEX SCORE	-13.540	7.421	-.467	-1.825	.098	-30.075	2.995	.661	1.513
	BETA	.233	.127	.700	1.827	.098	-.051	.516	.295	3.388
	GDP	-.399	.688	-.247	-.580	.575	-1.931	1.133	.239	4.188
	INFLATION	.193	.322	.287	.600	.562	-.524	.910	.189	5.288
	INTEREST	-.101	.260	-.213	-.387	.707	-.680	.479	.142	7.019
	EXCHANGE RATE	.043	.039	.293	1.103	.296	-.044	.131	.613	1.632

a. Dependent Variable: CURRENT RATIO

Based on the use of coefficients, the independent variables that has influence on the liquidity risk can be determined through the identification of significant level of 5 % with p-value. P-value < 0.001 indicates the that the independent variable has the most influence on the dependent variable. P-value < 0.05 indicates a moderate influence of independent variable on the dependent variable while variable that has p-value < 0.10 has the least influence.

4.10 Model Summary

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.753 ^a	.567	.177	1.8838263	2.291

a. Predictors: (Constant), EXCHANGE RATE, OPERATIONAL RATIO, INFLATION, BETA, GDP, INDEX SCORE, ROA, AVERAGE-COLLECTION PERIOD, INTEREST

b. Dependent Variable: CURRENT RATIO

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46.462	9	5.162	1.455	.283 ^b
	Residual	35.488	10	3.549		
	Total	81.950	19			

a. Dependent Variable: CURRENT RATIO

b. Predictors: (Constant), EXCHANGE RATE, OPERATIONAL RATIO, INFLATION, BETA, GDP, INDEX SCORE, ROA, AVERAGE-COLLECTION PERIOD, INTEREST

According to Table 4.4 above, the adjusted R Square is equal to 17.7 %. This implies that by using all the internal and macro variables in Equation 3 (Model 3) which known as Return on Asset (ROA), Average-collection period (ACP), Operational ratio (OPR), Index score (INDXS), Inflation (INFLA), and Beta shows that, the variables used in the model able to explains 17.7 % of the variance in the liquidity

CHAPTER FIVE

DISCUSSION AND CONCLUSION

5.1 Introduction

This study aims to determine the firms' liquidity risk and its determinants among the 5 years in Tatneft companies. To achieve this objective, firm-specific factors such as credit risk, operational risk, profitability, and corporate governance and macro-economic factors such as market risk, inflation, gross domestic product, and interest rate were used in this study. Thus, in this chapter, the discussion will be based on the findings in chapter four. Conclusion and recommendations for future research are included in this chapter.

5.2 Discussion of result

This study aims to determine the firms' liquidity risk and its determinants among the 5 years in Tatneft. This study is done to achieve the research objectives as below:

1. To investigate the firm-specific factors towards liquidity risk.
2. To investigate the macro-economic factors towards liquidity risk.
3. To investigate the firm-specific factors and macro-economic factors towards liquidity risk.

Based on the table of both correlation (Table 4.1) and coefficient (Table 4.3), there are evidence showing that liquidity risk has been influenced and affected by firm-specific factors in terms of average collection period (ACP) and corporate governance elements. The correlation table shows that ACP is strongly positive and significantly correlated to liquidity risk with p-value < 0.001 . It indicates that when the ACP increases, the liquidity risk also increases. Based on coefficient table, ACP is positive and mostly significant influence liquidity risk with p-value < 0.001 , $t = -1.533$. It indicates that any changes in the ACP will influence the level of liquidity risk. ACP representing the credit risk. Thus, both value implies that an increase in credit risk will result into an increase in firm's liquidity risk. This is because the firms has to keep more reserves

in terms of cash and short term securities in order to meet their liquidity requirement when the firms require longer time to collect back their money from customers.

Meanwhile, correlation table shows that index score is weakly negative and significantly correlated to liquidity risk with p-value < 0.05 . This implies that when the corporate governance index scores increases, the liquidity risk decreases. On the other hand, coefficient table shows that index score is negative but moderately significant influence the liquidity risk with p-value < 0.05 , $t = -1.825$. This indicates that a decrease in the corporate governance elements will increase the liquidity risk of the firms. Thus, we can conclude that when the firms comply more on corporate governance it is easy for the firms to obtain funds from external sources. This will indirectly reduce the liquidity risk for the firms and vice versa.

Macro-economic factor was found to be influencing the liquidity risk of food and beverages company in Singapore. Based on the coefficient table (refer chapter 4, Table 4.3), the value shows that beta (a market risk elements) influence the liquidity risk with table, there is evidence showing that liquidity risk is slightly influenced by beta with p-value < 0.10 , $t = 1.827$. Beta is used to calculate the level of risk of a company based on the volatility of their share price. Overall, it can be conclude that both firm-specific factors and macro economics factors influence the liquidity risk of a company. The model summary (Table 4.4) shows that 17.7 % of the model is explained by the variables from firm specific and macro-economics. The ANOVA table that shows a significant of 0.000 indicates that the model is reliable. However, firm-specific has more impact towards the firm which will affect the liquidity risk level of the firm heavily. On the other hand, macro-economic factor does not impact much on the firm.

5.3 Limitations

This study is limited to the Tatneft companies which consists of only 5 years. This studies cover only five years financial statements from 2012 until 2016 for each company. Thus, only limited amount of information can be collected due to the time constraint.

5.4 Recommendations

Finally, based on the findings, average collection period has a significant relationship with liquidity risk. Thus, it is important for a firm to manage its account receivables efficiently in order to reduce liquidity risk. In order if customers fail to pay the money in timely manner, it can affect firm's business operation such as paying rent and employees' salary and as well as purchasing raw materials and equipment for the companies.

There are several ways on how company can manage its account receivable efficiently. One of the ways is to establish clear credit policies. Credit policies help company to keep track their account receivables in a consistent manner that can reduce the collection period. Credit should only be given to customer who agrees to abide the credit policies. Besides that, company should check its customers' credit history first before allowing credit purchases to them. Customer with bad credit history such as missed payment or poor credit should not be allowed for credit purchases. This will reduce the counterparty risk for company.

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