Tobin's Q and its Determinants: A study on Huawei Technologies Co., Ltd

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Abstract

Tobin's Q can be affected by both the internal and external factors. Tobin's Q is a company's performances indicator, so it is important for an organization to manage its effectively. This study aims to investigate the impact of Tobin's Q in relation with firm-specific factors and macroeconomics factors towards the performance of the selected company which is Huawei Technologies Co., Ltd. Multiple regression analysis of financial ratios of the company is conducted for the year from 2011 to 2015. The findings and analysis indicate that firm-specific factor (Return on equity, ROE) have a greater influence on Tobin's Q of the company as compared to macroeconomic factors. This study is also suggested that the company should improve the ROE, the company is advised to increase its debt with a suitable amount. By having the cash flows in, the company can purchase new assets to generate profit. Even through the macroeconomics factors have a little impact in Tobin's Q, the company still requires in sustaining its growth along the economy conditions by somehow.

Keywords*: Tobin's Q, Firm-Specific Factors, Macroeconomics Factors, Return on Equity.*

1.0 Introduction

1.1 Introduction

Chapter 1 consists of an overview of Huawei Technologies Co., Ltd. This chapter details in discussing the research objectives and research questions.

1.2 Overview of Huawei Technologies Co., Ltd.

Huawei Technologies Co., Ltd is a telecommunications and electronics company based in Shenzhen in the south of China. It is also the world's largest telecoms equipment firm and overtakes Apple to become the world's No.2 smartphone seller behind Samsung (Kate Lyons, 2018). Huawei is a leading global provider of information and communications technology (ICT) infrastructure and smart devices. With integrated solutions across four key domains which are telecom networks, information technology, smart devices, and cloud services. This company brings digital for a fully connected and intelligent world to every person, home and organization ("Corporate Introduction", 2018).

Huawei have sustained long-term growth through continuous improvement on their corporate governance structure, organizations, processes, and appraisal systems. The Shareholders' Meeting is the company's authoritative body. Shareholders making decisions on major issues such as the company's capital increase, profit distribution, and selection of the members of the Board of Directors (BOD) or Supervisory Board ("Corporate Governance", 2018).

The board structure of Huawei is Two-Tier (Dual) board which is having the BOD (Management Board) and Supervisory Board. BOD is the highest body responsible for corporate strategy, operations management, and customer satisfaction. The BOD and its Executive Committee will be led by rotating chairmen. During their terms, the rotating chairmen will serve as the foremost leader of the company. The key responsibilities of the Supervisory Board include overseeing the responsibility fulfillment of BOD members and senior management, monitoring the company's operational and financial status and supervising internal control and legal compliance ("Corporate Governance", 2018).

Furthermore, Huawei has four existing committees which are Human Resources Committee, Strategy and Development Committee, Finance Committee and Audit Committee. Klynveld Peat Marwick Goerdeler (KPMG) has been Huawei's independent auditor since 2000 (“Corporate Governance”, 2018).

The Code of Conduct for Partners of Huawei ("Code of Conduct") is used to promote and ensure the absolute integrity of Huawei’s business dealings with its Partners. Clear compliance standards and ethical principles are established and be obeyed by all Partners. This Code of Conduct applies to all Huawei Solution Partners and Enterprise BG’s Partners (collectively referred to as “Partners”) and including their employees, temporary workers, agents, subcontractors, and similar individuals or entities. All Partners are expected to be familiar with and comply with applicable laws and regulations and demonstrate high standards of business ethics (“Code of Conduct for Partners”, 2019).

But unfortunately, in Reuters 2013, a Hong Kong-based firm which was Skycom Tech Co Ltd that attempted to sell embargoed Hewlett-Packard computer equipment to Iran’s largest mobile-phone operator has much closer ties to China’s Huawei Technologies. This is due to Cathy Meng, Huawei’s chief financial officer and the daughter of company founder Ren Zhengfei, served on the board of Hong Kong-based Skycom Tech Co Ltd between February 2008 and April 2009. Despite of U.S trade sanctions, Skycom’s office in Tehran offered to sell at least 1.3 million euros worth of HP gear to Mobile Telecommunication Co of Iran in late 2010 (Steve Stecklow, 2013). This issue has violated the business ethic principle because Skycom has abided the U.S export law. The sanctions on Iran are designed to deter it from developing nuclear weapons even through Iran has stated that its nuclear program is aimed purely at producing domestic energy. Afterwards, Ms. Meng and a Hong Kong accountancy and secretarial firm in Skycom did not responded to a request on comment. Huawei was criticized for not answering about its Iranian operations and for failing to provide evidence to support its claims that it complies with all international sanctions or U.S. export laws by the U.S House Intelligence Committee (Steve Stecklow, 2013). Transparency can be well practiced by disclosing the annual report publicly.

Besides that, the former head of the U.S. Central Intelligence Agency, Michael Hayden is awarded of hard evidence that Huawei Technologies Co Ltd has spied for the Chinese government by sharing intimate and extensive knowledge of the foreign telecommunications systems with the Chinese state. In 1987, Huawei was founded by former People's Liberation Army officer Ren Zheng Fei, has repeatedly denied being linked to the Chinese government or military or receiving financial support from either (Jane Wardell, 2013). Transparency should be improved so the outsiders are able to make a meaningful analysis of a company and its actions taken. This principle of corporate governance is also enabling to keep the company away from misunderstandings. Huawei Global Cyber Security Officer, John Suffolk had commented that all Hayden's comments are unsubstantiated and challenged him and other critics to present proven evidence publicly. The principle of accountability has not been practiced welly. The decision and action that John Suffolk take on behalf of a company is in an aggressive way and not accountable to the Board. The scandal happened should be solved through negotiations with information that showed that this world No.2 telecom equipment maker is reliable and trustable. Sustainability is also be violated by which the scandals happened decline the way of Huawei becomes the world's biggest telecoms company (Jane Wardell, 2013).

The reputation of Huawei has been ruined because it is not trustable to foreign countries anymore especially the Britain, United State and Australia. The U.S. House of Representatives' Intelligence Committee urged American firms to stop doing business with Huawei and ZTE Corp. in October 2012. The American firms were warned that China could use equipment made by the companies to spy on certain communications and threaten vital systems through computerized links. The Australian government has barred Huawei from involvement in the building of its A$37.4 billion ($34.25 billion) National Broadband Network (Jane Wardell, 2013). The scandal is even keeping on its effect until the year 2019. In 2018, the governments of the US, New Zealand and Australia have moved to block the use of Huawei's equipment in the rollout of future 5G networks, citing national security. On 1 December 2018, Canada arrested Huawei's global chief financial officer, Meng Wanzhou on suspicion of violating U.S sanctions against Iran. US authorities have been investigating Huawei

since at least 2016. Huawei is suspected for allegedly shipping US-origin products to Iran and other countries in violation of US export and sanctions laws (Kate Lyons, 2018).

1.3 Research Objectives

This study aims to investigate the impact of Tobin's Q in relation with determinants towards the selected company's performances. The objectives of the study are:

1. To investigate the impact of Tobin's Q in relation with firm-specific factors towards the selected company's performances.
2. To investigate the impact of Tobin's Q in relation with macroeconomics factors towards the selected company's performances.
3. To investigate the impact of Tobin's Q in relation with firm-specific factors and macroeconomics factors towards the selected company's performances.

1.4 Research Questions

The research questions are:

1. Is there any impact of Tobin's Q in relation with firm-specific factors towards the selected company's performances?
2. Is there any impact of Tobin's Q in relation with macroeconomics factors towards the selected company's performances?
3. Is there any impact of Tobin's Q in relation with firm-specific factors and macroeconomics factors towards the selected company's performances?

2.0 Literature Review

2.1 Introduction

This chapter is regarding the review of some previous literature which is related to this study on corporate governance index in relation with its determinants towards the company's performance. Besides that, the impact of Tobin's Q ratio and corporate governance index towards the performance of the company has also be reviewed.

2.2 Corporate Governance and Scandals

Several key governance characteristics which including the independence of boards and audit committees and the extent of outside auditors provide non-audit services are essentially unrelated to the probability of a company restating earnings. The probability of restatement is significantly lower in companies whose boards or audit committees include an independent financial expert compared to companies whose CEO belongs to the founding family (Agrawal, & Chadha, 2005). The scandals are seen to be driven more by the avoidance of risks. It is not obvious whether this will help to increase accountability (Kolk, 2007). Restating CEOs, CFOs and top management face have a 14%, 10% and 9% greater probability of being replaced respectively during years (-1; +1) than those at control firms, where 0 is the year of restatement announcement. Auditor turnover is higher in restating firms. (Agrawal, & Cooper, 2017). The transparency of the company to market forces is a common factor determining the success of a corporate governance structure. The corporate governance and business ethics issues exist throughout the world. For example, the Asian financial crisis of 1997–1999, Enron, Andersen and WorldCom in the United States and Ahold and Parmalat in Europe (Millar, Eldomiaty, Choi, & Hilton, 2005). Transparency and accountability cannot be enforced through rules, regulations, laws, concepts, structures, processes, best practices, and even the technology. This can only come about when individuals of integrity are trying to 'do the right thing,' not just what is expedient or even necessarily what is permissible (Borgia, 2005).

2.3 Corporate Governance and Bankruptcy

37.5 percent in survivor firms and 53.8 percent in bankrupt firms had practiced the dual structure. 44.9 percent directors of survivor firms were affiliated compared to the bankrupt firms which is 59.5 percent (Daily, & Dalton, 1994). Moulton and Thomas (1993) estimated that fewer than 10 percent of all firms that involved in bankruptcy could be described as successful in the post-bankruptcy period. The changing in governance structures in that crucial period might affect post-bankruptcy firm survival. The reason for the large number of professionals working with organizations in various stages of financial distress is to prevent the company faced with the bankruptcy issues. Board size declines as firms become distressed (Altman, & Hotchkiss, 1993). The company with smaller and more independent boards and with larger ownership stakes of executive directors are more effective at avoiding bankruptcy (Fich, & Slezak, 2007). Gillan and Martin (2003) provide evidence that the effective governance structures for each firm is different.

2.4 Corporate Governance and Performances

Stock ownership of board members, and CEO-Chair separation is significantly positively correlated with better contemporaneous and subsequent operating performance. Also, interestingly, contemporaneous and subsequent operating performance is negatively correlated with the board independent. Hence, if the board independence is established to improve performance, then such efforts are misguided (Bhagat, & Bolton, 2008). ROE determines the company financial performance, and this is one of the factors that can be seen by prospective investors to determine their share investment. For a company, it is a great requirement in maintaining and improving financial performance so that the share will get interest of any investors (Rosikah et al., 2018). The predicted component of compensation based from the board and ownership structure has a statistically significant negative relation with operating and stock return performance of the firm (Core, Holthausen, & Larcker, 1999). Yermack (1996) also provides evidence that firm value and performance is a decreasing function of board size. Lambert et al. (1993) find that when CEOs have appointed a greater proportion of the board, they receive higher pay.

2.5 Tobin's Q

James Tobin had hypothesized that the combined market value of all the companies on the stock market should be equal to their replacement costs. An undervalued company, one with a low Q (between 0 and 1), would be attractive to corporate raiders or potential purchasers, as they may want to purchase the firm instead of creating a similar company. The interest in the company would likely to be increased which would then cause increase its stock price, which would, in turn, increase its Tobin's Q. As for overvalued companies, those with a high Q (greater than 1), they may see increased competition. A high Q implies that a firm is earning a rate higher than its replacement cost. This caused individuals or other companies to create similar types of businesses to capture some of the profits. The existing firm's market shares would be reduced then lower its market price and cause its Tobin's Q to fall (Hayes, 2019).

2.6 Corporate Governance and Tobin's Q

Uchida (2006) stated that the ROA has positive and significant impact on Tobin's Q whereas the Imam and Irwansyah (2002) found that the ROA had no significant effect on stock return. At least in Russia, governance predicts firm value by using a firm fixed effects framework. The OLS result and fixed effects results have a big difference (Black, Love, & Rachinsky, 2006). Doidge et al., (2004b) stated that the share price can be predicted by the governance. The profitability did not affect by the CEO tenure at low level, but CEO's who remain too long time in the position (more than 15 years) reduce corporate performance (John, & Senbet, 1998).

2.7 Corporate Governance and Macroeconomics

GDP per capita is used to indicate the economic performance and useful in cross-country comparisons of average living standards and economic wellbeing but it is having also some known weaknesses. In addition, exchange rate fluctuations can distort the cross-country comparisons based on the U.S. dollar and often don't reflect the purchasing power in the countries being compared (FocusEconomics, n.d.). The share of the labor force that is jobless, expressed as a percentage is called the unemployment rate. It acts as a lagging indicator which means that it generally rises or

falls in the wake of changing economic conditions. The unemployment rate can be conditions such as growing at a healthy rate and having plenty of jobs, the rate can be expected to fall (Kagan, 2019). Exchange rate means the value of 1 currency is determined for purpose of conversion to other country's currency. Exchange rates can be separated into 2 parts which it is either fixed or floating. Fixed exchange rates are decided by central banks of a country whereas floating exchange rates are decided by the mechanism of market demand and supply (The Economic Times, n.d.). Worse economic prospects result in more expropriation by managers in countries with weak corporate governance and thus a larger fall in prices of assets (Johnson, Broone, Breach, & Friedman, 2000). Greenspan (1998) explained the loss of confidence can trigger rapid and disruptive changes in the pattern of finance which reflected on exchange rates and asset prices. The loss of confidence can be quickly spread to other countries because the investors worried about it.

3.0 Methodology

3.1 Introduction

Research methodology is a systematic way to solve a problem. It is a science of studying how research is to be carried out. Rajasekar, S, Philominathan, P, and Chinnathambi, V (2006) describe research methodology as the procedures of researchers to conduct a series of activities for describing, explaining and predicting phenomena. The purpose of this research is to understand the impact of corporate governance index with determinants towards the selected company's performances. The method that is used to collect and analyze data is IBM Statistical Package for the Social Sciences (SPSS) Statistics version 25.

3.2 Statistical Technique

This study focuses on the analysis on the pre-scandal, the year that the scandal happened and the post-scandal of the selected company. The company that has been selected is Huawei Technologies Co., Ltd. The data used to conduct this research are extracted from annual reports of the company from year 2011 to 2015. Income statement and balance sheet in the annual report which contain the financial information is used to evaluate the company's performance by computing corporate governance index, return on assets (ROA), return on equity (ROE), Tobin's Q and Altman Z. For the macroeconomics factors, the data of Gross Domestic Product (GDP) per capita (USD), unemployment rate and exchange rate are also collected to analyze the economic condition from year 2011 to 2015.

The main technique that used to complete this research is Ordinary Least-Square (OLS) regression or more commonly known as linear regression. A researcher uses the Least-Squares method to seek for a line of best fit that explains the potential relationship between an independent variable and a dependent variable. OLS chooses the parameters of a linear function of a set of explanatory variables by minimizing the sum of the squares of the differences between the observed dependent variable in the given dataset and those predicted by the linear function. The relationships are modelled using linear predictor functions whose unknown model parameters are estimated from

the data. Therefore, OLS is easier and more sensible to be used for estimating regression as compared to other alternative techniques (Kenton, 2019).

3.3 Data Analysis

In this research, one dependent variable (Tobin's Q) and two categories of independent variables (internal and external factors) are used. The research framework is shown as below:

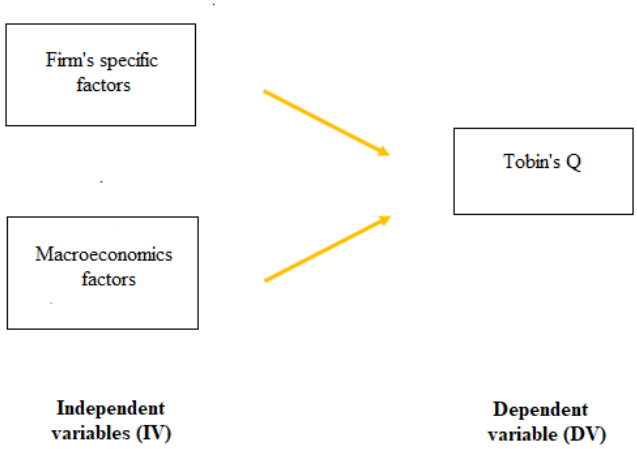

Figure 3.1 Research Framework

Regression analysis (OLS) was conducted to find out the relationship between dependent variable and independent variables. In general, regression analysis helps to explain how value of dependent variable changes when the independent variables are varied. To determine the influence of independent variables on the dependent variable in this study, multiple regression analysis method was used. The OLS multiple regression models can be presented in the form of equation as follows:

Tobin's Q = β0 + β1QR + β2ACP + β3ROA + e	Equation 1 (Model 1)
Tobin's Q = β0 + β1GDP + β2INFLA + β3BETA + *e*	Equation 2 (Model 2)
Tobin's Q = β0 + β1QR + β2ACP + β3ROA + β4GDP + β5INFLA + β_6BETA + *e*	Equation 3 (Model 3)

Table 3.1 Measurement of Variables

No.	Variables	Measurement
1.	Corporate Governance Index	Total number of items for 10 measures/ 10
2.	Return on Assets (ROA)	Profit/ Total asset
3.	Return on Equity (ROE)	Net income/ Shareholder's equity
4.	Tobin's Q ratio	Total Market Value of Firm / Total Asset Value of Firm
5.	Altman Z-score	6.56T1 + 3.26T2 + 6.72T3 + 1.05T4 where T1 = (Current Assets – Current Liabilities) / Total Assets T2 = Retained Earnings / Total Assets T3 = Earnings Before Interest and Taxes / Total Assets T4 = Book Value of Equity / Total Liabilities
6.	Gross Domestic Product per capital (USD)	5-years Gross Domestic Product
7.	Unemployment rate	5-years Unemployment rate
8.	Exchange rate	5-years Exchange rate

3.4 IBM Statistical Package for Social Sciences (SPSS Statistics)

To complete this research, IBM SPSS Statistics version 25 was used to compute data from the annual reports to acquire the result. Statistical Package for the Social Sciences or SPSS were developed by Norman H. Nie, C. Hadlai (Tex) Hull and Dale H. Bent at University of Standford. SPSS was officially named as IBM SPSS Statistics in current version (2015) after being acquired by IBM. SPSS is the most widely used programs for statistical analysis in social science or research due to its multi-function such as statistics analysis, data management and data documentation features which helps in better decision making. For this research, IBM SPSS Statistics were used to compute descriptive statistics, model summary, correlation and coefficient between

independent variables and dependent variable based on quantitative data extracted from annual reports and official websites.

4.0 Analysis and Finding

4.1 Introduction

Financial statement analysis process has been carried out to review and evaluate the financial data and performances extracted from the annual reports of the company. In this research, various ratios including the corporate governance index of the selected company are conducted across the five-year period (2011-2015) respectively.

4.2 Corporate Governance Index

Figure 4.1 Huawei's Corporate Governance Index

A corporate governance index combines a series of measure that known to be good indicators of good corporate governance by quantifying the data for each measure. Based on the measure, a score is then assigned and then combined to create an index (Auckland Centre for Financial Research, n.d.). Corporate governance index is indicated by calculating the average of the 10 measures for the 5 years (2011-2015) of the Huawei. The 10 measures are included the board structure index (independence elements), committee elements, board procedure index, audit committee procedure elements, disclosure index, non-financial disclosure elements, disclosure reliability elements, ownership structure index, shareholder rights index and related party index.

From Figure 4.1 above, Huawei's corporate governance index is 0.5237 (2011), then decreases to 0.5189 (2012) and 0.5149 (2013). In the year 2014, the index has an increase of 0.0088 to 0.5237 and then decreases to 0.5182 in the next year (2015). Huawei has the highest corporate governance index which is 0.5237 in the year 2011

and 2014. This indicates that Huawei has good corporate governance in the year 2011 and 2014. In the year 2013, the year that scandals happened, Huawei experiences the lowest corporate governance index which is 0.5149 and indicates poor corporate governance.

4.3 Return on Assets (ROA)

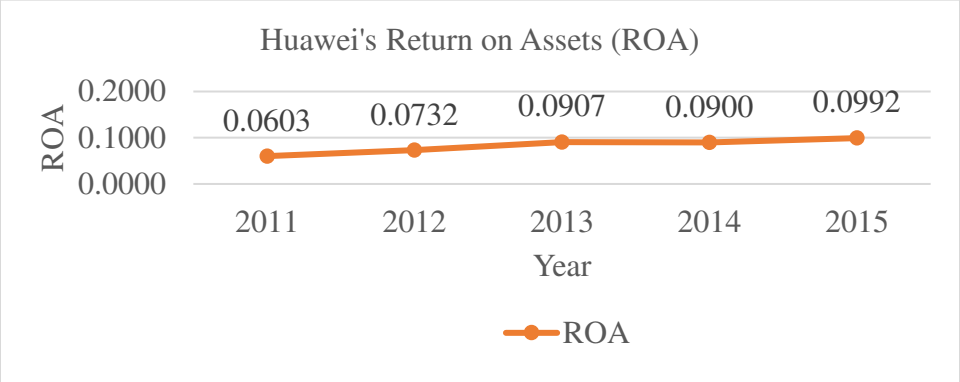

Figure 4.2 Huawei's Return on Assets (ROA)

Return on assets (ROA) is one of the profitability ratios which means an indicator of how profitable a company is relative to its total assets. ROA is often called the return on investment (ROI). ROA provides an idea to manager, investor, or analyst as to how efficient a company's management is at using its assets to generate earnings. Return on assets is displayed as a percentage (%) (Hargrave, 2019).

Based on the Figure 4.2 above, the ROA of Huawei is 6.03% (2011) and then increases to 7.32% (2012), 9.07% (2013), 9.00% (2014) and 9.92% (2015). Huawei's ROA keeps increasing for every year during the period of the five years (2011-2015). Huawei has the highest ROA (9.92%) in the year 2015 which shows that the Huawei earned 9.92 cents on each CNY 1.00 of investment in total asset and the management is generating profits with its available assets effectively. On the other hand, the lowest ROA which is 6.03% in the year 2011 for the company. Huawei can only gain 6.03 cents on every CNY 1.00 of investments in total assets due to the low effectiveness of the management to generate profits in relative to the total assets.

4.4 Return on Equity (ROE)

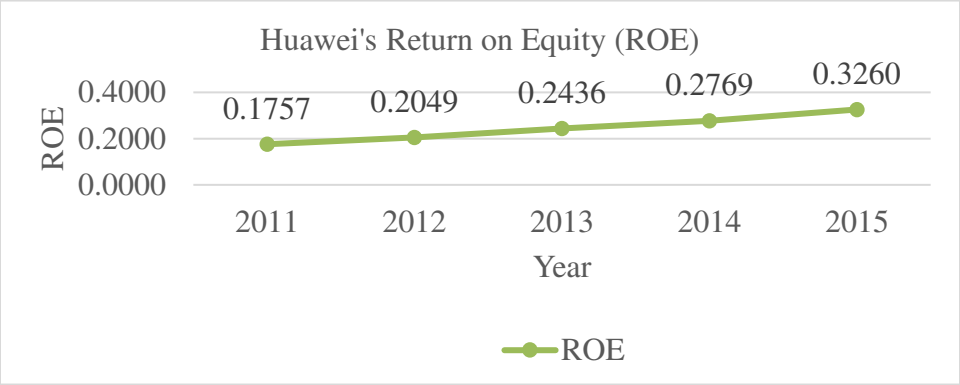

Figure 4.3 Huawei's Return on Equity (ROE)

Return on equity (ROE) is one of the important measures besides ROA for evaluating how effectively a company's management team is doing its job of managing the capital entrusted to it. It is the bottom line measure for the shareholders. If that company takes on financial leverage, its ROE would rise above its ROA. By taking on debt, a company increases its assets thanks to the cash that has borrowed and come in the company. Since shareholder equity equals assets minus total debt, a company decreases its equity by increasing debt (Furhmann, 2019).

Based on the Figure 4.3 above, the ROE of Huawei is 17.57% (2011) and then increases to 20.49% (2012), 24.36% (2013), 27.69% (2014) and 32.60% (2015). Huawei's ROE has an increasement from year to year during the period of the five years (2011-2015). Huawei has the highest ROE which is 32.60% in the year 2015 which shows that the Huawei earned 32.60 cents on each CNY 1.00 of common stock equity and the management is generating profits with its available assets effectively. During the year 2015, ROE is higher than the ROA (9.92%) because the Huawei has increasing its debt from CNY 209788 million (2014) to CNY 253086 million (2015). The lowest ROE which is 17.57% in the year 2011 for the company. Huawei can only gain 17.57 cents on every CNY 1.00 of common stock equity due to the low effectiveness of the management to generate profits in relative to the total assets.

4.5 Tobin's Q

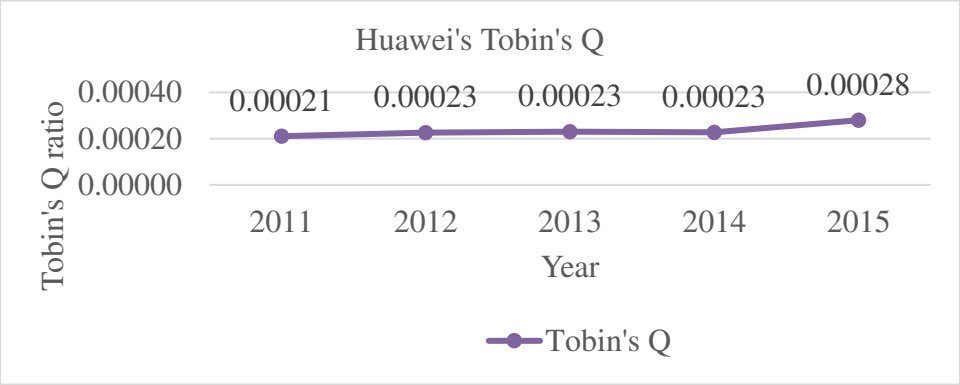

Figure 4.4 Huawei's Tobin's Q

The Tobin's Q is a ratio popularized by James Tobin of Yale University, Nobel laureate in economics. The market value of a company divided by its assets' replacement cost is defined as Tobin's Q (Hayes, 2019). From Figure 4.4 above, Huawei's Tobin's Q is 0.00021 (2011), then increases to 0.00023 (2012) and keeps constant until the year 2014. In the year 2015, the index has increasing to 0.00028. During the 5 years, the highest value of Tobin's Q is 0.00028 in the year 2015. Huawei experiences the lowest value of Tobin's Q which is 0.00021 in the year 2011. Huawei gets low Q constantly for 5 years and this determines that Huawei is an undervalued company whereby it has earning rate lower than its replacement cost.

4.6 Altman Z

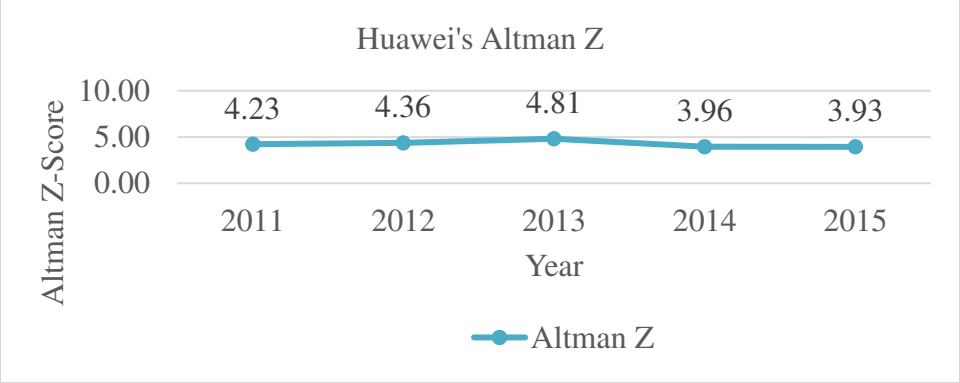

Figure 4.5 Huawei's Altman Z

The Altman Z is the output of a credit-strength test that gauges a publicly traded manufacturing company's likelihood of bankruptcy. The Altman Z is based on five financial ratios that can calculate from data found on a company's annual 10-K report. It uses profitability, leverage, liquidity, solvency and activity to predict whether a company has high probability of being insolvent (Kenton, 2019). The grading scale of Altman Z within 0 – 1.8 indicates the company will declare bankruptcy in the future, 1.8 – 3 indicates the company is likely to declare bankruptcy and 3+ indicates the company is will not declare bankruptcy (My Accounting Course, n.d.).

From Figure 4.5 above, Huawei's Altman Z is 4.23 (2011), then decreases to 4.36 (2012) and 4.81 (2013). In the year 2014, the index is then decreasing to 3.96 and 3.93 in the next year (2015). Huawei has the highest Altman Z which is 4.81 in the year 2013 where this indicates that the company is still in the 'safe zone' even in the year that scandals happened. In the year 2015, Huawei experiences the lowest Altman Z which is 3.93 but this indicates the company is will not declare bankruptcy.

4.7 GDP per capita (USD)

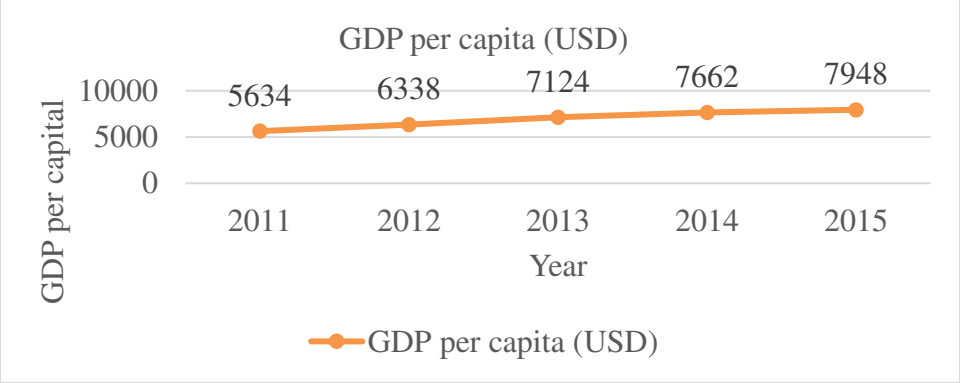

Figure 4.6 GDP per capita (USD)

GDP per capita is used to indicate the economic performance and useful in cross-country comparisons of average living standards and economic wellbeing but it is having also some known weaknesses. In addition, exchange rate fluctuations can distort the cross-country comparisons based on the U.S. dollar and often don't reflect the purchasing power in the countries being compared (FocusEconomics, n.d.).

The highest GDP per capita (USD) is 7948 for the year 2015 which indicates that the living standard in China is the highest compared to the past 4 years. However, for the year 2011, the GDP per capita (USD) is the lowest and shows that the lowest living standard in China among these 5 years. In year 2011, GDP per capita (USD) is 5634 and then its keeps increasing to 6338 (2012), 7124 (2013), 7662 (2014) and 7948 (2015). This shows that the improvement of the quality of living in China is constantly.

4.8 Unemployment rate

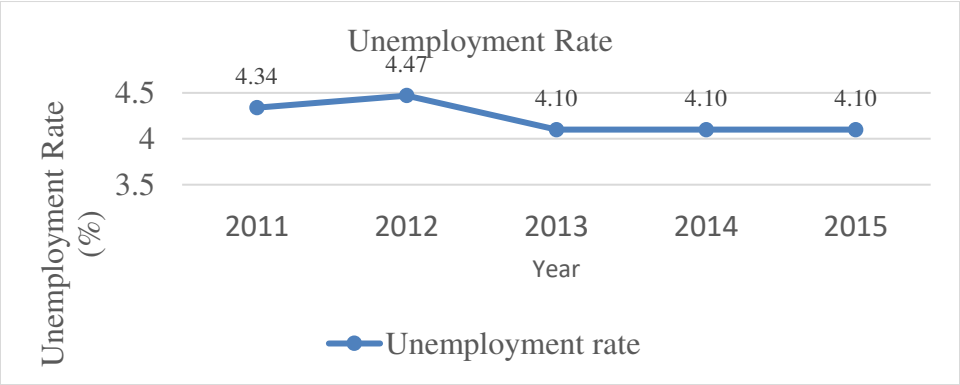

Figure 4.7 Unemployment Rate

The share of the labor force that is jobless, expressed as a percentage is called the unemployment rate. It acts as a lagging indicator which means that it generally rises or falls in the wake of changing economic conditions. The unemployment rate can be conditions such as growing at a healthy rate and having plenty of jobs, the rate can be expected to fall (Kagan, 2019). The unemployment rate is 4.34% (2011) and then increases to 4.47% (2012) but decreases to 4.10% (2013). It keeps constantly 4.10% until the year 2015. For the last 3 years, the unemployment rate has been in a controlled system that the economy is in the good conditions and then satisfied the company's performances.

4.9 Exchange Rate

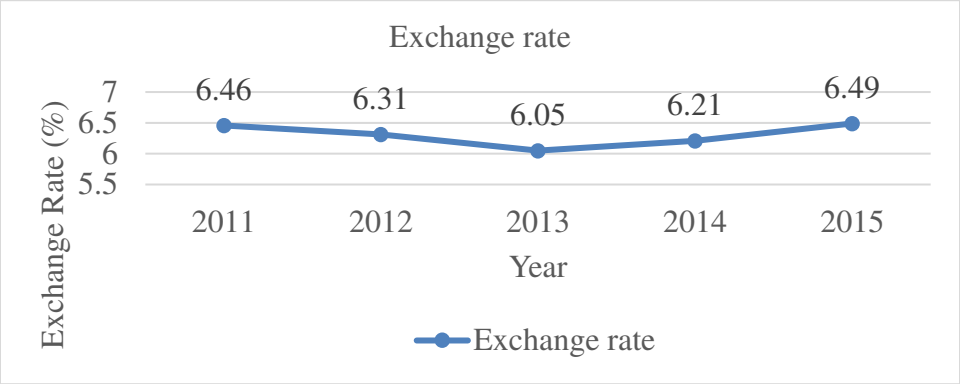

Figure 4.8 Exchange rate

Exchange rate means the value of 1 currency is determined for purpose of conversion to other country's currency. Exchange rates can be separated into 2 parts which it is either fixed or floating. Fixed exchange rates are decided by central banks of a country whereas floating exchange rates are decided by the mechanism of market demand and supply (The Economic Times, n.d.). The highest exchange rate is 6.49% in the year 2015 which means that 1 USD is equal to 6.49 CNY for that year. On the other hand, the lowest exchange rate is 6.05% in the year 2013 that shows that 6.05 CNY only is equal to 1 USD.

4.10 Descriptive Statistics

Table 4.1 Table of Descriptive Statistics

Descriptive Statistics

	Mean	Std. Deviation	N
Tobin's Q	.000234606788542	.000026356931762	5
ROA	.082668651252479	.015665201963840	5
ROE	.245441832104097	.059120290603209	5
Altman Z	4.260242996861853	.358936095814973	5
GDP per capita (USD)	6941.20	953.839	5
Unemployment rate	4.2220	.17326	5
Exchange rate	6.3040	.18188	5
Corporate governance index	.519880952380952	.003813706780867	5

Based on the Table 4.1, the mean value of Tobin's Q is 0.00023 and the standard deviation is 0.00003 which is the lowest ones. The mean value indicates that the company on average has the Tobin's Q value of 0.0002 which shows a low Q and defines Huawei as an undervalued company. The standard deviation in Tobin's Q is almost zero times which means that the company has minimum volatility in market capitalization. The ROA's mean value is 0.0827 and shows that the company has an average earning on 8.27% for each investment on the assets. ROA has a standard deviation of 0.0157 which implies lower volatility and lower risk to invest on the assets. The mean value of ROE is 0.2454 and the standard deviation is 0.0591. This indicates that the company has an average value of 24.54% in ROE and lower volatility. The Altman Z has a mean value of 4.2602 and the standard deviation of 0.3589 whereas the GDP per capita (USD) has the highest mean value and standard deviation of 6941.20 and 953.84 respectively. The GDP per capita (USD) has the highest volatility and uncertainty. Unemployment rate has a mean value of 4.2220 and the standard deviation of 0.1733 whereas the exchange rate has the mean value and standard deviation of 6.3040 and 0.1819 respectively. The mean value of corporate governance index is 0.5199 to consider the company has its adequate corporate governance and its standard deviation is 0.0038 which means lower volatility.

4.11 Correlation

Table 4.2 Table of Correlation

Correlations

		Tobin's Q	ROA	ROE	Altman Z	GDP per capita (USD)	Unemployment rate	Exchange rate	Corporate governance index
Pearson Correlation	Tobin's Q	1.000	.781	.881	-.408	.765	-.509	.330	-.414
	ROA	.781	1.000	.942	-.159	.976	-.817	-.282	-.493
	ROE	.881	.942	1.000	-.463	.971	-.774	.032	-.265
	Altman Z	-.408	-.159	-.463	1.000	-.347	.128	-.675	-.648
	GDP per capita (USD)	.765	.976	.971	-.347	1.000	-.812	-.194	-.298
	Unemployment rate	-.509	-.817	-.774	.128	-.812	1.000	.315	.217
	Exchange rate	.330	-.282	.032	-.675	-.194	.315	1.000	.426
	Corporate governance index	-.414	-.493	-.265	-.648	-.298	.217	.426	1.000
Sig. (1-tailed)	Tobin's Q	.	.059	.024	.247	.066	.190	.294	.244
	ROA	.059	.	.008	.399	.002	.046	.323	.199
	ROE	.024	.008	.	.216	.003	.062	.480	.334
	Altman Z	.247	.399	.216	.	.283	.418	.106	.119
	GDP per capita (USD)	.066	.002	.003	.283	.	.047	.377	.313
	Unemployment rate	.190	.046	.062	.418	.047	.	.303	.363
	Exchange rate	.294	.323	.480	.106	.377	.303	.	.237
	Corporate governance index	.244	.199	.334	.119	.313	.363	.237	.

N	Tobin's Q	5	5	5	5	5	5	5	5
	ROA	5	5	5	5	5	5	5	5
	ROE	5	5	5	5	5	5	5	5
	Altman Z	5	5	5	5	5	5	5	5
	GDP per capita (USD)	5	5	5	5	5	5	5	5
	Unemployment rate	5	5	5	5	5	5	5	5
	Exchange rate	5	5	5	5	5	5	5	5
	Corporate governance index	5	5	5	5	5	5	5	5

Pearson correlation is used to determine the relationship between dependent variable (Tobin's Q) and independent variables (firm-specific variables and macro-economic variables). The table 4.3 below is used as benchmark to determine the relationship between the dependent variables and independent variables.

Table 4.3 Table of Correlation Benchmark

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

Source: Hinkle, Wiersma, & Jurs as cited in Mukaka (2012)

There is a high positive but insignificant correlated between ROA and Tobin's Q with P-value < 0.10 (0.059). Uchida (2006) stated that the ROA has positive and significant impact on Tobin's Q. According Imam and Irwansyah (2002), it is stated that the ROA had no significant effect on stock return. Besides that, the ROE shows a high positive and moderate significant correlation with Tobin's Q with P-value < 0.05 (0.024). For a company, it is a great requirement in maintaining and improving financial performance so that the share will get interest of any investors (Rosikah et al, 2018). There is a low negative but insignificant correlated between Altman-Z and Tobin's Q with P-value < 0.10 (0.247). The reason for the large number of professionals working with organizations in various stages of financial distress is to prevent the company faced with the bankruptcy issues (Altman, & Hotchkiss, 1993). There is a low negative insignificant correlation between the corporate governance index and Tobin's Q with P-value < 0.10 (0.244). Contemporaneous and subsequent operating performance is negatively correlated with the board independent. Hence, if the board independence is established to improve performance, then such efforts are misguided (Bhagat, & Bolton, 2008).

The GDP per capita (USD) shows a high positive but not significant correlation with Tobin's Q with P-value < 0.10 (0.066). There is a low negative insignificant correlated between unemployment rate and Tobin's Q with P-value < 0.10 (0.190). The exchange rate shows a low positive insignificant correlation with Tobin's Q with P-value < 0.10 (0.294).

4.12 Model Summary

Table 4.4 Model Summary Result for Pooled Model 3

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.881[a]	.776	.701	.000014406273056	2.312

a. Predictors: (Constant), ROE

b. Dependent Variable: Tobin's Q

According to the Table 4.4 above, the adjusted R-squared is equal to 70.1%. This indicates that by using the firm-specific variables which is Return on Equity (ROE) in Model 3, it is shown that the variables used in the model can explain 70.1% of the variance in the Tobin's Q of the Huawei Technologies Co., Ltd. While the remaining of 29.9% of the adjusted R-Squared remain unknown and this implies that the variance in the Tobin's Q of the Huawei Technologies Co., Ltd. are unable to be explained by (ROE) for Model 3.

The model summary in Table B.3 (refer appendix B) is a result obtained from firm specific factors only as the independent variables of Model 1. The adjusted R-squared value of 0.701 indicates that 70.1% of the independent variables (ROE) can explain the model well as same as Model 3. While another 29.9% shows that Model 1 is unable to be explained by the firm-specific factors (ROE).

On the other hand, Model 2 uses macroeconomics factors as independent variables. The adjusted R-squared value is 0.305 which shows that the Model 2 can explain 30.5% of the variance in Tobin's Q of the company. The remaining 69.5% implies that Model 2 is unable to explain by the macroeconomics factors (Refer Appendix C, Table C.3). Hence, based on the values of adjusted R-squared obtained by Model 1 and Model 2, it can be

concluded that the firm-specific factors can explain the variance in the Tobin's Q of the company more significantly as compared to the macroeconomic factors. This implies that the firm-specific factors especially ROE are the main factors that can explain the variance of the Tobin's Q of the company.

4.13 Coefficient

Table 4.5 Table of Multiple Regression Coefficients

Coefficients[a]

	Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B		Collinearity Statistics	
Model	B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Tolerance	VIF
(Constant)	.000	.000		4.518	.020	.000	.000		
ROE	.000	.000	.881	3.223	.048	.000	.001	1.000	1.000

a. Dependent Variable: Tobin's Q

The analysis on coefficients shows how the independent variables that has influence on the Tobin's Q can be determined through the identification of significant level of 5 % with p-value. P-value = 0.000 implies that the independent variables has most significant influence on dependent variable, P-value < 0.001 indicates that the independent variable has strong 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 significant influence.

Based on Table 4.5 above, Return on Equity (ROE) is highly positive correlated and moderate significant influenced on the Tobin's Q with P-value < 0.05 (0.048) for the independent variables whereby t= 3.223. It implies that any changes in Return on Equity (ROE) will influence the level of Tobin's Q moderately. ROE determines the company financial performance, and this is one of the factors that can be seen by prospective investors to determine their share investment. For a company, it is a great requirement in maintaining and improving financial performance so that the share will get interest of any investors (Rosikah et al, 2018). The interest in the company would likely to be increased

which would then cause increase its stock price, which would, in turn, increase its Tobin's Q.

5.0 Conclusion

5.1 Introduction

This study aims to determine the impact of Tobin's Q in relation with determinants towards the company's performances. To achieve this objectives, 5 firm-specific factors (Corporate governance index, ROA, ROE, Tobin's Q and Altman Z) and 3 macroeconomics factors (GDP per capita, unemployment rate and exchange rate) were investigated in this study. This chapter will discuss about the findings in previous chapter, conclusion and recommendations for future work.

5.2 Discussion of results

This study aims to investigate the impact of Tobin's Q in relation with determinants towards the selected company's performances. The objectives of the study are:

1. To investigate the impact of Tobin's Q in relation with firm-specific factors towards the selected company's performances.
2. To investigate the impact of Tobin's Q in relation with macroeconomics factors towards the selected company's performances.
3. To investigate the impact of Tobin's Q in relation with firm-specific factors and macroeconomics factors towards the selected company's performances.

Based on the Table 4.2 (Correlation) and Table 4.5 (Coefficient), there are evidence showing that the Tobin's Q has been influenced by the firm-specific factors only in terms of Return on Equity (ROE) only. It is shows that the ROE shows a high positive and moderate significant correlation with Tobin's Q with P-value < 0.05 (0.024). This is also indicated that if ROE increases, then the Tobin's Q will also increase. Based on the coefficient table, ROE is highly positive correlated and moderate significant influenced on the Tobin's Q with P-value < 0.05 (0.048) for the independent variables whereby t= 3.223. ROE representing the effectiveness of the company in using the assets to generate profit. By improving the effectiveness in using the assets, the company can attract more potential investors and increase the share price which will in turn raise the Tobin's Q.

Macroeconomics factors play a little or nearly insignificant role on influencing the Tobin's Q of the Huawei. Based on the Table 4.2 (Correlation), both the unemployment and exchange rate have low negative and low positive correlation with Tobin's Q respectively at where their size of correlation is too small. Three of the macroeconomics factors including the GDP per capita (USD), unemployment and exchange rate show insignificant P-value which are P-value = 0.066, 0.190 and 0.294 respectively.

Overall, it can be concluded that both the firm-specific factors and macroeconomics factors have its influence on Tobin's Q of the Huawei separately. According to the Table 4.4 (Model Summary for Pooled Model 3) and Model 1 for firm-specific independent variables (refer Appendix B, Table B.3), the adjusted R-squared value shown implies that 70.1% of the variance in the Tobin's Q of the Huawei can be explained. While the remaining of 29.9% of the adjusted R-Squared remain unknown and this implies that the variance in the Tobin's Q of the Huawei are unable to be explained by the firm-specific factors (ROE). By referring to the Table C.3 in Appendix C, the Model 2 (macro-economics independent variables) can explain 30.5% of the variance in Tobin's Q of the company whereas the remaining 69.5% implies that Model 2 is unable to explain by the macroeconomics factors. In conclusion, based on the values of adjusted R-squared obtained by Model 1 and Model 2, it can be concluded that the firm-specific factors have a greater impact in the Tobin's Q of the Huawei as compared to the macroeconomic factors.

5.3 Limitations

This study is limited on only selecting 1 company that had involved with scandals regardless of country. This study also covers only five years financial statements from the year 2011 until 2015 for each company. Thus, only limited amount of information can be collected and analyzed due to the time constraint.

5.4 Recommendations

Based on the findings, the Return on equity (ROE) shows a high positive and moderate significant correlation with Tobin's Q of the company. ROE shows whether the company is or not effective in earning the profit through using the assets. Hence, to

improve ROE, the company is advised to increase its debt with a suitable amount. By having the cash flows in, the company can purchase new assets to generate profit. The important thing that needs to be considered is the distribution in the portion of the equity and liabilities for the company in a long-term way. Even through the macroeconomics factors have a little impact in Tobin's Q, the company still requires in sustaining its growth along the economy conditions by somehow.

References

Agrawal, A., & Chadha, S. (2005). Corporate governance and accounting scandals. *The Journal of Law and Economics, 48*(2), 371–406. doi:10.1086/430808

Agrawal, A., & Cooper, T. (2017). Corporate governance consequences of accounting scandals: Evidence from top management, CFO and auditor turnover. *Quarterly Journal of Finance, 07*(01), 1650014. doi:10.1142/s2010139216500142

Altman, E. I. & Hotchkiss, E. (Ed.) (1993). *Corporate financial distress and bankruptcy: Predict and avoid bankruptcy, analyze and invest in distressed debt* (3rd ed.). Hoboken, New Jersey, Canada.

Auckland Centre for Financial Research. (n.d.). *What is a Corporate Governance Index?* Retrieved from https://acfr.aut.ac.nz/research/new-zealand-corporate-governance-index/what-is-a-corporate-governance-index

Bhagat, S., & Bolton, B. (2008). Corporate governance and firm performance. *Journal of Corporate Finance, 14*(3), 257–273. doi:10.1016/j.jcorpfin.2008.03.006

Black, B. S., Love, I., & Rachinsky, A. (2006). *Corporate governance indices and firms' market values: Time series evidence from Russia. Emerging Markets Review, 7(4), 361–379.*doi:10.1016/j.ememar.2006.09.004

Borgia, F. (2005). Corporate governance & transparency role of disclosure: How prevent new financial scandals and crimes? *Transnational Crime and Corruption Center (TRACCC).* (June 2005), 1-52. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.457.722&rep=rep1&type=pdf

Claessens, S. (2006). Corporate governance and development. *The World Bank Research Observer, 21*(1), 91-122. Retrieved from https://doi.org/10.1093/wbro/lkj004

Code of Conduct for Partners. (2019). Retrieved from https://e.huawei.com/en/partner/partner-program/code-of-conduct-for-partners

Core, J. E., Holthausen, R. W., & Larcker, D. F. (1999). Corporate governance, chief executive officer compensation, and firm performance1The financial support of Nomura Securities and Ernst & Young LLP is gratefully acknowledged. We appreciate the able research assistance of Dan Nunn. We acknowledge the helpful comments of Abbie Smith (the referee), Kevin Murphy, and workshop participants at Columbia University, the University of California – Los Angeles, the University of Colorado – Boulder, Harvard University, George Washington University, Massachusetts Institute of Technology, New York University, Stanford University, and Tempe University.1. Journal of Financial Economics, 51(3), 371–406. doi:10.1016/s0304-405x(98)00058-0

Corporate Governance Overview. (2018). Retrieved from https://www.huawei.com/en/about-huawei/corporate-governance/corporate-governance

Corporate Introduction. (2018). Retrieved from https://www.huawei.com/en/about-huawei/corporate-information

Daily, C. M., & Dalton, D. R. (1994). Bankruptcy and corporate governance: The impact of board composition and structure. *Academy of Management Journal, 37*(6), 1603–1617. doi:10.5465/256801

Doidge, Craig, Karolyi, G. Andrew, Stulz, Rene, 2004b. Why are foreign firms listed in the U.S. worth more? Journal of Financial Economics 71, 205–238.

Fich, E. M., & Slezak, S. L. (2007). Can corporate governance save distressed firms from bankruptcy? An empirical analysis. Review of Quantitative Finance and Accounting, 30(2), 225–251. doi:10.1007/s11156-007-0048-5

FocusEconomics, (n.d.). *What is GDP per capita?* Retrieved from https://www.focus-economics.com/economic-indicator/gdp-per-capita

Furhmann, R. (2019, April 10). *Return on Equity (ROE) vs. Return on Assets (ROA).* Retrieved from https://www.investopedia.com/ask/answers/070914/what-are-main-differences-between-return-equity-roe-and-return-assets-roa.asp

Gillan SL, Martin JD (2003) Financial engineering, corporate governance, and the collapse of Enron. Working Paper, Baylor University

Greenspan, A., 1998. Testimony of Chairman Alan Greenspan Before the Committee on Banking and Financial Services. U.S. House of Representatives, January 30.

Hargrave, M. (2019, April 12). *Return on Assets – ROA definition*. Retrieved from https://www.investopedia.com/terms/r/returnonassets.asp

Hayes, A. (2019, April 15). *Q Ratio (Tobin's Q Ratio) definition*. Retrieved from https://www.investopedia.com/terms/q/qratio.asp

John, K., & Senbet, L. W. (1998). Corporate governance and board effectiveness. *Journal of Banking & Finance*, *22*(4), 371-403.

Johnson, S., Boone, P., Breach, A., & Friedman, E. (2000). Corporate governance in the Asian financial crisis. Journal of Financial Economics, 58(1-2), 141–186. doi:10.1016/s0304-405x(00)00069-6

Kagan, J. (2019, March 8). *Unemployment rate*. Retrieved from https://www.investopedia.com/terms/u/unemploymentrate.asp

Kenton, W. (2019, April 20). *Least Squares method definition*. Retrieved from https://www.investopedia.com/terms/l/least-squares-method.asp

Kolk, A. (2007). Sustainability, accountability and corporate governance: Exploring multinationals' reporting practices. *Business Strategy and the Environment*, *17*(1), 1–15. doi:10.1002/bse.511

Lambert, R., Larcker, D., Weigelt, K., 1993. The structure of organizational incentives. Administrative Science Quarterly 38, 438—461.

Lyons, K. (December 6, 2018). *Huawei Q&A: What You Need to Know about the Chinese Phone Maker.* Retrieved from https://www.theguardian.com/technology/2018/dec/06/huawei-qa-what-you-need-to-know-about-the-chinese-phone-maker

Millar, C. C., Eldomiaty, T. I., Choi, C. J., & Hilton, B. (2005). Corporate governance and institutional transparency in emerging markets. *Journal of Business Ethics*. *59*(1-2), 163-174. doi: 10.1007/s10551-005-3412-1

Moulton, W. N., & Thomas, H. (1993). Bankruptcy as a deliberate strategy: Theoretical considerations and empirical evidence. Strategic Management Journal, 14: 125-135.

Mukaka M. M. (2012). Statistics corner: A guide to appropriate use of correlation coefficient in medical research. *Malawi medical journal: the journal of Medical Association of Malawi*, *24*(3), 69–71.

My Accounting Course, (n.d.). *Z-Score Guide*. Retrieved from https://www.myaccountingcourse.com/financial-ratios/z-score

Rajasekar, S., Philominathan, P., & Chinnathambi, V. (2006). *Research Methodology*. Retrieved April 03, 2018 from the World Wide Web: https://arxiv.org/pdf/physics/0601009.pdf

Rosikah et al. (2018). Effects of Return on Asset, Return on Equity, Earning Per Share on Corporate Value. *The International Journal of Engineering and Science (IJES). 7*(3), PP 04-14, doi:10.9790/1813-0703010614

Stecklow, S. (January 31, 2013). *Exclusive: Huawei CFO Linked to Firm that Offered HP Gear to Iran*. Retrieved from https://www.reuters.com/article/us-huawei-skycom/exclusive-huawei-cfo-linked-to-firm-that-offered-hp-gear-to-iran-idUSBRE90U0CC20130131

The Economics Times. (n.d.). *Definition of 'Exchange Rate'*. Retrieved from https://economictimes.indiatimes.com/definition/exchange-rate

Uchida, Konari, 2006, Faculty of Economics and Business Administration, The University of Kitakyushu 4-2-1, Kitagata, Kokuraminamiku, Kitakyushu 802-8577 JAPAN.

Wardell, J. (July 19, 2013). *Former CIA Boss Says Aware of Evidence Huawei Spying for China*. Retrieved from https://www.reuters.com/article/us-huawei-security/former-cia-boss-says-aware-of-evidence-huawei-spying-for-china-idUSBRE96I06I20130719

Yermack, D., 1996. Higher market valuation for firms with a small board of directors. Journal of Financial Economics 40, 185—211.

Appendices

A. Analysis Data

Table A.1 Firm-specific Factors for 5-years

Year	Corporate governance index	Return on assets (ROA)	Return on equity (ROE)	Tobin's Q	Altman Z
2011	0.523710317	0.0603	0.1757	0.00021	4.23
2012	0.518948413	0.0732	0.2049	0.00023	4.36
2013	0.514880952	0.0907	0.2436	0.00023	4.81
2014	0.523710317	0.0900	0.2769	0.00023	3.96
2015	0.518154762	0.0992	0.3260	0.00028	3.93

Table A.2 Macroeconomics Factors for 5-years

Year	GDP per capita (USD)	Unemployment rate (%)	Exchange rate (%)
2011	5634	4.34	6.46
2012	6338	4.47	6.31
2013	7124	4.10	6.05
2014	7662	4.10	6.21
2015	7948	4.10	6.49

B. SPSS Output for Model 1 (Firm-specific independent variables)

Table B.1 Descriptive Statistics

Descriptive Statistics

	Mean	Std. Deviation	N
Tobin's Q	.000234606788542	.000026356931761	5
Corporate governance index	.519880952380952	.003813706780867	5
ROA	.082668651252479	.015665201963840	5
ROE	.245441832104097	.059120290603209	5
Altman Z	4.260242996861853	.358936095814974	5

Table B.2 Correlation

Correlations

		Tobin's Q	Corporate governance index	ROA	ROE	Altman Z
Pearson Correlation	Tobin's Q	1.000	-.414	.781	.881	-.408
	Corporate governance index	-.414	1.000	-.493	-.265	-.648
	ROA	.781	-.493	1.000	.942	-.159
	ROE	.881	-.265	.942	1.000	-.463
	Altman Z	-.408	-.648	-.159	-.463	1.000
Sig. (1-tailed)	Tobin's Q	.	.244	.059	.024	.247
	Corporate governance index	.244	.	.199	.334	.119
	ROA	.059	.199	.	.008	.399
	ROE	.024	.334	.008	.	.216
	Altman Z	.247	.119	.399	.216	.
N	Tobin's Q	5	5	5	5	5
	Corporate governance index	5	5	5	5	5
	ROA	5	5	5	5	5
	ROE	5	5	5	5	5
	Altman Z	5	5	5	5	5

Table B.3 Model Summary

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.881[a]	.776	.701	.000014406273057	2.312

a. Predictors: (Constant), ROE

b. Dependent Variable: Tobin's Q

Table B.4 Coefficient

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)	.000	.000		4.518	.020	.000	.000
	ROE	.000	.000	.881	3.223	.048	.000	.001

a. Dependent Variable: Tobin's Q

C. SPSS Output for Model 2 (Macro-economic Independent Variables)

Table C.1 Descriptive variables

Descriptive Statistics

	Mean	Std. Deviation	N
Tobin's Q	.000234606788542	.000026356931761	5
GDP per capita (USD)	6941.20	953.839	5
Unemployment rate	4.222000000000000	.173262806164508	5
Exchange rate	6.3040	.18188	5

Table C.2 Correlation

Correlations

		Tobin's Q	GDP per capita (USD)	Unemployment rate
Pearson Correlation	Tobin's Q	1.000	.765	-.509
	GDP per capita (USD)	.765	1.000	-.812
	Unemployment rate	-.509	-.812	1.000
	Exchange rate	.330	-.194	.315
Sig. (1-tailed)	Tobin's Q	.	.066	.190
	GDP per capita (USD)	.066	.	.047
	Unemployment rate	.190	.047	.
	Exchange rate	.294	.377	.303
N	Tobin's Q	5	5	5
	GDP per capita (USD)	5	5	5
	Unemployment rate	5	5	5
	Exchange rate	5	5	5

Table C.3 Model Summary

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.909[a]	.826	.305	.000021973713348	3.110

a. Predictors: (Constant), Exchange rate, GDP per capita (USD), Unemployment rate

b. Dependent Variable: Tobin's Q

Table C.4 Coefficient

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
	B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1(Constant)	.000	.001		-.719	.603	-.008	.008
GDP per capita (USD)	2.609E-8	.000	.944	1.313	.414	.000	.000
Unemployment rate	1.621E-5	.000	.107	.143	.909	-.001	.001
Exchange rate	6.954E-5	.000	.480	1.086	.474	-.001	.001

a. Dependent Variable: Tobin's Q

D. SPSS Output for Model 3 (Pooled Model)

Table D.1 Descriptive Statistics

Descriptive Statistics

	Mean	Std. Deviation	N
Tobin's Q	.000234606788542	.000026356931762	5
ROA	.082668651252479	.015665201963840	5
ROE	.245441832104097	.059120290603209	5
Altman Z	4.260242996861853	.358936095814973	5
GDP per capita (USD)	6941.20	953.839	5
Unemployment rate	4.2220	.17326	5
Exchange rate	6.3040	.18188	5
Corporate governance index	.519880952380952	.003813706780867	5

Table D.2 Correlation

Correlations

		Tobin's Q	ROA	ROE	Altman Z	GDP per capita (USD)	Unemployment rate	Exchange rate	Corporate Governance Index
Pearson Correlation	Tobin's Q	1.000	.781	.881	-.408	.765	-.509	.330	-.414
	ROA	.781	1.000	.942	-.159	.976	-.817	-.282	-.493
	ROE	.881	.942	1.000	-.463	.971	-.774	.032	-.265
	Altman Z	-.408	-.159	-.463	1.000	-.347	.128	-.675	-.648
	GDP per capita (USD)	.765	.976	.971	-.347	1.000	-.812	-.194	-.298
	Unemployment rate	-.509	-.817	-.774	.128	-.812	1.000	.315	.217
	Exchange rate	.330	-.282	.032	-.675	-.194	.315	1.000	.426
	Corporate governance index	-.414	-.493	-.265	-.648	-.298	.217	.426	1.000
Sig. (1-tailed)	Tobin's Q	.	.059	.024	.247	.066	.190	.294	.244
	ROA	.059	.	.008	.399	.002	.046	.323	.199
	ROE	.024	.008	.	.216	.003	.062	.480	.334

	Altman Z	.247	.399	.216	.	.283	.418	.106	.119
	GDP per capita (USD)	.066	.002	.003	.283	.	.047	.377	.313
	Unemployment rate	.190	.046	.062	.418	.047	.	.303	.363
	Exchange rate	.294	.323	.480	.106	.377	.303	.	.237
	Corporate governance index	.244	.199	.334	.119	.313	.363	.237	.
N	Tobin's Q	5	5	5	5	5	5	5	5
	ROA	5	5	5	5	5	5	5	5
	ROE	5	5	5	5	5	5	5	5
	Altman Z	5	5	5	5	5	5	5	5
	GDP per capita (USD)	5	5	5	5	5	5	5	5
	Unemployment rate	5	5	5	5	5	5	5	5
	Exchange rate	5	5	5	5	5	5	5	5
	Corporate governance index	5	5	5	5	5	5	5	5

Table D.3 Model Summary

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.881[a]	.776	.701	.000014406273056	2.312

a. Predictors: (Constant), ROE

b. Dependent Variable: Tobin's Q

Table D.4 Coefficient

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	.000	.000		4.518	.020	.000	.000		
	ROE	.000	.000	.881	3.223	.048	.000	.001	1.000	1.000

a. Dependent Variable: Tobin's Q