UNIVERSITETET I AGDER

Measuring the Impact of Intangible Asset Investment toward Companies Financial Health and Agency Problem

Empirical Research from Indonesian Companies during World Financial Crisis Period 2006-2011

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This Master's Thesis is carried out as a part of education at the University of Agder and is approved as a part of this education. However, this does not imply that the University answers for the methods that are used or the conclusions that are drawn.

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Preface

This thesis is made as the requirement in finishing master degree, in University of Agder. Therefore, it does not have any relation with my previous bachelor thesis which titled 'The Usage of Economic Valued Added in Controlling Agency Conflict'. If there are similarities between those works, then it was occurred without any intention of plagiarism. The file of my bachelor thesis was published for public in a public journal storage, namely www.ssrn.com and can be downloaded in address http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2006320

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Abstract

The thesis examines the impact of intangible investment toward company's health and company agency problem. The research chooses Intangible asset because of its special characteristic. Intangible asset as the asset of production has equipped the employee with better skills and knowledge on productions. On the other hand, an intangible asset that does not have physical evidence also triggered the liquidity problem of the company. The research chose Indonesia as the place of observation because of their growth in intangible asset investment. Based on OECD, after 2002, either Foreign Direct Investment or Intellectual Asset in Indonesia has increased. The thesis attempts to analyze how the impact of these assets toward company financial performance and agency conflict during the crisis. The research involves 158 companies, but because of the data availability reason the number of the company is refined into 30 Indonesian stock listed companies. The research collects data from 2006 until crisis 2011. Looking at market value, dividend policy, solvency ratio, intangible value, and company performance, as the empirical research parameter, the thesis reveals a significant relationship between the amount of intangible asset and the market value of the company. Secondly, the thesis also found the role of intangible asset in explaining the relationship between market value and agency conflict indicator.

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1. Introduction

1. 1. Background and Rationale of the Study

During last decades, the development and alteration of the business environment grow tremendously fast. The rapid technology improvement, deregulation and globalization, have forced companies to go through the process of reinventing (Garanina & Pavlova, 2011). The investment that helps companies to improve their competitive abilities is presented in two ways. The first is a tangible asset which has physical evidence, whereas the later one is an intangible asset, without physical evidence. The appropriate intangible asset helps the company to achieve the success, which is called as the roots of company value creation (Garanina & Pavlova, 2011). Moreover, researcher believe that intangibles asset are major drivers of company growth and value in most economy sector (Lev, 2001b).

Before the financial crisis of 2008, Neil Gross in Business Week August 2001 stated that valuing *intangibles is a tough job, but it has to be done*[i]. He also claimed that there are crucial transformations in defining important asset. '*The shifting from brick and mortar to patent and knowledge are the new realities that grow in latest Modern business competition*'. According to that statement, the good knowledge and understanding about intangible asset can be one of endurance component to face the crisis. Furthermore, Gross (2008) stated that many accountants do not put in the account about this knowledge. It is caused by the nature of intangible value, which is not stated in the balance sheet.

Petkov (2011) stressed that intangible asset brought many advantages to the company; however, it also triggers the agency cost, which leads to the bankruptcy of the company. The bankruptcy is the result of the sunk cost (which are beneficial, only when they will be returned in the future), (Martins & Alves, 2010). Align with an explanation above; Petkov (2011) put allegation that the wrong way of manager in valuing and treating intangible asset also led to world economic crisis in 2008. It is also worth mentioning bubble phenomenon, namely the condition where the price of asset increases and later on end up with the very low intrinsic price (White, 2011). Bubble phenomenon can happen because of some asset that does not have the ability to be identifiable (Petkov, 2011). The effect was that the price of the asset does not reflect the real number of intrinsic value. The increasing gap between market and book value of companies spurred reflections on the importance of intangible asset and the way they are measured (Garanina & Pavlova, 2011).

Indonesia is one of the countries which are able to maintain their economic growth during the crisis. Based on the data in Indonesian Statistical Department, in 2008, Indonesia

recorded 6,01 (%) on year average economic growth where almost all countries in the rest of the world recorded minus National Economic growth. During the first, the second, the third, and the fourth quarter Indonesia record their growth as 6.21%; 6.25%, 6.30%, and 5.27%. Hence Indonesia did not struggle the bubble burst, the author attempts to find the knowledge behind it.

The endurance of Indonesian companies in facing the global crisis 2008 is the interesting occurrence in the global economic transaction. Nowadays the financial transaction can happen beyond the country border; thus the bubble phenomenon should affect Indonesia easily. Both characteristic of intangible asset, either in creating company competitive advantage or triggering the potential risk of the bubble makes this particular asset become interesting research object. Therefore in this research author will analyze how big the intangible asset role in assisting the Indonesians company's endurance before and during crisis in 2008 was.

Based on paper from Organization for economic Cooperation and Development (OECD) titled Foreign Direct Investment and Intellectual Capital Formation in South East Asia[ii], after 2002 foreign direct investment in Indonesia has increased, especially in intellectual capital. The intangible asset has the same characteristic as bubble has; it is very hard to measure the intrinsic value. The question is, first, is there any relation between company endurance and intangible asset? The second is to prove the allegation whether Indonesian companies' endurance is determined by its intangible asset.

1.2. Indonesian Financial Market History

1.2.1. Orde Lama and Orde Baru

Indonesia was independent since 1945. After being colonized for 350 years by Dutch, Indonesia finally can start to manage their economic. Indonesia has three phases in their economic history. First is called 'Orde Lama' or 'Old Order' and then 'Orde Baru' or 'New Order', and the last one is reformation. One interesting part is each transition of this economic phase always was filled by the crisis. In 'Orde lama', which occurred between 1945 until 1967, Indonesia holds the economic system which tends to be socialize country. It can be seen by the crucial support of the government toward socialist system such as Marxism and Communism. During this era, Indonesian government limited their relationship with western countries due to their different political point of view. At the end of its era, the government had to deal with a critical inflation until 500% and make the President Soekarno signed the agreement to hand over the government governance to General Soeharto. The next era after

Orde Lama is called Orde Baru. During this era, Indonesia started to make their attempt in building their relationship with western countries such as United States and West Europe. This era brought Indonesia as one of the strongest economic power in South East Asia. With a population around 230 million, Indonesia have huge domestic market demand which opens the chance for foreign or domestic direct investment. This era was lasted for 32 years. In 1998, Indonesia faced crucial problem in conducting governance due to corruption and collusion, which made Indonesian economies become so vulnerable. Therefore, Indonesia was not being able to face Asian Crisis in 1998.

1.2.2. Crisis 1998 and Reformation Era

The Crisis in South East Asia started in 1998, which is started by the economic crisis in Thailand. The country at that time made an attempt to retain their currency Baht in fixed currency regime. The crucial transactions in buying foreign currency especially dollar made Thailand government overwhelmed and cannot maintain the foreign speculator which want to take benefit from their currency regime. The crisis was contagious to Indonesia, Malaysia, and South Korea. On the other hand, the scarcity of dollar made many Indonesian companies, which had to pay their debt in the dollar face the crucial problem by the appreciation of dollar value. Many Indonesian companies which were not aware of the rise of the dollar, and did not do any hedging strategy, were forced to bankrupt. Moreover, the bankruptcy of companies led many finance sector did not work properly. Many banks has dead loan and registered their bankruptcy due to their crucial percentage in Net Performing Loan, the condition where bank solvency ratio was really poor.

Bank industry was so desperate and raises its free-interest until 60% to gain their third object capital and empower people to save their money in the bank. Indonesian New President Prof. B.J. Habibie, PhD had to hand over the governance of the government to New Transition Government.

Crisis that occurred in 1998 may be treated as a lesson to whole companies' owners in putting more consideration in managing their debt and asset. Moreover, the debts come from abroad and bring consequence in currency and interest differs. On the other hand, government also prepare better Mezzo institution by put the standard of net performing loan, which rule the dead loan of bank cannot more than 3,5 (%). Central bank gave crucial concern about solvency ratio level of private and public bank. In corporate governance structure, owner and manager will evaluate their capital structure and be more careful with the debt. The new conscience about how dangerous debt brings Indonesia in a new perspective of the economy.

However, Indonesia can endure from crisis and lead the positive growth.

Table 1. World Economic Growth

Year	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
World	3	4.8	2.7	-	3.8	4.9	4.7	5.3	5.2	3.1	-0.7	4.9
USA	4.1	5	0.3	2.45	3.1	4.4	3.2	3.2	2	1.1	-2.6	2.8

The data from Bureau Statistic of Indonesia record

Table 2. The Indonesian Economic Growth

1	Q1	Q2	Q3	Q4	Average
2005	**5.96**	**5.87**	**5.84**	**5.11**	**5.69**
2006	**5.13**	**4.93**	**5.86**	**6.06**	**5.50**
2007	**6.06**	**6.73**	**6.74**	**5.84**	**6.35**
2008	**6.21**	**6.30**	**6.25**	**5.27**	**6.01**
2009	**4.53**	**4.08**	**4.16**	**5.43**	**4.55**
2010	**2.4**	**1.94**	**2.86**	**3.45**	**2.66**
2011	**1.45**	**1.5**	**2.9**	**3.4**	**2.31**

The peak of the crisis was occurred in 2008. Many researchers believe that the crisis mostly triggered by bubble, the condition where the value of the asset initially increase but went down afterward. The impact on the crisis can be felt by many people all around the world. Many economic derivations get the impacts from the crisis such as Subprime Mortgage in USA. On the other hand, Indonesia since 2005 until 2011 faces the positive growth of economic condition. Therefore, this phenomenon triggers the allegation that Indonesian companies have stronger endurance during the crisis instead of some companies from the country which had crisis.

1.3. Study Objective

In order to get understanding the of the paper objective, several point will be sentenced as the guidance.

- The first objective study of the research is finding the effect of intangible asset to market value appreciation.
- The second objective is finding the role of intangible asset to company financial health.
- The third objective is finding the role of intangible asset toward company corporate governance or agency problem, especially with debt holder and shareholder. The characteristic of intangible asset, which has crucial risk especially in company liquidity makes the shareholder put high attention on it. The allegation here is the

shareholder will reduce the proportion of debt and issue more stock. The high risk of intangible value will make the manager reduce the other risk. The second allegation here is there will be a negative correlation between intangible asset and debt.

1.4. Limitation

Several limitation of the paper is

1. The time period is between 2006 until 2011, the period before, during crisis, and after the crisis in Indonesia.
2. This paper will only focus in Intangible asset, company performance variables, and agency conflict variables. Several factors outside this variable will be considered as constant or ceteris paribus.
3. The object of the research is only Indonesian stock companies which has adequate data.

1.5. Mechanism

Paper will be delivered in some steps such as

1. Introduction

   At this chapter, paper describes the background of recent condition in the area of crisis and its reason based on intangible asset, the history of Indonesian Economy before and after world crisis in 2008, study objective, and limitation.
2. Theory

   This chapter will release theory of Intangible Asset, Market Value Added, and Corporate Governance based on Intangible Asset.
3. Literature Review

   On Literature review, paper will describe some research which already done by the economist in the object which related with Intangible asset, Corporate Governance, and its role during and before World Crisis.
4. Data and Methodology

   This Chapter will define what data and variable those are needed to get empirical evidence about the question which comprise in Hypothesis. The hypothesis and formulation of Model also will be described here.
5. Data Analysis

   Data analysis will be revealed the empirical and mathematical result from the model calculation.
6. Finding and Discussion

Based on Data Analysis, paper will take the conclusion about Finding and Discussion.

7. Conclusion and Research Suggestion

   This chapter will summarize all the finding and suggest the next research.

2. Theory and Hypothesis Formulation

2.1. Intangible Asset

Most intangible assets are not tradable, there are no such organizations or markets where intangible asset can be bought and sold (Long and Malitz, 1985). Intangibles assets are far from a homogenous category of assets (Martins & Alves, 2010). The examples of intangible asset are Research and Development (R&D), brands, organizational capital, relationships with the customer and supplier, reputation, alliances, market share, and so on. Even though, intangible asset has a high risk but it is possible to measure its level of risk and uncertainty. Intangible asset is also categorized as company innovation. Moreover, innovation is widely recognized as a risky investment relative to other corporate activities such as production, marketing and finance (Lev, 2001a).

(IFRS-5, 2007) defines an asset as: a resource that is controlled by the company as a result of a past transaction that is expected to contribute towards 'future benefits' with 'reasonable probability'. (IAS-38, 2007) stressed more that the definition of intangible asset goes further to require that the item in question does not have physical evidence. Furthermore, IAS 38 (2007) should be identifiable in order to distinguishable from goodwill. The accurate explanation will be

An asset is identifiable if it either

a. Is separable, is capable of being separated or divided from the entity and sold, transferred, licensed, rented or exchanged, either individually or together with a related contract, identifiable asset or liability, regardless of whether the entity intends to do so
b. Arises from contractual or other legal rights, regardless of whether those rights are transferable or separable from the entity or from other rights and obligations.

(IAS-3, 2007) is supplemented by illustrative example of items acquired in a business combination that meet the definition of an intangible asset.

(Petkov, 2011) described the examples such as

- Marketing-related intangible asset (trademarks, trade names, service marks, certification marks, collective marks, Internet domain, newspaper mastheads)
- Customer related intangible assets (customer lists, order of production back log, customer contracts and the related customer relationships, contractual customer relationships)
- Artistic related intangible assets (copyrights for books, plays, films, music, pictures, photographs, operas and ballets)

- Contract based intangible assets (licensing, royalty, standstill agreements, advertising, construction, management, service or supply contracts, lease agreements, construction permits, franchise agreements, broadcast rights, use rights, such as water, air timber cutting, servicing contracts such as mortgage servicing contracts, employment contracts)
- Technology based intangible assets (patented technology and unpatented technology, software, databases, trade secrets such as formulae, processes and recipes)

Even if, the specific items meet the asset definition criteria, they still will not appear on the balance sheet if they do not meet the asset recognition criteria for assets. Similar recognition criteria focus on two factors: the uncertainty associated with future benefits and a reliable cost to record the asset from a verifiable transaction.

(IAS-38, 2007) state that intangible asset should be recognized if, and only if

a. It is probable that the future economic benefits that are attributable to the asset will flow the enterprise and
b. The cost of the asset can be measured reliably.

Cost is defined as the amount of cash equivalent paid or the fair value of the other consideration given (shares) to acquire an asset, and fair value is a price from an arm's length transaction. Further their research. The accounting frameworks rely heavily on particular elements of the asset definition and recognition principles. Specifically, intangible assets are typically identified only reference to transactions between firms and externally party. This ensures a verifiable measure is available to record the asset, thus satisfying the reliability component of the asset recognition criteria. The weighting given to reliable measurement is reinforced by relevance versus reliability principle. This is an overriding principle that requires the relevance of a reported asset to external users of accounting information is balanced against the reliability of reported number.

Stewart (1995) claimed that intangible asset is the opportunity profit that the company will get from the condition of the industry. Based on that Stewart publication titled 'Grasp the Intangible', he proposed the formula to figure the intangible. The calculation of its formula is

1. Calculate company's average pre-tax earnings for past three years (A).
2. Calculate company's average year-end tangible assets (B) for the past three years. (I.e. All 'assets' listed in financial statements except 'Intangible assets').
3. Divide the company's average pre-tax profit by its average assets. (I.e. All of the 'Assets' from the financial statements except intangible assets). This gives the company's return on assets (ROA) C = A/B.

4. In the same way, calculate the industry average ROA for the last three years (D) which following the methods background assumption is the amount of physical capital accessible to the company, and the rest is the amount of intangible capital accessible to the company. If the company's return on physical assets is now greater than the average within industry (C>D), then the calculation proceed to the next stage.
5. Calculate the company's excess return €. This is done by multiplying the industry average ROA (D) by the company tangible assets (B). Subtract the excess return from pre-tax earnings (A). I.e. Company's excess return: E=A=(D*B)
6. Calculate the company's after tax excess return. This is done by calculating the three years average corporate tax rate and the subtracting this number from 1. Then multiply it by the company's excess return. The resultant equation is now in the form: company's after tax excess return = (A-D*B)*(1-company average tax percentage) which, according to the methods background assumption, is a result of the company's intellectual capital.
7. Calculate the net present value of the after tax excess returns. Use the company's cost of capital as a one suitable discounting factor and then divides the company's after tax excess return by the company's cost of capital. Net present value of the aftertax excess return represents the intellectual capital value of the company.

Therefore, Stewart stated that the rising of relative CIV value indicates that a business has the capacity to produce future wealth, even if the market may not have recognized yet (Aho, Stėhle, & Stėhle, 2011, p. 29). Based on aforementioned, the low degree of CIV indicate that the intangible investments are not paid off, or investment in tangible asset is bigger than intangible (Marr, 2003). Moreover, Marre (2001) in Aho (2011) state that CIV cannot be used if its value is negative, because that renders its meaningless.

2.2. Market Value of the Company and Its Relation with Intangible Asset.

Market Value of the company is a market capitalization plus debt, in the context of securities market value is quite often different from book value because the market value puts into account the potential growth into the valuation ((Brigham, 1992). In practice, there are several ways in market value calculation. Among them, the most common used is Market Value Added or (MVA) and Tobins Q Ratio.

Market value added (MVA) is the difference between the current market value of a firm and capital contributed by investors (Brigham, 1992). If MVA is positive, it means that

the firms add value. In Contrast, if its negative it means market appreciate the value of company lower than the real capital.

The formula for MVA is

$$MVA = V - K$$

Equation 1. Market Value Added Formula

MVA : Market Value Added

V : the value of the company based on market appreciation (from the price share multiply by the amount of stock)

K : the capital that invested in company including equity and debt.

Market Value Added is commonly used in valuing market price of equities, but this method has disadvantage to be used in the research. The forms of MVA, which is presented in general numeric, have big collinearity with the size of researched company object. Moreover, MVA also has a big range in their variance, which means they tend to have large standard deviation. Therefore in this research the author attempts to use Ratio forms, which does not have a big range in standard deviation.

The second method is called Tobins Q model. Tobins Q model was made by Nobel laureate James Tobin from Yale University. The calculation of this value is based on market value of the company plus liabilities divided by value of the firm's assets.

$$Q = \frac{Total\ Market\ Value\ of\ the\ Firm}{Total\ Asset\ Value}$$

Equation 2. Tobins Q Formula

The formula results the value in ratio format. This format make Tobins Q as the preferred model for this research. Moreover, research from Tillinger (1991) showed that Tobins Q was the valid indicator in showing the effectiveness of company investment effort. The Q was consistently able to differentiate the company with good performance where associated with Q more than 1 and the company with the unwell performance (Tillinger, 1991). Therefore in this research the indicator of company effectiveness in their investment will be represented by Tobins Q Ratio.

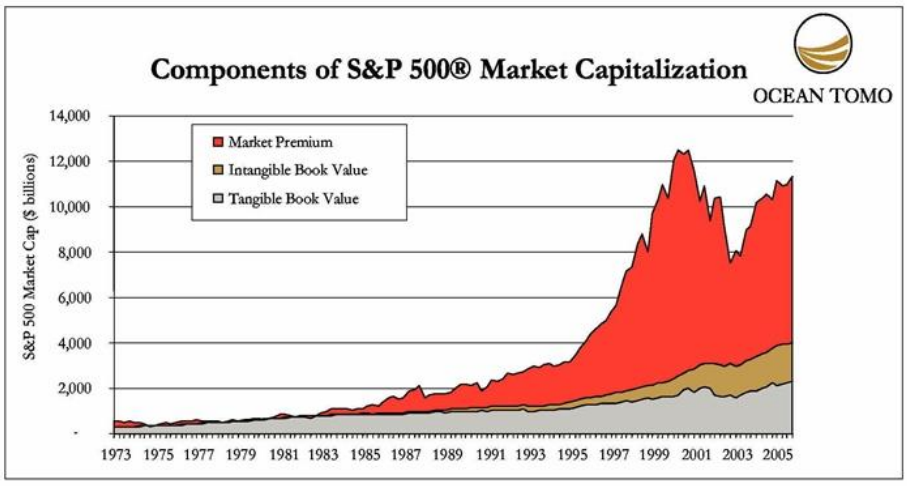
Related with the paper, the high investment in R&D and human capital intelligence can be seen from the high investment in intangible asset (Lev, 2001b). According to (Lev, 2001a) the terms intangible asset, knowledge assets and intellectual capital are interchangeable owing to the fact that all three terms are widely used : intangible assets in accounting literature, knowledge assets-by economics, intellectual capital – in management

and law literature, and on the whole, they come to the same to the future benefits that are not embodied materially (Lev, 2001a).

Based on the aforementioned, the investment in intangible asset can be accepted when it gives future benefit. The benefit can be seen from the internal profit margin and also from the market appreciation toward the company. At this paper, the author will focus deeply on the condition of Indonesian companies before, during, and after the crisis. The condition at the crisis was started by the bubble phenomenon where finally burst in 2008. The bubble phenomenon can be described by the price of stock, which mostly higher than the intrinsic value of company asset. According with it, this paper tries to analyze how the trend in Indonesian stock market condition during the crisis and its relation with intangible asset. Moreover, Intangible asset will increase the value of the company based on its R&D department, but actually intangible asset also will affect the corporate and financial governance behavior. At this point, paper will see the relation between intangible asset and the market value added from each company. The suggestion, which will be led to hypothesis is the companies with high intangible asset are supposed to have high market price, as well.

Garanina (2010) claimed that most of Market Value of the company is constructed from both tangible value and intangible value. Either tangible or intangible has a strong relationship with market value, but which one more dominant is still arguable. Here, the picture is taken from her paper.

Figure 1. Component of Market Capitalization taken from (Garanina & Pavlova, 2011)



2.3. Company Health Indicators

There are several measurements to evaluate the company's financial health. One of the most popular method is the bankruptcy test from Altman Z. These methods are known as Z-

score. Research from Velavan (2011) successfully implemented Z-score to measure bankruptcy risk for real estate companies in India. The method used 5 indicators in predicting the level of company bankruptcy risk such as retained earnings, EBIT, Stockholder Equity, and Revenue. If Z score is low, it means the company has big risk in their company health.

This research will not use Z-factor as the method in measuring Financial Health. The reason is this research also elaborates the analysis from corporate governance view. However, the idea of Z-score analysis is used in defining Company Performance and Bankruptcy analysis in this thesis. The paper suggests two methods in measuring company health, such as:

- Company Performance

  Return on Equity is one of the most popular method in calculating company performance (Brigham, 1992). These methods are the comparison between Earning after Tax and Stockholder Equity. ROE will calculate the level of return that the stockholder will get from their contribution in equity.
- Solvency Ratio

  Solvency Ratio is the comparison between company profit and the liabilities. It measures the ability of the company in paying their short and long term liabilities (Brigham, 1992).

2.4. Corporate Governance and its relation with Intangible Asset

Corporate Governance is derivative from an analogy between the government of cities, nations or states and the governance of corporations (Becht, Bolton, & Röell, 2002, p. 5). From the paper of (Becht et al., 2002, p. 7) the issue of corporate governance become such a prominent topic is because of

- The worldwide wave of privatization of the past two decades;
- Pension fund reform and the growth of private savings;
- The takeover wave of the 1980s;
- Deregulation and the integration of capital markets
- The 1998 East Asia crisis, which has put the spotlight on corporate governance in emerging markets.

The debate on the corporate governance had started since 1932 when Berle in (Becht et al., 2002) argue that

Responsibility to multiple parties would exacerbate the separation of ownership and control and make management even less accountable to shareholders.

The East Asia crisis has highlighted the flimsy protections investor in emerging markets. The crisis has also led to a reassessment of the Asian model of industrial organizations and finance around highly centralized and hierarchical industrial groups controlled by management and large investors (Becht et al., 2002, p. 10).

Two main subjects of Corporate Governance theory which broadly used for this topic are Agency Cost Problem and Risk Management. The explanation of this theory will be described below.

2.4.1. Agency Cost Theory

Brigham (1992) described agency theory as the relationship between principal and its agent. The problems arise when they have to deal with two big problems. The first is the difference of goal between principal and agent. The second is the different tolerances between agent and principal toward risks valuation. Fama (1980) stated that agency problem tends to occur when the manager does not have 100% of company stocks.

Alves and Martin (2010) stressed that the bulk of corporate governance research aim was to understand the consequences of the separation of ownership from control on the firm's performance. Adam Smith quotation related with agency cost is

Negligence and profusion is arising when people run companies, which are rather of other people's money than of their own.

There are two perspectives in seeing the agency conflict which is caused by investment in intangible asset. The first is the relation between manager and principal. Manager as the executor of intangible investment plan will increase their role by holding strategic position in the project. The benefit for managers is they can improve their bargaining power, namely manager specific investment (Martins & Alves, 2010). Since innovation projects are risky, unpredictable, long term, and labor intensive, it turns out that contracting manager under this set of circumstances is particularly demanding, and as a consequence, the agency cost associated with innovation are likely to be high (Holmstrom, 1989).

According to the aforementioned, intangible asset can be considered as the long term commitment between manager and principal. The uncertainties about when the company can take the benefit from this investment become such an important issue in agency problem. There is an allegation that the company will not able to fulfill their liabilities from the profit that they had. In the financial world, this problem was called solvency problem.

Goyal (2002) said

Because the assets of high growth firms are largely intangible, debt holders have more difficulty observing how stockholders se assets in high growth firms"

Moreover, Martin and Alves (2010) stressed that consequently as the scope for discretionary behavior is higher in more intangible asset intensive sectors than in traditional industries, the asset substitution (risk shifting) and under investment problem increase, exacerbating adverse selection problems. From this perspective debt holder are the party who has the highest risk within information asymmetry and high bankruptcy costs, the consequence is debt holders will limit their credit to intangible asset intensive firms (Martins & Alves, 2010).

Petkov (2011) stressed that there were possibilities of intangible asset that the company does not intend to use in order to deny other parties to access them. According from aforementioned, intangible asset does not always booster the company operation performance. If the definition criteria for control, identify ability and future benefits are not met, the expenditure is recognized as an expense or as part of purchased goodwill if it involves a business combination (IAS-38, 2007).

Martin and Alves (2010) stressed in their previous research about the relation of agency cost and dividend Policy. Agency Cost between Manager and Shareholder will increase when manager does not share the dividend (Martins & Alves, 2010). Based on this idea the paper proposed dividend as the one of indicator the agency cost problem.

2.4.2. Risk Management and Intangible Asset

Risk Management is the process of identification, analysis and either acceptance or mitigation of uncertainty in investment decision making[iii]. In investment Risk, risk management is separated into two types, which are systematic risk and unsystematic risk. Systematic risk is the risk that any company cannot avoid it and unsystematic risk are the risk that any company can manage to avoid it. Systematic risk is related with the condition that closes with macroeconomic such as the inflation, interest rate, the political instability, the trade balance of the country and some macroeconomics variables. Related with systematic risk the company can manage it by set the hedge to protect their asset.

In unsystematic risk, some variables can be managed by the company such as agency conflict, the operational cost risk, and any other microeconomic risk. At this level company has mostly enough power to manage the risk such as reduce the agency cost, create the better remuneration system, create the healthy dividend policy, arrange the financing structure between equity and debt.

In intangible asset perspective, the risk management become prominent because of the most characteristic of modern company asset is not physically seen. The nature of intangible

asset, which highly risk needs special treatment in terms of risk management (Alves & Martins, 2010). Moreover, research from Petkov suggests some steps to deal with intangible asset risk. One of the steps is reducing the proportion of debt as the source in financing intangible asset. If the manager is reducing the debt proportion, the risk of intangible investment will be borne by stockholder with their equity. This is better because there are no obligations of the manager to pay the return of equity periodically. This character is different with debt which required debt interest to be paid annually.

3. Study Literature and Hypothesis Formulation

3.1. Literature Review

Researches about Intangible asset have been conducted for decades. Many researchers analyze this topic from many perspectives. This analysis brings this topic into many solutions and idea. Started from Long and Malitz (1985) which stated that intangible are asset which has liquidity problem, the ease on selling company asset. The research stated that intangible are an asset that not tradable. Therefore, the asset will embody with the company competitive advantage and leverage the company into better performance.

The next researches from Holmstrom (1989) which argue that intangible asset are needed to create the company growth. The author belief that intangible asset is one the company innovation. The innovation which involves the technology and labor intensive improve the position manager as the important player in company development. This process close with Agency cost problem.

In 1995, Stewart proposed a new formula in extracting Intangible data from the financial report. Stewart stated that intangible asset is opportunity return from the competitive advantage of the company toward their competitor in one industry. Stewart formulated his model by comparing the company ROA within Industry. The excess return of the company toward the industry return gives a signal that their investment in intangible asset is working.

Another Research in Intangible asset Investment is showing the growth of Intangible Asset importance. One of the example is well illustrated by inter brand research (Doyle, 2000). The research positively proves contemporary companies, a major source of prosperity and most important resource are neither physical capital nor material assets – it's the intellectual capital.

Lev (2001) did comprehensive research about intangible and its role in company growth. From his research, he found out that intangible asset has an important role as the major of economic growth. Lev also stated that even intangible gave important role in the company growth, but there were still so many companies who did not count intangible asset as their special expense. Most of the company record intangible expense as the component in producing goods and put it together as the cost of goods sold.

In 2002, Becht, Bolton, and Roell did the research about corporate governance and its relation with intangible asset. They found the different in company financing structure and finance police between high intensive intangible company with the one who was not. This research found out that manager tends to avoid the additional debt in terms of intangible asset investment.

Related with intangible asset from Stewart model, Mare (2003) found out that the lowest index of Calculated Intangible Asset (CIV) indicated that the intangible investment was not paid off. The CIV model during that time were used broadly and become the indicator of the intangible investment effectiveness.

From (Kozyrev, 2003) quoted Charles Handy "the value of a corporation intellectual capital is usually three to four times bigger than all its tangible asset". This statement emphasizes that intangible asset hold important role in constructing whole company asset.

Intangible expenditures that are not recognizable as assets will not be recorded in the income statement (Wyatt, 2003). It will aggregate into cost of goods sold and sales, general and administration expense. Investor will have to look to nonfinancial information elsewhere to evaluate the quantum and the return on the company resource allocated to activities of an intangible nature.

International Accounting Standard in 2007 put several rule as guidance for an accountant in recording their company intangible asset. Two basic requirements are the asset should able to be separated from other company activities. Other requirements are intangible asset should have clear parameter about its return. The purpose of its requirement is to make clear between intangible asset with either goodwill or sunk cost.

Another latest research was conducted by (Alves & Martins, 2010) where stated that Intangible Asset was very risky and uncertain. These characteristic led intangible asset in several problem in terms of financial structure, dividend policy, managerial equity ownership, external equity ownership, board structure, and Audit Demand. The research was showed that there were no empirical proof that intangible asset lead a problem to financial structure, dividend policy, managerial and external equity, and also board structure. The other problem is correlated with the audit demand.

Petkov (2011) wrote his research about the crisis and its relation with intangible asset. At his paper, Petkov stated that intangible asset is risky. Moreover, some intangible investment is not giving benefit to the company. It is caused by the purpose of intangible purchasing is to occupied strategic asset in order not to be used by a competitor. This problem leads the company to solvency problem, the condition where company cannot fulfill their liability because of its low profit or performance.

The research from (Garanina & Pavlova, 2011) which took a sample of UK and Russia Companies were one of the latest research in this discipline. The research divided the big group into five aggregated industries such as Mechanical Engineering, Extractive Industry, Power Engineering, Communication Service, and Metallurgy. This research found

that there is a positive correlation between Market Value of Equity and intangible asset. This paper will analyze and put more empirical information related with the research from (Garanina & Pavlova, 2011) where emphasized the relation between the fundamental value and the market value. Another additional research is to prove the negative relationship between the amounts of debt with intangible value. These idea was inspired from the research of (Alves & Martins, 2010) which stated that risky investment from an intangible asset will have negative relations with the source of financing. In this term is debt.

3.2. Hypothesis Formulation

3.2.1. The Role of Intangible Asset Toward Market Value of Equity

Intangible asset are believed as the important factor in determine the company success (Garanina & Pavlova, 2011; Lev, 2001b; Stewart, 1995; Titova, 2011). Moreover, Research from Petkov (2011) stated that intangible asset has an important role toward company success or failure during the crisis. On this research, the author attempts to see the relation of intangible asset and the market value of the company during the crisis period in 2006 until 2011. The Market Value index here is represented by Tobin's Q value index. Tobin's Q is proven in some previous researches as the valid indicator in showing investment effectiveness in business market (Tillinger, 1991; Wolfe & Sauaia, 2005). Based on aforementioned, the author proposes first paper hypothesis

H1a: Intangible asset intensive has positive relation to market value of the company.

3.2.2. The Role of Intangible Asset toward Company Financial Healths

Garanina and Pavlova (2010) found that intangible value has positive relation with Company Performance. However, research from Petkov (2011) found that intangible asset need couple years before the company can take its benefit. Based on this idea, the paper proposes second Hypothesis.

H2a: Intangible asset can explain the relation between Company Performance and Company Market Value.

The natures of intangible asset risk make principal more concern in its investment. The principal tends to change the company financing structure. Debt holder also will mind putting

debt on high risk investment. This investment is affecting the corporate governance in organization. There is an allegation that the company will not able to fulfill their liabilities when they do investment in intangible asset.

The explanation above led to the hypothesis that there is the difference in equity and debt portion between a company that have high intangible asset investment and the one who do not put high investment in it.

H3a: There is a positive correlation between market value of the company and their ability in pay short and long term liability.

3.2.3. The Role of Intangible Asset toward Agency Problem

The crisis in Indonesia which happened in 1998 is a good example of liquidity problem. The condition was caused by the high amount of debt which needs to be paid. It became worse when dollar as the currency in paying debt are disappearing from the market. These conditions bring the awareness about debt risk.

Alves and Martin (2010) stated that the existence of intangible asset will increase the stakeholder monitoring toward debt volume. Principal will tend to finance all intangible asset based on equity instead of debt because of debt. The premium of debt which is high is too risky for financing innovation. This phenomenon led this paper into the idea that the existence of intangible asset will have a negative correlation with debt or leverage.

The nature of intangible asset, which risky has made the company carefully managing their asset. Based on research from (Alves & Martins, 2010), intangible assets increase both agency cost of shareholders (hidden information and hidden action) and agency cost of debt holders (asset substitution and underinvestment). As a consequence, the level of debt is expected to be low in intangible assets intensive firms (Alves & Martins, 2010).

Profit retention is the lowest cost funding source of intangible assets firms (Petkov, 2011). Moreover, the company who put intangible investment mostly uses this asset for long term investment. If it comes to Company Life Cycle graph the company is in the position of growth. Therefore, intensive firms in intangible asset intend to pay low dividends. On the other hand, based on signaling theory, the company who has big asymmetric information will tend to give higher dividend. Since the intangible asset was preferred to be financed by equity, the company will tend to make the equity become more attractive by the signaling policy or more generous in dividend sharing.

H5a: Based on signaling theory the dividend policy has positive relation with intangible asset value.

4. Data and Methodology

The population is a whole group of people, events, or something which want to be investigated by researchers (Gujarati, 2003). The population for this data was taken from Indonesian stock Exchange data. The Intangible asset will come from the formula. There will be a research about the correlation between intangible asset and the profitability of the company. The profitability of the company will be the proxy of company endurance.

4.1 Resource and Collecting Data Sample

The data was taken from Indonesian Stock Exchange (IDX) from 2006 until 2011. The data was secondary data, which is common for corporate governance research. The data was consisted of 30 company asset which already refined from 158 companies, which is listed in Indonesian Stock Exchange. The criteria for filtering the data are based on the availability of intangible asset report, debt proportion, and dividend report. The report was obtained from database Osiris and Thomson Data Reuters, a trusted research based website which is subscribed by Universitas Gadjah Mada and also University of Agder.

The average percentage of the intangible asset data was showed only 29.28 % from the whole population. It is caused by not all companies publish their report related with their intangible asset investment. The other reason is because of low awareness from company accountant to write down intangible asset since it's not appeared in the balance sheet.

The data also already excluded the company that work in financial service such as bank, securities, and insurance due to their difference in their financial rule and governance. The populations of the data also not balance with each other because there are few in some industry but abundance in other sector. That's why in the research, the author will not divide it into several categories. To get the clear view about the industry classification, this paper will show the table below and the proportion number from a total population.

The classifications based on OSIRIS and Thomson Reuters DataStream database are consisted of 70 type of business classification, but if the author follows this classification there will be big variance among the data. Some of classification type even only has 1 company sample. Therefore, the table above summarized into 8 categories.

The limitation of the intangible asset bring this research into data extraction, which means get the intangible asset from the existing formula. The average of intangible asset, which published every year based on company annual report only 29.28% which is not representing the whole sample condition. Therefore, the sample needs to extract the data to get real intangible asset.

4.1.1. The Intangible Extraction Equation

The research is aimed to answer two different question related with company endurance. First is to answer the relation between Fundamental value such as Intangible and Tangible Asset toward Market Value of Equity and the second hypothesis which is the relation between intangible value and debt proportion in company.

The complicated method in defining intangible value will be presented using Calculated Intangible Value or known as CIV (Stewart, 1995). The explanation of this method will be described below.

$$V_E^{REOI} = E_0^{BV} + \sum_{j=1}^{\infty} \frac{REOI}{(1+k_w)^j} = \left[NA_0^{BV} + \sum_{j=1}^{\infty} \frac{REOI}{(1+k_W)^j} \right] - D_0$$

Equation 3. Fundamental Value of Equity According CIV (Stewart, 1995)

V_E^{REOI} = Where the fundamental value of equity according to the REOI model

E_0^{BV} = Book value of equity, net assets and debt at the moment (respectively);

REOI = Residual operating income in year j, REOI variant is EVA (Economic Value Added)

Weighted average cost of capital

The value in square brackets in the formula (1) is a fundamental value of assets according to the REOI model (VA), The fundamental value of assets formula may be presented as

$$V_E^{REOI} = NA_0^{BV} + \sum_{j=1}^{\infty} \frac{REOI}{(1+k_w)^j}$$

$$V_E^{REOI} = NA_T^{BV} + \frac{REOI}{k_w} = \left[NA_T^{BV} + \frac{REOI_T}{k_w} \right] + \left[\frac{REOI_I}{k_w} \right] = V_T + V_I$$

Equation 4. Fundamental Value based on REOI Model

The fundamental value of company's assets can be divided into the fundamental value of tangible assets and intangible assets as follows:

$$V_T^{REOI} = NA_{\boldsymbol{T}}^{BV} + \frac{NA_T^{BV} \times (RONA_{IAVG} - k_w)}{k_w}$$

$$= NA_T^{BV} \times \left(1 + \frac{RONA_{IAVG} - k_w}{k_w}\right) = NA_T^{BV} \times \frac{RONA_{IAVG}}{k_w},$$

$$V_I^{REOI} = \frac{REOI_I}{k_w} = NA_T^{BV} + \frac{RONA - RONA_{IAVG}}{k_w}$$

Equation 5. Tangible and Intangible Value from CIV Model (Stewart, 1995)

4.1.2. Random and Systematic Sampling Errors.

Related with the issue of data availability, this research proposes to use random sampling method. Random sampling error is the function sampling size (Zikmund, Babin, Carr, & Griffin, 2010). The average of data is about 21%, and this paper had increase sample to 100%. Zikmund et.all (2010) stated that random sampling would decrease to minimum error. It is cause by smaller the sample size, the larger the possibility of misinterpretations and margin error (Zikmund et al., 2010).

At this case, smaller number intangible asset data then the larger probability of error. Other type of error, which probably occur is the systematic error which means the error is not directly related with sample (Zikmund et al., 2010). It mostly related with the way data been executing and nature of the study.

Additional error may occur when the sample is less than perfectly representative (Zikmund et al., 2010). Moreover, the idea of intangible asset is still not fully considered by an accountant because of its complexity in how to record it (Petkov, 2011). Therefore in this research we call this error as the unrecorded data error which occurred because of its unavailability in annual financial report.

Based on this condition, this research is carefully considering all aforementioned error. By extracting the value of intangible asset, this paper belief that the bias is existed. The one effort is by watching closely at degrees of freedom (df), and adjusted r square (adj. r square) to see how representative the model can describe the dependent variable. At the end, the all the assumption should be aligned and be proven with the calculation of statistical term.

4.2. Variable Definition

The analysis of intangible asset role needs the existence of variables. Multiple regression analysis needs two or more variable and type for measurement of both dependent and explanatory will be interval (Zikmund et al., 2010). The dependent will be explained by the independent. Here, are the list of variables and theory behind it.

The formula will work when the value of each variable has the same or comparable type (Hair, 2006). Since the purpose of the research is getting the relative value from each company so typical data from this research was using ratio. Another advantage is the ratio volume can reduce the level of deviation which results from the huge variance and company size.

Table 3. List of Variables

Variable	Definition	Type
	Company Investment Effectiveness	
Tobins Q Ratio	The ratio between market value of equities plus liabilities compared with a book value of asset	DEPENDENT
	Fundamental Value	
Intangible Value (Log Form)	Intangible Value based	INDEPENDENCE & MODERATOR
Solvency Ratio	The ratio of the company ability in fulfill their short term liabilities	INDEPENDENCE
	Firm Corporate Governance& Characteristic	
Firm Performance	Return On Equity	INDEPENDENCE
Debt Ratio	The proportion of Debt in the company	INDEPENDENCE
Dividend Pay Out (Log Form)	Dummy Variable related with policy of Company in Giving Dividend or not	INDEPENDENCE
Firm Size (Log Form)	The Size of the Firm, will be transformed into log forms	CONTR

4.2.1. Dependent Variable

Tobins Q ratio is proposed as the dependent variable. This variable was used in some previous research such as research from Tillinger (1991) and Wolve (2005). Tobin's Q were consistently showed its ability in measuring the company investment effectiveness (Tillinger, 1991). Moreover Tobins Q also able to show the result of short games business performance (Wolfe & Sauaia, 2005).

Moreover, research related with Intangible Asset from Garanina (2010) claimed that Intangible value was one of an important factor in determining the Market Value of the company. This theory becomes the background of the decision in using this variable.

4.2.2. Independent Variable

4.2.2.1. Solvency Ratio

Solvency ratio is the measurement of company's ability to pay their long term obligation. The calculation is based on company's after tax income, excluding non-cash depreciation expenses, as compared to the firms total debt obligations (Brigham, 1992). The calculation is

$$Solvency\ Ratio = \frac{After\ Tax\ Net\ Profit + Depreciation}{Long\ Term\ Liabilities + Short\ term\ liabilities}$$

Equation 6.Solvency Ratio Formula

Moreover Brigham (1992) stated that acceptable solvency ratio will be different from one and other industry. However the number which considered normal if the solvency ratio is greater than 20%. The lower solvency ratio means the greater risk to be the default in obligations payment.

The relation between Solvency Ratio and intangible asset here was described on the introduction. Martin and Alves (2010) stated that greater intangible investment, then greater possibility of company bankruptcy. That author conveyed that unphysical asset will risky when this sector cannot pay the investment from its return. Moreover, liquidity problem always following this asset since the companies cannot sell their intangibles.

4.2.2.2. Firm Performance

Firm Performance here was putted based on research from Martin and Alves (2010) which use ROE as the indicator of company performance. The performance of the company will raise the market value of the company (Brigham, 1992). However in some particular condition the performance of the company will not help to raise the market value when the economic condition is in crisis. In 2008, there was one company namely BUMI RESOURCE which performed well in the mining industry but its asset value was dramatically sliding in 3 months[iv]. This condition proves that during the crisis, each company variable has unpredictable characteristic. The influence of intangible asset toward firm performance will be analyzed in this research.

4.2.2.3. Dividend Payout

Dividend Payout are used often as the indicator of Agency Theory in the company (Petkov, 2011; Titova, 2011). Dividend also used as the indicator of signaling theory phenomenon in the company. Signaling theory in finance theory means the manager want to give the signal to the market by share dividend. In terms of stock price, signaling theory has a

purpose in increasing stock price. Signaling theory is also closed with company internal governance issue (Brigham, 1992). In Agency Conflict issue, signaling theory is interpreted as the occurrence where manager attempt to raise the market value of the company for his own benefit. One indicator of agency conflict allegation is when the company does not perform well and still share the dividend.

On the other hand, opposite from signaling theory, company will not share so many dividends. The company is still in the growth phase, which means the company needs more capital to invest in investment (Alves & Martins, 2010). Two theories of it will be analyzed in each hypothesis. At this research, we will also use one variable which not in metric type. We will use one dummy variable which means only 0 or 1 as the variable to help the reliability of model. The control variable here is related with dividend policy. If the companies share their dividend then the value will be 1 otherwise it wills 0.

The variance on dividend amount to share is commonly big among companies. On this research the author convert the dividend value from each company into logarithms form.

4.2.2.4. Debt Ratio

Lev (2001) explained that intangible has high liquidity risk. Liquidity risk here means about the ease of company asset to be sold. This risk makes the shareholder carefully financing the intangible investment. Martin and Alves (2010) in their paper told that there are a tendency to finance the intangible investment from the equity. The reason is to reduce the risk from the debt holder in terms of intangible investment is failed in producing return. Therefore debt ratio is putted as the independence variable as one of the variables which are expected has a negative correlation with intangible asset.

4.2.2.5. Intangible Asset

Research from Garanina (2011) and Alves (2010) put intangible asset as their independent variable. However they did not put intangible Asset as a moderator Variable. The contribution of this research toward business study in intangible asset is by putting its variable as the moderator on the model.

There are two reasons why this research put intangible asset as a moderator variable. First the big range in company size make the calculation of intangible industry has large standard deviation. The varieties in One Industry in Indonesia are quite big. Second reason is this research want to see deeper influence of intangible asset toward other variable and also the model. The third reason is because the assumption of CIV model in calculating the

intangible value has so many criticizes in accuracy, so this research will emphasize on the existence of intangible value toward the other variable. The intangible here still will be counted and represented in descriptive statistic. However in the regression model, intangible value will be converted into dummy variable where stated if the company has positive intangible value then it will be in value 1 but if the company does not have or have 0 intangible values then it will be written in 0 values.

Moderator variable here was expected to give moderator effect. Moderator effect based on Hair (2006) is the variable where has a function in moderating the explanatory variable in order to increase the model integrity. When Intangible value here become Moderator variable is expected to be able in explaining the model of dependence and increase the Adj. R square model.

The intangible variable has quite big variance. The volume mostly aligned with the size of the company. Therefore in reducing the variance problem, the research converts the variable with logarithms form.

4.2.3. Control Variable (Firm Size)

Indonesia has a big variety in the company size range. The gap within industry is quite large. Here control variable namely Firm Size will be attached to help the model in explaining the dependence variable. The wide variety in Indonesian company size will be a disadvantage for this research; therefore the author will convert the form of the firm size into the logarithm value.

4.2.4. Intangible Asset

Moderator Variable here is an intangible Asset. There are two reasons why this research put intangible asset as a moderator variable. First the big range in company size make the calculation of intangible industry has large standard deviation. The varieties in One Industry in Indonesia are quite big. Second reason is this research want to see deeper influence of intangible asset toward other variable and also the model. The third reason is because the assumption of CIV model in calculating the intangible value has so many criticizes in accuracy, so this research will emphasize on the existence of intangible value toward the other variable. The intangible here still will be counted and represented in descriptive statistic. However in the regression model, intangible value will be converted into dummy variable where stated if the company has positive intangible value then it will be in value 1 but if the company does not have or have 0 intangible value then it will be written in 0 value.

Moderator variable here was expected to give moderator effect. Moderator effect based on Hair (2006) is the variable that intensively moderating the explanatory variable in explaining the dependence. When Intangible value here become Moderator variable is expected to be able in explaining more the model of dependence and increase the Adj. R square model.

4.2.4. Additional Adjustment Related With Formula and Data Availability

Since the model in CIV need the value of Weighted Average Cost of Capital and because of the limitation about the data of debt interest and Value of Equity Cost, so here we use the adjustment of WACC. .

- The Weighted Average Cost of Capital will be constructed from the formula

$$WACC = \frac{Debt}{Debt + Equity} \times cost\ of\ Debt \times (1 - Tax) + \frac{Equity}{Debt + Equity} \times cost\ of\ Equity$$

Equation 7. Weighted Average Cost of Capital Formula (Brigham, 1992)

The lack of adequate data related with maturity and the portion and also percentage of debt which taken by each company make this research put general value for all debt in the amount of 7% based on SIBOR (Singapore Loan Rate) which commonly used by Indonesian Companies. Moreover, the Equity Cost of Capital will be counted based on CAPM Model.

4.3. Descriptive Statistics

Descriptive statistic has the purpose to describe the characteristic of data. Another function of descriptive statistic is to show the characteristic of sample (Zikmund et al., 2010). It will contribute in preparation step of data analysis.

Step in descriptive measurement are illustrations of frequency distributions, proportions ad measures of central tendency. Focus on this paper, descriptive statistic will be used to find the frequency distribution, central tendencies, mean value, and standard deviation. The mean here will measure in metric how much the data average while the standard deviation will show the spread degree of the sample. If the standard deviation is bigger than mean it means the variance are the big problem of the data collection.

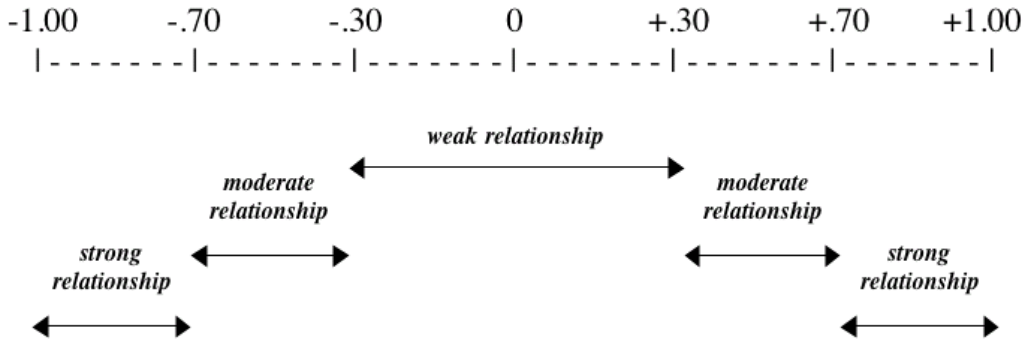
4. 4. Correlation

Bivariate correlation is an index which show how much two variable correlate and represent standardized measure of covariance (Zikmund et al., 2010). Hair (2006) defines if the correlation is 1 it means between two variables they have the positive correlation. The positive correlation can indicate that actually one variable is mirroring another variables

(Hair, 2006), for instance the level of people wealthy will have the positive correlation with their level of salary or income.

On the other hand, if the correlation is -1 it means that between two variables they have a negative correlation. Correlation which around 0 show that there is no any relationship between those two variables.

Figure 2. Strength of Correlation



4.5. Panel Data Analysis and Multiple Regression

4.5.1. Panel Data Analysis

A panel is a cross section or group of people who are surveyed periodically over a given time span[v]. In addition with that Gujarati explained that Panel data analysis is a method in studying particular object within multiple sites, periodically observed over a defined time frame. In economics, one of panel data analysis example is used to study the behavior of firms in the period of time. This method combines the data regression analysis with both spatial and temporal dimension. The spatial dimension is the cross section of the observation object such as company, country, person, manager, or principal. The temporal dimension is the period of time, which records the specific characteristic of the object, such as variable in company performance in a particular time span.

4.5.1.1. Panel Data Structures

Panel data sets generally include sequential blocks or cross section data, within each year of which resides a time series (Gujarati, 2003). On the research, the cross section of the data will be filled by company name and the followed by its company value within year. Below the paragraph, the author will display the example of data panel structures.

Table 4. Panel Data Format

ORGANIZATION	YEAR	ROE	DEBTRATIO	SOLVENCYRATIO
TLKM	2009	0.24	0.6	0.4
TLKM	2010	0.30	0.7	0.5

INDP	2009	0.25	0.3	0.6
INDP	2010	0.27	0.4	0.7

4.5.1.2. Types of Data Panel

There is three models in Data Panel such as constant coefficient models, fixed effect models and random effect models. Among these types of the model, there are also dynamic panel, robust, and covariance structure model. The Heteroskedasticity and autocorrelation issue are the basic consideration for the researcher in choosing their own model. Gujarati (2003) gives an explanation about the different from models.

- Constant Coefficient Model

  This model is sometimes called pooled regression model. The model has constant coefficient, refereeing to both intercept and slopes. In this model, the author can pull all of the data and do the regression with Ordinary Last Square. At this model, there are no significance difference between cross section and temporal span of time.

- Fixed Effect Model

  This model is little bit different from constant coefficient model. The model probably has the same slope but different in the intercept. It means that there is significance different between cross section data. This model also called as the Ordinary Least Square model. In the research, the author used this method related that the data has the difference between the company and also between period times of observation. The slope and the intercept of the data also will be different.

  Moreover, Fixed Effect model also become a model that often used in describing the interaction between explanatory variable. During this research, there will be moderation analysis, which contains multiplying each independent variable with moderator variable.

$$Y_1 = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_1 X_2 \ldots + \beta_n X_n + \varepsilon$$

Equation 8. Fixed Effect Modell Equation

- Random Effect Model

  Random effect model is the random constant term (Greene, 2003). Greene (2003) suggested in ignoring the error, the research can consider the intercept of the data is the output of random outcome variable. The random outcome is a

mean value plus the random error. The requirement of this model is the cross section should not correlation with the same error in the explanatory variable.

4.5.1.3. Granger Test

One of the advantages of doing Panel Data analysis is the ability of this process in detecting granger index. Granger test is a statistical hypothesis test for determining whether one time series is useful in forecasting another (Granger, 1969). Prof Granger (1969) explained that basically the regression only shows the correlation and relation between dependent and independent variables. However, Clive Granger proposed that there also interpretation about causality. Causality here means that one variable is causing another variable movement.

The example here is, a time series of X is said to Granger cause it can be shown by t-test or F test, that X values provide statistically significance about information value of future Y. Mathematical statement, which is proposed by Granger (1969) consider that 'y' and 'x' as stationary time series. To test the null hypothesis that 'x' does not granger cause is by finding the proper lagged values of 'y' to include in this univariate auto regression.

$$y_t = a_0 + a_1 y_{t-1} + a_2 y_{t-2} + \ldots + a_m y_{t-m} + residual_t.$$

Equation 9. Granger Test Model

Here, Yt-1 will be retained in the regression if and only if it has t significant statistic, 'm' is the greatest lag length for which the lagged dependent variable is significance.

Nest the auto regression which include lagged values of x

$$y_t = a_0 + a_1 y_{t-1} + a_2 y_{t-2} + \ldots a_m y_{t-m} + b_p x_{t-p} + \ldots + b_q x_{t-q} + residual_t.$$

Equation 10. Granger Test Second Model

Each X and 't' will be retained in the model if they are significant in t test and value test. The researcher can count the 'p' as the shortest lagged and q as the longest lagged value of 'z' which significant. The hypothesis where there is no Granger caused is when there is no any lagged of x or null.

4.5.2. Linear Regression in Pool Data

Hair (2006) describes multiple regression analysis as a general statistical technique used to analyze the relationship between a single dependent variable and several independent variables.

The basic formulation is

$$Y_1 = X_1 + X_2 + \cdots + X_n$$

Equation 11. Multiple Regression Formula(Hair, 2006)

Moreover, Zikmund (2010) added that the mathematical model will be developed as this

$$Y_1 = \alpha + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_n X_n + \varepsilon$$

Equation 12. Multiple Regression with More than One Explanatory Variable

Y = the dependent variables which will be explained by the model (independent and control variables)

X = Independent or control variables which is expected to influence Y

α = constant, will equal the mean if slope coefficients are zero

β = standardized regression coefficient, explains the relationship between Y and X while taking into consideration that other Xs that also affect the dependent variable (partial correlation)

ε = shows the remaining change which cannot be explained by the chosen variables

Align with the previous research on intangible asset, risk management during crisis, and corporate governance effects from (Garanina & Pavlova, 2011), (Alves & Martins, 2010), and (Petkov, 2011), this research propose the following regression model.

First Model

$$\text{Tobin's Q} = \alpha + \beta_1 \times \text{ROE} + \beta_2 \times \text{DebtRatio} + \beta_3 \times \text{Solvency Ratio} + \beta_4 \times Ln(\text{Dividend}) + \beta_5 \times Ln(\text{Intangible Value}) + \beta_6 \times Ln(\text{Size of Firm}) + \varepsilon$$

Equation 13. Multiple Regression Model 1, without Intangible Asset as Moderating Variable

4.5.3. Regression with Moderating Variable

The next part, the thesis will display the moderation model illustration and the calculation of the model.

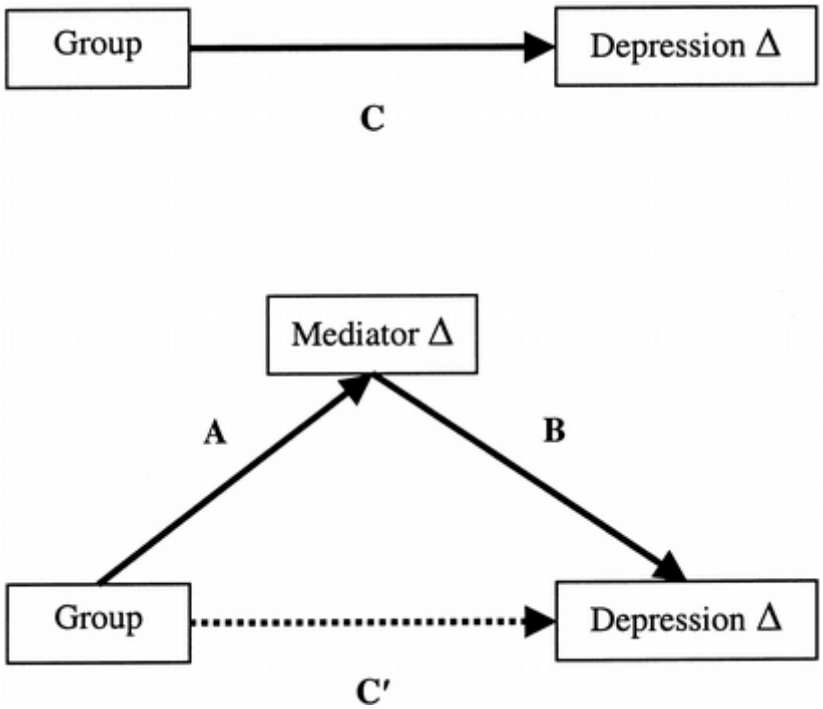


Figure 3. The Moderation Effect

$$Y_1 = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_1 X_2 \ldots + \beta_n X_n + \varepsilon$$

Equation 14. The Regression with Moderation Variable

Second Model with Intangible Asset as the Moderating Variable

$$\begin{aligned}\text{Tobin's Q Market Value} &= \alpha + \beta_1 \times \text{Solvency Ratio} + \beta_2 \times \text{DebtRatio} + \beta_3 \times \text{ROE} + \beta_4 \\ &\times Ln(\text{DividendPayOut}) + \beta_5 \times Ln(\text{Intangible Value}) + \beta_6 \\ &\times Ln(\text{Size of Firm}) + \beta_1 \times Ln(Intangible) \times \text{Solvency Ratio} + \beta_2 \\ &\times Ln(Intangible) \times \text{DebtRatio} + \beta_3 \times Ln(Intangible) \times \text{ROE} + \beta_4 \\ &\times Ln(Intangible) \times Ln(\text{DividendPayOut}) + \beta_5 \times Ln(\text{Intangible Value}) \\ &+ \beta_6 \times Ln(Intangible) \times Ln(\text{Size of Firm}) + \varepsilon\end{aligned}$$

Equation 15. Multiple Regression Model, with Intangible Asset as Moderating Variable

In this research, we want to explore the role of intangible asset in constructing the company endurance before and during the crisis. The first model that being proposed here, not including intangible asset as moderation variable. Therefore, research will attempt to see intangible asset will effect to the improvement process of the model.

The second model we will put the intangible both as moderator effect and explanatory variable. The research has the purpose to see if the intangible asset can give some contribution. Finally since our main goal is to see the role of intangible asset in supporting the

company endurance so the author tries to get a full explanation from the statistic test. Zikmund et all (2010) proposed several step such as

1. Examine the model F-test
2. Examine the individual statistical test for each parameter estimate
3. Examine the model with adj. R square
4. Examine the collinearity diagnostic.

4.5.3.1. Deal with collinearity model from Moderation

Gujarati (2003) stated that Moderation variable is increasing the collinearity problem in the model. Collinearity occurs when the interaction between explanatory variables within the model is higher than the relation of the explanatory variable and the dependent variable. Therefore, Gujarati suggest the result of moderation to be centralized. The formula of data centralization is

Centralize Moderating Variable = Moderating variable – Median of the Group.

The example is if there are 3 data on the observation such as 9, 18, and 27. If the data has the same value with median, then it will be valued 0. The value which is less than median, will have negative value, in this term 18 become 0, 9 become -9 (9-18) and 27 become 9 (27-18). This method was proofed effectively in reducing collinearity problem.

4.5.4. Analysis of Variance

4.5.4.1. Individual Significance Test (t-test)

Statistical t test basically count and predict how big the influence of one individual explanatory variable in explaining the variation of other variables may be (Gujarati, 2003). The null hypothesis (Ho) is tested which is whether a parameter (bi) equal to zero, or:

Ho: bi = 0

Equation 16. The Hypothesis which Static or same with Zero

This means that if an independent variable is not a significant explanatory variable on the dependent variable. The alternate hypothesis (Ha), the parameters of a variable is not equal to zero, or its explained such as;

Ha: bi ≠ 0

Equation 17. The Alternate Hypothesis which does not same with Zero

The explanatory variables are significant to the dependent variable. Testing of these hypotheses can be seen by comparing the value of the t statistic (t count) with the critical point according to the table. The null hypothesis is accepted if t-statistic is lower than t-critical point, which means the individual independent variables do not affect the dependent

variable. The null hypothesis is rejected if-t-statistic is higher than t-critical point, which means the individual independent variables had an influence on the dependent variable. In addition, by processing the data using SPSS 14, T test can also be done by looking at the table columns Coefficient Sig / Significance and compares the degree of confidence (α) is used. If the probability> α then Ho is accepted, if the probability <α then Ho is rejected.

4.5.4.2. Simultaneously Significance Test (F-test)

F statistic test basically indicates whether all the independent variables included in the model have jointly influenced on the dependent variable (Gujarati, 2003).

Null hypothesis (H0) is about to be tested is whether all the parameters in the model equals zero, or:

$$H0: b1 = b2 = ... = 0$$

Equation 18. F test Examination which test the Static Condition or same with Zero

If all the independent variables are not a significant, explanatory variable are equal to zero. In the other hand if the independent is significant toward dependent variable then it is considered as the H alternative:

$$Ha: b1\ b2 \neq \neq ... \neq \neq 0$$

Equation 19. F-Test Examination that Show Hypothesis Alternative

If the calculated F value is greater than the value of F according to the table, the null hypothesis is rejected which means that all independent variables simultaneously and significantly affect the dependent variable. In addition to processing data using SPSS 14, F statistic test can be done by comparing the numbers in column Sig ANOVA table with degrees of confidence (α) is used. If the numbers in ANOVA column table < α then Ho is rejected. On the other hand if the numbers of ANOVA table > α then the Ho accepted.

4.5.5. R-Squared in

Coefficient of Determination (R^2) was essentially counted how far the model in explaining the variation of the dependent variable (Gujarati, 2003). The value of determination coefficient is between zero and one. Small value of R^2 which means the ability of independent variables in explaining variations in the dependent variable is very limited. Value near one means that the independent variables provide almost all the information needed to predict the variation of the dependent variable.

Fundamental weaknesses of determinants coefficient are biased towards the number of independent variables included in the model. Each additional one independent variable then R^2 will certainly increase does not matter whether these variables significantly influence the dependent variable.

Therefore, many researchers who use Adjusted R^2 value when evaluating which model is best. Unlike R^2, Adjusted R^2 value can rise or fall when one independent variable is added into the model.

Implications of Adjusted R2 (Gujarati, 2003: 208):

- For $k > 1$ and Adjusted $R^2 < R^2$, the number of independent variables added, the adjusted R^2 rises with an increase of less than R^2
- Adjusted R^2 can be negative even though R^2 is always positive. Adjusted R^2 is negative when its value is considered zero.
- In general, when additional independent variables are good predictors. The variance would cause the value rises, and in turn will raise the adjusted R^2.

4.5.6. Classic assumption Test

4.5.6.1. Multicollinearity

Multicollinearity is the presence of a perfect linear relationship (nearly perfect) between some or all independent variables. Multicollinearity can be detected by:

- If the correlation between two independent variables is higher than the correlation of one or both independent variables with the dependent variable
- Gujarati (2003) is firmly said, "When the correlation between two independent variables exceeds 0.8 then Multicollinearity is a serious problem".
- The existence of the F statistic and the coefficient of determination are significant, but it is followed by the number of t which is not statistically significant. The model needs to be tested whether the X1 or X2 has no effect on dependent variable. The presence of serious Multicollinearity causes the coefficients of the equation become insignificant.
- In processing the data using SPSS, the way to detect the presence of Multicollinearity: is with find the magnitude of Coefficient VIF (variance inflation factor) and tolerance. A guideline for model-free regression Multicollinearity is by having VIF value around 1 or degree tolerance is close to 1.

- Previous research uses the limit of tolerance in Collinearity under 10. On the Correlation Coefficient table, by looking at the amount of correlation between independent variables. Regression model that is free Multicollinearity is a weak correlation coefficient between variables (below 0.8).

4.5.6.2. Heteroskedasticity test

Heteroskedasticity appear if errors or the residuals value of the observed model do not have a constant variance on one observation to another observation (Gujarati, 2003). If there are certain patterns, such as dot which shape a regular pattern in the scatter plot then it means there is the possibility of Heteroskedasticity. It means that each observation has a different reliability due to changes in background conditions that are not summarized in the model specification.

If there is no clear pattern at the scatter plot, and the points spread above Y and also below the point 0, means there are no Heteroskedasticity problems. Heteroskedasticity can be predicted by looking at the scatter plot chart, where the Y axis is the predicted Y and X axis is the residual (Y predicted-Y real).

4.5.6.3. Autocorrelation Test

Autocorrelation arises because sequential observations over time related to one another. This problem arises because the residuals are not independent of one observation to another observation. Good regression is a regression which frees from autocorrelation.

For instance, a linear regression model with no correlation between errors bullies in period t with an error in period t-1 (before). How to detect the presence of autocorrelation is to look at the amount of the Durbin-Watson (DW).

Table 5.Autocorrelation Parameter using Durbin Watson

Hipotesis Nol	Decision	If Durbin Watson Value
There is Autocorrelation (+)	Disapproved	0< d > dL
There is no Autocorrelation (+)	Doubt	dL< d > dU
There is no Autocorrelation (-)	Disapproved	4-dL≤d ≤ 4
There is no Autocorrelation (+)	Doubt	4-dU≤d ≤ 4-dL
There is no Autocorrelation (+/-)	Approved	dU≤d ≤ 4-dU

Where: d = DW Statistik

dL = DW Lower

dU = DW Upper

5. Data Analysis

5.1. Descriptive Statistic

Descriptive Statistic here has a purpose to describe the general information of the sample. The descriptive statistic will show the mean, median, standard deviation, and variance. The descriptive statistic here will show the development of the phenomenon in the observation data from year to year especially in the development of intangible asset data.

Table 6. Preliminary results from data collection

Intangible Asset and Goodwill Report	Count	Percentage
2011	98	32.70 (%)
2010	95	32.36 (%)
2009	90	31.50 (%)
2008	85	29.62 (%)
2007	77	26.83 (%)
2006	65	22.65 (%)
Average	62.5714286	29.28 (%)

The limited availability of data made the researcher take a fixed number of the company which consistently publishes their financial report. Therefore, the research took 30 companies in 6 years period of time.

The proportion of each company with complete financial data is displayed below. From each industry, the research took randomly and put it in the group of observation.

Table 7. The Classification of Industry

Number	Classification	Amount	Percentage
1	Agriculture	24	8.54 (%)
2	Mining	23	8.19 (%)
3	Basic Industry	36	12.81 (%)
4	Misc. Ind.	69	24.56 (%)
5	Consumer and Manufacture	58	20.64 (%)
6	Property and Real Estate	22	7.83 (%)
7	Infrastructure, Utilities and Transportation	26	9.25 (%)
8	Trade, Services and Investment	23	8.19 (%)

With the calculation from Eviews version 6 Software, Research got correlation for 6 years series, such as

Table 8. Descriptive Statistic of Indonesian Companies

	TQ	ROE	SR	DR	DIV	SIZE	INT
Mean	1.351589	31.35800	32.95596	0.439647	2.940568	22.26120	16.61968
Median	1.065547	26.52000	29.98000	0.454077	3.348517	22.85114	18.56597
Std. Dev.	1.106968	26.18674	25.85453	0.276443	2.582357	1.896271	6.644303
Skewness	4.458772	0.876407	0.259462	0.016430	-0.032272	-0.791630	-1.892377
Kurtosis	29.25546	4.649618	3.703081	1.847508	1.350421	3.391313	5.148897
Jarque-Bera	5766.540	43.45198	5.727042	9.969890	20.43959	19.94880	142.0658
Probability	0.000000	0.000000	0.057067	0.006840	0.000036	0.000047	0.000000
Sum	243.2861	5644.440	5932.073	79.13643	529.3023	4007.015	2991.543
Sum Sq. Dev.	219.3428	122748.5	119653.7	13.67935	1193.673	643.6559	7902.271
Observations	180	180	180	180	180	180	180

TQ : Tobins Q Index (ratio)
ROE : Return of Equity (ratio)
SR : Solvency Ratio (ratio)
DR : Debt Ratio (ratio)
DIV : Dividend Payout (Ln)
SIZE : Size of Company (Ln)
INT : Intangible Asset (Ln)

The analysis of each variable shows that Tobins Q has the biggest skewness among all. The conversion of big variance variable into logarithm for has make the data variance of data smaller.

The author has a chance to check the chart of the variable per year, here is the example of the year in 2008 during the crisis.

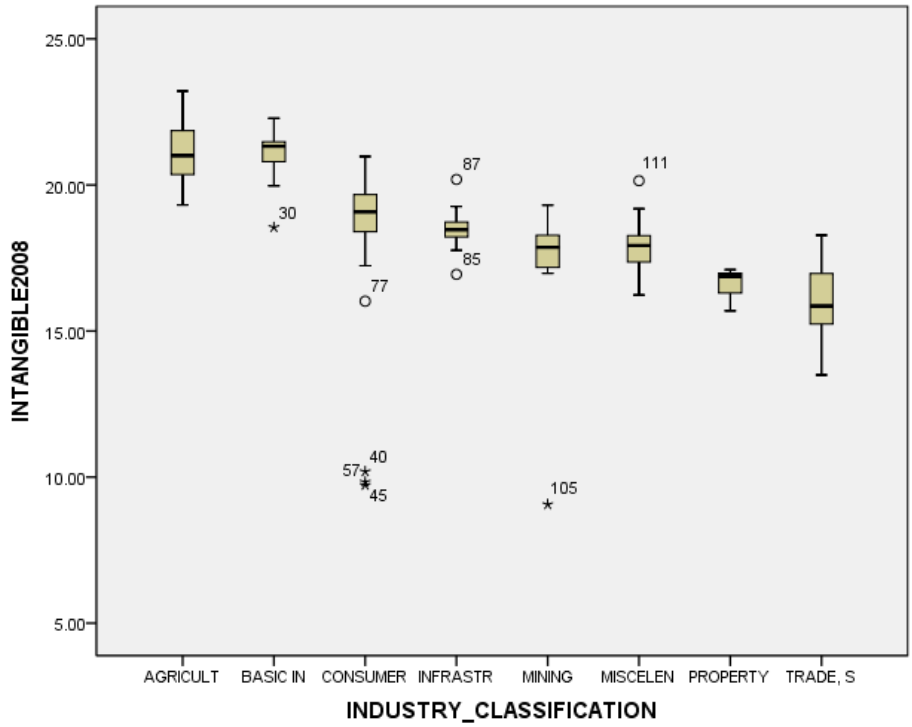


Figure 4. The logarithms form of intangible asset based on industry classification.

5.2. Correlation Analysis

The next step in this analysis is discovering about the correlation from each variable. The descriptive statistic shows the whole characteristic of the data. Since the author has gotten the situation from each industry the next step is gathering the data into one big sample data of Indonesian companies.

The tables below show the bivariate correlation between each variable.

Table 9. Correlation Calculation

	TQ	ROE	SR	DR	DIV	SIZE	INT
TQ	1.000000						
ROE	-0.021186	1.000000					
SR	0.067973	0.266714	1.000000				
DR	0.225156	0.049850	0.003822	1.000000			
DIV	-0.117271	0.233799	0.015234	-0.431009	1.000000		
SIZE	-0.294725	-0.116052	-0.225169	-0.270626	0.340011	1.000000	
INT	0.104321	0.103060	0.188969	0.236977	-0.077063	-0.099792	1.000000

The significant correlation here will be started from the intangible asset

- Intangible Asset has positive and significance correlation with Tobins Q Index.
- Intangible Value has significance correlation with Company Performance.
- Intangible Asset has positive significance with Solvency Ratio

- Intangible Asset has positive significance with Debt Ratio
- Intangible Asset has negative and not significance with dividend and size of company.

5.3. Regression Analysis

5.3.1. Panel Data Analysis

Regression analysis here has a purpose to find out the relationship between dependent variable and explanatory variable. The author intends to find the relation of the each variable from the regression analysis. The analysis will analyze t-test of each independent analysis, the F-test from the model, and the adjusted R squared. The data are the 30 selected companies which has complete financial report. The time span for the research is 6 years from 2006 until 2011. In terms of finding the causality the calculation will use Panel Data analysis.

Each variable has been adjusted to have valid model in regression analysis. The Dividend Payout, Intangible Value, and the size of Firm already converted in Ln. The software that the author used here is Eviews 6th version.

The regression model for Panel Data analysis here are :

$$\text{Market Value Added} = \alpha + \beta_1 \times \text{Solvency Ratio} + \beta_2 \times \text{DebtRatio} + \beta_3 \times \text{ROE} + \beta_4 \times Ln(\text{DividendPayOut}) + \beta_5 \times Ln(\text{Intangible Value}) + \beta_6 \times Ln(\text{Size of Firm}) + \varepsilon +$$

Equation 20. Regression Model without Intangible as Moderation

The calculation of data panel here shows the result in the original table of Eviews output tables' analysis such as:

Table 10. The Data Panel Regression Result without Moderation

Dependent Variable: TQ
Method: Panel Least Squares
Date: 05/24/12 Time: 15:07
Sample: 1 180
Periods included: 6
Cross-sections included: 30
Total panel (balanced) observations: 180

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.382349	1.339165	4.019183	0.0001
ROE	-0.005741	0.003561	-1.612180	0.1092
SR	-0.000949	0.004066	-0.233515	0.8157
DR	0.119559	0.507153	0.235746	0.8140
DIV	0.053259	0.039272	1.356172	0.1772
SIZE	-0.160738	0.057029	-2.818548	0.0055
INT	-0.027101	0.015102	-1.794530	0.0749

Effects Specification			
Cross-section fixed (dummy variables) Period fixed (dummy variables)			
R-squared	0.515945	Mean dependent var	1.351589
Adjusted R-squared	0.376648	S.D. dependent var	1.106968
S.E. of regression	0.873981	Akaike info criterion	2.765555
Sum squared resid	106.1740	Schwarz criterion	3.492840
Log likelihood	-207.9000	Hannan-Quinn criter.	3.060438
F-statistic	3.703934	Durbin-Watson stat	0.790543
Prob(F-statistic)	0.000000		

The table above shows the result of data pools from 2006 until 2011. The adj. R square number is 0, 37 which means the model can describe 37% from the whole phenomenon. The F statistics are 3.7 with the standard error below 0.01. The F-statistic shows that the model significantly influences the dependence Variable. The variance analysis shows that the mean of dependence variable is higher than the standard deviation.

The analysis of independent data, the author found that t-statistic of Intangible value has Significance 1,7 and with significance under 0,1 toward market value index. It means each intangible asset has strong relation with appreciation the market value. The negative codes of t-statistic coefficient shows that the mean of independent variable is lower than the mean of dependent variable. This result has same value with research from Garanina and Pavlova (2011), where they found intangible has a positive correlation with the market value index.

The Control variable, Company Size has significant t-statistic 2.81 with standard error Alva less than 0,1. This analysis proved the theory of Tobins Q theory that the appreciation of company size whiles the market value of company stagnant will result the positive relation with Market Value.

Other variable exclude intangible asset and size does not show their relation with the market value. Even ROE and Solvency ratio have negative relation but the error value is not significance. Therefore the paper will attempt to show the unrevealed value by putting intangible value as the moderator within the model.

5.3.2. Panel Data with moderation value

The next uses moderation value. This model will evaluate the impact of intangible value toward each financial indicator. The Moderation method here is by multiplying each independent variable with intangible value. To reduce the Multicollinearity the paper uses the centering method for each result of moderation variable.

$$\text{Tobin's Q Market Value} = \alpha + \beta_1 \times \text{Solvency Ratio} + \beta_2 \times \text{DebtRatio} + \beta_3 \times \text{ROE} + \beta_4 \times Ln(\text{DividendPayOut}) + \beta_5 \times Ln(\text{Intangible Value}) + \beta_6 \times Ln(\text{Size of Firm}) + \beta_1 \times Ln(Intangible) \times \text{Solvency Ratio} + \beta_2 \times Ln(Intangible) \times \text{DebtRatio} + \beta_3 \times Ln(Intangible) \times \text{ROE} + \beta_4 \times Ln(Intangible) \times Ln(\text{DividendPayOut}) + \beta_5 \times Ln(\text{Intangible Value}) + \beta_6 \times Ln(Intangible) \times Ln(\text{Size of Firm})\varepsilon$$

Equation 21. Data Panel Regression Model with Intangible Asset Moderation

And to manage with collinearity after moderation, the moderator variable was centered with formula

$$\beta_n \times Ln(Intangible) \times Ln(IndependentVariable) - \text{Median}(Ln(Intangible) \times Ln(IndependentVariable))$$

Equation 22. Centering Formula of Moderated Variable

The time span is from 2006 until 2011. The author calculating the model by Eviews 6th version.

Table 11. The Data Panel Regression Result with Moderation

Dependent Variable: TQ
Method: Panel Least Squares
Date: 05/24/12 Time: 15:08
Sample: 1 180
Periods included: 6
Cross-sections included: 30
Total panel (balanced) observations: 180

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.012628	2.090090	2.876732	0.0047
ROE	-0.006858	0.009206	-0.744941	0.4576
SR	0.001080	0.004122	0.261867	0.7938
DR	4.601260	1.719011	2.676690	0.0084
DIV	0.217408	0.113691	1.912263	0.0580
SIZE	-0.248981	0.068671	-3.625686	0.0004
INT	-0.070904	0.039448	-1.797397	0.0745
MODCTRROE	0.000115	0.000526	0.218765	0.8272
MODCTRSR	2.70E-06	7.55E-06	0.357975	0.7209
MODCTRDR	-0.226291	0.087086	-2.598465	0.0104
MODCTRDIV	-0.009001	0.006617	-1.360199	0.1761
MODCTRSIZE	0.005918	0.002216	2.670758	0.0085

Effects Specification

Cross-section fixed (dummy variables)
Period fixed (dummy variables)

R-squared	0.552746	Mean dependent var	1.351589
Adjusted R-squared	0.402549	S.D. dependent var	1.106968
S.E. of regression	0.855631	Akaike info criterion	2.742039
Sum squared resid	98.10196	Schwarz criterion	3.558017
Log likelihood	-200.7835	Hannan-Quinn criter.	3.072883
F-statistic	3.680134	Durbin-Watson stat	0.845812
Prob(F-statistic)	0.000000		

The Moderation variable shows that the model becomes much better with the appreciation of Adjusted R Square. Model 2 showed that the adjusted R square is increasing from 37% into 40% where there is 3% appreciation after the model using moderation variable. The F statistic depreciates 0.01.

After moderation each t-statistic shows the different effect. The t-statistic of Debt Ratio become significant in -2.5 and the alva of error become lower than 0,1. The Intangible and Size t-statistic still constant. Another change is t-statistic of ROE become positive. T-statistic of Solvency ratio also becomes positive. The result shared the same finding with Alves and Martin (2010) where debt ratio will influence the market value of the company.

5.3.3. Panel Data Classic test and Granger Test

The result of granger test will be displayed on the appendix. The result show that there is no granger caused the effect within the model. It means that each variable does not have causality toward other variable.

The paper will examine normality test in three ways. First is Multicollinearity. Multicollinearity is the test to see the relation between one independent variable to other independent variable. If the relation between them is bigger than the relation from independent to dependent than it will be a big problem. The level of Multicollinearity can be seen from the VIF (Variance Inflation Factor) value on the ANOVA table in appendix. VIF value which above 0,8 is a serious problem (Gujarati, 2003), however he state that the normal model should be around 1 or bit higher than 1. Gujarati (2003) recommended in eliminating Multicollinearity by delete it or multiplying it with another variable. From the analysis there is no Multicollinearity problem in this regression model. The whole VIF value is around 1. The Centering technique of between Moderation Value and Independents variable are proven effective in reduce Multicollinearity.

Second test is the test of autocorrelation. The test can be seen from the Durbin Watson index. The role of thumbs in this test is the Durbin Watson will no more than 4. The calculation are displayed on the appendix where will be showed in the end of this thesis.

The last one is the test of Heteroskedasticity which can be seen from the model or the graphic. At this model the author found out that before the model got moderation, there was a figure where the whole variable are stick on some pattern and not spread out. Therefore, the author try to put the moderation variable and randomly check it. After moderation, the figure was going well enough. Even there are symptoms of Heteroskedasticity but since the level of

tolerance for the research is low and the dot are following the line then it made the model still can be accepted.

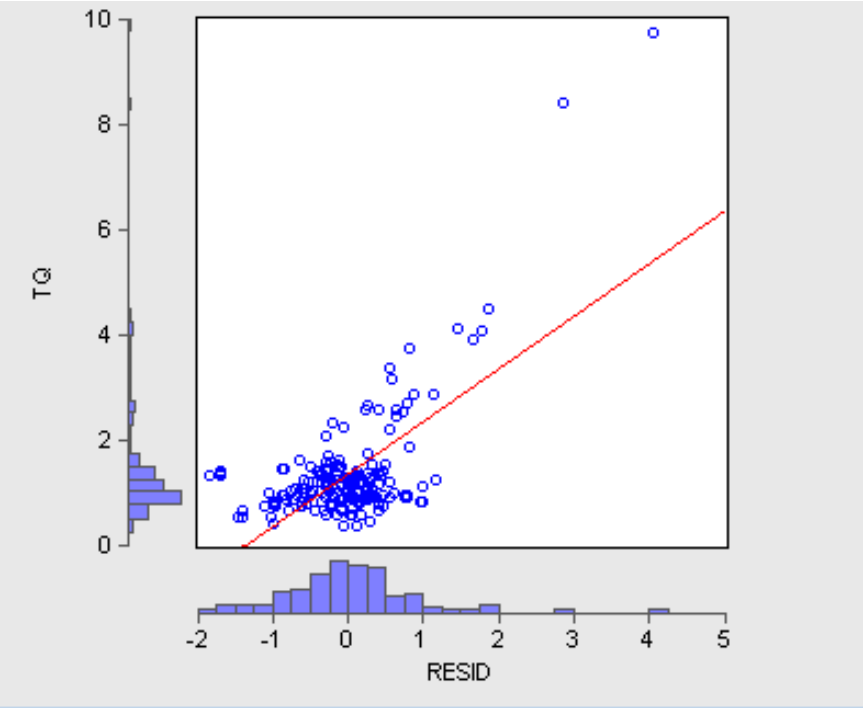


Figure 5. The Scatterplot between Dependent Variable and Residual Value to examine Heteroskedasticity Test

6. The Finding and Discussion

The author will present the findings and persistently discuss the relation of findings with related theory, previous conducted surveys by other researchers, and empirical result. All the aforementioned calculation will be used to answer the research hypothesis. The analysis will show new aspect in financial discipline that may highly contribute to next intangible researches.

6.1. The Contribution of Intangible Asset toward Market Value.

H1a: Market Value of Company has positive relation with intangible asset.

The aforementioned hypothesis is proven. From 2006 until 2011, intangible asset has positive and significant influence toward Market Value Index. The negative statistic based on Gujarati (2003) is the indicator that the mean of Intangible is lower than the mean of Tobins Q. However, the significant t-statistic shows that intangible asset are significant toward market value index.

The market value index is represented by Tobin's Q model, the ratio between market value of equities plus liabilities divided by book value of tangible asset and liabilities. Lev (2001) described that the high investment in R&D and human capital intelligence can be seen from the investment in intangible asset. The benefit from intangible can be seem from the internal profit margin and also from market appreciation toward company (Lev, 2001). The result of Hypothesis 1 shared the same idea with the theory of Intangible benefit from Lev (2001).

Garanina (2010) claimed that most of market value of the company is constructed from both tangible and intangible value. Either tangible or intangible has a strong relationship with market value, but which one more dominant is still arguable (Garanina & Pavlova, 2011). From the t-statistic, the tangible value has a stronger influence toward Market value added with α lower than 0.01. However, the result from hypothesis alternative 1 shared the same idea with Research from Garanina (2010), where intangible asset strongly influence the market value index. It means the increase of intangible asset proportion increase decreased the Market Value Index. In the other word, market in Indonesia reacts positively toward the increase of intangible asset.

Intangible asset has the significant relation toward market value (Aho, Stėhle, & Stėhle, 2011; Garanina & Pavlova, 2011; Stewart, 1995; Titova, 2011). The master thesis

concludes that investment in intangible assets in Indonesia during the crisis period 2006-2011 has a crucial influence toward Market Value. It means that the stock holder in Indonesia admits the importance of intangible value in their portfolio selection. Moreover, the result answers the allegation that investor concern the investment of intangible asset in their strategic decision.

6.2. The Role of Intangible toward Company Financial Health

H2a: Intangible asset can explain the relation between Company Performance and Company Market Value.

The hypothesis is not proven. The model, which has already moderated by intangible value, cannot explain the relation between Company Performance and Market Value of Company. It means that during the period of 2006 until 2011 in Indonesia, there are no relation between market value, company performance and intangible asset as moderation variable. Intangible asset are the importance factor to increase operation effective, with the high skilled labor the companies can compete in the global market (Garanina & Pavlova, 2011; Maree, 2001; Megna & Klock, 1993; Phillips & Phillips, 2009; Stewart, 1995; Titova, 2011). Return on Asset (ROE) is the ratio of Company Net Income divided with Stockholder Equity. The low t-statistic of ROE after get moderation from intangible asset answers the question about the relations between market value added, intangible asset, and Company Performance. The allegation about intangible asset ability can increase company performance and affect the market value added is not proven.

However, research from (Martins & Alves, 2010; Petkov, 2011) stressed that the company needs a long time in the process and innovation until they can take benefit of intangible asset.

H3a: There is a positive correlation between market value of the company and their ability in pay short and long term liability

It is not proven. Solvency ratio is the representative ratio of company ability in fulfills their financial liabilities. The high volume of the solvency ratio means that the company is able to pay their liabilities The way to prove this hypothesis is to put moderation intangible value as the multiplier in the model. The new value of Solvency Ratio, which has been

already multiplied by Intangible value did not show any significance appreciation toward t-statistic. It means that the level of the solvency ratio will not affect the market value index, even the company intensively do investment in intangible value asset.

Petkov (2011) stated that companies which do intangible investment intensively will depreciate their ability in fulfill their liabilities. The aforementioned idea from Petkov (2011) is not proven. Data panel calculation does not show any relation between solvency ratio, intangible asset as moderator and market value of the company.

6. 3. The Role of Intangible toward Agency Conflict

H4a: Intangible Asset is able to describe more about debt relation with Market Value of Company.

It is proven. Based on calculation, there are significant relations between intangible asset and debt. The calculation found that manager in Indonesian companies tends to finance intangible asset with both stock and debt. Even though, financing intangible asset with debts has a high risk from debt interest-rate; however the manager does not reduce the debt proportion. Data panel show there are significant relations between intangible and debt. Within Market value, debt also has strong negative relation with the improvement of market value of the company. The allegation of this occurrence is because the cash from the stock trading is not enough for finance the company investment.

Intangible asset is considered as the long term commitment among manager, debt holder and stockholder (Holmstrom, 1989). The uncertainties about when the company can take the benefit from this investment become such an important issue. The increase of debt in the company financial structure will put the manager in the high risk of bankruptcy. If the intangible investment is failed, then the bankruptcy risk will arise higher. Crisis that occurred in 1998 may be treated as a lesson to whole companies' owners in putting more consideration in managing their debt and asset. Moreover, the debts come from abroad and bring consequence in currency and interest differs. However, the other phenomenon is the stock proportion also arises.

Intangible asset as the moderation variable has succeeded in reveals the relation between market value added and debt ratio. The proportion of debt ratio gets significant response by market value. The allegation here is manager will focus develop their intangible investment after get supervised by the stockholder and debt holder. Debt proportion as the

indicator of agency conflict was considered as the important factor for the market investor in buying the Indonesian companies stock.

H5a: Based on signaling theory the dividend policy has a positive relationship with market value added.

It is proven. After get moderated by intangible value the dividend does show t-statistic improvement. Signaling theory in finance is the occurrence where manager want to show the company performance by sharing their dividend to stockholder. The purpose of signaling theory in terms of initial public offering is to increase the price of the stock. The arise of stock price will increase the company cash. In the regression, there is shown that there is a positive relationship between dividend and market valued of the company. It means the manager wants to offset the amount of debt by issuing more stock. In the other word, it means that the company with intangible value intensive tends to increase their stock.

The result is contrast with research result from Alves (2010). Alves found that high intangible investment company will prefer to finance their activity from their equity (Alves & Martins, 2010).

7. Conclusion, Limitations, and Recommendation

7.1. Conclusion

The research in finding out how Indonesia can survive during crisis 2008 is always interesting discussion among economist. The data and analysis that the author has collected from 2006 until 2011 show some way in seeing this phenomenon from a different point of view, namely intangible asset.

The conclusion is described below.

1. The research find that Intangible as Moderator value can improve the ability of the model in explaining the phenomenon. The value of adj. R square has increased after moderation variable is used. Intangible asset also has significant relation between company market value. It means stockholder estimates that intangible value investment is an important issue in company operation decision.
2. The Hypothesis related to the Role of Intangible Asset in Company Financial Health is not proven. The Performance of Company does not have any relation with Investment in Intangible Asset.
3. The second hypothesis related to the role of Intangible in Financial Health is not proven. The solvency ratio as the bankruptcy indicator does not show any relation with market value of equity. Even the variable was moderated with intangible asset, but there were no significant change. The paper discovered that investment in Intangible asset will not affect the bankruptcy risk of the company.
4. The first hypothesis related to the role of intangible in Agency Conflict was proven. First model, which does not use intangible value as the moderating variable, did not show the relation between debt and market value added. However, when moderation value moderates its relationship then it is seen that there are significant relations between debt ratio and market value index. The correlation is significant and positive. It means the increase of intangible asset has increased the company debt. The increase of the debt also triggers the increase of risk, which the stockholder will hold. On the other hand, the increase of debt also increases the agency cost between manager and stockholder. The interesting finding is there is also indication of dividend signaling occurrence. It means the company wants to add more debt and stock in the same time.
5. The Second hypothesis related to the role of intangible in Agency Conflict was proven. There are relations between dividend and intangible asset. When the variable

was moderated with intangible asset, there was an improvement in t-statistic. The increase of intangible asset does give effect to dividend policy. It proves that signaling theory occurred in this case. Company wants to increase their stock number by giving more dividends.

7.2. Limitations

The research about Intangible asset in Indonesia is quite rare, even in Academic knowledge or in Professional Practice. This phenomenon can be seen from the low availability of Intangible report in Company Financial Report. From this research, the author sees that publishing Intangible Value has a strong relationship with the increase of Market Value of the company. Therefore, author recommends Indonesian company to publish more about their Intangible report.

There are several author allegations why intangible asset record is not popular in Indonesia. The first is the view of developing countries where mostly only concern with tangible asset and does not consider about intangible asset. There are very few researches about intangible asset. Therefore, the author expected that there will be more complete data about intangible asset from company financial report in the future.

7.3. Recommendation

The role of intangible asset company is quite significant. This research recommends company to report their intangible value, because it has good impact to the market value. Author found out that intangible value can more explain about the model by giving moderation effect than without moderation effect.

For the research fellows, the recommendation for next research is related to the object. It will be more interesting if the intangible also do research to a smaller company than the established company. One of alternative is doing research to small medium enterprise. The lack of the capital in SME will show the level of priority in investment. The investment choice will be started from the most priority choice. If a small company put prioritizes intangible investment instead of tangible investment, then they must be aware about the importance of intangible asset is.

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Appendices

Appendix 1. Granger test

Pairwise Granger Causality Tests
Date: 05/24/12 Time: 15:01
Sample: 1 180
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
ROE does not Granger Cause TQ	120	1.28423	0.2808
TQ does not Granger Cause ROE		0.65353	0.5221
SR does not Granger Cause TQ	120	0.68702	0.5051
TQ does not Granger Cause SR		1.72014	0.1836
DR does not Granger Cause TQ	120	6.23094	0.0027
TQ does not Granger Cause DR		1.82241	0.1663
DIV does not Granger Cause TQ	120	1.93458	0.1492
TQ does not Granger Cause DIV		6.41917	0.0023
SIZE does not Granger Cause TQ	120	1.63836	0.1988
TQ does not Granger Cause SIZE		2.43749	0.0919
INT does not Granger Cause TQ	120	0.22683	0.7974
TQ does not Granger Cause INT		2.11677	0.1251
SR does not Granger Cause ROE	120	1.43754	0.2417
ROE does not Granger Cause SR		1.10673	0.3341
DR does not Granger Cause ROE	120	0.72567	0.4862
ROE does not Granger Cause DR		2.35927	0.0990
DIV does not Granger Cause ROE	120	0.83534	0.4363
ROE does not Granger Cause DIV		1.19164	0.3074
SIZE does not Granger Cause ROE	120	0.18967	0.8275
ROE does not Granger Cause SIZE		2.81123	0.0643
INT does not Granger Cause ROE	120	1.16573	0.3153
ROE does not Granger Cause INT		0.39509	0.6745
DR does not Granger Cause SR	120	2.93942	0.0569
SR does not Granger Cause DR		0.19921	0.8197
DIV does not Granger Cause SR	120	5.24550	0.0066
SR does not Granger Cause DIV		0.00137	0.9986
SIZE does not Granger Cause SR	120	0.28911	0.7495
SR does not Granger Cause SIZE		0.20439	0.8154
INT does not Granger Cause SR	120	0.07084	0.9317
SR does not Granger Cause INT		0.24617	0.7822
DIV does not Granger Cause DR	120	5.96974	0.0034
DR does not Granger Cause DIV		9.08391	0.0002
SIZE does not Granger Cause DR	120	0.09495	0.9095
DR does not Granger Cause SIZE		0.30350	0.7388

INT does not Granger Cause DR	120	0.44110	0.6444
DR does not Granger Cause INT		0.19561	0.8226
SIZE does not Granger Cause DIV	120	3.66844	0.0285
DIV does not Granger Cause SIZE		3.82458	0.0247
INT does not Granger Cause DIV	120	1.14323	0.3224
DIV does not Granger Cause INT		0.46747	0.6278
INT does not Granger Cause SIZE	120	0.09122	0.9129
SIZE does not Granger Cause INT		0.23904	0.7878

Appendix 2. Random Example in check the Multicollinearity from Regression (Using SPSS 19)

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-10.017	5.037		-1.989	.065		
	ROE2009	.001	.003	.051	.258	.800	.740	1.162
	SR2009	.010	.027	.060	.386	.705	.690	1.366
	LNINT2009	.287	.153	.863	1.881	.080	.691	1.468
	LNDIV2009	.034	.046	.203	.742	.469	.626	1.429
	DR2009	.809	.616	.509	1.314	.209	.663	1.956
	LNSIZE2009	.246	.113	.668	2.179	.046	.700	1.598
	MODCTRDR	.033	.034	.447	.970	.348	.600	1.620
	MODCTRSIZE	-.012	.007	-.790	-1.768	.097	.690	1.976
	MODCTRROE	.000	.000	-.207	-.837	.415	.654	1.489
	MODCTRSR	.001	.001	.117	.945	.359	.619	1.616
	MODCTRDIV	-.002	.003	-.288	-.802	.435	.673	1.461

a. Dependent Variable: TBQ2009

Endnote

[i] Gross, Neil, Commentary: Valuing 'intangibles' is tough job, but it has to be done. http://www.businessweek.com/magazine/content/01_32/b3744008.htm

[ii] http://www.oecd.org/dataoecd/8/40/1949901.pdf

[iii] http://www.investopedia.com/terms/r/riskmanagement.asp#axzz1r3DBnpm0

[iv] http://us.finance.detik.com/read/2008/09/15/095817/1006187/6/saham-bumi-bisa-jatuh-lagi

[v] http://www.nyu.edu/its/pubs/connect/fall03/yaffee_primer.html