MEASURING THE IMPACT OF INTANGIBLE ASSET INVESTMENT TOWARD COMPANY FINANCIAL HEALTH AND COMPANY AGENCY PROBLEM

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

Abstract. The thesis examines the impact of intangible investment toward company's market value. The scenario is working under 2 conditions. First is detecting the role of intangible asset in moderating company financial health toward company market value. The financial health here is working from 3 perspectives. These indicators of company's health are company performance, solvency ratio, and debt proportion. The second scenario is detecting the role of intangible asset in moderating policy in corporate governance toward market value. Intangible asset analysis was chosen here because of its special characteristic. The first is the character which gives benefits to company. Secondly is the character that put the company in risky point. 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 triggered the liquidity problem of the company. Indonesia was chosen 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 this assets toward company performance during the crisis. The research involves 158 Indonesian stock listed companies where the data has been collected from 2006 until crisis 2011. Looking at market value of company, intangible value of company, the dividend policy, and corporate financial structures, empirical evidence reveals a significant positive relationship between the amount of intangible asset and the market value of company.

Introduction

During last decades the development and alteration of 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 the companies to improve their competitive abilities will be presented in two ways. The first way 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 '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, 2001).

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 huge 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 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 large sunk cost (which are beneficial, only when they will be returned in the future), (Martins & Alves, 2010). Align with explanation above; many economists put allegation that the wrong way of manager in valuing and treating intangible asset also led to world economic crisis in 2008 (Petkov, 2011). It is also worth mentioning bubble phenomenon, namely the condition where the price of asset increases, but later on falling down and end up with the lower intrinsic price (White, 2011). Economists believe that bubble phenomenon can happen because of some asset that does not have 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 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, many researcher attempt to find the knowledge behind it.

This phenomenon is not common in the global economic transaction framework nowadays where 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 we will see how big the intangible asset role in assisting the Indonesian's company's endurance before and during crisis in 2008 was.

Based on the paper from Organization for economic Cooperation and Development (OECD) titled Foreign Direct Investment and Intellectual Capital Formation in South East Asiaii, 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 crisis that took a place in 2008 was a cause of the United States bubble phenomenon. The question is, why Indonesia was not affected by the whole world crisis in 2008, even if the intangible asset shared some similarity with the bubble characteristic.

Problem Definition

Study objective of the research is to get the information of relation between intangible assets with the market expectation which represent by Market Value of Company.

- The first objective study of the research is finding the effect of intangible asset toward market value of company.
- The second is finding the role of intangible asset in moderating company financial health variable toward market value.
- The third objective is finding the role of intangible in moderating company corporate governance or agency problem toward market value of company. The characteristic of intangible asset which has huge risk especially in company liquidity make the shareholder put high level attention on this issue. The allegation here is the shareholder will reduce the proportion of debt and issue more stock. The high number of intangible value as a nature will make the manager hedge the risk as much as they can. The allegation here is there will be negative correlation between intangible asset and debt.

Literature Review and Hypothesis Formulation

Company Health Indicators

There are several measurements to evaluate 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 are 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).

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.

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 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 within their relation. There is allegation that company will not able to fulfill their liabilities from the profit that they had. In 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 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 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.

Risk Management

Risk Management is the process of identification, analysis and either acceptance or mitigation of uncertainty in investment decision makingiii. 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 is 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 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.

Related with this paper, the risk management become prominent because the characteristic of modern company asset which 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 proportion of debt as the source in financing intangible asset. By 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 manager to pay the return of equity periodically. This character is different with debt which required debt interest to be paid annually.

Hypothesis Formulation

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, 2001; Stewart, 1995; Titova, 2011). Moreover Research from Petkov (2011) stated that intangible asset has 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 are proved 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 propose first paper hypothesis

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

The Role of Intangible Asset toward Company Financial Health's

Garanina and Pavlova (2010) found that intangible value has positive relation with Company Performance. Even though Petkov (2011) belief that intangible asset need several years before the company can take its benefit, but the appreciation of company makes the principal belief that company performance should improves. Based on this idea, the paper proposes second Hypothesis.

H2a: Intangible asset can help to 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 tend to change the company financing structure. Debt holder also will mind to put debt on high risk investment. This investment is affecting the corporate governance in organization. There is allegation that 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 difference in equity and debt portion between company that have high intangible asset investment and the one who do not put high investment in it.

H3a: Intangible asset can help to explain the relation between Company Financial Health and its effect to market value of company.

The Role of Intangible Asset toward Agency Problem

The crisis in Indonesia which happened in 1998 is good example of liquidity problem. The condition was caused by the high amount of debt which needs to be paid off. It becomes worse when dollar scarcities as the debt currency are disappearing from market. These conditions bring the awareness about debt risk.
    According with it Alves and Martin (2010) argue 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 negative correlation with debt or leverage.

The nature of intangible asset which risky has made the company becomes more careful in 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 issues become more important). As a consequence of both high non interest tax shields and high financial distress costs, the level of debt is expected to be low in intangible assets intensive firms(Alves & Martins, 2010). In contrast, as intangibles assets are associated with high levels of information asymmetry, pecking order theory, and signaling arguments suggest high levels of debt.

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 policy of more generous in dividend sharing.

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

H5a: Based on signaling theory, Intangible asset can help to explain the relation between the dividend policy and market value.

Methodology and Hypothetical Test

The analysis of intangible asset role needs the existence of variables. Multiple regression analysis need two or more variable and type for measurement of both dependent and explanatory will be interval (Zikmund, Babin, Carr, & Griffin, 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 1. List of Variables

Variable	Definition	Type
	Company Investment Effectiveness	
Tobins Q Ratio	The ratio between market value of equities plus liabilities compared with book value of asset	DEPENDENT
	Fundamental Value	
Intangible Value (Log Form)	Intangible Value based	INDEPENDENCE & MODERATOR

Variable	Definition	Type
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

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 important factor in determining the Market Value of the company. This theory becomes the background of the decision in using this variable.

Independent Variable

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

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

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 default in obligations payment.

The relation between Solvency Ratio and intangible asset here was described on the introduction before. 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 back the investment from its return. Moreover, liquidity problem always following this asset since the companies cannot sell their intangibles.

Firm Performance

Firm Performance here was putted based on the research from Martin and Alves (2010) wich 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 the crisis. In 2008, there was one company namely BUMI RESOURCE which performed well in mining industry but its asset value was dramatically sliding in 3 monthsiv. 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.

Dividend Payout

Dividend Payout are used oftenly 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 stated that the company will share dividend when the company need more stock for their operation. Signaling theory is also close with company internal governance issue (Brigham, 1992). In Agency Conflict issue, signaling theory can be interpreted as the manager willingness to raise the market value of company for their own favor. One indicator of agency conflict allegation is when the company does not perform well and still share the dividend. Most common step after this is the company will issue more stock.

On the other hand, opposite from signaling theory, company will not share so many dividends. The reason is because the company still in the growth phase which means the company needs more capital to invest in intangible value (Alves & Martins, 2010). Two theory 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.

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 affects the shareholder to be more careful in financing the intangible investment. Martin and Alves (2010) in their paper told that there are 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 negative correlation with intangible asset.

Intangible Asset

Research from Garanina (2011) and Alves (2010) put intangible as their independent variable. However they did not put intangible Asset as 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 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 function in moderating the explanatory variable to explain more the dependence. When Intangible value here become Moderator variable is expected to be able explain more the model of the 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.

Control Variable (Firm Size)

Indonesia has big variety in the company size range. Even in one industry sector the gap can be so 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 disadvantage for this research; therefore the author will convert the form of the firm size into the logarithm value.

First Model

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

Second Model

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

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 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 there are 3 data on the observation such as 9, 18, and 27. Here if the data has 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.

Data Analysis

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 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 to take fixed number of 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.

Number	Classification	Amount	Percentage
1	Agriculture	24	8.54%
2	Mining	23	8.19%

Number	Classification	Amount	Percentage
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 2. 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
Maximum	9.750000	120.9100	97.27975	1.000000	7.600902	25.35787	22.64790
Minimum	0.365175	-48.93000	-68.44765	0.001581	0.000000	15.48000	0.000000
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

The analysis of each variable shows that Tobin's 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 next step in this analysis is discovering about the correlation from each variable. The descriptive statistic shows the whole characteristic of the data. The descriptive divide the data into each category based on the industry. Since we already got the situation from each industry the next is we gather the data into one big sample in Indonesia.

The tables below show the bivariate correlation between each variable. The data will be divided into each year to see the relation from each variable before and at crisis.

	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.

Regression Analysis

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 :

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

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

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
Variable	Coefficient	Std. Error	t-Statistic	Prob.
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 panel data regression result

The table above shows the result of data pools from 2006 until 2011. The adj. R square number are 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 are 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 the depreciation of each intangible asset has opposite relation with the appreciation the market value. This result has opposite value with research from Garanina and Pavlova (2011), where they found intangible has 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 Tobin's Q theory that the appreciation of company size whiles the market value of company stagnant will result the negative relation within it.

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

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.

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

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

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

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

MEASURING THE IMPACT OF INTANGIBLE ASSET INVESTMENT TOWARD COMPANY
FINANCIAL HEALTH AND COMPANY AGENCY PROBLEM

The data show this result

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
Variable	Coefficient	Std. Error	t-Statistic	Prob.
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 show 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 depreciate the market value of company. Dividend ratio has negative effect and increase significantly.

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 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.

The Contribution of Intangible Asset toward Market Value.

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

The aforementioned hypothesis is significantly supported by the data calculation. From 2006 until 2011, intangible asset has positive and significant relation with Market Value Index. The research shared the same result where Intangible asset has the significant relation toward market value (Aho, Stёhle, & Stёhle, 2011; Garanina & Pavlova, 2011; Stewart, 1995; Titova, 2011). The paper concludes that the investment in intangible assets has a significance influence on Market Value of company. In addition, the data show that stock holder put into account about intangible investment in their portfolio and also realize the importance of intangible investment in stock valuation.

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 strongly supported by the data. The model which has already moderated by intangible asset cannot explain the relation between Company Performance and Market Value of Company. It means that during the period of 2006 until 2011 there are no relation between company performance and intangible asset investment within company. These finding is align with research from (Garanina & Pavlova, 2011; Maree, 2001; Megna & Klock, 1993; Phillips & Phillips, 2009; Stewart, 1995; Titova, 2011). However, the research from (Martins & Alves, 2010; Petkov, 2011) stressed that the company needs time for process and innovation until they can get benefit from intangible asset investment.

H3a: Intangible asset can help to explain the relation between company financial health and its effect toward Market Value of Company

This hypothesis is not strongly supported by data calculation. The methodology to test this aforementioned hypothesis is by putting intangible value as the moderator variable in the

model. The value of Solvency Ratio which has been multiplied by Intangible value could not show any significance appreciation toward t-statistic. It means that the level of intangible value will not affect the ability of company in fulfilling their liability.

The research from Petkov (2011) which stated that investment in intangible asset will depreciate the company ability in paying their liabilities was not supported by the calculation. In addition to that, solvency ratio is the parameter of company ability in paying their short and long term obligation. The high volume of solvency ratio means that the company is able to pay their liabilities However; data panel calculation does not show any relation between solvency ratio and market value of company.

The Role of Intangible Toward Agency Conflict

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

The aforementioned hypothesis is strongly supported by the data calculation. Based on calculation, there are negative relations between intangible asset and debt. The manager tends to finance intangible asset with stock instead of debt. The debts with high interest-rate make investment in intangible too risky. Data panel show there are negative relations between intangible and debt. Within Market value, debt also has strong negative relation with the improvement of market value of company. The reason is the high level of debt will increase the risk of the company because of their interest premium.

H5a: Based on signaling theory, intangible asset can explain more the relationship between the dividend policy and company market value.

The last hypothesis is strongly supported by data calculation. After get moderated by intangible value the dividend does show t-statistic improvement. In the regression, there is shown that there is positive relationship between dividend and market valued of the company. It means that for the company with intangible value intensive tends to increase their stock. Its aligned with research result from Alves, high investment company will prefer to finance their activity from their equity (Alves & Martins, 2010). It means they give positive signaling news to the shareholder in order to increase their stock.

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 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 strongly supported by data calculation. Which means the market price of the

company is not influenced by intangible asset investment if the company has good performance.

3. The second hypothesis which is related to the role of Intangible in Financial Health is not strongly supported by data calculation. Even though the solvency ratio variable was moderated by intangible asset, but there were no significant change within the model. This finding lead the researcher to belief that solvency ratio as the bankruptcy indicator does not show any relation with market value of equity. The paper has discovered that investment in Intangible asset will not affect the perception of market toward company who has bankruptcy risk.

4. The first hypothesis related to the role of intangible asset in affecting market price of company who has internal conflict was strongly supported by data. It is started by the calculation of first model which does not use moderator variable. It results that the model did not show the relation between debt and market value added. However, when moderation value moderates comes up, the relationship become significant between debt ratio and market value of the company. It means the increase of intangible asset has influence the investor valuation toward company who has internal conflict.

5. The Second hypothesis related to the role of intangible asset within corporate governance policy was strongly supported by data. The relation between dividend and market value of company is increased when the moderator variable is putted in. The appearance of moderator variable is followed by the improvement of t-statistic. It proves that signaling theory is occurred when intangible asset is moderating the model.

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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

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