

Impact Of Tangible Assets And Intangible Assets With Sustainable Growth As Moderating Variable On Value Of Firms Listed On Index Growth 30 Periods 2019-2020

Muhammad Zamzam Dhaffa Ramadhan¹, Negina Kencono Putri², Triani Arofah^{3*}

¹Universitas Jenderal Soedirman, muhammad.ramadhan@mhs.unsoed.ac.id, Indonesia ²Universitas Jenderal Soedirman, negina_kp@yahoo.com, Indonesia ^{3*}Universitas Jenderal Soedirman, triani.arofah@unsoed.ac.id, Indonesia *Triani Arofah

ABSTRACT

World of business is vast and unpredictable. The more companies existed and so the competition between them which force a company to increase its value so it can compete with others. The Company needs to be able to perform properly in order to create maximum firm value. A corporation needs resources that will benefit the future in order to operate optimally. The company's assets are one of the various resources utilized by the company. Asset itself divided into tangible assets and intangible assets. While expanding their business, a company also should consider sustainable growth of the company to avoid over-leverage. So, a company should be able to use their assets optimally.

This research conducted to analyze the impact of tangible assets and intangible assets on firm's value in addition with sustainable growth as the moderator. In this research, the data is secondary data obtained from IDX and yahoo finance. The methods used in this research is panel data regression, and *MRA (Moderated Regression Analysis)*.

The result concludes that tangible assets have a significant positive impact on firm value, while intangible assets have a significant negative impact on firm's value. Also, sustainable growth is unable to moderate the impact of tangible assets on firm's value, while sustainable growth is able to moderate the impact of intangible assets on firm's value.

Keywords: Tangible Asset, Intangible Asset, Firm's Value, Sustainable Growth, Index Growth 30

1. Introduction

The business world is uncertain and unpredictable. However, business activities will continue to develop. The more companies there are, the more competition there is. Therefore, each company must be able to increase its value to compete with other companies.

Husnan (2013:7) in Septia (2015) believe that a firm's value indicates the amount a prospective buyer would be likely to pay in the future if the company were to be sold. The value of shares listed on the capital market may be used to determine the firm value of Go Public businesses. The worth of a firm is determined by the price of its shares traded on an exchange. According to Tjandrakirana and Monika (2014), firm value is a market value because when the share price rises, the firm value brings the greatest prosperity to shareholders. The greater the share price, the greater the wealth of the shareholders.



To achieve maximum firm value, the company must be able to operate optimally as well. To operate optimally, a company needs resources that are expected to provide benefits in the future. One of the many resources used by the company is the company's assets. Assets are resources that own the economy and are expected to bring benefits in the future. The assets themselves are obtained from transactions that occurred in the past (SFAC No. 6 par. 25). According to Hidayat (2011:4) in Asmara and Agustina (2020), assets are movable as well as immovable property, both tangible and intangible, which includes assets of an organization, agency, business entity, or individual. Setiabudi and Agustia (2012) stated that the more assets the company owns, it will provide more capacity to be developed to maximize company value compared to companies with fewer assets. the capacity of a well-managed company can benefit both management and shareholders.

Assets are divided into two kinds based on their shape: 1) Tangible assets and 2) Intangible assets. Tangible assets are assets with limited monetary value and are usually in physical form, so they are relatively easy to measure (investopedia.com). according to Rajhans and Kaur (2013), tangible assets owned by a company are also important assets that affect firm value, because they can increase the company's solvency position by providing additional protection to creditors and shareholders. Hatem (2015) argues that the amount of tangible assets owned by a company indicates good company management and means that the company's financial performance is getting better.

Intangible assets can easily be defined as assets that have no physical form and are the opposite of tangible assets, so the measurement is rather difficult to do. According to a study conducted by Ben McClure (2009) in Gamayuni (2015), the results of his research on 3500 companies in the United States showed that at the time, book value was only 28 percent of market value (in 1975, it was still 95 percent), and the value of intangible assets has increased dramatically in the last 20 years. The results of this study are also supported by studies conducted by Gamayuni (2010) in Gamayuni (2015) on companies listed on the IDX from 2007 to 2009 and prove that the market value of equity is significantly higher than the book value of its equity. However, a study by Yuniasih et al (2010) found different results that intellectual capital had a negative impact on the company's market value.

This research uses sustainable growth, which is proxied in the sustainable growth rate as a moderating variable because it is suspected of contributing to weakening or strengthening the relationship of these influences. Quoted from Investopedia, the "sustainable growth rate is the maximum level a company can maintain its development without having finance that comes from additional capital or debt." In short, this is how a company can maximize sales and income without having to increase funding from outside parties, in other words, internal funding, including the use of assets.

The firms listed on the Indonesia Stock Exchange and the index growth 30 are the focus of this research (IDXG 30). IDXG 30 is an index that measures the price performance of 30 stocks with a positive trend in net profit and income relative to price, as well as strong transaction liquidity and financial performance. (idx.co.id). Liquidity refers to how easy the assets and/or securities are to be converted into cash without affecting the market price (Investopedia). Having good liquidity reflects the small level of failure of the company in fulfilling short-term financial obligations to creditors and vice versa, which can be a good sign for them.

This research conducted to investigate 1) the effect of tangible assets on the value of firms listed on the IDXG 30 index. 2) The effect of intangible assets on the value of firms listed on the IDXG 30 index. 3) The effect of tangible assets on the value of firms listed on the IDXG



30 index with sustainable growth as moderate. 4) The effect of intangible assets on the value of firms listed on the IDXG 30 index with sustainable growth as moderate.

2. Literature Review

2.1 Signaling Theory

Signaling theory describes how one party's success or failure signals are transmitted to the other party. Signaling theory deals with asymmetry information. The good thing about signaling theory is that companies that provide good information would likely distinguish themselves from the company which does not have 'good news"' by giving information to the market about their situation (Wolk and Tearney in Dwiyanti, 2010).

2.2 Firm's Value

The firm's value implies that the higher the company's stock price, the greater the rate of return earned by investors. In other words, a business with a high stock price is valuable because it is expected to benefit its shareholders. A firm's value is very important because a high firm's value also means high stock prices, and high stock prices also mean wealth for shareholders (Bringham and Houston, 2009). The firm's value can also represent public trust in the company after several years of activity from the time the company was founded to the present (Noerirawan, 2012).

2.3 Tangible Assets

According to PSAK 16, fixed assets are tangible assets that are owned and utilized to produce or supply products and services, lent to third parties, or used for administrative purposes and are intended to be used for a long period of time. Tangible assets are characterized by being used for business operations, are not sold, are long-term, usually depreciable, and have a physical form.

According to IAI, a fixed asset is a tangible asset that is pre-built and acquired in a ready-touse form, used in the business of a company that is not intended to be sold in the normal course of the company and has a useful life for more than one year.

Property, plant, and equipment are assets with generally lengthy useful lives that a firm is presently employing to operate the business. This category, often known as fixed assets, contains land, buildings, machinery, and equipment (Kieso et al., 2012). Tangible assets are mainly used in operating businesses (Kieso et al, 2012). If a company has a high quantity of tangible assets, it can reflect high operational activities occurred. So, it can be a positive signal to the investor that tangible assets can give benefits in the future as for currents investments. Previous research regarding this matter has been done by many researchers. Rizka (2019) stated that tangible assets had a direct and significant impact on price-book value (PBV) as the proxy of firm value. Also, research conducted by Nyamasege, et al (2014) presented that a company with a higher fixed assets base has a higher value compared to a company with lower fixed assets.

H₁: Tangible assets have an impact on the value of firms listed on IDXG30

2.4 Intangible Assets

Intangible assets, according to PSAK 19 (revised 2009), are non-monetary assets that may be identified without a physical form. These assets are kept for use in the production or provision of goods or services, for rent to other parties, or for administrative purposes.



Intangible assets, according to Kieso et al. (2012), are rights, privileges, and competitive advantages derived from the ownership of long-lived assets that lack physical substance.

Based on previous research conducted by Rina (2017) concluded that intangible assets had positive impacts on firm value. Then, research by Gamayuni (2015) presented intangible assets have a positive impact on firm's value. Moreover, research conducted by Ni Luh Putu Widhiastuti dan Made Yenni Latrini (2015) presented intangible assets had a positive impact on firm's value. However, Giovanni and Santosa (2020) found that intangible assets have a negative significant impact on firm value.

H₂: Intangible assets have an impact on the value of firms listed on IDXG30

2.5 Sustainable Growth

The term sustainable growth originally was developed by Higgins (1977) that used sustainable growth to mention firms' optimal growth from a financial perspective. Therefore, it shows the maximum rate at which a company can grow dependent on its resources without using external financial tools.

According to Higgins (1977), sustainable growth rate (SGR) relies on the change in capital for a fiscal year divided by the starting equity for which no additional equity has been introduced that year. Such changes are only possible through retained earnings. Therefore, the funds generated by retained earnings increase the company's net worth, and as the net worth increases, the company can borrow more funds, which allows the company to increase its asset base. An increase in assets increases operation which results in sales and profit and finally leads to shareholders' wealth (Nasrollah Amouzesh, 2011).

The company's stock price will rise as a result of its good performance, since investors will see it as a signal to invest. Growing stock market prices, as a representation of a firm's value, imply that the firm's value is also rising (Bambang Sudiyatno, Elen Puspitasari, and Andi Kartika, 2012). Moreover, firm performance also has significant effect on sustainable growth and firm's value (Catalin and Elena, 2021)

H₃: Sustainable growth able to moderate impact of tangible assets on the value of firms listed on the IDXG 30 index

Moreover, based on the research by Catalin and Elena (2021) find that intangible assets may have an impact on sustainable growth rate and firm's value form Romanian companies. H4: Sustainable growth able to moderate impact of intangible assets on the value of firms listed on the IDXG 30 index

2.6 Index Growth 30

Index Growth 30 or IDXG30 is an index that measures the stock price performance of 30 stocks that have a growth trend in stock prices relative to net profit and revenue with high trading liquidity and good fundamentals (idx.co.id).

3. Reseach Method

This research uses a quantitative approach. Quantitative research entails putting the objective theory to the test by looking at the connections between variables. These variables are generally measured with an instrument, and the resulting numerical data may be evaluated statistically. The final written report follows a predetermined framework that includes an introduction, literature review, theory, and research methodology. findings and discussion (Creswell, 2008). The data is 2019 and 2020 annual financial statements collected from IDX and yahoo finance.



This research had purposes to test tangible assets (TA) and intangible assets (IA) as independent variables (x) on firm's value (FV) as dependent variable (y), and the existence of sustainable growth (SGR) as moderating variable between x and y. Operational definition are, (see table I).

The population of this research is the firm's listed in IDXG30 on the 2019 to 2020 with total 48 companies. The sample of the firm's listed in IDXG30 1) should be not newly listed or delisted from 2019 to 2020, and 2) must have the variables that would be researched. After eliminate some research object, the sample used for this research become 13 companies.

3.1 Panel Data Regression

For hypothesis 1 and 2, the data form the sample then processed to collects the necessary data such as TA, IA, SGR, and FV. Then, the data will be processed using EVIEWS 10 to select the most suited model between Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM) by several test such as *Chow test, Hausman test*, and *LM test*. Next is performing classical assumption test based on the selected model. According to Gujarati and Porter (2009) equation that meets the classical assumption is the equation which used Generalized Least Square (GLS) and the only model that adapts GLS is Random Effect Model, while Common Effect Model and Fixed Effect Model adopt Ordinary Least Square (OLS). According to Basuki (2015), classic assumption test used in regression that adapts OLS such as, Linearity, Heteroskedasticity, Autocorrelation, Multicollinearity, and Normality. However, not all of those tests were used in panel data regression. The reason is,

- Linearity tests are not performed on all linear regression models. This is because the model is assumed to be linear. Even it needs to do to see how far the levels of linearity are.
- The normalcy test is essentially not a BLUE (Best Linear Unbiased Estimator) requirement, and some argue that it is not mandatory.
- Autocorrelation happens exclusively with time series data. Non-time series (cross-section or panel) autocorrelation testing is meaningless.
- Multicollinearity test is only mandatory when the independent variable is more than one. If the independent variable is only one, then there can be no multicollinearity.
- Heteroskedasticity is more common in cross-section data, and panel data is more similar to section data than time series data.

It can be concluded not all classic assumption tests need to be performed in the panel data model that adapts OLS (Common Effect Model and Fixed Effect Model), only *Multicollinearity* and *Heteroskedasticity* are mandatory and if the selected model for estimating panel data regression is the Random Effect Model, the classic assumption test is not mandatory.

Multicollinearity test performed by Observing correlation of each independent variable can be used to test for multicollinearity. There is no multicollinearity symptom in the regression model if the correlation coefficient of each independent variable is less than 0.07 (Suliyanto 2011:85).

Heteroskedasticity test performed by the glejser method by regressing all independent variables to the absolute value of the residual. If there is a significant independent variable with an absolute value, then there are symptoms of heteroscedasticity (Suliyanto, 2011:98). If Prob. < 0.05, that means there are symptoms of heteroskedasticity in the regression model. Otherwise, if Prob. > 0.05, which means there are no symptoms of heteroskedasticity in the regression model.



Hypothesis test performed after classical assumption test. T test aims to test how each independent variables influences dependent variables. If $T_{statistics} < T_{table}$ or Prob. > 0.05, Independent variables have no significant impact on dependent variables partially. If $T_{statistics} > T_{table}$ or Prob. < 0.05, Independent variables have a significant impact on dependent variables partially.

F test aims to test the influence of all independent variables on dependent variables or to test if the regression model is significant or not. If $T_{statistics} < T_{table}$ or Prob. > 0.05, Independent variables have no significant impact on dependent variables simultaneously. If $T_{statistics} > T_{table}$ or Prob. < 0.05, Independent variables have a significant impact on dependent variables simultaneously.

Coefficient of determination or R2 means how much the contribution given by independent variables to dependent variables simultaneously. For example, if the value of R2 is 0.839, it means that the independent variables simultaneously influence dependent variables in the amount of 83.9% or 16.1% influenced by other variables outside the variables used in the regression model.

Panel Data Regression Model,

$$FV = \alpha + \beta_1 T A_{it} + \beta_2 I A_{it} + \varepsilon_{it}$$

Where,

- FV = Firm's value
- α = Constanta
- β = Coefficient regression for each variable
- TA = Tangible assets
- IA = Intangible assets
- ε = Error term
- i = Cross-section data
- t = Time-series data

3.2 Moderated Regression Analysis (MRA)

Next is MRA to test hypothesis 3 and 4. MRA can be done in several steps,

1. Regress independent variable (X) with the dependent variable (Y), the equation should be,

$$Y = \alpha + \beta_1 X + \varepsilon$$

2. Regress independent variable (X) and hypothesized moderating variable (Z) with the dependent variable (Y), the equation should be,

(a)

$$Y = \alpha + \beta_1 X + \beta_2 Z + \varepsilon \qquad (b$$

- 3. Multiply the independent variable (X) with moderating variable (Z) into the interacting variable.
- 4. Regress independent variable (X), moderating variable (Z), and interacting variable (X*Z) with the dependent variable (Y), the equation should be, $Y = \alpha + \beta_1 X + \beta_2 Z + \beta_2 X Z + \varepsilon$

$$Y = a + p_1 x + p_2 z + p_3 x z + \varepsilon$$

5. Interpreting the result with these criteria,

a. If on equation (b) β_2 is significant ($\beta_2 \neq 0$) and in equation (c) β_3 is not significant ($\beta_3 = 0$), then Z is not a moderator and only stand as *Predictor/Independent Variable*. (Q1)



- b. If on equation (b) β_2 is not significant ($\beta_2 = 0$) and in equation (c) β_3 is not significant ($\beta_3 = 0$), then Z is *Homologizer*. (Q2)
- c. If on equation (b) β_2 is significant ($\beta_2 \neq 0$) and in equation (c) β_3 is significant ($\beta_3 \neq 0$), then Z is *quasi moderator*. (Q3)
- d. If on equation (b), β_2 is not significant ($\beta_2 = 0$) but in equation (c) β_3 is significant ($\beta_3 = 0$) then Z is *Pure Moderator*. (Q4)

MRA model,

$$FV = \alpha + \beta_1 T A_{it} + \beta_3 SGR_{it} + \beta_5 T A_{it} SGR_{it}$$

And,

$$FV = \alpha + \beta_2 IA_{it} + \beta_4 SGR_{it} + \beta_6 IA_{it}SGR_{it}$$

Where,

FV	= Firm's value
α	= Constanta
β	= Coefficient regression for each variable
TA	= Tangible assets
IA	= Intangible assets
SGR	= Sustainable growth rate
IA*SGR	= Interaction between Tangible assets and Sustainable growth
TA*SGR	= Interaction between Intangible assets and Sustainable growth
3	= Error term
i	= Cross-section data
t	= Time series data

The model was made separately to find the interaction of moderating variable to each independent variable to dependent variable.

4. Result And Discussion

4.1 Panel Data Regression

• Descriptive Statistic

Here is the output of descriptive statistic from the data, (see table 2).

From 26 observations, the mean of each variable is, FV in the amount of 1.932238, TA in the amount of 0.294960, IA in the amount of 0.040181, and SGR in the amount of 0.081359.

The median of each variable is, FV in the amount of 1.695083. TA in the amount of 0.177759, IA in the amount of 0.011392, and SGR in the amount of 0.079631.

The maximum value of each variable is, FV in the amount of 4.521485 held by ACES in 2019, TA in the amount of 0.798443 held by TBIG in 2019, IA in the amount of 0.553369 held by ICBP at 2020, and SGR in the amount of 0.164752 held by TOWR in 2019.

The minimum value of each variable is, FV in the amount of 0.338999 held by BBRI at 2020, TA in the amount of 0.007150 held by BBRI at 2020, IA in the amount of



0.000496 held by ACES at 2020, and SGR in the amount of -0.028537 held by SSIA at 2020.

• Estimating Panel Data Model

Based on the output of chow test the Prob. of Cross-section Chi-square is 0.0000, which is Prob. < 0.05. Because of Prob. < 0.05, so Fixed Effect Model is chosen over Common Effect Model (*see table 3*). Based on the output of hausman test the Prob. is 0.1127, which is Prob. > 0.05. Because of Prob. > 0.05, so *Random Effect Model* is chosen over Fixed Effect Model (*see table 4*). Based on the output of LM test the Prob. is 0.0009, which is Prob. < 0.05. Because of Prob. > 0.05, so Random Effect Model is chosen over Common Effect model (*see table 4*). Based on the output of LM test the Prob. is 0.0009, which is Prob. < 0.05. Because of Prob. > 0.05, so Random Effect Model is chosen over Common Effect model (*see table 5*). Since Random Effect Model is chosen over Common Effect Model and Fixed Effect Model, so the regression model will adopt Random Effect Model for its analysis.

• Classical Assumption Test

Since the appropriate model is the Random Effect Model (GLS), so classic assumption is not mandatory to be performed.

• Hypothesis Test

•.1. T test

TA have $T_{\text{statistics}}$ (2.491856) > T_{table} (2.179) and Prob. (0.0204) < 0.05, so TA have significant impact (partial) to FV. IA have $T_{\text{statistics}}$ (6.107590) > T_{table} (2.179) and Prob. (0.0000) < 0.05, so IA have significant impact (partial) to FV (*see table 6*).

•.2. F Test

 $F_{\text{statistic}}$ (64.15312) > F_{table} (2.540) and Prob. (0.000000) < 0.05, so TA and IA simultaneously affect FV (*see table 6*).

•.3. Coefficient of Determination

The value of the coefficient of determination or R-squared is 0.847990 which means TA and IA simultaneously affect FV in the amount of 84.799%. while the rest of 15.201% were affected by other variables excluded in regression (*see table 6*).

4.2 Moderated Regression Analysis

• Interaction Between Tangible Assets and SGR

In regression of independent variable (TA) with the dependent variable (FV) $T_{statistics}$ 7.022872 and T_{table} df (0.025;12) is 2.179, and Prob. 0.0000, because $T_{statistics}$ (7.022872) > T_{table} (2.179) and Prob. (0.0000) < 0.05, so TA as a single variable has a positive significant impact on FV (*see table 7*)

In regression of independent variable (TA) and Moderating Variable (SGR) with the dependent variable (FV) $T_{\text{statistics}}$ 2.316760 and T_{table} df (0.025;12) is 2.179, and Prob. 0.2114, because $T_{\text{statistics}}$ (2.316760) > T_{table} (2.179) and Prob. (0.0298) < 0.05, so SGR have no significant impact to FV (*see table 8*)

In regression of independent variable (TA), Moderating Variable (SGR), and Interacting Variable (TA*SGR) with the dependent variable (FV) Tstatistics 0.824890 and Ttable df (0.025;12) is 2.179, and Prob. 0.3916, because Tstatistics (0.824890) < Ttable (2.179) and Prob. (0.4183) > 0.05, so have no significant impact to FV (*see table 9*).

• Interaction Between Intangible Assets and SGR

In regression of independent variable (IA) with the dependent variable (FV) $T_{statistics}$ - 9.006775 and T_{table} df (0.025;12) is 2.179, and Prob. 0.0000, because $T_{statistics}$ (9.006775) > T_{table} (2.179) and Prob. (0.0000) < 0.05, so IA as a single variable have a significant impact to FV (*see table 10*).

In regression of independent variable (IA) and Moderating Variable (SGR) with the dependent variable (FV) Tstatistics 0.567556 and Ttable df (0.025;12) is 2.179, and Prob. 0.5758, because Tstatistics (0.567556) < Ttable (2.179) and Prob. (0.5758) > 0.05, so SGR have no significant impact to FV (*see table 11*).

In regression of independent variable (IA), Moderating Variable (SGR), and Interacting Variable (IA*SGR) with the dependent variable (FV) Tstatistics -0.745844 and Ttable df (0.025;12) is 2.179, and Prob. 0.4637, because Tstatistics (0.745844) < Ttable (2.179) and Prob. (0.4637) > 0.05, so IA*SGR have no significant impact to FV (*see table 12*).

4.3 Discussion

• Impact of Tangible Assets on Firm's Value

Tangible assets have Tstatistics (2.491856) > Ttable (2.179) and Prob. (0.0204) < 0.05, so tangible assets have a significant impact (partial) on firm's value. With a coefficient of 5.024013 means, every 1 number added to tangible assets, and so the firm's value also increases in the amount of 5.024013. it means tangible assets (asset tangibility) have a positive significant impact on a firm's value (Tobin's q). When tangible assets increased, the firm's value increased too. With the high number of tangible assets, it can make a firm overvalued.

With a value being overvalued it can lead to the investor may have good expectations of a specific firm and deserves a high price, because of the existence of trust from the investor (edusaham.com). From research conducted by Anak Agung Ngurah Mustakawarman et al. (2016), an overvalued stock may reflect good performance. This indicates that the overvalued companies can manage their assets. Hatem (2015) stated the number of tangible assets shows good company management. Also, tangible assets are mainly used for operating activities (Kieso et al, 2016). With good management, tangible assets are expected to be used at maximum advantage to give a good financial performance for the company. Bambang Sudiyatno et al. (2012), by his research on Indonesia Stock Exchange that is firm performance have a positive impact on firm's value, so the better the performance result in better firm's value. This result is in line with research conducted by Rizka (2019) that tangible assets had a direct and significant impact on price-book value (PBV) as the proxy of firm value. Also, research conducted by Nyamasege, et al (2014) presented that a company with a higher fixed assets base has a higher value compared to a company with lower fixed assets.

• Impact of Intangible Assets on Firm's Value

Intangible assets have Tstatistics (6.107590) > Ttable (2.179) and Prob. (0.0000) < 0.05, so intangible assets have a significant impact (partial) on firm's value tangible assets have a significant impact on firm's value. With a coefficient of -1.986812 means, every 1 number added to intangible assets (asset intangibility), and so the firm's value (Tobin's q) also decreases in the amount of -1.986812. It means intangible assets (asset intangibility) have a negative significant impact on a firm's value (Tobin's q). This may happen if a company is unable to use its intangible assets optimally.

This result is in line with research conducted by Giovanni and Santosa (2020) that found intangible assets have a negative significant impact on firm value. However, this result contradicted with Rina (2017) that found intangible assets had positive impacts on firm value. Then, research by Gamayuni (2015) presented intangible assets have a positive impact on firm value. Moreover, research conducted by Ni Luh Putu Widhiastuti and



Made Yenni Latrini (2015) presented intangible assets had a positive impact on firm value.

• Impact of Tangible Assets to Firm's Value with Sustainable Growth as Moderator Interaction between tangible assets and sustainable growth (TA*SGR) have Tstatistics (0.824890) < Ttable (2.179) and Prob. (0.4183) > 0.05 with coefficient in the amount of 4.851358 (*see table 9*), thus sustainable growth had no interaction with tangible assets and was considered as a positive non-significant impact on firm's value. With SGR have Tstatistics (2.316760) > Ttable (2.179) and Prob. (0.0298) < 0.05 (see appendix table 13) which is means SGR itself has a significant impact on firm's value.

So, with SGR had no interaction with TA but SGR have a significant impact on FV, makes SGR is not considered as a moderator but only as a Predictor. In addition, TA still has a significant impact on FV even SGR was added as moderator.

• Impact of Intangible Assets to Firm's Value with Sustainable Growth as Moderator

Interaction between intangible assets and sustainable growth (IA*SGR) have had Tstatistics (0.745844) < Ttable (2.179) and Prob. (0.4637) > 0.05 with coefficient in the amount of -35.48375 (*see table 12*), thus sustainable growth had no interaction with intangible assets and was considered as a negative non-significant impact on firm's value. With SGR have Tstatistics (0.567556) < Ttable (2.179) and Prob. (0.5758) > 0.05 (*see table 11*) which is means SGR itself has a non-significant impact on firm's value.

So, with SGR had no interaction with IA and SGR had no significant impact on FV makes SGR is considered as Homologizer.

In the relation of IA as a single variable with FV and the relation of IA and SGR with FV, both relations have a significant impact on FV. But when SGR starts to interacts with IA as a moderator, IA becomes had non-significant impact on FV, also the coefficient and T-stat of the interaction between IA and SGR are both negatives. This indicates that SGR is weakened the relationship of IA with FV.

5. Conclusion

As the results from the data analysis and the discussion, based on the hypothesis, it is concluded,

- a. Tangible assets have a positive significant impact on firm's value.
- b. Intangible assets have a negative significant impact on firm's value.
- c. sustainable growth is unable to moderate the impact of tangible assets on firm's value.
- d. sustainable growth is able to moderate the impact of intangible assets on firm's value as homologizer.

6. Implication

High portion tangible assets may result in a company being overvalued. While the price is high, it can be an indicator that a company is able to manage its assets and also a high expectation from an investor while the high portion of intangible assets may result in a company being undervalued, which indicates a company unable to use their intangible assets optimally.



However, being undervalued is not always a bad thing. Usually, undervalue companies with promising prospects may attract many investors to invest. So, it is wise to consider other variables such as return on asset, asset turnover, etc. Also, the investor better knows what to do when the price is overvalued or undervalued, either to sell or invest.

Sustainable growth as a moderator in the effect of tangible assets on firm's value is categorized as the predictor. Being a predictor, sustainable growth basically is not a moderator, but only stands as an independent variable in his interaction with tangible assets. In contrast, sustainable growth is able to moderate the effect of intangible assets on firm's value and is categorized as homologizer. Even with no interaction between intangible assets and sustainable growth, being a homologizer, sustainable growth has the potential to become a moderator. Yet as a moderator, sustainable growth weakened the effect of intangible assets on firm's value.

Refferences

- Amouzesh, N., Moenifar, Z., & Mousavi, Z. (2011). Sustainable Growth Rate and Firm Performance: Evidence from Iran Stock Exchange. *International Journal of Business and Social Science*, 2(23), 249–255. http://ijbssnet.com/journals/Vol_2_No_23_Special_Issue_December_2011/30.pdf
- Anthoni, W., & Linawati, N. (2015). Pengaruh Kinerja Keuangan Terhadap Nilai Perusahaan. *FINESTA*, 3(1), 46–51. http://publication.petra.ac.id/index.php/manajemenkeuangan/article/view/2961
- Arifin, A. (2005). Peran akuntan dalam menegakan prinsip prinsip good corporate governance pada perusahaan di Indonesia [Universitas Diponegoro]. http://eprints.undip.ac.id/333/
- Ariyanti, R. (2019). Pengaruh Tangible Asset, Roe, Firm Size, Liquidty Terhadap Price Book Value Dengan Struktur Modal Sebagai Variabel Intervening Pada Perusahaan Perbankan. BALANCE: Economic, Business, Management and Accounting Journal, 16(1). https://doi.org/10.30651/blc.v16i1.2450
- Asmara, F., & Agustina, Y. (2020). Evaluasi Perlakuan Akuntansi Aset Tetap pada Cv Sarana Adi Putra Periode 2017 S/D 2018. *Jurnal Riset Akuntansi*, *12*(1), 95–104. https://doi.org/https://doi.org/10.34010/jra.v12i1.2796
- Basuki, A. T., & Prawoto, N. (2015). Analisis Komposisi Pengeluaran Publik Terhadap Pertumbuhan Ekonomi dalam Mendukung Good Governance dalam Memasuki MEA (Studi Empiris Provinsi di Indonesia Tahun 2010-2014). Book of Proceedings Published by Universitas Negeri Padang, 1–19. http://repository.umy.ac.id/bitstream/handle/123456789/2058/1. Agus Tri Basuki%2C Nano Prawoto %28hal 1-19%29_0.pdf?sequence=1&isAllowed=y
- Bloomenthal, A. (2020). *Overvalued Definition*. Investopedia. https://www.investopedia.com/terms/o/overvalued.asp
- Brealey, R. A., Myers, S. C., & Allen, F. (2020). *Principles of Corporate Finance* (13th ed.). McGraw-Hill Education.
- Brigham, E. F., & Houston, J. F. (2009). *Fundamentals of Financial Management* (12th ed.). South-Western Cengage Learning.
- Burhanudin, M. I. (n.d.). Mengenal Indeks IDX Growth 30 (IDXG30) Republik Investor. https://republikinvestor.net/mengenal-indeks-idx-growth-30-idxg30/



- Christiawan, Y. J., & Tarigan, J. (2007). Kepemilikan Manajerial: Kebijakan Hutang, Kinerja Dan Nilai Perusahaan. *Jurnal Akuntansi Dan Keuangan*, 9(1), 1–8. https://doi.org/10.9744/jak.9.1.pp.1-8
- Creswell, J. W. (2009). *RESEARCH DESIGN: Qualitative, Quantitative, and Mixed Methods Approaches* (3rd ed.). SAGE Publications, Inc. https://doi.org/10.2307/1523157
- Dewi, A. A. K., & Badjra, I. B. (2017). Pengaruh Profitabilitas, Aktiva Tidak Berwujud, Ukuran Perusahaan, Dan Struktur Modal Terhadap Nilai Perusahaan. *E-Jurnal Manajemen Universitas Udayana*, 6(4), 2161–2190. https://ojs.unud.ac.id/index.php/Manajemen/article/view/28483
- DP, R. T., & Monika, M. (2014). Pengaruh Kinerja Keuangan Terhadap Nilai Perusahaan pada Perusahaan Manufaktur Yang Terdaftar di Bursa Efek Indonesia. Jurnal Manajemen Dan Bisnis Sriwijaya (JMBS), 12(1), 1–16. https://doi.org/https://doi.org/10.29259/jmbs.v12i1.3136
- Dwiyanti, R. (2010). Analisis Faktor-Faktor yang Mempengaruhi Ketepatan Waktu Pelaporan Keuangan pada Perusahaan Manufaktur yang Terdaftar Di Bursa Efek Indonesia [Diponegoro University]. http://eprints.undip.ac.id/22634/1/Skripsi_Rini_Dwiyantipdf.pdf
- Edusaham Team. (2019). Saham Undervalued: Cara Menentukan Harga Saham Murah atau Mahal -Edusaham. https://www.edusaham.com/2019/03/saham-undervalued-cara-menentukan-hargasaham-murah-atau-mahal.html
- Edusaham Team. (2019). *Pengertian Saham Overvalued: Cara Menentukan & Menilai Saham Mahal* - *Edusaham*. https://www.edusaham.com/2019/03/pengertian-saham-overvalued-caramenentukan-saham-murah-atau-mahal.html
- Edusaham Team. (2019). Pengertian Tobin's Q: Rumus, Cara Mengukur, Kekurangan, dan Kelebihan - Edusaham. https://www.edusaham.com/2019/03/pengertian-tobins-q-beserta-rumus-caramengukur-kekurangan-dan-kelebihan.html
- Gamayuni, R. R. (2015). The Effect Of Intangible Asset Financial Performance And Financial Policies On The Firm Value. *International Journal of Scientific & Technology Research*, 4(1), 202–212. https://www.ijstr.org/final-print/jan2015/The-Effect-Of-Intangible-Asset-Financial-Performance-And-Financial-Policies-On-The-Firm-Value.pdf
- Gamayuni, R. R. (2012). Relevansi Kinerja Keuangan, Kualitas Laba, Intangible Asset, dengan Nilai Perusahaan. *Trikonomika Jurnal Ekonomika*, *11*(2), 119–136. http://repository.lppm.unila.ac.id/1440/1/trikonomika 2012.pdf
- Giovanni, G., & Santosa, S. (2020). Do Intellectual Capital and Intangible Assets Influence the Firm Value? (Case Study in Trade, Service, and Investment Sector in Indonesia). *Ultima Management : Jurnal Ilmu Manajemen*, *12*(2), 200–209. https://doi.org/10.31937/manajemen.v12i2.1703
- Goel, U., Chadha, S., & Sharma, A. K. (2015). Operating Liquidity and Financial Leverage: Evidences from Indian Machinery Industry. *Procedia - Social and Behavioral Sciences*, 189, 344–350. https://doi.org/10.1016/j.sbspro.2015.03.230
- Gujarati, D. M., & Porter, D. C. (2009). BASIC ECONOMETRICS. In *McGraw-Hill/Irwin* (5th ed.). McGraw-Hill/Irwin.
- Harc, M. (2015). The relationship between tangible assets and capital structure of small and medium sized companies in Croatia. *Ekonomski Vjesnik* : Časopis Ekonomskog Fakulteta u Osijeku, 28(1), 213–224. https://doi.org/10.22598/pi-be/2019.13.1.87



- Hatem, B. S. (2015). Interdependence between Managerial Ownership, Leverage and Firm Value: Theory and Empirical Validation. *International Journal of Economics and Finance*, 7(12), 106–118. https://doi.org/10.5539/ijef.v7n12p106
- Higgins, R. C. (1977). Much Growth Can Firm Afford? *Financial Management*, 6(3), 7–16. https://doi.org/https://doi.org/10.2307/3665251
- Kenton, W. (2020). *Tangible Asset Definition*. Investopedia. https://www.investopedia.com/terms/t/tangibleasset.asp
- Ionita, C. and Dinu, E. (2021), "The effect of intangible assets on sustainable growth and firm value Evidence on intellectual capital investment in companies listed on Bucharest Stock Exchange", Kybernetes, Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/K-05-2020-0325
- Kieso, D. E., Weygandt, J. J., & Warfield, T. D. (2017). *Intermediate Accounting IFRS* (3rd ed.). John Wiley & Sons, Inc.
- Kleiman, R. T. (n.d.). Sustainable growth. https://www.referenceforbusiness.com/encyclopedia/Str-The/Sustainable-Growth.html
- Kosmaryati, K., Handayani, C. A., Isfahani, R. N., & Widodo, E. (2019). Faktor-Faktor yang Mempengaruhi Kriminalitas di Indonesia Tahun 2011-2016 dengan Regresi Data Panel. *Indonesian Journal of Applied Statistics*, 2(1), 10. https://doi.org/10.13057/ijas.v2i1.27932
- Kristianti, D., & Foeh, J. E. H. J. (2020). The Impact Of Liquidity And Profitability On Firm Value With Dividend Policy As An Intervening Variable (Empirical Study Of Manufacturing Companies In The Pharmaceutical Sub Sector Listed On The Indonesia Stock Exchange In 2013-2017). Jurnal Bisnis Dan Kewirausahaan, 16(1), 65–78. https://doi.org/10.31940/jbk.v16i1.1829
- Kuniawati, R., & Asyik, N. F. (2017). Kinerja Keuangan Sebagai Variabel Intervening Pengaruh R&D Dan Intangible Asset Pada Nilai Perusahaan. *Jurnal Ilmu Dan Riset Akuntansi*, 6(10), 1–22. http://jurnalmahasiswa.stiesia.ac.id/index.php/jira/article/view/1715
- Lestari, B. D., & Suryani, A. W. (2020). Firm's Value Exploration: The Impact Of Intellectual Capital and Net Working Capital. *Jurnal Dinamika Akuntansi*, *12*(2), 152–164. https://doi.org/10.15294/jda.v12i2.25932
- Lie, L. (2009). Penggunaan MRA dengan Spss untuk Menguji Pengaruh Variabel Moderating terhadap Hubungan antara Variabel Independen dan Variabel Dependen. Jurnal Teknologi Informasi DINAMIK, 14(2), 90–97. https://doi.org/10.35315/dinamik.v14i2.95
- Lim, S. C., Macias, A. J., & Moeller, T. (2020). Intangible assets and capital structure. Journal of Banking and Finance, 118. https://doi.org/10.1016/j.jbankfin.2020.105873
- Lukiman, N. K., & Hapsari, Y. D. (2018). Analisis Pengaruh Struktur Modal dan Profitabilitas terhadap Nilai Perusahaan Consumer Goods yang Terdaftar di BEI Periode 2014-2017. *Prosiding Working Papers* Series In Management, 10(2), 61–76. http://ojs.atmajaya.ac.id/index.php/WPM/article/view/1208
- Made, N. I., Erawati, A. D. I., & Sudana, I. P. (2009). Intangible Assets, Nilai Perusahaan, Dan Kinerja Keuangan. Jurnal Ilmiah Akuntansi Dan Bisnis, 4(1).
- Melati, P. M., & Suryowati, K. (2018). Aplikasi Metode Common Effect, Fixed Effect, dan Random Effect Untuk Menganalisis Faktor-faktor yang Mempengaruhi Tingkat Kemiskinan Kabupaten di



Jawa Tengah dan Daerah Istimewa Yogyakarta. *Jurnal Statistika Industri Dan Komputasi Volume*, 3(1), 41–51. https://doi.org/10.34151/statistika.v3i01.1079

- Murphy, C. B. (2020). *Sustainable Growth Rate*. Investopedia. https://www.investopedia.com/terms/s/sustainablegrowthrate.asp
- Mustakawarman, A. A. N., Wiksuana, I. G. B., & Artini, L. G. S. (2016). Undervalued Dan Overvalued Pada Indeks Lq45 Di Bursa Efek Indonesia. 21(2), 206–218.
- Nagaraja, N., & Vinay, N. (2016). The Effect of Intangible Assets on the Firm Value. *International Journal of Engineering and Management Research*, 6(1), 307–315.
- Nasution, A. A., Siregar, I., & Panggabean, R. (2017). The Effect of Profitability, Asset Tangibility, Corporate Tax, Non-debt Tax Shield and Inflation upon the Financial Capital Structure of the Manufacturing Companies listed on the Indonesian Stock Exchange. 36(Icbmr), 65–74. https://doi.org/10.2991/icbmr-17.2017.6
- Noerirawan, M. R. (2012). Pengaruh Faktor Internal Dan Eksternal. Perusahaan Terhadap Nilai Perusahaan. Universitas Diponegoro
- Nugraha, E. S., & Sulasmiyati, S. (2017). Analisis Nilai Intrinsik Saham Dengan Relative Valuation Techniques (Studi Pada Perusahaan Sub Sektor Rokok yang Terdaftar di Bursa Efek Indonesia Periode 2013 – 2016). *Jurnak Akuntansi Bisnis*, 52(1), 106–113.
- Nyamasege, D., Okibo, W. B., Nyang'au, A. S., Sang'ania, P. O., Omosa, H., & Momanyi, C. (2014). Effect of Asset Structure on Value of a Firm : a Case of Companies Listed In Nairobi Securities Exchange. *Journal of Finance and Accounting*, 5(7), 205–212. https://iiste.org/Journals/index.php/RJFA/article/view/12769/13091
- Ocak, M., & Findik, D. (2019). The impact of intangible assets and sub-components of intangible assets on sustainable growth and firm value: Evidence from Turkish listed firms. *Sustainability (Switzerland)*, *11*(19), 5–7. https://doi.org/10.3390/su11195359
- Peters, R. H., & Taylor, L. A. (2016). Intangible capital and the investment-q relation. *Journal of Financial Economics*, 0–51. https://doi.org/10.1016/j.jfineco.2016.03.011
- Ponczek, S. (2020). Epic S&P 500 Rally is Powered by Assets You Can't See or Touch. *Bloomberg*. https://www.bloomberg.com/news/articles/2020-10-21/epic-s-p-500-rally-is-powered-by-assets-you-can-t-see-or-touch
- PT. Bursa Efek Indonesia. (n.d.). *Indonesia Stock Exchange*. Stock Summary. https://www.idx.co.id/en-us/products/index/
- PT. Bursa Efek Indonesia. (n.d.). *Indonesia Stock Exchange*. Stock Summary. https://www.idx.co.id/en-us/listed-companies/financial-statements-annual-report/
- Rajhans, R. K., & Kaur, K. (2013). Financial Determinants of Firms' Value Evidence From Indian Firms. Zenith International Journal of Business Economics & Management Research, 3(5), 70– 76. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2305950
- Saleh, M. (2018). Impacts of Tangible and Intangible Asset Investment on Value of Manufacturing Companies Listed on the Indonesia Stock Exchange. Archives of Business Research, 6(10), 402– 414. https://doi.org/10.14738/abr.610.5374



- Samuelson, W. F., & Marks, S. G. (2011). *MANAGERIAL ECONOMICS* (7th ed.). John Wiley & Sons, Inc.
- Sekaran, U., & Bougie, R. (2016). Research Methods for Business : A Skill-Building Approach. In *Encyclopedia of Quality of Life and Well-Being Research* (7th ed.). John Wiley & Sons, Inc.
- Septia, A. W. (2015). PENGARUH PROFITABILITAS, KEPUTUSAN INVESTASI, KEPUTUSAN PENDANAAN, DAN KEBIJAKAN DIVIDEN TERHADAP NILAI PERUSAHAAN PADA PERUSAHAAN MANUFAKTUR YANG TERDAFTAR DI BURSA EFEK INDONESIA</
- Setiabudi, A., & Agustia, D. (2012). Fundamental Factor of Firm Due to The Firm Value. Journal of Basic and Applied Scientific Research, 2(12), 12651–12659. https://restyresty.files.wordpress.com/2015/01/28-2012j-basic-appl-sci-res-21212651-12659-2012.pdf
- Setijawan, I. (2011). Pengaruh Asset Tidak Berwujud Terhadap Nilai Perusahaan. Aset, 13(2), 139– 154. http://research.unissula.ac.id/file/publikasi/211403016/8745ASET_Jurnal_Ekonomi.pdf
- Sharma, S., Durand, R. M., & Gur-Arie, O. (1981). Identification and Analysis of Moderator Variables. Journal of Marketing Research, 18(3), 291. https://doi.org/10.2307/3150970
- Sudiyatno, B., Puspitasari, E., & Kartika, A. (2012). The Company's Policy, Firm Performance, and
Firm Value: An Empirical Research on Indonesia Stock Exchange. American International
Journal of Contemporary Research, 2(12), 30–40.
http://www.aijcrnet.com/journals/Vol_2_No_12_December_2012/4.pdf
- Sugiono, S. (2004). Konsep, Identifikasi, Alat Analisis Dan Masalah Penggunaan Variabel Moderator. Jurnal Studi Manajemen Organisasi, 1(2), 61–70. https://doi.org/10.14710/jsmo.v1i2.4175
- Sulistiyanti, Y. (2017). Pengaruh Debt Ratio, Sales Growth, Return on Equity, Earning per Share, Dividend Payout Ratio, Current Ratio Terhadap Nilai Perusahaan: Studi Kasus Index Saham Syariah Indonesia Tahun 2011-2015. Institut Agama Islam Surakarta.
- Sustainable Growth Encyclopedia Business Terms | Inc.com. (2021). https://www.inc.com/encyclopedia/sustainable-growth.html
- The Investopedia Team. (2020). Undervalued definition. Investopedia. https://www.investopedia.com/terms/u/undervalued.asp
- Van Horne, J. C., & Wachowicz, John M., J. (2008). Fundamentals of Financial Management (13th Ed.). In Pearson Education Limited. Prentice-Hall.
- Weygandt, J. J., Kimmel, P. D., & Kieso, D. E. (2012). Accounting Principles (10th ed.). John Wiley & Sons, Inc.
- Wibisono, H., Susilawati, C. E., & Sunarjanto, A. (2017). Pengaruh Intangible Asset Terhadap Firm Value Melalui Financial Policy dan Financial Performance pada Industri Manufaktur di Indonesia. Kajian Ilmiah Mahasiswa Manajemen (KAMMA), 6(1). http://journal.wima.ac.id/index.php/KAMMA
- Wibisono, P. D. (2016). Analisis hubungan antara tingkat harga saham dengan tingkat indikator kesehatan bank indonesia. Jurnal Ilmiah Mahasiswa Fakultas Ekonomi Dan Bisnis Universitas Brawijaya, 4(2), 1–10. https://jimfeb.ub.ac.id/index.php/jimfeb/article/view/2958



- Widhiastuti, N. L. P., & Latrini, M. Y. (2015). Pengaruh Return On Asset dan Intangiable Asset Terhadapn Nilai Perusahaan dengan Coorporate Social Responsibility Sebagai Variabel Pemoderasi. E-Jurnal Akuntansi Universitas Udayana, 11(2), 370–383. https://ojs.unud.ac.id/index.php/Akuntansi/article/view/10700
- Wulandri, E., Rinofaf, R., & Mujino. (2019). Pengaruh Intangible Asset, Debt to Equity Ratio, Dan Return on Asset terhadap Nilai Perusahaan pada Perusahaan Manufaktur yang Terdaftar Di Bursa Efek Indonesia Periode 2014-2018. Stability : Journal of Management & Business, 2(2), 1– 14. https://doi.org/10.26877/sta.v2i2.5162
- Yuniasih, N. W., Wirama, D. G., & N. Badera, I. D. (2011). Eksplorasi Kinerja Pasar Perusahaan Kajian Berdasarkan Modal Intelektual (Studi Empiris pada Perusahaan Keuangan yang Terdaftar di Bursa Efek Indonesia). Jurnal Ilmiah Akuntansi Dan Bisnis, 6(2), 1–29. https://ojs.unud.ac.id/index.php/jiab/article/view/2644

APPENDIX

Variable	Definition	Measurement	Data
Tangible Assets (X1)	Assets that have a physical form, are used in business operation, are not intended to be sold, have relatively long useful lives usually more than one year, and give benefits in the future for achieving the company's goals.	Total Tangible Fixed Assets Total Aeets	Ratio
Variable	Definition	Measurement	Data
Intangible Assets (X2)	Non-monetary and has no physical form that leads to the Company's rights, privileges, and competitive advantages over long-term assets ownership.	Total Itnangible Assets Total Assets	Ratio
Firm's Value (Y)	Investor's perception of a firm's level of success that is usually related to the stock price in the market.	Equity MV + Liability BV Assets BV BV = Book Value MV = Market Valuee	Ratio
Sustainable Growth (Moderating)	The maximum rate of how far a company can grow without raising additional capital or debt.	(1 - DPR)x ROE DPR = Dividend payout ration	Ratio

	Table 2.	Descriptive	e Statistic
--	----------	-------------	-------------

	FV	ТА	ΙΑ	SGR
Mean	1.932238	0.294960	0.040181	0.081359
Median	1.695083	0.177759	0.011392	0.079631
Maximum	4.521485	0.798443	0.553369	0.164752
Minimum	0.338999	0.007150	0.000496	-0.028537
Std. Dev.	1.208489	0.276064	0.107795	0.045781
Skewness	0.756819	0.625404	4.383964	-0.203445



International Conference on Sustainable Competitive Advantage 2022

Cross-sec	tion random		5.	977087	3	0.1127
Cross-see	tion random		5	977087	3	0 1127
Test Sum	mary		Chi-Sq. S	Statistic C	Chi-Sq. d.f.	Prob.
Test Sum	mary		Chi-Sq. S	Statistic C	Chi-Sq. d.f.	Prob.
Test Sum	mary		Chi-Sq. S	Statistic C	Chi-Sq. d.f.	Prob.
Test Sum	mary		Chi-Sq. S	Statistic C	Chi-Sq. d.f.	Prob.
Test Sum	mary		Chi-Sq. S	Statistic C	Chi-Sq. d.f.	Prob.
Test Sum	mary		Chi-Sq. S	Statistic C	Chi-Sq. d.f.	Prob.
Test Sum	mary		Chi-Sq. S	Statistic C	Chi-Sq. d.f.	Prob.
Test Sum	mary		Chi-Sq. S	Statistic C	Chi-Sq. d.f.	Prob.
Test Sum	mary		Chi-Sq. S	Statistic C	Chi-Sq. d.f.	Prob.
<u> </u>	41-11-11-11-11-11-11-11-11-11-11-11-11-1			077007	2	0 1107
Cross-sec	tion random		5.	977087	3	0.1127
Cross-sec	tion random		5.	977087	3	0.1127
01035-560			5.	211001	5	0.1127
		-	11 6 1167			
		Ta	ble 5. LM Te	st		
	1 -66 - 6	Та	ble 5. LM Te	st		- 41-
Null (no ran	d. effect)	Ta Cross- One-	ble 5. LM Te	st Period One-sided	В	oth
Null (no ran Alternative	d. effect)	Ta Cross- One-	ble 5. LM Te section sided	st Period One-sided	В	oth
Null (no ran Alternative	d. effect)	Ta Cross- One-	ble 5. LM Te section sided	st Period One-sided	В	oth
Null (no ran Alternative Breusch-Pag	d. effect) gan	Ta Cross- One- 11.0	ble 5. LM Te section sided	st Period One-sided 0.997550	B 12.0	oth 06579
Null (no ran Alternative Breusch-Pag	d. effect) gan	Ta Cross- One- 11.0 (0.0	ble 5. LM Te section sided 6824 009)	st Period One-sided 0.997550 (0.3179)	B 12.((0.0	oth 06579 0005)
Null (no ran Alternative Breusch-Pag Honda	d. effect) gan	Ta Cross- One- 11.0 (0.0 3.32	ble 5. LM Te section sided (6824 (009) (6896	st Period One-sided 0.997550 (0.3179) -0.998774	B 12.((0.0 1.6	oth 06579 0005) 46231
Null (no ran Alternative Breusch-Pag Honda	d. effect) gan	Ta Cross- One- 11.0 (0.0 3.32 (0.0	ble 5. LM Te section sided (6824 (009) (6896 (004)	st Period One-sided 0.997550 (0.3179) -0.998774 (0.8410)	B 12.((0.0 1.6-().()	oth 06579 0005) 46231
Null (no ran Alternative Breusch-Pag Honda	d. effect) gan	Ta Cross- One- 11.0 (0.0 3.32 (0.0	ble 5. LM Te section sided (6824 (009) (6896 (004)	st Period One-sided 0.997550 (0.3179) -0.998774 (0.8410)	B 12.0 (0.0 1.6 (0.0	oth 06579 0005) 46231 0499)
Null (no ran Alternative Breusch-Pag Honda King-Wu	d. effect) gan	Ta Cross- One- 11.0 (0.0 3.32 (0.0 3.32	ble 5. LM Te section sided (6824 (009) (6896 (004) (6896	st Period One-sided 0.997550 (0.3179) -0.998774 (0.8410) -0.998774	B 12.((0.0 1.64 (0.0 -0.0)	oth 06579 0005) 46231 0499) 36876
Null (no ran Alternative Breusch-Pag Honda King-Wu	d. effect) gan	Ta Cross- One- 11.0 (0.0 3.32 (0.0 3.32 (0.0	ble 5. LM Te section sided (6824 (009) (6896 (004) (6896 (004)	st Period One-sided 0.997550 (0.3179) -0.998774 (0.8410) -0.998774 (0.8410)	B 12.0 (0.0 1.6 (0.0 -0.0) (0.5	oth 06579 0005) 46231 0499) 36876 5147)
Null (no ran Alternative Breusch-Pag Honda King-Wu	d. effect) gan	Ta Cross- One- 11.0 (0.0 3.32 (0.0 3.32 (0.0	ble 5. LM Te section sided (6824 (009) (6896 (004) (6896 (004)	st Period One-sided 0.997550 (0.3179) -0.998774 (0.8410) -0.998774 (0.8410)	B 12.((0.0 1.6 (0.0 -0.0) (0.5	oth 06579 0005) 46231 0499) 36876 5147) 06824
Null (no ran Alternative Breusch-Pag Honda King-Wu GHM	d. effect) gan	Ta Cross- One- 11.0 (0.0 3.32 (0.0 3.32 (0.0	ble 5. LM Te section sided (6824 009) (6896 004) (6896 004) (st Period One-sided 0.997550 (0.3179) -0.998774 (0.8410) -0.998774 (0.8410) 	B 12.0 (0.0 1.64 (0.0 -0.0) (0.5 11.0 (0.0	oth 06579 0005) 46231 0499) 36876 5147) 06824 0014)
Null (no ran Alternative Breusch-Pag Honda King-Wu GHM	d. effect) gan	Ta Cross- One- 11.0 (0.0 3.32 (0.0 3.32 (0.0	ble 5. LM Te section sided (6824 009) (6896 004) (6896 004) (st Period One-sided 0.997550 (0.3179) -0.998774 (0.8410) -0.998774 (0.8410) 	B 12.0 (0.0 1.64 (0.0 -0.0) (0.5 11.0 (0.0	oth 06579 0005) 46231 0499) 36876 5147) 06824 0014)
Null (no ran Alternative Breusch-Pag Honda King-Wu GHM	d. effect) gan	Ta Cross- One- 11.0 (0.0 3.32 (0.0 3.32 (0.0 - - - - - - - - - - - - - - - - -	ble 5. LM Te section sided (6824 (009) (6896 (004) (6896 (004) (Panel Data Re	st Period One-sided 0.997550 (0.3179) -0.998774 (0.8410) -0.998774 (0.8410) 	B 12.((0.0 1.64 (0.0 -0.0) (0.5 11.0 (0.0	oth 06579 0005) 46231 0499) 36876 5147) 06824 0014)
Null (no ran Alternative Breusch-Pag Honda King-Wu GHM	d. effect) gan	Ta Cross- One- 11.0 (0.0 3.32 (0.0 3.32 (0.0 - - - - - - - - - -	ble 5. LM Te section sided (6824 (009) (6896 (004) (6896 (004) (st Period One-sided 0.997550 (0.3179) -0.998774 (0.8410) -0.998774 (0.8410) 	B 12.0 (0.0 1.6 (0.0 -0.0) (0.5 11.0 (0.0	oth 06579 0005) 46231 0499) 36876 5147) 06824 0014)



C TA IA	1.307295 2.522262 -2.962136	0.475590 1.012202 0.484993	2.748784 2.491856 -6.107590	0.0114 0.0204 0.0000
	Effects Sp	ecification	S.D.	Rho
Cross-section random Idiosyncratic random			$1.288060 \\ 0.105330$	0.9934 0.0066
	Weighted	Statistics		
R-squared Adjusted R-squared S.E. of regression F-statistic Prob(F-statistic)	0.847990 0.834772 0.112499 64.15312 0.000000	Mean dependent var S.D. dependent var Sum squared resid Durbin-Watson stat		0.111542 0.276762 0.291087 1.869563
	Unweighte	d Statistics		
R-squared Sum squared resid	-0.192246 43.53022	Mean dependent var Durbin-Watson stat		1.932238 0.012502



Variable	Coefficient	Std. Error	t-Statistic	Prob.
С	0.229642	0.420351	0.546311	0.5899
ТА	5.772302	0.821929	7.022872	0.0000

Table 7. Regression of TA to FV

Table 8. Regression of TA and SGR to FV

Variable	Coefficient	Std. Error	t-Statistic	Prob.
С	0.058569	0.421131	0.139075	0.8906
ТА	5.560794	0.818703	6.792196	0.0000
SGR	2.869507	1.238586	2.316760	0.0298

Table 9. Regression of TA, SGR, and Interaction, to FV

Variable	Coefficient	Std. Error	t-Statistic	Prob.
С	0.052093	0.443226	0.117531	0.9075
ТА	5.469493	0.919833	5.946180	0.0000
SGR	1.920797	1.621320	1.184712	0.2488
TA*SGR	4.851358	5.881217	0.824890	0.4183

Table 10. Regression of TA and SGR to FV

Variable	Coefficient	Std. Error	t-Statistic	Prob.
С	2.086187	0.346863	6.014445	0.0000
ΙΑ	-3.831381	0.425389	-9.006775	0.0000

Table 11. Regression of IA and SGR to FV

Variable	Coefficient	Std. Error	t-Statistic	Prob.



С	2.020810	0.369284	5.472235	0.0000
IA	-3.739177	0.468823	-7.975662	0.0000
SGR	0.758021	1.335588	0.567556	0.5758

Table 12. Regression of IA, SGR, and Interaction, to FV

Variable	Coefficient	Std. Error	t-Statistic	Prob.
С	1.959849	0.393458	4.981089	0.0001
IA	-0.997141	3.713897	-0.268489	0.7908
SGR	1.757756	1.921037	0.915004	0.3701
IA*SGR	-35.48375	47.57529	-0.745844	0.4637