

# Sustainable Growth Rate: Between Fixed Asset Growth and Firm Value

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## ABSTRACT

*This study seeks to test the effect of fixed asset growth on sustainable growth rate and the role of sustainable growth rate in mediating the impact of fixed asset growth rate on firm value. This study involves 134 Indonesian manufacturing firms in 2013-2018. We analyze the data by using the panel data regression with both the fixed and random effect models. The results demonstrate that fixed asset growth positively affects sustainable growth rate. Besides, the findings show the positive impact of sustainable growth rate on firm value and that sustainable growth rate strengthens the impact of fixed asset growth on firm value. This study contributes to extend the previous literature on sustainable growth rates. In addition, it has several implications that are relevant for firm managers and investors relating to the relationship between sustainable growth and asset investment and firm value. However, this study is subject to several caveats that need to be emphasized by future studies.*

**KEYWORDS:** *firm value, fixed asset growth, pecking order theory, sustainable growth rate.*

**JEL CLASSIFICATION:** *G31. G39*

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## 1. INTRODUCTION

Firms that aim to increase sales continuously by relying on external financing will potentially face serious financial problems. Consequently, as suggested by Higgins (1977), firms need to align their sales growth level with their ability to produce internal financing or commonly known as the sustainable growth rate (SGR). Firms that operate above their SGRs will potentially experience financial distress or even bankruptcy because of excessive financial leverage (Horne & Wachowicz, 2009; Kumar, 2018).

SGR refers to maximum achievable growth based on firms' internal financing ability, not because of additional external financing, either from investors or long-term debts (Higgins, 1977). Several previous studies demonstrate that profitability (Arora et al., 2018; Huang & Zhang, 2015; Nastiti et al., 2019), liquidity and leverage (Manaf et al., 2018; Mukherjee & Sen, 2019), asset efficiency (Rahim, 2017; Subbaredy & Reddy, 2017), and intellectual capital (Wahyuni & Dino, 2017; Xu & Wang, 2018) determine SGR. In this respect, fixed asset growth also likely affects sustainable growth. The additions of machines and other production equipment increase not only productive capacity but also efficiency that will improve profitability, internal financing sources, and eventually, SGR. Thus, the effect of fixed asset growth on firms' SGR is an interesting research issue.

SGR is not only the concern of managers but also investors because it represents investors' expectations of firms' operational continuity (Lockwood & Prombutr, 2010). Several previous studies have found that firms' ability to grow sustainably affects firm value (Lo & Sheu,

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2007; Muktiadji & Sari, 2018). Against this background, SGR likely mediates the impact of asset growth on firm value. However, previous studies mainly focus on the effect of asset growth on firm value (Dhani & Utama, 2017; Hestinoviana et al., 2013).

Based on the arguments, this study not only analyzes the impact of fixed asset growth on SGR but also the role of SGR in mediating the effect of fixed asset growth on firm value in Indonesian manufacturing firms. Thus, this study seeks explicitly to test: (a) the impact of fixed asset growth on firm value, (b) the effect of fixed asset growth on SGR, (c) the effect of SGR on firm value, and (d) the effect of fixed asset growth on firm value as mediated by SGR. It is worth noting that the impact of fixed asset growth on firm value, as mediated by SGR, is still relatively understudied. Besides, practically, this study informs managers and investors of the relation between SGR, asset investment policies, and firm value.

## 2. LITERATURE REVIEW

Pecking order theory explains firms' preferences of financing source priority order based on cost of capital (Myers & Majluf, 1984). First, firms' internal financing (retained earnings) is the first option because it is the least costly. In this respect, firms do not need to incur transaction costs such as interest cost and the issuance cost of securities. Second, if insufficient, firms opt for debt-based external financing sources. Although debt incurs transaction costs, it offers tax advantages (tax shield). The third or last option is equity. Specifically, the issuance of new shares is the last choice because it is costly. In particular, new shares issuance incurs not only transaction costs but also information asymmetry that potentially lead to under-priced new shares. Pecking order theory is relevant to explain SGR that also suggests firms prioritize internal than external financing, primarily to support sales growth.

Higgins (1977) introduces the SGR concept that explains firms' achievable maximum sales growth if firms are assumed not to add debts or issue new shares. Consequently, sales growth largely depends on internal financing sources. Further, Higgins (1977) proposes that firms need to balance sales growth targets with sustainable growth level by 1) increasing profitability,

2) utilizing assets efficiently, 3) maintaining dividend payout ratio, and 4) acquiring planned debt as financial leverage. Firms can use SGR to balance the operational elements (profit margin and asset efficiency) and financial elements (capital structure and retention rate) into a single comprehensive measure (Amouzesh et al., 2011).

Firms will exhibit stable growth if their sales growth rate is relatively equal to SGR (Damodaran, 2001). If sales growth level exceeds SGR, firms will potentially experience financial distress and even bankruptcy because of excessive financial leverage. The SGR analysis helps to identify growth rate targets that avoid financial difficulties (Fonseka et al., 2012; Huang & Zhang, 2015). Conversely, sales growth that is below SGR will result in idle cash and cause firms to utilize financing sources sub-optimally. Pandit & Tejani (2011) emphasize that managers and investors can use SGR to evaluate whether their firms' growth target is realistic or based on current performance and financial policies.

In recent decades, scholars have been interested in investigating the relationship between firms' ability to grow sustainable and firm value. Firm value is investors' perception of firms' success rate as reflected by share prices. Maximizing firm value is crucial for firms (Hirdinis, 2019; Lonkani, 2018; Sabrin et al., 2016) because it will increase shareholders' wealth. Share price increases will enhance firm value and, eventually, shareholders' wealth (Sudiyatno et al., 2012; Suhanda et al., 2019). A method to determine firm value is Tobin's Q, as proposed by James Tobin (1977). Tobin's Q measures the relationship between the market value of firms' shares and the replacement cost of firms' resources (Sahay & Pillai, 2009). The market

value of firms' assets is measured by outstanding shares and debt instruments, while assets' replacement cost is measured by using book value. The Tobin's Q value equal to or above 1 (one) indicates that a firm's market value exceeds its recorded assets because the market appreciates the firm's future and performance. Conversely, Tobin's Q less than 1 (one) shows that the market appreciates the firm less.

Potential investors tend to select shares that promise a higher sustainable growth rate (Ataūnal et al., 2016; Sutjiati, 2017) because firms with higher sustainable growth rates have greater internal financing sources and eventually better prospects. This statement has the support of most of the research that found that sustainable growth firm firm value. For example, using 439 large US non-financial firms in 1999-2002 as their sample, Lo & Sheu (2007) empirically find the positive effect of firms' sustainable growth on firm value, and the effect is strengthened by sales growth. Next, Amouzesh et al., 2011 use 54 sample firms listed on the Iran financial market in 2006-2009 and observe the significant effect of the difference between actual growth and sustainable growth rate on firm value. Also, Sutjiati (2017) analyzes the relationship between sustainable growth and firm value of 21 consumer-goods firms listed on the Indonesian Stock Exchange in 2011-2014 and documents that sustainable growth rate significantly affects firm value.

Fixed assets are thought to be one of the factors that determine SGR. Fixed assets can be defined as tangible assets that are acquired by firms, either readily usable or still require further completion, to facilitate firms' operations and are not intended to be resold as firms' normal activities with economic lives of more than one year. Fixed assets include buildings, factories, machines, and production equipments that are acquired not to be resold, but for operational purposes (Singh & Pandey, 2008). Asset additions will potentially produce profits (Marta & Muktiadji, 2015) if followed by insignificant increases of production costs (Al Hayek, 2018), increased efficiency, and economy of scale through reduced average production costs when firms increase their production scale (Anwar & Ali, 2017; Celli, 2013). Efficiency is an essential factor because it is closely related to firms' profitability (Handayani & Purbadharmaja, 2019). Production efficiency will result in more competitive products because firms can sell their products at lower prices, but at higher profit margins (Anwar & Ali, 2017; Huang & Zhang, 2015).

Asset growth increases operations and, eventually, profits and retained earnings (Raiyani, 2011) that enable firms to have greater SGR. Besides, the growth of assets - especially fixed ones such as more advanced machines and production equipment - likely enhances efficiency and strengthens firms' competitiveness as indicated by increased sales. Next, increased sales will improve profits (Agbeja et al., 2015; Barus et al., 2017). By assuming that firms' financial policies change, firms will, in turn, be able to use increased profits as internal financing sources that increase improve their sustainable growth.

McConnell & Muscarella (1985) pioneer studies on the relationship between investment and firm value. They demonstrate that investors respond positively (negatively) to investment (divestment) announcements. In a similar vein, Ehie & Olibe (2010) hold that higher investments motivate investors to anticipate better future financial performance. In general, firms' investments can be classified into two categories; namely current assets and fixed assets investments, with the latter are more oriented for long-term purposes. Asset growth likely increases firm value directly but also it is also likely asset growth enhances firm value through SGR. Based on the argument that fixed asset growth enables firms to achieve higher SGR that will eventually be appreciated by investors.

### 3. METHODOLOGY

The main objective of this study is to examine the relationship between SGR, growth of fixed assets and firm value. To achieve this goal several steps of research are needed starting from formulating some hypotheses, identifying the variables, determining populations and samples, collecting data, and then analyzing the data.

Based on the literature review, we propose the following hypotheses:

H1: There is a positive effect of fixed asset growth on firm value.

H2: There is a positive effect of fixed asset growth on sustainable growth.

H3: There is a positive effect of sustainable growth on firm value.

H4: Sustainable growth mediates the effect of fixed asset growth on firm value.

This study involves the dependent, independent, mediating and control variables. The dependent variable is firm value that is measured with Tobin's Q, as suggested by previous studies (Dang et al., 2019; Sabrin et al., 2016; Sucuahi & Cambarihan, 2016). Meanwhile, the independent variable is fixed asset growth that is measured with PAT (Ting et al., 2014). The mediating variable is sustainable growth that is measured with sustainable growth rate or SGR. Previous studies (e.g. Amouzesh et al., 2011; Hartono & Utami, 2016; Rahim & Saad, 2014; Şahin & Ergün, 2018) also use this measure. Lastly, our control variables are firm size (FRSIZE), sales growth (SALESGR), leverage (LEV), and asset turnover (TATO).

**Table 1. Variable measurement**

Type of Variable	Variable	Definition
<b>Dependent</b>	Firm Value (Tobin's Q)	$\frac{MVS + DEBT}{Total\ Aset}$
<b>Independent</b>	Fixed Asset Turnover (PAT)	$\frac{FA_{it} - FA_{it-1}}{FA_{it-1}}$
<b>Mediating</b>	Sustainable Growth (SGR)	ROE x <i>Retention Rate</i>
<b>Control</b>	Firm Size (FRSIZE)	Ln Total Aset
	Sales Growth (SALESGR)	$\frac{Sales_{it} - Sales_{it-1}}{Sales_{it-1}}$
	Leverage (LEV)	$\frac{Total\ Debt}{Total\ Aset}$
	Asset Turnover (TATO)	$\frac{Sales}{Total\ Aset}$

Our population is manufacturing firms listed on the Indonesia Stock Exchange (IDX) in the 2013-2018 period. This study uses manufacturing firms as the research population based on three considerations. *First*, manufacturing firms are strategic because the manufacturing industry provided the highest contribution to the Indonesian economy (19.86% of total GDP) and grew about 4.77% in 2019 (www.kemenperin.go.id). *Second*, Indonesian manufacturing firms exhibit a relatively high proportion of fixed assets to total assets (more than 50%). *Third*, there are many more manufacturing firms listed on IDX than other firms. The sample selection relies on the purposive sampling method with the following criteria: (1) firms of which shares were actively traded in 2013-2018; (2) firms of which financial statements are presented in Rupiah currency; and (3) firms of which financial statements present the items of our research variables completely. Using these criteria produces 134 sample firms. We generate data from the website of the Indonesian Stock Exchange (<http://www.idx.co.id>).

The data analysis relies on the panel data regression by using STATA ver. 15.1. To test the four hypotheses, we run the following four analysis models:

$$\text{Tobin's } Q_{it} = \beta_0 + \beta_1 \text{PAT}_{it} + \beta_2 \text{FRSIZE}_{it} + \beta_3 \text{SALESGR}_{it} + \beta_4 \text{LEV}_{it} + \beta_5 \text{TATO}_{it} + \varepsilon_{it} \quad (1)$$

$$\text{SGR}_{it} = \beta_0 + \beta_1 \text{PAT}_{it} + \beta_2 \text{FRSIZE}_{it} + \beta_3 \text{SALESGR}_{it} + \beta_4 \text{LEV}_{it} + \beta_5 \text{TATO}_{it} + \varepsilon_{it} \quad (2)$$

$$\text{Tobin's } Q_{it} = \beta_0 + \beta_1 \text{SGR}_{it} + \beta_2 \text{FRSIZE}_{it} + \beta_3 \text{SALESGR}_{it} + \beta_4 \text{LEV}_{it} + \beta_5 \text{TATO}_{it} + \varepsilon_{it} \quad (3)$$

$$\text{Tobin's } Q_{it} = \beta_0 + \beta_1 \text{PAT}_{it} + \beta_2 \text{SGR}_{it} + \beta_3 \text{FRSIZE}_{it} + \beta_4 \text{SALESGR}_{it} + \beta_5 \text{LEV}_{it} + \beta_6 \text{TATO}_{it} + \varepsilon_{it} \quad (4)$$

where:

- Tobin's Q = Firm value (dependent variable)
- PAT = Fixed Asset Growth (independent variable)
- SGR = Sustainable Growth (mediating variable)
- FRSIZE = Firm Size (control variable)
- SALESGR = Sales Growth (control variable)
- LEV = Leverage (control variable)
- TATO = Asset Turn Over (control variable)
- $\beta_0$  = Constant
- $\beta_1-6$  = Regression Coefficient

#### 4. RESULTS

##### Descriptive statistics

Table 2 presents the descriptive statistics of the research variables (minimum and maximum values, mean, and standard deviation) of 134 Indonesian manufacturing firms for the period of 2013-2018. The average sustainable growth (SGR) is 5.3%, indicating that our sample firms' ability to grow based on internal funds is 5.3%. Firms that expand to seek growth above the average SGR need additional external funds or dividend cuts. Meanwhile, the average annual fixed asset growth is 12.6%. Next, the average firm value, as measured with Tobin's Q, is 1.82. This figure suggests that the market appreciates firms' performance almost twice than their book values.

**Table 2. Descriptive statistics**

Variable	Min	Max	Mean	Std. Dev.
<b>SGR</b>	-1.842	1.774	0.053	0.209
<b>PAT</b>	-1.903	1.654	0.126	0.238
<b>Tobin's Q</b>	0.291	23.286	1.882	2.393
<b>FRSIZE*</b>	98.191	344.711.000	8.841.745	30.052.802
<b>SALESGR</b>	-0.987	1.372	0.081	0.215
<b>LEV</b>	0.057	3.593	0.479	0.341
<b>TATO</b>	0.001	8.429	1.047	0.623

Note\* = in million Rupiah

Source: Author

The correlation matrix illustrates the relationship between the research variables. Table 3 shows that firm value is positively and significantly correlated with SGR ( $r = 0,183$ ;  $p\text{-value} = 0,023 < 0,05$ ). Next, fixed asset growth is also positively and significantly correlated with SGR ( $r = 0,265$ ;  $p\text{-value} = 0,000 < 0,01$ ).

**Table 3. Correlation matrix**

	<b>Tobin's Q</b>	<b>PAT</b>	<b>SGR</b>	<b>FRSIZE</b>	<b>SALESGR</b>	<b>LEV</b>	<b>TATO</b>
Tobin's Q	1,000						
PAT	0,096 0,023**	1,000					
SGR	0,183 0,000***	0,265 0,000***	1,000				
FRSIZE	0,271 0,000***	0,026 0,540	0,099 0,019**	1,000			
SALESGR	0,003 0,940	0,189 0,000***	0,206 0,000***	0,036 0,389	1,000		
LEV	0,037 0,377	-0,087 0,038**	-0,079 0,060*	-0,076 0,071*	-0,039 0,361	1,000	
TATO	0,254 0,000***	0,061 0,148	0,130 0,002***	-0,028 0,506	0,239 0,000***	0,034 0,419	1,000

Note: \*\*\*significant <1%, \*\* <5% and \* < 10%

Source: Author

### Model specification test

The results of the four analysis models reveal that the random effect analysis model is more appropriate for models 1, 3, and 4 while the fixed effect model is more appropriate for model 2. Because the fixed effect relies on the ordinary least square (Gujarati, 2003), we then estimate the estimators that are robust to the heteroskedasticity and auto correlation problems by using the heteroscedasticity autocorrelation spatial correlation (HACSC) robust standard errors (Vogelsang, 2011) as initially developed by Driscoll & Kraay in 1998. Specifically, this study uses the fixed effect (robust).

**Table 4. The test of panel data regression model**

<b>Test</b>		<b>Prob.</b>	<b>Best Estimation Model</b>
<b>Model 1</b>			
Chow Test	22.51	0.000	Fixed Effect
Hausman Test	7.01	0.220	Random Effect
Lagrange Multiplier Test	718.70	0.000	Random Effect
<b>Model 2</b>			
Chow Test	2.76	0.000	Fixed Effect
Hausman Test	15.66	0.008	Fixed Effect
<b>Model 3</b>			
Chow Test	22.02	0.000	Fixed Effect
Hausman Test	9.65	0.086	Random Effect
Lagrange Multiplier Test	699.06	0.000	Random Effect
<b>Model 4</b>			
Chow Test	22.11	0.000	Fixed Effect
Hausman Test	8.21	0.223	Random Effect
Lagrange Multiplier Test	707.48	0.000	Random Effect

Source: Author

**Hypothesis testing**

Model 1 informs that fixed asset growth positively affects firm ( $\beta = 0,562$ ;  $p\text{-value} = 0,006 < 0,01$ ), thus supporting Hypothesis 1. Next, in Model 2, fixed asset growth positively affects firms' sustainable growth ( $\beta = 0,085$ ;  $p\text{-value} = 0,017 < 0,05$ ). Thus, Hypothesis 2 is also empirically supported. Further, model 3 also demonstrates the significantly positive effect of sustainable growth on firm value ( $\beta = 0,610$ ;  $p\text{-value} = 0,015 < 0,05$ ) and hypothesis 3 is supported. Lastly, model 4 shows the test of the mediating effect of sustainable growth on the effect of fixed asset growth on firm value. The results show that sustainable growth significantly mediates the effect of fixed asset growth on firm value ( $\beta = 0,529$ ;  $p\text{-value} = 0,035 < 0,05$ ) and the effect of fixed asset growth on firm value after mediated by sustainable growth remain significantly positive ( $\beta = 0,509$ ;  $p\text{-value} = 0,013 < 0,05$ ). Thus, hypothesis 4 is empirically supported.

**Table 5. Regression results**

Variable	Model 1		Model 2		Model 3		Model 4	
	DV=Tobin's Q, IV=PAT		DV=SGR, IV=PAT		DV=Tobin's Q, IV=SGR		DV=Tobin's Q, IV=PAT	
	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value
PAT	0,562	0,006***	0,085	0,017**			0,509	0,013**
SGR					0,610	0,015**	0,529	0,035**
FRSIZE	0,310	0,002***	-0,069	0,303	0,301	0,003***	0,312	0,002***
SALESG R	-0,869	0,000***	0,141	0,085*	-0,883	0,000***	-0,932	0,000***
LEV	0,779	0,015**	0,121	0,556	0,764	0,017**	0,748	0,019**
TATO	0,625	0,000***	-0,072	0,364	0,614	0,000***	0,631	0,000***
F - test	38,60***		3,76***		36,96** *		43,41***	
R <sup>2</sup>	0,1440		0,0038		0,1513		0,1584	

Note : \*\*\*significant <1%, \*\* <5% and \* < 10%

Source: Author

According to Baron & Kenny (1986), partial mediation exists when the effect of the independent variable on the dependent variable remains significant when the mediating variable is present. To ensure that the mediating effect of sustainable growth on the effect of fixed asset growth on firm value is present, we also run the Sobel test, Arorian test, and Godman test. These three tests aim to test the mediation effect and demonstrate that sustainable growth significantly mediates the impact of fixed asset growth on firm value.

**Table 6. Test of the mediating effect**

	T-Test	p-value
Sobel test	1.718	0.086*
Arorian test	1.650	0.099*
Goodman test	1.796	0.072*

Note : \*\*\*significant <1%, \*\* <5% and \* < 10%

Source: Author

## 5. DISCUSSION

Our findings reveal that SGR positively affects firm value. These results are in line with Sutjiati (2017), who documents that higher SGR implies higher firm value. In other words, investors will appreciate firms with higher SGR because firms with higher SGR are better able to rely on internal financing sources to support their sales growth. In line with the pecking order theory, firms that prioritize internal financing sources or retained earnings over debt-based or equity-based external financing will incur a lower cost of capital, increase profits, and eventually liquidity risk. Thus, higher SGR enables manufacturing firms that have been the backbone of the Indonesian economy to exhibit better financial performance and to be appreciated favorably by investors.

Fixed asset growth positively affects sustainable growth, implying that additions in fixed assets likely enhance firms' competitiveness that plays a crucial role in facilitating sales growth. In turn, sales growth will increase profits (Agbeja et al., 2015; Barus et al., 2017) and eventually become internal financing sources that enhance firms' sustainable growth. The average annual fixed asset growth of Indonesian manufacturing firms is 12.6%. If the investment of Indonesian manufacturing firms in fixed assets continues to grow, manufacturing firms will increasingly play an important role in boosting the growth of the Indonesian economy. Considering that in the last three years Indonesia's economic growth averaged around 5%, manufacturing firms contributed around 20%.

Fixed asset growth positively affects firm value, indicating that higher fixed asset growth will increase firm value. Our results are in line with previous studies (Dhani & Utama, 2017; Hestinoviana et al., 2013) that observe that asset growth affects firm value. Previously, Nyamasege et al. (2014) also suggest that fixed asset composition determines the value of particular firms. The most significant component of fixed assets of Indonesian manufacturing firms is machines and production equipment. Those new machines and equipment are directly related to firms' operational ability to facilitate sales growth. Also, investors can use asset growth as a signaling instrument on firms' future performance (Ehie & Olibe, 2010). In this respect, investors will consider firms' increased investments in fixed assets in assessing firms' share prices.

We also observe that sustainable growth mediates the effect of fixed asset growth on firm value. Consequently, SGR likely mediates the impact of increased investments in fixed assets on firm value. Higher fixed asset growth will increase SGR and the effect of SGR on firm value. It is worth noting that the average SGR of Indonesian manufacturing firms is 9.2% while the average sales growth is 8.1%. Referring to the SGR concept that argues that firms will achieve stable growth if their sales growth is relatively equal to their SGRs, the sales growth of Indonesian manufacturing firms is close to the ideal condition.

## 6. CONCLUSIONS

This study analyzes the relationship between fixed asset growth, sustainable growth, and firm value. Our results demonstrate that fixed asset growth positively affects firm value. Fixed asset growth also facilitates firms to achieve sustainable growth. Besides, this study also empirically observes the effect of SGR on firm value and the mediating role of SGR. Higher fixed asset growth will enable firms to grow sustainably and eventually to receive investors' appreciation.

Theoretically, this study contributes by expanding studies on sustainable growth. This study documents that sustainable growth affects firm value. Our findings are consistent with (Sutjiati, 2017; Lo & Sheu, 2007), who find that investors will appreciate firms with higher SGR more favorably. Sustainable growth is in line with pecking order theory (Myers &

Majluf, 1984) that proposes that firms prioritize internal financing over debt-based and equity-based external financing because of lower costs of capital. Meanwhile, fixed asset growth also plays a crucial role for firms directly or indirectly through sustainability growth by enhancing firm value. The direct effect of fixed asset growth supports (Dhani & Utama, 2017; Hestinoviana et al., 2013), who find that asset growth affects firm value. Further, the indirect effect of asset growth through indirect growth is relatively understudied that this study contributes to the literature by filling in this gap.

Our results offer several implications for managers and investors. *First*, manufacturing firms can increase their SGRs by adding their fixed assets investments. Additional investments in fixed assets enable firms to operate in their economy of scale and to improve their productions. This condition will encourage sales growth and, in turn, have an impact on increasing profits as the main source of sustainable growth. *Second*, manufacturing firms can increase their values by adding their fixed assets or SGR. *Third*, investors need to own shares of firms with higher SGR because share prices tend to be positively correlated to SGR.

Although this study demonstrates that fixed asset growth affects sustainable growth and, eventually, firm value, this study is inseparable from the limitations. *First*, the coefficient of determination (R square) of the effect of fixed asset growth on sustainable growth is only 0.3%, indicating that the variance of the sustainable growth rate variable that can be explained by the variance of fixed asset growth is still very low. In this respect, other factors dominantly affect SGR – both firm-specific (profitability, debt-payment capacity, dividend policy, prior-year fixed asset growth) factors and macroeconomic conditions such as inflation rate and GDP. *Second*, this study does not investigate further the possible non-linear relationship between fixed asset growth and SGR. Up to specific points, firms with higher fixed asset growth likely increase their operating and maintenance costs that will suppress profits and reduce SGR. *Third*, the effects of asset growth on SGR and firm value may vary across sub-sectors in the manufacturing industry. Thus, we advise future studies to address these problems in their analysis.

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