Does Firms' Life Cycle Influence Tax Avoidance? Evidence from Indonesia

Ferry Irawan[a*], A Roisal Afif[b], [a]Polytechnic of State Finance STAN, [b]Directorate General of Taxes, Email: [a*]ferry.irawan@pknstan.ac.id, [b]ahmad.roisal@gmail.com

This study aims to investigate the relation between firm's life cycle stages and firm tax avoidance. Differences on the strategy characteristics, environment, opportunities, and resources available at each phase of the firm's life cycle may provide different incentives for managers to avoid taxes. By using firms listed on the Indonesia Stock Exchange (BEI) in the period 2012-2016 as the samples, and using research model conducted by Hasan et al. (2016) with several adjustments, we find that firm's life cycle stages are not significantly associated with firms' tax avoidance behaviour. This study gives perspective about the association between firm's life cycle stages and firm tax avoidance, which is different from Hasan et al.'s (2016) research.

Key words: *Firm's Life Cycle, Liquidity, Tax Avoidance.*

Introduction

Taxes have a vital role for most countries. In Indonesia, tax revenue has the largest share in the State Budget of 2018, which is 85.4% or equivalent to 1618.1 trillion rupiahs. Taxes have an important role in supporting domestic revenues and the country's development. Because of that, the government continues to commit to optimising the realisation of tax revenue.

In the last five years, Indonesia has experienced a problem of unsatisfactory tax revenue performance. This is indicated by the realisation of tax revenue that never reached the target (2012: 94.44%, 2013: 92.58%, 2014: 91.86%, 2015: 81.95%, 2016: 81.6%) and the stagnant tax ratio, ranged from 10%-11%, which is the lowest tax ratio in the world (Sri Mulyani, 2017). Tax avoidance is one of the key factors causing low performance of tax revenues in developing countries (Besley and Persson, 2014). Darussalam (2017) stated one of the fundamental issues in the tax sector that are still not fully resolved is tax avoidance activities that cause tax leakage. Even the Global Financial Integrity (GFI) report shows Indonesia ranked ninth as the country

with the highest flow of illegitimate money to tax haven countries – worth US$180,710 billion in a decade (2004-2013) (Global Financial Integrity, 2015). GFI predicts the potential of tax loss from Indonesia because of this illegal practice amounts to nearly 200 trillion rupiahs each year.

There have been many studies attempting to identify aspects or determinants that influence the level of tax avoidance among public firms (Dyreng, et al. 2008). As revealed by Huang, et al. (2016), prior studies show that the level of corporate tax avoidance is affected by: (1) financial characteristics (Gupta and Newberry, 1997; Rego, 2003; Graham and Tucker, 2006; Lisowsky, 2010), (2) governance and executive compensation (Phillips, 2003; Desai and Dharmapala, 2006; Rego and Wilson, 2012), (3) ownership structure (Chen et al., 2010; Cheng et al., 2012), and (4) external stakeholders such as labour unions (Chyz et al., 2013), The Internal Revenue Services (IRS) (Hoopes, et al., 2012), and independent auditors (McGuire, et al., 2012). However, these studies assume a firm is only at a generally static state of firm life cycle development (Hasan, et al. 2016), whereas recent research suggests that operating, investing, and financing activities, including management's access to resources, are likely to vary systematically at each stage of the firm's life cycle (Dickinson, 2011). So it is reasonable to estimate differences in fundamental economic factors, as well as allocations or opportunities for resources at each stage of the firm's life cycle, may affect management's propensity to engage in tax avoidance activities (Hasan, et al., 2016). Drake (2013) argues that firms' life cycle theory can help in explaining why a firm can engage in more tax avoidance activities than any particular other firm. Hasan, et al. (2016) stated assessing the association between firm life cycle progression and tax avoidance is very interesting and important because it links the firm's "real" decision to avoid taxes with the firm life cycle dynamics.

This study attempts to examine the effect of firm life cycle stages on tax avoidance. A similar study was conducted by Hasan et al (2016) using a large sample of publicly listed United States firms over the 1987-2013 period, which found a significant relationship between firm life cycle stages and tax avoidance, with a U-shaped pattern. They found that the introduction and decline stages are significantly positively associated with tax avoidance and the growth and mature stages are significantly negatively associated with tax avoidance, using the shake-out stage as a benchmark. However, there are differences between this study and the Hasan et al (2016) study. There are some adjustments on the research model used in this study, according to conditions in Indonesia.

To proxy for a firm's life cycle stages, this study uses a model developed by Dickinson (2011), which uses cash flow patterns from operating, investing, and financing activities. Using cash flow patterns to identify a firm's life cycle stages is considered as a proper proxy because they capture the progression of an entire financial set and the systematic changes of financial variables at each stage of firm's life cycle. Not only that, the use of cash flow patterns as proxy

for a firm's life cycle stages enables shifting the phase of the firm's life cycle to occur in a non-sequential way. Instead, firms can basically jump back and forth in any arbitrary way (Drobetz, et al., 2015). It more reflects the firm's condition, which is the portfolio of various products that potentially have different product life cycles. The life cycle experienced by firms can occur in non-sequential and dynamic ways depending on the product and geographic diversification, innovation, mergers and acquisitions, structural changes, and market conditions (Dickinson, 2011; Drobetz, et al., 2015; Tuan Besar et al., 2017).

In Indonesia, there were not many studies addressing this issue. Prior studies on the firm's life cycle in Indonesia have been linked to: (1) firm performance measures and firm values (Chandra, 2012; Gumanti and Puspitasari, 2008; Hamzah, 2007); (2) relevance of the earning values or cash flow information to stock price or firm's equity market value (Chandra, 2013; Saraswati, 2007; Winarsih, 2010); (3) dividend policy (Ratmono and Indriyani, 2015; Roring and Ronni, 2014); (4) earnings management (Kusumawati and Cahyati, 2014; Savitri, 2014); or (5) accounting conservatism (Yulianti, 2014), and there are no prior studies that examine the association between firm's life cycle stages and tax avoidance in Indonesia.

This study is expected to increase research literature references related to the determinants of tax avoidance level. Theoretically, this study is also aimed to prove the Hasan et al. (2016) research by using a sample of publicly listed firms in Indonesia. Technically, this research can be an input for tax authorities, Directorate General of Taxes, to identify firms that tend to engage in tax avoidance activities. If there is an association between a firm's life cycle stages and tax avoidance in Indonesia, we recommend that the firm's life cycle as a variable used in the risk engine that is currently being developed by the Directorate General of Taxes for mapping taxpayers' non-compliance risk as tools in performing the function of inspection and supervision.

Literature Review and Hypothesis Development
a. Firm's Life Cycle

The firm life cycle theory is an extension of the product life cycle concept developed in marketing (Yan, 2006, 1). The firm's life cycle stages are distinct phases that result from changes in both internal factors (choice of strategy, financial resources, and managerial ability) and external factors (competitive environment and macroeconomic factors), many of which arise from strategic decisions undertaken by the firm (Dickinson, 2011).

There is no consensus on the definition of a firm's life cycle stages (Drobetz, et al., 2015). Proposed models differ in terms of their aggregation level and the number of life cycle stages. However, most models agree about the stage's introduction, growth and maturity, but some models also include post-maturity stages (Drobetz, et al., 2015). The Dickinson (2011) study

modelled the mapping of the firm's life cycle stages by identifying five stages of the firm's life cycle, following the Gort and Keppler (1982) study, namely; introduction, growth, maturation, shake-out, and decline.

In each stage of the firm's life cycle, there are characteristics that differentiate between one stage and another in terms of environment, strategy, structure and decision-making styles (Miller and Friesen, 1984), which can influence the firm's propensity to engage in tax avoidance activities:

1) Introduction Stage

In the Jovanovic (1982) study (as cited in Dickinson, 2011), in this phase, firms are faced a lack of knowledge situation about potential revenue and costs. Management in this phase has many opportunities to invest in products and services to create competence (Miller and Friesen, 1984, 1169). The higher level of investment, capital expenditure, sales growth, research and development expenditure and accruals at this stage are likely to translate into higher levels of deferred taxes (Audrestch and Feldman, 1996; Drake, 2015; Poterba, et al., 2011 as cited in Hasan, et al., 2016), which in terms of book-tax differences give rise to higher levels of book-tax differences (Drake, 2013). In this phase, management takes risks associated with investment and innovation activities carried out on products and markets (Miller and Friesen, 1984), or in other words pursues a prospector strategy when it is associated with the business theoretical framework developed by Miles and Snow (1978, 2003). According to Higgins, et al. (2015), firms who pursue prospector strategies have a tendency to engage in aggressive tax avoidance through risky tax strategies to improve firm future earnings. In this stage, the need to achieve a competitive advantage through the use of limited resources can encourage firms to avoid taxes: Drobetz et al. (2015) stated cash is valuable for firms in the introduction and growth stages.

2) Growth Stage

In the growth phase, increased certainty in terms of cash flow position and investment opportunities provide confidence for management to increase firm earnings without using aggressive tax planning (Hasan et al., 2016). As the firms expand into new market and product lines, there is a reputational cost that firms should consider when they choose to avoid taxes. They face greater exposure to external parties including the tax authorities, referring to Austin and Wilson (2013), Graham et al. (2014), Dyreng, et al. (2015), and Hanlon and Slemrod (2009) as cited in Hasan et al. (2016). Firms are confronted by this limitation and suppress their incentive to engage in aggressive tax planning activities, although in this phase, management has more tax planning opportunities available to them due to changing environment and increased access to international markets and products, as well as an increased portion of working capital and intangible assets that allow them to shift revenues or cost across multiple

and variably taxed jurisdictions that allow firms to avoid taxes (Hanlon and Heitzman, 2010; Hasan et al., 2016).

3) Mature Stage

Firms that are in the mature stage have a greater access to resources. It can mean managers are more focussed on the main business of the firm compared to tax avoidance activities, or in other words, decisions taken regarding the main business of the firm do not take into consideration tax factor (Koester, et al., 2013; Hasan et al., 2016). Firms are also no longer faced with cash flow volatility and have more persistent net income. Firms are more self-reliant on retained earnings and it may mean that firms have far less incentive to aggressively pursue tax avoidance strategies. It is also supported by the greater need of the monitoring role as a firm matures (Filatochev, et al., 2006) and reputational cost considerations regarding public assessments if firms pursue aggressive tax arrangements (Higgins, et al., 2015) at this phase. Hasan et al. (2016) stated management is expected to adopt defender-style strategic orientations in this stage, which is firms who pursue defender strategies have less tendency to engage in aggressive tax avoidance given their aversion to risk and uncertainty and their focus on non-tax cost efficiencies (Higgins, et al., 2015).

4) Decline Stage

Edwards, et al. (2016) stated firms that are experiencing financial constraints will take action to increase internally generated funds via tax planning. In the decline phase, it is assumed that the firm will tend to avoid taxes due to unstable or volatile cash flow and low level of firm liquidity as stated by Edwards, et al (2016), as well as the need to generate additional internal funds, tax cash savings, in response to increases in financial constraints. According to Edwards, et al. (2016), reducing taxes is less likely to adversely affect the firm's operations. In this phase, it is suspected that management are likely to pursue riskier projects that could involve aggressive financing and taxation strategies, or in other words, management may thus adopt a prospector strategy (Akhtar, 2012, Higgins, et al., 2015 as cited in Hasan et al., 2016).

Based on the literature review and previous research above, the hypotheses of this research are:

H1: Introduction stage is positively associated with tax avoidance.
H2: Growth stage is negatively associated with tax avoidance.
H3: Mature stage is negatively associated with tax avoidance.
H4: Decline stage is positively associated with tax avoidance.

The hypothesis doesn't include the shake-out stage, which is theoretically ambiguous (Dickinson, 2011) to avoid multicollinearity issues in our regression model.

Research Method

This study uses the panel data regression model by using a sample of publicly listed firms in the Indonesia Stock Exchange (BEI) over the 2012-2016 period. Sample selection is conducted by purposive sampling which is part of non-probability sampling method by excluding: (1) financial firms; (2) firms that have incomplete financial statements over the 2011-2016 period or firms with missing values/data required to construct dependent, independent, and control variables; (3) firms whose pre-tax profit is negative; and (4) firms with the majority of transactions using a final tax collection system. Hypothesis testing is done partially and simultaneously through t test and F test which then will be followed by interpretation of regression results between the independent variable and dependent variable.

This study uses various variables that will be described as follows:

a. Dependent Variable

The dependent variable used is TAX_AVOID which describes the tax avoidance. This study uses GAAP_ETR and DD_BT as proxy measures of tax avoidance. Hanlon and Heitzman (2010) claimed that the use of different tax avoidance proxy measures avoids any inherent limitations of any specific measure. This study differs from that of Hasan et al. (2016) by excluding the SHELTER variable as a proxy for measuring tax avoidance because it does not use the R&D variable, defined as the research and development activities undertaken by the firm and FOREIGN INCOME variable, defined as revenue earned by the firm from overseas operations in the regression model. To construct the SHELTER variable, R&D and FOREIGN INCOME variables are required to measure SHELTER PROB – the sheltering probability for firm *i* in year *t*.

GAAP_ETR is calculated by dividing firm's tax expense, consisting of current and deferred taxes with pre-tax accounting income (Dyreng, et al, 2008; Hanlon and Heitzman, 2010; Hasan et al., 2016) with the formula:

$$GAAP\_ETR_{it} = \frac{Total\ Tax\ Expense_{it}}{Pretax\ Accounting\ Income_{it}}$$

The lower GAAP_ETR value indicates higher levels of tax avoidance (Dyreng, et al., 2010).

DD_BT (Discretionary Book-Tax Differences) is measured using the formulas used in Desai and Dharmapala (2006) and Hasan et al. (2016):

$$BTD_{it} = \beta_1 TA_{it} + \mu_i + \varepsilon_{it}$$

where:

BTD_{it} : the difference between pre-tax accounting income and taxable income, divided by *lagged total asset,* referring to the proxy used by Manzo and Plesko (2002) which can be translated into:

$$BTD\_MP_{it} = \frac{Pretax\ Accounting\ Income_{it} - (\frac{Current\ Tax\ Expense_{it}}{Firm\ Tax\ Rate_{it}})}{Total\ Asset_{it-1}}$$

TA_{it} : net income minus net cash flow from operating activities, divided by *lagged total asset*

μ_i : average value of the residual for firm *i* over the sample period

$\mathcal{E}_{it}$: the deviation of the residual in year *t* from firm *i*'s average residual.

DD_BT is the residual from that fixed effects regression (Desai dan Dharmapala, 2006; Hasan et al., 2016). The higher DD_BT value represents the higher level of tax avoidance (Desai dan Dharmapala, 2006; Hasan *et al.*, 2016).

b. Independent Variable

The firm's life cycle stages (FLC_DUM) becomes the independent variable in this study. Each sample (firm, year) will be classified into five stages of the firm's life cycle by using cash flow patterns as proxy to assist the classification process, according to Dickinson (2011) and Hasan et al. (2016) as presented in table 1.

Table 1: Firm's Life Cycle Stage Classification by Using Cash Flow Proxy

Cash Flow	Firm's Life Cycle				
	Introduction	*Growth*	*Mature*	*Shake-Out*	*Decline*
Operating Activities Net Cash Flow (OANCF)	< 0 (-)	> 0 (+)	> 0 (+)	Any sample that can't be classified into the Introduction, Growth, Mature, and Decline Stage	< 0 (-)
Investing Activities Net Cash Flow (IVNCF)	< 0 (-)	< 0 (-)	< 0 (-)		> 0 (+)
Financing Activities Net Cash Flow (*FINCF*)	> 0 (+)	> 0 (+)	< 0 (-)		≥ 0 atau ≤ 0

Source: Processed by authors from Dickinson (2011) and Hasan et al. (2016)

FLC_DUM is a vector of dummy variables which capture the different stages in a firm's life cycle as per the Dickinson (2011) model. As said on the previous section, this study does not include a shake-out stage to avoid multicollinearity or dummy variable trap problems in the data. The shake-out stage will be used as a benchmark in interpreting regression results for other four stages of the life cycle.

c. Control Variable

- SIZE is measured by natural log of firm's total assets at the beginning of year t;
- MTB is measured by market-to-book ratio for firm i at the beginning of year t;
- LEV is measured as long-term debt divided by lagged assets;
- CASH is measured as cash and marketable securities divided by lagged assets for firm i, year t;
- PROFIT is measured as operating income divided by lagged assets;
- NOL is a dummy variable, coded as 1 if loss carried forward is positive at the beginning of year t, and 0 otherwise;
- ΔNOL is measured as change in loss carried forward for firm i, year t divided by lagged assets;
- PPE is measured as property, plant, and equipment for firm i, year t divided by lagged asset;
- INTANG is measured as intangible assets for firm i, year t divided by lagged assets;
- EQUINC is measured as equity income in earnings for firm i, year t divided by lagged assets;
- ΔSALES is measured as changes in sales divided by lagged sales for firm i, year t;
- EMP is measured by natural log of the number of employees for firm i, year t;
- YEAR is a vector of dummy variables to control for year effects.

d. Regression Model

This study uses a regression model adapted from Hasan et al. (2016). The regression model is based on the hypothesis constructed in literature review and variables mentioned in the previous section is as follows:

$$
\begin{aligned}
TAX\_AVOID_{it} = {} & \alpha_{0it} + \beta_{1-4}FLC\_DUM_{it} + \beta_5 SIZE_{it} + \beta_6 MTB_{it} + \beta_7 LEV_{it} + \beta_8 CASH_{it} \\
& + \beta_9 PROFIT_{it} + \beta_{10} NOL_{it} + \beta_{11} \Delta NOL_{it} + \beta_{12} PPE_{it} + \beta_{13} INTANG_{it} \\
& + \beta_{14} EQINC_{it} + \beta_{15} \Delta SALE_{it} + \beta_{16} EMP_{it} + YEAR_{DUMMIES} + \varepsilon_{it}
\end{aligned}
$$

The research model is not absolutely the same as the research model conducted by Hasan et al. (2016) due to some adjustments with conditions in Indonesia. Such adjustments are it does not include Foreign Income (FI) as a control variable. Firm's characteristics in Indonesia are not

firms with dominant overseas investing activities. Otherwise, it is dominated by investment from abroad. In addition, the model also does not include the R&D variable as a control variable because firms in Indonesia have very little research and development expenditure disclosures. The lack of government incentives and confidentiality reasons are the main factors.

Result and Discussion

Using purposive sampling of all firms in various sectors listed on the Indonesia Stock Exchange from 2011 to 2016, we obtain 111 firms as the sample for this study with total observation are 555 observations (111 firms multiplied by five year period), which is summarised in Table 2.

a. Descriptive Statistics

Table 2: Sample Selection Results by Using Purposive Sampling

No.	Description	Total
1	All firms listed in Indonesia Stock Exchange (BEI) in period 2011-2016	555 firms
2	Subtracted by Purposive Sampling Criteria as follows:	
	a. Financial firms	93 firms
	b. Firms with missing financial data for the period 2011-2016	100 firms
	c. Firms with negative pre-tax accounting income (negative or more than 1 *GAAP_ETR* value)	222 firms
	d. Firms with the majority of transactions using final tax system	29 firms
Firm Samples		111 firms
Period		5 years
Total Observations		555 observations

Source: Processed by the Author from the Indonesia Stock Exchange

This study provides descriptive statistical analysis to give more detail of data which consists of mean, median, maximum, minimum and standard deviation. Descriptive statistics are presented as pooled descriptive statistics which are divided into two types of scales – ratio and nominal scale. Table 3 shows the descriptive statistical results for the ratio scaled variable and table 4 shows the descriptive statistical results for the nominal scaled variable.

Table 3 shows that the mean (median) values of GAAP_ETR and DD_BT as dependent variable are 0.2711 (0.2527) and 0.0000 (0.0826) respectively. Meanwhile, based on table 4, MATURE stage has the largest number of observations with 316 observations or 56.94% of the total observed samples, followed by the GROWTH stage which has 144 observations or

25.95% of the total observed samples. 56 observations or 10.09% of the total observed samples are in the INTRODUCTION stage, then 35 observations or 6.3% of the total samples were in the SHAKEOUT stage. The DECLINE stage has the least amount of observations, with 4 observations or 0.72% of the total observed samples.

Table 3: Descriptive Statistical Results for Ratio Scaled Variable

Variable	N	Mean	Median	Std. Dev	Minimum	Maximum
GAAP_ETR	555	0.2711	0.2527	0.1135	0.0152	0.9289
DD_BT	555	0.0000	0.0826	3.4865	-57.7795	15.1285
SIZE	555	7.7396	7.6384	1.6842	3.8644	12.4108
PPE	555	0.3755	0.3348	0.2282	0.0045	1.2113
EMP	555	7.6266	7.6143	1.6457	4.2485	11.9582
LEV	555	0.0980	0.0351	0.1373	0.0000	1.0218
PROFIT	555	0.1427	0.1086	0.1274	0.0007	0.9837
▲NOL	555	0.0088	0.0000	0.8240	-14.6350	8.4320
EQINC	555	0.0008	0.0000	0.0080	-0.0649	0.1126
MTB	555	3.2793	1.7981	6.1023	0.0623	58.4800
INT ANG	555	0.0362	0.0002	0.1226	0.0000	1.0059
▲SALES	555	0.1027	0.0960	0.1927	-0.5694	2.1045
CASH	555	0.1453	0.1043	0.1336	0.0013	0.8292

Table 4: Descriptive Statistical Results for Nominal Scaled Variable

Variable	Total Observations	Number of Observations	Percentage
FLC_DUM			
INTRODUCTION	555	56	10.09%
GROWTH	555	144	25.95%
MATURE	555	316	56.94%
SHAKEOUT	555	35	6.3%
DECLINE	555	4	0.72%
NOL			
NOL	555	196	35.32%
YEAR			
YEAR2012	555	111	20%
YEAR2013	555	111	20%
YEAR2014	555	111	20%
YEAR2015	555	111	20%
YEAR2016	555	111	20%

Regression Results

Since this study uses two types of variables as a proxy for tax avoidance as a dependent variable, hence there are two types of regression equation models, ie GAAP_ETR model and DD_BT model. To estimate a regression model with panel data, a research can employ Ordinary Least Square (OLS), Fixed Effect Model (FEM), or Random Effect Model (REM). To choose the appropriate model, this study refers to the econometrics expert and statistical test. The regression model is chosen by considering Nachrowi and Usman (2006) and Gujarati and Porter (2012) formula. Meanwhile, a suitable model through the statistical test by contemplating the Chow test, Breusch & Pagan Lagrange Multiplier test, and Hausman test. Based on the test, it decides to use the fixed effect model for GAAP_ETR model and the random effect model for DD_BT model as the most appropriate model.

Table 5 presents our regression results for Dickinson's (2011) model of life cycle stages and the different proxy measures of tax avoidance. The result of regression test on GAAP_ETR model shows that compared to the shake-out stage, the introduction stage in the firm's life cycle has a lower GAAP_ETR value of 2.36% and does not have a significant positive effect on the tax avoidance shown by t test using 5% significance level. As for the growth stage of the firm's life cycle, GAAP_ETR is lower at 2.87%, compared to the shake-out stage and does not have a significant negative effect on tax avoidance shown by t test using the 5% significance level. In mature stage, compared to the shake-out stage, the GAAP_ETR is lower at 1.44% and there is no significant negative effect between the mature stage in the firm's life cycle and tax avoidance shown by t test using 5% significance level. Similar to the introduction stage, compared to the shake-out stage, the decline stage in the firm's life cycle has a lower GAAP_ETR of 3.57% and does not have a significant positive effect on tax avoidance shown by t test using 5 % significance level.

The result of regression test on DD_BT model shows that compared to the shake-out stage, the introduction stage in firm's life cycle does not have a significant positive effect on tax avoidance with coefficient value indicating that the influence of the introduction phase will decrease DD_BT value equal to 1.798791, compared to the shake-out stage. As for the growth stage, compared to the shake-out stage, the growth phase in the firm's life cycle does not have a significant negative effect on tax avoidance with coefficient value indicating that the the growth stage effect will increase DD_BT value by 0.3656861, compared to the shake-out stage. In the mature stage, there is no significant negative effect between the mature phase in firm's life cycle and tax avoidance. The coefficient value of MATURE variable shows that the mature stage effect will increase DD_BT value by 0.8416172 compared to the shake-out stage. Similar to the introduction stage, compared to the shake-out stage, the decline stage in the firm's life cycle does not have a significant positive effect on tax avoidance. The DECLINE parameter

coefficient value shows that the decline stage effect will decrease DD_BT value by 2.788155 compared to the shake-out stage.

Tabel 5: Summary of Regression Results for GAAP_ETR Model and DD_BT Model

Variable	GAAP_ETR Model (FEM)	DD_BT Model (REM)
	Coefficient (Prob t stats)	Coefficient (Prob t stats)
Introduction	- 0.0235883 (0.186)	- 1.7987910* (0.010)
Growth	- 0.0286943 (0.138)	0.3656861 (0.297)
Mature	- 0.0143820 (0.276)	0.8416172 (0.093)
Decline	- 0.0357159 (0.296)	- 2.7881550 (0.065)
Size	- 0.1138315 ** (0.003)	- 0.4221950 (0.781)
Mtb	0.0003087 (0.765)	0.0034356 (0.918)
Lev	0.0905511 (0.085)	0.8585027 (0.515)
Cash	0.0137476 (0.779)	0.8400540 (0.517)
Profit	- 0.2335083 ** (0.010)	- 3.1049750 (0.085)
Nol	- 0.0106986 (0.476)	0.0257852 (0.939)
ΔNol	0.0002482 (0.908)	0.0486685 (0.785)
Ppe	- 0.0353640 (0.449)	- 0.0062302 (0.994)
Intang	- 0.1349997 (0.390)	- 0.6809483 (0.637)
Eqinc	- 3.3308770* (0.030)	- 4.5374550 (0.809)
ΔSale	- 0.0041818 (0.852)	- 0.8433665 (0.316)
Emp	0.0287373	- 0.0253681

	(0.196)	(0.860)
YEAR2013	0.0252524*	0.1578716
	(0.013)	(0.735)
YEAR2014	0.0308250*	- 0.0470470
	(0.019)	(0.921)
YEAR2015	0.0677355**	0.1639644
	(0.000)	(0.738)
YEAR2016	0.0639225**	- 0.5476410
	(0.005)	(0.256)
Konstanta	1.12041	0.53554456
N	555	555
R^2	0.6379	0.0619
Adjusted R^2	0.5268	0.0267

Notes: * Significant at 0.05 (5%) level

      ** Significant at 0.01 (1%) level

Discussion

Based on the regression results of two types of tax avoidance proxy, GAAP_ETR and DD_BT which have been described in previous section, it is proved that there is no association between a firm's life cycle stages and tax avoidance. The results of this study contradict the research conducted by Hasan et al. (2016).

The decision to engage in tax avoidance is in the hands of management. The incompatibility of the results of this study with the proposed hypothesis can be caused by several things. The existence of reputational cost faced by firms could be a factor. A study by Graham et al. (2014) proves that a firm considers reputational costs in its tax planning decisions. Even publicly listed firms are more risk averse in tax planning. Rego and Wilson's (2012) study shows that risk averse CEOs are likely to have less incentive to engage in aggressive tax avoidance, unless it is expected to provide more benefits to the firm and its shareholders. Klein's study (2005) revealed that CEOs in Asian countries tend to be more risk averse than CEOs in the United States. Some scholars have argued that Asian cultural values make Asian entrepreneurs less willing to take bigger business risks. So, a firm's life cycle has no effect on tax avoidance because it is management characteristics that decide whether to engage in tax avoidance or not.

The results of this investigation are quite in line with Tiaras and Wijaya's study (2015). The hypothesis that is constructed related to the influence of firm life cycle on tax avoidance is associated with the firm's cash needs. As disclosed by Drobetz, et al. (2015), every dollar in cash is valuable for firms in the introduction and growth stages. Taxes are a significant source

of a firm's cash outflow (Dyreng, et al., 2008) and the needs to funding investment and innovation by internal funding gives incentives for firms to minimise their tax burden. Unlike the mature stage in which the firm already has greater access to resources and has more consistent net income and cash flow, giving less incentives to engage in tax avoidance, the decline stage that has the characteristics of financial difficulties experienced by firms, such as unstable firm cash flow and low levels of liquidity, provide incentives for firms to reduce the tax burden (Edwards, et al, 2016). Thus, the firm's liquidity becomes one of the factors to explain the firm's propensity to engage in tax avoidance at every stage of the firm's life cycle. However, Tiaras and Wijaya's research (2015) using a sample of publicly listed firms on the Indonesia Stock Exchange concludes that firm liquidity has no significant effect on tax aggressiveness. Tiaras and Wijaya's study are also consistent with research conducted by Krisnata Dwi Suyanto and Supramono (2012), which gives a similar conclusion. Referring to the two studies, the firm's liquidity in each of the firm's life cycle stages are the factors that explain a firm's propensity to engage in tax avoidance, and can explain the absence of influence between a firm's life cycle stages and tax avoidance.

Conclusion

This study examines the association between a firm's life cycle stages and firm tax avoidance. We find that there is no association between firm's life cycle and tax avoidance with a sample of publicly listed firms on the Indonesia Stock Exchange (BEI) over the 2012-2016 period. Our finding is different from Hasan et al. (2016).

The result of this study can be used as a reference for a future study to examine the determinants of tax avoidance. Despite the results obtained, this study only used financial statements of publicly listed firms in the IDX for five periods. To get a better result, it is recommended that the future research use larger observation and longer periods. Furthermore, the future research is expected able to use the approach taken by Drobetz, et al. (2015), by using three years cash flow data for each type of cash flow (cash flow from operating, investing, and financing activities) in order to reduce the impact of single year effects. Using the Dickinson (2011) model which uses fiscal year-end cash flow data, cash flow may change signs due to single year effects that are not related to the operational capability or strategy choice of the firm (Drobetz, et al. (2015). Researchers can also use the DeAngelo et al. (2006) model to identify the firm's life cycle stages using retained earnings divided by total assets or total equity. In measuring tax avoidance, subsequent research can use Cash ETR as proxy considering the cash flow pattern is used to identify the firm's life cycle stages. The use of the Cash Tax Non-Conformity proxy proposed by Henry and Sansing (2014) as stated by Hasan et al. (2016) may also be used to address statistical sampling bias and measurement error in the study of tax avoidance. They claim that the removal of loss by firms leads to a data truncation bias in which a significant fraction of firms are removed, leading to potentially misleading effects. For

instance, this bias may occur with the truncation of ETRs between values of 0 and 1. This study excludes firms that have negative and more than one ETR, or in other words limits samples that have ETR between 0 and 1. Though, many firms, especially in the introduction and decline stages, have zero or negative ETR values. The use of different proxies is done as a robustness check.

Related to the result of this study, the Directorate General of Taxes (DGT) as the tax authority say it is not necessary to include firm's life cycle variable in the risk engine, which is currently being developed to identify taxpayer non-compliance risks in carrying out the supervisory and inspection functions. However, the DGT may consider information on revenues earned by the firm from equity methods (EQINC), which has a positive effect on tax avoidance. The Directorate General of Taxes has also appropriately used total assets and firm's profitability which reflects SIZE and PROFIT variables in this study as variables in risk engine currently being developed.

REFERENCES

Ahmed, K. dan Mohammed, J. (2011). The association between research and development expenditure and firm performance: Testing a life cycle hypothesis. *International Journal of Accounting, Auditing and Performance Evaluation*, 7(4), 267–286.

Besley, T. dan Torsten, P. (2014). Why do developing countries tax so little? *The Journal of Economic Perspectives*, 28(4): 99-120.

Chandra, E. (2012). "Pengaruh Rasio Keuangan terhadap Investment Opportunity Set (IOS) dalam Tahapan Siklus Kehidupan Perusahaan Manufaktur yang Terdaftar di Bursa Efek Indonesia (BEI) Tahun 2008-2010." *Berkala Ilmiah Mahasiswa Akuntansi* 1 (1).

Chandra, P. (2013). "Pengaruh Laba dan Arus Kas terhadap Harga Saham dalam kaitannya dengan Siklus Hidup Perusahaan pada Perusahaan Manufaktur." *Jurnal Ilmiah Universitas Bakrie* 1 (2). 156-169.

Chen, S. Xia Chen, Q. Cheng, dan Terry S. (2010). "Are family firms more tax aggresive than non-family firms?" *Journal of Financial Economics* 95 (1): 41-61.

Darussalam. (2017). "Tren, Outlook, dan Tantangan Pajak 2017." http://iaiglobal.or.id/v03/files/file_publikasi/Tren,%20Outlook,%20dan%20Tantangan%20Pajak%202017.pdf (diakses 21 September 2017).

Desai, M. A., & Dharmapala, D. (2006). Corporate tax avoidance and high-powered incentives. Journal of financial Economics, 79(1), 145-179.

Dickinson, V. (2011). Cash flow patterns as a proxy for firm life cycle. The Accounting Review, 86(6), 1969-1994.

Drake, K. D. (2013). *Does firm life cycle explain the relation between book-tax differences and earnings persistence?* PhD Thesis, Arisona State University.

Drobetz, Wolfgang, Michael Halling, dan Henning Shröder. 2015. "Firm Life-Cycle Dynamics of Cash Holdings." 12, 8, 125-136.https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2578315 (diakses 12 September 2017).

Dyreng, Scott D., Michelle Hanlon, dan Edward L. Maydew. 2008. "Long-Run Firm Tax Avoidance." *The Accounting Review* 83 (1): 61-82.

⸺⸺⸺. 2010. "The Effects of Executives on Firm Tax Avoidance." *The Accounting Review* 85 (4): 1163-1189.

Edwards, Alexander, Casey Schwab, dan Terry Shevlin. 2016. "Financial Constraints and Cash Tax Savings." *The Accounting Review* 91 (3): 859-881.

Filatochev, Igor, Steve Toms, dan Mike Wright. (2006). The firm's strategic dynamics and firm governance Life-Cycle." *International Journal of Managerial Finance* 2 (4): 256-279.

Gort, Michael, and Steven Klepper. (1982). Time paths in the diffusion of product innovations." *The Economic Journal* 92 (367): 630-653.

Graham, John R., Michelle Hanlon, Terry Shevlin, dan Nemit Shroff. (2014). Incentives for tax planning and avoidance: Evidence from The Field. *The Accounting Review* 89 (3), 991-1023.

Gujarati, Damodar N. dan Dawn C. Porter. (2009). *Basic econometrics (5th Edition).* New York: McGraw-Hill Firms.

Ary Gumanti, T., & Puspitasari, N. (2012). Siklus Kehidupan Perusahaan dan Kaitannya dengan Investment Opportunity Set, Risiko dan Kinerja Finansial. Jurnal Riset Ekonomi Dan Bisnis, 8(1), 37-49.

Hamzah, A. (2007). "Analisis rasio likuiditas, profitabilitas, Aktivitas, Solvabilitas, dan Investment Opportunity Set dalam Tahapan Siklus Hidup Perusahaan." *Jurnal Ilmiah Akuntansi dan Bisnis* 2. 156-166.

Hanlon, M. dan Shane, H. (2010). "A review of tax research." *Journal of Accounting and Economics* (50): 127-178.

Hasan, M. Monzur, Ahmed Al-Hadi, Grantley, T. dan Grant, R. (2016). Does a firm's life cycle explain its propensity to engage in firm tax avoidance." *European Accounting Review* 26 (3): 469-501.

Higgins, D., Omer, T. C., & Phillips, J. D. (2015). The influence of a firm's business strategy on its tax aggressiveness. Contemporary Accounting Research, 32(2), 674-702.

Hoi, C. K., Wu, Q., & Zhang, H. (2013). Is corporate social responsibility (CSR) associated with tax avoidance? Evidence from irresponsible CSR activities. The Accounting Review, 88(6), 2025-2059.

Huang, Henry He, Gerald J. Lobo, Chong Wang, dan Hong Xie. (2016). "Customer concentration and coporate tax avoidance." *Journal of Banking and Finance* 72: 184-200.

Khotimah, Khusnul. (2014). Pandangan Berbasis sumber daya (RBV) dalam pembahasan organisasi ekonomi. *Proceedings Seminar Nasional Ekonomi dan Bisnis (SNEB)* 1-8.

Klein, E. (2005). Capital formation, governance and banking. Nova Publishers. https://books.google.co.id/books?id=RGEytr4fuHMC&pg=PA19&lpg=PA19&dq=asian+ceo+risk+averse&source=bl&ots=0HJc3fP2Ch&sig=i2Z0SkO68VesHP1vMlMB6hjwqe4&hl=id&sa=X&sqi=2&ved=0ahUKEwi1nZSkgLTUAhXKrI8KHenhBlQQ6AEIYzAI#v=onepage&q=asian%20ceo%20risk%20averse& f=false (diakses 8 Desember 2017).

Koester, A. Terry, S. dan Dan Wangerin. (2013). Does operational efficiency spill over onto the tax return?" *Working Paper*. http://areas.kenan-flagler.unc.edu/Accounting/TaxCenter/taxsym2014/Documents/Wangerin-KSW%2020131209.pdf (diakses 13 September 2017).

Kusumawati, Endang dan Ari Dewi Cahyati. (2014). Pengaruh siklus hidup dan ukuran perusahaan terhadap earning management pada perusahaan manufaktur yang terdaftar di bursa efek Indonesia." *El-Muhasaba* 5 (1): 53-74.

Manzon, Gil B. dan George A. Plesko. (2002). "The relation between financial and tax reporting measures of income." *Tax Law Review* 55: 175-214.

McGuire, Sean T., Thomas C. Omer, dan Dechun Wang. (2012). Tax Avoidance: Does tax-specific industry expertise make a difference?" *The Accounting Review* 87 (3): 975-1003.

McGuire, Sean T., Thomas C. Omer, dan Jaron H. Wilde. (2014). "Investment Oppurtinity Sets, Operating Uncertainty, and Capital Market Pressure: Determinants of investments in tax shelter activities?" *The Journal of the American Taxation Association* 36 (1): 1-26.

Miller, Danny, dan Peter H. Friesen. (1984). A Longitudinal study of the firm life cycle." *Management Science* 30 (10): 1161-1183.

Nachrowi, N. D., dan Hardius, U. (2006). *Pendekatan populer dan praktis ekonometrika untuk analisis ekonomi dan keuangan.* Jakarta: Lembaga Penerbit Fakultas Ekonomi Universitas Indonesia.

Ratmono, D, dan Devi, I. (2015). Determinan kebijakan dividen perusahaan: Pengujian terhadap Teori Siklus Hidup." *Jurnal Dinamika Akuntansi* 7 (1): 52-62.

Rego, Sonja Olhoft, dan Ryan Wilson. (2012). Equity Risk Incentives and Firm Tax Aggressiveness. *Journal of Accounting Research*, 50(3): 775-810.

Richardson, G., Grantley, T. dan Roman, L. (2013). The impact of board of director oversight characteristics on firm tax aggressiveness: an empirical analysis." *Journal Account Public Policy* 32: 68-88.

Roring, R., & Ronni, S. (2014). Pengaruh Biaya Agensi dan Siklus Hidup Perusahaan Terhadap Kebijakan Dividen Pada Industri Manufaktur. Finesta, 2(2), 63-67.

Saraswati, E. (2007). Value Relevance dari Earnings dan Cash Flow: Pengujian Dikaitkan dengan Siklus Hidup Perusahaan. Jurnal TEMA, 8(1). 114-123.

Savitri, E. (2014). Analisis Pengaruh Leverage Dan Siklus Hidup Terhadap Manajemen Laba Pada Perusahaan Real Estate Dan Property Yang Terdaftar Di Bursa Efek Indonesia. Jurnal Akuntansi, 3(1), 72-89.

Slemrod, J., & Yitzhaki, S. (2002). Tax avoidance, evasion, and administration. In Handbook of public economics Vol. 3, pp. 1423-1470.

Suyanto, K. D dan Supramono. (2012). Likuiditas, leverage, komisaris independen, dan manajemen laba terhadap agresivitas pajak perusahaan. *Jurnal Keuangan dan Perbankan,* 16(2): 167-177.

Tiaras, I. dan Henryanto, W. (2015). Pengaruh likuiditas, leverage, manajemen laba, komisaris independen dan ukuran perusahaan terhadap agresivitas pajak. *Jurnal Akuntansi*, 19(3): 380-397.

Tuan Besar, S.S.N, Mohd Ali, M & Ghani, E.K. (2017), "Examining upper echelons managers' characteristics on financial restatements", *Journal of International Studies,* 10(4): 179-191

Wilson, R. J. (2009). "An examination of firm tax shelter participants." *The Accounting Review* 84 (3): 969-999.

Winarsih, W. (2010). Relevansi Nilai Informasi Laba terhadap Nilai Pasar Ekuitas Perusahaan pada Siklus Hidup Perusahaan. Value Added: Majalah Ekonomi dan Bisnis, 7(1), 22841.

Yan, Zhipeng. (2006). "A New Methodology of Measuring Firm Life-Cycle Stages." https://papers.ssrn.com/sol3/papers.cfm?abstract_id=893826 (diakses 15 September 2017).

Yulianti, N. W. (2014). "Siklus Hidup Perusahaan dan Konservatisme Akuntansi." *Jurnal Bisnis dan Manajemen* 4 (20): 224-230.