

AUGMENTED REALITY AS POTENTIAL ALTERNATIVE MEDIA FOR PAPERLESS ADVERTISING

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ABSTRACT

Today we live in the era of technology and information. Technology has become an important tools in human daily need and being used in every field of works, including advertisement. With the rapid development of technology, information can be accessed easily in faster speed and in higher quantity. In advertising, information is one of the most important element, we want our advertisement to contain information about our products and delivered in a fastest pace as possible with enough attraction element in it, also we want our advertisement to reach as many people as possible. Ironically, in the era of technology, we still using papers in our advertisement like posters, brochures, booklets, and many other printed promotional tools. The high demand for papers gives negative impact for nature, not only for the trees and forest, but also for the ecosystem. The rapid development of technology has given us so many new alternatives media in advertising, one of them is augmented reality. Augmented reality have a lot of potential to use in many fields of works including advertising. This study attempts to give comparisons between conventional media and Augmented Reality in advertising. The interesting thing of this study is to learn the weakness and the strength of paper media and Augmented Reality in advertising, and to learn how technology can be used indirectly for preserving nature.

Keywords: Advertising; Augmented Reality; Paper; Technology; Nature.

INTRODUCTION

Paper is one of the oldest technology in the history of human civilization. With cheap raw material and its ability to accommodate information in text or picture, making paper as an important commodity in the world. Almost in every field of works, paper is being used, both in education, marketing, creative fields, etc. The usage and dependency on paper in almost every field of works, making it difficult to replace paper with another material in human daily life.

Way before the invention of paper, human used various media for writing, such as bamboo sheet, clay, stone, even animal skin. These media have its own weakness, clay and stone are too heavy to carry, bamboo sheet are easily damaged, and animal skin can only written on one side. As writing media, these weaknesses are a problem, especially in documenting events or history. Around 3000 BC, Egypt found a substance with a smooth surface called Cypress Papyrus. This substance has a pretty smooth surface and capable to absorb ink without blurring and smudging. The word paper comes from Latin word, "Papyrus". Papyrus has become a writing media used by the Ancient Egypt and Mediterranean for approximately 3500 years. The first papermaking can be traced in China on Han Dynasty era (202 BC-AD 220), though the earliest piece of paper found at Fangmatan in Gansu province (Shenoy & Aithal, 2016). This papermaking method was spread and constantly developed. There were some uniqueness of paper in every country, especially in its raw materials, until in the 19th century, Europe introduce paper with a wood base material. The increase of popularity of paper usage in the world was the beginning of rapid growth in human culture and civilization. To achieve an ability for documenting events or history efficiently was a great breakthrough in human history.

Behind the superior function and usefulness of paper, it cannot be denied that today in the main raw material

in paper making is wood. With the increasing number of human's need for information, means more demand for papers, also with the rapid increased of human population, the need for paper in the world has increased greatly. Even though today there're many paper companies that not doing clear cutting; instead they do selective cutting and do reforestation; the alteration of natural forest into industrial forest will have impact on animal habitat and the ecosystem of the area. In general, the trees that are used for paper industry are pines tree and teak tree. The lack of variety on trees will cause some animals to transmigrate to other area, and it will causing the changing of ecosystem of the new area. In the effort of preserving nature, there is a challenge in reducing the use of paper in the world.

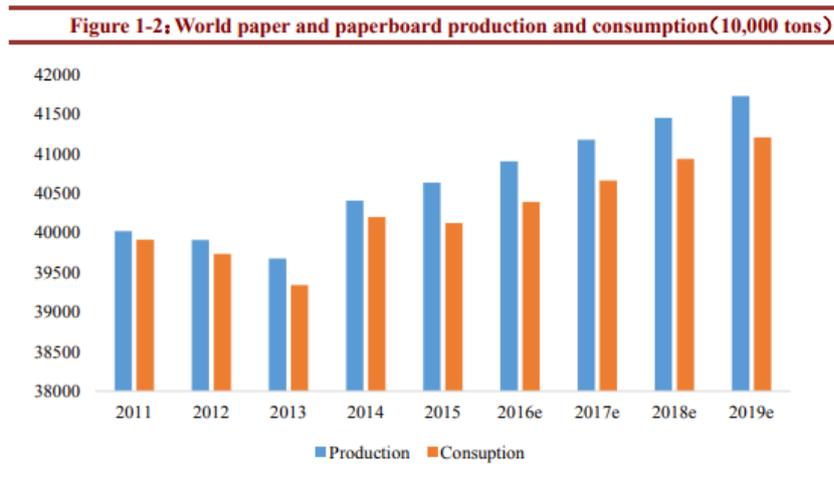
With the rapid development of digital technology, various new alternative media as a substitute of paper are emerged. People are starting to switch into digital magazine rather than a paper magazine, they are starting to enjoy the freedom in choosing news that they want to read in digital newspaper, students starting to leave writing book and use laptop to take notes. All of these happened because there is a new media that give them more values and comfort. But sadly this case only happened in some fields. In some other fields, it's difficult to replace papers in their daily activity, one of them is advertising. Posters, brochures, banner and booklet are some media that are still used in today advertising, especially in outdoor advertising. Outdoor advertising is advertising strategy in promoting a product to consumers who are always doing their activity outside. The common media that are used in outdoor advertising are papers such as billboard, posters, brochures, etc. Some other media in outdoor advertising are varied, there're electronic billboard, painted street furniture, transit advertising on vehicle, etc.

Paper are the easiest media to use in outdoor advertising, because it can be removed easily and replaced with another advertising. For example, the big posters on billboard. The picture on billboard is not permanent, periodically the image will be changed to other product ads, that's why printed paper is used because it could easily detached. It will be different if the images are painted directly into the billboard, it will take a lot of time just for changing the ads. However, there is another type of billboard that doesn't use paper to display an image, that is electronic billboard or megatron. Megatron is a big LCD monitor that installed like a conventional billboard.

The appearance of electronic billboard means that digital technology has a potential as alternative media in advertising. Another new technology that have a potential as alternative media is augmented reality or AR. The ability to accommodate video, image, text, sound and 3d space information means that AR can provide a lot more information, more than paper media. The ability to accommodate various information, means AR can be a candidate or alternatives new media in advertising in hoping that it can replace paper as main media in outdoor advertising or even another type of advertising.

Today, paper is an important commodity in human life. We use paper almost in every activity and in every field of work, both in education, documenting, entertainment, etc. With cheap raw material and its superior function, paper became a commodity that are difficult to replaced. The invention of paper in human history was the trigger for rapid growth of human civilization. In the past, paper was using for documenting history, this behaviour in documenting through literature made the process of transferring knowledges between generation to be more efficient and accurate. This knowledge transferring ability could increase the speed of civilization growth. So it can't be denied that paper was an important part in our history so that we can arrive at this era.

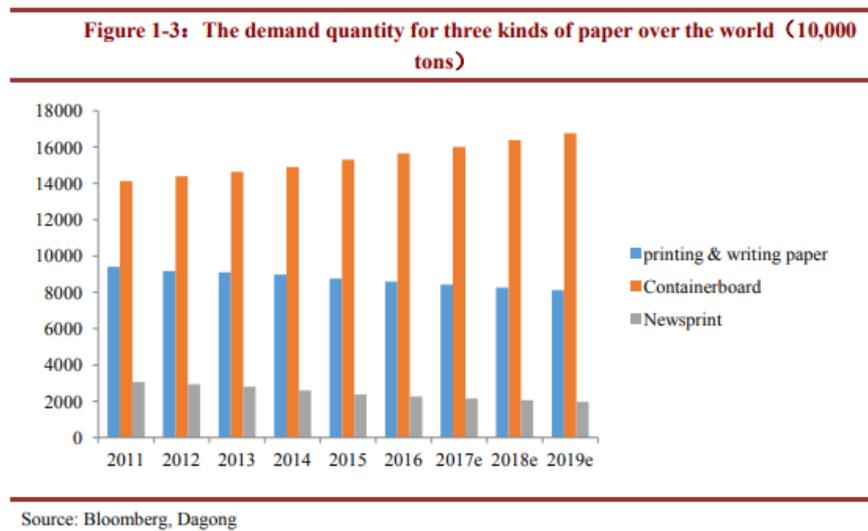
Human population that keep increasing and the spreading of usage of paper in every field of job means the demand for paper will also keep increasing. This thing has become a concern remembering that commonly, raw material used for modern papermaking is wood. The increasing demand for paper means more trees that we need to cut, and ideally means more trees that we need to plant. Trees are not only used in papermaking, we also use tress in other things, like construction and furniture. Even though trees are renewable materials, we can't speed up the growth rate of trees, so if the demand of wood keep increasing and not proportional with the growth of forest in the world, slowly our forest will disappear.



Source: Food and Agriculture Organization of the United Nations, Dagong

Figure 1. The increasing of paper consumption and production each year (Dagong Global Credit Rating, 2018)

There are a lot of type of paper are created until today depending on the usage of the paper, such as printing and writing paper, newsprint and containerboard. Based on the data from 2018 credit outlook for global paper industry, there is a changing in demand for printing & writing and newsprinting, that is the demand for this type of paper is constantly decreasing each year. In 2017, the demand for this type of paper decreasing by 1,88% for printing & writing paper and 4,48% for newsprint. This caused by the changing of people’s behaviour that starting to switch from paper media into digital media (Dagong Global Credit Rating, 2018), however the demand for packaging paper constantly increasing, in 2017 the demand for packaging paper increased by 2,29%. This caused by the rapid growth of internet and e-commerce business (Dagong, 2018). This means there are a shifting in paper usage affected by technology development.



Source: Bloomberg, Dagong

Figure 2. Three type of paper demand each year (Dagong Global Credit Rating, 2018)

Based on CEPI, Confederation of European Paper Industries, in 2017 Europe pulp and papermill industries consumed 149 million m², dividing to 40 million m² of hardwood and 109 million m² of softwood (Confederation of European Paper Industries, 2017). Hardwood and softwood are type of woods that are used in papermaking industries. Common hardwood are such as birch, poplar, basswood, maple, etc. Common softwood are such as cypress, pine, fir, etc. There is also an effort in paper recycling. In Europe there is an increasing by 1,2% in total amount of recycled paper in between 2016 and 2017 (Confederation of European Paper Industries, 2017). Even though the increased number in paper recycling is not as big as the number in brand new paper production, but

this effort more or less have a positive impact on nature and our behaviour towards nature. Besides that, there are many countries that are banned clear cutting activity and promoting reforestation instead.

	1991	2000	2005	2010	2016	2017	% Change 2017/2016	% Change 2017/2000
Wood ('000 m³)								
Consumption	120 274	148 093	153 380	148 901	147 318	149 043	1.2	0.6
Hardwood	30 410	40 048	41 337	38 119	40 410	40 850	1.1	2.0
Softwood	89 863	108 046	112 043	110 782	106 909	108 194	1.2	0.1
Imports/Consumption	12.8%	17.1%	19.2%	17.1%	15.1%	13.5%	-1.6	-20.7
Domestic/Consumption	87.2%	82.9%	80.8%	82.9%	84.9%	86.5%	1.6	4.3
Paper for Recycling ('000 Tonnes)								
Collection	25 452	43 658	53 100	55 917	56 144	56 827	1.2	30.2
Utilisation	25 360	40 922	46 745	48 122	47 625	48 292	1.4	18.0
Exports to Outside CEPI	n.a.	3 751	7 698	9 592	10 566	10 646	0.8	183.8
Imports from Outside CEPI	n.a.	1 015	1 343	1 796	2 046	2 110	3.1	107.9
Trade Balance with Outside CEPI	n.a.	2 736	6 355	7 795	8 519	8 536	0.2	212.0
Utilisation Rate	39.0%	45.1%	47.6%	50.6%	52.5%	52.4%	-0.1	7.3
Exports/Collection	n.a.	8.6%	14.5%	17.2%	18.8%	18.7%	-0.1	10.1
Imports/Utilisation	n.a.	2.5%	2.9%	3.7%	4.3%	4.4%	0.1	1.9

Figure 3. CEPI's 2017 Europe Pulp and Papermill Industry Statistic.
(Confederation of European Paper Industries, 2017)

Another negative thing on paper industry is that it produce pollution that gives impact on nature and ecosystem. On the study of Nagaon Papermill, obtained data about the impact of Nagaon papermill to its surrounding area. The interesting thing is that there is no impact in agriculture around the area of the papermill, instead there is an increase productivity in agriculture around the area of the papermill and the further the farm from papermill, there is a decrease in farm productivity. This is possibly because of a good waste treatment by the papermill company, however there is some health problem on surrounding neighborhood around the papermill caused by pollution created by the papermill (Sarma, 2014). This means there is a negative and positive impact of papermill to its surrounding depends on how the papermill treating their waste and pollution.

METHODS

This research is using qualitative method. It is conducted by using various literature and some other source that contain the same topics with this research and further comparing each of the data to reach conclusions. In the introduction, it has been discussed the main problem in this research, that is the effect of overuse of paper in human daily life. With the problem in mind, first, researcher try to find out about the impact of paper industries around the world through literature sources, this is to obtain information on how severe the impact of paper industries, especially on nature. Second, if we talk about overuse, we need to know how much paper people use in their daily life and what kind of products that using paper or pulp as their main ingredient. With those data, researcher focusing the topic of this research into a field that has high needs in paper, that is advertising.

The main idea of this research is to find a harmony between nature and technology, the image of technology is always have a negative image on nature, so the researcher tried to look at technology sector in finding the solution for the problem. The researcher also need to find weakness and strength of the solution idea through video and literature of already existed Augmented Reality Advertisement, and also researcher need to see the prospect of this idea in the future and predicting if this solution can be the alternative for overuse of paper problem.

RESULT AND DISCUSSION

Augmented Reality or commonly known as AR is relatively a new technology. Augmented reality capable to do real time blending of digital information and real world information (Inglobe, 2011). Augmented reality

is different with virtual reality. Virtual reality replacing real world information into digital information allowing users to fully immersed into virtual world without distraction from the real world, while augmented reality adding digital information into real world without removing any real world information. Today AR operating in so many platforms, the popular one are portable device displays such as mobile phones, tablets or other portable device. The other devices are still relatively expensive and use special device such as Head-Mounted Displays, eyeglasses, eye tap, spatial devices, etc (Ivanova, Aliev, & Ivanov, 2014). Head-mounted displays currently more popular in virtual reality, while augmented reality users tend to use portable device displays.

Augmented reality capable in contain various type of information such as text, image, video and 3d object, and also Augmented reality can display information in 3D space, so user can experience a mixing between digital objects and real world immersively. Until some years ago, commonly used AR are marker based AR, this means for AR apps to works, it use a marker as the trigger so it can display the image, 3d object, videos, etc. AR using tracker function to detect and to do real time track the marker, and after that the apps will render the object display and display it on the screen using the tracking data as the source of location information. The marker in AR marker based is a black and white basic shaped image and functioning as the trigger for AR apps. This means the user need to see the marker first before they can activate the AR apps. This is one of the flaw from marker based AR, which is if the marker is damaged, then AR apps can't detect the marker, so the object display cannot be displayed.

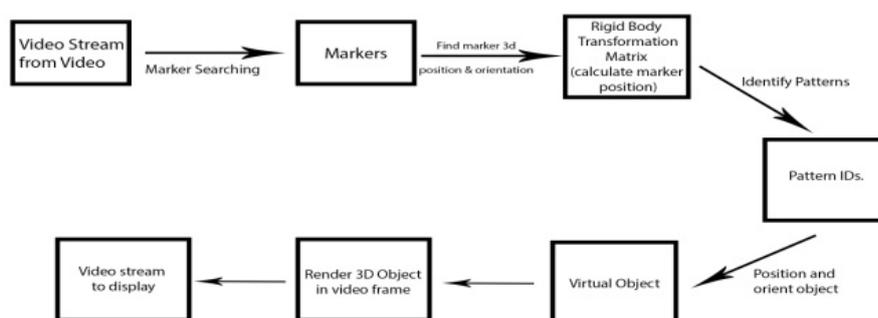


Figure 4. Marker based AR workflow (Mourtzis and Doulas, 2012)

However, today there is an AR that can be made without using certain marker, which commonly called markerless AR. With the rapid development of camera technology and an accurate sensors on mainstream devices such as mobile phones, AR technology is capable to detect surrounding area without using marker anymore. Markerless AR works using camera system, dedicated sensors and complex calculation to accurately track and map surrounding environment, with a map of the area, it is possible for AR to place virtual object into a real world and gave them stay in place without the need for a marker (Schechter, 2014)

In today advertising industry, paper is one of the most important media. An advertising need media that can accommodate information and also at the same time provide attraction so the consumers will attracted to the products that are being advertised, and paper can provide all of those. However modern advertising starting to leave conventional media and move towards digital media, but for outdoor advertising, there's some difficulty to leave conventional media. Case example is billboard, today there's two type of billboard, that is conventional billboard and electronic billboard. Conventional billboard using a huge poster that is attached to billboard. The cost to make conventional billboard is cheaper than electronic billboard, it uses lamps to illuminate the ads at night, the maintenance is not so expensive, and its rent cost is not as expensive as electronic billboard. Electronic billboard, or megatron, is more expensive either in the construction cost or maintenance cost, and that's also affecting the rent cost that a lot more expensive than conventional billboard. Electronic billboard is using a huge LCD monitor to display the ads, either by image or video. The ability to display video, animation and sound makes electronic billboard capable of delivering more information about the product.



Figure 5. Timberland clothing store use AR advertising to attract customers (Lemon&Orange, 2014)

Megatron is capable to display text, image, sound and video. The downside is that it is so expensive to build and also it has an expensive maintenance cost, that's why the rental fee is also more expensive than conventional billboard. It is so much different with conventional billboard that only capable of displaying image and text, conventional billboard is cheaper to build and has cheaper rental fee, but it is using paper to display the ads. Advertising is a business, that's why renting cost is an important factor in advertising. For a big brand maybe they will prefer the more attractive electronic billboard for their advertising, but for medium and small brand they tend to choose conventional billboard. With the big difference in cost value, there are a lot more conventional billboard than electronic billboard that are existed on the street.

Beside billboard and poster, there are smaller advertising tools that used paper as their media, such as brochure, pamphlet, booklet, etc. These smaller advertising tools are also difficult to replaced. An amusement park still need to use pamphlet to inform their customers about their entertainment facilities. A clothing store still need a booklet to promote their cloth and to inform their customer about monthly sale. These advertising tools are still using paper for their media even in this technology era because their function as promotional tools need to be informative and yet portable enough to be carried everywhere.

Today, AR is being used in some fields such as education, medical area, entertainment and advertising. In advertising, augmented reality used as attention attractor by using entertainment side of AR, not as the main advertising tools of the product. This means, to advertise product using AR, some brand still needs to use another media for promoting the AR and the product. In this case, AR used as a gimmick and the potential of AR can not fully used with this method. The good AR advertising does not need other media to promote the AR itself (Scholz, 2018), but using AR as experience provider to the consumer and later the AR ads will spread by itself through the internet.

A good advertisement have to be able to attract consumer attention so consumer could remember the informations that were provide by the advertisement. One of the strength of AR is how AR can give certain experience to the people by interact with them in real time using digital objects in AR. Case example is if a clothing store wants to promote their products by using AR, they can install a big LCD with thier top sale cloth database and make customers to try those virtual clothes using AR through LCD screen, so customers will experience the clothes and also gained information about the store's collections. This case example similar to Timberland's AR ads created by Lemon&Orange company, they created virtual fitting room outside of Timberland store, people could virtually tried some of Timberland's clothing product while interacting with the screen. In comparison with conventional advertising tools, to display information of the products at the store, they need catalogue or at least a booklet that to distribute to customers. The ability to give active experience to customers is not provided by conventional advertising tools. The hardest part in advertising is how to attract customers' attention and make them remember about our product. Of course we can achieve that through design or sale promotion, but to make it last long in customers' mind, it has its' own challenge. For example, an ads on billboard, it is easy to see but sometimes after a while we will forget about the ads, however by giving them a certain experience, the memory of the ads and its' content will last longer to customers.

Advertisement required to be able to adapting with human behavior. This thing also applied in every element in the advertisement like the design, language, method that are being used to advertise, even its media. In 2018, based on analysis of Bloomberg of United Nation data, in 2019, 63,5% world population are generation Z and millennials with 32% are generation Z and 31,5% are millennials (Petter, 2018). Both generations were grew with technology around them. They prefer e-book rather than physical book because they do not want to read the whole book, they use search engine to easily find what they need in the book, they prefer watching movie rather than reading the whole book (Ivanova, Aliev, & Ivanov, 2014). This shifting behaviour indirectly affected by technology around them that always offer something instant. Growing around technology makes both generations slowly drift them apart from conventional media, and they feel comfortable with digital media. This means that it will be easier to approach them using technology or digital media such as electronic billboard or augmented reality.

With all advantage that can be gained from augmented reality, this technology also have its own weaknesses. One of the weakness is how expensive the special device such as head-mounted display and AR eyeglasses, also those specific devices are not a common device. There's still a lot to develop in AR to make it usable and portable enough to use in daily basis. The next problem is there are still many people that aren't familiar with technology and live far from internet reach. This means to use AR in daily basis, improvement in infrastructure is a key to make AR more approachable to people. It is different for conventional advertising tools, that doesn't need a dedicated server, they don't internet to promote their products, however looking at AR capabilities, there is a big hope for it to use in daily basis.

CONCLUSION

Every advertising media have their own strength and weakness. Conventional advertising media and modern advertising media both are playing an important role in advertising business. In some case, conventional advertising media are the best, but in other case, modern media such as AR is superior to use.

AR is a new technology that have potential to use in many fields, including advertising. AR can accommodate various type of information such as text, image, video, animation and sound, also AR can be used in 3d space. In comparison to conventional advertising media, commonly they can only accommodate text or image information. Which means AR possess the excellence in terms of information provider for customers.

However in cost comparison, conventional advertising media, such as posters, brochure, pamphlet, etc, will always have the upper hand. The cost efficiency of conventional media is one of many factor that it still being used until now. There is a reason that this media is so cost efficient, one of them is because its material, generally conventional advertising media using paper as their material and also in quite a lot quantity. While AR is not as cost efficient as conventional media because AR need special device and infrastructure investment to fully utilize AR potential.

In advertising we also need to took into account how people are change, so we can adapt our advertising to their taste. Today, world population are dominate by millennials and generation z, as a huge potential market, they are growing with technology around them, so it's logical to approach them using technology, that's why for this aspect AR is a better choice for advertising rather than conventional media.

From all of the comparison, AR advertising offer so much advantages to use than conventional media. How AR attracting customer attention and how giving customer to experience things through creative use of AR, make AR as one of the new advertising media with a great potential. However to fully use AR in daily basis, so it can replace paper material, we still has to wait for more advance and compact AR technology in the future.

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CAPITAL STRUCTURE, PROFITABILITY, FIRM SIZE AND CORPORATE TAX AVOIDANCE: EVIDENCE FROM INDONESIA PALM OIL COMPANIES

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ABSTRACT

This study aims to provide empirical evidence about the effect of capital structure, profitability and firm size on corporate tax avoidance. The dependent variable used in this study was tax avoidance proxied by the effective tax rate (ETR), and the independent variable was capital structure (DER), profitability (ROA), and firm size. The population in this study were palm oil companies listed on the Indonesian Stock Exchange for the period 2007-2018. The samples consist of 4 palm oil companies by using purposive sampling method. The analysis technique used in this research was multiple linear regression analysis. The result shows that capital structure and profitability has positive effect on tax avoidance, while firm size have no effect on tax avoidance.

Keywords: *Capital Structure; Profitability; Firm Size; Tax Avoidance.*

INTRODUCTION

Indonesia is one of the countries with the largest palm oil plantations in the world. This advantage makes the plantation sector as a source of state revenue in the form of taxes. However, taxes create differences in interests between the government as tax collectors and companies as taxpayers. For the government, tax revenues must be collected as much as possible but different for companies, taxes are a burden that reduces their income.

Minimizing the tax burden by utilizing the gaps in tax law is legal. But not all companies can minimize taxes due to several factors, these factors such as capital structure, according to (Faulkender & Smith, 2016) companies with high leverage tend to operate in countries with high tax rates. Then profitability, the level of corporate profits can affect the company's ability to minimize the tax burden (Noor, Fadzillah, & Mastuki, 2010). Then the factors that influence tax avoidance are the size of the company (Irianto, Sudibyo, & Wafirli, 2017; Noor et al., 2010).

In this study tried to find empirical evidence of the effect of capital structure, profitability and company size on tax avoidance in palm oil companies in Indonesia. Dependent variable in this research use tax avoidance proxied by ETR. And use three independent variables which are capital structure (DER), profitability (ROA) and firm size.

Based on the research variable, the research model can be described as follows:

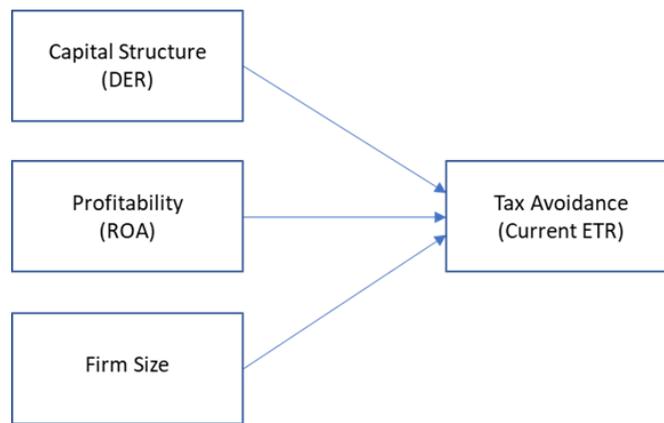


Figure 1 Conceptual Framework

The ETR use in this research is Current ETR (Current tax income divided by income before taxes). the level of ETR which is close to 25% indicates that the low tax avoidance (Oktaviyani & Munandar, 2017).

$$\text{Current ETR} = \frac{\text{Current Tax Income}}{\text{Pre-Tax Income}}$$

This measurement is also used in previous studies conducted by (Delgado, Fernandez-Rodriguez, & Martinez-Arias, 2014) dan (Noor et al., 2010).

The capital structure is a mix of financial liabilities and equity. In Indonesia interest is tax deductible and use debt financing for companies can be useful to reduce the tax burden. Capital structure is proxied using DER. This ratio is used to see the ratio of debt to equity. This debt will have an interest expense that can reduce the taxes paid by the company, DER formula as follows:

$$\text{DER} = \frac{\text{Total liabilities}}{\text{Total equity}}$$

In this study profitability was measured using ROA. Profitability is a measure of how much a company makes a profit compared to the total assets. The greater the level of profitability, the greater the tax burden. ROA formula as follows:

$$\text{ROA} = \frac{\text{Net Income}}{\text{Total Assets}} \times 100\%$$

Firm size in this study is measured using the natural logarithm of total assets, which is useful to see how big or small the size of a company based on total assets.

$$\text{SIZE} = (\text{Ln}) \text{ Total Assets}$$

Based on the background research, this research will answer a number of questions. (1) Does capital structure affect tax avoidance? (2) Does profitability affect tax avoidance? (3) Does the firm size affect tax avoidance?

The results of previous studies by (Irianto et al., 2017), (Danis & Zulaikha, 2014), and (Ngadiman & Puspitasari, 2017) showed that DER has a negative influence on ETR, meaning that the higher the DER the greater the level of tax avoidance. It show the higher the debt financing, company can take advantage of interest costs that can reduce taxes. Therefore, the first hypothesis is:

H1: Capital structure had a positive effect on tax avoidance

A high level of profitability will have an impact on the amount of income tax that must be paid by the company and cause the company to maximize its tax planning to reduce the tax. The results of previous studies regarding the effect of profitability on tax avoidance vary. Research results from (Rizal, 2016) and (Rani, Susetyo, & Fuadah, 2018) said profitability had a negative effect on tax avoidance. Another case with the results of research from (Irianto et al., 2017), (Parisi, 2016) said profitability had positive effect on tax avoidance. And the last (Fitri & Munandar, 2018), (Danis & Zulaikha, 2014) and (Anouar, 2017) said there is no influence between profitability and tax avoidance. Based on the results of previous research, the hypothesis is:

H2: Profitability affect on tax avoidance

Firm size has an positive influence on tax avoidance based on previous research by (Ngadiman & Puspitasari, 2017), (Danis & Zulaikha, 2014), (Irianto et al., 2017). Whereas based on other research by (Annisa, Taufik, & Hanif, 2017) and (Aminah, Chairina, & Yustika, 2017) shows that size does not significantly influence tax avoidance. Based on the results of previous research, the hypothesis is:

H3: Firm Size had positive effect on Tax Avoidance

METHODS

This research use quantiative methods and using secondary data from financial statements. The population in this study used palm oil companies listed on the Indonesian stock exchange in the period 2007 to 2018. The samples are selected by purposive sampling methods. the criteria used to select the sample are as follows:

1. Palm oil companies listed on Indonesia Stock Exchange from 2007 to 2018.
2. Palm oil companies publish complete audited financial statements as of December 31st, 2007 to December 31st, 2018.
3. Palm oil companies have no loss during 2007 to 2018.

Based on predetermined sample criteria. From 18 palm oil oil companies listed on the Indonesia Stock Exchange only 4 companies were sampled in the study with a period of observation carried out for 12 years.

The analysis technique used is multiple linear regression with hypothesis test uses T-test. Based on the variables used, regression equation is as follows.

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

Description:

- Y = Tax Avoidance
 α = Constant
 $\beta_1 - \beta_3$ = Regression Coefficients
 X_1 = Capital Structure (DER)
 X_2 = Profitability (ROA)
 X_3 = Firm Size
 e = Error

RESULT AND DISCUSSION

Classical Assumption Test Result

Normality Test

The normality test used in this study is the Kolomorov-Smirnov test.

Table 1 Kolmogorov-Smirnov Test

		Unstandardized Residual
N		48
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Deviation	.50024854
Most Extreme Differences	Absolute	.099
	Positive	.054
	Negative	-.099
Test Statistic		.099
Asymp. Sig. (2-tailed)		.200 ^{c,d}

from the data in table 1 shows a significant value of 0.200 which is greater than 0.05, it can be concluded that the data is normally distributed.

Multicollinearity Test

The method used to diagnose multicollinearity refers to the value of Variance Inflation Factor (VIF). VIF value < 10 indicates that there is no multicollinearity. The multicollinearity test results are shown in table 2.

Table 2 Multicollinearity test

Model	Collinearity Statistics	
	Tolerance	VIF
1	(Constant)	
	SIZE	.926 1.080
	ROA	.564 1.772
	DER	.567 1.763

Heteroscedasticity Tests

The park test was used to test for the symptoms of heteroscedasticity, where if a significance value > 0.05 showed no heteroscedasticity.

Table 3 Park Test

Model		t	Sig.
1	(Constant)	.330	.748
	LNDER	-.479	.641
	LNROA	-1.226	.246
	LNSIZE	-.383	.709

Autocorrelation Test Result

Based on the results of the autocorrelation test, the Durbin Watson value is 1.883. The DW value is between $du = 1.6708$ and $4-du = 2.3292$, which means there is no autocorrelation.

Hypothesis Test Result

Table 4

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.552 ^a	.305	.257	.51702

a. Predictors: (Constant), DER, LNSIZE, ROA

T-Test Results

Table 5

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.170	1.874		-.091	.928
	DER	-.349	.107	-.543	-3.252	.002
	ROA	-.498	.118	-.705	-4.212	.000
	LNSIZE	-.013	.115	-.015	-.112	.911

a. Dependent Variable: ETR

The influence of capital structure on tax avoidance

Based on the results of multiple regression analysis, the value of the regression coefficient is -3.252 and significance value is 0.002. It means that H1 is accepted, that the capital structure proxied by DER has a negative influence on the ETR. A high DER value will cause lower tax burden as indicated by the smaller ETR value. This shows that capital structure has a positive effect on tax avoidance.

This result is consistent with previous research by (Irianto et al., 2017), (Ngadiman & Puspitasari, 2017) and (Danis & Zulaikha, 2014). As explained before, tax regulations in Indonesia allow interest expenses as tax deductions. Companies with capital structure with more debt have advantages in terms of taxation.

The influence of profitability on tax avoidance

Based on the results of multiple regression analysis, the value of the regression coefficient is -4.212 and significance value is 0.000. It means that H2 is accepted. With a negative coefficient value, profitability has a negative effect on ETR, which means the higher the profit from the company, the higher the tax avoidance.

This result is consistent with previous research by (Irianto et al., 2017) and (Parisi, 2016). The companies that have high profits can maximize tax planning to minimize corporate tax (Parisi, 2016), (Kraft, 2014) and (Noor et al., 2010).

The influence of firm size on tax avoidance

Based on the results of multiple regression analysis, the value of the regression coefficient is -0.112 and significance value is 0.911. It means that H3 is rejected. The results show that firm size has no effect on tax avoidance.

This result is consistent with previous research by (Annisa et al., 2017) and (Aminah et al., 2017). It means there is no influence large or small companies on tax avoidance.

CONCLUSION

There are some conclusions that can be drawn from this study, first that the capital structure proxied by DER has a positive influence on tax avoidance, which means that the higher the DER value of the company, the greater the tax avoidance. The high interest expense of the loan can reduce the tax paid. Second, the profitability variable also has a positive influence on tax avoidance, which means that the higher the level of profitability, the greater the tax avoidance, indicating that palm oil companies with high profitability tend to treat of reducing the tax burden. The last conclusion is that the size of the company does not have a significant effect on tax avoidance.

This study still has several limitations. First, research like this has been done by many previous researchers use manufacture companies but there are still a few who use specific palm oil sector as an object of research, especially in Indonesia, causing a lack of references to tax avoidance by the palm oil sector. Second, there are very few samples that meet the criteria of this study.

Based on the results of the research obtained, then the suggestions for further research to add other variables in future research, especially for studies that use palm oil companies as the object of research.

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