

THE EMPIRICAL STUDY TOWARDS THE ACCEPTANCE OF ROBO-ADVISORY FOR DIGITAL WEALTH ADVISOR: AN INDONESIAN UNIVERSITY STUDENT PERSPECTIVE

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Abstract. The financial services industry is rapidly experiencing significant changes in the way the services are delivered to investors. Considering the said trends, Robo-advisors, which is digital-based advisors, have the potential future of the financial advisor industry. There is only few research providing a guideline to interpreting Robo-Advisory for digital wealth management acceptance. The author has conducted the study through an online questionnaire and using the Technology Acceptance Model (TAM). One thousand fifty-three usable responses were received, then tested with Partial Least Square (PLS). This study also examined the level of digital-savvy towards demography using an independent t-test and one-way ANOVA. The other side, the research found factors that most influence the intention to use of Robo-advisory with the two ways of the result, based on the direct result it shows that from fifteen hypotheses, three of it were rejected, and perceived usefulness and ease of use positively influence the intention to use. On the contrary, to know the indirect factors that affect the result, the outcome shows that Convenience becomes the most factors that indirectly influence the intention. The conclusion and implications provide the result for the suggestion to stakeholders of Robo-advisory in order to make a necessary service better.

Keywords: Acceptance, Robo-advisory, Innovation, Wealth Management, University Student, Digital Savviness

INTRODUCTION

The digitalization revolution is challenging traditional financial institutions who have been forced to remodel a part of their businesses to adapt to these changes, starting with their digitalization developments (Cedrell and Issa, 2018). Trends that are happening inside the industry of financial advisor's service providers, such as decreased trust of traditional services, the need of interactive client experience, and the shift of customers' preference from traditional media to digital media or platform, are witnessed by the industry itself (Pham and Ho, 2015). Although in the mean times, traditional financial advice providers still thrive over Robo-advisors, the latter shows rapid growth which suggests its potential and the need for analysis of it as a business (Deloitte, 2016). Robo-advisors use algorithms to replace human advisors. The algorithms designed are aimed to optimize elements of wealth management to create a proper portfolio for an individual. Different business models and philosophies are being developed to ensure the services that will be providing meet customers' expectations.

In an era of digitalized times, a major part of our daily activities, such as investing, meetings, communications, gaming, shopping, leisure, and reading, have now been digitalized (McMahon & Pospisil, 2005). Talk about the current generation, it always refers to millennials, in recent years the unique characteristics of millennial students being appealing discussion, this generation of student are born on or after 1982. Millennials are termed to generations who have a focus on information technology centralization, a deep developed skill in multitasking, considered to be most place and a portion of their lifestyle, and new kind of technology or gadgets would be considered belong to this group. It will be necessary for universities to match the needs of new generations of students, such as consideration of the characteristics, skills and learning styles of new generations of digitally literate students (Jonas-Dwyer & Pospisil, 2004). Technologies such as that, are accepted more easily with millennials. Millennials act as a milestone to be passed, as most of the innovators and early adopters from the adoption curve currently consists of millennials. But millennials also have certain criteria when evaluating potential technologies to be adopted, and arguably more critical when judging them (Sironi, 2016) even millennials always belong to the technology but each of them having a different digital lifestyle especially for university students.

Based on all of the above, this research wishes some research objective regarding this study, the author first want to analyses (1) The digital savviness of Indonesian university student's lifestyle based on demography towards index digital lifestyle rating; and also examine (2) The factor that most influences the acceptance of the Robo-Advisory for Digital Wealth Advisor towards Indonesian university student. We use TAM as an approach to understanding the factors that influencing Robo-advisory. The structured this paper as follows. Firstly, the reviews of literature from the previous research briefly explained the proposed research model. Secondly, the study presents the methodology used to test and verify the proposed hypotheses, after that the results are analyzed using SPSS Statistics 25.0 and Smart-PLS. In the end, we showed the findings and argument regarding the result based on the research objective and also provide specific contributions and implications of the paper.

LITERATURE REVIEW

Overview of Robo-advisory: Robo-advisors are financial-related solutions automated with the use of digital tools to engage themselves

with clients. Its features include advanced customer experience to guide clients through, from self-assessment, risk profile identification, to shape clients' investment behavior. The algorithm can eventually detect this behavior as a base for rudimentary goal-based decision-making. It is also supported by rebalancing techniques on portfolios using trading algorithms based on diversification and passive investment. Differentiation of said businesses can vary based on the degree of passive management, the automation of the investment, human interaction, level of self-assessment, and target market (Sironi, 2016). Based on this, the study wants to know the factors that influence the intention to use Robo-advisory.

Asymmetric Information: Asymmetry is a phenomenon that happens in all kinds of communication (Cedrell, L. and Issa, N. 2018). Every individual has their perspective of information and knowledge on subjects, which create asymmetry. Things that define a person, such as their age, education, culture, profession, and nation become factors of asymmetry. Two aspects of asymmetric information that exist are adverse selection, also known as "hidden information," while the second is moral hazard. As stated by, "hidden information" might affect situations because of the lack of sufficient information, which could cause the market to choose low-quality items, thus risk the chance of market failure (Cedrell, L. and Issa, N. 2018). This phenomenon also indicates affecting the hypothesis research in findings chapter.

Digital Natives: A thought that has gained currency is that the era came up into the world after 1980 grew up with access to PCs and the Web and is therefore inherently technology-savvy (Prensky, 2001). This era has been named as Digital Natives, Millennials, or Net Age. The advocates of this thought think that not only does this age have modern aptitudes in utilizing advanced innovations, yet also that, through the effect of these advances era, they have grown fundamentally new intellectual capability and learning styles (Prensky, 2001). The new learning styles such as "familiarity with various media, types of communication, doing activities, individual needs and preferences (Dede, 2005). Prensky (2001) uses this dichotomy to highlight differences in digital technology use preferences and to recommend changes in approaches to educate young tech-savvy students. Thus, based on preceding studies, the researcher formulated the native's style into a questionnaire and examined the digital savviness on respondents, and make sure the level of it.

Technology Acceptance Model: Developed by Davis (1989), Technology Acceptance Model (TAM) is one of the most used models in research. The model is aimed to predict the acceptance of new technology by individual users. Different studies and researches had used TAM to examine acceptance behavior towards technology in different constructs (Davis, 1989). Referring to Schierz et al. (2010), TAM is an effective model to predict attributes that impact attitude and motive to use Robo Advisory. The overall factors behind the adoption of technology can be split to three groups: social, commercial, legal, and technological factors, or contingency factors, user-specific factors, and factors that determine the value for the users (Ramos de Luna, 2018). In 2012, Cheolwoo conducted a study on the influence of personal and system characteristics on technology innovation acceptance. The research that was done by Jungwoo et al. (2014) adopted functionality, aesthetics, and wearability into the instrumental variables while for the individual characteristics, social image, innovation, and costs were adopted. Cedrell and Issa (2018) used a quantitative method. The study aims to investigate customer characteristics and their attitude, thoughts, and opinion on Robo-advisory. Dutot (2015) uses a TAM-extended approach to identify the main adoption factors of new technology in France. Pham and Ho (2015) study the effects of the product and personal related factors and attractiveness of alternatives on consumer adoption of Robo-Advisory. Thus, based on preceding studies, this research position is for two categories, the first is for the Robo-advisory characteristic (cost, security, and convenience). The second is for user-specific factors (personal innovation, self-efficacy, and trust). From its composition, the author comes up with a model with 15 contrast hypotheses.

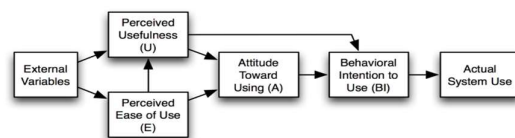


Figure 1: Technology Acceptance Model by Davis (1989)

Based on literature review from, thus the hypotheses are:

(H1): Cost will have a positive effect on perceived ease; (H2): Cost will have a positive effect on perceived usefulness; (H3): Security will have a negative effect on perceived ease; (H4): Security will have a negative effect on perceived usefulness; (H5): Convenience will have a positive effect on perceived ease; (H6): Convenience will have a positive effect on perceived usefulness; (H7): Self Efficacy will have a positive effect on perceived ease; (H8): Self Efficacy will have a positive effect on perceived usefulness; (H9): Personal Innovativeness will have a positive effect on perceived ease; (H10): Personal Innovativeness will have a positive effect on perceived usefulness; (H11): Trust will have a positive effect on perceived ease; (H12): Trust will have a positive effect on perceived usefulness; (H13): Perceived ease will have a positive effect on perceived usefulness; (H14): Perceived ease will have a positive effect on Behaviour Intention to Use; (H15): Perceived usefulness will have a positive effect on Behaviour Intention to Use.

METHODOLOGY

In order to achieve the goals of this research, an online questionnaire was distributed into university students, consist of 4 sections; demography, respondents lifestyle, knowledge of Robo-advisory, and the measurement factors which using Likert-scale with ranging from not disagree (1) until totally agree (5), also in respondents lifestyle section of the questionnaire were categorized by expense, leisure, knowledge, communications, transportation, and investment. In the end, after all activities have been scored and averaged, every category was going to be weighted that reflect the respondents' whole digital savviness on lifestyle. Digital lifestyle index was calculated based on the sum of the score of every activity category weighted, which were;

$$DL = 0.13 * Expense + 0.15 * Leisure + 0.17 * Knowledge + 0.21 * Communication + 0.17 * Transportation + 0.17 * Investment$$

Before that, we measure the size of the population from the Ministry of Research, Technology, and Universities (Kemenristekdikti, 2018) around 7,500,000 students in Indonesia, using convenience sampling methods and confident level of 97% with generating slovin formula, we gathered 1111 respondents.

$$n = \frac{N}{1 + Ne^2}$$

$$n = \frac{7,300,000}{(1 + (7,500,000(0,030^2))}$$

$$n = 1110.95 = 1111$$

Figure 2: Sample Size Slovin Formula

Instrument of statistical methods: The proposed model was examined by using SPSS to compares between the mean with independent t-test and one-way ANOVA of digital savviness towards demography with processed by converting into coding on each option of each question regarding lifestyle and rating the respondents in that mostly described digital lifestyle, after that we conducted averaged result and weighted based on the ability of the activities to explain the overall digital savviness of the respondent's lifestyle, and Smart-PLS for generating the model construct as measurement assessments. The convergent validity, discriminant validity, internal consistency reliability, indicator reliability, multicollinearity and the goodness-of-fit of the research model were also verified, and the model construct was empirically tested to analysis the strength and direction of the relationship between the constructs.

FINDINGS AND ARGUMENT

After the data collected, this research gathered 1111 responses. Also, after the data were filtered, 58 responses were deleted since they were not met the requirement. So, this research examined 1053 valid responses to the questionnaire, 36% from male respondents, and 64% from female respondents. Also, 73.3% of respondents were in the 17-21 years old age range. origin town of respondents are mostly from Bandung 41.9%, the facts that the majority of education level from respondents are bachelor students 92.7%, business economics becomes most faculty that respondents are from 48.6%, surprisingly there are several students who already have work during their study 20%, and mostly their parents still being respondent's source of income 85.7%. Lastly, the extent of using Robo-advisory from Indonesian students are very low, only 2.37%. This result indicates that the demography of the respondents are Indonesian students, and since only 2.37% among Indonesian student who already used the service of Robo-advisory for digital wealth management, then we can classify that the level of Robo-advisory usage into introducing level.

The findings from respondents lifestyle is that methods for several things such as methods to purchase food mostly prefer to choose food stall, in order to buy books, they mostly choose offline, it also same with buy clothing they choose offline, private vehicle as the most transportation methods, communication methods they prefer for chatting apps, and methods to get the latest information mostly prefer to social media. On the other hand, daily free time activity mostly respondent will be surfing social media, while the weekend free time they prefer to going to the mall or study and for long holiday free time they actually did an internship or having traveled. Most respondents used the internet in a day around above 4 hours, and usually, activities to be done while online is playing music or surfing social media and the most common place to access the internet is at indekost. For the last, most common investment instrument used by the respondent is saving in the bank. Based on the distribution sex and monthly income the finding showed that most female and respondents who have monthly income of around 1 million until 2 million are the most person who prefers those lifestyles.

Another finding reveals by using Independent t-test for two groups and one-way ANOVA for more than two groups to show the significant differences between the means of comparable groups. Based on age which has been classified with new categorized, the result shows both groups of age have the same level of digital savviness. Based on sex, female have more digital savviness than male. For domicile, West Java has a higher digital savviness than Jabodetabek, Sumatera, Central Java East Java, and West Java. Monthly

income also classified with new categorized and showed respondent who has monthly income > 2.000.000 have a higher digital savviness than respondent income < 2.000.000. In order hand, the current user of Robo advisory compares to non-user show that both categorized have the same level of digital savviness since the result was not significantly different.

In order to test hypotheses, in the very beginning of the analysis, we conduct validity and reliability. Reliability analysis by measuring the internal consistency of reliability resulted in satisfactory values of composite reliability (CR) for all observed variables of each construct beyond the threshold value of 0.7 with ranges from 0.820 to 0.951. The convergent validity also conducted, since the average variance extracted (AVE) of each construct is higher than 0.5 with ranges from 0.606 until 0.828 This result indicates that the study's measurement model has reflected a satisfactory convergent validity. In another hand, Discriminant validity was conducted and has also been achieved. For testing the fit of the proposed model, this research used Goodness of Fit (Wetzels et al. 2009) the result showed a value of 0.672 which explained a large and good fit model (Wetzels et al. 2009). In order to check a high correlations between two variables, we also checked for multicollinearity and verified the variance inflation factor (VIF). The VIF scores show all values are smaller than 5 (Hair et al., 2011), meaning that there is no multicollinearity, in other words, there are no variables that are too closely related.

Table 1: Path Coefficients, Observed T-Statistics, Significant Level for All Hypothesized Path

Independent Constructs	Dependent Constructs	Path Coefficient (β)	Standard Deviation (STDEV)	T Statistics (β/STDEV)	Significance Level
CST ->	EOU	0.023	0.030	0.767	Not Significant
CST ->	POU	0.013	0.028	0.471	Not Significant
SCR ->	EOU	0.050	0.024	2.058	0.05
SCR ->	POU	0.027	0.022	1.234	Not Significant
CNV ->	EOU	0.358	0.034	10.591	0.001
CNV ->	POU	0.370	0.030	12.229	0.001
SEF ->	EOU	0.154	0.035	4.404	0.001
SEF ->	POU	0.076	0.033	2.335	0.01
INV ->	EOU	0.143	0.027	5.238	0.001
INV ->	POU	0.011	0.024	0.453	Not Significant
TRS ->	EOU	0.244	0.038	6.392	0.001
TRS ->	POU	0.231	0.032	7.258	0.001
EOU ->	POU	0.281	0.037	7.551	0.001
EOU ->	ITU	0.242	0.039	6.258	0.001
POU ->	ITU	0.485	0.038	12.637	0.001

From direct analysis, Overall, eleven out of fifteen research hypotheses are supported (i.e., H3, H5, H6, H7, H8, H9, H11, H12, H13, H14, and H15) by the research findings and two research hypotheses are not supported (i.e. H1, H2, H4, and H10), the fact explained that all of the external variables are able to explain 70.3% of the variance in perceived of usefulness (POU) and also perceived of usefulness affects the intention to use directly by 48.5%. Then the result of indirect effect towards intention to use showed the variables that indirectly influence intention to use Robo-advisory is convenient. From the result, it is essential as a concern for developing Robo-advisory to considered these factors.

In conclusion and recommendation, since Robo-advisory for digital wealth management is still in introducing stage in Indonesian university students, this research revealed that customers do not prefer to adopt Robo-advisory for digital wealth management are except the developers has to consider the factors that influence people to take it. The marketers should emphasize what shed some light on the outstanding characteristics and differentiation of Robo-Advisory for digital wealth management can offer a necessary service and better than established substitutes. Based on that, we recommend that marketers and service developers should separate the market into different segmentations, customize, promote, and offer services to suit the need of users. Continuing with this stream of research, if additional studies are conducted in the future, it is necessary to investigate our research in the periods and compare the result to make profound findings on the intention to use of Robo-advisory in Indonesian university student's perspective.

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