

## The Development and Validation of Financial Management Behavior (FMB) Scale in Postgraduate Students

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### Abstract

*This study aims to develop and validate a financial management behavior scale. This study used the approach of measuring instrument modification by applying the existing theory into a statement that will be used as an instrument to see the condition of a person's financial management behavior. The researchers used the basic theory of Dew and Xiao (2011) which divides financial management behavior into the consumption dimension, cash flow management dimension, savings and investment dimension, and debt management dimension. The subjects involved in this study were 391 people who were postgraduate students in the capital city of Jakarta and were selected using a purposive sampling technique. Structural equation modeling (SEM) analysis with AMOS software were used in this study. The results of the analysis showed that the financial management behavior scale developed by the researchers has met the fit model and produced a valid statement which is ready to be used to measure the behavioral conditions of one's financial management specifically in the student context. The limitations and suggestions will be discussed further in this article.*

**Keywords**— *Financial Management; Financial Management Behaviour; Scale Development; Scale Validation*

### Abstrak

Studi ini bertujuan untuk mengembangkan dan memvalidasi skala perilaku manajemen keuangan. Pendekatan modifikasi alat ukur digunakan dalam studi ini dengan cara menurunkan teori yang sudah ada ke dalam bentuk pernyataan yang akan digunakan sebagai instrument untuk melihat kondisi perilaku manajemen keuangan seseorang. Peneliti menggunakan teori dasar dari Dew dan Xiao (2011) yang membagi perilaku manajemen keuangan ke dalam dimensi konsumsi, manajemen arus kas, tabungan dan investasi serta dimensi manajemen utang. Subjek yang terlibat dalam studi ini sebanyak 391 orang yang merupakan mahasiswa pasca sarjana yang ada di wilayah Ibu Kota Jakarta dan dipilih dengan teknik *purposive sampling*. Analisis *structural equation modelling* (SEM) dengan *software* AMOS digunakan dalam studi ini. Hasil analisis menunjukkan bahwa skala perilaku manajemen keuangan yang dikembangkan oleh peneliti memenuhi model *fit*, dan menghasilkan pernyataan valid yang siap digunakan untuk mengukur kondisi perilaku manajemen keuangan seseorang terkhusus pada konteks mahasiswa. Keterbatasan dan saran akan dibahas lebih lanjut dalam artikel ini.

**Kata kunci**— *Manajemen Keuangan; Pengembangan Skala; Skala Perilaku Manajemen Keuangan; Validasi Skala*

## I. INTRODUCTION

Human life in this digital age is so extraordinary where various things can be done due to the advance that makes it easier for humans to carry out various activities. To get quickly and satisfy about what they want, individuals in today's era can use a variety of online applications that provide services to meet everyone's needs. For example, when you want to eat, you just simply use the applications such as Maxim, Grab, and Gojek. If

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you want to buy goods, you just have to open the applications namely Shopee, Lazada, and Zalora (Ramdani et al., 2021). These various applications are products of technological developments designed by humans to meet their daily needs, even though many of their consumers feel more satisfaction than they have to get through traditional activities. This convenience makes people more aggressive in using the money they have. Even the persuasion and seduction of discounts, promos and various other surprises offered by the sellers both modern and traditional ways have made people more wasteful of using their existing money. Therefore, it is true what wise people say, humans are consumerist well-being. Consumers are the type of people who use their money, without paying attention to the element of need, but rather to the element of desire (Ramdani et al., 2021).

The consumer behavior can be considered as something that is detrimental, especially if the products and various needs that we have are obtained because of the basis of lifestyle, habits, and hedonism alone. It is different when it is based on an analysis of existing needs and benefits. Normatively, excessive consumer behavior is not recommended by a religious perspective because it is considered redundant and does not produce good benefits. In fact, Islam itself has taught that the religion forbids living extravagantly. It is clearly stated in the Qur'an Surah Al-Isra verse 27 which states "Indeed the spenders are the brothers of Satan and the Satan is a disbeliever in his Lord" (Kemenag, 2021). The same thing is also expressed in other religions, such as in Christianity which states in the Bible that money should be used frugally, because we must be able to account for it to God about the things we have spent such as money, time, life, and the opportunities (LAI, 2021). Thus, it is clear that wasteful is a bad trait and should not be applied in life, especially in using money (Amri et al., 2021). Even though if it is the personal money obtained from the work or parental gifts, of course someone who is wise will use the money appropriately and in accordance with the existing needs. Especially in this current situation where all fields are in advanced and the pandemic of COVID-19 which requires us to be good at managing money.

The science related to money management is called Financial Management Behavior. Some people might not familiar with the term but the majority of people might have known its form in simple language, for example in managing the money based on needs. There is a part of money to be saved, there is a part to be used daily such as for food, travel, and so on. This is what is called Financial Management Behavior. In fact, financial behavior has become a central issue that has been discussed recently in an open forum and in academic scientific articles (Amri et al., 2021). This is because it is related to the consumption behavior of people in Indonesia. Most people tend to think short term and are synonymous with the practice of impulsive shopping as the authors described earlier. Such attitudes like this are often happen in the individuals with sufficient income but still experiencing financial problems due to the irresponsible financial behavior. This is the main reason why behavioral finance needs to be studied.

According to Karyanto (2020), Indonesian people have a very low level of money management compared to the other countries, especially neighboring countries. Most of them just know that money should be classified without any real action in their life. But many still do not know yet, what percentage of the money earned that is supposed to be budgeted. Karyanto (2020) divides the income obtained by using three budget moves, namely 50-30-20. In detail, 50% for mandatory and flexible expenses, 30% for savings, and another 20% for entertainment. The division made by Karyanto (2020) is clearly an understanding of Financial Management Behavior. By definition, many experts have revealed such as Ida and Dwinta (2010) who revealed that financial management behavior is related to a person's financial responsibility regarding how to manage their finances. Financial responsibility is the process of managing money and other assets in a productive way. Money management is the process of mastering the use of financial assets.

The same thing was expressed by Humaira and Sagoro (2018) stating that financial management behavior is related to the effectiveness of fund management, where the flow of funds must be directed according to a predetermined plan. So, it is clear that financial management behavior is closely related to one's ability to manage the money. The next question is: managing in what ways? The answer is setting the daily planning, budgeting, checking, managing, controlling, searching and storing financial funds. The emergence of financial management behavior is inseparable from the underlying theories. According to Victor and Helen (2000), these theories include behavioral finance theory, social cognitive theory, and the theory of planned behavior. These three theories strengthen and give birth to the formulation of financial management behavior proposed by Dew and Xiao (2011).

Dew and Xiao (2011) suggest that in financial management behavior, there are four main things, namely consumption, cash flow, savings and investment, and debt management. The research from Dew and Xiao (2011) entitled "The financial management behavior scale: Development and Validation" is the main source of

this research in developing the measuring tool. Several previous studies that have used Dew and Xiao (2011) include Erlangga and Krisnawati (2020) who discussed about testing the effect of fintech payments on student financial management behavior. The financial management behavior scale used in their research remains guided by the scale developed by Dew and Xiao (2011) without making any modifications. The same thing has been done by Asih and Khafid's research (2020) which is more complex by using financial management behavior measurement tools associated with factors that influence it, such as financial knowledge, financial attitudes, income, and self-control. On average, the majority of research in Indonesia that has raised the concern on financial management behavior uses the theory of Dew and Xiao (2011).

Despite the fact that this type of research field is becoming familiar among Indonesian researchers, some academics are sometimes confused about conducting research when discussing financial behavior. Based on the results in searching on the Google Scholar by the researchers in this study, it is true that the Indonesian version of the measuring instrument does not yet exist. As far as the observations made by researchers and also the results of the literature study that have been described in the previous explanation, most of the previous researchers focused only on the use of behavioral financial management instruments that already existed. They did not carry out in-depth certain modifications and tests through statistical analysis to ensure that the psychometric properties of the instrument were satisfactory. Therefore, the researchers are interested in developing the Indonesian version of the measuring instrument. This measuring instrument that the researchers have trying to develop has the characteristics and thus distinguishes it from its predecessors because it has been adapted to Indonesian cultural conditions. It is hoped that later this instrument can be used comprehensively in management studies, especially relating to the factors that influence financial management behavior. These factors include financial experience, income level, financial literacy, financial attitude, financial knowledge or other relevant factors.

## II. LITERATURE REVIEW

The development of measuring tool for Financial Management Behavior is inseparable from the long history that underlies it. Initially known as behavioral finance, its emergence was initiated by Robert J. Shiller, a professor at Yale University. Robert reveals that the market is not completely efficient. This is stated by Robert in his research entitled "Do Stock Price Move too much to be Justified by Subsequent Changes in Dividends." This research eventually caused an extraordinary debate among academics, because at that time he did not know what factors caused the market to be inefficient. This is the main basis for the development of behavioral finance. But over the time, Robert's research can be proven after being assisted by his wife and developed by Richard H. Thaler and financial support from the Russel Sage Foundation. Finally, this development is marked by the increasing number of working papers with the theme of financial behavior (Ackert & Deaves, 2010).

Behavioral financial theory is still considered young when compared to other financial science in the previous period. However, nowadays behavioral finance is not just a concept but has become an operational method to analyze and explain the existence of mispricing of stock prices, explaining why individuals do not diversify and how noise traders create inefficient markets. In addition, currently the science of understanding investors can be related to finance includes psychological factors that bring harmonization between the two sciences (Sadalia & Butar, 2016). So that financial management behavior becomes an important science today.

According to Nofsinger in Pulungan and Syahfitri (2018), a person's psychological factors, namely emotional ones, can influence financial decisions and financial markets. Therefore, the better a person's financial behavior, the smaller the percentage of failure or financial difficulties in the future will be. At the beginning of the introduction, the researchers have discussed that there have been many experts who have defined financial management behavior, one of the popular ones was developed by Dew and Xiao (2011). According to Dew and Xiao (2011), there are four dimensions developed, namely: 1) Consumption. The expenditures by the households on various goods and services. Financial management behavior of a person can be seen from how he carries out his consumption activities such as what to buy and why he buys it, 2) Cash-flow management.

The main indicator of financial health is a measure of a person's ability to pay all the costs they have. Good cash flow management is a balancing act between cash input and expenditure, 3) Saving and Investment. Savings can be defined as the part of income that is not consumed in a certain period while investment is allocating or investing current resources with the aim of getting benefits in the future. Lastly, 4) Credit

management. Debt management is a person's ability to take advantage of debt so as not to make someone go bankrupt, or in other words, using debt to improve their welfare. These are the four dimensions that the author will refer to later in this study. In addition, financial management behavior is also inseparable from other factors that influence it. According to Alexander and Pamungkas (2019), factors that influence financial behavior are financial experience, income level, financial literacy, and financial knowledge.

### III. RESEARCH METHODOLOGY

This study uses a modified measuring instrument approach that focuses on instrument development by referring to the existing grand theory and just adapting it to the existing context in Indonesia. This approach aims to find a valid and reliable instrument according to the context in the research (Ramdani et al., 2018). This instrument development method was chosen because it was based on the aim of the researcher who wanted to develop a valid and reliable instrument in a different context from the original source of the theory. For more details, see Figure 1 which shows the flow process of scale development.

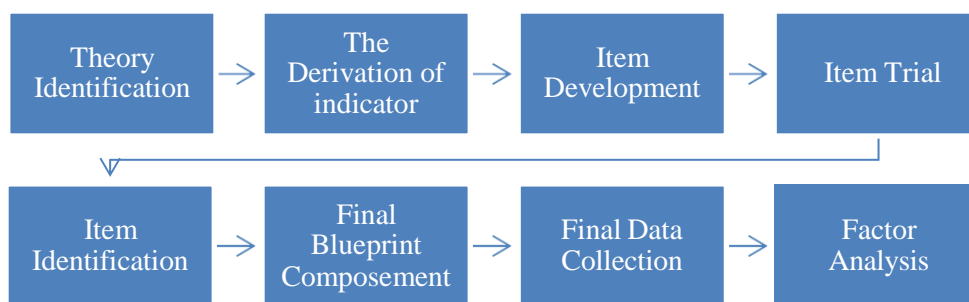


Figure 1. The Flow of Scale Development

Figure 1 describes how the researchers developed and validated the existing scale. It starts with identifying the theory to be used. In this case, the theory of Dew and Xiao (2011) was used as a basic reference in developing the instrument. This theory was chosen because it is empirically widely used by other scientists and the substance contained in the theory is suitable for the use in the Indonesian context. For the next step, the theory was derived to become the indicators and items that represent the four dimensions of the scale, namely the consumption dimension, cash flow management dimension, savings and investment dimension, and debt management dimension. Then the researchers tested the raw items on a number of subjects to select the suitable items. These items were then compiled and tested again on a larger sample where the statistical analysis was carried out.

The population in this study were postgraduate students who were studying at public universities in DKI Jakarta Province. The population determination was based on the observations made by Ferli and Nursanti (2018), Nurjanah (2019), and also Anggreini and Mariyanti (2014) that there were significant behavioral changes in consumptive behavior in several students in Jakarta, both who were studying at public and private campuses. The current focus is to develop the instrument first in the population of the public campuses. The researcher used a purposive sampling technique where the sample selection was based on predetermined characteristics. The subjects involved in this study were those who matched the characteristics determined by the researchers. These characteristics include the postgraduate students (considered to be more representative of the construct because the majority were already working), residing in DKI Jakarta Province, and actively studying at the universities in DKI Jakarta Province. Data dissemination was carried out through a google form that has been validated and obtained approval from the Pancasila University research ethical commission.

The instrument used in this study was in the form of a financial management behavior scale prepared using a likert scale with 5 answer choices (SS: Very Appropriate, S: Appropriate, N: Neutral, TS: Not Appropriate, and STS: Very Inappropriate). The scale consisted of 13 items that measure each dimension. Dimension 1, namely Consumption that consisted of item 1-3 (for example "I am quite wise in managing monthly expenditure").

Dimension 2, namely Cash Flow Management that consisted of items 4-6 (for example "I pay the bill on time, such as boarding cost, electricity, debt and so on.") Dimension 3, namely Savings and Investment that consisted of item 7-9 (for example "I set aside my monthly money to be saved.") Dimension 4, namely Debt Management that consisted of items 10-13 (for example "I chose to make a loan because I was able to manage the loan.") Meanwhile, for the statistical analysis, the researchers used two approaches. The descriptive analysis employed SPSS to see the strength of power discrimination and reliability of the items. Meanwhile, structural equation modelling (SEM) analysis with AMOS were used to see whether the existing model fits or not. The analytical method used was SEM approach which is very suitable to be used to see the constancy of an item in measuring certain constructs and is able to produce a level of accuracy at the item level. In addition, its very comprehensive nature makes it easier for researchers to identify the biases that may arise in the measurement.

#### IV. RESULTS AND DISCUSSION

Data collection was carried out for 2 months from early February 2021 until the end of April 2021. The subjects involved in this study were 450 people. Then the researchers selected the subjects based on the completeness of the data. Furthermore, the result of the data that was considered to be outlier (abnormal) were also removed from the list of subjects so the final result of the subject selection were 391 people. The entire subjects filled in the data by completing the informed consent as the approval to be involved in this research. For the detail, the researchers present the demographic data in this study in Table 1 below.

Table 1. Demographic Data of the Research

| Number       | Category                         | Frequency | Percentage (%) |
|--------------|----------------------------------|-----------|----------------|
| 1            | Sex                              |           |                |
|              | Male                             | 159       | 40.7           |
|              | Female                           | 232       | 59.3           |
| 2            | Former Education                 |           |                |
|              | S-1                              | 221       | 56.5           |
|              | S-2                              | 170       | 43.5           |
| 3            | Marrital Status                  |           |                |
|              | Married                          | 170       | 43.5           |
|              | Not Married                      | 221       | 56.5           |
| 4            | Income                           |           |                |
|              | <Rp. 3.000.000                   | 100       | 25.6           |
|              | Rp. 3.000.000 s/d Rp. 5.000.000  | 116       | 29.7           |
|              | Rp. 5.000.000 s/d Rp. 10.000.000 | 103       | 26.3           |
|              | >Rp. 10.000.000                  | 72        | 18.4           |
| 5            | Occupation                       |           |                |
|              | Lecturer                         | 31        | 7.9            |
|              | Teacher                          | 46        | 11.8           |
|              | Housewife                        | 20        | 5.1            |
|              | University Student & Freelancer  | 29        | 7.4            |
|              | BUMN Officer                     | 25        | 6.4            |
|              | Civil Servant                    | 58        | 14.8           |
|              | Private Officer                  | 99        | 25.3           |
| Entrepreneur | 83                               | 21.2      |                |
| Total        |                                  | 391       | 100            |

Based on table 1 above, the subjects involved in this study varied greatly when viewed from existing demographic data. For example, in the section of sex, the subjects were dominated by women by 59.3% more than men which were only 40.7%. For education, 56.5% were those who were continuing their master studies and the remaining 43.5% were those who were currently doing their PhD. Based on the amount of income obtained, the subjects were varied in the number of 20% while the occupation of the subject were ranging from

the lecturers, teachers, private employees to entrepreneurs. Furthermore, the researchers present the power discrimination test used to see the spread of the initial items developed (see Table 2).

Table 2. The result of Power Discrimination Test for the Initial items

| Item | Power Discrimination | Item | Power Discrimination |
|------|----------------------|------|----------------------|
| 1    | .444                 | 8    | .537                 |
| 2    | .693                 | 9    | .560                 |
| 3    | .438                 | 10   | .279                 |
| 4    | .542                 | 11   | .414                 |
| 5    | .492                 | 12   | .448                 |
| 6    | .611                 | 13   | .199                 |
| 7    | .625                 |      |                      |

Based on table 2 above, the power discrimination test was done to see the power of an item on the existing scale. Item that has good power means that the item is able to distinguish which subjects have high financial management behavior and which are low. From Table 2, the power discrimination score shows varying results from .199 to .693. The standard of good power discrimination is above .3, so the items that had the score below .3 were discarded. Of the 13 items representing the construct, there were 2 items below .3, namely item number 10 (.279) and item number 13 (.199). Thus, the two items were not included in the next test, while the reliability can be seen in Table 3.

Table 3. Coefficient Reliability of the Instrument

| Category    | Score | Explanation   |
|-------------|-------|---------------|
| Reliability | .827  | Very Reliable |

Table 3 shows the reliability score of the scale used in this reserach. The reliability score obtained shows a score of .827, which means that the scale developed was very reliable ( $\alpha > .7$ ). After ensuring that the score of power discrimination and reliability have met the standards, then the researchers conducted the next analysis, namely confirmatory factor analysis using two stages. The first stage used the SPSS program to see the grouping of the items into an existing factor (see Table 4).

Table 4. The Analysis Result of Confirmatory Rotation Factor using SPSS

| Item | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Name of the Factor                  |
|------|----------|----------|----------|----------|-------------------------------------|
| 01   | .774     |          |          |          | Dimension of Consumption            |
| 02   | .688     |          |          |          |                                     |
| 03   | .339     |          |          |          |                                     |
| 04   |          | .717     |          |          | Dimension of Cash Flow Management   |
| 05   |          | .797     |          |          |                                     |
| 06   | .732     |          |          |          |                                     |
| 07   |          |          | .769     |          | Dimension of Savings and Investment |
| 08   |          |          | .862     |          |                                     |
| 09   |          |          | .847     |          |                                     |
| 10   |          |          |          | .883     | Dimension of Debt Management        |
| 11   |          |          |          | .845     |                                     |

Note: The yellow sign shows an unexpaced item on the appropriate factor. It should be number 6 to join Factor 2.

The result of factor analysis in Table 4 indicates that each item can be grouped into each existing dimension that has been existed theoretically. This can be seen from the amount of loading factor ( $> .3$ ) and also these

items have gathered with their own groups. However, it is necessary to note that for item number 6 on dimension 2 turned out to join the dimension 1 so that this item needed to be considered because it was overlapped and could produce a measurement bias. To strengthen the results in Table 4, the researchers then conducted an advanced analysis using AMOS by looking at the existing models whether it fits or not (see in Figure 2).

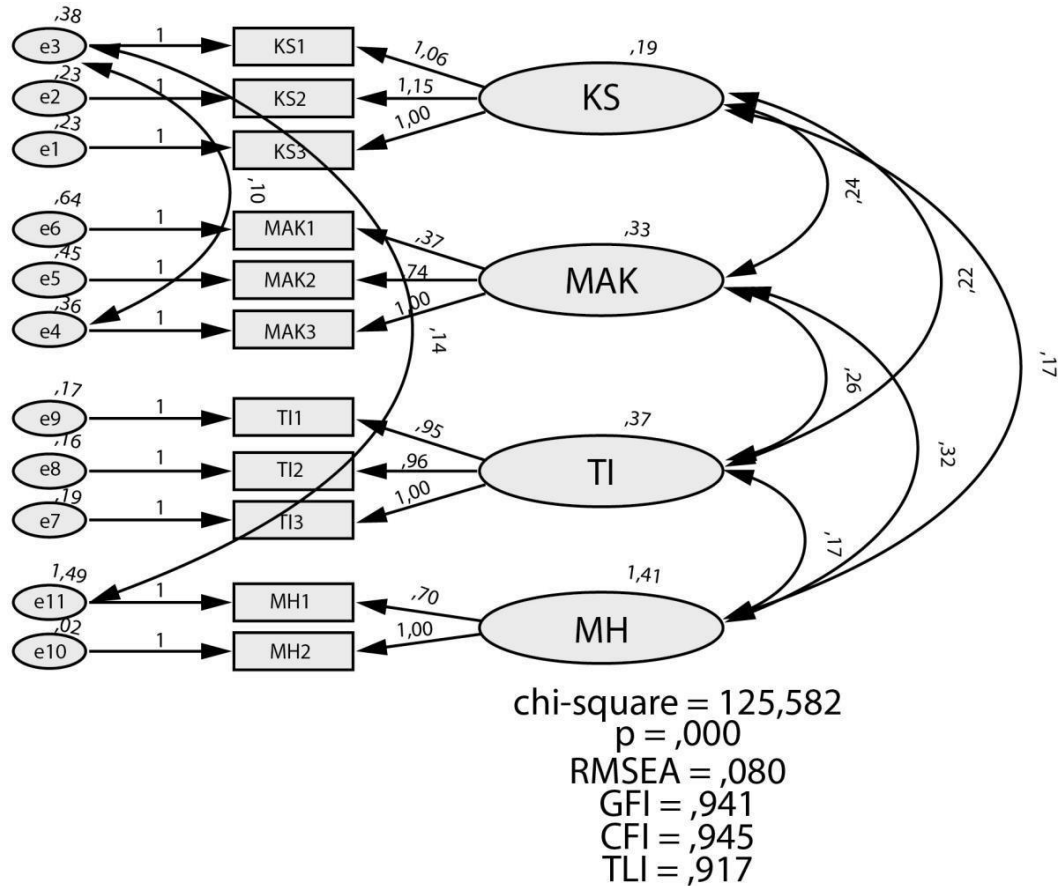


Figure 2. The Result Test of AMOS towards FIT model Instrument

Based on Figure 2 above, it can be seen that the scale model made has fulfilled the fit element. This means that the model built was indeed in accordance with empiric data in the field. In addition, statistically, the RMSEA score shown was .080 (indicating fit) and the score shown from GFI, CFI, and TLI were above .9 (good if > .9).

The result of this study has indicated that the scale developed has met the existing psychometric requirements. As explained at the initial stage of this research, the scale of financial management behavior made was based on clear and substantive theories so that the process of derivating into the form of operational statements could be done well. The results of power discrimination analysis and the reliability have also produced satisfactory measurements. A scale is reliable if the scale can be used in any situation and relevant context and will produce the same measurement. Meanwhile the high score of power discrimination in each item also shows that the item is different between one another hence this is a good indicator of a good statement.

The results of the confirmatory factor analysis conducted in this study has indicated that each item developed is indeed in accordance with its dimensions. This is theoretically relevant with the existing theories and the statements that measure the theory. But as can be seen in Table 4 that item number 6 has overlapped the result so if the item before was gropued into Factor 2, in the final analysis item 6 has been moved to Factor 1. Item

number 6 states that "I can control well the the flow of money in and out." Theoretically, this item was grouped into the dimension of Cash Flow Management, but after conducting the factor analysis it turned out the item was supposed to be included in Factor 1 (The dimension of Consumption). This result was supported by the result of AMOS which means that before conducting the fit model, the reseaschers needed to correlate the error on the item number 6 with an error on item number 1 (see Figure 2). Therefore, the AMOS program also saw that this item had a tendency to be grouped into two dimensions in one time (dimension of consumption and dimension of cash flow management). Referring to the results of existing data and further review of the editorial item, then item number 6 was removed by the researchers in the final result of this study. Thus, the remaining items were 11 items which represents the 4 dimensions.

Conceptually in this study to develop and validate the scale of financial management behavior in the Indonesian context. Because the behavior of financial management will certainly be in a different context with other countries, especially Indonesia, which is known as a developing country. So it is fitting that the scale of financial management behavior developed by this researcher can be applied in everyday life. The financial management behavior scale developed by the researcher focuses on the dimensions of consumption, cash flow management, savings and investment and the dimensions of debt management. All these dimensions have become the daily life of Indonesian people. Especially when the COVID-19 pandemic has greatly affected the psychology of the Indonesian people.

The relationship between the dimensions of consumption and the psychology of Indonesian society is very closely related. It seems that the consumption culture in Indonesia does seem excessive. A simple example is when there is a wedding party, the one who has a celebration will give the best and even excessive food which shows the ability of the organizer of the celebration. Then related to cash flow management. Indonesian society for cash flow management still has a lot to learn. Indonesia understands more about the use of incoming and outgoing money, only for today and for tomorrow, just look for it again. This is a common principle among the people. Meanwhile, when viewed from the side of savings and investment, the culture that is often seen is that Indonesian people prefer to save and invest through livestock and gold. Lastly, the management of debt has not been seen. So far, what I have seen is that the Indonesian people in general, are in debt only to fulfill their wishes. This is certainly a challenge in itself, so it is hoped that with the birth of this financial management behavior measurement tool it can be applied to see the level of financial management behavior of a person that can be applied in Indonesia.

The result of this research has produced a good finding which in accordance with the theory of Foster (2001) in Hilgert and Hogarth (2003) who states that the behavior of the use of money is often interpreted as a motivation for the money they have. The money in someone's hand will differ between one another. It can be said that the behavior of the money usage will be used for whether the money is owned. This was reinforced by theory of Lim (1997) who has grouped the indicators of behavior in financial management that includes obsession, power, budget, achievement, evaluation, anxiety, retention, and non generous which are the strong determinant of the validity of measuring tool of one's financial management behavior.

The result of scale development of this financial management behavior has been certainly done with a systematic process and followed the guidelines that are in accordance with psychometric requirements. However, the future research needs to use more varied subjects, not only for students alone, but also on those who are financially unstable so that the variations will be stronger. In addition, future research needs to involve other variables in testing both as the predictors and as a result of the existence financial management behavior.

## V. CONCLUSION

This study produced a valid and reliable measurement instrument so it can be used to identify the condition of a person's financial management behavior. The result of this study has indicated that the modified and developed scale has fulfilled the psychometric elements as a good scale. These results indicate that the higher the score obtained by a person when filling out this instrument, then it indicates that they have good management attitudes and behavior so that they have the potential to adapt. The final result of this study has shown that the developed instrument consists of 11 items that represent four aspects of the theory. All of the available items can measure a person's financial management behavior well, so it can be used by many researchers to develop their research, especially those related to the disciplines of psychology and financial management.



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