

# STRUCTURAL EQUATION MODEL ON DETERMINANTS OF FINANCIAL DECISIONS FOR WOMEN MSME IN TANGERANG

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## Abstract:

Lusardi (2019) has highlighted the increasing value of financial literacy from women at various levels of work across countries including Indonesia. By increasing awareness of financial literacy and inclusion in many area in Indonesia, this study selects Tangerang with respect to local women who are MSME actors have a higher level of digital literacy than other regions in Indonesia. By using 150 respondents using snowball sampling and the SEM by STATA analysis method, this study finds that there was a structural model applicability of financial decision making for women's SMEs in Tangerang with 2 determinants, namely literacy and financial inclusion.

**Keywords:** Tangerang UMKM Women, Financial Decisions, SEM Analysis with STATA

**JEL:** G40; G41; G53

## 1. INTRODUCTION

Women are figures who have extraordinary roles. By nature, women are destined to play an important role in giving birth and nurturing the next generation. The nature, attitude and behavior of these women will determine the future of the next generation. Gender equality between women and men is getting stronger, resulting in positive changes that occur in women. In the past, women only played a role locally, or only in the household. Not infrequently, women are not involved in decision making in the family, especially those related to finances. But over time, there has been a paradigm shift in thinking that women also have gender equality and roles, both in the household and in national development. Women can take part and play an active role in society; they can create a new civilization and can even participate in supporting the family economy.

The ongoing Covid-19 pandemic has had a tremendous impact on the national economy which ultimately has an impact on the family economy. Termination of employment, declining demand for products and increasing health costs borne by the community, eventually brought instability in the country's economy. So the challenges they face are huge. This causes women to be encouraged to participate more in saving the family economy. Those who used to be stuck in the management of family finances, now they are encouraged to play a more active role in managing family finances. Previously, women were more active in the internal sphere (domestic roles), then gradually began to play an active role in public roles (society).

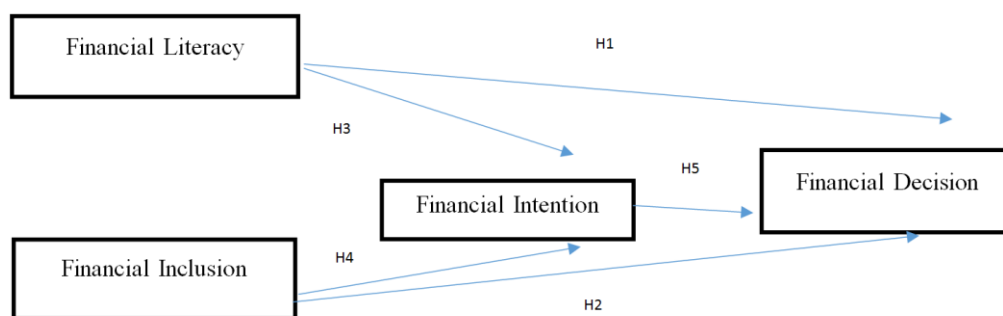
The role of women in the economy is seen significantly, namely from the MSME sector there are 53.67% of MSMEs owned by women, with almost 97% of the employees being women. The contribution given by women to the national economy is 61%, while the contribution of women in the investment sector is 60%. This shows how big the role given by women and the national economy. Thus, women's literacy skills and capacity to think intelligently on financial management will have a tremendous impact on their financial decision making. The large female population in Indonesia is almost half of the total population in Indonesia. Women's participation is critical to sustainable economic strength and resilience.

During the Covid-19 pandemic, there was an increase in the number of MSMEs managed by women. There are several things that cause this, some of which are that women are more likely to be involved in home industries, rather than factory industrial activities. Besides of course, during the Covid-19 pandemic, there were many factory closures or employee reductions. The next thing is more flexible working hours in the home industry, so that is a positive and beneficial thing for women. Because they still have the opportunity to care for and nurture their children. In addition, the flexible and resilient attitude possessed by women is one of their provisions to survive and strive to support the family economy. Women are economic actors who play an important role in the progress of MSMEs. So that women's resilience in managing MSMEs is fundamental, because MSMEs are the driving force and backbone of the family economy and the national economy. Women's resilience in managing MSMEs starts from their ability to understand financial management (financial literacy), financial and investment products offered by financial institutions (financial inclusion), allocation of funds, product marketing development and the use of digital marketing and digital technology to strengthen the existence of these MSMEs.

Based on this background, this study aims to determine the financial literacy and inclusion capabilities of female MSME actors in Tangerang and to determine the determinants of financial decision makers. Related to the differences with previous research, the authors try to realize the financial decision making model of MSME women in Tangerang using SEM (Structural Equation Modelling) analysis with STATA software version 13. The motivation of this study is to explore the validity of the structural model of financial decision making by involving the 3 antecedents that make up individual financial literacy. The three antecedents in question are financial knowledge, financial skills and financial attitude. For the context of Indonesian data, all three have proven effective in many studies from Dewi, et.al. (2020), Gunawan, et.al. (2021) and Suryani, et al (2015) with different research subjects including MSME actors, millennial and women from various circles. Then, based on the explanation in the previous paragraph that the role of women is so important and strategic in improving financial literacy in Indonesia and the exposure of MSME actors is still less serious, this study uses women MSME actors as important subjects of study. The hope achieved is the implementation of the women's decision making model that has been made by Setyawan, et.al. (2020) and refers to the importance of financial citizenship in the context of financial literacy [Khalil (2021), Kumar et.al. (2019) and Koomson et.al. (2021) and the financial capability of Lubis (2021). Tangerang was chosen by the researcher because the digital level of MSME actor was adequate.

## 2. RESEARCH CONCEPTUAL FRAMEWORK

This study proposes the building of a financial decision model for women entrepreneurs of MSMEs formed by two important antecedents, namely financial literacy and financial inclusion. Financial literacy relates to an individual's ability to understand the basic processes of financial management and related financial products. While financial inclusion is how much individuals have closeness to various access to secondary services, both from banks and non-banks. Based on the model building in Figure 1, the higher the individual's financial literacy and financial inclusion, the better the financial decisions taken (H1 and H2). However, there are several different research results, namely Kaiser & Menkhoff (2017), Grohman, et.al. (2018) and Koomson, et.al (2021). After the researchers conducted various studies, the intention factor became important for an individual in maximizing the decision results. So to complete the financial decision making model, apart from being formed by two antecedents, namely financial literacy and inclusion, it is necessary to add mediation, namely financial intentions (H5), referring to the studies of Mandell & Klein (2007), Xiao (2008) and Ajzen (2015).



**Figure 1: The Author's Research Model (2022)**

The argument from financial intention as a mediating variable is that the stronger financial literacy, but less supported by financial inclusion, an individual can still maximize the results of financial decisions with a strong intention factor (H3). Finance will maximize the results of its financial decisions as well (H4).

## 3. RESEARCH METHODS

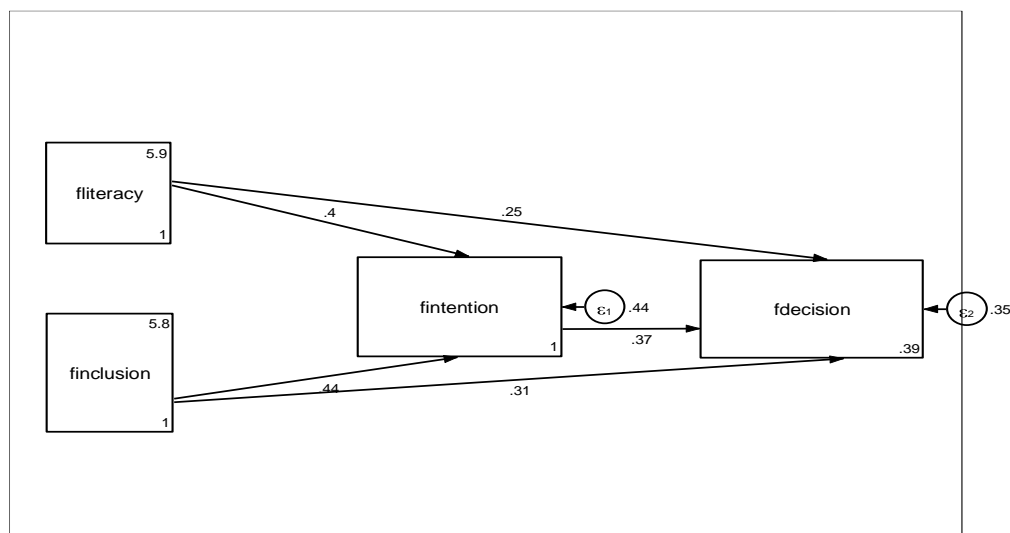
This study uses 150 women SMEs in Tangerang obtained through snowball sampling technique. To test the hypothesis H1 to H5 in figure 1, the STATA 13.0 software based SEM model is used with an orientation to the visualization of the formed SEM diagram, analysis of the inner and outer models for the test results H1 to H5. And the last is the analysis of direct and indirect mediation effects testing. The implementation of SEM analysis with STATA refers to Cain (2021). The nature of SEM analysis is still at the path analysis level because it is only testing the strength of each construct not yet on the indicator. The reason is to first ascertain

the total effect of constructs of financial literacy and inclusion as an important antecedent of financial decisions as a consequence.

## 4. ANALYSIS RESULT AND DISCUSSION

### 4.1. SEM (Structural Equation Modelling) Diagram Analysis

Based on the results of the SEM STATA analysis in Figure 2, the path coefficient value from the influence of the financial literacy construct to the financial decision construct is 0.25. Then followed by the path coefficient value of 0.31 to influence the financial inclusion construct to the financial decision construct. The path coefficient value is 0.37 from the financial intention construct to the financial decision construct. And at the end of the path coefficient value of 0.4 from financial literacy to financial intention and path coefficient value of 0.44 from financial inclusion to financial intention.



**Figure 2: Results of SEM Diagram with STATA 13.**

To find out whether the hypothesis H1 to H5 is accepted or not, it is necessary to look at the z-count significance value of each direction of the influence of each construct, both antecedent and consequent. Detailed discussion of z-count will be realized in the following sub-section. From Figure 2 above, the construct that has the most important role is the financial intention construct which in this research model acts as a mediating variable.

This means that the financial intention construct will be an intermediary variable between the influence of the two antecedent constructs, namely financial literacy and financial inclusion, on the consequent construct, namely financial decision. By using a combination of the product of the patch coefficient, the product of financial inclusion and financial intention is 0.163, which is greater than the product of financial literacy and financial intention of 0.148. However,

to see which one is more effective, it is necessary to analyze the direct and indirect effects which will be discussed later.

#### 4.2. SEM (Structural Equation Modeling) Testing Analysis

One of the characteristics of using STATA is the program language feature or syntax as attached in Figure 3. Processing with STATA determines two endogenous variables, namely financial intention and financial decision, as well as two exogenous variables, namely financial literacy and financial inclusion. In testing the H1 to H5 hypotheses, each construct is treated as a non latent variable because this research is an initial study using STATA for SEM analysis. That way what is used as a construct value is the average of each previously determined indicator. The use of the mean as the basis for indicator values does not apply to SEM analysis with SMART PLS.

```
. sem (fliteracy -> fintention, ) (fliteracy -> fdecision, ) (finclusion -> fintention, ) (finclusion -> fdecision, ) (fintention -> fdecision, ), standardized nocapslatent
```

Endogenous variables  
Observed: fintention fdecision  
Exogenous variables  
Observed: fliteracy finclusion

Fitting target model:  
Iteration 0: log likelihood = -457.66802  
Iteration 1: log likelihood = -457.66802

Structural equation model  
Estimation method = ml  
Log likelihood = -457.66802

Number of obs = 150

Standardized	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
<b>Structural</b>					
fintention <-					
fliteracy	.3959859	.0630056	6.28	0.000	.2724972 .5194747
finclusion	.4399447	.0619408	7.10	0.000	.318543 .5613464
_cons	1.04843	.4062699	2.58	0.010	.2521556 1.844705
fdecision <-					
fintention	.365755	.0709261	5.16	0.000	.2267424 .5047675
fliteracy	.2451135	.0651367	3.76	0.000	.1174479 .3727791
finclusion	.3105245	.0659163	4.71	0.000	.181331 .439718
_cons	.3862949	.3460436	1.12	0.264	-.291938 1.064528
var(e.fintention)	.4443653	.0459666			.3628181 .544241
var(e.fdecision)	.3496249	.0393811			.2803655 .4359936

LR test of model vs. saturated: chi2(0) = 0.00, Prob > chi2 = .

**Figure 3: Main Output Results of SEM with Stata 13.**

After going through two iterations, the results of the z-count and the level of significance are obtained through  $P > |z|$  and it can be seen that all constructs have a very high z-hotun value and a significance level of  $P > |z|$  all fulfilled. So from the results of Figure 3 above, all hypotheses H1 to H5 are declared absolutely accepted. Thus, it proves again the determinants of financial decisions, namely financial literacy and inclusion. These results support Grohman, et.al. (2018), Lusardi & Mitchell (2014) and Dewi, et.al. (2020). Good financial intention results for z-count and significance level  $P > |z|$  besides supporting H5, it also succeeded in improving the results of the study Suryani, et.al. (2015) which actually found that the level of financial decisions of MSME actors was not good because the level of financial literacy of MSME actors was still low.

#### 4.3. Analysis of Direct and Indirect Effects

The results of testing the direct and indirect effects are shown in Figure 4. The direct effect for financial literacy on financial decisions has a path coefficient value of 0.2523079. Then for the indirect effect of financial literacy on financial decisions, the path coefficient value is

0.1490849. Because the results of the direct effect are greater than the indirect effect, it can be stated that financial intention is not proven to mediate the influence of financial literacy and financial decisions. If it is also related to the influence of financial inclusion and financial decisions, the same thing also happens. Then financial intention was not proven to mediate the influence of financial inclusion and financial decisions.

```
. estat teffects, standardized
```

Direct effects						
	Coef.	OIM Std. Err.	z	P> z		Std. Coef.
Structural						
fintention <-						
fliteracy	.4048554	.0688693	5.88	0.000		.3959859
finclusion	.436118	.0667746	6.53	0.000		.4399447
fdecision <-						
fintention	.3682423	.072917	5.05	0.000		.365755
fliteracy	.2523079	.0682215	3.70	0.000		.2451135
finclusion	.3099169	.0675822	4.59	0.000		.3105245
Indirect effects						
	Coef.	OIM Std. Err.	z	P> z		Std. Coef.
Structural						
fintention <-						
fliteracy	0 (no path)					0
finclusion	0 (no path)					0
fdecision <-						
fintention	0 (no path)					0
fliteracy	.1490849	.0389184	3.83	0.000		.1448338
finclusion	.1605971	.0401982	4.00	0.000		.160912
Total effects						
	Coef.	OIM Std. Err.	z	P> z		Std. Coef.
Structural						
fintention <-						
fliteracy	.4048554	.0688693	5.88	0.000		.3959859
finclusion	.436118	.0667746	6.53	0.000		.4399447
fdecision <-						
fintention	.3682423	.072917	5.05	0.000		.365755
fliteracy	.4013928	.0665271	6.03	0.000		.3899473
finclusion	.470514	.0645036	7.29	0.000		.4714365

**Figure 4:Results of Direct & Indirect Effects of SEM Stata 13.**

The implication of the test results is that Tangerang MSME women have had a high level of financial literacy and financial inclusion so that they do not require financial intention in determining financial decisions. This results support Grohman, et.al. (2018), Dewi, et.al. (2020), Gunawan, et.al. (2021), Kumar et.al. (2019) and Koomson et.al. (2021).

## 5. Conclusion and Suggestion

The results of the study to determine the structural equation model of the financial decision making factors of MSME women in Tangerang have been successfully realized with SEM analysis through the STATA 13 program. This will certainly add to the repertoire of previous research using SMART-PLS, AMOS and LISREL. This study succeeded in describing SEM diagrams with STATA software even though it was only at the path analysis level. The five



hypotheses H1 to H5 were all answered well from the results of processing the measurement model of decision making factors which included z-count values and  $P > |z|$  each construct.

However, this structural equation model with STATA 13 still has weaknesses because it has not been able to prove mediating effect of financial intention. If we look at the type of female respondents of MSMEs in Tangerang, who have higher digital literacy compared to other regions, the findings of the new study are judgmental. In order to accept the SEM model built, mediation needs to occur. The suggestion to improve the SEM model is to test at the indicator level, not just the average of each construct. This is closely related to the latent nature of the construct in which there are many indicators.

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### References

- Ajzen, I. (2015), Consumer Attitudes and Behavior: The Theory of Planned Behavior Applied to Food Consumption Decision, *Italian Review of Agricultural Economics* Vol. 70. No.2, pp. 120-138.
- Cain, M.K. (2021), Structural Equation Modelling using STATA, *Journal of Behavioral Data Science* Vol. 1 No.2, pp. 156-177, <https://doi.org/10.35566/jbds/v1n2/p7>
- Dewi, V., Febrian, E., Effendi, N. & Anwar.M. (2020), Financial Literacy among the Millennial Generation: Relationships between Knowledge, Skills, Attitude, and Behavior, *Australasian Accounting, Business and Finance Journal*, 14(4), 24-37. <https://doi.org/10.14453/aabfj.v14i4.3>
- Grohman, A., T. Kluhs & L. Menkhoff (2018), Does Financial Literacy Improve Financial Inclusion? Cross Country Evidence, *World Development*, Elsevier, Vol. 111, pp. 84-96. <https://doi.org/10.1016/j.worlddev.2018.06.020>
- Gunawan, V., Dewi, V.I., Iskandarsyah, T. & I. Hasyima (2021), Women's Financial Literacy: Perceived Financial Knowledge and Its Impact on Money Management, *Economics and Finance in Indonesia*. Vol. 67 No. 1, 63–74.
- Kaiser T & Menkhoff L (2017), Does Financial Education Impact Financial Literacy and Financial Behavior, and if so, When? Policy Research Working Paper no. WPS 8161. Washington, DC: The World Bank.
- Khalil, M. (2021), Financial Citizenship as a Broader Democratic Context of Financial Literacy, *Citizenship, Social and Economic Education* Vol. 20. No. 1, pp. 3-16. <https://doi.org/10.1177/2047173420948411>
- Koomson, I, Villano, RA, & Hadley, D. (2021), Accelerating the Impact of Financial Literacy Training Program on Household Consumption by Empowering Women', *Applied Economics*, 53(29), 1-18. <https://doi.org/10.1080/00036846.2021.1878093>
- Kumar, S, Tomar, S, & Verma, D.(2019), 'Women's Financial Planning for Retirement: Systematic Literature Review and Future Research Agenda', *International Journal of Bank Marketing*, vol. 37, no. 1, pp. 120-141. <https://doi.org/10.1108/IJBM-08-2017-0165>
- Lubis, A.W. (2021), Conceptualizing Financial Capability: Evidence from Indonesia, *International Journal of Ethics and Systems*, Vol. 37 No.2, pp. 3-17, <https://doi.org/10.1108/IJOES0620200095>

Lusardi, A & O.S. Mitchell (2014), The Economic Important of Financial Literacy: Theory and Evidence, Journal of Economic Literature Vol. 52 No.1, pp. 5-44.

Lusardi, A (2019), Financial Literacy and The Need for Financial Education: Evidence and Implications, Swiss Journal of Economics and Statistics, December 2019.

Mandell, L. & Klein LS (2007), Motivation and financial literacy. Financial Services Review 16(2): 105.

Setyawan, R. Ramli, I. & Listyarti, I. (2020), Design Development of Financial Citizenship Model for Women in Indonesia. 3<sup>rd</sup> TICATE, 2020. IOP Conf. Series: Materials Sciences and Engineering. 1007 012046

Suryani, Tatik., Iramani, Rr. & Lindiawati. (2015), Development of Financial Inclusion Access (FILA) Model and Marketing Competence in Small and Medium Enterprises (SMEs) Human Resources as a Strategy to Increase Competitiveness in the Era of the ASEAN Economic Community. Research Contract 060/SP2H/P/K.7/KM/2015.

Xiao, J.J. (2008), applying behavior theories to financial behavior. In Handbook of Consumer Finance Research (pp. 69-81). New York, NY: Springer. [https://doi.org/10.1007/978-0-387-75734-6\\_5](https://doi.org/10.1007/978-0-387-75734-6_5).