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Financial Literacy, Financial Technology Literacy, and Capital Market Participation

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Abstract

Objective: This study aims to determine the effect of financial literacy and fintech literacy on capital market participation. It also examines the effects of individual characteristics (i.e., gender, age, student's allowances and income, parent's education, and parent's income) on financial and fintech literacy.
Design/Methods/Approach: This study obtained 349 data from email and field surveys using purposive sampling. Data analysis was performed using OLS and path analysis.
Findings: Results show that the level of student financial literacy is sufficiently literate, with a moderate level of fintech literacy but low capital market participation. The results also show financial and fintech literacy positively affects capital market participation. Financial literacy also exhibits indirect effects on capital market participation. Analysis of the determinants of literacy shows that gender, age, student allowances, and income have a significant positive effect on financial literacy and fintech literacy. We also find that parental education and income show a negative effect on fintech literacy.
Originality/Value: This study is the first to examine the relationship between financial literacy, fintech literacy, and capital market participation in young adults in metropolitan cities in Indonesia. The results are expected to provide insight for the authorities of the monetary system and the capital market to develop strategies for the more intense involvement of young adults in the capital market.
Practical/Policy implication: This study highlights the importance of educating students about financial and fintech literacy to increase their participation in the capital market. Decision-makers should focus on providing intense education on portfolio investment, risk and return, and investment instruments. Financial authorities should also collaborate with fintech operators and securities companies to promote capital market products through fintech and educate the public with more comprehensive information.

Keywords: Financial literacy, Fintech literacy, Capital market participation, Individual characteristic

JEL Classification: G400, G410, G100

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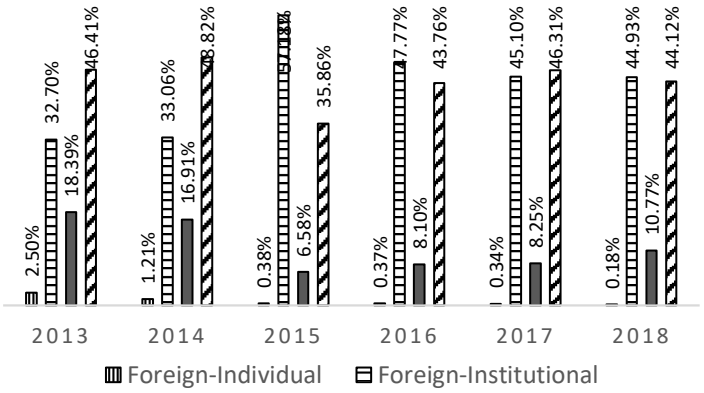
1. Introduction

The capital market is an intermediary institution between parties with excess funds (investors) and parties experiencing a deficit or needing funds by trading products on the capital market. Financial instruments in the capital market are long-term instruments with a maturity of more than one year, including, among others, stocks, bonds, and mutual funds. Figure 1 shows investors' ownership of securities in the Indonesian capital market during 2013-2018. Ownership by local individual investors, with an average of 11.5% in the 2013-2018 period, indicates the low participation of the Indonesian capital market. This condition is caused partly by low levels of financial literacy. Investors' financial literacy will impact people's active participation in activities in the capital market. The OJK survey revealed that the proportion of Indonesia's population with a well literate status was only 29.66% (OJK, 2017). The low financial literacy in the capital market also results in low participation in the capital market (Van Rooji et al., 2007).



Source: Financial Services Authority (2018)

Figure 1. Indonesian capital market investor statistics

Low capital market participation encourages various parties to seek solutions to increase public participation. One way to do this is to facilitate access to transactions on the capital market by using financial technology (fintech) services. Fintech combines financial services with technology that changes the business model from conventional to moderate, making the transaction process faster and more efficient (Lee and Shin, 2018). Through fintech, capital market products can be accessed easily at a relatively lower cost. According to Elsinger et al. (2018), financial literacy is a prerequisite for effectively selecting and using fintech products.

Previous research shows a positive relationship between financial literacy and awareness of all financial products (Bhushan, 2014) and investment decisions (Lusardi & Mitchell, 2014; Van Rooji et al., 2007). Research by Rahayu et al. (2022) shows a positive relationship between digital financial literacy and spending, saving, and investment behaviour. Rajdev and Modhvadiya (2020) stated that there is a gap between the level of digital financial literacy and the usage of digital financial services. The research that has been carried out needs to be complemented by testing the influence of financial and digital financial literacy on capital market participation to get a better picture.

This study seeks to determine the relationship between financial literacy, fintech literacy, and capital market participation in students of several public universities in Surabaya. Students are components of society who are in the transition stage from adolescence to adulthood. This period is a critical transitional stage because most students are generally not yet financially independent but are starting to learn how to manage finances. Students' awareness of investing earlier can help them achieve future financial security and increase participation in national economic development.

Individual characteristics can influence the level of financial and fintech literacy. Kabede et al. (2015) and Lusardi (2019) find that gender, age, and parental education affect financial literacy. Chen and Volpe (1998) find that age, parental education level, and parental income level affect financial literacy. Considering these things, this study also aims to determine the effect of individual characteristics on the level of financial literacy and fintech literacy.

This study is the first to examine the relationship between financial literacy, fintech literacy, and capital market participation in young adults in metropolitan cities in Indonesia. The results are expected to provide insight for the authorities of the monetary system and the capital market to develop strategies for the more intense involvement of young adults in the capital market. The results of this study indicate that financial literacy affects both fintech literacy and capital market participation, as well as the mediating role of fintech literacy in the relationship between financial literacy and capital market participation. This study also shows the influence of gender, age, student allowances, and income on financial and fintech literacy. Finally, this study also describes the financial literacy, fintech literacy, and capital market participation levels in young adults studying at public universities in Surabaya.

This paper is organized into several sections. The following section describes the theoretical background and the development of the hypotheses. Section 3 explains the research method. Section 4 is about the results and discussion of research results. Section 5 is the research conclusion.

2. Literature Review and Hypotheses Development

2.1. Capital Market Participation

The capital market has a vital role in economic development in a country. The capital market provides intermediary facilities for inventors to finance companies needing funds. In addition, the capital market serves as an investment medium for people to earn returns. Capital market participation shows public involvement in capital market activities, which is marked by ownership of accounts in capital market products such as stocks, bonds, and mutual funds so that they can process transactions on capital market products (Mouna & Anis, 2017). The more people access capital market products, the higher the level of capital market participation. Mouna and Anis (2017) state that capital market participation can be seen from the community's stock ownership. They measure the level of capital market participation by asking questions about stock ownership by respondents. In this study, market participation is measured by stock ownership and ownership of other instruments, namely mutual funds and bonds.

To measure the level of capital market participation, we designed an instrument that consists of two parts. The first part contains five questions to measure the involvement in capital market investing activities. Each "yes" answer will get a score of 1, and each "no" is 0. The second part is related to the ownership intensity of capital market instruments. We calculated how many types of instruments the students have. For each instrument owned, the ownership intensity score will increase by one. The formula then calculates the Capital Market Participation Index:

$$CMPI = \frac{\sum Y+I}{N} \times 100 \qquad (1)$$

Y is the number of "yes" answers to five questions about involvement in the capital market. I am the ownership intensity on capital market instruments. Intensity shows how many types of capital market instruments a student has. We assume that students can buy 3 capital market instruments: stocks, bonds, and mutual funds. N is the maximum score for the questions on involvement and ownership intensity, which is 8.

2.2. Financial Literacy

Financial literacy is the level of financial knowledge that indicates that an individual understands financial issues and can manage matters related to their finances for optimal financial decision-making (Lusardi, 2019). Lusardi et al. (2011) measured financial literacy by four indicators: financial knowledge, financial attitude, financial behaviour, and financial skills. In this study, we employ financial knowledge as an indicator of financial literacy since it is the main dimension of literacy. Financial knowledge is often considered a synonym for financial literacy. People with a high financial literacy know basic financial concepts (Garg & Singh, 2018). Financial literacy in this study is expressed in an index. To measure financial literacy, we designed eleven questions related to basic financial literacy and counted the number of correct answers from respondents. The questions on the questionnaire cover financial issues related to interest, inflation, risk, and investment. Each correct answer will get a score of 1. The more the correct answers, the higher the level of financial literacy. Financial literacy in this study is then measured as an index (FLI), which is measured by the formula:

$$FLI = \frac{\sum T}{N} \times 100 \qquad (2)$$

T is the total number of correct answers from the respondent, and N is the total number of questions presented to the respondent. The financial literacy index is categorized into 4 based on scores: well literate category for scores> 60, sufficient literate for a score of 40-60, less literate for a score of 20-40, and not literate for a score of less than 20. (Otoritas Jasa Keuangan, 2015).

High financial literacy can increase capital market participation. Research by Van Rooij et al. (2007) shows that individuals with low financial literacy participate less in investing in the capital market. Bhushan (2014) concludes that respondents with a high level of financial literacy have a higher awareness of all financial products. Individuals with low financial literacy tend to use traditional and safe financial products. Thus, it can be said that the level of financial literacy affects awareness about financial products and investment preferences on financial products. Lusardi and Mitchell (2014) also show that individuals with higher levels of financial literacy are more likely to accumulate wealth actively. This is indicated by behaviour oriented towards saving and investing and more prudent debt management and borrowing practices.

H1: Financial literacy has a positive effect on capital market participation

Developing financial literacy among youth has become one of the most fundamental problems for policymakers. Today, young people's financial choices are different from a few years ago. The emergence of fintech provides innovations

for financial products. A person with high financial literacy can apply financial knowledge to fintech products (Elsinger et al., 2018). Individual financial literacy is needed for decision-making on financial products contained in fintech. The decision taken is optimal from the alternative fintech products offered. Morgan and Trinh (2019) state that financial literacy has a positive effect on the use of fintech products. A better understanding of financial concepts is needed so that people can apply the available fintech products and services.
H2: Financial literacy has a positive effect on fintech literacy

2.3. Financial Technology Literacy

Financial technology (fintech) is a combined innovation between technological developments and financial services so that users can make transactions quickly and efficiently anywhere and anytime (Demirguc-Kunt et al., 2018). Fintech can cut costs, improve the quality of financial services, and create more diversified financial services (Lee & Shin, 2018). To measure fintech literacy, we utilize the indicator for measuring financial inclusion according to Bank Indonesia. Financial inclusion is when people have access to various quality formal financial services in a timely, smooth, and safe manner at affordable costs according to their needs and abilities to improve community welfare. Thus, fintech is a form of financial inclusion. There are three dimensions of measuring fintech literacy: 1) Access related to the availability of product and service attributes so that people can meet their needs for financial products and services; 2) Usage that measures the level of the actual use of financial products and services; 3) Quality that measures whether the attributes of financial products and services available have met customer needs.

In this study, we designed 19 statements related to fintech literacy. Answers to statements are stated on a Likert scale of 1 to 5, "1" for "strongly disagree" and "5" for "strongly agree". The higher the score of a respondent, the higher the fintech literacy. The statements presented covered four categories of fintech: peer-to-peer lending and crowdfunding; market aggregator; payment, settlement, and clearing; and risk and investment management. The formula calculates the fintech literacy index (FTI):

$$FTI = \frac{Total\ Score}{N} \qquad (3)$$

The total score is the sum of the scores for all 19 statements, while N is the number of statements. The fintech literacy index is classified into 3 categories. It is "low" for the mean between 1.00 and 2.33, "moderate" for the mean between 2.34 and 3.67, and "high" for 3.68 and 5.00.

Technological innovation has opened a revolution for all aspects of life that lead to new and more efficient products, including the financial services sector (Leong et al., 2017). The capital market also uses financial technology that offers innovative and low-cost solutions in the services provided. Fintech provides easy access to transactions on capital market instruments. With the convenience offered, fintech can provide financial services anywhere, anytime, and by anyone. Fintech can change the paradigm of society that transacting on capital market instruments is complex and requires high costs. Currently, the capital market is increasingly accessible at a relatively low cost with the help of fintech. Therefore, better fintech literacy is expected to increase people's access to the capital market.
H3: Fintech literacy has a positive effect on capital market participation.

Fintech literacy can function as a mediator for the relationship between financial literacy and capital market participation. For individuals with certain levels of financial literacy, fintech provides support in the form of relevant information about various investment alternatives that can be obtained efficiently. This will facilitate investors in analyzing and selecting securities and become a catalyst for investment activity.
H4: Fintech literacy mediates the effect of financial literacy on capital market participation

2.4. Individual Characteristics

In this study, we utilized students' individual characteristics, including gender, age, allowances, personal income, parental education, and parental income. Allowances and personal income are the average funds obtained from parents' or students' personal income due to work or business used to meet monthly living needs. Parents' education is the last education of the respondents' parents. Parents 'monthly income is students' parents' income from their work. Chen and Volpe (1998) found that males have higher literacy rates than females. Research conducted by Brook et al. (2019) states that gender differences affect ways of thinking for decision-making. Halder et al. (2010) emphasized the differences in information-seeking behaviour between male and female students. Male students tend to be active in browsing because they prioritize the diversity of information obtained, while women tend to prioritize in a deep understanding of information content. However, another study conducted by Morgan and Trinh (2019) states that gender has no influence on fintech awareness.
H5: Gender has an effect on financial literacy
H6: Gender has an effect on fintech literacy

Previous studies on the effect of age on literacy have produced mixed results. Gunardi et al. (2017) state that age does not affect individual financial literacy. Research conducted by Chen and Volpe (1998) shows that young people

have lower literacy levels than older people. Age will affect an individual's literacy level because the older a person increases his knowledge and understanding, the more complex his/her experiences are, which can increase individual literacy. This differs from Morgan and Trinh (2019), who find that age negatively affects fintech awareness. This is because the younger a person is, the higher his/her ability to understand technological developments. However, it should be noted that Morgan and Trinh's (2019) study was conducted on respondents with a wide range of age, whereas our study focused on students aged 18 to 25.
H7: Age has a positive effect on financial literacy
H8: Age has a positive effect on fintech literacy

Conger et al. (2013) stated that the responsibility of parents towards their young adult children in economic matters includes financial support and socialization. For young adults, parents are the primary source of finance in college. However, this does not close the opportunity for parents to encourage their children to start working. In this study, we assume that the total student income is obtained from the allowances that come from parents and income due to work. Chen and Volpe (1998) and Kabede et al. (2015) examined that low-income individuals have lower levels of financial literacy than high-income individuals. Morgan and Trinh (2019) state that high-income respondents have higher fintech literacy. This happens because the higher a person's income, the easier it is to access information to increase knowledge and understanding.
H9: Student's allowances and income has a positive effect on financial literacy
H10: Student's allowances and income have a positive effect on fintech literacy

Parental education is the last education grade of the respondent's parents. According to Conger et al. (2013), parents play financial socialization roles for young adults. Parents are considered the main source of knowledge related to financial issues. Parents help their young adult children understand the impact of decisions on financial health and personal well-being. Morgan and Trinh (2019) state that education has a positive effect on the use of fintech products. Furthermore, research by Gunardi et al. (2017) proves that parental education affects children's literacy. Parents with a higher education level have broad knowledge, understanding, and skills that can be passed on to their children.
H11: Parental education has a positive effect on financial literacy
H12: Parental education has a positive effect on fintech literacy

Parents' income is the average monthly income earned by the respondent's parents. Gunardi et al. (2017) find that parents' income affects individual financial literacy. Research conducted by Ergun (2017) shows that students with lower-income parents have lower financial knowledge than students with higher-income parents. Higher-income parents tend to have easy access to information and facilitate the availability of information that their children need. Higher incomes also allow their children to have greater opportunities to use financial services more intensively for both college and financial safety purposes and to meet the needs of the latest electronic devices.
H13: Parental income has a positive effect on financial literacy
H14: Parental income has a positive effect on fintech literacy

3. Method

3.1. Sample and Data

The sample was determined by purposive sampling with the criteria of student respondents from public universities in Surabaya who were in the Strata-1 or Diploma-4 education programs and were in the third or fourth year of study. Respondent criteria are determined by considering the following: 1) in general, state universities are the first priority for high school graduates to go to college so that students who pass the selection are high school graduates with the best grades, 2) students in their third or fourth year are at least 21 years old, so they are considered mature in their behaviour and thinking, including in making decisions. Researchers used the Slovin formula with an error margin of 5% to determine the number of samples from this population. The target population data, the number of undergraduate students of state universities in Surabaya, was obtained from the Ministry of Research, Technology, and Higher Education. The number of respondents from each university is determined proportionally to the total target population. Data was collected by distributing questionnaires online and offline (hardcopy). Table 1 presents the distribution of respondents from each state university

3.2. Operational Definition and Measurement

Capital market participation is the level of people's involvement in capital market activities, characterized by ownership of capital market products as measured by the equation (1). Financial literacy is financial knowledge that indicates an individual understands finances and can organize and manage their finances for making optimal financial decisions and managing their finances wisely, as measured by equation (2). Financial technology literacy is a person's

understanding of the access, use, and quality of financial services delivered by information technology. Fintech literacy is measured using equation (3).

This study's individual characteristics include gender, age, total allowances and personal income, parental education, and parental income. Gender is the sex of each individual. Age is the student's age at the time the research was conducted. Student allowances and income are the average sum of students' allowances from parents and personal income from work per month. Parental education is the last education of the respondent's parents. Monthly parents' income is the income earned by the respondent's parents. We analyzed the data by OLS and path analysis. Path analysis determines the relationship between financial literacy, fintech literacy, and capital market participation. Multiple linear regression analysis was used to determine the effect of individual characteristics on financial literacy and fintech literacy.

Table 1. Distribution of respondents from each state university

Name	***Proportion***	***Number of Respondent***
ITS	15,01%	52
PENS	1,88%	8
PPNS	2,12%	8
UINSA	16,90%	56
UNAIR	21,13%	74
UNESA	26,84%	95
UPNVJT	16,12%	56
Total	100%	349

Source: The Ministry of Research, Technology, and Higher Education (2019), processed

3.3. Model

To analyze the relationship between financial literacy, fintech literacy, and capital market participation, we adopt a step-by-step procedure using the following model:

$$CMPI_i = \gamma_1 FLI_i + \varepsilon_3 \quad (4)$$

$$FTI_i = \gamma_2 FLI_i + \varepsilon_4 \quad (5)$$

$$CMPI_i = \gamma_3 FTI_i + \gamma_4 FLI_i + \varepsilon_5 \quad (6)$$

CMPI is Capital Market Participation, FLI is financial literacy, FTI is fintech literacy, and ε is error.

In the next steps, we add individual characteristics, including gender (SEX), age (AGE), total allowances (ALWINC), parental education (PEREDU), and parental income (PARINC). Then, we tested for financial literacy and fintech literacy using the following models.

$$FLI_i = \alpha_0 + \alpha_1 SEX_i + \alpha_2 AGE_i + \alpha_3 ALWINC_i + \alpha_4 PAREDU_i + \alpha_5 PARINC_i + \varepsilon_1 \quad (7)$$

$$FTI_i = \beta_0 + \beta_1 SEX_i + \beta_2 AGE_i + \beta_3 ALWINC_i + \beta_4 PAREDU_i + \beta_5 PARINC_i + \varepsilon_2 \quad (8)$$

4. Results

4.1. Descriptive

Table 2 shows a description of the respondents. The proportion of male respondents in this study is 30%. The proportion of female respondents is 70%. The largest proportion of respondents based on gender are women.

Table 2 shows the proportion of respondents based on their educational background. In this study, the educational background is divided into two. Students with educational backgrounds in the economics-business faculty (ecbus) and those other than the economics-business faculty (non-ecbus). The proportion of non-economic business student respondents in this study is 37%. The proportion of non-economic business student respondents is 63%. The largest proportion of respondents based on faculty are non-business-economics students. The diagram above shows the proportion of respondents based on the student's area of origin. The proportion of respondents who came from municipalities is 44%. The proportion of respondents who came from the regency area is 56%. The largest proportion of respondents based on regional origin are students from the district. Allowances and personal income are the sum of student allowances from parents and income from work.

The largest proportion of students-based allowances and personal income is in the interval of Rp. 750,000 to Rp. 1,500,000.00, which is 38%. Meanwhile, the proportion of students with allowances and personal income between Rp. 2,250,000.00 to Rp. 3,000,000.00 and Rp 1,500,000.00 to Rp 2,250,000.00 are second and third, with a total proportion of 48%. No students have allowances and personal income under Rp 750,000,00 and over Rp. 6,000,000.00. Figure 2 also shows that most of the parents of students have middle to lower income levels. In addition, around 60% of parents only have basic education. Both are due to the state university selection system, which results in student admissions based more on personal abilities.

Table 2. Descriptive

Variable		Proportion	Mean	StDev
Gender	Female	70.49%	0.30	0.46
	Male	29.51%		
Age	<20	3.15%	2.23	0.49
	20-21	70.77%		
	>21	26.07%		
Academic Background	Non-economics & Business	63.04%	0.37	0.48
	Economics & Business	36.96%		
Origin	Regency	56.45%	0.44	0.50
	Municipality	43.55%		
Personal Allowances & Income	<0.75M	0.00%	3.22	1.21
	0.75M-1.5M	38.11%		
	1.5M-2.25M	21.49%		
	2.25M-3.0M	26.65%		
	3.0M-4.5M	7.45%		
	4.5M-6.0M	6.30%		
	>6.0M	0.00%		
Parent's Education	<Junior High	10.32%	3.55	1.44
	Junior High	9.17%		
	Senior High	39.83%		
	Diploma	3.44%		
	Undergraduate	31.23%		
	Master	5.44%		
	Doctoral	0.57%		
Paren's Income	<1.5M	12.89%	2.85	1.21
	1.5M-3.0M	30.37%		
	3.0M-5.0M	28.37%		
	5.0M-7.5M	15.76%		
	>7.5M	12.61%		
N	349			

4.2. Financial Literacy

Table 3 shows that the overall sample has an average of 52.67. Thus, it can be concluded that the level of student financial literacy in Surabaya is sufficiently low. This level indicates public members with sufficient knowledge and confidence about financial service institutions and financial products and services, including features, benefits and risks, rights, and obligations related to financial products and services. FLI1, FLI3, and FLI7 questions about the calculation of loan interest, the effect of inflation, and understanding of taxes have the highest scores and are classified as well-literate categories. Basic financial concepts related to interest, inflation, and taxes have been taught in school, as well as basic financial concepts. The frequency of conveying these concepts in economic news also results in information about the three being easily obtained. These concepts are also very relevant to the routine of everyday life as a student. FLI9, FLI10, and FLI11 are questions related to investment in the capital market, including the concept of risk and return, showing the lowest score and belonging to the less-literate category. Students' understanding of risk, return concepts, and investment instruments in the capital market is still low. This is inseparable from the fact that the development of the Indonesian capital market is indeed late, even compared to nearby countries such as Singapore and Malaysia. This results in people having higher preferences and knowledge of investment instruments: time deposits, gold, and property (HSBC, n.d.)

The average score of male respondents is higher than that of females at alpha 10%. Karafyllis (2008) states that men have better math or numeracy skills than women, so men have higher financial literacy scores than women. However, female scores are higher on the FLI2, FLI3, and FLI7 statements regarding interest, inflation, and taxes. In statements related to the investment concept, especially in the capital market (FLI6, FLI9, FLI11), there is the biggest difference in financial literacy scores between men and women. FLI6, FLI9, and FLI 11 questions about risk, return, and capital market products. Men tend to be more active in gathering new information, while women are more concerned with understanding the information received (Halder et al., 2010). This is reinforced by the fact that men are more risk-averse than women (Charness & Gneezy, 2012), which motivates them to take risks by investing in their new knowledge.

Table 3 also shows that the average Ecbus student has a higher financial literacy score than non-Ecbus students at the 1% significance level. Economics and business students learn about financial concepts and economic calculations in more detail than non-economics and business students. This indicates that Ecbus students understand better and have more financial knowledge. FLI8, FLI9, and FLI11 have the largest differences in financial literacy scores between Ecbus and Non-Ecbus students. FLI8, FLI9, and FLI11 are questions about capital market products and the concept of risk and return. Ecbus students also have higher capital market participation. Most economics and business faculties have investment gallery facilities, making it easier for students to invest in capital market products. With these facilities and better financial knowledge, Ecbus students can participate in the capital market more than their counterparts.

Table 3. Financial literacy score

	Overall Sample	Category	Gender p-value 0,070		Field of Study p-value 0,004	
			F	M	Non-Ecbus	Ecbus
FLI1	81.09	Well literate	80.49	82.52	81.82	79.85
FLI2	46.42	Sufficient literate	49.19	39.81	40.91	55.81
FLI3	85.39	Well literate	86.18	83.50	81.36	92.25
FLI4	38.97	Sufficient literate	36.99	43.69	36.82	42.64
FLI5	43.27	Sufficient literate	40.24	50.49	43.18	43.41
FLI6	49.57	Sufficient literate	43.90	63.11	46.82	54.26
FLI7	79.37	Well literate	81.71	73.79	78.64	80.62
FLI8	57.31	Sufficient literate	54.47	64.08	49.09	71.32
FLI9	30.37	Less literate	27.24	37.86	24.55	40.31
FLI10	32.95	Less literate	30.08	39.81	31.82	34.88
FLI11	34.67	Less literate	31.30	42.72	27.27	47.29
Average	52.67	Sufficient literate	51.07	56.49	49.30	58.42

4.3. Fintech Literacy

Table 4 shows the average score of respondents' responses to fintech literacy statements. The overall mean is 3.43, which indicates moderate fintech literacy. FTI3, FTI5, FTI7, and FTI14 had the highest fintech literacy scores.

The four statements refer to using fintech to make purchases and pay bills, save money, transact with various banks, and get promotional programs from fintech companies. These statements are related to Payment, Settlement, and Clearing services. Students often use these products to process financial transactions to fulfil their daily needs. Thus, students understand the features and benefits provided by these fintech products so that they have higher fintech literacy. FTI10, FTI12, FTI17 had the lowest fintech literacy scores. Those statements are about the use of fintech to obtain peer-to-peer loans. Students tend not to borrow funds from fintech products even on those fintech products devoted to meeting students' financial needs. Peer-to-peer fintech lending requires interest on borrowers. Meanwhile, students tend not to have a steady income or still rely on financial support from their parents. In times of lack, students borrow funds from friends or people around them.

Based on Table 4, the fintech literacy score of male students is higher than that of females at 1% alpha. The FTI3, FTI11, and FTI19 statements show the greatest differences between male and female students. The Browser Satisfactory Index (2017) states that men are more interested in finding as much information as possible about technology than women. Thus, men better understand and can use technology than women. The FTI15, FTI16, and FTI18 statements show higher fintech literacy scores for female students than boys with statements about the risks, costs, and convenience of transacting using fintech products. Brooks et al. (2019) stated that gender differences affect the way of thinking for decision-making. Women tend to be more risk-averse than men. This emotional state encourages them to intensively browse certain information and carefully compare the content of information with one another. A better understanding of certain features encourages a higher level of confidence in the risks and convenience of using fintech services. This aligns with Bank Indonesia's policy on safer and more comfortable fintech services. The regulations are designed so that Fintech products can provide lower risks and costs and provide more convenience than traditional transactions.

Table 4 also shows that, on average, Ecbus students have higher fintech literacy scores than Non-Ecbus at the 1% significance level. Ecbus students gain more financial knowledge and knowledge than Non-Economics and Business students. With their knowledge and understanding, Ecbus students tend to be able to understand the products and features available in financial fintech so that they can better implement the insights they have on the fintech products they use. The FTI2 and FTI7 statements show the greatest difference in financial literacy scores between the two groups of students. These statements relate to using fintech services for financial and banking service purposes. Ecbus students have a better understanding of the concept of funding services and banking services. Therefore, it is unsurprising that they can better identify these types of services in fintech. There is one statement with a higher score for non-Ecbus students, namely the FTI15 statement that is related to fintech service fees. Non-Ecbus students tend to perceive the

costs of fintech services as lower than traditional way services. This difference occurs due to Ecbus students' more complex understanding of the cost-benefit and the opportunity cost, which prevents them from assessing service costs at face value.

Table 4. Financial technology literacy score

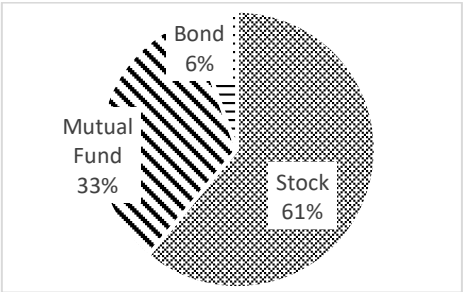
Statement	Overall Sample	Category	Gender p-value 0.000		Field of Study P value 0,000	
			F	M	Non-Ecbus	Ecbus
FTI1	3.62	Moderate	3.61	3.66	3.54	3.76
FTI2	3.35	Moderate	3.28	3.52	3.21	3.59
FTI3	3.85	High	3.77	4.05	3.80	3.94
FTI4	3.33	Moderate	3.26	3.49	3.25	3.47
FTI5	3.88	High	3.82	4.03	3.80	4.02
FTI6	3.36	Moderate	3.30	3.51	3.36	3.35
FTI7	3.78	High	3.75	3.85	3.66	3.98
FTI8	3.40	Moderate	3.37	3.47	3.33	3.51
FTI9	3.36	Moderate	3.34	3.41	3.34	3.40
FTI10	3.19	Moderate	3.17	3.24	3.13	3.31
FTI11	3.26	Moderate	3.17	3.48	3.20	3.36
FTI12	3.17	Moderate	3.12	3.28	3.16	3.17
FTI13	3.34	Moderate	3.34	3.35	3.27	3.47
FTI14	3.93	High	3.93	3.94	3.85	4.08
FTI15	3.25	Moderate	3.28	3.19	3.31	3.15
FTI16	3.28	Moderate	3.29	3.24	3.27	3.29
FTI17	2.93	Moderate	2.87	3.07	2.88	3.02
FTI18	3.53	Moderate	3.54	3.52	3.50	3.59
FTI19	3.26	Moderate	3.18	3.47	3.24	3.31
Average	3,43	Moderate	3.39	3.51	3.37	3.51

4.4. Capital Market Participation

Table 5 shows that question CMP1 in the overall sample has a value of 15.19%, indicating the percentage of students who have invested in capital market products while the rest have not. This value is roughly the same as the proportion of students with the highest allowances and monthly income level in the sample (Rp. 1.5 - to Rp. 3 million per month).

Table 5. Proportion of "Yes" answers to capital market participation statements

Statement	Overall Sample	Gender		Field of Study		Origin	
		F	M	Non-Ecbus	Ecbus	Regency	Municipality
CMP1	15.19%	12.60%	21.36%	10.45%	23.26%	12.69%	18.42%
CMP2	4.87%	4.07%	6.80%	3.64%	6.98%	3.05%	7.24%
CMP3	6.02%	4.07%	10.68%	5.45%	6.98%	5.58%	6.58%
CMP4	8.88%	6.91%	13.59%	6.82%	12.40%	7.11%	11.18%
CMP5	5.16%	4.07%	7.77%	3.64%	7.75%	4.06%	6.58%
CMPI	0.0698	0.0559	0.1032	0.0506	0.1027	0.0565	0.0872



Source: Primary data processed

Figure 2. Student investment options

4.5. The Relationship between Financial Literacy, Fintech Literacy, and Capital Market Participation

Table 6 shows the results of the validity and reliability tests. The validity test using the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO MSA) (Ghozali: 2018) produces a value greater than 0.05 and a significant level less than 0.05. The test results show that the variables of financial literacy, fintech literacy, and capital market participation have met the testing criteria. The reliability test determines the consistency of measuring instruments using a questionnaire. Cronbach's Alpha value for all variables is greater than 0.6. The variables of financial literacy, fintech literacy, and capital market participation have met the reliability test requirements.

Table 6. Validity and reliability test

Variable	Kaiser-Meyer-Olkin and Bartlett's Test		Cronbach's Alpha
	KMO Measure of Sampling Adequacy	Sig.	
FLI	0.683	0.000	0.666
FTI	0.880	0.000	0.877
CMPI	0.902	0.000	0.933

Table 7 shows the direct effects of the study variables. Financial literacy has a positive effect on capital market participation, with a path coefficient of 0.194. This effect is significant at 1% alpha. Financial literacy has a positive effect on fintech literacy, at 1% alpha, with a path coefficient of 0.354. Fintech literacy has a positive effect on capital market participation at alpha 1%. The path coefficient of the effect of fintech literacy on capital market participation is 0.096.

Table 7. Path analysis: direct and indirect effect

Direct Effect	Path Coeff	St error	p-value	R^2
FLI → CMPI	0,194	0,052	0,000	*0,092*
FLI → FTI	0,354	0,123	0,004	0,021
FTI → CMPI	0,096	0,021	0,000	0,092
Indirect Effect	**Path Coeff.**	**Z Sobel**	**Description**	
FLI→FTI→CMPI	0,034	2,435561	Z sobel > 1,96 (significant)	

Table 7 also shows the indirect effect of financial literacy on capital market participation mediated by fintech literacy. The path coefficient for the indirect effect is 0.034. This study shows partial mediation, where the effect of total financial literacy on capital market participation is 0.228. Thus, it can be concluded that most financial literacy's effects on capital market participation are direct.

4.6. The Effects of Individual Characteristics on Financial Literacy and Fintech Literacy

Table 8 shows the OLS results with the dependent variables for Financial Literacy (Model 1) and Fintech Literacy (Model 2). The results show that gender (SEX), age (AGE), and monthly student allowances and income (ALWINC) have a significant positive effect on financial literacy and fintech literacy. Meanwhile, parental education (PAREDU) and parents' monthly income (PARINC) do not affect both types of literacy.

Table 8. OLS results

Variable	Model 1	Model 2
(Constant)	-0,439***	3,095***
	(-9,487)	(22,383)
SEX	0,052**	0,132**
	(2,221(	(2,444)
AGE	0,238**	0,105**
	(2,283)	(2,150)
ALWINC	0,162**	0,094**
	(2,489)	(2,349)
PAREDU	0,019	-0,017
	(0,333)	(-0,853)
PARINC	-0,023	-0,010
	(-0,375)	(-0,414)
Adj R^2	0,032	0,029

Table 9 reports the results from OLS regressions. The dependent variable in Model 1 is Financial Literacy, while in Model 2, it is Financial Technology Literacy. T-statistics are in parentheses. *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively.

5. Discussion

5.1. Financial Literacy, Fintech Literacy, and Capital Market Participation

This study shows that higher financial literacy will provide financial understanding, such as risk and return, portfolios, and other concepts needed for investment in the capital market. Knowledge and skills in financial literacy are required for investment decision-making. This knowledge will increase individual interest in investing. This study's results align with research conducted by Bhushan (2014), who states that financial literacy has a positive effect on investment decisions in the capital market. Financial literacy also has a significant positive effect on fintech literacy. A higher level of financial literacy will provide better insights into financial issues. Financial literacy, therefore, becomes an initial requirement before someone can make good use of financial products and services. A good understanding of financial products and services will make it easier for fintech users to choose the most optimal financial products and understand that they fit with what is needed. Currently, there are many choices of fintech products that can be used. With their financial literacy, individuals can select fintech products tailored to a user's needs to provide optimal results. The results of this study align with Morgan and Trinh (2019), who find that financial literacy has a positive effect on the level of fintech utilization.

Fintech literacy has a significant positive effect on capital market participation. Technology is important in accelerating activities, including in the financial sector. Fintech provides features for investing in capital market securities. Several marketplace fintech in Indonesia have provided investment services in mutual funds. These providers offer investments starting from IDR 10,000 at low fees. Therefore, anyone, including students, can invest in the capital market with FinTech. In addition to partnering with the fintech marketplace, investment-specific fintech providers also deliver investment services that can be accessed via smartphones, making them easy to access anytime. Thus, the higher the fintech literacy, the greater the opportunity to invest so that capital market participation can increase. This study's results align with research conducted by Puschmann (2017) and Gomber et al. (2017), which states that fintech has a positive effect on capital market participation.

This study shows that most financial literacy's effects on capital market participation are direct. This also shows that the effect of fintech literacy on capital market participation is still low even though the effect of financial literacy on fintech literacy is quite high. This is inseparable from the fact that the fintech services most frequently accessed by students are for purchase and bill payments, savings, and other banking transactions. Meanwhile, services related to financing and investment are relatively rarely used. This study also shows that financial literacy has an indirect positive effect on capital market participation through fintech literacy. People who access capital market products through their fintech will have better financial literacy or understanding. Several fintech provide featured articles related to capital market products in their applications. In addition, the investment fintech application features news and market information that can be accessed on the application. With the availability of these features, individuals with good financial literacy will be well-facilitated when investing in capital market products.

5.2. The Determinants of Financial Literacy and Fintech Literacy

This study shows that gender, age, and student's monthly allowances and income have a significant relationship with financial literacy. Men have higher financial literacy than women. Brook et al. (2019) state that gender differences affect the way of thinking for decision-making. Women tend to think using higher emotions than men. This emotional state can hinder financial decision-making. Men also have better numeracy skills than women (Karafyllis & Ulshöfer, 2008), which causes them to have higher financial literacy scores than women. The results of this study align with research conducted by Chen and Volpe (1998). Age has a significant positive effect on financial literacy. As individuals age, their knowledge and insight increase, their mindsets broaden, and life tends to endow them with more complex financial experiences. Thus, increasing age can increase individual financial literacy. The results of this study align with research conducted by Chen and Volpe (1998). Student allowances and personal income per month have a significant positive effect on financial literacy. The higher the allowance and income, the higher the ability to access information. This can increase individual financial literacy. The results of this study align with Chen and Volpe (1998) and Kabede et al. (2015).

Gender, age, student allowances, and income have a significant effect on fintech literacy. Our study shows that males have a higher fintech literacy than females. Halder et al. (2010) stated that men are more active in browsing new information. Therefore, they tend to have more knowledge about fintech. However, this study's results differ from research conducted by Morgan and Trinh (2019), which states that gender does not affect fintech utilization. Age has a significant positive effect on fintech literacy. The older the age, the more complex the needs, which results in the higher the need for tools or technology to facilitate life needs. Thus, increasing age can increase student fintech literacy. The results of this study differ from research conducted by Morgan and Trinh (2019), which states that age has a negative effect on the level of fintech utilization. This difference is due to the difference in the age distribution of the respondents, where this study only focuses on the young adult group. Allowances and personal income per month have a significant positive effect on fintech literacy. The higher the allowances and income, the higher the desire to consume. With the income earned, individuals are encouraged to be more active in accessing information and using technology to meet daily needs. This can increase individual fintech literacy. The results of this study align with research conducted by Morgan and Trinh (2019).

6. Conclusion

This study aims to determine the relationship between financial literacy, financial technology literacy, and capital market participation of state university students in Surabaya. This study also seeks to explore the influence of individual characteristics on financial literacy and fintech literacy. The results showed that financial literacy affects capital market participation directly or indirectly. Fintech literacy is a mediator for financial literacy's effect on capital market participation. Although the influence of financial literacy on capital market partitioning is quite large, fintech literacy can only moderate a small part of this influence. This is because the use of fintech by students tends to be only related to payment, settlement, and clearing activities. Individual characteristics, which include gender, age, personal allowances and income, affect financial literacy and fintech literacy, but not the characteristics related to the condition of the parents of students.

The results also show that the level of student financial literacy is sufficient, with a male student literacy rate higher than that of females, and students with economic and business education have higher scores than non-economic and business students. Student fintech literacy is in the moderate category. Male students are more literate in fintech than female students, and economics and business students had higher literacy scores than those who were not. Student capital market participation is still relatively low. Only 15.19% of students invested in capital market instruments. Higher capital market participation is found among male students with economics and business studies degrees and those from municipality areas. Stocks and mutual funds are the investment instruments most students own. Participation in bonds is the lowest.

We hope this research can provide input for decision-makers to formulate policies to increase capital market participation through improving financial literacy and fintech literacy among students. Regarding financial literacy, intense education is needed on portfolio investment, risk and return, and investment instruments in the capital market. Financial authorities also need to invite fintech operators and securities companies to be more intense in joint marketing of capital market products through fintech and educate the public with more massive information. The offering of investment products must also be made by considering the characteristics of students. Students with non-economics and business educational backgrounds lack an understanding of financial literacy and capital market instruments. Therefore, offering low-and-medium risk mutual fund products (e.g. money market and fixed-income mutual funds) should be prioritized. Meanwhile, students from economics and business programs would be more suitable for high-risk mutual fund products and stocks.

This study found that the allowances and monthly income of the sample students are limited to only Rp. 6 million, even though the statements in the questionnaire gave chances of higher value choices. Therefore, similar research can be developed on non-state university students, which may have the potential for greater allowances and income. Further research can also be carried out by involving other demographic groups of the community. Research is also expected to be carried out in a broader geographic area.

Author Contribution

Nugroho Sasikirono: conceptualization, data curation, formal analysis, investigation, methodology, writing review, editing, validation, visualization

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Muhammad Madyan: data curation, formal analysis, investigation, review and editing, validation, visualization.

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Conflict of Interest

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