



## Financial Literacy, Ponzi and Pyramid Scheme in Indonesia

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### Abstract

The aim of this research is to examine empirically the influence of financial literacy on investment decisions through ponzi and pyramid schemes. Variables embedded were Social Economic Characteristics, Financial Literacy and Investments Decision. The population of this study were the people who invest their money through a Ponzi scheme and pyramid scheme. The sampling method applied was a snowball sampling of 43 respondents. Based from the research result, it was concluded that social economic characteristics, positively influences financial literacy. While, financial literacy influenced investment decision through ponzi and pyramid schemes. It is freaky because the people with good financial literacy (job occupation, education, gender and income) are still trapped under these junk investment trick modes. It was assumed that there were the other factors as the example, psychological factor like individual greed that influenced the financially literate people to invest through both junk investment schemes. It was also suggested a modification in financial literacy measuring because the existing financial literacy measuring tools had not been able to accommodate the understanding of ponzi and pyramid scheme investment.

## Literasi Keuangan, skema ponzi dan piramida di Indonesia

### Abstrak

Tujuan dari penelitian ini adalah untuk menguji secara empiris pengaruh literasi keuangan terhadap keputusan investasi melalui skema ponzi dan piramida. Variabel yang digunakan adalah Karakteristik Sosial Ekonomi, Literasi Keuangan, dan Keputusan Investasi. Populasi dari penelitian ini adalah orang-orang yang menginvestasikan uang mereka melalui skema Ponzi dan skema piramida. Metode sampling yang digunakan adalah snowball sampling sebanyak 43 responden. Berdasarkan hasil penelitian ini, maka dapat disimpulkan bahwa karakteristik sosial ekonomi mempengaruhi literasi keuangan. Sedangkan literasi keuangan mempengaruhi keputusan investasi melalui skema Ponzi dan skema piramida. Fenomena ini adalah sesuatu yang aneh karena orang-orang dengan literasi keuangan (pekerjaan, pendidikan dan pendapatan) yang baik masih terjebak dalam investasi semacam ini. Faktor psikologis seperti keserakahan individu diduga mempengaruhi mereka yang memiliki literasi keuangan yang baik untuk berinvestasi dalam skema ini. Riset ini menyarankan agar dilakukan modifikasi dalam mengukur tingkat literasi keuangan karena alat ukur literasi keuangan yang ada belum mampu mengakomodasi pemahaman mengenai investasi ilegal melalui skema ponzi dan piramida.

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## INTRODUCTION

Beside legal investment products, various illegal investment instruments are also found. One of them is Ponzi or pyramid investment scheme. A Ponzi scheme is an investment model where investment returns given to investors come from the funds of other investors who recently joined (Benson, 2009; Wilkins et al., 2012) or it is not derived from actual investment activities (Lewis, 2012). A pyramid scheme is similar to a Ponzi scheme in which the return earned by an investor actually comes from the money paid by other investors. But in pyramid scheme, investors must actively find other investors or partners. If they can't find another investor, they will get nothing. A pyramid scheme is going to end when there is none investors joined (Basu, 2014).

Although it had been a lot of tricky investment victims, many spurious investment models with Ponzi scheme is repeatedly to be emerged. Since it was introduced in 1920 until the present, this tricky scheme is always still possible to be repeated in various coverage. In Indonesia, the investment model through Ponzi scheme or pyramid is well known as "*investasi bodong*" (bulging investment). *Indonesian Financial Services Authority* has released 262 companies considered running this scheme in Indonesia such as the *Koperasi Cipaganti* and *Manusia Membantu Manusia (MMM)*. In addition to the existing list of 262 companies above, really there are still more spurious companies running these schemes such as *QSAR*, *Bina Sinar Sejahtera (BSS)*, *Raihan Jewellery* and *SwissCash*. Through the internet cyber way, investment pattern requested with both schemes also gained the wider place through high yield investment program (HYIP). The HYIP is using internet website to persuade many investors by offering high returns on investment which according to Moore et al. (2012), it was a 'post-modern' of Ponzi scheme.

Customers who become victims are not only those who have a lot of money, but also

common poor people. The most dramatic incident of this scheme was in Albania. At the time, some of the investment schemes collapsed in 1996, riots and anarchy mass that makes government falls exploded frighteningly and an it was estimated 2,000 people were killed (Carvajal et al., 2009). In Indonesia, the number of losses from this investment scheme was estimated about 45 trillion IDR.

The sad thing is reality that many investors as victims of these tricky schemes are well educated people. In the case of Bernard Madoff, for example, many investors who joined this scheme were well educated people and have a good understanding of financial knowledge (Jacobs & Schain, 2011) and even including large institutions such as universities and charity institutions (Parsons, 2011; Syamsudin et al., 2017) as well as investment companies. Seventeen people who were victims of Ponzi schemes interviewed by Wilkins et al. (2012) were also well educated.

According to Moore et al. (2003), the financial literacy program is one of the actions that policy makers can do to prevent the emergence of Ponzi scheme. It is conducted in order that the people who have the financial knowledge can be avoided from this spurious investment scheme. But, is it right that financial literacy negatively influences the personal decision to invest money in such bad investment schemes? In other words, is it right that financially literate people will not invest their money in Ponzi scheme and pyramid scheme and vice versa?.

Some studies had been conducted to determine the influence of financial literacy to some financial decisions. However, based on author point of view, there was no preceding research on the influence of financial literacy on investment decisions through Ponzi and pyramid scheme.

The research was important because it has novelty. The novelty is investment models with Ponzi and pyramid scheme were continuously emerging in various coverage masks. It was not wanted that common people with weak

economic capability continuously to be victims of both tricky investment practices due to their ignorance. Through financial literacy programs, the people will get a better financial education.

### Hypothesis Development

This research was conducted to fill the gap by asking the question whether the level of financial literacy influences investment decisions on Ponzi and pyramid schemes. Variables embedded were social economic characteristics, financial literacy and investments decision. Some research shows that socio-economic factors influence financial literacy. Some of these factors include gender (Bannier & Schwarz, 2018), education (Bhushan & Medury, 2013; Subiaktono, 2013), age (Arrondel et al., 2014) and income (Bhushan & Medury, 2013).

The level of financial literacy is considered to affect financial behavior because those who are literate will easily use the knowledge they have to achieve financial goals. Cole et al. (2011) who studied in India and Indonesia found that there was a relationship between financial literacy and financial decisions.

Several studies on financial literacy have been conducted to find out financial literacy relationships with financial decisions. For example, financial literacy affects investment decisions such as investing in derivatives instruments (Hsiao & Tsai, 2018), capital market (Van Rooij et al., 2011), retirement planning (Van Rooij et al., 2012; Boisclair et al., 2017), saving (Hidajat, 2015), insurance (Mahdzan & Victorian, 2013), home ownership (Gathergood & Weber, 2017) and so on, it might be assumed that:

H1: Social economic characteristics influences financial literacy.

H2: Financial literacy influences the investments decision through Ponzi and pyramid scheme.

### METHOD

The population of this study were the people who invest their money through a Ponzi

scheme and pyramid scheme and the samples were the people who was living in the city of Bandung and Wonosobo. Both cities were chosen based on following considerations: 1) Bandung was a leading city of education in Indonesia that could represent the financial literacy in high level of society. However, Bandung also became the largest city of HYIPs' keyword searcher (the Ponzi scheme that used the internet in the form of a website to persuade investors in Indonesia through Google Trends for 2005-2015); 2) in contrast with Bandung, Wonosobo belonged to the city with low level of public education. Wonosobo is a small city in Central Java with lowest real spending per capita, according to *Central Bureau of Statistics of Central Java Province* in 2012, but has a lot of people who had been victim to this scheme.

Due to data on the number of participants of the scheme were very difficult to obtain, then the sampling technique used in this research was the snowball sampling method by searching one by one respondent who participated in this investment scheme. The number of respondents obtained through the sampling technique were 43 respondents, respectively 21 persons in Bandung and the rest was in Wonosobo. Data were collected in June 2015 until October 2015 through interviews of the questionnaire.

Research variables involved in this study were Social Economic Characteristics, Financial Literacy and Investments Decision through Ponzi scheme and pyramid scheme. Social Economic Characteristics, namely Age (< 40 years; ≥ 40 years), Education (not university graduates; university graduates), Gender (female; male), Job Occupied (informal; formal) and Income (< 4 million IDR per month; ≥ 4 million IDR per month).

Financial Literacy was the variable that would be calculated by the method as Lusardi (2007, 2008) used, namely the measurement of basic literacy level in the form of knowledge about interest rates, inflation and the concept of risk diversification with the following questions: 1) Suppose you have 1,000,000 IDR in a savings account and the interest rate is 5% per year. Af-

ter 5 years, how much do you think you would have in the account if you left the money to grow: a) More than 1,050,000 IDR; b) Exactly 1,000,000 IDR; c) Less than 1,050,000 IDR?; 2) Imagine that the interest rate on your savings account is 1% per year and inflation rate is 2% per year. After 1 year, would you be able to buy: a) More than; b) Exactly the same as; c) Less than today with the money in this account?; 3) Do you think that the following statement is true or false?: "Buying a single company stock, usually gives a safer return than a stock mutual fund: a) True; b) False".

The number of correct answers can answer that question would produce a level of literacy. The score for the correct answer was 1 and the score for a wrong answer or no answer is 0 (zero). The higher (the lower) score obtained, the higher (the lower) level of financial literacy of respondents. With 3 number of questions, then the level of financial literacy generated in this study are between 0 (low) until 3 (high).

Investments Decision through Ponzi scheme and pyramid scheme were multiples of the minimum investment amount of money invested in Ponzi scheme and pyramid scheme. For example, if the minimum investment in a scheme was 100,000 IDR, the number of 5 meant that the amount invested was equal to 500,000 IDR.

Statistical tools applied was a regression through two testing phases, dummy regression and simple linear regression. Dummy regression was applied to test the influence of social economic characteristics on the level of financial literacy. Social economic characteristics were categorical data, namely age, education, gender, job occupation and income. Simple linear regression testing was applied to test the influence of financial literacy on investment decisions through Ponzi and pyramid scheme.

## RESULT AND DISCUSSION

The results of research showed that in general the level of financial literacy of the people

had been good enough. With the literacy level score of 0-3 (low to high), the percentage of respondents with scores ranging from the lowest were 9.3%, 25.6%, 39.5% and 25.6% (Graph 1). The majority of financially literate respondents (having a score of 2 and 3) were living in Bandung, aged for 39 years and over, university graduates, male, working in the formal sector and having a monthly income of more than 4 million IDR. This condition is consistent with research that those who are literate live in large cities (Jappelli, 2010), more than fifty years old (Worthington, 2006), highly educated (Worthington, 2006; Marcolin & Abraham, 2006; Bhushan & Medury, 2013), male (Verner, 2005) and work in formal sector (Worthington, 2006).

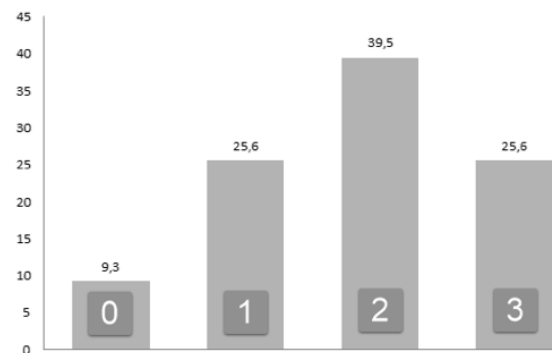


Figure 1. Percentage of Financial Literacy Score

The regression output (Table 1) with R value 0.864 showed that there was very strong correlation between financial literacy, age, education, gender (sex), job occupation and income. Adjusted R Square 0.711 concludes that 71.10% of financial literacy variations are caused by age, education, gender, job occupation and income. F value of Anova test was 21.669 with a less than 0.05 significance level. It showed that age, education, gender (sex), job occupation and income influenced financial literacy.

The most favoured investment pattern by investors in Bandung and Wonosobo were *Koperasi Cipaganti*, *Manusia Membantu Manusia (MMM)*, *SwissCash* or *Swiss Mutual Fund*, high yield investment program (HYIP) via the internet and the *Bina Sinar Sejahtera (BSS)*. All

respondents who invested the money in HYIP program told that their participation was done by their own willingness. For the other investment practices beside HYIP, more than half of the respondents stated that their participation was influenced by others, such as friends and also the manager of the investment. The regression output shown in Table 1.

**Table 1.** Regression Output for The Influence of Social Economic Characteristics on Financial Literacy

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.864 <sup>a</sup>	.746	.711	.501

a. Predictors: (Constant), Income, Age, Sex, Education, Job Occupation

ANOVA <sup>b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	27.227	5	5.445	21.699	.000 <sup>a</sup>
	Residual	9.285	37	.251		
	Total	36.512	42			

a. Predictors: (Constant), Income, Age, Sex, Education, Job Occupation

b. Dependent Variable: Financial Literacy

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error			
1	(Constant)	1.115	.142		7.870	.000
	Age	.195	.186	.101	1.049	.301
	Education	.868	.211	.461	4.111	.000
	Sex	.437	.185	.236	2.361	.024
	Job Occupation	.878	.211	.470	4.163	.000
	Income	-.500	.209	-.262	-2.390	.022

a. Dependent Variable: Financial Literacy

Regression output performed (Table 2) for the influence of financial literacy on investment in Ponzi scheme and pyramid schemes indicated that financial literacy positively influenced on investment decision on Ponzi scheme and pyramid scheme. Adjusted R Square value

of 0,695 concluded that 69,50% of investment decision variation was caused by financial literacy.

From Anova test, F value was 96,661 with less than significance level. It indicated that the regression model (financial literacy) was able to be predictor of investment decision on Ponzi scheme and pyramid scheme.

Regression equation concluded that the higher level of financial literacy, the greater amount of money is invested on Ponzi scheme and pyramid scheme. It described that the high level of personal financial knowledge did not make the person able to avoid this type of investment, but it actually increased the amount of money invested in that spurious investment scheme.

**Table 2.** Regression Output for the Influence of Financial Literacy on Investment Decision

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.838 <sup>a</sup>	.702	.695	.91446

a. Predictors: (Constant), Financial Literacy

ANOVA <sup>b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	80.831	1	80.831	96.661	.000 <sup>a</sup>
	Residual	34.285	41	.836		
	Total	115.116	42			

a. Predictors: (Constant), Financial Literacy

b. Dependent Variable: Investment

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error			
1	(Constant)	1.092	.308		3.546	.001
	Financial Literacy	1.488	.151	.838	9.832	.000

a. Dependent Variable: Investment

In general, financial literacy should negatively influenced investment decisions on illegal financial products. The financially literate people should have the ability to manage finances,

make financial decisions based on the information and minimize the chances of making financial mistakes (Raven, 2005).

For those who are not literate, their participation in the scheme was most likely caused by their ignorance about these schemes. But, for those who were literate, there had been other factors that influence their actions because 8 of 11 people who were very literate (performing score of 3) and 2 of 17 people who were quite literate (performing score of 2) stated that they understood truly the risk and potential of fraud of that bad investment scheme.

These people, was classified to informed investors, namely those who had actual information about the investment model and influenced uniformed investors or those who had minimum information to join (Cortés et al., 2016). Moore et al. (2012) who studied HYIP, also stated that the HYIP was a form of 'postmodern Ponzi scheme' because investors actually knew the mechanism of fraud committed by HYIP manager. But in the other side, they expected to get the profit benefit by joining early. It suggested that for financially literate people, their participation in the scheme was not caused by low financial literacy, but it was caused by the influence of other factors.

To find out the cause of this anomaly, psychological factors probably were able to be the right answer. Greenspan (2008), Cortés et al. (2016) and Lewis (2012) stated that the psychological approach could give better answers to understand the reasons for a person to be involved in this scheme. Psychological factors that caused a person to join in Ponzi scheme were a situation, consciousness, personality and emotion (Greenspan, 2008). There was a situation in which Ponzi scheme actor was known as a good person and understanding the investment that made the people to believe. Consciousness (or cognition) factor became the cause for people to be failing to utilize their intelligence in making good and wise financial decisions. Personality factors became the cause as the people were failing to act when they should believe someone and when they should

not while the factor of emotion occurred because investors were more concerned with emotion than logical mind. Ponzi scheme was the type of irrational exuberance and describing psychological behavior in which the people act irrationally (Shiller, 2000).

Some causing factors as mentioned by Greenspan indicated that psychological approaches in economics or behavioral finance can be referred to solve problems in economics. Behavioral finance perspective is proposed with the assumption that the human beings are not always rational in making decisions. Simply, in conventional perspective, the human beings are rational. But in real fact, the human beings do not always act rationally.

In the case of Ponzi scheme, financially literate people with good knowledge in investment should avoid these bad investment practices. But something that happened they remain joined in it. It showed that in addition to human beings were not rational, there were also psychological factors that influenced them to do it. Thus, the behavioral approach (psychological approach) is very relevant to analyze why an investor behaves in a certain way. Therefore, financial literacy will influence financial behavior with involvement of certain psychological factors.

## CONCLUSION AND RECOMMENDATION

Social economic characteristics that influenced the level of financial literacy were job occupation, education, gender and income. However, financial literacy even positively influenced the decision to invest in Ponzi and pyramid scheme. Financial literacy did not make someone avoid this spurious investment practice, but instead it caused them to increase the amount of money in it.

This oddly enough facts showed that there were other factors that could cause someone to be persuaded for investing the money in this scheme. They were a psychological factors that had not been studied by this research. Limitations of this study were too small sample num-



ber. Another limitation of financial literacy was that a measuring instrument used to measure the level of financial literacy did not have a valid component to assess investment fraud.

Further research is needed to determine what factors cause people who have high financial literacy, but instead they are persuaded to invest the money in this scheme by involving behavioral perspective or psychological approach. In addition, some modifications of financial literacy measurement tools that can accommodate investment scam are needed, too.

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