Acquire wealth, avoid debt: exploring households' financial resilience and financial behaviors amid the COVID-19 in a developing country

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Abstract

Vietnam has achieved impressive economic progress after its transition to a market economy, facilitating the development of financial markets. However, the economy has witnessed disruptions on an unprecedented scale during the COVID-19 pandemic. This study contributes to the literature on financial resilience and sustainable livelihood by further examining the demographic and socioeconomic determinants of household investment decisions amid the pandemic in Vietnam. Data were randomly collected online while descriptive statistical methods, logistic regression models, mindspongecon and mindsponge theory were used to describe and analyze the data. We found that banking, gold and real estate are most favored by investors, whereas capital fund and cryptocurrency were the complete opposite. There is a difference recorded in investors' choices of channels with respect to demographic characteristics and the severity of the COVID-19 impacts. Besides, financial literacy can encourage a switch from traditional investment instruments to less common ones. Empirical findings suggest that the onus falls upon the government to improve access to financial investment knowledge, thereby facilitating mobilization of financial resources to allow for national sustainable development and greater financial resilience of households. Furthermore, although Vietnamese traditionally rely on safe investment instruments such as bank deposits and gold, which is supported by this study, the burgeoning stock market and cryptocurrency should be heeded as regards policy amendments.

Keywords: financial literacy, financial investment, household financial, livelihood, Vietnam

1. Background

The COVID-19 pandemic wreaks worldwide havoc on economic development, and economic activities have come to a standstill due to preventive measures. According to the World Bank, a number of emerging and developing countries are projected to struggle against COVID-19 and its aftermath [1]. Early estimated figures of 2.9% gross domestic product (GDP) loss of most major economies was restated to 4.5% or around 3.94 trillion U.S. dollars [2]. OECD claims that the unemployment rate rose to 6.6%, 1.3% higher than its pre-pandemic level [3]. Although Vietnam is one of three Asian countries with positive economic growth of 2.91% for Vietnam, the fourth outbreak of COVID-19 in Vietnam has disrupted economic activities, manufacturing and firm operations, evidenced by a lower employment rate and economic growth in comparison with the pre-COVID-19 figures. According to Peter J. Morgan and Long Q. Trinh (2021), the majority of households in Vietnam claimed that their income was

negatively influenced in the context of COVID-19 [4,5], accentuating the importance of financial management in preparing households for unexpected events.

In Vietnam, in 2020, CPI, an indicator of inflation, increased by 3.23% on average compared with in 2019, whereas the deposit interest rate with terms of 12 months or more was lower than the pre-COVID-19 rate by 1.5-2% [10], which may discourage locals to deposit their idle money in banks and encourage investments into other more attractive channels [11]. Low deposit interest rate and high inflation rate make households no longer feel as assured as before due to the falling value of money, and financial markets have increasingly attracted much attention because of potential economic profits to offset COVID-19 effects. Financial market, a type of marketplace for sales and purchases of financial securities including bonds, stocks, foreign exchange and derivatives, is no longer a novel term for a large number of the population. Financial investment instruments can come in a number of forms such as bank deposits, gold, real estate, insurance, investment funds, stock and cryptocurrency.

Vietnam is a bank-based economy, with credit institutions accounting for 67% of total financial assets as of June 2020 [12]. Bank interest rates in Vietnam typically range between 4%-6% per year for a one-year term [13], and the lower the deposit term, the lower the interest rate. The rates sank to a record low level in 2021, mostly owing to liquidity abundance in the banking system. Besides, the banking system is susceptible to deterioration in financial performance and risks of increased defaults due to shrinking credit demand and decreased repayment abilities of both firms and individuals amid COVID-19. Real estate investment covers a variety of forms such as apartment, townhouse, the ground, resort real estate, cemetery garden, shop house and office, room for rent, factory land [14]. In 2021, Vietnam's real estate market witnessed a decrease in both demand [15] and supply [16]. The absorption rate dropped by 6 percentage points and by 15 percentage points year-on-year in Q3/2021 in Hanoi and HCMC, respectively [17]. Gold acts as a popular means of money storage, which is deeply rooted in Vietnamese mindsets and cultures [18,19]. Vietnam had the highest gold consumption in Southeast Asia and ranked among the top 10 largest consumers of gold in the world in 2020 [20]. Despite the impact of the COVID-19 pandemic, Vietnamese gold retailers outperformed the market, a notable example being PNJ whose profit in 2020 exceeded its planned target by 29% [20]. Since the outbreak of the COVID-19 pandemic, gold prices in Vietnam have surged by roughly 50%. The decree issued in 2012 enabled the State Bank of Vietnam to control nearly all aspects of gold trading and manufacturing, yet the gold market remains strong, with over 10,000 shops operating in Vietnam [21].

Taking out insurance policies is a means of protection from financial loss, in which the insured pay a premium in exchange for compensation for uncertain future events. In Vietnam, by the end of 2021, the total value of the insurance market had stood at 191,010 billion VND, an increase of 15,76% year-on-year [22]. Albeit lingering concerns of COVID-19 and modest economic recovery, the market is projected to maintain its two-digit growth [23]. In Vietnam, top insurance companies include Bao Viet Life Corporation, Prudential Vietnam Assurance Private Limited Company, Manulife Vietnam, and Petrolimex Insurance Corporation [24]. Despite global disruptions affecting almost all economic sectors due to COVID-19, a growth of around 15% was recorded in most big investment funds in Vietnam [25]. As of September 2020, the total number of funds operating on the market was 52, the total net asset value (NAV) managed by them amounting to VNĐ43.86 trillion (US\$1.9 billion) and projected to constitute 6%-10% of the GDP by 2030 [26,27]. Some best performers include Pyn Elite Fund,

VinaCapital's VOF, VFMVF1, Dragon Capital (VEIL), and so on. With multiple types of funds ranging from security funds, bond funds, balanced funds, ETFs, monetary market funds to venture capital funds, returns can vary tremendously from merely 5% to 100%, depending on the degree of risk involved, strategies of the funds and the length of the holding period [28–31]. Besides, capital funds refers to investments into high-growth or emerging firms [32]. It is considered as a risky choice and suited to professional investors who are an old-hand at handling loss and long-term horizons [33]. Legal framework for activities of fund management companies and securities investment funds was amended, with new models added, signaling the growth of the sector in Vietnam [27].

Contrary to negative effects of lockdowns on other countries [34,35], COVID-19 lockdowns positively impacted stock performance in Vietnam (Thach and Van Diep, 2018). Research shows that stock markets in Vietnam have attracted a number of new investors, leading to hot developments and sharp increases in firms' stock [36,37]. After a leap in 2020, the Vietnam stock market continued to surge and witnessed the historic record of 1,500.81 points in 2021 [38]. According to data from StockQ, Vietnam's stock market was listed in the top seven growing markets in 2021 and ranked first as the biggest gainer in Asia [39]. However, in Vietnam's stock market, occasional order matching issues are an indicator of an infant market [40,41]. Moreover, slack regulations and lenient punishment induce criminal acts and profiteering in the stock market, evidenced by FLC chairman's "underground" trading [42]. The market for cryptocurrency, a currency in digital or virtual form controlled by cryptography, generally experiences much more erratic behaviors than others [43]. Although cryptography allows little room for counterfeit or double-spend, this currency uses a decentralized system to record and verify transactions, and issue new units without any authorized regulator or issuer. Therefore, governing bodies have been struggling to build a proper legal framework and work out monitoring methods. In Vietnam, the use of cryptocurrency is officially prohibited to protect national money. However, surprisingly, studies indicate that Vietnam ranked 9th in global top 10 for cryptocurrency ownership rate [44] and ranked first for cryptocurrency adoption [45].

According to Dayong Zhang (2020), risks in the global financial markets have been significantly higher, and reactions in stock markets and the severity of the COVID-19 situation are closely linked, hence high volatility and unpredictability [6]. The COVID-19 pandemic has made a radical change to investors' attitudes to risks and decisions due to uncertainty [7,8], yet not all investors respond to these unexpected events in the same way. In order to maximize return on investments and minimize losses, fundamental knowledge of finance benefit investors, especially in the face of unpredictability of COVID-19. Financial literacy refers to individuals' financial awareness, knowledge, skills, attitudes and behaviors, which enable investors to make informed financial decisions to guarantee optimal returns on investment to achieve financial well-being and financial resilience [9]. Knowledge on finance encourages households' engagement in the financial markets, but it does not invariably assist decisions on investment. Xứ

Our research aims to identify the factors influencing financial behaviors, then figure out potential financial channels and propose some suggestions to encourage investment as a means to mobilize national finance. Furthermore, there are temporary policies in place to offset COVID-19 effects on households' livelihood, but to increase their living standards requires long-term strategies. Hence, we want to offer insights into households' demographics

and financial behaviors so as for policymakers to devise policies related to finance and investments, enabling long-term financial well-being. The data are of broad interest to a number of researchers to conduct comparative studies to figure out the difference in investors' financial behaviors between pre-COVID-19 and COVID-19 periods.

Our paper is structured as follows. Section 2 summarizes previous research findings on types of investments and their determinants and sheds light on the gaps that we wish to fill. Section 3 provides theoretical background on Mindspongecon and Mindsponge theory of investment decisions. Section 4 and 5 present empirical results and discussion, followed by a valid conclusion and suggestions in section 6.

2. Literature review

2.1. Investment instruments and decisions associated with individual characteristics

Financial markets are composed of a variety of channels, and investment portfolios depend on households' preference and livelihood strategies. A survey in Nagapattinam district of Tamilnadu, South India (2012) reports that as regards respondents' perceptions on 12 investment avenues, top investment forms were Life Insurance (48%), Real Estate (40.4%), Provident Fund (37.7%), Bank deposits (25.1%), Gold/Silver (20.8%) [46]. Another study conducted by Parimalakanthi and Ashok Kumar (2015) shows that respondents opted for bank savings, gold & silver and fixed deposit accounts were in the majority, while the proportions of those favoring insurance, real estates and shares were 50.36%, 51.49% and 39.75%, respectively [47]. These types of investments are determined by several factors, namely investors' demographic characteristics, financial literacy, attitudes to risks and preferences, discussed in details below.

Research suggests that women were shown to be more risk averse or less financial risk tolerant than men [48,49], thereby possessing a smaller percentage of risky assets [50], and there is no difference in portfolio liquidity and diversification [51]. Statistics from a survey of 1,300 individuals indicate that women earned a smaller amount of income and got lower scores on both basic and advanced financial literacy and they were less likely to join stock markets [52]. Yogesh and Charul conducted a gender-based study on behavioral patterns of investment and found that women favoured investment in gold, whereas men were interested in stock markets [53]. Similarly, while male investors prefer common stocks and real estate, female ones choose funds, time deposit and gold [53]. Women chose less risky options partly because of their uncertainty about their financial decision-making skills [48], but men and women of equal perceived confidence in financial knowledge and skills reported equal risk levels of financial investment choices [54]. A survey of 1667 respondents by Fonseca and his team (2012) suggests that despite statistically insignificant differences between men and women in effects of age, race and income on financial literacy, men gained more benefits from education than women. Only female pursuers of higher education were shown to be more financially literate than non-high school graduates, while as for their male counterparts, the higher the education level, the higher the financial literacy [55].

Age is considered to be a determinant of investment decisions. Charles and Kasilingam maintain that becoming older, investors were inclined to gradually reduce their investments in the equity market and favour conservatory approach (use savings) over other sources of funds (loans/pledging) to protect their hard-earned money and diversify portfolios in order to mitigate losses and optimize returns on investments [56]. Korniotis and Kumar (2011) also

states that older investors, especially retirees, long for comfortable lives and prefer assets of stable returns on investment such as bank deposits, while their young counterparts desire wealth accumulation for the future and choose riskier assets for high expected returns such as capital market assets [57]. Likewise, research into whether good decisions on investment is in proportion with age demonstrates that preference for less risky portfolios [58] and diversification increases with age and there is a slimmer chance that older investors will go after extreme positive returns [59]. Singh and Bhattacharjee's findings on the relationship between demographic variables and investment decisions ascertain males' higher likelihood of equity investments and 30-40 year-olds' higher chances of investing equity shares than those aged 50 and over [60]. While investigating into the relationship between old age and decline in financial literacy, Finke et al. (2016) claims that older age groups self-assessed their financial ability highly but achieved low scores on the financial test and that. Respondents equipped with a college's degree (61%) or a graduate degree (66%) scored higher in the test on financial knowledge than those in high school (39%) or below high school (25%).

Effects of investors' academic education on investment decisions remains open to question due to mixed research findings. A survey of Mumtaz and Smith (2020) covering 24,238 households and 157,638 individuals confirms the positive relationship between education levels and households' decisions on savings and investments into risky assets [61]. Sadiq and Ishaq (2014) figures out an increase in investors' education level exerted a positive effect on their financial risk tolerance [58], whereas research findings shows no significant association between these two [61,62], and Radianto et al. (2019) reports that those whose education level was bachelor, master, and doctorate, made similar investment decisions [62].

A study on demographic factors and investment decisions suggest that investors with over four family members considered short term investments preferable as opposed to less than four member households' preference for long term investments, and there was a difference in preference for investments between private and public sector workers, long-term ones for the former and short-term ones for the latter [46]. Financial burden increased with household size, so there was a decreasing possibility of participation in financial markets and investments into risky assets, and a part of investments of households that had high levels of education went towards risky assets to gain excess returns [63,64]. Moreover, family size caused a negative effect on investors' risk tolerance level, meaning that the larger the family size, the lower the financial risk tolerance level [61].

Income is also known as a determinant of investment decisions, for wealth is required in order for households to gain sufficiently large returns to compensate for financial market entry costs. Households of greater wealth are more likely to take greater risks [65] because of their ability to bear losses than those on a tight budget. Findings show that an increase in investors' income level resulted in a positive effect or an increase in their financial risk tolerance [58]. Households on lower income appeared more cautious and opted for savings for future use [61] and low level of income serves as a major obstacle to rural households' intentions on taking financial risk [64].

Urban households developed a propensity to save and invest in risky assets due to accessible financial resources, while households in agriculture and waged workers were more likely to save [61,65]. Urban households' preference for bank deposits decreases with age first and increases at old age, but the opposite goes for their tendency towards risky financial assets

[64]. Sui and Niu's investigation into 23,803 households reports a huge gap between urban and rural households in the possession of risky financial assets (15% and 1%, respectively). Another finding is that higher participation and diversification in financial markets was seen in households in urban areas than those in the countryside, which can stem from differences in education, income level, financial literacy and available financial intermediaries [64].

2.2. Financial literacy and participation in financial markets

Financial resilience is defined as the ability to cope with financial shocks [66,67]. To that end, Salignac et al., 2019 suggests that an individual should be capable of accessing and drawing on both internal and external assistance during periods of financial adversity [67]. In the financial resilience framework proposed by [67], financial literacy represents an important component and has been proven to exert a positive effect on financial resilience in many other studies [69–71]. In addition, the person first need to understand the vulnerabilities associated with risk exposure and lack of access to resources, and has to engage in financially secure behaviors and practices.

It remains to be seen whether financial literacy is a prerequisite for participation in financial markets and returns on investment. Dohmen et al. (2011) finds that those equipped with financial knowledge were less likely to be risk averse [49], and Jianjun et al. shows that financial literacy was the driving force for households' purchases on risky financial assets [72]. Risk awareness, knowledge and skills to handle risks and past experience influenced salaried investors' investment decisions, whereas demographic variables had no significant impact, except for investors' age [60]. Improved financial literacy can change financial behavior as low finance literate individuals are less likely to participate in stock markets and a lack of understanding on economics and finance discourages engagement in the stock market [73]. Moreover, there is little likelihood of those with low financial literacy planning for retirement and investing in stocks [74].

2.3. Reallocation of investment portfolios amid the COVID-19

The COVID-19 pandemic has caused wild fluctuations and uncertainty in financial markets, driving investors to reallocate their portfolio, make informed decisions and change financial behaviors. COVID-19 impacts on financial markets and investors' changes in preference have been well-documented worldwide. Himanshu et al. (2021) finds that in response to the crisis engendered by COVID-19, investors tended to gravitate toward risk-free assets (64.8%) and conservation portfolios (35.2%). Compared with the pre-COVID-19 period, investors' main preferences were insurance, gold, bank deposits and public provident funds in the descending order, and stocks, once the topmost preference for investments, only ranked sixth in the context of COVID-19 and uncertainty in financial markets [75]. A research confirms that although financial risk tolerance score increased in the post-pandemic period, investors' attitudes shifted from high risk tolerance to risk aversion [76]. A research into 64 countries' stock market performance indicated an inverse relationship between confirmed cases and stock returns [77]. Borrowers' income loss and depositors' withdrawal accounted for non-performing loans, which profoundly affected banks and other financial institutions [78].

The summary of literature on financial investments and relationships between financial behaviors and demographics indicate that household financial investments and financial resilience in times of COVID-19 seem to have attracted little interest of researchers. Moreover, characteristics of financial markets vary greatly among countries, demanding more studies in

a specific country to confirm heterogeneity or homogeneity in cross-country household financial investments, but as a matter of fact, there is a lack of exhaustive research on this topic in developing countries. COVID-19 acts as an unexpected occurrence mostly affecting vulnerable groups, which opens up opportunities for research into households' responses to the COVID-19 pandemic. This study aims to examine and evaluate current household livelihoods connected with livelihood strategies, investment behavior, in relation to many key factors such as social and economic status, education, gender and financial literacy.

3. Methods

3.1. Conceptual framework of financial investment decision

In this section, we propose and adopt a financial investment decision-making framework modified from mindspongeconomics (mindspongecon) [79]. The decision-making model consists of four blocks: input, process, evaluation, and output (Figure 1). It consists of many stages starting from information exposed at the "input" block and ending with a decision made at the "output" block. First, the "input" block represents information particles with different values. This information is available in the living environment. With this study, there is information related to financial investment channels, COVID-19 impacts, financial literacy and other related information. The next block represents people's information processing. This is the process of people aligning the input information with their core values. To be specific a person's identity, attitudes and behaviors are influenced by a set of core values (or a mindset) that are cultivated in his/her mind. These values are absorbed and intergrated or rejected constantly through a multi-filtering information process and inductive reasoning [80,81]. These core values can be preferences, risk levels, profitability and perceived ability to make wise decisions. The cost-benefit judgments and or preference are formed based on inductive reasoning of environmental factors and the person's inclinations. The set of core values varies greatly among individuals, and there is a huge difference in how they sort their priorities. Next, in the "evaluating" block, information is processed, compared, related, and inductively reasoned to assess to what extent their core values are satisfied. In the last block "Outputs", it is how seven potential investment options meet the level of people's expectations. If not satisfied, people will opt out of a specific investment channel, and if satisfied, they will make investment decisions.

Figure 1. Framework of financial investment decisions. Source: adapted from [79]

In essence, the decision-making framework is a framework of people's information processing mechanism that can explain the formation and/or processing of investment decisions. It shows that there are many factors that influence people's decision to distribute their investment assets. These factors include information, core values associated with demographics, financial knowledge and skills, COVID-19 impacts and other related factors. This is the basis for the research team to develop the empirical model in the next sections.

In light of mindsponge and mindspongecon theory, to make an investment decision, the person must first regard investing as an option to secure finance and then make judgements about that option. The decision making is subject to several conditions. The first condition is the accessibility of an individual to information about the investment choice. The next one is the filter's decision to allow the information to move toward to core of the mindset, which means that the result of the cost-benefit judgment should be positive. In this sense, an individual makes a decision to invest when he/she perceives the choice as advantageous, and maybe as more advantageous than other available investment choices.

3.2. Data

The COVID-19 pandemic's second year was on track and COVID-19 current affairs have been getting even worse due to new variants characterized by its higher spread and mortality rates. Vietnam has witnessed a rise in unemployment and an increasing number of firm shutdowns or bankruptcies, affecting households' spending power and financial behaviors. Our research team felt the need to do exhaustive research into households' investments in the context of complicated and unpredictable developments of the COVID-19 pandemic.

Obedying the laws and guaranteeing safety [82], we conducted a two-week online survey from 25th June to 2nd July rather than an in-person offline survey. The online survey method does have its inherent drawbacks, but it is suitable and justified to employ this method in times of COVID-19. To reduce bias, we were careful about questionnaire design, revision and delivery. A focus group was formed for quality checking and questionnaire finalization, which allows for promptly addressing issues related to the questionnaire length, wording, missing important questions and confusion before empirical research on a large scale was conducted. Moreover, our team gained experience in online surveys through several previous projects [83,84]. Our study uses random sampling, convenience sampling and snowball sampling methods and different means of online survey delivery to reach households across Vietnam. Our finalized version includes 5 parts including respondents' personal information, perceptions of household financial security, investment choices, savings choices and household financial management skills.

After data refinement, 809 out of 840 responses were valid, which is sufficient for data processing and analysis. Our data presentation focuses on households' livelihood and investments based on the main research objectives. STATA version 11 was used to compute descriptive statistics such as the mean, standard deviation, minimum and maximum values to further understand respondents' characteristics, COVID-19 effects, financial literacy and investment decisions in table.

3.3. Model construction and validation

Our another objective is to identify the factors influencing the household decisions on financial investments to increase financial resilience. Following [85], we employed a binary logistic econometric model to identify determinants of households' choices with respect to seven types of investments. For each model, a number of independent variables such as demographic characteristics, COVID-19 effects and finance-related aspects were chosen based on literature review. Since the magnitude of the independent variable's effects cannot be interpreted, we calculated marginal effects, the effect of a one-unit change in an independent variable on the dependent variable, to quantify impacts on the outcome variable while holding all other variables constant at their mean value.

We follow several steps to develop the empirical binary logistic regression model [85,86]. The first step involves testing the model to select candidate variables based on literature review, variable sign and significant level, followed by model refinement aiming to eliminate cases of changes in variance and endogenous variables. Omission of certain variables or different ways of data storage in a variable generates several models, which allows for testing the effects of these binary or continuous variables on the results. The important step concerns model testing to ensure that regression assumptions are satisfied. For example, the error terms need to be independent and independent variables should be independent from each other.

Robustness checks of alternative specifications were executed in Stata to confirm results and their consistency. Stata command for robust syntax was to rule out the possibility of heterogeneity in the model. There are several sets of models for testing regression models with different log-likelihood values. The higher the log-likelihood value, the better a model fits a dataset, allowing us to choose the best one. The model is subject to multiple iterations to guarantee inclusion of important variables and removal of less important variables.

The investment decision model is expressed as follows:

$$Y_i = \text{logit}(p_i) = \ln\left(\frac{p_i}{1-p_i}\right) = \beta_0 + \sum_{j=1}^q \beta_j x_j + \varepsilon \quad (\text{Eq.1})$$

Where:

- Y_i is financial options/decisions that include investment choice of bank deposits, real estate, gold, insurance, capital fund, stocks and cryptocurrency;
- p_i represents the probability of the willingness of respondent i to make/maintain the financial instrument options/decisions;
- β_0 represents the intercept term;
- β_j represents the estimated coefficient of influencing factors x_j . Specifically, independent variables include 3 groups of variables: (1) demographic variables (gender, age, education, income, location, job type, family size, job loss, house types); (2) impact variables (income effect, work effect, spend cut effect); (3) financial literacy variables (financial training, financial knowledge, financial knowledge satisfaction, financial skill satisfaction)
- q represents the number of influencing factor (i.e., $q = 16$);
- ε represents the random error term.

To have further interpretation of the estimated results of the model (Eq.1), we use marginal effects estimation. The marginal effect describes how a dependent variable (outcome) changes when an independent variable (explanatory variable) changes while the remaining covariates remain constant.

The marginal effect of the investment decision model is expressed as follows:

$$\frac{\partial p_i}{\partial x_j} = \frac{\beta_j e^{-(\beta_0 + \sum_{j=1}^q \beta_j x_j + \varepsilon)}}{\left[1 + e^{-(\beta_0 + \sum_{j=1}^q \beta_j x_j + \varepsilon)}\right]^2} \quad (\text{Eq.2})$$

$$\text{where } p_i = \frac{1}{1 + e^{-(\beta_0 + \sum_{j=1}^q \beta_j x_j + \varepsilon)}}$$

The more detailed information on the explanatory variables used in model (Eq.1) is presented in Table 1.

Table 1. Definition of variables used in models

Name	Variables	Data type	Description
Group I: Demographic characteristics (9 variables)			
Gender	Gender	Binary	Respondents' gender (1 = Male; 0 = Female)
Age	Age	Numerical	Respondents' age falls within mentioned age category (1 = $18 \leq \text{age} \leq 30$; 2 = $31 \leq \text{age} \leq 50$; 3 = $51 \leq \text{age} \leq 60$; 4 = $\text{age} > 60$)
Education level	Education	Numerical	Respondents' highest level of education (1 = High school, 2 = College education, 3 = University education, 4 = Master or higher)
Household Income	Income	Numerical	Respondents' income falls within mentioned income category (1 = ≤ 21 million; 2 = 21 - 50 million; 3 = 51 - 80 million; 4 = >80 million)
Living areas	Location	Binary	Respondents' living areas (1 = Urban; 2 = Rural)
Job type	Jobtype	Numerical	Respondents' working sector (1 = public; 2 = private)
Family size	Famsize	Numerical	The number of respondents' family members
Job loss	Jobloss	Numerical	Whether respondents lost their job or not (1 = Yes, 0 = No)
House Type	HouseType	Numerical	Respondents' living house (1 = Stay with friends or relatives; 2 = Rental; 3 = Owned house)
Group II: Impacts of the COVID-19 (3 variables)			
Income Effect	IncomeEff	Numerical	Respondents' assessment of COVID-19 effects on household income (1 = No; 2 = Little; 3 = Somewhat; 4 = Much; 5 = Very much)
Work Effect	WorkEff	Numerical	Respondents' assessment of COVID-19 effects on work (1 = No; 2 = Little; 3 = Somewhat; 4 = Much; 5 = Very much)
Spending Cut Effect	SpendCutEff	Numerical	Respondents' assessment of COVID-19 effects on spending (1 = No; 2 = Little; 3 = Somewhat; 4 = Much; 5 = Very much)
Group III: Financial literacy (4 variables)			
Financial Training	FinTrain	Numerical	Respondents have taken a financial course (1 = Yes, 0 = No)
Financial Knowledge	FinKno	Numerical	Respondents' scores in the 10-question financial test
Financial Knowledge Satisfaction	FinKnoSat	Numerical	Respondents' satisfaction level of financial knowledge (1 = Very satisfied; 2 = Satisfied; 3 = Neutral; 4 = Dissatisfied; 5 = Very dissatisfied)
Financial Skill	FinSkiSat	Numerical	Respondents' satisfaction level of

Satisfaction			financial skills (1 = Very satisfied; 2 = Satisfied; 3 = Neutral; 4 = Dissatisfied; 5 = Very dissatisfied)
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4.1. Results

4.1. Descriptions of household decisions

Figure 2 shows that banking deposits were the most favorable financial instrument options, accounting for 39.6% of total investors. Meanwhile, capital fund and cryptocurrency made up only small proportions of 3.0% and 5.3%, respectively. Over 15% claimed to opt for real estate and gold as asset classes to their investment portfolio. The percentages of stock and capital fund were practically the same, with 11.7% for the former and 10.9% for the latter.

Figure 2. Summary of households' financial instrument options

Table 2 presents data on respondents' demographic characteristics, livelihood and finance-related aspects by investment options. Females dominated in 5 categories, and the smallest gap of 2.4% was recorded in cryptocurrency. The age of investors mostly fell in the range from 31 to 50, and respondents living in urban areas accounted for a higher proportion in all categories. Moreover, most respondents who made investment decisions acquired a college's degree or a university qualification and worked in the private sector. In terms of family finance, there was only a small proportion of households' income who earned more than 51 million VND as opposed to a high percentage of families on under 21 million VND income. As can be

clearly seen from the table, a mere 20% proportion of investors claimed to be jobless in times of COVID-19. Among investors who selected gold, insurance, capital fund and cryptocurrency, those who took financial training courses outnumbered those who didn't.

Table 2. Households' options of investment instruments by demographic variables

Variables	Banking		Real estate		Gold		Insurance		Capital fund		Stock		Cryptocurrency		Cumulative Total	
	Obs	%	Obs	%	Obs	%	Obs	%	Obs	%	Obs	%	Obs	%	Obs	%
Gender	320	100.0	131	100.0	122	100.0	88	100.0	24	100.0	95	100.0	43	100.0	823	100.0
Male	206	64.4	73	55.7	40	32.8	26	29.5	8	33.3	34	35.8	21	48.8	408	49.6
Female	114	35.6	58	44.3	82	67.2	62	70.5	16	66.7	61	64.2	22	51.2	415	50.4
Age	320	100.0	131	100.0	122	100.0	88	100.0	24	100.0	95	100.0	43	100.0	823	100.0
<31	81	25.3	27	20.6	29	23.8	27	30.7	7	29.2	34	35.8	4	9.3	209	25.4
31 - 50	208	65.0	94	71.8	84	68.9	53	60.2	17	70.8	57	60.0	3	7.0	516	62.7
51 - 60	26	8.1	10	7.6	9	7.4	8	9.1	0	-	4	4.2	27	62.8	84	10.2
> 60	5	1.6	0	-	0	-	0	-	0	-	0	-	9	20.9	14	1.7
Education	320	100.0	131	100.0	122	100.0	88	100.0	24	100.0	95	100.0	43	100.0	823	100.0
High school	43	13.4	12	9.2	19	15.6	18	20.5	3	12.5	3	3.2	4	9.3	102	12.4
College education	20	6.3	4	3.1	7	5.7	6	6.8	1	4.2	2	2.1	3	7.0	43	5.2
University	198	61.9	78	59.5	75	61.5	49	55.7	12	50.0	68	71.6	27	62.8	507	61.6
Graduate	59	18.4	37	28.2	21	17.2	15	17.0	8	33.3	22	23.2	9	20.9	171	20.8
Income	320	100.0	131	100.0	122	100.0	88	100.0	24	100.0	95	100.0	43	100.0	823	100.0
<21	149	46.6	37	28.2	46	37.7	29	33.0	5	20.8	19	20.0	13	30.2	298	36.2
21 - 50	135	42.2	62	47.3	55	45.1	45	51.1	14	58.3	48	50.5	20	46.5	379	46.1
51 - 80	23	7.2	15	11.5	13	10.7	8	9.1	4	16.7	15	15.8	6	14.0	84	10.2
>80	13	4.1	17	13.0	8	6.6	6	6.8	1	4.2	13	13.7	4	9.3	62	7.5
Living location	320	100.0	131	100.0	122	100.0	88	100.0	24	100.0	95	100.0	43	100.0	823	100.0
Rural	90	28.1	26	19.8	30	24.6	33	37.5	2	8.3	16	16.8	10	23.3	207	25.2
City	230	71.9	105	80.2	92	75.4	55	62.5	22	91.7	79	83.2	33	76.7	616	74.8
Job type	294	100.0	127	100.0	115	100.0	82	100.0	24	100.0	87	100.0	38	100.0	767	100.0
Private	169	57.5	77	60.6	77	67.0	57	69.5	13	54.2	59	67.8	28	73.7	480	62.6
Public	125	42.5	50	39.4	38	33.0	25	30.5	11	45.8	28	32.2	10	26.3	287	37.4
Job loss	320	100.0	131	100.0	122	100.0	88	100.0	24	100.0	95	100.0	43	100.0	823	100.0
No	262	81.9	105	80.2	102	83.6	72	81.8	22	91.7	84	88.4	35	81.4	682	82.9
Yes	58	18.1	26	19.8	20	16.4	16	18.2	2	8.3	11	11.6	8	18.6	141	17.1
Financial training	320	100.0	131	100.0	122	100.0	88	100.0	24	100.0	95	100.0	43	100.0	823	100.0
Yes	84	26.3	77	58.8	82	67.2	59	67.0	15	62.5	43	45.3	25	58.1	385	46.8
No	236	73.8	54	41.2	40	32.8	29	33.0	9	37.5	52	54.7	18	41.9	438	53.2

4.2. Determinants of household financial choices

Table 3 presents the empirical results of the model (Eq.1) of household financial options. The P-value is less than 0.05 in all models (M1 to M7), indicated that these models were statistically significant in explaining variation in the dependent variable. By and large, income level and financial literacy had a noticeable positive correlation with investment decisions, whereas decisions on risky assets decrease with age. Skill satisfaction and knowledge on finance was in proportion with their participation in financial markets, evidenced by positive sign and statistical significance in most categories.

For the model M1 of Banking, demographically, females showed 9% higher intention to choose bank deposits, and people in two age groups ($31 \leq \text{Age} \leq 50$ and $51 \leq \text{Age} \leq 60$) stood a 12.6-27.7% higher chance of opting for bank deposits. Furthermore, this investment channel seemed more favorable for those living in the city with 11% higher probabilities. Financial literacy was positively associated with intentions to deposit money in banks, with probabilities of 1.54% for financial knowledge and 8.4% for financial skills.

Regarding the model M2 of real estate, those in the 31-50 age group had a higher intention to consider real estate as an investment option than their under 31 counterparts. Households on a high monthly income of 81-90 million had a higher probability to invest in real estate and stocks (52%) than households that earn under 21 million per month. Investors entitled to financial training courses were more inclined to go towards real estate as their investments of choices (7.67%). Financial knowledge and skills also led to a greater likelihood (1.21% and 6.35%, respectively).

In terms of the model M3 of gold, women were 6.85% more likely to invest in gold than men. The higher the income, the higher the investment intention. Financial literacy and knowledge satisfaction also increased the probability of devoting money to purchases of gold.

For the model M4 of Insurance, females favored insurance more than males (7.12%). Less severe COVID-19 impacts would increase the likelihood of choosing this channel by 2.5%. Similar to other investment types, financially literate individuals and households of healthy finance had a higher tendency towards insurance. Furthermore, respondents' perceived satisfaction with their knowledge were more likely to take out an insurance policy (4.41%). Public sector employees had a 4.72% lower probability of investing than private sector ones.

Regarding the model M5 of capital fund, urban residents had a 4.76% higher chance of investing in capital fund. This option was more appealing to families of smaller size, whereas high-income households had a higher investment intention. Financial skill satisfaction was associated with a rise in investors' preference.

In terms of the model M6 of stock, the table indicates women's 5% higher probabilities of investing in stock markets than men. People who pursued tertiary education or earned a master's degree or higher showed a tendency towards stocks with a probability of over 8%, and investors who have access to financial education are more likely to choose stocks as their assets (over 8%). Investment intention increased with income and decreased with COVID-19-induced spending cuts and job loss. Respondents working in the public sector are less inclined to opt for stocks than those in the private sector. There was a greater likelihood of those equipped with financial literacy adding stocks to their portfolio.

For the model M7 of Cryptocurrency, the young's money is around 7% more likely to go towards cryptocurrency. Private sector workers had a 3% higher intention to invest in cryptocurrency than their public sector counterparts. Referring to COVID-19 impacts, cuts in spending had an inverse relationship with investors' intention. Those of higher skill satisfaction had a higher tendency towards this channel (4.6%).

Table 3. The estimated results of households' financial instrument decisions

Variables	Bank deposits (M1)		Real estate (M2)		Gold (M3)		Insurance (M4)		Capital fund (M5)		Stocks (M6)		Cryptocurrency (M7)	
	Estimate	Marginal effect	Estimate	Marginal effect	Estimate	Marginal effect	Estimate	Marginal effect	Estimate	Marginal effect	Estimate	Marginal effect	Estimate	Marginal effect
1. Gender	-0.436** (0.177)	-0.0897** (0.0356)	0.0919 (0.235)	0.0106 (0.0270)	-0.559** (0.240)	-0.0685** (0.0292)	-0.777** (0.303)	-0.0712*** (0.0267)	-0.661 (0.415)	-0.0209 (0.0138)	-0.659** (0.304)	-0.0502** (0.0234)	0.139 (0.376)	0.00603 (0.0162)
2 Age:														
31 - 50	0.611*** (0.191)	0.126*** (0.0387)	0.641** (0.280)	0.0699** (0.0291)	0.368 (0.261)	0.0436 (0.0299)	-0.0869 (0.294)	-0.00798 (0.0273)	-0.0634 (0.545)	-0.00202 (0.0175)	0.0913 (0.327)	0.00689 (0.0246)	-1.232*** (0.416)	-0.0614*** (0.0208)
51 - 60	1.313*** (0.415)	0.277*** (0.0851)	0.825 (0.575)	0.0941 (0.0744)	0.382 (0.511)	0.0455 (0.0651)	0.178 (0.557)	0.0177 (0.0572)			0.322 (0.598)	0.0255 (0.0494)	-1.801* (0.934)	-0.0759*** (0.0262)
> 60	0.454 (1.013)	0.0925 (0.214)												
3. Education:														
College education	-0.181 (0.370)	-0.0361 (0.0734)	-0.162 (0.630)	-0.0153 (0.0589)	0.0606 (0.509)	0.00812 (0.0687)	-0.0608 (0.547)	-0.00617 (0.0552)	-0.735 (1.441)	-0.0342 (0.0568)	-0.218 (1.249)	-0.00827 (0.0453)	0.508 (0.988)	0.0217 (0.0462)
University	0.233 (0.262)	0.0483 (0.0539)	0.307 (0.412)	0.0330 (0.0423)	-0.176 (0.351)	-0.0222 (0.0455)	-0.299 (0.379)	-0.0282 (0.0377)	-1.203 (0.732)	-0.0482 (0.0375)	1.349** (0.595)	0.0832*** (0.0276)	0.226 (0.677)	0.00872 (0.0246)
Master or higher	0.538 (0.343)	0.113 (0.0721)	0.965** (0.470)	0.122** (0.0574)	-0.333 (0.480)	-0.0404 (0.0582)	-0.104 (0.509)	-0.0104 (0.0510)	-0.559 (0.781)	-0.0275 (0.0408)	1.401** (0.710)	0.0877** (0.0420)	0.540 (0.816)	0.0234 (0.0342)
4. Income:														
21 – 50	0.291 (0.190)	0.0608 (0.0400)	0.683*** (0.255)	0.0797*** (0.0302)	0.380 (0.254)	0.0454 (0.0308)	0.877*** (0.304)	0.0781*** (0.0266)	1.387** (0.637)	0.0366** (0.0170)	1.056*** (0.349)	0.0768*** (0.0254)	0.352 (0.456)	0.0142 (0.0185)
51 – 80	0.386 (0.437)	0.0810 (0.0934)	1.490*** (0.491)	0.211** (0.0856)	1.195*** (0.464)	0.178** (0.0831)	1.353** (0.562)	0.141* (0.0751)	2.819*** (0.888)	0.141** (0.0704)	1.654*** (0.571)	0.142** (0.0629)	1.112* (0.661)	0.0598 (0.0456)
> 90	0.273 (0.516)	0.0571 (0.109)	3.036*** (0.558)	0.520*** (0.103)	1.018* (0.525)	0.145 (0.0897)	1.181* (0.703)	0.117 (0.0899)	1.383 (1.306)	0.0364 (0.0536)	2.529*** (0.605)	0.265*** (0.0884)	0.655 (0.870)	0.0296 (0.0468)
5. Living location	0.535*** (0.199)	0.110*** (0.0399)	0.384 (0.294)	0.0442 (0.0339)	0.370 (0.272)	0.0453 (0.0334)	-0.397 (0.291)	-0.0364 (0.0267)	1.506* (0.774)	0.0476* (0.0257)	0.275 (0.353)	0.0209 (0.0269)	0.457 (0.520)	0.0198 (0.0224)
6. Job type	-0.132 (0.190)	-0.0272 (0.0390)	-0.292 (0.252)	-0.0336 (0.0289)	-0.391 (0.259)	-0.0479 (0.0317)	-0.515* (0.305)	-0.0472* (0.0276)	0.319 (0.558)	0.0101 (0.0176)	-0.703** (0.338)	-0.0535** (0.0258)	-0.709* (0.405)	-0.0308* (0.0180)
7. Family size	0.0674 (0.0828)	0.0139 (0.0170)	-0.0599 (0.128)	-0.00689 (0.0147)	-0.0166 (0.114)	-0.00203 (0.0140)	-0.00465 (0.136)	-0.000427 (0.0125)	-0.531** (0.264)	-0.0168** (0.00850)	-0.219 (0.164)	-0.0167 (0.0127)	0.0455 (0.211)	0.00198 (0.00914)
8. House type	-0.0496 (0.165)	-0.0102 (0.0339)	0.338 (0.282)	0.0389 (0.0320)	0.0221 (0.226)	0.00270 (0.0276)	0.524 (0.332)	0.0480 (0.0308)	0.137 (0.638)	0.00434 (0.0201)	-0.265 (0.355)	-0.0202 (0.0271)	-0.183 (0.372)	-0.00794 (0.0162)
9. Job loss	-0.386 (0.242)	-0.0794 (0.0495)	-0.138 (0.316)	-0.0159 (0.0364)	-0.207 (0.316)	-0.0253 (0.0387)	-0.115 (0.392)	-0.0105 (0.0359)	-0.911 (0.855)	-0.0288 (0.0273)	-0.920** (0.454)	-0.0701** (0.0349)	0.190 (0.522)	0.00826 (0.0227)
10. Income effect	0.0295 (0.108)	0.00607 (0.0222)	0.0871 (0.140)	0.0100 (0.0161)	0.158 (0.132)	0.0193 (0.0162)	0.131 (0.161)	0.0120 (0.0146)	0.220 (0.285)	0.00696 (0.00905)	-0.0263 (0.177)	-0.00201 (0.0135)	-0.0110 (0.216)	-0.000477 (0.00940)
11. Work effect	-0.185** (0.0919)	-0.0380** (0.0187)	-0.187 (0.122)	-0.0215 (0.0141)	-0.191 (0.120)	-0.0234 (0.0145)	-0.273** (0.134)	-0.0250** (0.0121)	-0.286 (0.237)	-0.00905 (0.00751)	0.130 (0.167)	0.00986 (0.0127)	0.251 (0.196)	0.0109 (0.00859)
12. Spending cut effect	-0.0435 (0.115)	-0.00894 (0.0237)	0.210 (0.158)	0.0242 (0.0181)	-0.107 (0.148)	-0.0131 (0.0182)	0.00218 (0.174)	0.000199 (0.0159)	0.166 (0.280)	0.00525 (0.00890)	-0.289* (0.169)	-0.0220* (0.0129)	-0.650** (0.256)	-0.0282** (0.0111)

13. Financial training	0.316 (0.229)	0.0649 (0.0469)	0.667*** (0.251)	0.0767*** (0.0277)	0.177 (0.275)	0.0217 (0.0336)	0.298 (0.292)	0.0273 (0.0269)	-0.344 (0.573)	-0.0109 (0.0181)	1.325*** (0.334)	0.101*** (0.0248)	0.174 (0.438)	0.00756 (0.0189)
14. Financial Knowledge	0.0748** (0.0339)	0.0154** (0.00687)	0.106** (0.0445)	0.0121** (0.00510)	0.0952** (0.0467)	0.0117** (0.00570)	0.137** (0.0567)	0.0126** (0.00523)	0.0116 (0.106)	0.000365 (0.00334)	0.165*** (0.0627)	0.0126*** (0.00449)	0.115* (0.0668)	0.00501* (0.00289)
15. Financial Knowledge Satisfaction	-0.0684 (0.136)	-0.0141 (0.0281)	-0.167 (0.214)	-0.0192 (0.0246)	0.371** (0.187)	0.0454** (0.0231)	-0.0251 (0.233)	-0.00230 (0.0214)	-0.317 (0.371)	-0.0100 (0.0120)	-0.461 (0.308)	-0.0351 (0.0228)	-0.344 (0.393)	-0.0149 (0.0170)
16. Financial Skill Satisfaction	0.408*** (0.123)	0.0840*** (0.0246)	0.552*** (0.191)	0.0635*** (0.0216)	0.237 (0.183)	0.0291 (0.0223)	0.481** (0.187)	0.0441** (0.0173)	1.028*** (0.286)	0.0325*** (0.0104)	0.636* (0.330)	0.0484** (0.0245)	1.060*** (0.342)	0.0460*** (0.0152)
Constant	-2.139*** (0.788)		-5.986*** (1.261)		- (0.924)		-4.929*** (1.387)		-5.122** (2.184)		-3.388** (1.405)		-4.646** (1.818)	
Observations	693	693	691	691	691	691	691	691	657	657	691	691	691	691
Pseudo r-squared	0.1222		0.2172		0.1196		0.1409		0.2114		0.3198		0.2174	
Chi-square	115.32		143.18		74.39		70.35		43.54		166.03		62.73	
Prob > chi2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

5. Discussion

Despite severe impacts on livelihoods, many households have several investment instruments for increasing their income. To be precise, the largest percentage of people (nearly 40%) put their money in banks, followed by real estate, gold, stock, insurance, investment funds, and cryptocurrencies (Figure 2). Age, income and financial literacy are top factors influencing investment decisions. Generally, it comes as no surprise to see that the herb effect [87] could sway the investors' attitudes and decisions in the stock market. As illustrated, people in rural areas struggle to enroll in financial investment courses than those in urban areas, which are in line with previous studies [61,64,65]. This provides a backbone for financial investment disparities between rural and urban residents and explains why rural residents invest their money in bank savings to some extent.

Saving in banks is mostly selected by the people. As for lower income level households, bank deposits were less risky and seemingly a preferable choice. Safe as bank deposit is, the yield is very high, which seems unappealing to qualified and financially educated people who aspires to more than just 4%-6% interest rate. An overwhelming proportion of the respondents have savings accounts as bank deposits are a traditional means for safekeeping. However, this indicates that investors either want to play safe in the context of the pandemic or lack self-confidence in their financial knowledge to take risks.

The Vietnamese economy is one of the world's rapidly growing economies, and investors are paying much attention to real estate market [17,88,89]. This channel is relatively safe and highly rewarded; therefore, real estate is the second most favored (Figure 2). It is projected that there will be a surge in demand for housing in the densely populated areas of Vietnam, which promises high returns [17]. Such investments, however, usually require large amounts of capital. It should be noted that there are "hidden" risks of the real estate bubble or housing crises which happened once in 2008 [90]. Asset prices rise and fall rapidly and consumers may have to purchase a house for a higher price than its true value, which could lead to a huge loss then.

Stock markets are believed to not only offer promising yields for investors but also exist to serve the expansion of an economy. The findings of the study indicate that investment in stock is common among urban residents but unpopular among rural ones, despite the fact that the number of F0 investors has increased significantly in the last two years. This trend is predicted to persist, necessitating the improvement of securities market infrastructures to satisfy trading demand. The positive relationship between investments in stock and income indicates that this is an important channel for high-income individuals.

The pandemic has boosted the popularity of bitcoin investment option. When compared to other types of investments, cryptocurrencies offer both high yields and high risks to investors. The results show that nearly 82% of the participants are under the age of 40, or are financially literate. This result not only indicate that a new trend is emerging in Vietnam, but it also creates a policy gap to manage cash flows from participants. It is noted that recent Vietnamese government documents continue to be neutral and cautious, which may not create many barriers for investment participants.

Household gold hoarding has gained its currency, presenting the government with a big challenge because technically, gold has no yield and fails to encourage flows of cash, indicating insufficient financial resources has been allocated to facilitate socio-economic development.

In the context of COVID-19, an imminent crisis and a projected economic recession drive the frightened Vietnamese to speculate on gold to secure family finance, evidenced by the higher figure for investments into gold (Figure 2).

Capital fund seems to be an unfamiliar option with rural residents, which explains why the number of investors choosing it was the smallest. Insurance has increasingly become a favorable investment choice as higher awareness of COVID-19 effects may drive investors to take insurance to maintain a high level of financial preparedness in the face of the pandemic, which denotes a positive sign for insurance companies.

The differences in investment decisions of individuals are well explained in light of mindsponge mechanism. Our findings of the popularity of gold support the comment of WGC (2021) that Vietnamese considerable interest in gold could be attributed to their belief of gold helping to fight inflation and fluctuations. Besides, bank deposits, a low risk investment choice, enjoyed the greatest popularity. In stark contrast, cryptocurrencies was the least favoured option, mainly due to the market being in its early stages and highly volatile, hence high risks involved. We also find that nearly 82% of the cryptocurrencies investors are under the age of 40, or are financially literate, and that female investors paid more attention to safe choices than their male counterparts. In a cost-benefit judgement of investment choices, a high sense of security would develop trust in the choice, which reduces the perceived cost. Thus, the more uncertain expected outcomes of an option are, the higher the likelihood of it being rejected from the mindset, especially in the context of threat and financing constraint [91,92]. Moreover, risk tolerance might be helpful to filter the choices [93–95]. However, there is another condition that needs to be fulfilled before an investment decision could be made - the availability or perceived accessibility of the investment (instruments) information. The findings of the study indicate that investment in stock is common in urban areas but unpopular in rural ones, which is also true for capital funds. As discussed, these people had difficulty attending financial investment courses and limited access to knowledge on finance [96–98]. When the perceived value of the information decreases due to external barriers - in this case, access to information, the mind may dismiss the option regardless of internal preferences and personal traits, such as high risk tolerance. Thus, the perceived availability of investment information is also a condition that needs to be satisfied for igniting the decision making in an investor's mindset.

This study has some limitations. Firstly, we conducted a large-scale online survey to guarantee safety and adherence to COVID-19 preventative measures implemented by Vietnamese government, so the risk of getting inferior data is unavoidable. However, acknowledging limitations of an online survey, we actively pretested our survey. A focus group of experienced participants who have previously participated in many similar projects was formed to check wording, logic and make proper changes in case of misunderstanding. Afterwards, we ran a pilot survey on a small scale to ask for respondents' opinions on the length of the questionnaire, accuracy of instructions and intelligibility. These steps serve to avoid overlooking errors and guarantee quality before fielding the questionnaire to a large-scale survey. Additionally, given the complicated and rapid developments of the COVID-19 pandemic, there are high chances of changes in households' financial behaviors across different phases of the pandemic, which calls for comparative or additional follow-up research to compare, supplement and/or advance our understanding of this subject.

6. Conclusions

The study examines residents' investment status, identifies and highlights key determinants of financial choices. The disparity in occupations, gender and locations is closely linked to decisions on investments, which suggests these factors should be taken into consideration to devise evidence-based policies. Our contributions are as follows: Firstly, findings add to the field of household finance associated with financial investment decisions as a livelihood strategy. In presence of economic crisis and unexpected events that threaten households' financial stability, households are inclined to consider other types of investment instruments rather than traditional, low-yield means such as bank deposits and gold in search of higher returns to offset economic effects. Secondly, the research highlights households' current investment channels. Golds and bank deposits still serves as the most popular means of money storage, which stalls flows of financial resources, thereby slowing development. Thus, it is imperative to improve investment policy associated with some "hot development" markets such as stock market, real estate market, the cryptocurrency market. 20 years of steady growth in the stock market opens up a wide range of opportunities for Vietnam governing bodies to turn the stock market into an effective investment channel for households to raise their living standards and for governmental policies to capitalize on financial resources from all segments of the population. Thirdly, the study provides grounds for Vietnamese government subsidizing finance-related courses to broaden access to financial knowledge and skills, particularly in rural areas for the purpose of national financial resilience in an uncertain world.

References

1. World Bank Output to Remain below Pre-COVID Trends despite Robust Rebound by US and China Available online: <https://www.worldbank.org/en/news/press-release/2021/06/08/world-bank-global-economic-prospects-2021> (accessed on 27 July 2021).
2. Szmigiera, M. Impact of the Coronavirus Pandemic on the Global Economy Available online: <https://www.statista.com/topics/6139/covid-19-impact-on-the-global-economy/> (accessed on 27 July 2021).
3. OECD OECD Unemployment Rates; Paris, 2021;
4. Morgan, P.J.; Long, T.Q. Impacts of COVID-19 on Households in ASEAN Countries and Their Implications for Human Capital Development; ADBI Working Paper; Tokyo, 2021;
5. Tran, B.X.; Nguyen, H.T.; Le, H.T.; Latkin, C.A.; Pham, H.Q.; Vu, L.G.; Le, X.T.T.; Nguyen, T.T.; Pham, Q.T.; Ta, N.T.K.; et al. Impact of COVID-19 on Economic Well-Being and Quality of Life of the Vietnamese During the National Social Distancing. *Front. Psychol.* **2020**, *11*, 1–9, doi:10.3389/fpsyg.2020.565153.
6. Zhang, D.; Hu, M.; Ji, Q. Financial Markets under the Global Pandemic of COVID-19. *Financ. Res. Lett.* **2020**, *36*, 101528, doi:10.1016/j.frl.2020.101528.
7. Yue, P.; Gizem Korkmaz, A.; Zhou, H. Household Financial Decision Making Amidst the COVID-19 Pandemic. *Emerg. Mark. Financ. Trade* **2020**, *56*, 2363–2377, doi:10.1080/1540496X.2020.1784717.
8. Hanspal, T.; Weber, A.; Wohlfart, J. Exposure to the COVID-19 Stock Market Crash and

- Its Effect on Household Expectations. *Rev. Econ. Stat.* **2020**, 1–45, doi:10.1162/rest_a_01011.
9. OECD G20/OECD INFE Policy Guidance on Digitalisation and Financial Literacy; Argentina, 2018;
 10. National Economics University Assessment of Policies to Cope with Covid-19 and Recommendations; 2021;
 11. Vietnamnews Deposit Interest Rate Proposed to Gradually Lower to 0 % Available online: <https://vietnamnews.vn/economy/979921/deposit-interest-rate-proposed-to-gradually-lower-to-0.html> (accessed on 26 July 2021).
 12. Can, L.; Nguyen, D. Vietnam Capital Markets; 2021;
 13. World Bank Deposit Interest Rate in Vietnam Available online: <https://tradingeconomics.com/vietnam/deposit-interest-rate#:~:text=Deposit Interest Rate in Vietnam is expected to reach 4.37,according to our econometric models.> (accessed on 25 July 2021).
 14. Anh, V. Term 3: 8 Types of Real Estate Investment Available online: <https://blog.rever.vn/ky-3-loai-hinh-dau-tu-bat-dong-san> (accessed on 26 July 2021).
 15. Savills Media Release Q3/2021 2021.
 16. JLL Vietnam Property Market Overview 2021.
 17. NEWS, S. 2021 Real Estate Investment Highlights Available online: <https://www.savills.com.vn/insight-and-opinion/savills-news/199111-0/2021-real-estate-investment-highlights> (accessed on 26 July 2021).
 18. Nguyen, V.T.; Floro, M.S. Understanding Asset Holdings of Vietnamese Households. *J. Asia Pacific Econ.* **2020**, 25, 654–674, doi:10.1080/13547860.2019.1699986.
 19. Boudreau, J.; Dieu, N.; Uyen, T. You Can Still Buy a House with Gold Bars in Vietnam Available online: <https://www.bloombergquint.com/global-economics/vietnam-s-next-revolution-a-cashless-society-for-the-masses> (accessed on 27 July 2021).
 20. WGC Retail Gold Insights: Vietnam Investment 2021.
 21. SBMA Vietnam's Gold Market - Singapore Bullion Market Association Available online: <https://www.sbma.org.sg/media-centre/publication/crucible-issue-3/vietnams-gold-market/> (accessed on 9 March 2022).
 22. Department of the Insurance Supervisory Authority The Insurance Market in 2021; Hanoi, Vietnam, 2022;
 23. Thai, D. Thị Trường Bảo Hiểm 2021 : Vượt Thách Thức Covid-19 , Duy Trì Tăng Trưởng 2 Con Số Available online: <https://thoibaotaichinhvietnam.vn/thi-truong-bao-hiem-2021-vuot-thach-thuc-covid-19-duy-tri-tang-truong-2-con-so-98318.html> (accessed on 11 March 2022).
 24. VNA Top 10 Prestigious Insurance Companies in Vietnam in 2021 Announced Available online: <https://en.vietnamplus.vn/top-10-prestigious-insurance-companies-in-vietnam-in-2021-announced/204434.vnp> (accessed on 28 July 2021).

25. VNS Investment Funds Beat the Market in 2020 - Economy - Vietnam News | Politics, Business, Economy, Society, Life, Sports - VietNam News Available online: <https://vietnamnews.vn/economy/852888/investment-funds-beat-the-market-in-2020.html> (accessed on 13 March 2022).
26. VNS VN's Equity Market Attract Capital via Funds - Economy - Vietnam News | Politics, Business, Economy, Society, Life, Sports - VietNam News Available online: <https://vietnamnews.vn/economy/825278/vns-equity-market-attract-capital-via-funds.html> (accessed on 13 March 2022).
27. VNA Vietnam's Securities Investment Funds Hold Huge Potential: SSC | Business | Vietnam+ (VietnamPlus) Available online: <https://en.vietnamplus.vn/vietnams-securities-investment-funds-hold-huge-potential-ssc/217928.vnp> (accessed on 13 March 2022).
28. TCM Vietnam - TCM Investment Funds Available online: <https://www.tcminvestmentfunds.com/vietnam> (accessed on 13 March 2022).
29. FMG VIETNAM FUND - FMG Funds Available online: <https://www.fmgfunds.com/vietnam-fund/> (accessed on 13 March 2022).
30. DragonCapital Vietnam Equity (UCITS) Fund Available online: <https://www.dragoncapital.com/vef/> (accessed on 13 March 2022).
31. Hai Yen Investment Funds Win Big on Vietnam Stock Market Available online: <http://hanoitimes.vn/investment-funds-win-big-on-vietnam-stock-market-318031.html> (accessed on 13 March 2022).
32. Drover, W.; Busenitz, L.; Matusik, S.; Townsend, D.; Anglin, A.; Dushnitsky, G. A Review and Road Map of Entrepreneurial Equity Financing Research: Venture Capital, Corporate Venture Capital, Angel Investment, Crowdfunding, and Accelerators. *J. Manage.* **2017**, *43*, 1820–1853, doi:10.1177/0149206317690584.
33. James, C. Venture Capital Funds. Available online: <https://www.investopedia.com/terms/v/vcfund.asp> (accessed on 26 July 2021).
34. Baig, A.S.; Butt, H.A.; Haroon, O.; Rizvi, S.A.R. Deaths, Panic, Lockdowns and US Equity Markets: The Case of COVID-19 Pandemic. *Financ. Res. Lett.* **2021**, *38*, 101701, doi:10.1016/j.frl.2020.101701.
35. Alexakis, C.; Eleftheriou, K.; Patsoulis, P. COVID-19 Containment Measures and Stock Market Returns: An International Spatial Econometrics Investigation. *J. Behav. Exp. Financ.* **2021**, *29*, 100428, doi:10.1016/j.jbef.2020.100428.
36. Lau, Y. A Retail Investor Boom Powered Vietnam's Stock Market to All-Time Highs.
37. Giang, N. Asia's Hottest Stock Market Has Vietnam Primed for Inflows.
38. Vietnamnet Vietnam's Stock Market Sets Historic Record in 2021 Available online: <https://vietnamnet.vn/en/business/vietnam-s-stock-market-sets-historic-record-in-2021-815320.html> (accessed on 11 March 2022).
39. Vietnamnews Stock Market to Make Robust Gains as 2022 Arrives Available online: <https://vietnamnews.vn/economy/1111584/stock-market-to-make-robust-gains-as->

- 2022-arrives.html (accessed on 11 March 2022).
40. Dong, P. Ho Chi Minh Stock Exchange Continues to Struggle with Overload Available online: <https://e.vnexpress.net/news/business/economy/ho-chi-minh-stock-exchange-continues-to-struggle-with-overload-4293931.html#:~:text=Trading on Vietnam's main bourse,18 months%2C overloading its system.&text=This makes the HoSE larger,had been only%2496 mill> (accessed on 26 July 2021).
 41. Vietnamnews Investors Feel Insecure about Ho Chi Minh City Stock Exchange Congestion, Move to Other Bourses Available online: <https://vietnamnews.vn/economy/897353/investors-feel-insecure-about-ho-chi-minh-city-stock-exchange-congestion-move-to-other-bourses.html> (accessed on 26 July 2021).
 42. BBC News Chỉ Phạt Ông Trịnh Văn Quyết 1 , 5 Tỷ Đồng Sau vụ Bán ' Chui ' Cổ Phiếu FLC Available online: <https://www.bbc.com/vietnamese/vietnam-60006568> (accessed on 11 March 2022).
 43. Maria, G.; Gil-alana, L.; Plastun, A. Research in International Business and Finance Persistence in the Cryptocurrency Market. *Res. Int. Bus. Financ.* **2018**, 0–1, doi:10.1016/j.ribaf.2018.01.002.
 44. Vietnamnet Vietnam Was in the Global Top 10 for Cryptocurrency Ownership Rate Available online: <https://vietnamnet.vn/vn/kinh-doanh/tai-chinh/viet-nam-vao-top-10-the-gioi-ve-ty-le-nguoi-so-huu-tien-ma-hoa-810533.html> (accessed on 11 March 2022).
 45. William Vietnam Ranks # 1 Globally for Cryptocurrency Adoption Available online: <https://vietnamdaily.ca/culture/vietnam-ranks-1-globally-for-cryptocurrency-adoption/> (accessed on 11 March 2022).
 46. Geetha, N.; Ramesh, M. A Study on Relevance of Demographic Factors in Investment. *Perspect. Innov. Econ. Bus.* **2012**, 10, 14–27.
 47. Parimalakanthi, K.; Kumar, D.M.A. A Study on Investment Preference and Behaviour of Individual Investors in Coimbatore City. *Bonfring Int. J. Ind. Eng. Manag. Sci.* **2015**, 5, 170–174, doi:10.9756/bijiems.8122.
 48. Montford, W.; Goldsmith, R.E. How Gender and Financial Self-Efficacy Influence Investment Risk Taking. *Int. J. Consum. Stud.* **2016**, 40, 101–106, doi:10.1111/ijcs.12219.
 49. Dohmen, T.; Falk, A.; Huffman, D.; Sunde, U.; Schupp, J.; Wagner, G.G. Individual Risk Attitudes: Measurement, Determinants, and Behavioral Consequences. *J. Eur. Econ. Assoc.* **2011**, 9, 522–550, doi:10.1111/j.1542-4774.2011.01015.x.
 50. Halko, M.L.; Kaustia, M.; Alanko, E. The Gender Effect in Risky Asset Holdings. *J. Econ. Behav. Organ.* **2012**, 83, 66–81, doi:10.1016/j.jebo.2011.06.011.
 51. Marinelli, N.; Mazzoli, C.; Palmucci, F. How Does Gender Really Affect Investment Behavior? *Econ. Lett.* **2017**, 151, 58–61, doi:10.1016/j.econlet.2016.12.006.
 52. Almenberg, J.; Dreber, A. Gender, Stock Market Participation and Financial Literacy. *Econ. Lett.* **2015**, 137, 140–142, doi:10.1016/j.econlet.2015.10.009.

53. Sivaraman, M.S. A Study among Investment Avenues among Salaried Employees. *J. Inf. Comput. Sci.* **2019**, 9, 899–907.
54. Badunenko, O.; Barasinska, N.; Schäfer, D.W. Risk Attitudes and Investment Decisions across European Countries: Are Women More Conservative Investors than Men?; FINESS Working Paper; Berlin, German, 2009;
55. Fonseca, R.; Mullen, K.J.; Zamarro, G.; Zissimopoulos, J. What Explains the Gender Gap in Financial Literacy? The Role of Household Decision Making. *J. Consum. Aff.* **2012**, 46, 90–106, doi:10.1111/j.1745-6606.2011.01221.x.
56. Charles, M.A.; Kasilingam, D.R. Does the Investor ' S Age Influence Their Investment Behaviour ? *Sage Journals* **2013**, 17, 11–24.
57. Lutfi, L. The Relationship Between Demographic Factors and Investment Decision in Surabaya. *J. Econ. Business, Account. | Ventur.* **2011**, 13, 213–224, doi:10.14414/jebav.v13i3.13.
58. Sadiq, M.N.; Ishaq, H.M. View of The Effect of Demographic Factors on the Behaviour of Investors during the Choice of Investments_ Evidence from Twin Cities of Pakistan.Pdf. *Glob. J. Manag. Bus. Res.* **2014**, 14.
59. Korniotis, G.M.; Kumar, A. Korniotis & Kumar_Do Older Investors Make Better Decisions_RESTAT_2010. *Rev. Econ. Stat.* **2011**, 1, 244–265.
60. Singh, R.; Bhattacharjee, D. Equity Investment Decisions: Are Demographic Variables Really Significant? *Paradigm* **2010**, 14, 7–11, doi:10.1177/0971890720100103.
61. Mumtaz, M.Z.; Smith, Z.A. The Behavior of Household Finance on Demographic Characteristics in Pakistan. *Econ. Res. Istraživanja* **2020**, 1–19, doi:10.1080/1331677X.2020.1825107.
62. Fachrudin, K.R.; Fachrudin, K.A. The Influence of Education and Experience toward Investment Decision with Moderated by Financial Literacy. *Polish J. Manag. Stud.* **2016**, 14, 51–60, doi:10.17512/pjms.2016.14.2.05.
63. Liang, P.; Guo, S. Social Interaction , Internet Access and Stock Market Participation — An Empirical Study in China *Q. J. Comp. Econ.* **2015**, doi:10.1016/j.jce.2015.02.003.
64. Yubing, S.; Geng, N. The Urban-Rural Gap of Chinese Household Finance. *Emerg. Mark. Financ. Trade* ISSN **2017**, 377–392, doi:10.1080/1540496X.2017.1367660.
65. Gao, M.; Fok, R.C. Demographics , Family / Social Interaction , and Household Finance. *Econ. Lett.* **2015**, 136, 194–196, doi:10.1016/j.econlet.2015.09.027.
66. Mcknight, A.; Rucci, M. The Financial Resilience of Households: 22 Country Study with New Estimates, Breakdowns by Household Characteristics and a Review of Policy Options. *Cent. Anal. Soc. Exclusion, London Sch. Econ.* **2020**, 3–56.
67. Salignac, F.; Marjolin, A.; Reeve, R.; Muir, K. Conceptualizing and Measuring Financial Resilience: A Multidimensional Framework. *Soc. Indic. Res.* **2019**, 145, 17–38, doi:10.1007/s11205-019-02100-4.
68. Tadele, F.; Manyena, S.B. Building Disaster Resilience through Capacity Building in Ethiopia. *Disaster Prev. Manag. An Int. J.* **2009**, 18, 317–326,

- doi:10.1108/09653560910965664.
69. Pandin, M.Y.R.; Ratnawati, T.; Yuhertiana, I. The Influence of Financial Structure, Financial Literacy and Financial Behavior on Household Financial Resilience Using Financial Inclusion and Financial Decision as Intervening Variables on Cancer Survivor s Household in East Java During Covid-19 Pandem. *IJEBD (International J. Entrep. Bus. Dev.* **2021**, 04, 80–90.
 70. Kass-Hanna, J.; Lyons, A.C.; Liu, F. Building Financial Resilience through Financial and Digital Literacy in South Asia and Sub-Saharan Africa. *Emerg. Mark. Rev.* **2021**, 100846, doi:10.1016/j.ememar.2021.100846.
 71. Klapper, L.; Lusardi, A. Financial Literacy and Financial Resilience: Evidence from around the World. *Financ. Manag.* **2020**, 49, 589–614, doi:10.1111/fima.12283.
 72. Li, J.; Li, Q.; Wei, X. Financial Literacy, Household Portfolio Choice and Investment Return Jianjun. *Pacific-Basin Financ. J.* **2020**, 101370, doi:10.1016/j.pacfin.2020.101370.
 73. Mouna, A.; Anis, J. Its Determinants and Its Implications on Investment Behavior. *Res. Int. Bus. Financ.* **2017**, 39, 568–577, doi:10.1016/j.ribaf.2016.09.018.
 74. Lusardi, B.A.; Mitchell, O.S. Financial Literacy and Retirement Prepared- Ness : Evidence And. *Bus. Econ.* **2007**, 35–44.
 75. Himanshu; Ritika; Suryavanshi, R. Impact of COVID-19 on Portfolio Allocation Decisions of Individual Investors. *J. public Aff.* **2021**, doi:10.1002/pa.2649.
 76. Heo, W.; Rabbani, A.; Grable, J.E. An Evaluation of the Effect of the COVID-19 Pandemic on the Risk Tolerance of Financial Decision Makers. *Financ. Res. Lett.* **2020**, 101842, doi:10.1016/j.frl.2020.101842.
 77. Ashraf, B.N. Stock Markets’ Reaction to COVID-19: Cases or Fatalities? *Res. Int. Bus. Financ.* **2020**, doi:10.1016/j.ribaf.2020.101249.
 78. Goodell, J.W. COVID-19 and Finance : Agendas for Future Research. *Financ. Res. Lett.* **2020**, 35, doi:10.1016/j.frl.2020.101512.
 79. Khuc, Q. V. Mindspongeconomics. *Work. Pap. Ser. No. 2022/9* **2022**, doi:10.31219/osf.io/hnucr.
 80. Vuong, Q.H. Mindsponge Theory. https://books.google.com.vn/books?id=OSiGEAAQBAJ&redir_esc=y; 2022;
 81. Vuong, Q.H.; Napier, N.K. Acculturation and Global Mindsponge: An Emerging Market Perspective. *Int. J. Intercult. Relations* **2015**, 49, 354–367, doi:10.1016/J.IJINTREL.2015.06.003.
 82. WHO, V. Viet Nam Viet Nam COVID-19 Situation Report # 21 Situation Summary Viet Nam; Hanoi, Vietnam, 2021;
 83. Vuong, Q.-H.; Phu, T.V.; Le, T.-A.T.; Van Khuc, Q. Exploring Inner-City Residents’ and Foreigners’ Commitment to Improving Air Pollution: Evidence from a Field Survey in Hanoi, Vietnam. *Data* **2021**, 6, 39, doi:10.3390/data6040039.

84. Vuong, Q.-H.; Ho, M.-T.; Nguyen, M.-H.; Pham, T.-H.; Vuong, T.-T.; Khuc, Q.; Hoang-Anh Ho; La, V.-P. On the Environment-Destructive Probabilistic Trends: A Perceptual and Behavioral Study on Video Game Players. *Technol. Soc.* **2021**, *65*, doi:10.1016/j.techsoc.2021.101530.
85. Hosmer, D.W.; Lemeshow, S.; Sturdivant, R.X. *Applied Logistic Regression*, Third Edition; John Wiley & Sons, Inc., Hoboken, New Jersey., 2013;
86. StatisticalSolutions Assumptions of Logistic Regression. *Dir. Stat. Anal.* **2014**, 1–1.
87. Vo, X.V.; Phan, D.B.A. Further Evidence on the Herd Behavior in Vietnam Stock Market. *J. Behav. Exp. Financ.* **2017**, *13*, 33–41, doi:10.1016/j.jbef.2017.02.003.
88. Vuong, Q.-H. The Financial Economy of Viet Nam in an Age of Reform, 1986-2016. In *Routledge Handbook of Banking and Finance in Asia*; Ulrich, V., Peter J., M., Naoyuki, Y., Eds.; London, UK, 2019; pp. 201–222.
89. Vuong, T.-T.; Vilém Semerák; Vuong, Q.-H. The Vietnamese Economy at the Crossroads. In *Southeast Asia and the ASEAN Economic Community*; Macdonald, R., Ed.; Palgrave Macmillan, Cham, 2019; pp. 91–143 ISBN 9783030197223.
90. Tien, N.H.; Vu, N.T.; Dung, H.T.; Doan, L.M.D. Determinants of Real Estate Bubble in Vietnam. *Int. J. Res. Financ. Manag.* **2019**, *2*, 75–80.
91. Boyle, G.W.; Guthrie, G.A. Investment, Uncertainty, and Liquidity. *J. Finance* **2003**, *58*, 2143–2166, doi:10.1111/1540-6261.00600.
92. Carruth, A.; Dickerson, A.; Henley, A. What Do We Know About Investment Under Uncertainty? *J. Econ. Surv.* **2000**, *14*, 119–154, doi:10.1111/1467-6419.00107.
93. Grable, J.; Roszkowski, M.; Joo, S.H.; O'Neill, B.; Lytton, R.H. A Test of the Relationship between Self-Classified Financial Risk-Tolerance and Investment Risk-Taking Behaviour. *Int. J. Risk Assess. Manag.* **2009**, *12*, 396–419, doi:10.1504/IJRAM.2009.025929.
94. Nguyen, L.T.M.; Gallery, G.; Newton, C. The Influence of Financial Risk Tolerance on Investment Decision-Making in a Financial Advice Context. *Australas. Accounting, Bus. Financ. J.* **2016**, *10*, 3–22, doi:10.14453/aabfj.v10i3.2.
95. Zeira, J. Cost Uncertainty and the Rate of Investment. *J. Econ. Dyn. Control* **1990**, *14*, 53–63, doi:10.1016/0165-1889(90)90005-2.
96. Ankrah Twumasi, M.; Jiang, Y.; Wang, P.; ding, Z.; Nadia Frempong, Lady; Owusu Acheampong, M. Does Financial Literacy Inevitably Lead to Access to Finance Services? Evidence from Rural Ghana A Educação Financeira Leva Inevitavelmente Ao Acesso a Serviços Financeiros? Provas Da Zona Rural de Gana. **2021**, *52*, 2022, doi:10.1590/0103-8478cr20210112.
97. Li, T.; Ma, J.; Li, T.; Ma, J. Does Digital Finance Benefit the Income of Rural Residents? A Case Study on China. *Quant. Financ. Econ.* **2021**, *4664*, 664–688, doi:10.3934/QFE.2021030.
98. BMZ Providing the Rural Poor with Better Access to Financial Services Available online: <https://www.giz.de/en/worldwide/17492.html> (accessed on 13 March 2022).