Initial Coin Offering,
Don't you want to miss the next big thing?

Abstracts

Initial Coin Offering (ICO) is an increasingly popular way for new technology ventures to raise funds from the public in recent years. Considering the novelty of ICO, there is a lack of research that investigates the motivational factors of investors who participated in ICO investment. This thesis aims to fill in this research gap by conducting a quantitative study with 239 investors from Vietnam. Building upon theories in stock investment, crowdfunding literature, and insights from interviews with ICO experts, a model was developed to investigate the driving factors of ICO investment decision. The study found that investors are mostly driven by financial rewards from ICO, and also see it as a way to diversify their investment portfolio. Besides, ICO investors are strongly subject to herding effect. They also deem ICO investment as a way to express themselves, and generally have early adopters profile. The results generate important theoretical and empirical implications for ICO project founders and regulatory authorities.

Keywords:
Crowdfunding, cryptocurrency, initial coin offering (ICO), bitcoin, tokens, entrepreneurial finance.

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1. INTRODUCTION

In this introduction, the rising phenomenon of initial coin offering (ICO) is introduced and the current limitation within ICO investment research is addressed. This limitation explains a rising need for research for the behavior of ICO investors. This is followed by a presentation of purpose, expected questions and research questions that explain the chosen approach of this thesis to study the investment behavior of ICO investors.

1.1 Background

Initial coin offering (ICO) is a novel way for new technology ventures to raise funds. Although the idea of raising funds from the crowd - crowdfunding - is not new, ICO represents a phenomenal new type of crowdfunding through which entrepreneurs can raise funds much faster and at a scale that was never seen before (Fisch, 2019). The history of ICO can be traced back to the emergence of blockchain technology, which was invested by a person or a group of people under the pseudonym of Satoshi Nakamoto (Satoshi Nakamoto, 2008). Despite having a slow start, blockchain technology starts gaining tremendous traction in recent years, when a desire for anonymity and decentralization become much more important in the digital age.

Investment in ICO started to pick up at an amazing rate in recent years. In 2016, the total investment amount was a humble $100 million (Wöckener et al., 2017). To date, ICO has become one of the most popular ways to raise fund for blockchain startups, with a total of more than $30 billion have been raised so far (Lyandres, Palazzo, and Rabetti, 2019). Part of the reasons for this huge takeover of ICO is that it allows tech entrepreneurs to raise funds from the crowd in a fast and secure way, without the need of an intermediary in traditional crowdfunding method (Fisch et al., 2019). Thus, ICO has the potential to revolutionize entrepreneurial finance, especially for technology companies (albeit).

Similar to crowdfunding, the participants of the crowd in ICO are of critical importance. However, distinct from normal crowdfunding projects in which diverse types of companies and projects can participate, ICO as a funding method is only applicable to blockchain technology companies (Dietrich and Amrein, 2018). For this reason, investors need to be technically savvy enough to participate. It is thus very interesting to look into the profiles and behavior of these investors to understand what drives them to invest in this new investment phenomenon, especially when a high risk of fraud is usually associated with ICOs (Labbe, 2017).

1.2 Problem formulation

Despite the growing popularity of ICO, there is currently a lack of research that sheds light on the investment behavior of ICO investors. Most existing studies revolve around other aspects of ICO investment, such as the factors that account for the success of ICO projects (Fisch, 2019; Momtaz, 2019), or addressing ICO from a regulatory perspective (Cohney et al., 2018; Huang et al., 2019).

To date, there is only one existing study that examines the factors that account for the investment decision of ICO investors (Fisch et al., 2019). However, the study mostly focuses on the US and European investors and does not explore whether ICO could be a suitable investment vehicle for other traditional investors.

Furthermore, although ICO is another type of crowdfunding (Dietrich and Amrein, 2018; Fisch et al., 2019), it is still questionable whether motivational factors for crowdfunding investors are similar to those of ICO investors, given significant differences between the two platforms.

The problem is therefore that there is a current lack of study about ICO investors, and whether other traditional investors would be drawn to ICO investment.

1.3 Purpose and expected contribution

The purpose of this thesis is to investigate the factors that account for the decision to invest in ICOs. Moreover, the thesis explores if retail investors, defined as individuals who buy and sell any kind of stocks and other traditional financial asset classes (Black, 2008), are potential ICO investors. Last, the thesis aims at investigating Vietnamese investors. The reason for targeting Vietnamese investors is a personal one.

In April 2018, a huge ICO scam taken place in Vietnam was reported, which result in a loss of $660m for all local ICO investors (Biggs, 2019). This is, to date, still the largest ICO scam in the world, with the stolen amount 10 times higher than the second ICO scam. Although there is no official data on how big the ICO market is in Vietnam, from the personal experience as an ICO investor and as a Vietnamese with local market insights, plus the mentioned ICO scam, the author believes that the ICO market in Vietnam is reasonably big. Thus, it is of personal interest of the author to look into the Vietnamese ICO market.

Theoretically, this study is expected to contribute to the nascent research of ICO investment, especially at the poorly researched area of ICO investors. Additionally, this thesis can also contribute to the research in entrepreneurial finance, which is crowded by studying regarding crowdfunding investors (Ligas, 2000; Bretschneider and Leimeister, 2017; Ordanini et al., 2011), but lack of study on ICO investors. Empirically, this study aims to support ICO founders, who are currently lack understanding of their investors, as well as policymakers.

1.3.1 Research questions

The primary research questions addressed in this thesis are:

What factors drive ICO investors to invest in ICOs?

As this study aims to separate between ICO investors and traditional retail investors, the secondary research question is:

What are the differences in factors that influence the investment decision of ICO investors and that of retail investors?

1.4 Delimitations

Since there are different types of crowdfunding and ICO is a new category of crowdfunding, this study focuses on the field of ICO investment only. As investor profiles tend to be heterogeneous (Fisch et al., 2019), it is noted that this study should apply for ICO context only.

Also, the study only targets Vietnamese investors. Since the motives of investors from different parts of the world could be different, any generalization of this study should be interpreted carefully.

1.5 Thesis outline

This thesis is divided into five chapters. The first chapter gives an overview of the ICO phenomenon and the scope of the study. The second chapter explored different concepts in crowdfunding and ICO investment, and established the theoretical and conceptual framework for the study. Next, chapter three elaborates on the methodology applied for the study, covering qualitative and quantitative pre-study, and a quantitative main-study. The fourth chapter presents the result of the study, in which relationships between variables are explored. Finally, the discussion and implications of the study are discussed in the last chapter.

2. THEORY

2.1 Crowdfunding

The first part of this section will look into the space of crowdfunding, briefly reviewing its concept, historical development, and different types of crowdfunding, which paves the way for a more in-depth look into ICO.

2.1.1 Concept and historical development

Crowdfunding is a rising phenomenon in recent years. It can be defined as an open call, especially through the Internet, for the provision of financial resources either in the form of donation or in exchange for some form of reward or voting rights (Lambert and Schwienbacher, 2010). It is therefore considered a great way for entrepreneurs to raise funds for their business, without having to resort to traditional funding sources (Mollick, 2014; Belleflamme et al., 2010). The original concept of crowdfunding emerges from the broader concept of crowdsourcing, which refers to the process of leveraging the crowd's knowledge, skills, and resources to achieve organizational goals (Poetz and Schreier, 2012; Gerber and Hui, 2013).

The first crowdfunding project can be traced back to 2006, with the emergence of a website named Sellaband.com, from which music enthusiasts can fund their favorite artists (Agrawal, Catalini, & Goldfarb, 2011). Since then, crowdfunding has gaining much higher thanks to several important factors, namely Web 2.0 and social media, especially after the financial crisis in 2008 when traditional funding sources such as venture capital and loans closed their gate to new ventures (Kleemann et al., 2008; Belleflamme et al., 2010).

2.1.2 Types of crowdfunding

Crowdfunding can be categorized into five main sub-segments, characterized by the type of funding received (Dietrich and Amrein, 2018; Mollick, 2014; Massolution, 2013; De Buysere, 2012).

The five different models of crowdfunding are briefly illustrated below. Among them, crowdinvesting, or equity investing, crowdlending and invoice trading are all financial crowdfunding models, while donation and reward-based crowdfunding are referred to as non-financial models (Massolution, 2013).

- Equity crowdfunding: Equity crowdfunding views funders as investors, which is similar to traditional investment types such as angel investors, supplying them with equities ownership in return (Mollick, 2014). This type of crowdfunding has become more common over time with tight regulations in place (albeit).
- Crowdlending, or peer-to-peer (P2P) lending allows people to lend money to each other at a rate more or less competitive than banks' rates (De Buysere, 2012). In exchange for their loans, borrowers obtain interest payments; the amount of interest payable typically depends on the borrower's risk.

- Reward-based crowdfunding is the most typical type of crowdfunding (Mollick, 2014). In this model, funders are offered rewards, in the form of gifts such as products, work of art or services. The reward-based crowdfunding may have commercial or non-commercial intent, depending on whether the project initiator is a company or an individual.
- Donation-based crowdfunding follows a philanthropy approach, in which funders usually not receive anything of value in return for their funding. Mollick (2014) refers to this type of funding as charity or humanitarian projects.
- Invoice trading: investors buy unsettled business invoices at a discount in this form of crowdfunding. Therefore, invoice trading allows short-term liquidity to be accessed by SMEs (Dietrich and Amrein, 2018). The direct connection between those seeking funds and those seeking capital gives rise to a new class of investment. In exchange for buying the invoices, buyers earn a refund consisting of the difference between what they are paying for the invoices and the sums on the invoices themselves.

The taxonomy of crowdfunding is summarized in the illustration below.

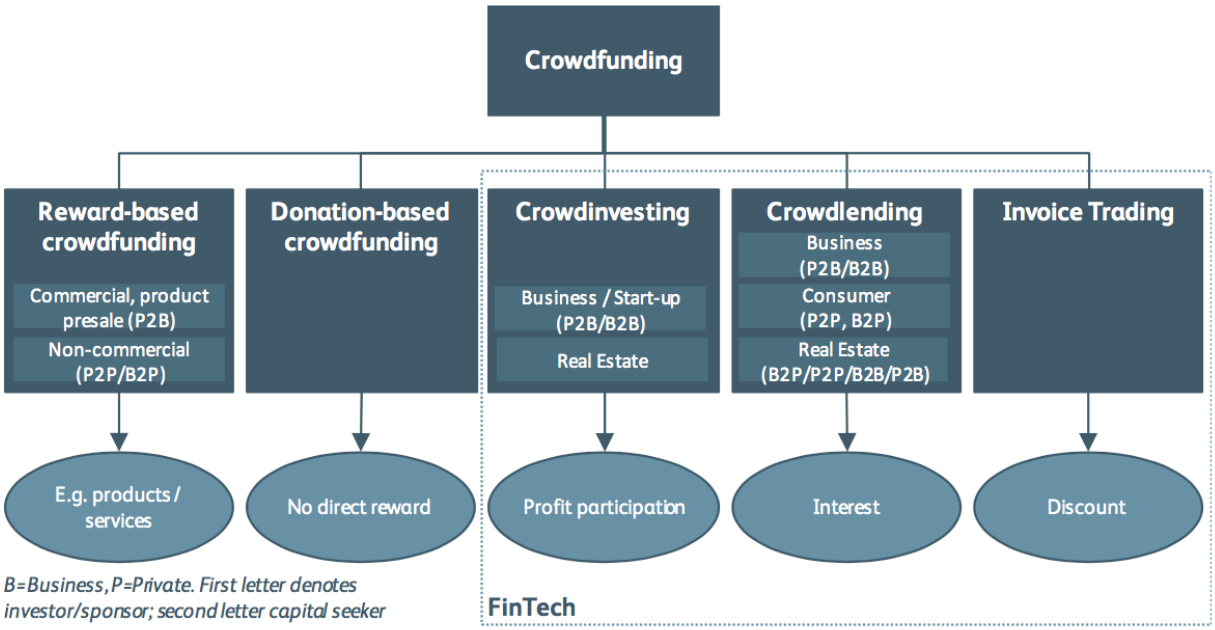

Illustration 1: types of crowdfunding (modeled on Dietrich and Amrein, 2018)

2.2 Initial Coin Offering (ICO)

2.2.1 The concept of ICO

ICO is a new type of entrepreneurial finance that raises capital through the sale of tokens to a crowd of investors (Fisch, 2019). Tokens are cryptographically protected digital assets

implemented on a blockchain (Li and Mann, 2019).[1]

There are basically three types of tokens:

- Utility tokens: tokens that only have value when used within the system. Utility tokens can be used to redeem a product or services, or as a medium of exchange on the platform (Fisch et al., 2019)
- Commodity tokens: tokens backed by standard assets that already have an independent value such as gold, oil or a sovereign currency.
- Security tokens: tokens that grant tokens holder shares ownership, dividends, and other financial benefits (Li and Mann, 2019).

Initial coin offering (ICO) is powered by distributed ledger technology (DLT), which is the core behind most ICO projects (Hacker and Thomale, 2017). DLT, put it simply, is a distributed and decentralized database that is accessible to the public, serving the purpose of matching a number of transactions between participants without the need for a central authority. Thanks to this function, ICO revolutionizes entrepreneurial finance by providing a secure and easy way for the ventures to raise funds from the public (Fisch et al., 2019).

2.2.2 ICO - a new type of crowdfunding

Considering the essential factor that funds are raised through an open call on the internet with the crowd as the target, ICO is considered a new type of crowdfunding (Dietrich and Amrein, 2018; Fisch et al., 2019).

However, there are also two basic differences between ICO and normal crowdfunding projects. First, the funding in ICO is usually expressed in the form of a cryptocurrency [2]. For this reason, ICOs are usually funding channels by blockchain technology companies, while companies that raise funds from crowdfunding are more diversified (Dietrich and Amrein, 2018). Second, crowdfunding needs a platform that serves as an intermediary between funders and projects, while ICOs can take money directly from the investors (albeit).

2.2.3 Current development state of ICO

Although only emerged a few years ago, ICOs have been attracting an enormous amount of funding. About $100 million has been collected worldwide by ICOs for 2016 (Wöckener et al., 2017). In 2017, the total funding amount raised through ICOs globally reached a staggering

[1] Blockchain is one form of distributed ledger technology (DLT). The concept of blockchain was invented by a person or group of people under the pseudonym of Satoshi Nakamoto (Satoshi Nakamoto, 2018).

[2] Cryptocurrency is a type of digital currency that uses cryptography for security and anti-counterfeiting measures (Fisch, 2019)

number of $3.8 billion (albeit). In 2018, the amount raised is even more impressive at $11.4 billion (Pozzi, 2019). Interestingly, despite negative regulatory signs in different countries and a significant drop in the exchange rates of the major cryptocurrencies in 2018, the funding amount raised though ICO still went up significantly.

Overall, these data serve as strong evidence that ICO has been gaining a strong foothold as a suitable way for blockchain technology ventures to raise funds from the public.

2.3 Theoretical Framework

To explore the research question of this thesis project, several steps will be taken to establish the theoretical and conceptual framework for this thesis project. First, theories and models on investor decision making are reviewed, which led to the choice of the most suitable theoretical framework for the study. Next, the theoretical framework was adapted and complemented with relevant research within crowdfunding and ICO investment.

2.3.1 Theories on investor decision making

Over the past years, several different theories of models on the human decision-making process were introduced. One of which is utility theory with the concept of expected theory, which proposed that individuals are aware of their choices and outcome, and are normally rational, risk-averse, and can deal with complicated choices (Fishburn, 1970). Modern portfolio theory (Markowitz, 1952) complemented this, suggesting a way to account for the inherent risks through portfolio diversification. Financial portfolio is then made up of uncorrelated assets, which can ensure maximizing return at a certain risk level.

Shying away from these purely rational assumptions of human beings, Kahneman & Tversky (1979) introduced behavioral finance, which studies the behavioral side of decision making with the assumption that humans are not purely rational. Theories such as prospective theory, information framing, or herding behavior are some examples that describe individuals as subject to bias and irrational decision. Another theory, called Self-determination Theory (SDT) proposed by Ryan and Deci (1985), split the action drivers of individuals into extrinsic and intrinsic motivations. The former refers to the motivations in which outcome is separable from the activity, while the latter refers to the inherent motivation of being fun or enjoyable (albeit).

From these studies, it can be drawn that the human decision-making process is rather complicated, which not only includes risk and returns but also involves other underlying factors. As this thesis aims to study the motivational factors of ICO investors, it is critically important to choose a theory that can account for this complicatedness, especially within the context of financial investment.

The model that was chosen as the foundational theoretical framework for this study is developed by Nagy and Obenberger (1994). Studying stock investors, Nagy and Obenberger conducted surveys with 137 experienced investors to determine the most relevant factors that influence

them when purchasing stocks. The results show that besides classic financial factors, other non-financial factors such as self-image, social relevance, or advocate recommendation were also important to these investors. The study concluded that seven categories comprised of 34 separate factors account for their stock selection process:

- *Neutral Information*
- *Accounting Information*
- *Self- Image / Firm-Image Coincidence*
- *Classic*
- *Social Relevance*
- *Advocate Recommendation*
- *Personal Financial Needs*

This model was used in multiple other studies, such as ethical investment (Beal, Goyen, and Philips, 2005), studies spanning across different regions (Clark-Murphy and Soutar, 2004), or looking into the role of personal values in investment decision (Pasewark and Riley, 2010). With references to these, it is also important to elaborate on why a model used to study stock investment could be applicable in ICO investing context.

It is essentially argued that ICO investment is very similar to equity investment. A stream of ICO research has established that tokens indeed behave like securities (e.g. Lyandres, Palazzo, and Rabetti, 2019; Fisch et al., 2019, Malinova and Park, 2018). First, the token sold in ICOs can serve as tradable assets that are similar to securities. As ICO is used to raise fund from the public, it is to some extent resemble initial public offering (Cohney et al., 2018), which serve as a way to attract early capital to ventures (Fisch, 2019). Second, tokens also resemble equities in that token holders are also entitled to dividends and other financial benefits. Some tokens also give holders voting rights, similar to that of stock. Third, after a certain amount of time after the ICO event, tokens can be listed on secondary exchanges, and thus eligible for trading as financial assets (Lyandres et al., 2019). Many exchanges such as *Binance*, *Bitfinex*, *Kucoin*, etc., that facilitate token trading help increase the liquidity of the tokens.

All these features and evidence above suggest that owning ICO tokens are very much similar to stocks. Thus, it is reasonable to suggest that most factors affecting stock investors may also influence ICO investors. Consequently, these justify the use of Nagy and Obenberger's model (1994) as a first step to investigate ICO investment behavior.

2.3.2 Development of the conceptual framework

Since ICO also resembles crowdfunding (Fisch et al., 2019), it is important to adapt this model with the context of this study, as well as incorporating crowdfunding literature. Furthermore, pre-study interviews with ICO experts (section 3.2) were also conducted to explore potential factors that affect the investment decision of ICO investors.

First, some variables were excluded or updated to adapt to the context of crowdfunding. In

particular, the variable Accounting information and Neutral information were excluded, since no such accounting information nor information about the ICO on reputable financial presses or much public media were available (Cohney et al., 2018). Second, the variable Personal Financial Needs were merged with Classic and renamed to Financial factors in accordance with Markowitz (1952), as both of these original variables refer to financial factors. Self-image/Firm-image Coincidence was also excluded since this study does not focus on any specific ICO project but rather on the ICO investment behavior as a whole. The variable Advocate Recommendation was renamed to Peer Behavior, as it was suggested that crowdfunding investors are subject to such behavior (Burtch et al., 2013; Berkovich, 2011).

Also, two variables, namely Innovative Investment and Personal Utility, were added to the original model. ICO represents a novel type of investment as well as a technological breakthrough (Fisch, 2019), thus the innovative nature of ICO could influence the investment decision of investors. Besides, ICO tokens also entice functional utility (Lyandres et al., 2019), as well as having other emotional benefits, as suggested by experts during the interview. Hence, it is reasonable to test Personal Utility functions in the study.

A more in-depth theoretical review of crowdfunding literature and insights from experts interviewed are presented in the next section, which further justifies the development of the conceptual framework.

The following table presents an overview of the conceptual framework, including all categories and variables, developed for this thesis.

Financial Factors	Expected Return
	Diversified Investment
	Risk
Social Relevance	Supporting Entrepreneurship
	Spatial Proximity Effect
Peer Behavior	Herding
Innovative Investment	Early Adopter
Personal Utility	Self-expression
	Community Engagement
	Functional Utility

Table 1: Conceptual Framework

2.4 Hypotheses generation

Key variables within each label were demonstrated by supporting literature in crowdfunding research and pre-study interviews with ICO experts.

2.4.1 Financial factors - Expected Return

A high financial return has always been considered a significant variable to drive investors' decision-making mechanism, especially in traditional schools such as Theory of Economic Utility and Modern Portfolio Theory (Markowitz, 1952; Nagy and Obenberger, 1994).

In the field of crowdfunding, an emphasis on high financial return has also been proven as one of the major driving forces of investor decision. Ordanini et al. (2011) observed investors on three crowdfunding sites and saw that some common characteristics among them are the pursuit of high financial return and the interest in bonding with like-minded people. Performing 83 semi-structured interviews with crowdfunding investors, Gerber and Hui (2013) pointed out that investors were motivated by, among others, rewards. Likewise, the promise of financial reward has also been proved as one of the main drivers of investment decision in the crowdfunding context (Brabham, 2008; Bretschneider et al., 2014). More recently, Vismara (2016) confirms that financial return, more specifically, the retention of equity in projects, is a positive sign of successful crowdfunding campaigns. Attractive financial return can also replace the role of traditional reward provision in equity crowdfunding campaigns, and non-financial incentives play no important role in investors' decision-making process (Cholakova and Clarysse, 2015). Pierrakis (2019) studied 630 investors who participated in one of the largest online peer-to-peer (P2P) lending platforms in the UK, Funding Circle. Performing factor analysis, he discovered that the main driver of investors' decision is financial return, while other, more intrinsic variables such as insights about the company or personal connection are of much less significance. To summarize, it has been widely proved that a high financial return is one core factor that pulls investors into crowdfunding.

As reasoned earlier, ICOs investment, similar to stock investment, can serve as an investment vehicle, as they constitute a mechanism to invest in innovative ventures by means of purchasing tokens. Investing in ICOs thus reflects investment opportunities for the future (Fisch et al., 2019). Similar to other investment opportunities, a major motivation for ICO investors is to achieve high returns on investments (Fisch et al., 2019; Adkisson, 2018).

With regard to the interview with ICO experts, all of them responded positively to this hypothesis with a high degree of certainty, using strong words such as "Absolutely" (Expert 2) or "Certainly" (Expert 5).

The hypothesis proposition is, therefore, that the possibility of achieving high financial return contribute positively to ICO investment decision.

H1: Investors who are attracted by the high financial return of ICO projects are more likely to invest in ICOs.

2.4.2 Financial factors - Diversified investment

In their study, Nagy and Obenberger (1994) demonstrate that diversification concerns are one of

stock investor's most significant factors. Diversification not only applies to multiple assets under one asset class but also involves specific asset classes within the portfolio as different asset classes respond to changes in macroeconomics differently. This is also usually an effective method for managing the overall investment risk while also looking for high returns (Markowitz, 1952).

Crowdfunding, specifically equity crowdfunding, resembles an asset class within investment portfolio of financial investors (Agrwal et al., 2016, Signori and Vismara, 2016). Likewise, since the emerging ICO tokens represent another asset class (Fish et al., 2019), it could serve for portfolio diversification purposes.

This view was also implied by an expert during the interview. “ICO is a huge risky bet that dramatically increased my portfolio risk so I have other investments to neutralize that.” (Expert 3, 2019). Another expert supported this hypothesis: “I see ICOs is to some extent just another stock investment. For that reason, I need to diversify my bag in other stocks as well.” When asked ICO founders if they think investors see participating in their ICOs to diversify their portfolio, one founder affirms confidently: “Definitely. Many of these guys are not newbies. They have years of experience in trading Gold, FOREX, stocks… ICO’s tokens are just another asset they hold.” (Expert 2, 2019); while the other founder is a bit more prudent: “My best guess is yes, but I could be pretty biased.” (Expert 1, 2019).

Following these views, it is hypothesized that investors invest in ICOs as a way to diversify their portfolio.

H2: Investors who consider ICOs to be a way to diversify their investments are more likely to participate in ICOs.

2.4.3 Financial factors - Risk

In combination with expected returns and diversification, risk is seen as one of the key factors influencing the investment decisions of investors (Nagy & Obenberger 1994). As suggested by Markowitz (1952), modern portfolio theory sees minimizing risk as a key decision criterion. Investors are thus less prone to invest when the associated risks are perceived to be high.

However, a slight chance of substantial gain may lead to risk-seeking behavior. Tversky and Kahneman (1979) refer to this as lottery effect, which explains the decision of investors in such cases. This phenomenon is argued to apply for the context of ICOs investment as well. Investors in ICOs fund the project from the conception phase, some without a prototype, and thus fully susceptible to the risk that the project will fail. Most of these investors are driven to discover “the next Bitcoin” (Fisch, 2019). The perceived opportunity to “hit the jackpot” is therefore assumed to have a positive impact on the decision to participate in ICOs fundraising. Furthermore, since the volatility of token price could be very high, short-term investors are drawn to ICO investment because of arbitrage opportunities (Fish et al., 2019).

This view has also been supported by experts 4 and 5 during the interview process. They claimed that the opportunity for short-term gains as token prices appreciate after being listed on an exchange are the main reason why they chose to invest in ICO.

With reference to studies and expert interviews, it is argued that investors with a high risk-return profile will be more likely to participate in ICO. Thus the following hypothesis is generated.

H3: Investors with a high risk-return profile will be more likely to invest in ICOs.

2.4.4 Social Relevance - Promoting Entrepreneurship

In addition to traditional financial factors such as expectations of return, portfolio diversification and consideration of risk, other non-financial factors seem to play an important role for crowd investors. One of these is the possibility not only of providing benefits at the individual level of the investors, but also of promoting other higher causes, as crowdfunding investors are known to have a high sense of altruism.

Beal et al. (2015) see that crowdfunding investors, when making investment in projects, maybe more altruistically motivated and seek some form of psychic returns. According to Bretschneider et al. (2014) who conduct researches from open source groups and business angels, altruism as opposed to selfishness can also play a role in crowdinvesting. In a report on decision-making in crowdfunding, Burtch et al. (2013) found that crowdfunders were predominantly motivated by altruism. As ICO is another type of crowdfuding (Fisch et al. 2019), it is believed that altruism also serve as another deciding factor in the ICO investors' decision-making process.

One potential expression of a sense of altruism among ICO investors is to help early-stage startups secure necessary funding to realize their business vision. As mentioned previously, startup companies in the early phase have much fewer funding sources, and are much more likely to go bankrupt due to limited financial resources in comparison to larger companies (Ley and Weaven, 2011). For this reason, investors are driven to help out startups by providing important seed financing, as a way promote entrepreneurship and innovation. Harms (2007) argues that crowdfunding investors are driven by curiosity and the search for something new and as a result, participate in crowdfunding to support new ventures. Supporting startups and entrepreneurship are also determined as a critical factor that motivate people to invest in crowdfunding (Ordanini, 2009; Schwienbacher and Larralde, 2010; Wingerden and Ryan, 2011). Moreover, crowdfunding investors also have interest in the startup company, in particular, its business model, and thus decided to fund the company (Ryu and Kim, 2016).

With regard to this topic, two different point of views are observed among the experts – with one ICO founder see this factor as critical, while no ICO investors seem to support this idea. Calling for support for his business, expert 1 published a note about his entrepreneurial journey on his social media account, and saw a spike in funding. "The funding almost doubled over the night as my note went viral." (Expert 1, 2019). However, none of the three ICO investors interviewed have a real interest in supporting startup. One of them did not even deem ICO projects as

embodying entrepreneurship: “May be it is, but I’ve simply never seen ICO project as an entrepreneurial quest… I don’t think I care too much about that.” (Expert 2, 2019)

To this point, it can be seen that entrepreneurship support is determined as a deciding factor in crowdfunding literature, yet ICO investors and founders have conflicting views. It is thus very interesting to see if the same determinant could be replicated in ICO context or not.

H4: Investors who would like to support entrepreneurship and startup are more likely to invest in ICOs.

2.4.5 Social Relevance - Spatial proximity effect

Spatial distance has long been considered one major factor influencing investment behavior. Several studies investigate the phenomenon of home bias, which refers to the tendency for individuals to make financial investment in their home country rather than in other countries (French and Poterba, 1991; Lin and Viswanathan, 2014). Since then, although the Internet has greatly reduced the distance-related economic friction, such a problem seems to persist in entrepreneurial finance (Agrawal et al, 2010). Within the space of crowdfunding, conflicting results have been recorded with regard to the effect of spatial proximity on investors and crowdfunding projects.

Mollick (2013) discovers that geographic effect is irrelevant to the selection of crowdfunding projects among investors. However, studying the success factors of crowdfunding projects, Mollick (2014) finds that the project’s proximity to investors plays an important role in fundraising success, as the projects themselves reflect investors’ cultural and geographical context (ibid). Agrawal et al. (2010), on the other hand, find that local investors invest more especially in the earlier funding cycle. He referred to these early investors as “family, friends, and fans”. Interestingly, Agrawal et al. (2011) see the opposite, asserting that spatial distance is not relevant for crowdfunding investment. In 2014, Lin and Viswanathan observe that investors participating in crowdlending activities are bound by home bias, as they tend to be over-optimistic towards home market. Similarly, adopting a spatial approach, Davidson and Poor (2019) analyze the funding status of recommended projects on Kickstart, and find that these projects attract more funding than average as they are clustered in the same cultural and spatial group. Moreover, Giudici et al. (2018) explore 13 Italian reward-based crowdfunding platforms and see evidence of geography effect in crowdfunding. More specifically, the altruism of people in the local area increases the chance of fundraising success. This local bias is also confirmed in another study by Hornuf and Schmitt (2016).

Although broad geographic dispersion represents a unique feature of crowdfunding as well as ICO fundraising, interviews with ICO investors reveal a mixed signal. “Knowing something from Vietnam sparked my interest in ICO investment.” (Expert 4, 2019). However, Expert 3 has a strong opposing point of view: “Although I do invest in a few projects in Vietnam, I see no reason why I need to limit myself to that.” (Expert 3, 2019). On this topic, Expert 1 – an ICO

founder attributes his ICO success to strategic investor target in Vietnam: “More than 65% of our funding is raised from Vietnamese investors.” Thus, it seems like ICO experts are slightly skewed towards supporting this assumption.

H5: Investors whose investment decision are influenced by spatial proximity with investee companies are more likely to invest in ICO.

2.4.6 Peer behavior - Herding effects

In the original framework of Nagy and Obenberger (1994), it was shown that investors are highly influenced by information from trustworthy individuals such as friends, coworkers, and stockbrokers. Many investors succumb to herding behavior, which refers to the activity pattern of individuals who follow “what everyone else is doing” (Banerjee, 1992). Considering how strongly investors are influenced by each other, it would be very interesting to see if the same also apply in ICO context.

In reward-based crowdfunding platforms, signs of herding behavior have been documented. In a study by Bretschneider and Leimeister (2017), an investment decision of early investors are indicators of quality of the startups, thus herding mirror the expectation to generate a return by investing in such companies. Burtch et al. (2013) described crowd herding behavior as a possible factor affecting crowdfunding participation. Using data from leading European equity crowdfunding platform, Astebro et al. (2017) empirically prove that the size and likelihood of a pledge are positively correlated with the size of recent pledges and negatively with the time elapsed since the most recent pledge. They explain that a large pledge by prior investors indicates that “they know something about the project that others may not.” (albeit). Other studies within crowdlending context have also shown evidence that investors tend to follow other earlier investors (Berkovich, 2011; Yum et al., 2012). Herzenstein et al. (2011) study the online peer-to-peer loan auction on the platform Prosper, which provides evidence of strategic herding behavior among lenders.

Given the novelty of ICO, there is only one study touches on the existence of herding. Poyser (2018) discover that herding behavior is reflected in ICO token’s pricing, as many investors who flock into ICO investment without fundamental knowledge of blockchain and limited information on the project.

Signs of herding behavior have also been explored during the interviews with ICO investors. Expert 4 (2019) who has a background in technology, implies herding signal: “The majority of the investors barely understand the fundamentals of blockchain technology, they just follow the (ICO investment) trend”. One other investor sees himself as a follower: “Some of those in my investment network were talking about their investments in ICO. I got hooked!”

Considering the fact that herding behavior is well documented theoretically and empirically, the following hypothesis is proposed:

H6: Investors whose investment decisions affected by others are more likely to invest in ICO.

2.4.7 Innovative Investment - Early Adopters

ICOs represents a novel taxonomy of crowdfunding as well as a new investment opportunity (Fisch et al., 2019). Although ICO tokens share some common features with stock investment and equity crowdfunding such as equity and voting rights, ICO brought about many unique and innovative features that set itself apart from other types of financial investment (albeit). For this reason, investors participating in ICO are likely to own certain unique profile such as a strong sense of curiosity and willingness to try out new things, especially those related to technological innovation. These individuals are identified as early adopters of IT innovations (Agarwal et al., 1998).

Trace of investors with early adopter profiles are found in crowdfunding literature. Hermer (2011) finds that funders like to contribute to innovation or to be pioneers of new technology or business. In 2013, Agrawal et al. analyzes investors from the glance of consumption value (Sheth et al., 1991) and finds that investors exert value by involving in the entrepreneurial initiative and being among a select group of early adopters. They refer to such feeling as epistemic value – the pleasure that consumers experience from trying something new. Unlike followers, early adopters do not wait for other investors to crowd in; rather, they are one of the first to try new opportunities and emerging investment alternatives (Bretschneider et al. 2014).

During the interviewing process with ICO experts, it is noticeable that these investors usually see themselves as early adopters. “I always keep an eye out for new (investment) opportunities. One of which is ICO.” (Expert 5, 2019). In the same vein, expert 3 (2019), who had a background in the IT industry, see himself as being ahead of the pack: “I capitalized on my technical skills to investigate the potentials of ICOs… I am one of the first few in my investment network to get my hands on ICO opportunity”. One of the ICO founders had a more prudent view with reference to his fundraising timeline, as he is uncertain if his investors participate early enough to be qualified as early adopters: “I am inclined to say so, but I started raising funds in mid-2018. ICO has already gained quite some attention by that time.” (Expert 2, 2019).

With reference to the nature of ICO, evidence of early adopter profile found in literature and interview with experts, the following hypothesis is generated:

H7: Investors who see themselves as early adopters are more likely to participate in ICO investment.

2.4.8 Personal Utility - Self-Expressiveness

One of the basic human needs is recognition from others, which gives individuals a sense of self-esteem (Marcus, 2011). It is hypothesized that ICO investors also have such a need to express themselves. Several researches have found that self-expressive serves as another motive of

crowdfunding investors.

Self-expressiveness, within crowdfunding context, is defined as the extent to which investors view an investment in the crowdfunding projects as relevant for expressing their attitudes, emotions, and social or personal identity (Nysveen et al., 2005). In 2007, Harms identified that self-expression has a positive effect on investment decision with regard to reward-based crowdfunding campaigns. Studying consumer behavior, Ligas (2000) found that a product or service helps consumers form a unique and personal representation of themselves. In equity-based crowdfunding, recognition from others has also been proved to be a motivational factor behind funding decision (Bretschneider et al., 2014). Similarly, self-expressiveness and peer-pressure constitute social motivation, which is one of the factors that lead to the investment decision of crowdfunding investors (Wechsler 2013, Kaufmann et al., 2011, Gerber & Hui, 2013). Last, results from a study by Bretschneider and Leimeister (2017) show that investors have several self-interest reasons for funding: the anticipation of appreciation from others, and to develop their self-images.

Several ICO investors expressed a similar tone during their interviews. “I wouldn’t say it’s bragging, but I really enjoy talking about my (ICO) investment with others.” (Expert 5, 2019). Another investor agreed: “I’ve been working in the ICT sector for 10 years now… It (ICO investment) helps me foster my image as a thought leader in technology.” (Expert 3, 2019).

Given theoretical and empirical evidence, the following hypothesis is proposed:

H8: Investors who see their investment as a way to express themselves are more likely to participate in ICO investment

2.4.9 Personal Utility - Community engagement

An important characteristic of ICOs is that a project raised funds from a group of many investors, not from any investor alone. Thus, investors participating in ICO is part of a group of peer-investors, who usually partake in an official virtual community platform set up by the project. It is hypothesized that the need to engage in a network of investment community is another motive for ICO investors.

One of the first studies which prove that being part of a virtual community serve as a deciding factor for crowdfunding investor was brought up by Harms (2007). Since then, other studies have recorded a similar observation. In 2013, Gerber and Hui conduct semi-structured interviews with 83 crowdfunding investors, and see that crowdfunding is an opportunity for individuals to join a community of like-minded people and to express their beliefs through resource exchange. Likewise, Ordanini et al. (2011) identify that crowdfunding investors are interested in a financial return and are interested in engaging with such a community. Looking into equity crowdfunding, Moritz and Block (2013) find that investors are driven by the interests to interact with others. Kaufmann et al. (2011), Hemer (2011), Gerber et al. (2012), Schwienbacher and Larralde (2010)

also find that investors are driven by the notion of engaging in a community, which enable social contacts and networking with people that share the same values and norms.

However, addressing the motivation to participate in a network, ICO investors responded with a mixed-signal. “To me, the community is more about spotting new rumor and progress updates on the project… It’s the by-product, not antecedent.” (Expert 5, 2019). This is in line with expert 4 (2019): “I check the group discussion every now and then, but I am not that active.” However, Expert 3 (2019), who is perhaps the most technical among the three, has a more prudent view: “Talking to geeky guys like me are fun, but I am not so sure if I’d trade that for money.”

Although community engagement is determined as a motive for crowdfunding investors, hardly any support can be found in expert interviews. It is therefore interesting to test if the same effect also applies in the ICO context.

H9: Investors who are interested in engaging in like-minded communities are more likely to invest in ICO projects.

2.4.10 Personal Utility - Functional utility

Another aspect of personal utility is functional utility, which is defined as the utility derived from the consumption of products or services. Since ICO tokens, besides being used as a unit of exchange, can also be used to redeem a product or service (Fisch et al., 2019), the functional utility of tokens is hypothesized to be one of the motives of ICO investors.

Functional utility has been established as a determinant of funding decision for crowdfunding investors. In 2007, Harms proved that functional utility derived from crowdfunding projects positively correlate with the funding decision of investors. Hemer (2011) shows that investors are driven by personal need for and self-affirmation and joy of the services offered. Likewise, Belleflamme et al. (2013) discovered that funders who participate in donation-based crowdfunding platforms expect to be future consumers of the project’s products or services. Similar findings have also been observed by Ryu and Kim (2016), Pierrakis (2019).

Within the space of ICOs, investors of some projects have the power to influence the product development process so that it is adapted towards their needs (Cohney et al., 2018). This is similar to open-source software, in which software developers contribute to the projects because they can ultimately benefit from the developed solution (Hars and Ou, 2002). Thus, the goal of ICO investors could be that they desire the product or service proposed by the ICOs’ project, especially, the utility arose from using such a product or service.

That said, this hypothesis attracts controversy among experts. Two ICO investors (Expert 4, Expert 5) disagree with it, one ICO founder has a more positive view, but the other founder does not seem as optimistic: “As the project founder, I am obliged to support your assumption, but I know many investors are merely interested in speculative purposes.”

Although it is hard to determine from the interview, supports are found among researches. It is, therefore, reasonable to believe that ICO investors are interested in the utility aspect of the projects.

H10: Investors who are interested in using the ICO tokens are more likely to invest in ICO.

2.5 Summary of Hypotheses

The hypotheses generated for this study are summarized in table 2 below.

Financial factors	Expected Return	H1: Investors who are attracted by high financial return of ICO projects are more likely to invest in ICOs.
	Diversified investment	H2: Investors who consider ICOs to be a way to diversify their investments are more likely to participate in ICOs.
	Risk	H3: Investors with a high risk-return profile will be more likely to invest in ICOs.
Social relevance	Supporting entrepreneurship	H4: Investors who would like to support entrepreneurship and startup are more likely to invest in ICOs .
	Spatial proximity effect	H5: Investors whose investment decision are influenced by spatial proximity with investee companies are more likely to invest in ICO.
Peer behavior	Herding	H6: Investors whose investment decisions affected by others are more likely to invest in ICO.
Innovative investment	Early adopter	H7: Investors who see themselves as early adopters are more likely to participate in ICO investment.
Personal Utility	Self-expression	H8: Investors who see their investment as a way to express themselves are more likely to participate in ICO investment
	Community engagement	H9: Investors who are interested in engaging in like-minded communities are more likely to invest in ICO projects.
	Functional Utility	H10: Investors who are interested in using the ICO tokens are more likely to invest in ICO.

Table 2: Summary of hypotheses

3. METHODOLOGY

This chapter describes the method of the empirical studies applied in this thesis. First, the research approach and design are described, followed by a description of the qualitative and quantitative pre-study. Next, the main study was elaborated thoroughly, with the closing section dedicated to the review of the data quality. Details of each part are presented below.

3.1 Research Approach and Design

This thesis uses a deductive research methodology, in which hypotheses were developed based on existing theories and tested through empirical analysis (Bell, Bryman, and Harley, 2018). Due to the lack of research in ICOs, hypotheses were formulated by using similar academic research within crowdfunding, complemented by qualitative interviews with industry experts.

With the purpose of studying the motivational factors that influence ICO investment decision of investors, mainly a quantitative study was used, as in line with other researches in crowdfunding decision making. This approach allows for analyzing and clarifying the causal relationships between the decision to participate in ICO investment and several independent variables. Quantitative approach also allows for a higher possibility of reaching more generalized and credible conclusions (Bell et al., 2018).

In addition, the quantitative approach was complemented by some qualitative elements in the form of semi-structured interviews, which were used in particular to adapt the theoretical model and develop the conceptual framework. Limited academic research in ICO investment motivation serves as inspiration for using qualitative interviews. Qualitative approach is an effective way of exploring the field of research. The interviewee himself provides the context of the subjective sense that allows the interviewee to reach an understanding of the interviewee's motivation, behavior, and emotions. The interviews were conducted in a semi-structured manner, allowing the interviewee the opportunity to speak openly and play an active role. This is deemed as the most suitable approach given the exploratory nature of the pre-study (Saunders, Lewis and Thornhill, 2012). The data obtained from the expert interviews were considered as a complement to literature research and were mainly used for the conceptual framework development.

3.2 Qualitative pre-study

A total of five interviews with ICO investment experts were conducted during the pre-study. Due to differences in location, all interviews were conducted using online communication software and took place from 14th to 22nd September 2019. Each interview lasts between 15 - 25 minutes and was scheduled in advance with the interviewees. Prior to the interviews, a list of leading questions was created and the questions were tailored to the profile of the interviewees in order to accommodate their specific viewpoints. As stated, however, the interviews were conducted in a semi-structured manner so that the interviewee could elaborate on the topic of interests and also give the interviewer an opportunity to follow-up on some questions.

The first two interviews were conducted with current ICO project founders with operation team in Vietnam. These two experts have been asked several questions regarding their impression and knowledge of their investors' motivation to participate in ICO investment.

The other three interviewers were ICO investors who have experiences in ICO investment as well as stock investment. The first interviewer has a background in technology and has invested in more than 10 ICOs before. The other two interviewers have not only invested in multiple ICOs but also have experiences in securities investment. All ICO investors have been asked several questions regarding their background, investment history, motivations to invest, and their take on the development of ICO and cryptocurrency market.

The interviewees were kept anonymously, as agreed with the experts prior to the interviews. Thus, references and quotes are given using pseudonyms such as Expert 1-5. Appendix 1 includes a full list of the experts interviewed with their respective pseudonyms and a brief description of their profile. List of questions for the interviews is presented in Appendix 7.

3.3 Quantitative pre-study

Since most items in the survey were developed for the first time, a survey pre-test was conducted before the main study is performed among ICO investors and retail investors. This pre-test is meant for multiple purposes. First, it is used to assess the internal reliability and validity of the variables; the result of which might change the survey question if necessary. Second, it is deemed to be an appropriate method for ensuring the quality of the questions, validating and adapting measurements of the variables in the conceptual model. Last, since questionnaires do not allow for further questions to be discussed, it is crucial that the survey questions are formulated precisely prior to data collection (Saunders et al., 2012).

Prior to the actual pre-test, eight random participants were asked to preview the survey questionnaire and give suggestions for improvements. As suggested by Malhotra (2006), these participants were specifically instructed to think out loud while answering the questionnaire to facilitate insights generation. As a result, several updates were made in terms of language used such as changing rephrasing some questions to improve comprehensibility, clarity, and logic.

The survey pretest was distributed online within the author's network in Vietnam, taking place between 04th - 10th October 2019. Most of the respondents have at least a Bachelor's degree in economics, IT, laws or other related fields, and have some basic knowledge of investment and cryptocurrency. A chance of winning an equivalent of 150 SEK was accompanied as an incentive for participants. In total, 74 people completed the survey pretest in full.

3.3.1 Data reliability and validity

To assess the reliability, in other words, internal consistency, of the variables, Cronbach's Alpha was applied (Bell et al., 2018). Cronbach's Alpha measures the consistency of responses to a set of measurable elements that all together combined a measurement scale for a particular variable

(Saunders et al., 2012). The result of the pre-test analysis shows that most of the factors have Cronbach's Alpha higher than the critical value of 0.7 (Bell et al., 2018), with the exception of two factors at slightly below 0.7. The result of Cronbach's Alpha for survey pretest is presented in Appendix 2.

Besides, factor analysis was used to test the validity of the measures. Factor analysis is an effective technique on checking how well one item fits with another set of items and how the item can be clustered together based on their correlations (Saunders et al., 2012). During the factor analysis of the survey pretest, some items were ruled out, especially when individual items loaded onto a single factor or the cohort of multiple items to one factor seemed not appropriate from a content point of view. The result of factor analysis shows that the majority of items were loaded on the intended factors, suggesting that these factors correspond to the variables established within the conceptual framework. Appendix 3 presents the result of the factor analysis of the pretest.

3.3.2 Survey updates

Based on the results of Cronbach's Alpha value and factor analysis, adjustments have been made to the survey questions. Some items were taken out while other new items were added. The table below provides an overview of the elements that have been omitted or added after the study.

Variable	Item	Changes
Risk	I expect ICO investment to be risky	Removed
Risk	I am willing to take risk if the return is high enough	Added
Herding	I tend to follow other people when making financial investment	Removed
Herding	My investment decision is sometimes influenced by other people	Added
Self-expression	I'd like to talk about the startups I invested in	Removed
Self-expression	I usually discuss with friends about the companies I invested in	Added

Table 3: Changes in items based on the results of the survey pretest.

3.4 Quantitative main study

After the survey pretest, the items were finalized and the main study was then conducted. This section covers all the main components of the main study.

3.4.1 Data Collection method

With the aim to study the motivational factors of ICO investors, primary data was collected since no such similar data was available at the time of study. The data for the final study was collected during a period of 21 days from 15th October to 04th November, 2019. The survey questionnaire was available in Vietnamese and English and was conducted via Qualtrics. Since the study aim at

Vietnamese investors, the survey was developed in English and translated into Vietnamese before spreading out to participants in order to avoid possible comprehension issues.

Participation of the survey was anonymous and voluntary. Anonymous surveys are suitable when collecting sensitive information such as financial information (Block et al., 2019, Fisch et al., 2019). This results in more truthful responses to the questionnaire. Furthermore, this is even more relevant in the context of cryptocurrency in which anonymity is critical to ICO investors and in some cases, ICO founders (Fisch, 2019; Cumming et al., 2018).

3.4.2 Questionnaire Designs

Questionnaires are typically an appropriate data collection method to analyze the relationship between dependent variables and several independent variables, especially for explanatory research (Saunders et al., 2012). Furthermore, it is suggested that questions should be asked in various ways to adapt the wording to the capability and knowledge of the respondents (Brace, 2008). This is therefore applied in this study, as each variable was accompanied by several questions to best derive insights from the participants. Technical terms were generally avoided and terminology held as simple as possible in order to avoid misunderstandings in the survey questions.

The first part of the questionnaire serves as a filter to isolate investor profiles based on their investment experience. The first question separating participants who have invested in ICO before and therefore considered having experience with ICO investment, from participants who have never invested in any ICO venture. The second question determines if the respondent has experience with any other types of investment such as stocks, bonds, FOREX (currency trading), etc., and thus determine if the person qualified as a retail investor or not.

The second set of the questionnaire covers the proposed variables from the conceptual framework. Survey respondents answer by indicating their degree of agreement or disagreement on a seven-point Liker scale (Saunders et al., 2012).

The last set of the survey comprised of multiple socio-demographic questions. Finally, to participate in the reward lottery, participants can choose to leave their Bitcoin address.

The questionnaire required approximately 5-10 minutes to complete. All participants were assured anonymity and confidentiality. The final survey can be found in Appendix 7.

3.4.3 Questionnaire Measurement

Most questions in this survey inquire how respondents feel about a statement within the context of ICO investment. Closed-ended questions are used so that respondents have to choose an option from a range of alternatives. Although this type of question facilitates statistical analysis, it also narrows down the range of participant's responses (Jackson, 2014). Three types of questions used in the survey are rating questions with seven-point Likert scales, list, and some categorical questions (Saunders et al., 2012).

Rating questions are suitable for gathering opinion data, asking how strongly the respondent agrees or disagrees with a statement (albeit). As such, this type of question was used to measure the independent variables in this study. An odd number of points in the seven-point scale gives respondents the opportunity to express neutral opinions, thus not forcing them to lean towards any side (Jackson, 2014).

Most importantly, since this study aims to find the determinants of ICO investment decision, two filtering questions in the form of dichotomous questions were presented. First, the dependent variable was measured with a dichotomous question. The answer as yes means that the respondents have invested in ICO before, thus are considered ICO investors, while no translates into a potential retail investor. Second, the next dichotomous question explores if the respondents have experience in other asset classes such as stocks, bonds, currency markets, etc. The answer as yes means that the respondents are retail investors, while no means they have neither experience in ICO nor any other asset classes. One important note is that if the respondent answers yes to both questions, she will still be considered an ICO investor, as this study needs to separate between the two types of investors.

Rather than hypothetically answering the question of whether one would engage in ICO investing, the participants were asked whether they had actually invested in ICO ventures. The actual experience with ICO investment is much more reliable to explore factors that influence investment decision than a hypothetical one. The two sub-samples of ICO investors and retail investors are thus categorized as a result of this question.

3.4.4 Data Sampling

Considering that no data on ICO investors exist, plus it is highly challenging to identify ICO investors, self-selection sampling is used. This approach is also used by Fisch et al. (2019), who also mentioned the lack of study on ICO investors and the fact that this specific group of investors is quite small and very hard to address. In such cases, Bell et al., (2018) suggest that self-selection sampling method can be used, and that a call for participants should be published using appropriate channels.

Given the objective of the study, target participants of the study are both current ICO investors and retail investors. As mentioned, the group of ICO investors are difficult to approach, mainly due to the fact that they are hard to identify due to the anonymity nature of cryptocurrency industry, as well as the fact that the number of ICO investors is still very small in comparison with the number of investors in other more traditional investment assets (Fisch et al., 2019).

Multiple channels were utilized to address the first target group - ICO investors. First, the founders of two ICO projects who participated in the pre-study interviews (Expert 1, Expert 2) agreed to send the survey to early investors who participated in their ICO. This source of data is extremely relevant and valuable to the study. Second, admins of several Telegram (messaging app) groups such as *SBS Channel, FreeBoxVn, FindSigns*, etc. also helped spread the link to the

survey on their groups. As these admins are reputable among group members, a number of people participate in the study. Last, these ICO investors are also asked to share the survey with their investment networks, thus increasing the survey exposure. This method appeared suitable in this context based on the difficulty to contact ICO investors directly.

The second target group – retail investors, is also approached separately. Generally, this group of investors is much easier to identify compared to ICO investors. Contact persons in securities companies, banking, and other financial institutions were approached to participate in the questionnaire and forward the links to their employees and clients. Stock, currency discussion groups and financial professional networks such as *CFA Vietnam Professionals, StockPlus*, *PFT professionals,* etc. were also great sources to spread the survey.

Given that the survey took approximately 5-10 minutes to complete, a similar incentive to the quantitative pre-study was offered, but the amount was raised to an equivalent of 250SEK. The reward is communicated at the beginning of the survey, and can only be redeemed if all the questions are finished. Once again, this proved as an effective method to increase survey participants and reduce survey drop out.

After a period of three weeks, a total of 301 questionnaires were recorded, with 258 individuals completed the survey entirely. Of these 258 individuals, 19 have no experience in any asset classes and are thus ruled out. For the remaining 239 investors, 134 are classified as ICO investors and 105 are considered retail investors.

These are compatible with the rule stated by Hosmet et al., (2013), which dictates that there should be a minimum of ten observations per independent variable. Since 239 respondents participated in the study which consists of ten variables, the average number of observations per independent variable is 23.9, exceeding the minimum amount required.

3.4.5 Data analysis

With the aim to explore the factors that influence the investment decision of ICO investors, several statistical methods were applied, namely, descriptive statistics, reliability and factor analysis, and binary logistic regression with a dichotomous dependent variable. This approach helps to determine the relationship between the variables quantitatively (Bell et al., 2018). The software used to run these tests was IBM SPSS Statistics 25.

To elaborate on the regression model that fits with the study, a binary logistic regression model was chosen as most suitable. The logistic regression investigates the relationship between the dependent variable, which is dichotomous in this study, and a set of independent variables (Hosmer, Lemeshow and Sturdivant, 2013). In contrast with a linear regression model, the dependent variable in logistic regression is binary, which in this study is whether investors have invested ICO before or not. Linear regression would violate the assumption of normal distribution given the use of binary dependent variable. Furthermore, the assumption of

homoscedasticity for linear regression would also be violated with the use of binary variable (albeit). For these reasons, binary logistic regression is the most suitable method for this study.

3.5 Critical review of data quality

The quality of the collected data for this quantitative study is evaluated by looking at reliability, validity and replicability, and potential response bias, which are analyzed below.

3.5.1 Reliability

Reliability concerns whether the study has been conducted correctly and ensure accurate results. With the guideline specified by Bell et al. (2018), two reliability dimensions are important for this study: internal reliability and stability.

3.5.1.1 Stability

This dimension is to ensure the measures are stable over time and does not change if the study is repeated (albeit). Thus, two pre-study, both qualitatively and quantitatively were conducted to test the effects and ensure consistency of the study and strengthen its stability. Through the quantitative pre-study, it was also verified that the questions are easy to understand and reduce the risk of misinterpretation. Also, serious effort was put into the data gathering process to make sure the selected sample can be truly representative.

3.5.1.2 Internal reliability

As stated before, Cronbach's alpha was used to test the coherency of the response and ensure the elements measures the same variable. All factors were higher than the recommended value of 0.7 (Bell et al., 2018) and thus ensure internal reliability of the study. This is also expected since the proposed variables are extracted from theories, plus the survey was pre-tested once. Necessary adjustments were made to the questionnaire and for that reason, Cronbach's Alpha results were generally improved.

3.5.2 Validity

Validity refers to the extent the which the study truly examines what it aims to measure, and that the conclusion could be drawn accurately (Bell et al., 2018). This part will take into account three important dimensions of validity: internal validity, external validity, and replicability.

3.5.2.1 Internal Validity

According to Bell et al. (2018), internal validity evaluates if there is truly a causal relationship between the dependent variable and the observed effects of the independent variables. This study was developed based on grounded theories in crowdfunding, in which the causal effects have been recorded in the previous study. It was also built upon the qualitative and quantitative pre-study to gain insights into the phenomenon. These not only help shed light on which relevant factors should be chosen for the study, but also helped ensure the questions are put correctly.

Hence, the probability of measuring the right concepts and gathering accurate data was increased. A relatively high record of Cronbach's Alpha also helps ensure the internal validity of the study. Besides, factor analysis was also used to test if the items are loaded on the intended factors. The result proved as such.

3.5.2.2 External Validity

Regarding external validity, which refers to whether the conclusion drawn from a study can be generalized to a larger population (albeit), a compromise has been made by using self-selection method since it is very challenging to address ICO investors. However, a similar approach was built by the pioneer study of ICO investors by Fisch et al. (2019). Considering the novelty of this study, it is still a great first step that paves the way for future research in ICO investors' decision-making process.

3.5.2.3 Replicability

Bell et al. (2018) define replicability as the extent to which the study can be reproduced. Since theories, methodology, and analysis are carefully described in this study, it should be easy for one to follow and replicate this study. Also, the measures used in questionnaires such as multi-scale measures are well standardized and have been used in a related study. Given these, it is reasonable to believe that this study can be replicable.

3.5.3 Potential Response Biases

Since this study relies on self-report survey as participation is voluntary, it is subject to the issue of non-response bias. Non-response bias refers to the bias emerged when certain groups do not participate in the questionnaire, thus produce a misleading conclusion and affects generalization of the result (albeit). To reduce the effect of non-response bias, the data gathering process was conducted carefully with an attempt to address as many relevant participants as possible. The survey was also active for three weeks, providing reasonable time for ICO founders and several group representatives to spread it to others.

Considering that, there is no indication that any certain group chooses not to participate in the survey, thus reducing the possibility of systematic bias.

4. RESULTS AND ANALYSIS

This chapter illustrates the results of the main study. The chapter begins with the sociodemographic characteristics of the survey respondents, in which a comparison was drawn between ICO and retail investors. Next, an independent t-test for differences between the two groups of investors is presented. Last, a binary logistic regression analysis is carried out to test the proposed hypotheses.

4.1 Sociodemographic characteristics

As mentioned, the final survey collected data from 239 investors, 134 of which are ICO investors and 105 are retail investors. The following part will look into the characteristics of these 239 investors while drawing a comparison between the two groups.

First, these investors were asked to specify their age and gender. The majority of retail investors are in the age group of 26 – 35 (52%), followed by 36-45 (31%). A different pattern is observed in ICO investors. Although the age group of 26 – 35 also tops the chart at 62%, the group comes second is those at 18-25 at 23%, almost tripled that of retail investors. Interestingly, 3 ICO investors are even below 18. This means that ICO tends to attract a much younger age group than traditional asset classes.

Regarding gender distribution, 81% of retail investors are male. However, an even higher staggering domination of males could be observed from ICO investors, with 94% of them are male. This is also in line with the study of Fisch et al. (2019), who saw a similar dominating result for male investors.

Considering educational background, two questions about educational level and field of study were asked. For the first question, 72% of retail investors have a Bachelor's degree or higher. A similarly high result could be found for ICO investors (76%). However, in terms of educational background, a higher number of ICO investors have a background in IT-related fields, with 28% compared to 21% for all investors. Those who have an education background in Business and Economics attracts the highest number of investors in both types, at 36% for retail investors and 32% for ICO investors. The rest scattered across different disciplines.

Looking into professional background, it is interesting to see that while the technology sector attracts the highest number of ICO investors (38%), business sectors rank number one for retail investors (19%). This result relates to the differences in the educational background but in a more significant way.

Last, regarding the investment experience of ICO investors, it is notable that of all 134 ICO investors, 34% also have experience in other types of investment as well. Research on crowdfunding investors often characterizes them as quite inexperienced (Belleflamme et al., 2014). This result suggests that this profile might not apply to ICO investment. Furthermore, this

serves as an indicator that ICO investors participate in ICOs to diversify their investment portfolio, as hypothesized in the conceptual model.

4.2 Independent T-test

To get an overview of the differences between the group of ICO investors and retail investors, an independent t-test for the differences between two group means was carried out. The result of the t-test with mean, t-value and significance level (2-tailed) is presented in table 4.

In the financial variables, specifically, Expected Return, Diversification, and Risk, it seems that the differences between the two groups are significant at $p < .05$. This is a good indicator that these variables could explain the decision factors of ICO investors. Most item shows a means of higher than 4.5, with the means for ICO investors higher than those of retail investors.

For the Supporting Entrepreneurship variable, no significant differences were found. Given the low means, it seems that both groups do not consider this factor important for their investment decision. Regarding Spatial Proximity effect, one item is significant while the other is not, thus leaving the question of whether this factor matters in the decision making the process of ICO investors.

The result for the Herding effect is significant, with the means for both revolve around 4.5. It is notable that the means for ICO investors are higher than those of retail investors, indicating a higher tendency of herding behavior in this group. Similarly, the variable for Early Adopter and Self-expression shows significant results, with some of the items even lie below .01 level. Thus, these factors are likely to be important for explaining the ICO investment decision.

Community Engagement, the means seem to be quite similar for both groups, thus explaining for the insignificant result with a p-value above .10 for both items. Functional utility is also hardly promising, as two out of three variables are not significant.

For the variables that do not show significant difference of the means, although it serves as an indicator that these factors might not play an important role, they are still kept for the regression analysis, as they were proved as important in crowdfunding literature, as well as being suggested by ICO experts during the interview.

Variables	**Items**	**Mean retail investors N = 105**	**Mean ICO investors N = 134**	**Levene's test for equality of variances (df = 239)**	
				t	**Sig. (2-tailed)**
Expected Return	I am attracted by the possibility to make high return when considering investment options	4.68	5.40	-5.279	0.000

	I actively look for investment opportunity with high return potential	4.52	5.63	-2.119	0.000
	I expect my investment return to be high	4.23	4.54	-2.044	0.042
Diversification	ICO has the characteristics of a good asset for portfolio diversification	4.47	4.75	-2.672	0.008
	I see ICO as a good way to diversify my investment	4.68	5.02	-2.629	0.009
	ICO is a good alternative to other financial assets	3.59	3.96	-3.576	0.000
Risk	I consider ICO investment as high risk – high return investment	4.63	5.28	-3.887	0.000
	I am willing to take risk if the return is high enough	4.85	5.22	-2.64	0.009
Supporting Entrepreneurship	ICO offers a great opportunity to support early-stage startup	3.71	3.56	1.149	0.252
	I consider ICO a great way to support entrepreneurship	2.98	3.15	-1.089	0.277
Spatial proximity effect	I consider the location of projects important to my investing decision	3.75	3.72	0.19	0.849
	I usually look for investment opportunities with location closed to me	4.51	4.13	3.997	0.000
Herding	When I hear people are making great profit from an investment, I tend to follow them	4.22	4.66	-2.819	0.005
	I usually watch out for what people are investing in	4.16	4.44	-2.365	0.019
	My investment decision is sometimes influenced by other people	4.53	5.09	-4.501	0.000
Early Adopter	I tend to look for new and innovative ideas when making investment decision	4.15	4.54	-3.163	0.002
	I am normally the first one to try out new things among my friends	3.98	4.28	-2.336	0.020
Self-expression	I see my investment as a way to express myself	4.06	4.54	-3.511	0.001
	I enjoy talking to people about my investment	4.46	4.72	-2.693	0.008
	I usually discuss with friends about the companies I invested in	4.45	5.04	-4.688	0.000
Community Engagment	I see my investment as a way to engage with like-minded investors	4.51	4.43	1.056	0.292
	I (would) like to interact with other ICO investors	4.22	4.38	-1.379	0.169
Functional Utility	I usually invest in companies that I am a customer of	3.67	3.91	-1.745	0.082

	I tend to support companies with products I could use	4.50	4.58	-0.691	0.490
	I (would) enjoy the utility of the products of the ICO projects	3.68	3.76	-0.501	0.617

Table 4: Result of independent t-test

The results of the factor analysis, Cronbach's Alpha for every item in the questionnaire and each variable respectively can be found in appendix 4.

4.3 Binary logistic regression analysis

Binary logistic regression was used to examine the relationships between the independent and a set of ten dependent variables. These ten dependent variables are calculated by averaging out the individual items that constitute each variable.

The dependent variable in this study is binary, which is coded as 0 for retail investors that have no experience in ICO investment, and 1 for ICO investors who have invested in ICO before. The logistic regression studies the relationship between these variables in terms of strength and direction, thus explain the investment motives of ICO investors.

4.3.1 Result of model diagnostics and model fit

Before exploring the regression result, it is necessary that the model is tested for model assumptions and fitness. To compare with linear regression, many assumptions required in linear regression are not applied in binary logistic regression.

First, the assumption of normal distribution in dependent variables, as well as the assumption for homoscedasticity is not needed (Hosmer et al., 2013). Logistics regression does not require variances to be heteroscedastic for each level of the independent variables. Furthermore, binary logistic regression does not assume a linear relationship between the dependent variable and the independent variables (albeit). However, it should be carefully tested that binary logistic regression does not have multicollinearity. Given that all standard errors of the B coefficients presented in the table below are below 2.0, it can be safely concluded that there is no indication of multicollinearity (albeit). Hence, the assumption of the absence of multicollinearity in the logistic regression model is met.

Several model diagnostics have been carried out, including classification table which denotes the predictive capacity of the model, as well as Omnibus test of model coefficients and Hosmer and Lemeshow test. The results of which will be shown in the following section.

Classification Table[a,b]

		Predicted	
Observed	Investor type		Percentage

			0	1	Correct
Step 0	Investor type	0	0	105	.0
		1	0	134	100.0
	Overall Percentage				56.1

a. Constant is included in the model.

b. The cut value is .500

The first Classification table extracts the result of 56.1%. In this initial test, no predictive variable is taken into account, which means it is an intercept only model with no prediction made. This is the result of the test with the null hypothesis that there is no difference in the model when independent variables are included. The test with predictive capacity when all dependent variables are taken into account is presented in the Omnibus tests of Model Coefficients below, denoted as Block 1 in SPSS.

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	79.543	10	.000
	Block	79.543	10	.000
	Model	79.543	10	.000

The Omnibus test goes with the hypothesis that there is some predictive capacity in the regression equation that can be used to evaluate the fit of the logistic regression for the data set. This model fit is denoted by Chi-square test, which results in a value of 79.543 and is significant at .01 level. These have proved that the step of adding the independent variables to the regression is justified. Hence, the null hypothesis that all the coefficients of the variables in the model are equal to 0 can be confidently rejected. This validates that a relationship between independent variables and the dependent variable actually exists.

The result of Hosmer and Lemeshow test is investigated next. The null hypothesis of this test is that there is no difference between the observed and predicted values of the dependent variable in the model. Given the result is not significant with a value of .467, it is not possible to reject the null hypothesis. This result supports the validity of the model, suggesting that the estimates of the binary logistic regression fit the data at an acceptable level.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	7.664	8	.467

The model summary presented in the next table gives out an overview of the percentage of variation that can be explained by the logistic regression. While R square is normally used in ordinary least squares regression to examine the proportion of the variation in the dependent variable that can be predicted by the independent variable, this measure cannot be applied in logistic regression (Hosmer et al., 2013). Instead, Cox & Snell R square and Nagelkerke R square are used. These figures are referred to as pseudo R squared since they are still slightly different from how R squared is used in linear regression. Within the two, Nagelkerke R square is preferable since its scale also ranged from 0 to 1 which makes it simpler to interpret, while Cox & Snell R square has a maximum scale of 0.7. The result of Nagelkerke R square shows that 37.9% of the variation in the dependent variable can be explained by explanatory variables through logistic regression. The interpretation of this value, however, should be interpreted with caution, as some researchers recommend that R square statistics should be used to compare different models rather than interpreting the absolute value (Peng et al., 2012).

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	248.254[a]	.283	.379

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

The table below shows the outcome of the predictive capacity of the model when all the explanatory variables are included in the regression. An increase from 56.1% to 74.1% of the predictive capacity of the model is recorded.

Classification Table[a]

			Predicted		
			Investor type		Percentage Correct
	Observed		0	1	
Step 1	Investor type	0	69	36	65.7
		1	26	108	80.6

Overall Percentage			74.1

a. The cut value is .500

4.3.2 Result of logistic regression

The relationships between variables are examined in this section. The significance level of the independent variables is measured by Wald test. Consequently, variables with a significance level of .05 or lower deem seen as significant and are consequently explanatory factors of the model. The results of the independent t-test also correspond quite well with the regression analysis.

To interpret the model, the meaning of B-values and its corresponding Exp(B) should be elaborated. The coefficient which is denoted as B-value dictates a change in probability of the decision of whether to participate in crowdfunding or not. In binary logistic regression, B-value is expressed in log unit. This means that the coefficients in logistic regression are in terms of the log odds, for instance, a coefficient of 1.5 implies that a one-unit change in the independent variable results in a 1.5 unit change in the log of the odds. Thus, to make it easier to interpret the impact of a one-unit change in independent variable, the value of Exp(B) is introduced. Exp(B), in essence, is computed by raising e to the power of the logistic coefficient.

The outcome is the change in the probability of the dependent variable. Under this study context, it is the change in the likelihood of the decision to participate in ICO investment given one unit change in the corresponding independent variable, all other variables are kept constant.

With that in mind, the direct relationship between the explanatory variable and response variables is examined in the table below.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B) Lower	Upper
Step 1[a]	Expected_Return	1.374	.388	10.765	1	.001	3.575	1.670	7.653
	Diversified_Investment	.475	.202	5.506	1	.019	1.608	1.081	2.390
	Risk	.916	.223	16.875	1	.006	2.499	1.614	3.869
	Promoting_Entrepreneurship	-.275	.224	1.504	1	.220	.760	.489	1.179
	Spatial_Proximity	.054	.245	.049	1	.825	1.056	.653	1.707
	Herding_effect	1.155	.278	17.211	1	.003	3.175	1.840	5.481
	Early_Adopters	.377	.149	6.394	1	.011	1.458	1.088	1.952
	Self_expressiveness	.659	.257	6.602	1	.010	1.934	1.169	3.197
	Community_engagement	.439	.288	2.314	1	.128	1.551	.881	2.729
	Functional_Utility	.016	.092	.028	1	.866	1.016	.848	1.217
	Constant	-22.851	4.097	31.107	1	.000	.000		

a. Variable(s) entered on step 1: Expected_Return, Diversified_Investment, Risk, Promoting_Entrepreneurship, Spatial_Proximity, Herding_effect, Early_Adopters, Self_expressiveness, Community_engagement, Functional_Utility.

Table 5: Logistic regression analysis of the main study

Overall, six out of ten independent variables are significant. Four variables are significant at .01 level, including Expected Return, Risk, Herding effect, and Self-expressiveness. The other two variables are significant at .05 level, namely Diversified Investment and Early Adopters.

Financial variables prove as one of the strongest indicators of ICO investment decision. Expected Return has a B-value of 1.374, strongest among all other variables and has a significance value of .001. The transformed log is 3.575, indicating that a one-unit increase in Expected Return increased the probability to participate in ICO investment by 3.5 times. Risk, as in the incentive of seeking high risk – high return investment, also positively correlates with an investment decision, while the need for diversifying investment is also proved, with a significant value of 0.19 and B-value of .475.

Support is also found for the profile of being an early adopter, which is significant at .05 level and has a B value of .377, translating into an Exp(B) value of 1.458. Self-expressiveness and herding effects are also supported in the model, with Herding effect comes as the second strongest explanatory factor for investing in ICO.

In contrast, no support could be found for Promoting Entrepreneurship, Spatial Proximity, Community engagement, and Functional Utility. This result was also indicated by the independent t-test, which sees no significant differences in the means of ICO and retail investors.

To summarize, six hypotheses supported after the regression analysis are H1, H2, H3, H6, H7, and H8. The proposed directions of the relationship were also verified. On the other hand, four hypotheses including H4, H5, H9, H10 were rejected due to a low significance level. Thus, it remains unclear whether these proposed factors contribute to the decision of ICO investors. Discussions of these results will be discussed in the next chapter.

5. DISCUSSIONS AND IMPLICATIONS

5.1 Discussion on results and theoretical contribution

Financial factors, with the three factors of Expected Return, Diversification, and Risk, seem to receive the best results from the study, with all three factors explain for the decision to participate in ICO investment.

5.1.1 Financial factors

Considering the results of financial factors, the study was in line with literature in crowdfunding and ICO investing (Fisch et al., 2019; Bretschneider et al., 2014). As proposed by Fisch et al., (2019), ICO investment has many similar characteristics with stock investment, and thus it is no surprise that the possibility of attracting high return is critical to ICO investors as well. This was also supported by ICO experts during the interview, as most of them agreed strongly to this factor.

Diversified investment is perhaps the most interesting result among the three. Since ICO is fairly new, with limited information and subject to rigid regulation (Lyandres et al., 2019), it is somewhat surprising that investors have already seen this as a relevant asset for diversification purposes. This result also agrees with another research on ICO conducted by Adhami and Guegan (2019), who finds that ICO tokens are an effective diversified asset, but should not be used for hedging or saving purpose given its high risk.

Risk is also considered an important factor by ICO investors. As ICO prices are extremely volatile, they could be attractive for short-term investors who want to take arbitrage opportunities (Fish et al., 2019). This observation was also supported in this study, as well as during the interview with expert 4 and expert 5, who also consider short-term gains from ICO attractive.

5.1.2 Social Relevance

On the flip side, both factors of supporting entrepreneurship and spatial proximity were not supported.

Regarding entrepreneurship support, it can be explained that since ICO is still relatively new but attracts a very high amount of funding, investors might see that less as a way for entrepreneurs to raise fund their startups but rather a way to make money, or merely following the ICO trend. Experts from the interview were also not in favor of this variable.

For Spatial proximity, although considerable traces of such effect could be found in both traditional finance and crowdfunding investment (French and Poterba, 1991; Lin and Viswanathan, 2014), it is puzzling that ICO investors do not seem to be affected by such effect. One explanation could be that as ICO attracts high-tech individuals, who are generally accustomed to online behavior, as well as have a high demand for anonymity (Fisch et al., 2019), they would not deem location that important.

5.1.3 Peer behavior – herding

A high herding effect is found among ICO investors. This is rather reasonable since ICOs often breed exceptionally high returns (Momtaz, 2019), and for this reason, could attract a large number of investors, regardless of knowledge in the field (albeit). This finding is also further supported by expert 4, who claimed that a majority of investors have limited knowledge about the project but tend to follow the trend.

5.1.4 Innovative investment – Early adopters

The study suggests that early adopters are driven to invest in ICO. This corresponds to the finding by Fisch et al. (2019), who discovered that most ICO who participated in ICO as early as 2016 or 2017, are mostly driven by technological reasons. These investors are more prone to try new things, with less consideration for financial return. Supports are also found from expert 3, who claims that he actively looked for new and innovative ideas to invest in.

5.1.5 Personal Utility

Of the three suggested variables, support is found for self-expression reasons. Within crowdfunding, self-expression is also normally found to be a driving factor (Wechsler 2013, Kaufmann et al., 2011, Gerber & Hui, 2013). Thus, it is not surprising that this factor is also important for ICO investors.

On the other hand, community engagement and functional utility are driving factors of the funding decision. Considering community engagement, it could be explained that given the anonymity nature of ICO investment (Malinova and Park, 2018, Fisch, 2019), investors do not know who the person behind the screen is, and thus are less prone to engage with each other. For functional utility, it can be explained by the fact that as most investors are driven by financial return, as well as the possibility to make short-term trade (Fisch et al., 2019), it is less like they are driven by the utility of the tokens.

5.2 Managerial implications

The study provides several notable empirical implications.

First, diversification serves as a key decision-maker for ICO investors. This means that although early adopters are generally drawn in early for ICO investment, more traditional investors will also be attracted to ICO if they see ICO token as a good asset class. This means that ICO founders can increase the number of investors if they can communicate well about the potentials of their tokens in parallel with a traditional asset class such as stocks, bonds, and other asset classes.

Second, as spatial proximity does not serve as a key determinant, ICO founders can, therefore, call for funding in a much wider geographical scale. This not only helps increase the potential funding amount but also stabilizes the price of ICO tokens post-ICO.

Third, ICO investors also enjoy expressing themselves through their ICO investment. This can serve for the marketing purpose of the project, such as focusing on certain characteristics of the tokens that can resonate with investors' tastes and interests.

5.3 Conclusion

The study found that investors are mostly driven by financial reasons, as well as non-financial factors such as self-expression, the profile of being an early adopter, and the influences of herding effects.

This study also verifies that different types of motivational factors, not just limited to financial but emotional reasons are also important for ICO investors. This should be accounted for by ICO founders and authorities who would like to regulate this rising market.

5.4 Criticism and limitations of the study

One of the main limitations of this study is the sample choice, which is limited to Vietnamese investors. Thus, it is questionable whether the finding could be generalized for a bigger population.

The second limitations are the distribution of the study, which mainly consists of male. Although this might be the inevitable case in ICO investment, it might still affect the result of the study.

Third, since most of the theories used in this study were conducted in countries outside Vietnam, it is perhaps less applicable to a sample living in this country.

Fourth, the survey methodology of self-selection could result in potential response bias.

5.5 Suggestions for future research

Future research could build up the study by studying a different sample size. Also, qualitative study could be used to uncovering new variables.

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7. APPENDIX

Appendix 1: Expert Interview

Pseudonym	Background	Interview date
Expert 1	Founder of an ICO project, raised fund in early 2018	14.09.2019
Expert 2	Founder of an ICO project, raised fund in late 2018	17.09.2019
Expert 3	Invested in more than 10 ICOs before. Have background in IT.	18.09.2019
Expert 4	Have experiences in both ICO and stock investment	22.09.2019
Expert 5	Have experiences in both ICO and stock investment	20.09.2019

Appendix 2: Cronbach's Alpha of Survey pre-test

Variable	No. of items	Cronbach's Alpha
Expected return	3	0.714
Diversification	3	0.752
Risk	2	0.685
Supporting Entrepreneurship	2	0.823
Spatial proximity effect	2	0.786
Herding	3	0.649
Early adopters	2	0.835
Self-expression	3	0.742
Community engagement	2	0.746
Functional Utility	3	0.874

Appendix 3: Factor analysis of the survey pretest

Rotated Component Matrix[a]

	Component		
	1	2	3
ER1		.894	
ER2		.845	
ER3		.936	
D1	.941		
D2	.894		
D3	.934		
R1			-.739
R2	-.324		.787

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.[a]
a. Rotation converged in 5 iterations.

Rotated Component Matrix[a]

	Component	
	1	2
SE1		.778
SE2		.714
SP1	.918	
SP2	.903	

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Rotated Component Matrix[a]

	Component	
	1	2
H1		.778
H2	.385	.714
H3		.435
EA1	.825	
EA2	.794	

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Rotated Component Matrix[a]

	Component		
	1	2	3
Se1		.764	
Se2		.512	.283
Se3		.862	
CE1	.941		
CE2	.894	.382	
FU1	.934		.793
FU2			.858
FU3	-.324		.841

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.[a]
a. Rotation converged in 5 iterations.

Appendix 4: Cronbach's Alpha and Factor Analysis of the main study

Category	Variables	Items	Cronbach's Alpha	Factor analysis		
				1	2	3
Financial factors	Expected Return	I am attracted by the possibility to make high return when considering investment options	0.828	0.821		
		I actively look for investment opportunity with high return potential		0.858		
		I expect my investment return to be high		0.871		
	Diversification	ICO has the characteristics of a good asset for portfolio diversification	0.724		0.731	
		I see ICO as a good way to diversify my investment			0.845	
		ICO is a good alternative to other financial assets			0.788	
	Risk	I consider ICO investment as high risk – high return investment	0.711			0.823
		I am willing to take risk if the return is high enough				0.844
Social Relevance	Supporting Entrepreneurship	ICO offers a great opportunity to support early-stage startup	0.815	0.733		
		I consider ICO a great way to support entrepreneurship		0.694		
	Spatial proximity effect	I consider the location of projects important to my investing decision	0.823		0.735	
		I usually look for investment opportunities with location closed to me			0.753	
Peer behavior	Herding	When I hear people are making great profit from an investment, I tend to follow them	0.723	0.728		
		I usually watch out for what people are investing in		0.884		
		My investment decision is sometimes influenced by other people		0.749		
Innovative Investment	Early Adopter	I tend to look for new and innovative ideas when making investment decision	0.847		0.721	
		I am normally the first one to try out new things among my friends			0.763	
Personal Utility	Self-expression	I see my investment as a way to express myself	0.745	0.805		

		I enjoy talking to people about my investment		0.852		
		I usually discuss with friends about the companies I invested in		0.819		
	Community Engagment	I see my investment as a way to engage with like-minded investors	0.732		0.714	
		I (would) like to interact with other ICO investors			0.685	
	Functional Utility	I usually invest in companies that I am a customer of	0.821			0.796
		I tend to support companies with products I could use				0.746
		I (would) enjoy the utility of the products of the ICO projects				0.833

Appendix 5: T-statistics

Group Statistics

	Investor type	N	Mean	Std. Deviation	Std. Error Mean
I am attracted by the possibility to make high return when considering investment options	0	105	4.676190476190477	.470172597098418	.045884147180675
	1	134	5.395522388059701	1.332184912972726	.115083248335299
I actively look for investment opportunity with high return potential	0	105	4.523809523809524	.501828159663746	.048973413762348
	1	134	5.631820895522388	1.441563634405813	.124532130722949
I expect my investment return to be high	0	105	4.228571428571429	.787610100449245	.076862875448342
	1	134	4.544776119402985	1.422777499879118	.122909255877316
ICO has the characteristics of a good asset for portfolio diversification	0	105	4.666666666666667	.501280411827603	.048919959047023
	1	134	4.753731343283582	1.007017239565760	.086993039554922
I see ICO as a good way to diversify my investment	0	105	4.676190476190477	.580040417942480	.056606148618316

	1	134	5.022388059701493	1.247351587811454	.107754765230909
ICO is a good alternative to other financial assets	0	105	3.590476190476191	.755686622259698	.073747462978947
	1	134	3.955223880597015	.802867713911807	.069357206796710
I consider ICO investment as high risk – high return investment	0	105	4.628571428571429	.811659539949608	.079209860424620
	1	134	5.276119402985074	1.548182495143034	.133742597459183
I am willing to take risk if the return is high enough	0	105	4.847619047619047	.769377275425647	.075083533921283
	1	134	5.216417910447762	1.258725577589017	.108737328295081
ICO offers a great opportunity to support early-stage startup	0	105	3.714285714285714	.840264217995718	.082001391163806
	1	134	3.559701492537314	1.160186619872030	.100224858868941
I consider ICO a great way to support entrepreneurship	0	105	2.980952380952381	1.055944276474055	.103049609644062
	1	134	3.149253731343284	1.277376674367845	.110348537656050
I consider the location of projects important to my investing decision	0	105	3.752380952380952	1.116148532135193	.108924943393213
	1	134	3.723880597014925	1.172310815138147	.101272229816539
I usually look for investment opportunities with location closed to me	0	105	4.514285714285714	.502192992979594	.049009017848303
	1	134	4.126865671641791	.887859991935029	.076699421336959
When I hear people are making great profit from an investment, I tend to follow them	0	105	4.219047619047619	1.263244847916486	.123280073923356
	1	134	4.664179104477612	1.169435503245828	.101023840700792
I usually watch out for what people are investing in	0	105	4.161904761904762	.798120502804142	.077888585690828
	1	134	4.440298507462686	.977269435376480	.084423220850746

My investment decision is sometimes influenced by other people	0	105	4.533333333333333	.501280411827603	.048919959047023
	1	134	5.089552238805970	1.185518423872364	.102413193432831
I tend to look for new and innovative ideas when making investment decision	0	105	4.152380952380953	.997891550113311	.097384243655030
	1	134	4.544776119402985	.914508550725602	.079001506189602
I am normally the first one to try out new things among my friends	0	105	3.980952380952381	.898513220451434	.087685911738378
	1	134	4.276119402985074	1.021511419231666	.088245146144504
I see my investment as a way to express myself	0	105	4.057142857142857	.907538634784423	.088566701988973
	1	134	4.537313432835821	1.148105444437716	.099181204268780
I enjoy talking to people about my investment	0	105	4.457142857142857	.500549148984843	.048848595100863
	1	134	4.716417910447762	.880976391843206	.076104768859594
I usually discuss with friends about the companies I invested in	0	105	4.447619047619048	.865813894340868	.084494784264711
	1	134	5.037313432835821	1.036236077972528	.089517162920873
I see my investment as a way to engage with like-minded investors	0	105	4.514285714285714	.502192992979594	.049009017848303
	1	134	4.425373134328358	.739608366918375	.063892431547658
I (would) like to interact with other ICO investors	0	105	4.219047619047619	.679096577205453	.066273039923390
	1	134	4.380597014925373	1.039047974602163	.089760073792307
I usually invest in companies that I am a customer of	0	105	3.666666666666667	.862316498502576	.084153473379339
	1	134	3.910447761194030	1.210621455815427	.104581765101029
I tend to support companies with products I	0	105	4.504761904761905	.502395310282016	.049026810195176

could use	1	134	4.582089552238806	1.057010306909342	.091311782965304
I (would) enjoy the utility of the products of the ICO projects	0	105	3.676190476190476	1.033061526345898	.100816481892129
	1	134	3.761194029850747	1.477546760084014	.127640599335662

Appendix 6: Descriptive statistics of the final study

Descriptive Statistics

	N	Minimum	Maximum	Mean		Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Std. Error	Statistic	Std. Error
Expected_Return	239	2.75	5.25	3.663	.0325	.5031	.680	.157	.512	.314
Diversified_Investment	239	4.00	7.00	4.841	.0530	.8198	.533	.157	-.695	.314
Risk	239	3.0	7.0	5.023	.0643	.9939	.518	.157	-.460	.314
Promoting_Entrepreneurship	239	1.5	5.0	3.255	.0528	.8159	.639	.157	-.001	.314
Spatial_Proximity	239	2.5	5.0	4.017	.0504	.7790	-.580	.157	-.778	.314
Herding_effect	239	3.00	6.33	4.609	.0432	.6691	.041	.157	-.465	.314
Early_Adopters	239	4.0	7.0	5.410	.0701	1.0843	.104	.157	-1.269	.314
Self_expressiveness	239	3.33	6.00	4.600	.0433	.6695	.740	.157	-.267	.314
Community_engagement	239	3.0	6.0	4.224	.0417	.6442	-.276	.157	-.406	.314
Functional_Utility	239	2.00	7.00	4.380	.1112	1.7203	.059	.157	-1.290	.314
Predicted probability	239	.04	.98	.560	.0175	.2707	-.231	.157	-1.156	.314
Predicted group	239	0	1	.60	.032	.490	-.422	.157	-1.838	.314
Valid N (listwise)	239									

Appendix 7: Overview of the survey questions

Dear investors,

This study aims to understand about your financial investment decision. It will take you about 5 minutes. In exchange, you get a chance to win 0.0035 Bitcoin at the end of the survey. The money will go to to one lucky personnel. So good luck ;).

All data will be kept confidential and anonymous.

Now let's dive in.

1. Have you ever invested in Initial Coin Offering (ICO)?

○ Yes ○ No

2. Have you ever invested in any other types of investment such as stocks, bonds, FOREX, etc.?

○ Yes ○ No

3. To what extent do you agree or disagree with the following:

Disagree Agree

I am attracted by the possibility to make high return when considering investment options	O	O	O	O	O	O	O
I actively look for investment opportunity with high return potential	O	O	O	O	O	O	O
I expect my investment return to be high	O	O	O	O	O	O	O
ICO has the characteristics of a good asset for portfolio diversification	O	O	O	O	O	O	O
I see ICO as a good way to diversify my investment	O	O	O	O	O	O	O
ICO is a good alternative to other financial assets	O	O	O	O	O	O	O
I consider ICO investment as high risk – high return investment	O	O	O	O	O	O	O
I am willing to take risk if the return is high enough	O	O	O	O	O	O	O
ICO offers a great opportunity to support early-stage startup	O	O	O	O	O	O	O
I consider ICO a great way to support entrepreneurship	O	O	O	O	O	O	O
I consider the location of projects important to my investing decision	O	O	O	O	O	O	O
I usually look for investment opportunities with location closed to me	O	O	O	O	O	O	O

4. Please indicate your level of agreement or disagreement with the following:

	Disagree						Agree
When I hear people are making great profit from an investment, I tend to follow them	O	O	O	O	O	O	O
I usually watch out for what people are investing in	O	O	O	O	O	O	O
My investment decision is sometimes influenced by other people	O	O	O	O	O	O	O
I tend to look for new and innovative ideas when making investment decision	O	O	O	O	O	O	O
I am normally the first one to try out new things among my friends	O	O	O	O	O	O	O

I see my investment as a way to express myself	○	○	○	○	○	○	○
I enjoy talking to people about my investment	○	○	○	○	○	○	○
I usually discuss with friends about the companies I invested in	○	○	○	○	○	○	○
I see my investment as a way to engage with like-minded investors	○	○	○	○	○	○	○
I (would) like to interact with other ICO investors	○	○	○	○	○	○	○
I usually invest in companies that I am a customer of	○	○	○	○	○	○	○
I tend to support companies with products I could use	○	○	○	○	○	○	○
I (would) enjoy the utility of the products of the ICO projects	○	○	○	○	○	○	○

5. How old are you?

○ < 18
○ 18 - 25
○ 26 - 35
○ 36 - 45
○ 46 - 55
○ > 55

6. What is your gender?

○ Male ○ Female

7. What is your highest educational level?

○ No education
○ Primary school
○ Secondary school
○ High school
○ Bachelor level
○ Master level
○ PhD
○ Other

8. What is your field of study?

○ Business & Economics
○ IT-related

○ Architecture
○ Health care
○ Law
○ Construction
○ Other

9. What industry do you currently or last worked in?
○ Technology
○ Finance & Accounting
○ Business & Management
○ Service
○ Energy & Utilities
○ Health Care
○ Law
○ Other

10. If you want to participate in the lottery to get a chance of wining 0.0035 BTC, please leave your Bitcoin address (optional)