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Research Article

Research on the Influencing Factors of Purchasing Internet Financial Wealth Management Products based on AHP

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Abstract: Internet financial wealth management product(IFWMP) has recently been one of the most popularity. There is limited quantitative research on IFWMP which can helps customers to choose the products based on the significance of each factor. In the paper, a multi-criteria decision-making model of IFWMP was developed, namely analytic hierarchy process (AHP) which is used to make decisions to the unstructured problems through quantifying weights of each criterion. This paper investigated ten influential factors relevant to the purchase of IFWMP and analyzed the frequency of collected responds to show the significance of factors. Based on the quantified weights, the result of the research indicated that compatibility, product liquidity, perceived ease of use and perceived usefulness affect the investors purchasing behaviors most that every investors should pay great attention to.

Key words: Internet financial wealth management products (IFWMP), Analytic hierarchy process (AHP), compatibility, product liquidity, purchasing behaviors

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1 Introduction

In recent years, China has experienced a booming economic development. The Gross Domestic Product (GDP) in China has increased considerably from 6.44 trillion Yuan in 2014 to 9.9 trillion Yuan in 2019, with an average annual growth of 10.7%. In the meantime, the per capita disposable income of Chinese residents has gradually risen from approximately 22 thousand Yuan to 30 thousand Yuan[1]. Currently, with the gradual increase of the per capita disposable income, their financial demand is developing. According to the report from China Merchants Bank (CMBC) and Bain Capital Corporation, the number of Chinese high net value individuals with investable assets of more than 10 million Yuan reached 1.97 million in 2018. The total amount of investable assets held by individuals in China reached 190 trillion Yuan for the same period of time[2]. It is possible for more people to pay more attention to financial products so as to achieve to increasing capital value.

Traditional financial products in China rely on the banking industry. Therefore, people were easily likely to select the saving as the main means in the past in the condition of asymmetric information as well as the limitation of the high investment threshold of the conventional financial institutions. Now, it is a new period of information technology, and the rapid development of Internet leads to the innovation of financial industry in the Internet Age. Internet finance, "the innovative financial mode adopted Internet and mobile communication technology to realize financing, payment, investment and information intermediary services", emerged at the proper time and conditions[3].

The representative ones of Internet financial products, such as the third-payment, P2P, the balance of treasure, have some impacts and influences on traditional bank businesses. Among the Internet financial products, the Internet financial wealth management products (IFWMP), such as: Yu'ebao, Tencent financial management product, have developed rapidly. The main characteristics of the

IFWMP involve the low investment threshold, more types, short period of time, and convenient purchasing form, which satisfy the ordinary consumers' financial services requirement and become the main investment choice. For example, the users number and the capital scale of Yu'ebao has reached 641 Million and 1.09 trillion Yuan, respectively at the end of 2019[4]. Facing all kinds of complicated IFWMP, it is difficult for the consumers to make reasonable decision and pick up their satisfactory products. Therefore, it is necessary to explore the influencing factors of IFWMP so as to help the consumers evaluate different IFWMPs.

2 Literature Review

The past few decades have witnessed a plethora of studies about the Internet financial products purchase. Some literatures involve the Technology Acceptance Model (TAM), shown as follows. Xia & Du (2014) established the model of the intention and altitudes towards purchasing IFWMP based on technology acceptance model (TAM). They chose four dimensions including product innovation, altitude, purchasing cost and government regulations to evaluate the relationship with purchase intention [5].Wang (2016) combined the investors investment behavior theory (IIBT) with the TAM to measure seven variables, which involves the common variables on the TAM (perceived usefulness, perceived ease of use) and the additional variables based on the IIBT (perceived risk, financial starting point, expected return, product liquidity, product awareness). He approached the method of structural equation model (SEM) to analyze and examine the sample data[6]. Qiu et al. (2015) adopted the theory of planned behavior (TPB) and the TAM, added the self-efficacy and social influences factors and analyzed the Yu'ebao as an example. They examined the structural equation model of IFWMP through the method of partial least squares (PLS). Their study showed that self-efficacy, perceived usefulness and perceived ease of use play key roles in influencing factors of the usage of IFWMP[7].

Some relevant research involves other methods, such as: unified theory of acceptance and use of technology, REF neural network, innovation diffusion and risk theory, etc. The representative literatures are listed as follows. The study(2014) adopted the unified theory of acceptance and use of technology(UTAUT) with a perceived risk factor to analyze consumer behaviors intention of Internet banking. It illustrated that three factors from UTAUT model, regarding as performance expectancy, effort expectancy, social influence, and also perceived risk were the most crucial factors to customer intention to use Internet banking[8]. Liu et al. (2015) employed REF neural network to simulate the process of purchasing IFWMP. Through empirical analysis of 12 selected variables, the consequence demonstrated the speed of realization, rate of return, convenience of payment and access are the key factors in purchasing intention to IFWMP [9]. Zhao et al. (2017) selected three factors that are perceived risk, personal innovation cognition and brand awareness on the basis of innovation diffusion theory and risk theory. By the method of structural equation model, they concluded that in the process of Internet financial products purchase, personal innovation directly affected consumers' behavior, while the brand awareness and perceived risk have a positive and negative impact on consumer purchase intention respectively[10]. Then, based on rooting theory and utility maximization theory, Zhao et al.(2017) introduced and analyzed the selection factors of Internet financial products by approaching qualitative research and nested logit model. They believed that user experience, product reputation and risk diversification have the significant impacts on product selection[11]. Based on the social cognitive theory (SCT), Xu and Lu (2017) adopted five potential factors: Internet atmosphere, computer self-efficacy, risk control cognition, communication and trading trust. Their research results showed that three factors, computer self-efficacy, risk control cognition and transaction trust, directly affect consumers' purchase intention and behavior, on which Internet atmosphere and communication have obvious indirect effects[12]. Zhang et al. (2020) used the method of Pythagorean fuzzy double normalization-based multiple aggregation(PF-DNMA) to discuss the correlation between factors affecting consumers' purchase of financial products by comparing Pythagorean Fuzzy TOPSIS and VIKOR means[13]. The study(2020) targeted at four barriers of consumers in usage of Internet banking in Karachi, Pakistan, with innovation factors rather than the normal productive elements used in TAM and theory of planned behavior (TPB). It adopted five factors, image barrier, value barrier, risk barrier,

tradition barrier and gerder, which represents as the moderator. By approaching several means analysis, the study suggested that value, risk and image barriers influence the usage of Internet banking significantly and positively[14].

Based on the aforementioned, many foreign researchers focus on the exploration of the adoption intention and behavior of e-finance, Internet banking and mobile payment. The research on the IFWMP object is limited, though IFWMP is also a typical form of Internet financial products. In addition, to the author's knowledge, few quantitative study on purchasing intention has been conducted for IFWMP. Therefore, the contribution of our work lies in identifying the main influencing factors of purchasing the IFWMP behaviors through Analytical Hierarchy Process (AHP) theory, and analyzing the effect of these factors on the consumers' choice so as to offer reasonable comments and suggestions to guide the investors how to choose IFWMP scientifically.

3 Methodology

Analytic Hierarchy Process (AHP), originally developed by Saaty (1990), is a multi-criteria decision making method (Khakzad et al., 2017)[15-16]. AHP is used to solve the unstructured decision-making problems that are subjective and non-quantifiable so they are generally difficult to quantify or prioritize. One of the advantages of AHP is that numerical weight could be converted from intangible and non-quantifiable criteria, by breaking down complicate decision-making affairs into simple hierarchy phases. This method divides a complicated issue into a multi-layer structure, i.e. objective layer, index layer and scheme layer, shown as Figure 1. In the decision-making criteria assessment, how to make decisions is generally regarded as the object layer, while the assessment criteria are included in the index or even sub-index layers. In our work, the objective layer is how to choose the satisfactory IFWMP. The index layer includes the potential influencing factors of purchasing the IFWMP. And the scheme layer involves the common IFWMPs in the financial market.

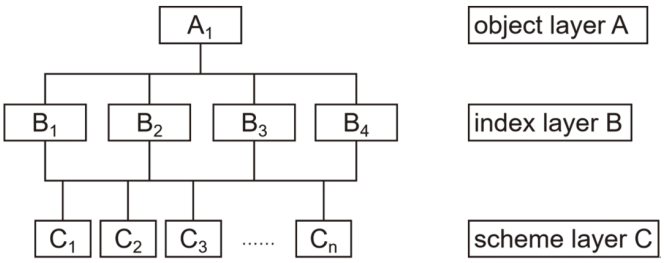

Figure 1. The General Structure of AHP

Generally, numbers ranging from 1 to 9 and their reciprocals are used to represent the relative importance of the assessment factors to risk in the constructed pairwise comparison[17]. In our work, the frequency analysis approach is adopted through investigation, which is used the most in the market research[18]. It can express the importance degree of each influential factor in the index layer through counting the numbers of selection times for each factor. In addition, the survey design is obviously much easier and more straightforward for survey subjects. Thus, it is possible for the surveyed to make the first intuitive selection that could reflect their real purchasing intention.

4 Survey Design & Results

The survey divides into two parts: personal information of interviewees and the influencing factors of IFWMP selection. It is mainly carried out through typical Internet platforms like Wechat, Weibo, etc. A total of 73 validated responses were received. The general background of interviewees can be seen from Table 1.

Table 1. Sample demographics

Measure	Item	Frequency	Percentage (%)
Gender	Male	29	39.7%
	Female	44	60.3%
Age	Under 18	1	1.4%
	18-24	30	41.1%
	25-39	20	27.4%
	40-50	12	16.4%
	Over 50	10	13.7%
Education Level	High School	7	9.6%
	College/University	55	75.3%
	Master	9	12.3%
	PhD	1	1.4%
	Other	1	1.4%
Occupation	Leaders of government departments, enterprises and institutions, party and government organs and public organizations	3	4.1%
	Professional and technical personnel (teachers, doctors, engineers, writers, etc.)	7	9.6%
	Staff (for general service work)	10	13.7%
	Business people	4	5.5%
	Service personnel in the tertiary industry	3	4.1%
	Private entrepreneurs	3	4.1%
	Students	32	43.8%
	Retired or Unemployed	6	8.2%
	Others	5	6.8%
Average disposable income: (pocket money or living fees for students)	Under 1500 yuan	18	24.7%
	1500-3000	10	13.7%
	3000-5000	18	24.7%
	5000-12000	19	26.0%
	Over 12000	8	11.0%
Risk tolerance	Not below expected returns	6	8.2%
	Not below banks interest rate	17	23.3%
	Non-loss of principal	23	31.5%
	Loss of principal not exceed 10%	18	24.7%
	Loss of principal exceed 10%	9	12.3%

The relevant influencing factors are determined by combing and summarizing domestic and foreign literatures about the IFWMP purchase, shown as Table 2, whose selection is based on the AHP analysis method and frequency analysis design, shown as Figure 2.

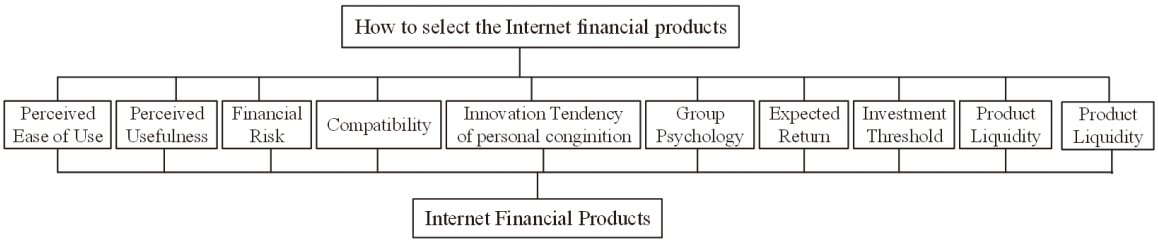

Figure 2. AHP for influential factor of IFWMP purchase

Interviewees are required to select the 6-8 most important influential factors from the ten factors. The importance of each factor is quantified through the frequency of factor selection. The equation of normalization shows as follows.

Normalization(%) = Frequency(%)/ Sum of frequency(%)

Table 2. Definition and source of influential factors of IFWMP purchase

Definition of Factors	Source
Compatibility Some IFWMPs are adapted to your original financial knowledge and experiences in purchasing financial products or services, as well as to your current consumption habits and financial needs.	●Moore& Benbasat (1991) Development of an Instrument to Measure the Perceptions of Adopting an Information Technology Innovation
Perceived Ease of Use It is easy access to certain IFWMP and can be quickly learned to operate.	●Moore& Benbasat (1991) Development of an Instrument to Measure the Perceptions of Adopting an Information Technology Innovation ●David : A technology acceptance model for empirically testing new end-user information systems : theory and results
Perceived Usefulness An IFWMP is able to help manage wealth efficiently	●Moore& Benbasa (1991) Development of an Instrument to Measure the Perceptions of Adopting an Information Technology Innovation ●David: A technology acceptance model for empirically testing new end-user information systems : theory and results
Financial Risk It is likely to lose the principal when purchasing an IFWMP, which may happen because of the investment risks and the corporate moral hazard.	●Mo Zichang(2018): Research on influencing factors of consumers' purchase of Internet financial products ●Zhao, Q., Xue J., &Li, Y.(2017)[11]
Privacy Risk It is likely to face the risks of private information being stolen or leaked.	●Wang Chi (2019): An investigation report on influencing factors of Harbin University students' willingness to purchase Internet financial products: the case of Yu'ebao
Innovation Tendency of Personal Cognition Purchase (or desire to buy) because of the curious of an IFWMP	●Zhao, Q., Xue J., &Li, Y.(2017)[10]
Group Psychology Tend to purchase IFWMP recommended by friends or relatives or the popular rather than what chose in the minority	●Rong-anShang&Yu-Chen&Lysander Shen(2005) Extrinsic versus intrinsic motivations for consumers to shop on-line
Expected return Prefer certain IFWMP with high returns and low risks	●Zhao, Q., Xue J., &Li, Y.(2017)[11]
Investment Threshold Prefer IFWMP since it has the low threshold and improve the idle capital utilization	●Zhao et al(2017)[11]
Product Liquidity Prefer the financial way that enables withdraw cash at any time	●Wang, R.(2016)[6]

Based on the collected samples, it is shown that our respondents with the age range of 18-24 account for 41.1%, and the respondents with the age range of 25-39 account for 27.4%. The figure from China Business Network business data center (CBNData) and Ant Wealth jointly released Who is the Biggest Winner: 2019 Online Wealth Management Crowd Report demonstrates that the majority of Internet wealth management users is the post-80s and post-90s generation (33% and 30% respectively). Those people use more Internet resoueces, and over 60% of them purchase the wealth management product through online for the first time[19]. These youngsters have an open-minded and innovative spirit and are willing to actively embrace change and accept all kinds of novel things. Compared with the old-times people, it is more possible for them to accept Internet financial products. Therefore, it is well targeted for the selection of samples.

Based on the above report, it could be found that people with the age of 20-30 generally have lower-risk tolerance. The total proportion of age groups in 20-25 and 25-30 “can not accept loss” (44% and 39% respectively) and “can only accept loss within 5% of principal” (10% and 12% respectively) is higher than that of other age groups[19]. These people have limited funds for investment, so they are more satisfied with the IFWMP which has low investment threshold and great liquidity that enables people to withdraw their funds at anytime anywhere.

It can also be seen that in the occupation distribution, the percentage of students accounts for 43.8%, which may cause that the general analysis will tend to present the students’ purchase preferences. However, the sample analysis shows that the proportion of the respondents with the monthly disposable income of below 3000 Yuan who can accept the rate higher than bank interest rate is 38.4% and 31.5% respectively. Therefore, students’ characteristics in term of low disposable income and poor risk tolerance are not quite obvious in the general analysis of sample demographics.

Additionally, most of the interviewees have received or are receiving higher education (89%). In general, the mass with higher education level have a higher acceptance and understanding of new things and master the Internet better. IFWMP is what has been generated and developed in the recent decades,

so the samples mainly selected people with higher education can be assured in some extent for its validity and stability.

Table 3. Relative frequency and Normalization of influential factors of IFWMP purchase

Factors	Relative Frequency	Normalization
Compatibility	80.82%	12.66%
Perceived Ease of Use	75.34%	11.80%
Perceived Usefulness	78.08%	12.23%
Financial Risk	58.90%	9.23%
Privacy Risk	61.64%	9.66%
Innovation Tendency of Personal Cognition	31.51%	4.94%
Group Psychology	39.73%	6.22%
Expected Return	61.64%	9.66%
Investment Threshold	71.23%	11.16%
Product Liquidity	79.45%	12.45%

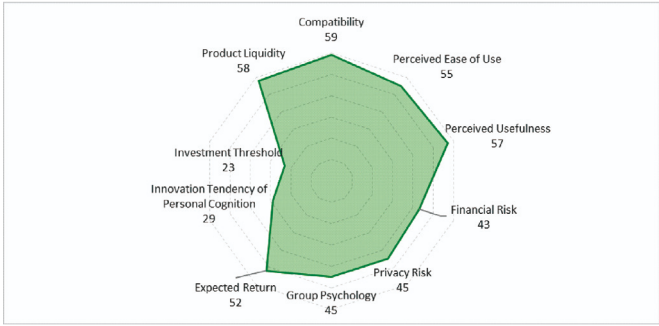

Figure 3. Selection Frequency of influential factors of IFWMP purchase

Seen from Figure 3, among the ten given factors, the selection frequency of compatibility is the highest (80.8%) accounted for 12.6% in term of the significance of all ten factors. The compatibility means that people combine their financial experiences and the current financial demand when purchase IFWMPs. Next popular ones are product liquidity, perceived usefulness and perceived ease of use, accounting for 79.5%, 78.1% and 75.3% respectively. The impact of personal cognition is the least significant impact (4.94%), with only 31.5% respondents believing they would be affected in choosing the IFWMPs.

Table 4. Cross analysis of age and influential factors of IFWMP purchase

Factors	Under 18	18-24	25-39	40-50	Over 50
Perceived Ease of Use	1	23	16	10	5
Perceived Usefulness	0	25	14	9	9
Financial Risk	1	20	9	5	8
Privacy Risk	1	21	11	8	4
Innovation Tendency of Personal Cognition	0	6	8	3	6
Compatibility	0	23	18	9	9
Group Psychology	1	8	10	3	7
Expected Return	1	19	10	9	6
Investment Threshold	1	23	13	6	9
Product Liquidity	0	22	18	10	8
Sum	1	30	20	12	10

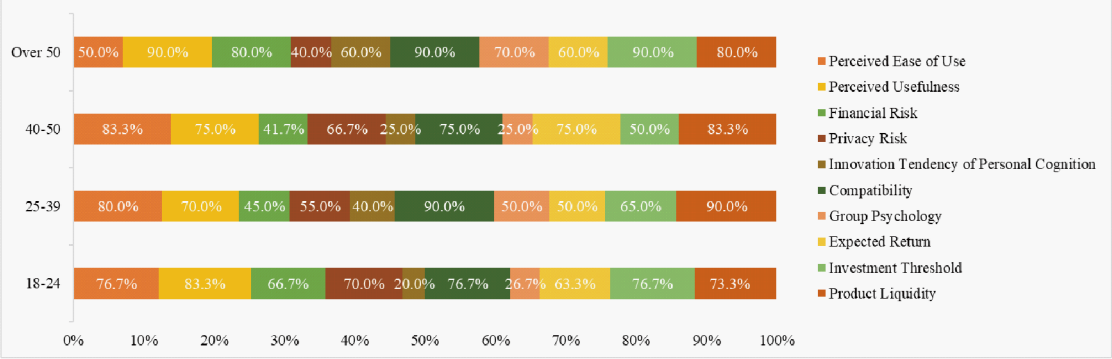

Figure 4. Cross analysis of age and influential factors of IFWMP purchase

According to the cross analysis of age and influential factors of IFWMP purchase in Table 4, mass of all ages mainly focus on three characteristics: compatibility, perceived usefulness, perceived ease of use and product liquidity, except that people over 50 years old pay relatively little attention to perceived ease of use. The different age groups attach different importance to these factors. For instance, the youngsters pay more attention to whether the IFWMPs could effectively manage their wealth, while people with the age range of 25-39 focus more on observing the compatibility and the liquidity of products and focus less on the financial risks and privacy risks compared to the old. People aged from 40-50 concern more on the perceived ease of use and the liquidity of product, who pay more attention to the expected income of IFWMPs than other age groups, whereas the elder above 50 years old are most influenced by the compatibility, perceived usefulness and financial thresholds. In addition, the most oldest age group are more likely to be affected by innovation tendency of personal cognition and group psychology but lower importance to privacy risks. (Due to the limited samples with under-18 respondents, the characteristics for these people have not expressed in our work.)

Table 5. Cross analysis of gender and influential factors of IFWMP purchase

X\Y	Male	Female
Compatibility	24	35
Perceived Ease of Use	22	33
Perceived Usefulness	24	33
Financial Risk	17	26
Privacy Risk	18	27
Innovation Tendency of Personal Cognition	11	12
Group Psychology	15	14
Expected return	16	29
Investment Threshold	18	34
Product Liquidity	21	37
Sum	29	44

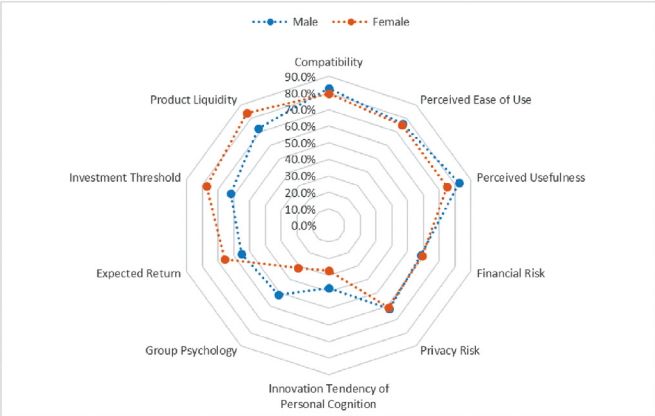

Figure 5. Cross analysis of gender and influential factors of IFWMP purchase

The prominent difference of choice preference in purchasing IFWMP caused by gender is group psychology, investment threshold and liquidity of product. Group psychology reflects the largest gender preference distinction, which has greater impact on male. On the contrary, women are affected more by investment threshold and product liquidity.

Table 6. Cross analysis of risk tolerance and influential factors of IFWMP purchase

X\Y	Not below expected returns	Not below banks interest rate	Non-loss of principal	Loss of principal not exceed 10%	Loss of principal exceed 10%
Perceived Ease of Use	4	14	15	14	8
Perceived Usefulness	6	13	17	13	8
Financial Risk	6	13	8	11	5
Privacy Risk	6	11	12	10	6
Innovation Tendency of Personal Cognition	2	4	5	7	5
Compatibility	5	14	21	11	8
Group Psychology	2	4	6	12	5
Expected Return	2	11	14	14	4
Investment Threshold	1	12	20	14	5
Product Liquidity	4	13	20	16	5
Sum	6	17	23	18	9

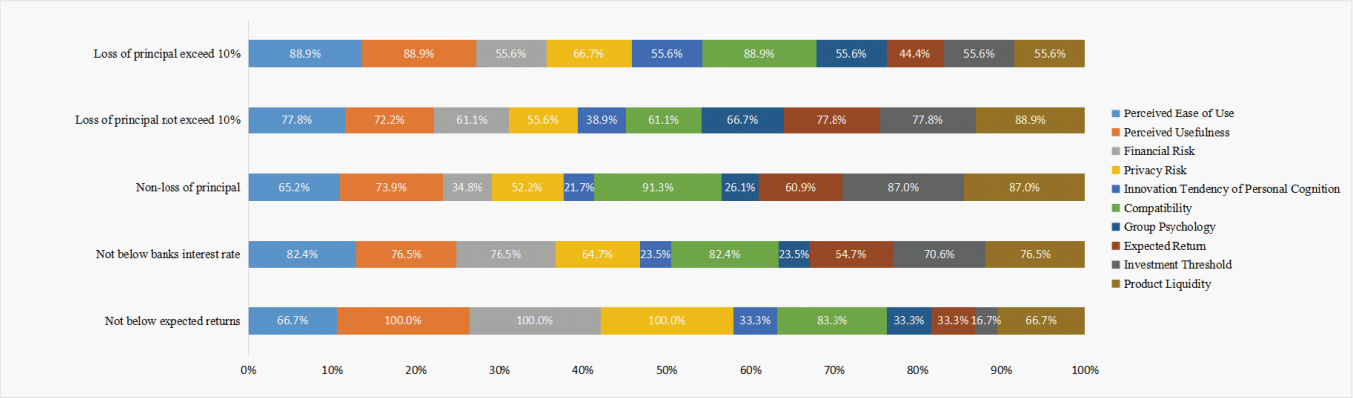

Figure 6. Cross analysis of risk tolerance and influential factors of IFWMP purchase

Through cross-analysis of risk tolerance and selection factors in Table 6 and Figure 6, it can be found that risk-loving investors in the sample are more likely affected by personal cognitive innovation and group psychology, while risk-neutral investors keep eyes on the compatibility, investment threshold and product liquidity. On the contrast, risk-averse investors pay more attention to the perceived usefulness, financial risk and privacy risk of IFWMPs.

5 Analysis & Discussion

Based on the above analysis, it can oobviously be obtained that for financial investors, compatibility is a key factor to be considered when choosing IFWMPs. Moreover, compatibility is not affected by choice preferences regardless of age and gender, so investors should give priority to whether the IFWMP matches his/her own financial concepts and consumer needs.

Product liquidity should be the second consideration for most people. Compared with traditional financial wealth management products, IFWMPs apparently have great advantages in liquidity which become the reason why most people choose to buy it. This factor is more important to young people who have graduated to work, because they are no longer like campus students without too much consumption needs and desires, and they have to pay for themselves or even their families. They will be more pursuing whether their funds of financial products can be withdrawn immediately, which women should give more priority to the characteristics of product liquidity.

For perceived ease of use and perceived usefulness, basically people of all ages should also pay attention to these two factors. However, it can be seen from the sample analysis that people over 50 do not pay much attention to the ease of conducting purchase and operation of financial management products like other age groups. It can be speculated that some of them may be accustomed to the traditional financial management tools and the operation process, so the perceived ease of use will not affect their choices obviously, and they will pay more attention to other characteristics of the emerging financial management tools, such as perceived usefulness and financial

threshold. Perceived usefulness is one of the factors that have relatively stable importance, basically not affected by age, gender, and risk tolerance preferences. Investors should consider whether the IFWMP can improve themselves financial efficiency after considering the above relevant factors.

Financial management threshold should be an important influencing factor to certain people. For instance, for women and risk-neutral people, the product lowering its own financial management threshold to improve the financial management efficiency of investors' idle funds should become one of the most important factors to consider purchasing IFWMP.

Privacy risks and financial risks do not affect the general investor's choice, but risk averse people should give priority to the influence of financial risks on the purchase choice of IFWMP. Older people and students should also consider the bear of the financial risks resulted from the purchase of financial products. Among all age groups, young people, especially students, should pay attention to the privacy risks stemmed from the purchasing IFWMP, and observe whether purchasing the product will reveal the risk of personal information and other important private data.

The expected return factor is highly valued among female investors, and for risk-neutral investors and investors who can bear certain risks, the expected return rate of the product would become an important factor of their concern.

Personal cognitive innovation and herd mentality have limited impact on general public investors, but for people of over 50 years old, these two factors have been paid more attention. These older investors should rationally think about whether the recommendations of others have a certain degree of credibility when they choose to buy IFWMPs and whether they have a high degree of awareness for curiosity about emerging products. Additionally, male investors and risk enthusiasts are more affected by these two factors and they also need to think about the above issues before buying.

6 Conclusion

The research of influential factors of purchasing IFWMPs is conducted based on the AHP and the investigation results. The survey incorporates ten popular and relevant factors to provide a more comprehensive investigation. The results show that compatibility, product liquidity, perceived ease of use and perceived usefulness are the most important factors, which people may consider before buying IFWMPs.

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