Determinants of Gold Futures Investment Decisions by Investors in Udon Thani Municipality, Udon Thani Province

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Abstract

The purposes of this research were to cluster the risk tolerance of investors and to investigate the factors that impact on gold futures investment decisions. The sample consisted of 400 retail investors who invested with eight security companies in UdonThani municipality, Thailand, using a proportional stratified sampling technique. The data were collected via questionnaire. The K-means clustering technique was applied to segment the investors' risk tolerance based on their behaviors and attitudes. Binary logistic regression was used to explore the factors affecting gold futures investment decisions. The results revealed that (1) all subjects could be classified into three different groups: Group 1 Risk Aversion, Group 2 Risk Indifference and Group 3 Risk Seeking, and (2) the investors' educational level, income, risk tolerance andtheir attention to political factors affect gold futures investment.

ปัจจัยที่มีผลต่อการตัดสินใจในการลงทุนสัญญาซื้อขายทองคำล่วงหน้าของนักลงทุนในเขตเทศบาลนครเมืองอุดรธานี จังหวัดอุดรธานี

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บทคัดย่อ

งานวิจัยนี้มีวัตถุประสงค์เพื่อจำแนกนักลงทุนออกเป็นกลุ่มตามความเสี่ยงที่ยอมรับได้ และเพื่อศึกษาปัจจัยที่ส่งผลต่อการตัดสินใจลงทุนในสัญญาซื้อขายทองคำล่วงหน้า กลุ่มตัวอย่างเป็นนักลงทุนรายย่อยจำนวน 400 คน ที่ลงทุนกับบริษัทหลักทรัพย์ 8 บริษัทในเขตเทศบาลนครอุดรธานี ประเทศไทย โดยใช้วิธีการสุ่มตัวอย่างแบบชั้นภูมิตามสัดส่วน ใช้แบบสอบถามเป็นเครื่องมือในการเก็บรวบรวมข้อมูล และใช้เทคนิคการจัดกลุ่มแบบ K-means ในการจำแนกกลุ่มนักทุนตามความเสี่ยงที่ยอมรับได้ โดยวิเคราะห์จากพฤติกรรมและทัศนคติ และใช้การวิเคราะห์ถดถอยแบบโลจิสติกส์ทวิในการวิเคราะห์ปัจจัยที่ส่งผลต่อการตัดสินใจลงทุนในสัญญาซื้อขายทองคำล่วงหน้า ผลการวิจัยพบว่า (1) กลุ่มตัวอย่างนักลงทุนจำแนกออกได้เป็น 3 กลุ่ม ประกอบด้วย กลุ่มที่ไม่ชอบความเสี่ยง กลุ่มที่ไม่สนใจความเสี่ยง และกลุ่มที่ชอบความเสี่ยง และ (2) ระดับการศึกษา รายได้ กลุ่มนักลงทุนจำแนกตามความเสี่ยง และการให้ความสำคัญกับปัจจัยทางการเมืองส่งผลต่อการตัดสินใจลงทุนในสัญญาซื้อขายทองคำล่วงหน้า

1. INTRODUCTION

Gold is a precious metal that has an intrinsic value. Its value usually increases in the long term; italso provides high liquidity as well as hedges against the risk of traditional investments (i.e., stocks, bonds and cash), especially during times of recession with high risks of inflation and exchange rate depreciation. It is investable in a handful of ways such as gold bullion bars and coins, Exchange Trade Funds (ETFs) and Exchange Traded Commodities (ETCs), gold mining stocks or mutual funds, and gold futures. The Thai Kasikorn Research Center [1] found that most Thai investors in all generations prefer investments in gold and property.

In Thailand, gold futures investment has received extensive attention because of the convenience of the transaction and because it involves quite a bit of capital [2]. The Thailand Future Exchange Public Company Limited (TFEX) [3] defines gold futures "as a futures contract with gold (96.5% purity) asthe underlying asset". Currently, TFEX offered 2 types of gold futures: 50 Baht Gold Futures (launched in 2009) and 10 Baht Gold Futures (launched in 2010). According to TFEX's News in 2017 the number of investor trading accounts reached 129, 284, up 15,709 accounts from the previous year. The main products were stock futures, SET 50 futures and Gold Futures. Moreover, according to TFEX's annual report for 2015,the total volume of 50 Baht and 10 Baht gold futures traded were 132,604 and 1,328,932 contracts respectively. The average of 50 Baht and 10 Baht gold futures trading per day was 546 and 5,469 contracts [4]. In the year 2016, gold investments yielded a rate of return of over 10 %. Because gold futures are simply a contract to buy or sell for a set price at a specified future date, TFEX has a plan to promote its products to potential investors both in Bangkok and upcountry. Various marketing approaches to attract investors will be pursued including simulation program and trading competition, along with proactively organizing campaigns through roads hows.

Udon Thani is the 3rd highest economic growth province in the northeastern region. Its geographic advantage propels it to become the logistic center and transportation hub of the region [5]. Udon Thani's economy has continuously expanded through the expansion of trade and investment. It is one ofTFEX's target provinces for engaging more market and enhancing the understanding of investors about existing and new products, specifically TFEX Gold-D which will be launched in 2017. In order to reach and promote potential investors in Udon Thani, TFEX needs to understand the factors influencing investors' decisions about their gold futures investment.

Most past research about gold futures in Thailand has focused on models to forecast the price of gold futures (e.g., [2] [6]), the factors that affect the volume of gold futures trading and cost-benefit and efficiency analyses of the gold futures market (e.g., [7]). Research focusing on the factors that affect gold futures investment decision making is limited. Therefore, this study exploresvarious factors, consisting of demographic characteristics, investor's risk tolerance and environmental factors, impacting decisions about gold futures investment. The findings of this research will be very useful to TFEX and finance and securities companies in making policies for enhancing gold futures investments.

2. OBJECTIVES OF THE STUDY

2.1. To cluster the risk tolerance of investors in Udon Thani municipality, Thailand.

2.2. To investigate the factors that impact on the gold futures investment decisions of investors in

Udon Thani municipality, Thailand.

3. LITERATURE REVIEW

Traditional finance theories, such as the Efficient Market Theory and the Modern Portfolio Theory, advocate the rationality of the investor. An individual investor makes investment decisions based on relevant, publicly available information. Thus previous empirical literature on the determinants of investment decisions has emphasized the complex combination of demographic and personal traits involved in decision making. Several research studies have revealed that demographic characteristics have a significant impact on the investor's attitude to risk. These characteristics include age, gender, income, educational level and marital status [8-13]. Moreover, several pieces of research indicated that personal characteristics consisting of personality traits, values, emotions and risk tolerance are also key determinants of investment decisions [14-17].

However, some research finds quite the opposite and indicates that decisions are driven by psychological and behavioral factors. Behavioral finance is an emerging science based on psychology. It is employed to explain the irrational nature of investors that can affect investment decisions and market prices. It attempts to better understand how emotions and cognitive errors influence the decision making process of investors. An investor's psychological state affects the investor's perception about risks which in turn determines the investment style of the individual. Some research revealed that psychological and behavioral factors also drive the investment decisions [9, 18-21]. Finally, the willingness and resources available to make investment decisions are influenced by environmental factors, such as political and economic factors [22]. Based on the literature review, this study proposes a conceptual framework to explore the determinants of gold futures investment decision making as diagramed in Figure 1.

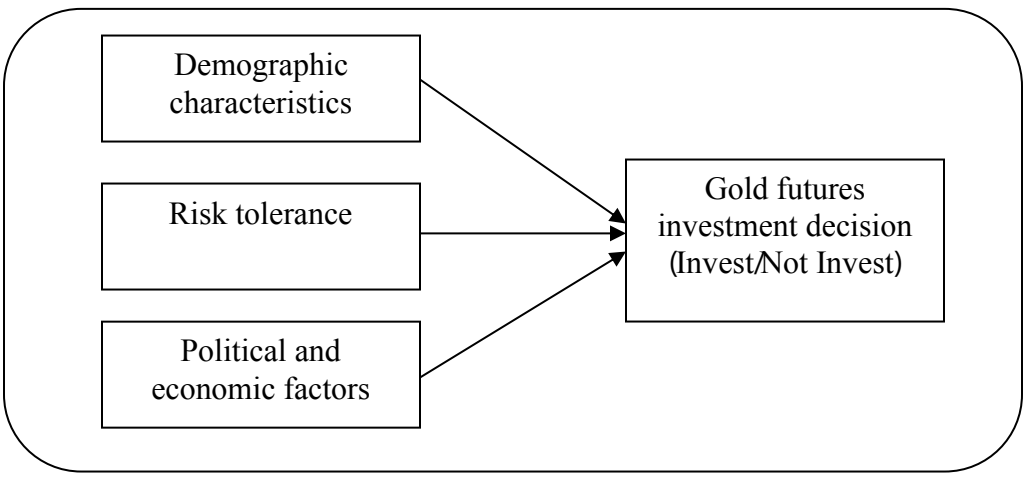

Figure 1 Conceptual framework

4. HYPOTHESIS OF THE STUDY

Hypothesis 1: Demographic factors affect gold futures investments

Hypothesis 2: Investors'risk toleranceaffects gold futures investments

Hypothesis 3: Political and economic factors affect gold futures investments

5. RESEARCH METHODOLOGY

Data for the study was collected primarily from retail investors who invested with eight security companies in UdonThanimunicipality. A total number of 400 respondents were sampled using aproportional stratified sampling technique. The data were collected by an oral survey in the form of questions administered by the direct personal interview technique. Questions related to personal profile and to the determinants of investors'risk tolerance, political and economic factors were included. With regard to the quality of the questions, the index of item-objective congruence (I.O.C.) was between 0.67 – 1.00 indicating a high degree of validity. In addition, Cronbach's alpha coefficient was equal to 0.976 indicating high reliability. The data collected was analyzed using SPSS by applying cluster analysis and binary logistic regression techniques.

6. RESULTS AND ANALYSIS

The various demographic characteristics of the 400 respondents are as follows:

Gender ratio: Of the total respondents, 53.50 % were female and 46.50 % were male.

Age group distribution: Themajority of respondents were between 35-50 years of age (49.00 %) followed by the under 35 year age group (47.50 %). Investors above 50 years of age made up 3.50 %.

Education level distribution: The majority of respondents had BachelorDegrees (56.70 %) followed by Master Degrees (32.00 %). Investors having less than an undergraduate degree were 12.30%.

Occupational distribution: Themajority of respondents were private company employees (51.00 %) followed by entrepreneurs (24.80 %) and government officers (24.20 %).

Amounts of saving for investments: Themajority had savings under 500,000 Baht (65.50 %) followed by those with savings of between 500,000 and 2,000,000 Baht (29.30 %) followed by investors having savings over 2 million baht (5.20 %).

This research study used 10 question statements to reflect investor's risk tolerance based on the questionnaires developed by the Maybank Kim Engsecurity company. For each question, arespondent gave 1 to 4 points on each statement answered. The K-means clustering technique using Euclidean distance was applied to segment the investor's risk tolerance based on these statement points. It was found that respondents could be classified into three different clusters. Table 1 shows the centroid of each cluster.

Table 1 Distance between final cluster centers

Clusters	1	2	3
1		5.407	4.197
2	5.407		3.444
3	4.197	3.444	

After forming investor clusters, a profile analysis was carried out so as to examine the variation of other investor characteristics. ANOVA was applied to test the difference of each characteristic among these three clusters. Table 2 shows the characteristics of each cluster which can be described as follows:

Table 2 Cluster Profile

Variables	F-Statistic	Sig.	Risk Aversion n = 115	Risk Indifference n = 168	Risk Seeking n = 117
Income	49.621	0.000**	25,071.39	32,595.24	43,888.89
Experience investing in securities	61.671	0.000**	About 1 yr. (53.90%)	1-5 yr. (56.0 %)	More than 5 yr. (46.20 %)
Debt and expense – to – income ratio	42.877	0.000**	More than 0.75 (29.60%) 0.25-0.50 (27.80 %)	Less than 0.25 (53.60 %) 0.51-075 (29.20 %)	Less than 0.25 (64.10 %) 0.51-0.75 (24.80 %)
Financial Status	63.039	0.000**	Have assets more than debts (43.50 %) Have assets less than debts (36.50 %)	Have assets more than debts (51.80 %) Have enough savings for retirement (35.10 %)	Have assets more than debts (50.40 %) Have enough savings for retirement (47.00 %)
The length of time invested money is not needed.	67.529	0.000**	Less than 1 year (56.50 %) 1-3 yrs. (34.80 %)	1 – 3 yrs. (57.10 %) 3-5 yrs. (25.60 %)	3-5 yrs. (38.50 %) 1-3 yr. (27.40 %)
Goal of investing	200.622	0.000**	The initial investment must be safe and receive consistent returns albeit low returns (71.30 %)	Receive consistent returns albeit possibly losing some principal (58.30 %)	Receive higher returns but possibly losing more of the initial investment (53.80 %)
The willingness of return on investment	139.906	0.000**	Chance to receive 2.50 % return and incur no loss (53.90 %)	Chance to receive 7.00 % return albeit not losing more than 1 % (54.20 %)	Chance to receive 15.00 % return albeit possibility of losing more than 5 % (47.00 %)
Attitude towards "high return but high risk"	136.584	0.000**	Worry and panic about	Understand and accept	Understand and accept

Table 2 Cluster Profile (Towards)

Variables	F-Statistic	Sig.	Risk Aversion n = 115	Risk Indifference n = 168	Risk Seeking n = 117
investment			loss (56.50 %)	some fluctuations (44.60 %)	possibly greater fluctuation (55.60 %)
Percentage of investment return decline that makes you feel anxious	96.340	0.000**	5 % or less (90.53%)	5-10 % (63.10 %)	More than 12 % (43.60 %)
If you invested 100,000 Baht in the last year and the investment value declined to 85,000 Baht, you will	86.004	0.000**	Worry and move some investments into less risky assets (48.70 %) Panic and divest (29.60 %)	Worry and move some investments into less risky assets (50.00 %) Patiently hold on and wait for a return readjustment (33.90 %)	Patiently hold on and wait for a return readjustment (49.60 %)
Hope of getting returns to use in daily expenses.	58.193	0.000**	Need (58.30 %) A little (33.0 %)	Some need (64.30 %)	No need (47.90 %)
Risk acceptance level	112.779	0.000**	Can accept some risk in order to increase the chance of receiving a high return in long term (51.30 %) Can't accept the risk, but need safety in the investment (42.60 %)	Can accept some risk in order to increase the chance of receiving a high return in long term (73.80 %)	Can accept high risks in order to increase the chance of receiving a high return in long term (37.60 %) Can accept very high risk in order to receive maximum profit in long term (30.80 %)

Cluster 1 – Risk Aversion: This group has an average income of 25,071.39 Baht per month. Most investors in this cluster have about one year's experience investing in securities. Their debt and expense-to-income ratio and financial status provide lower affordability and financial security than other clusters. The length of time that they don't need to use the invested money is less than 1 year. Safety of the

investment is the aim of investing. They wish to receive a consistent return albeit a lower rate of return. They want to receive a return of about 2.50% and incur no loss. They will worry and panic about loss if they face the "high return but high risk investment" situation. If the percentage of investment returns declines below 5%, they will feel anxious. If they invested 100,000 Baht in the last year and its value declined to 85,000 Baht, most of them will worry and more some investments into less risky assets. Someof these investors will panic and divest themselves of the investments. This cluster needs the investment returns to use in daily expenses. Most of investors can accept some risk if they have a greater chance of receiving a high return in the long term. But some investors cannot accept anyrisk. They need safety and security with investment.

Cluster 2 – Risk Indifference: This group has an average income of 32,595.24 Baht per month. Most investors in this cluster have 1-5 years experience investing in securities. Their debt and expense - to - income ratio and financial status provide higher affordability and financial security than cluster 1. The length of time that they do not need to use invested money is 1-3 years. They want to receive consistent returns and are willing to incur some loss of the initial investment. Their goal is to receive a return of about 7.00 % even though the investmentsufferssome loss but not more than 1%. They understand and accept some fluctuations if they face "high return but high risk investment" situation. If the percentage return on the investment declines tobetween 5-10%, they will feel anxious. If they invested 100,000 Baht in the last year and its value decline to 85,000 Baht, most would worry and move some investments into less risky assets. But some of these investors will be patient and wait for a return readjustment. These investors need some of the returns to use in daily expenses. Most can accept some risks if they have a greater chance of to receiving a high return in the long term.

Cluster 3 – Risk Seeking: This group has an average income of 43,888.89 Baht per month. Most investors in this cluster have more than 5 years experience investing in securities. Their debt and expens-to-income ratio and financial status provide the highest affordability and financial security among these three clusters. The length of time that they do not need to use invested money is 3-5 years. They want to receive a higher rate of return even though they may incur a loss on the initial investment. These investors want to receive a return of about 15.00% even though the investment incurs a loss but not more than 5%. They understand and accept some fluctuations ifpresented with a "high return but high risk investment" situation. If the percentage ofreturnon investments declines more than 12%, they will feel anxious. If they invested 100,000 Baht in the last year and its value declines to 85,000 Baht, most of them would be patient and hold on and wait for a return readjustment. They have no need to use the returns for daily expenses. Most of these investors can accept some risks if they have a greater chance of receivinga higher return in the long term. Some of these investors can accept very high risk in order to receive a maximize profit.

Model summaryvalues are shown in Table 3. The -2 Log likelihood (goodness of fit test) value for the current model is 308.348, a decrease of 141.520 indicating that the addition of the variables fit in the model improved the predictive power of the model. The Cox & Snell R Square was 29.80% and the Nagelkerke R Square was 44.10 %. The Hosmer-Lemeshow test is shown in Table 4. It showed that the predicted probabilities are the same as the observed probabilities indicating a good model fit.

The fitted model using the enter method in Table 5:

$$\text{Ln}\left[\frac{\hat{\pi}(x)}{1-\hat{\pi}(x)}\right] = - \quad 1.171\ \text{edu}_2 + 1.290\ \text{rev} - 1.975\ \text{risk}_1 - 1.684\ \text{riks}_2 - 1.193\ \text{pf}_1 + 1.330\ \text{pf}_4$$

Table 3 Cluster Profile

Model		-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
Enter	Null Model	449.868	0.298	0.441
	Final Model	308.348		

Table 4 Model summary

Model	Chi-square	Df	Sig.
Enter	4.839	8	0.775

Table 5 Demographic, risk tolerance and environmental factors impact on gold futures investment

Variables	Coefficient	Std. Error	Wald Statistic	Sig	Exp	Marginal effect
Constant	-3.311	1.957	2.864	0.091	0.036	
Age						
Age > 50 yr[a] (age)			0.444	0.801		
Age < 35 yr. (age_1)	0.376	0.577	0.424	0.515	1.456	0.0128
Age 35-50 yr. (age_2)	0.081	0.416	0.038	0.845	1.085	0.0028
Gender						
Female [a]						
Male	-0.584	0.329	3.142	0.076	0.558	-0.0198
Educational Level						
Master Degree [a] (edu)			11.142	0.004**		
Undergraduate (edu_1)	-0.832	0.658	1.597	0.206	0.435	-0.0283
Bachelor Degree (edu_2)	-1.171	0.351	11.136	0.001**	0.310	-0.0397
Occupation						
Freelance and Entrepreneur [a] (occ)			0.877	0.645		
Private Company Employee (occ_1)	0.376	0.438	0.737	0.390	1.456	0.0128
Government Officer (occ_2)	0.395	0.480	0.675	0.411	1.484	0.0134
Income (rev)	1.290	0.207	39.017	0.000**	3.634	0.0438
Amount of savings for Investment						
> 2 million Baht [a] (sav)			0.955	0.620		
< 500,000 Baht (sav_1)	-0.001	0.766	0.000	0.999	0.999	0.0000
500,000-2,000,000 Baht (sav_1)	0.375	0.720	0.272	0.602	1.456	0.0127

Table 5 Demographic, risk tolerance and environmental factors impact on gold futures investment (Towards)

Variables	Coefficient	Std. Error	Wald Statistic	Sig	Exp	Marginal effect
Risk Behavior						
Risk Seeking[a] (risk)			22.388	0.000**		
Risk Aversion ($risk_1$)	-1.972	0.540	13.340	0.000**	0.139	-0.0670
Risk Indifference ($risk_2$)	-1.684	0.378	19.831	0.000**	0.186	-0.0572
Liquidity						
Rapidly Changing to Cash (L_1)	0.266	0.402	0.439	0.508	1.305	0.0090
Used as Securities instead of Cash (L_2)	-0.046	0.464	0.010	0.921	0.955	-0.0016
Used as the Mortgage Security (L_3)	-0.447	0.401	1.240	0.266	0.640	-0.0152
Forex Trading Worldwide (L_4)	0.641	0.391	2.694	0.101	1.899	0.0218
No Difference between Purchasing Price and Selling Price (L_5)	-0.371	0.351	1.117	0.291	0.690	-0.0126
Return on Investment						
ROI more than Bank Deposit (ROI_1)	-0.049	0.371	0.018	0.895	0.952	-0.0017
Tax Deduction (ROI_2)	0.467	0.428	1.203	0.273	1.595	0.0159
Preventing Loss from Inflation (ROI_3)	0.038	0.437	0.008	0.931	1.039	0.0013
Higher Value Investing than Common Stocks (ROI_4)	0.110	0.447	0.060	0.806	1.116	0.0037
High Value in the long term (ROI_5)	-0.602	0.436	1.906	0.167	0.548	-0.0204
Risk Factors						
Gold Price Fluctuations (RF_1)	0.689	0.362	3.621	0.057	1.991	0.0237
Risk of Theft (RF_2)	-0.789	0.416	3.597	0.058	0.454	-0.0268
Standard and Quality (RF_3)	-0.173	0.470	0.135	0.713	0.841	-0.0059
Economic Factors						
Gross Domestic Product (EF_1)	0.173	0.426	0.165	0.685	1.189	0.0059
Inflation Rate (EF_2)	0.350	0.490	0.511	0.475	1.419	0.0119
Interest Rate (EF_3)	0.018	0.462	0.001	0.970	1.018	0.0006
Balance of Trade (EF_4)	0.241	0.452	0.285	0.593	1.273	0.0082
Exchange Rate (EF_5)	-0.252	0.414	0.369	0.544	0.777	-0.0086
Political Factors						
Government and Political Stability (PF_1)	-1.193	0.546	4.781	0.029*	0.303	-0.0405
Government Policy (PF_2)						
National Security (PF_3)	0.341	0.555	0.377	0.539	1.406	0.0116
Citizens Security Life (PF_4)	0.169	0.508	0.110	0.740	1.184	0.0057
	1.330	0.557	5.703	0.017*	3.779	0.0452
Global Factors						
International Terrorism (GF_1)	-0.074	0.401	0.034	0.853	0.928	-0.0025
Global Economic (GF_2)	0.000	0.498	0.000	0.999	1.000	0.0000
Interest Rate of Federal Reserve Bank (GF_3)	-0.653	0.480	1.845	0.174	0.521	-0.0222
Global Oil Price (GF_4)	-0.282	0.463	0.370	0.543	0.755	-0.0096
Global Fund Flows (GF_5)	-0.118	0.505	0.055	0.815	0.888	-0.0040

Hypothesis 1: Demographic factors affecton gold futures investment

The coefficient of bachelor degree as shown in Table 5 was -1.171, and this implies that exp (β) = exp (-1.171) ≈ 0.310. Thus, the investors who graduated with a Bachelor degree have less chance of investing in gold futures than investors who graduated with a Master degree 69.00% [(0.310-1) x 100] = 69.00 %. Thus, a higher educational level is associated with an increase in gold futures investments.

The coefficient of income was 1.290, and this implies that exp (β) = exp (1.290) ≈ 3.634. Thus an increasing income leads to an increase of [(3.634-1) x 100] = 263.40 % in the odds of investing in gold futures. Thus, high income is associated with an increase in the gold futures investment.

In summary of this hypothesis, educational level and income affect gold futures investments.

Hypothesis 2: Investor's risk toleranceaffect on gold futures investment

The coefficient of risk aversion was -1.972, and this implies that exp (β) = exp (-1.972) 0.139. Thus investors who were risk aversion have less chance of investing in gold futures than investors who were risk seeking [(0.139-1) x 100] = 86.10 %. Moreover, The coefficient of risk indifference was -1.684, and this impliesthat exp (β) = exp (-1.684) ≈ 0.186. Thus investors who were risk indifferent are less likely to invest in gold futures than investors who were risk seeking [(0.186-1) x 100] = 81.40 %. Thus high risk tolerance is associated with an increase in gold futures investments.

In summary of this hypothesis, investor's risk tolerance affects gold futures investments.

Hypothesis 3: Political and economic factors affect on gold futures investment

The coefficient of government and political stability was -1.193, andthis implies that exp (β) = exp (-1.193) ≈ 0.303. Thus investors who pay more attention to government and political stability leads to a decrease of [(0.303-1) x 100] = 69.70 % in the odds of an increase in gold futures investment. Thus paying more attention to government and political stability is associated with a decrease in the gold futures investment.

The coefficient of citizens security life was 1.330, and this implies that exp (β) = exp (1.330) ≈ 3.779. Thus, investors who pay more attention to citizens security life leads to an increase of [(3.779-1) x 100] = 277.90 % in the odds of an increase in gold futures investment. Thus, paying more attention to citizen security life is associated with an increase in the gold futures investment.

In summary of this hypothesis, political factors affect gold futures investment.

Finally, Table 6 showed the overall correct classification was 82.50 %, based on the fitted model.

Table 6 Classification table

Observed	Predicted		
	Not invest	Invest	Percentage Correct
Not invest	278	22	92.70
Invest	48	52	52.0
Overall Percentage			82.50

7. CONCLUSIONS AND DISCUSSION

This study has focused on the effects of demographic, risk tolerance and political-economic factors on gold futures investments by investors in Udon-Thani municipality, Thailand. The study found that demographic variables consisting of educational level and income, need to be employed in predicting investments in gold futures. High educational level and income were associated with increased investments in gold futures. Educational qualifications are one important factor in determining financial risk tolerance and thereby attitudes toward risk. Higher education encourages investors to take more financial risk. It helps investors become capable of assessing the monetary issues and risks involved in particular investments. Financial literacy is a key determinant of an investor's risk-taking attitude and investment decisions. This statement issupported by Gilliam and Chartterjee [23] and Al-Ajmi [24] who found that an investor with a high level of education is more risk tolerant and risk prone than one with lower levels of education. Whereas Grable [13] found that investors with higher levels of financial knowledge exhibit more risk tolerance.

In the case of income, lower income investors have a lower risk tolerance because they have less flexibility with their regular budgets [25]. Investors with higher levels of income tend to be make investments with greater riskand in a large scale [26]. This finding is supported by Chattopadhyay and Dasgupta [27] who found that higher education brings greater risk tolerance attitudes. Higher income and greater savings decrease risk aversion and thereby make Indian investors more risk prone. Similarly Watson and McNaughton [28] found that as income increases financial risk tolerance increases.

Investors' risk tolerance affected investments in gold futures. High risk tolerance was associated with an increase in gold futures investments. Chattopadhyay and Dasgupta [27] and Rana, Murtaza and Noor [29] found that the risk tolerance level of individual investors influences investor behavior and investment activities. Investors who accept higher risk also tend to buy stocks and derivatives [21] [30]. Conversely investors who accept lower risk tend to hold more cash and bonds [31] or invest in pension plans, bank savings accounts and life insurance policies.

Finally, political factors impacton decisions to invest in gold futures investment. Investors paying more attention to government and political stability issues were associated with a decrease in gold futures investments. An investor's psychological stateis one of the critical factors affecting perceptions and attitudes about risk [9] [32] which thereby determines investment style [33] [34]. Cohen, Etner and Jeleva [35] noted that when investors make investment decisions, risk perception is influenced by the environment in which the investor is located, especially information asymmetry such as government bodies, media news etc. Bashir et al. Bashir et al. [36] found that investors affected by political factors and economic instability are more prone to save in government schemes and to hold fixed deposit accounts.

8. MANAGERIAL IMPLICATIONS

This study pioneers the exploration of various factors that impact on gold futures investment decision making of investors in Udon Thani municipality, Thailand. The findings have a number of implications for TFEX and for the financial industry. As TFEX are trying to developthe market for gold futures, the study findings could be used to improve financial literacy programs to educate and create awareness among potential investors. Moreover, investment

advisors should consider personal characteristics and individual risk tolerance when giving investment advice to their clients. Finally, Thailand's political uncertainty delays public spending and economic reforms, in which subsequently affect the investment decisions. Therefore, the Government's policy should be focused on reforming in the areas such as improving a governance of government-owned specialized financial institutions and underlying financial institutional effectiveness in order to ample monetary, fiscal buffers and gain investors confidence.

However, this study has some limitations. First, it was conducted only in Udon Thani Municipality. Generalization of the findings needs to be considered carefully. Second, this study did not investigate the social and cultural factors that might have some impact on investors' decision making. Despite these limitations, this study provides an initial and valuable insight in understanding the effects of demographic characteristics, investor's risk tolerance and political-economic factors on gold futures investment decisions.

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