

## **Influential Factors on Bad Debt Trading Market Participation Behavior of Seller: Experimental Evidence from Vietnam**

<sup>1</sup>Pham Thi Truc Quynh and <sup>2</sup>Nguyen Viet Hanh

<sup>1</sup>Department of Business Management, Hanoi University of Industry, Hanoi, Vietnam

<sup>2</sup>Department of State Audit Specialized III, The State Audit Office of Vietnam, Hanoi, Vietnam  
minhduc200521@gmail.com, +84-3581-31480

---

**Abstract:** Lack of information related to bad debt market participation behavior of seller which can lead to mistakes in policy making and building business strategy, so that, the purpose of this study is to analyze the influential factors on bad debt market participation behavior of seller which can provide useful information for organizations and individuals in policy making process and building business strategies. To do so, the study has introduced an empirical analysis model and then apply its for analyzing. Data used for research purposes was collected through building a hypothetical scenario to consult the respondents about their market participation behavior. The research results have also, indicated that the market entering behavior of seller has been strongly impacted by three groups of factors, including. The factors related to cognitive thinking and behavioral change; the factors reflecting the characteristics of bad debts; the factors of macroeconomic environment and legal framework. So that, in order to stimulate the seller participating the market, it was necessary to set up policy mechanisms and legal framework which that could ensure the rights and legitimate interests of seller, reduce unnecessary procedures when entering in the market. Besides that, it also needed to strengthen propaganda of information which could help sellers search for suitable customers as well as issue regulations on fair debt collection in order to avoid legal violations in the process of bad debts collecting.

**Key words:** Bad debt trading market, market participation behavior, the influential factors, binary logistic regression, policy mechanisms, legal framework

---

### **INTRODUCTION**

Towards a bad debt trading market that develops, according to market mechanisms, it has long been a target of policy makers, managers and scientists which could significantly solve the outstanding bad debt in the economy and minimize the negative impacts that it causes (Truc and Viet, 2017; ACA., 2014). However, so far, most of the previous researchs only referred to the causes of bad debt and given solutions to resolve bad debts directly, only a few studies offered solutions to handle indirectly through the market (Truc and Viet, 2017; ACA., 2014; Ausubel, 1991; Morgan and Toll, 1997; Fiorilla, 2011; Adriaam and Gorter, 2001; Espinoza and Ananthakrishnan, 2010; Salas and Saurina, 2002; Hu *et al.*, 2004; Micco *et al.*, 2007; Hu *et al.*, 2006; Laeven *et al.*, 2002; Goldstein and Turner, 1996; Keeton and Morris, 1987; Blaschke *et al.*, 2001; Baboucek and Jancar, 2005; Hoggarth *et al.*, 2005).

The fact that the lack of empirical evidence relates to bad debt market participation behavior. it can lead to

mistakes in making policies and building business strategies which are the underlying causes of the slow development of bad debt trading market, especially, in poor and developing countries. Therefore, this study was conducted to light up the factors affecting to the bad debt market participation behavior of seller, there by provide useful information to help policy makers, commercial banks, business organizations and, especially, collection bad debts specialized organizations develop their business policies and strategies when participating in the market of buying and selling bad debts. Since, contributing to boosting the market of buying and selling bad debts to develop, according to market mechanism, create job opportunities and increase income (Truc and Viet, 2017). To do so, research using utility theory and binary logistic regression model in order to analyze the factors affecting to the market participation behavior of the seller through the construction of a hypothetical scenario in which the ability to participate in the market and determine the selling price of bad debts is connected with the elements of cognitive thinking, characteristics of

bad debts and macro economic environment as well as legal framework. Background of the market of buying and selling bad debts in Vietnam is used for research purposes and data collection.

**MATERIALS AND METHODS**

**Binary logistic regression model:** Assume that  $P_i$  is the price that an individual or an organization is willingness to sell a bad debt to gain a benefit of ( $U_{ii}$ ) in the market, the behavior of seller at the Price ( $P_i$ ) is affected by a set of  $Z_i$ , including: the factors derived from credit institutions and enterprises; the factors of macroeconomic environment and legal framework; the factors reflecting the characteristics of bad debts. The relationship between benefits, prices and the influential factors on behavior of seller can be expressed through a utility function and defined as follows (Fishburn, 1970):

$$U_{ii} = f(P_i, Z_i) \tag{1}$$

where,  $U_{0i}$  is the benefits of  $i$ th organization or individual who don't join in sale activities their benefit equals to zero,  $U_{0i} = 0$ . This implies that seller only participates in market when their benefit achieved is  $>0$ ,  $U_{ii} > U_{0i}$  (Fishburn, 1970). If the organization or individual feels that they don't have any benefit from selling the bad debt, then they will decide not to participate in the market and vice versa. Where,  $\Omega_{0i}$  is the probability that an individual or an organization decides to enter the market, the probability of not-participating in the market can be determined as  $1-\Omega_{0i}$ . Probability distribution function  $\Pr(U_{ii} > 0)$  is defined as follows (Powers and Xie, 2000):

$$\Pr(\text{yes} | U_{ii} > 0) = \frac{\Omega_{0i}}{1-\Omega_{0i}} = \exp(U_{ii}) \tag{2}$$

The probability of bad debt market participating of an organization or an individual can be determined as follows:

$$\begin{aligned} \text{Odds} [\Pr(\text{yes} | U_{ii} > 0)] &= \exp(U_{ii}) / (1 + \exp(U_{ii})) = \\ &= (\exp(f(P_i, Z_i))) / (1 + \exp(f(P_i, Z_i))) \end{aligned} \tag{3}$$

Taking Ln two sides of Eq. 3, Eq. 3 is rewritten as follows:

$$\text{Log}(\text{Odds}) = \log \left[ \frac{\exp(f(P_i, Z_i))}{1 + \exp(f(P_i, Z_i))} \right] = f(P_i, Z_i) \tag{4}$$

Assume that  $f(\cdot)$  is a linear function, set  $l = \text{Log}(\text{Odds})$ , the probability of market participation of seller is affected by the set of factors,  $Z_i$ , as follows:

$$l_i = \alpha + \beta_1 P_i + \sum_{j=1}^m \gamma_j Z_{ij} + \epsilon_i \tag{5}$$

where,  $l_i$  is the dependent variable that takes two values of  $[0, 1]$  with 1 is decision of market participation of seller and 0 is decision of market not-participation of seller at the Price ( $P_i$ ) is a constant,  $\beta_j$ ,  $\gamma_j$  are the coefficient of  $P_i$  and  $Z_{ij}$  which reflect the level of impact of  $P_i$  and  $Z_i$  on  $l_i$ ,  $\epsilon_i$  is redundant that reflects unobserved variables in the model. The  $j$  represents the number of variables included in the model  $j \neq i, j = 1, \dots, m$ .

**Estimation technical:** In this study, maximum likelihood method was employed to estimate the coefficients in the analysis model. According to Dobson (2002), maximum likelihood function was formed from the probability distribution function with dependent variable is  $l_i$ . Each organization or individual participated in the market in a population consisting of  $N$  of organizations or individuals which would represent a binomial distribution getting two value of  $[0, 1]$ . Therefore, the connection probability density function could be defined as follows:

$$f(l | \alpha, \beta, \gamma) = \prod_{i=1}^N \frac{n_i!}{l_i!(n_i-l_i)!} \Omega_{0i}^{l_i} (1-\Omega_{0i})^{n_i-l_i} \tag{6}$$

For each population would have  $(n_i-l_i)$  different arrangements in order to to achieve the probability of participating in the market from  $n_i$  testings. So that, the probability of market participation of seller from  $n_i$  testings would  $\Omega_{0i}$  be success probability of  $l_i$  would be  $\Omega_{0i}^{l_i}$  and failure probability of  $n_i-l_i$  would be  $(1-\Omega_{0i})^{n_i-l_i}$ . The connection probability density function Eq. 6 represents the value of  $L$  as a known function with fixed coefficients of  $\beta, \gamma$ . Noticed that coefficients of  $\beta, \gamma$  related to probability of  $\Omega$  in Eq. 5, therefore, the integration function has a similar pattern to the probability distribution density function, excepting its coefficients were inverse. The integration function represented the value of the known coefficients of  $\beta, \gamma$  and fixed value of 1 was defined as follows (Dobson, 2002):

$$L(\alpha, \beta, \gamma | 1) = \prod_{i=1}^N \frac{n_i!}{l_i!(n_i-l_i)!} \Omega_{0i}^{l_i} (1-\Omega_{0i})^{n_i-l_i} \tag{7}$$

From Eq. 7 noticed that factorial does not contain  $\Omega_{0i}$ , therefore, if maximize Eq. 7 when there was not factorial which would give a similar result when there was a factorial, Eq. 7 could be rewritten as follows:

$$L(\alpha, \beta, \gamma | 1) = \prod_{i=1}^N \left( \frac{\Omega_{0i}}{1-\Omega_{0i}} \right)^{l_i} (1-\Omega_{0i})^{n_i} \tag{8}$$

From Eq. 2 and 5, noticed that:

$$\frac{\Omega_{0i}}{1-\Omega_{0i}} = \exp\left(\alpha + \beta_i P_i + \sum_{j=1}^m \gamma_{ij} Z_{ij} + \varepsilon_i\right) \Rightarrow \Omega_{0i} = \frac{\exp\left(\alpha + \beta_i P_i + \sum_{j=1}^m \gamma_{ij} Z_{ij} + \varepsilon_i\right)}{\left[1 + \exp\left(\alpha + \beta_i P_i + \sum_{j=1}^m \gamma_{ij} Z_{ij} + \varepsilon_i\right)\right]}$$

Equation 8 could be rewritten as follows:

$$L(\alpha, \beta, \gamma | 1) = \prod_{i=1}^N \left[ \exp\left(\alpha + \beta_i P_i + \sum_{j=1}^m \gamma_{ij} Z_{ij} + \varepsilon_i\right) \right]^{n_i} \left[ \frac{\exp\left(\alpha + \beta_i P_i + \sum_{j=1}^m \gamma_{ij} Z_{ij} + \varepsilon_i\right)}{1 + \exp\left(\alpha + \beta_i P_i + \sum_{j=1}^m \gamma_{ij} Z_{ij} + \varepsilon_i\right)} \right]^{-n_i} = \prod_{i=1}^N \left[ \exp\left(\alpha + \beta_i P_i + \sum_{j=1}^m \gamma_{ij} Z_{ij} + \varepsilon_i\right) \right]^{n_i} \cdot \left[ 1 + \exp\left(\alpha + \beta_i P_i + \sum_{j=1}^m \gamma_{ij} Z_{ij} + \varepsilon_i\right) \right]^{-n_i} = \prod_{i=1}^N \exp\left[ n_i \left( \alpha + \beta_i P_i + \sum_{j=1}^m \gamma_{ij} Z_{ij} + \varepsilon_i \right) \right] \cdot \left[ 1 + \exp\left(\alpha + \beta_i P_i + \sum_{j=1}^m \gamma_{ij} Z_{ij} + \varepsilon_i\right) \right]^{-n_i} \tag{9}$$

Taking log two sides of Eq. 9, Eq. 9 is rewritten as follows:

$$\text{Log}(L) = \sum_{i=1}^N n_i \left( \alpha + \beta_i P_i + \sum_{j=1}^m \gamma_{ij} Z_{ij} + \varepsilon_i \right) - n_i \cdot \log \left[ 1 + \exp\left(\alpha + \beta_i P_i + \sum_{j=1}^m \gamma_{ij} Z_{ij} + \varepsilon_i\right) \right] \tag{10}$$

In order to maximize the maximum integration, Eq. 10 must meets the two conditions as the first derivative of Eq. 10 must equals to zero and the second derivative of Eq. 10 must be <0. For the first condition we could take partial derivatives for the coefficients in Eq. 10 and was shown in Eq. 11 as follows:

$$\gamma_{ij} \tag{11}$$

Rearrange Eq. 11 we have a system of Eq. 12 as follows:

$$\begin{cases} \frac{\partial \text{Log}(L)}{\partial \beta_i} = \sum_{i=1}^N n_i \cdot P_i - n_i \cdot \Omega_{0i} \cdot P_i = 0 \\ \frac{\partial \text{Log}(L)}{\partial \gamma_{ij}} = \sum_{i=1}^N n_i \cdot Z_{ij} - n_i \cdot \Omega_{0i} \cdot Z_{ij} = 0 \\ j = 1, \dots, m \end{cases} \tag{12}$$

For the second condition, we have:

$$\gamma_{ij} Z_{ij} \tag{13}$$

Solve Eq. 12 and 13, we could determine the coefficients of  $\beta, \gamma$  in Eq. 5.

**Data and data collection**

**Secondary data:** Secondary data was collected from the General Statistics Office of Vietnam including the

growth rate of sectors in the economy in the period of 2013-2017 and contribution proportion of sectors in GDP in 2017 (Table 1). The statistical results have indicated that the average growth rate of sectors fluctuated from 3.0-4.2%/year. In which the education and training sector were at highest level of 4.2%/year followed by the wholesale and retail, processing manufacturing technology reached at level of 4.0%/year and the lowest was agriculture and fisheries with the average growth rate was at level of 3.0%/year. The analysis results have also indicated that contribution proportion of sectors in GDP fluctuated from 0.69-15.34% in 2017 in which the sectors

Table 1: The factors of macro economic environment

Business sectors	The growth rate of sectors in the period (2013-2017) VAR 27 (%)	Contribution proportion of sectors in DDP (2017) VAR 28 (%)
Real estate business	3.2	4.79
Wholesale and retail	4.0	10.71
Capital construction investment	3.9	5.74
Manufacturing and processing industry	4.0	15.33
Transport and logistics services	3.2	2.66
Agriculture and fisheries	3.0	15.34
Education and training	4.2	3.55
Information and communication	3.2	0.69
Tourism and accommodation	3.6	3.83
Finance, banking and insurance	3.5	5.47

General Statistics Office of Vietnam (2017)

Table 2: Symbols and definitions of variables

Symbols	Definitions of variables
<b>The factors related to cognitive thinking and behavioral change</b>	
VAR01	The approach of information through television
VAR02	The approach of information through internet
VAR03	The approach of information through newspapers and magazines
VAR04	The approach of information through the workshop
VAR05	The approach of information through friends and relatives
VAR06	Evaluate disclosure and transparency of information
VAR07	Evaluation of the complexity of participating in market
VAR08	Evaluation regulations of the charter capital level when participating in market
VAR09	Evaluate the level of classification and subdivide of bad debt
VAR10	Evaluate the level of diversity of market participations components
VAR11	Type of enterprise participating in the market
VAR12	Business sectors of organizations participating in market
VAR13	No. of employee's of organizations participating in market
VAR14	The amount of equity of organizations participating in market
VAR15	Gender of the owner of the organization involved in market
VAR16	Education level of the owner of the organization involved in market
<b>The factors of legal environment</b>	
VAR17	The need to establish a bad debt trading floor
VAR18	The need to simplify market entry procedures
VAR19	The need to classify and break down bad debt
VAR20	The need to encourage private enterprises to enter the market
VAR21	The need to openness and transparency of information about bad debt
VAR22	The need to remove/reduce the charter capital when participating in the market
VAR23	The need to issue regulations on property ownership right when purchasing bad debts
VAR24	The need to promulgate regulations on the time to establish property ownership
VAR25	The need to issue regulations on tax calculation when participating in the market
VAR26	The need to issue regulations on behavior of unfair debt collection
VAR27	The growth rate of sectors in the period of 2013-2017
VAR28	Contribution proportion of sectors in GDP in 2017
<b>The factors reflecting the characteristics of bad debts</b>	
VAR29	Liquidity of collateral
VAR30	Expectations on prices of collateral in the future
VAR31	Prospects of investment field in the future
VAR32	Supporting policies for the investment sector
VAR33	Investment needs of enterprises
VAR34	Debts which are overdue from 91-180 days
VAR35	First-time rescheduled debts overdue <30 days according to the rescheduled payment term
VAR36	Debts exempted or reduced because customers are unable to pay the full interest according to the credit contract
VAR37	Debts are overdue from 181-360 days
VAR38	First-time rescheduled debts are overdue from 30-90 days for according to the rescheduled payment term
VAR39	Second-time rescheduled debts
VAR40	Debts are overdue for more than 360 days
VAR41	First-time rescheduled debts which are overdue for more than 90 days for the first time according to the first restructured repayment term
VAR42	Second-time rescheduled debts which are overdue according to the second-time restructured repayment
VAR43	The third time rescheduled debts are overdue or not overdue

P: The selling price in the bad debt market

such as agriculture, processing technology and fisheries, manufacturing contributed in GDP at highest level fluctuating from 15.33-15.34% in 2017.

**Primary data:** According to Mitchell and Carson (1989) primary data has been used to analyze market participation behavior which could be achieved by building a hypothetical scenario in which describing in detail the attributes of a commodity and consults respondents about their willingness to pay to participate in the market. To determine the market participation behavior of seller, the study has conducted to consult respondents by question "Assume that you were owning a bad debt with book value of A that there was collateral

attached were you willingness to pay a fee that called be a transaction fee to participate in the bad debt market?" and "how many percent were you willingness to sell at price level that was lower than the book value of the bad debt when participating in the bad debt market?". The influential factors on market participation behavior of seller were also, connected to questionnaire consisting of the factors related to cognitive thinking and behavioral change; the factors reflecting the characteristics of bad debt; the factors of macroeconomic environment and legal framework (Table 1 and 2). To collect primary data, the study has conducted a survey with 500 questionnaires that were sent randomly to businesses, commercial banks and credit institutions in Hanoi, Vietnam. After removing

33 questionnaires due to incomplete responses from 456 questionnaires that were collected, 423 of questionnaires were used for research purposes.

**RESULTS AND DISCUSSION**

Binary logistic regression model and maximum likelihood method were employed to analyze the influential factors on market participation behavior of seller. As the analysis results have indicated in Table 3 the analysis model used in this study is relatively consistent with value of -2 Log likelihood is 119.069,

Cox and Snell R<sup>2</sup> is 0.491 and Nagelkerke R<sup>2</sup> is 0.797, statistical significance at 1% level. The majority of the variables included in the model are found to be statistically significant in which the actual price of P has a positive and strong influence on the seller’s ability of participating in the market with correlation coefficient of 0.534, statistical significance at 1% level. This implies that when the price increases, the seller’s ability of participating in the market will increase and vice versa. As Hurwicz (1945) has pointed out, the price level has played an important role for the seller’s behavior in participating and supplying products, goods and services in the market. An increase in the price level would lead to an increase in the benefit of seller and the result is that stimulates sellers to participate in the market. This finding is relatively consistent with theory of utility maximization (Mas-Colell *et al.*, 1995; Lopez *et al.*, 2011).

**Table 3: The influential factors on seller’s market participation behavior**

Variables (P)	B (0.534)	SE (0.094)	Wald (32.329)	df (1)	Sig. (0.000)	Exp (B) (1.706)
<b>The factors related to cognitive thinking and behavioral change</b>						
VAR01	-0.838	0.391	4.605	1	0.032	0.433
VAR02	-0.275	0.396	0.480	1	0.048	0.760
VAR03	-0.475	0.397	1.429	1	0.023	0.622
VAR04	0.241	0.360	0.446	1	0.050	1.272
VAR05	-0.160	0.362	0.196	1	0.658	0.852
VAR06	-0.213	0.393	0.294	1	0.588	0.808
VAR07	-0.244	0.388	0.397	1	0.529	0.783
VAR08	1.204	0.422	8.142	1	0.004	3.332
VAR09	-1.466	0.441	11.038	1	0.001	0.231
VAR10	0.852	0.367	5.374	1	0.020	2.344
VAR11	0.270	0.233	1.344	1	0.246	1.310
VAR12	-0.526	0.149	12.508	1	0.000	0.591
VAR13	-0.027	0.328	0.007	1	0.093	0.973
VAR14	0.269	0.323	0.692	1	0.405	1.308
VAR15	-0.167	0.737	0.051	1	0.821	0.846
VAR16	-1.382	0.832	2.758	1	0.097	0.251
<b>The factors of macroeconomic environment and legal environment</b>						
VAR17	1.106	0.340	10.575	1	0.001	3.022
VAR18	1.073	0.295	13.225	1	0.000	2.924
VAR19	-0.220	0.345	0.405	1	0.524	0.803
VAR20	-0.707	0.364	3.761	1	0.052	0.493
VAR21	0.134	0.425	0.099	1	0.075	1.143
VAR22	1.126	0.407	7.655	1	0.006	3.082
VAR23	-0.040	0.345	0.013	1	0.909	0.961
VAR24	1.938	0.462	17.573	1	0.000	6.946
VAR25	-0.781	0.287	7.409	1	0.006	0.458
VAR26	0.352	0.294	1.438	1	0.023	1.422
VAR27	33.994	15.306	4.933	1	0.026	5.8
VAR28	0.173	0.125	1.911	1	0.167	1.189
<b>The factors reflecting the characteristics of bad debts</b>						
VAR29	0.285	0.348	0.667	1	0.041	1.329
VAR30	-0.279	0.356	0.616	1	0.433	0.756
VAR31	0.407	0.298	1.863	1	0.017	1.503
VAR32	0.193	0.238	0.657	1	0.418	1.212
VAR33	0.287	0.262	1.203	1	0.027	1.333
VAR34	-0.363	0.186	3.811	1	0.051	0.695
VAR35	0.125	0.176	0.504	1	0.478	1.133
VAR36	-0.537	0.151	12.687	1	0.000	0.585
VAR37	-0.162	0.162	1.007	1	0.031	0.850
VAR38	-0.084	0.129	0.429	1	0.513	0.919
VAR39	-0.027	0.199	0.018	1	0.089	0.973
VAR40	0.057	0.185	0.094	1	0.760	1.058
VAR41	-0.069	0.127	0.292	1	0.589	0.934
VAR42	-0.865	0.208	17.276	1	0.000	0.421
VAR43	0.190	0.134	1.989	1	0.158	1.209
Constant	-30.511	10.942	7.7761	1	0.005	0.000

-2 Log likelihood = 119.069; Snell R<sup>2</sup> = 0.491; Nagel R<sup>2</sup> = 0.797

**The factors related to cognitive thinking and behavioral change:** While the price level is regarded as the core element that strongly influences on market entering decision, then the information of markets, goods and services were important factors affecting to cognitive thinking and behavioral change (Eysenck, 1990; Mandler, 2002; Neisser, 1967). The positive or negative change of behavior was dominated by the approach, dimension and source of information which the seller decides whether or not to participate in the market (Hurwicz, 1945; Heinström, 2003). For bad debt trading market, the research results have revealed that most of the variables that reflect the approach of information is found to have a negative and significance influence on the market participation behavior of seller with excepting for the approach of information through workshops. The approach of information through television is also found to have a negative and strongest impact with correlation coefficient of -0.838, next the approach of information through newspapers and magazines with correlation coefficient of -0.475 and the lowest was the approach of information through the internet with correlation coefficient of -0.275 all were statistically significant at 5%.

Not only with the price level and information approach but the awareness of market context has also, contributed to change the market participation behavior of seller. The awareness of market context was formed by the living environment, experience, the approach of information and market analysis capabilities (Peter and Olson, 2010; Eriksson and Karlsson, 2012). A change in the awareness would lead to a change in the decision to participate or leave the market (Hurwicz, 1945;

Peter and Olson, 2010). In this study, the awareness of market context was determined by two groups of factors; the first was the awareness of market situation and the awareness of solutions that could promote the market development. For the factors reflecting awareness of market situation, the analysis results in Table 3 have indicated that there are three factors that strongly influence on the decision to enter the market including: current regulations of charter capital; the classification and subdivide bad debt and diversity of market participations components. In which the current regulations on charter capital and diversity of market participations components have a positive influence on the seller's decision to participate in market with correlation coefficients of 1.204 and 0.852, respectively, all statistical significance at 1% level. Opposite, the classification and subdivision of bad debt are found to have a negatively affect to the decision to participate in the market with the correlation coefficient of -1.466, statistical significance at 1% level.

Similarly, variables that reflect the business sectors are also found to have a negative impact on market entry decisions with the correlation coefficient of -0.526, statistically significance at 1% level. The negative impact of variables that reflect the business sector implies that business entities in field of real estate, wholesale, retail, capital construction investment, processing and manufacturing industries are more likely to enter the market in comparing with entities engaged business activities in the fields of education, agriculture and fisheries, information and communication, accommodation and catering, finance, banking and insurance. Similar to the business sector, labor size of enterprise and education level of the business owner are also found to have a negative and significant influence on market entry decisions with correlation coefficient of -0.027 and -1.382, statistical significance at 5% level. The negative impact of labor size and education level of the business owner reveals that ability to participate in the market of business owner with high education and the scale of large enterprises are lower than. These findings are relatively suitable with the current practical context in Vietnam, the majority of large-scale enterprises are operating in the manufacturing sector and their business activities are relatively stable, therefore, they are not interested to investment in bad debt market.

**The factors of macroeconomic environment and legal framework:** Macroeconomic environment and legal framework play an important role for market entry behavior. A change in macroeconomic variables will create a change in investment opportunities, market

structure as well as challenges that enterprises, business organizations face with when entering the market (Hurwicz, 1945). For variable of macroeconomic environment, the analysis results in Table 3 showed that the growth rate of sectors has a positive and strong influence on seller's decision to enter the market with correlation coefficient of 33,994, statistical significance at 5% level. This means that the sectors with high economic growth rate, their ability of participating in the market will be at higher level. This is due to the fact that the development of sectors closely related to the risks in operation process. The rapidly economic growth rate of sectors that were unprepared in the integration period which will leads to the risk of collapse of enterprise due to competition. So that, the sectors with high growth rates, seller tends to participate in the market at higher level.

Similar to, the variables of macroeconomic environment, the majority of variables of the legal framework are found to be statistically significant. In which the variable of regulations on fair debt collection has a positive and strong impact on market participation behavior of seller with the correlation coefficient of 1,938, followed by the variable of removing or reducing the charter capital when market participation with correlation coefficient is found to be 1.126. Similarly, the research results also, revealed that the impact of variables of the need to establish the bad debt trading floors, simplifying market entry procedures and the need to have regulations of information disclosure and transparency on bad debt in market are found to have a positive and strong influence with correlation coefficients of 1,106, 1,073 and 0.134, respectively. Contrary, the variables of the need to promulgate policies which encourage non-state enterprises to enter the market, the need to have property ownership rules when making transactions and the need to have rules on calculate and declare tax are found to have a negative impact with correlation coefficients of -0.040, -0.781 and -0.707, respectively.

**The factors reflecting the characteristics of bad debts:** Characteristics of products, goods and services on the market were elements that strongly influences on the seller's decision to participate in the market through their pricing behavior. When the characteristics of goods and services consistent with the needs and preferences of buyers then the commodities were priced at higher level and would stimulate the market participation of seller (Hurwicz, 1945). In this study, the characteristics of bad debt are considered on two levels: collateral and business field and type of bad debt. As the analysis results in Table 3 have indicated, most of the variables that reflected

collateral and the business field are found to have a positive and significant impact on market entry decisions. In which the prospects of investment field is one of the most powerful influencing factors with a correlation coefficient of 0.407, next the investment needs of businesses with a correlation coefficient of 0.287 and finally the liquidity of the collateral has a lowest impact with the correlation coefficient found is 0.285 all statistical significance at 5% level. These are caused by the fact that the pricing and decision of market participation of sellers always consider the liquidity of the collateral and investment prospects of the project in future. If collateral has high liquidity and investment prospects of projects is good then seller's ability of the market participation and the pricing of bad debts will be at higher level (Truc and Viet, 2017). Contrast with collateral and business field, most of considerable variables of the types of bad debt are found to have a negative and significant influence on the market entering decision of seller in which the variable of second-time rescheduled debts has a strong impact with correlation coefficient of -0.865, statistical significance at 1% level, next the debts that is exempted or reduced due to that customers couldn't afford to pay the full interest according to the credit contract and the debts are overdue from 91-180 days with correlation coefficients of -0.537 and -0.363, respectively and finally, overdue debts from 181-360 days with a correlation coefficient of -0.162 at 5% of statistical significance.

### CONCLUSION

Lack of information of and empirical analysis method for the bad debt market participation behavior of seller can lead to mistakes in policy making process and building business strategies. A good market development policy can become an useful tool in handling bad debts that inherently have a negative impact on the process of economic development, caused the collapse of the commercial banking and business organizations (Truc and Viet, 2017). So that, this study has conducted to set up an empirical analysis model and then apply its for analyzing the influential factors on the market participation behavior of seller to offset the existing gaps in previous materials.

As the analysis results have shown, the Binary Logistic Regression Model introduced in this study was relatively suitable for research purposes and could become an effective methods for analyzing and estimating factors that influence on a seller's market participation behavior. Besides that the research results also revealed that the market entering behavior of seller has been strongly impacted by cognitive thinking that is rooted

from awareness of market context, dimension and approach of information, expected value of bad debts in future, circumstances of personal and business participating in the market. Moreover, the study has also, investigated that not only with cognitive thinking but seller's market participation behavior also is strongly governed by macroeconomic environment and legal framework, characteristics of bad debts as well as the actual price that the seller achieved when entering the bad debt market. So that, to stimulate sellers to participate in the market, policy makers, managers and businessmen need to consider the factors as mentioned above in policy making process and building business strategy as a part promoting the bad debt market develop.

### REFERENCES

- ACA., 2014. The impact of third-party debt collection on the national and state economies. ACA International, USA.
- Adriaam, M.B and C.N. Gorter, 2001. The treatment of non performing loans in macroeconomic statistic. IMF Working Paper, International Monetary Fund, Washington, D.C., USA.
- Ausubel, L., 1991. The failure of competition in the credit card market. *Am. Econ. Rev.*, 81: 50-81.
- Baboucek, I and M. Jancar, 2005. Effects of macroeconomic shocks to the quality of the aggregate loan portfolio. Working paper series, Czech National Bank, Prague, Czechia.
- Blaschke, W., T. Jones, G. Majnoni and S.M. Peria, 2001. Stress testing of financial systems: An overview of issues, methodologies and FSAP experience. IMF Working Paper. International Monetary Fund, Washington, USA. <https://www.imf.org/external/pubs/ft/wp/2001/wp0188.pdf>
- Dobson, A.J., 2002. An Introduction to Generalized Linear Models. 2nd Edn., CRC Press, Boca Raton, FL.
- Eriksson, A. and E. Karlsson, 2012. A case study: A market analysis and a capability assessment. MSc Thesis, Department of Technology Management and Economics Division of Innovation Engineering and Management, Chalmers University of Technology. Gothenburg, Sweden.
- Espinoza, R and P. Ananthkrishnan, 2010. Nonperforming loans in the GCC banking system and their macroeconomic effects. IMF Working Paper, International Monetary Fund, Washington, D.C., USA.
- Eysenck, M.W., 1990. Cognitive Psychology: An International Review. John Wiley & Sons Inc., Hoboken, New Jersey, USA., ISBN:9780471927570, Pages: 312.

- Fiorilla, P., 2011. Bad debt looms over hotel sector: US research. STR Inc., Hendersonville, Tennessee, USA. <http://hotelnewsnow.com/Articles/13790/Bad-debt-looms-over-hotel-sector>
- Fishburn, P.C., 1970. *Utility Theory for Decision Making*. Wiley, New York.
- Goldstein, M. and P. Turner, 1996. Banking Crises in Emerging Economies: Origins and Policy Options. In: *Trade Currencies and Finance*, Goldstein, M. (Ed.). World Scientific Publishing Company, Singapore, pp: 301-363.
- Heinstrom, J., 2003. Five personality dimensions and their influence on information behaviour. *Inf. Res.*, 9: 1-24.
- Hoggarth, G., L. Andrew and L. Zicchino, 2005. Macro Stress Tests of UK Banks. In: *Investigating the Relationship Between the Financial and Real Economy*, Bank for International Settlements (Ed.). Bank for International Settlements, Basel, Switzerland, pp: 392-408.
- Hu, Z., B. Potthoff, C.P. Hollenberg and M. Ramezani-Rad, 2006. Mdy2, a ubiquitin-like (UBL)-domain protein is required for efficient mating in *Saccharomyces cerevisiae*. *J. Cell Sci.*, 119: 326-338.
- Hu, Z., J. Mellor and C. DeLisi, 2004. Analyzing networks with VisANT. *Curr. Protoc. Bioinf.*, 8: 8.8.1-8.8.24.
- Hurwicz, L., 1945. The theory of economic behavior. *Am. Econ. Rev.*, 35: 909-925.
- Keeton, W.R. and C.S. Morris, 1987. Why do banks loan losses differ. *Econ. Rev.*, 72: 3-21.
- Laeven, L., S.K. Randall and K. Daniela, 2002. *Financial crises, financial dependence and industry growth*. World Bank Policy Research Working Paper No. 2855, World Bank, Washington, USA.
- Lopez, A.C., R. McDermott and M.B. Petersen, 2011. States in mind: Evolution, coalitional psychology and international politics. *Intl. Secur.*, 36: 48-83.
- Mandler, G., 2002. Origins of the cognitive (r) evolution. *J. Hist. Behav. Sci.*, 38: 339-353.
- Mas-Colell, A., M.D. Whinston and J.R. Green, 1995. *Microeconomic Theory*. Oxford University Press, New York, USA., ISBN-13: 9780195073409, Pages: 981.
- Micco, A., U. Panizza and M. Yanez, 2007. Bank ownership and performance: Does politics matter?. *J. Banking Finance*, 31: 219-241.
- Mitchell, R.C. and R.T. Carson, 1989. *Using Surveys to Value Public Goods: The Contingent Valuation Method*. 3rd Edn., Resources for the Future, Washington, USA., ISBN:9780915707324, Pages: 463.
- Morgan, D.P. and I. Toll, 1997. Bad debt rising. *Curr. Issues Econ. Finance*, 3: 1-6.
- Neisser, U., 1967. *Cognitive Psychology*. Prentice Hall, Englewood Cliffs, New Jersey, ISBN:9780390665096, Pages: 351.
- Peter, P. and J.C. Olson, 2010. *Consumer Behavior and Marketing Strategy*. McGraw-Hill, New York, ISBN-13: 9780071267816, Pages: 554.
- Powers, D.A. and Y. Xie, 2000. *Statistical Methods for Categorical Data Analysis*. Academic Press, New York.
- Salas, V. and J. Saurina, 2002. Credit risk in two institutional regimes: Spanish commercial and savings banks. *J. Financial Serv. Res.*, 22: 203-224.
- Truc, Q.P.T. and H.N. Viet, 2017. Model of bad debt trading market development. *J. Appl. Sci.*, 17: 511-517.