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Research Article
Model of Bad Debt Trading Market Development

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Abstract

Background and Objective: Lack of a theoretical framework for the development of the bad debt trading market can lead to mistakes in dealing with bad loans. So that, the purpose of this paper was to set up a model of the development of the bad debt market. **Methodology:** To do so, the study examined the relationship between supply and demand in the financial markets, the relationship between supply and demand, price and volume in the market of bad debt and social welfare were achieved when the market of bad debt was developed. **Results:** Research results indicated that when the market price of bad debt approaches the value of collateral, demand in the bad debt market tends to decrease and the supply in the bad debt market increases and vice versa. At a point where the market price of bad debt is equal to the value of collateral, commercial banks and credit institutions tend to sell off the amount of bad debt that they own and demand for the non-performing loan (NPL) market tends to be zero. The research result also showed that in order to maximize the social welfare achieved in the bad debt market or minimum social welfare in the financial market, the amount of bad debt must be sold off at a price level that equals to the value of the collateral. **Conclusion:** Therefore, the best way to deal with bad debt through the bad debt trading market as making the price level of and the amount of bad debt closer to the value of collateral, which could gain when stimulate the demand for NPL market develops. Additionally, the difference between the agreed price in the market of bad debt and the value of collateral could be a reliable measurement to consider the level of bad debt market development, which can help policy-makers, managers and researchers determine the level of development of the bad debt market to take out policies that stimulate the market of bad debt develops.

Key words: Bad debt market, supply and demand NPL, social welfare, balance point, NPL market, price model, trading market

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Data Availability: All relevant data are within the paper and its supporting information files.

INTRODUCTION

For last several decades, bad debt has become an extremism phenomenon derived from the process of socioeconomic development. The bad debt wasn't only cause of the collapse of the commercial banking system, credit institutions, but it also was the risk of bankruptcy of enterprises, business organizations and become a financial burden for individuals and households[1-7]. At the macro level, the bad debt is defined as a fundamental factor that breaks down the economic structure, cause of political-social instability, negative affect on social welfare and holding back the process of economic growth and development[8]. So that, finding solutions to minimize bad debts or the negative effects it causes, which has become the target pursued by policy makers, managers and scientists.

Up to now, one of the most effective solutions was given and widely used in many countries around the world, which was to stimulate the bad debt purchasing practices develop, especially in USA, Canada, Europe and China. The emergence of bad debt purchasing activities has dealt a considerable amount of debt in many countries, contributing to sustainable economic development, create employment opportunities and increase national budget. For example, as reported by the ACA World Organization, in 2013, bad debt purchasing organizations in the United States purchased and disposed of approximately \$55.2 billion, job creation for 136,100 employees and contributed \$1429 million to federal, state and local budget[9].

Such, although the market of bad debt has developed in many countries around the world. However, up to now, there hasn't been any theoretical study of the bad debt trading market. Therefore, this study was conducted to show the formation mechanism of the non-performing loan market, determine the social welfare and prices on the NPL market. Since, help policy makers and managers understand the nature of the bad debt market and offer solutions to stimulate the bad debt trading market develop in a positive way for the economy and minimize the negative impact that bad debt causes.

MATERIALS AND METHODS

Formation mechanism of bad debt market: The bad debt trading market is where the exchange and purchase of debts that listed as doubtful debts in the balance sheet in commercial banks or credit institutions. In a traditional way, when bad debt arises, commercial banks or credit institutions have a need to process these debts by establishing a collection agency or by asking the competent authority such as; court, law firm, or debt collection agency. However, the settlement of bad debts by the way that can increase the costs of the resolution process and it, sometimes, is still difficult to recover these debts if they are on the list of bankruptcy announcements or exceed the time prescribed by applicable law, etc[5,10]. Thus, in a certain extent, these debts are beyond the ability to recover of commercial banks or credit institutions. Therefore, commercial banks or credit organizations have needs of handling the debts by reselling them to the collection sides with the purpose is to minimize unnecessary expenses in debt collection or pose the risk of debt collection for businesses that bad debt collector. As a result, the bad debt trading market is formed.

The fact that, the basic grounds for commercial banks or credit institutions to lend, which usually derived from the feasibility of investment projects. For example, when enterprises have demand for loans to sever production and business activities, they must submit a production and business project, collateral and repayment schedule to commercial banks or credit institutions. If the project is assessed as feasible, reasonable repayment schedule and collateral is guaranteed, then the loan procedures are carried out. So that, the value of collateral is an important basis to solve if these enterprises cannot afford to repay when the loan term has ended. If the efforts in dealing with bad debts of commercial banks and credit institutions through law firms or debt collection agencies become less effective, commercial banks and credit institutions will need to resell the debts and the value of them can be determined as a measure of quantity (Q) of bad debt that the commercial banks and credit institutions make their trading in the market. While the value of the bad debt is determined as a measure of the amount of bad debt (Q), the negotiable price level on the bad debt market (P) is formed based on the value of these bad debts. Typically, the price of these bad debts will be lower than the value of the actual bad debt. This is due to fact that the purpose of bad debt collectors is profit. Therefore, when the agreed price level of the market is lower than the value of bad debts, the bad debt collectors are more active when trading on the market. In contrast, when the agreed price in the market approached the value of collateral, the seller is more motivated to enter the market. This implies that the gap between the market price and the value of collateral can become a measure of the supply and demand response in the market of bad debt, in other words, it can become a measure of the development of the bad debt market.

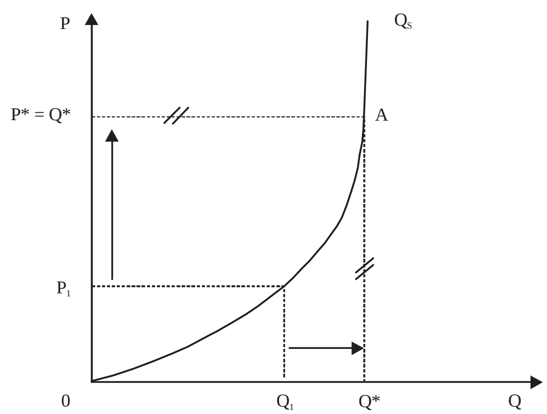

Fig. 1: Supply of bad debt, Q*: Measurement of the actual value of the collateral, P: Negotiable price on the bad debt market, P*: Agreed price equals to the value of the bad debt owned by the commercial bank or credit institution, Q_S: Supply curve of a commercial bank or credit institution in the market of bad debt

Supply in bad debt market: To determine the supply in the bad debt market, study begins with a review of the behavior of commercial banks and credit institutions. As discussed in the previous section, the amount of bad debt is formed objectively and it doesn't depend on the subjective desire of commercial banks and credit institutions and is mainly dominated by exogenous factors. Here, the exogenous factors consist of the fluctuation of the economy, factors affecting the results of enterprises, factors affecting the appraisal process of investment projects, etc. This implies that commercial banks or credit institutions unwanted to create bad debts and they always have the need to settle bad debts to recover their loans. So that, if the agreed price on the bad debt market quals to the actual collateral value that commercial banks or credit institutions own, they will be ready to sell off all the bad debts that they are owning on the market. This means that at a point where the agreed price on the market is greater than or equal to the value of the collateral, the supply curve of the NPL market will be a vertical line. The relationship between the price level (P*), the amount of bad debt in a commercial bank or credit institution (Q*), supply of bad debt Qs is shown in the Fig. 1.

If there exist a price P_1<P*, commercial banks or credit institutions will have a need to sell the debt to the purchaser at a lower level as shown in the Fig. 1 and maybe they will just sell off a part of the debt, usually the debt is difficult to handle or they will keep the debt up to appropriate time and then sell them. This will depend on the financial resources of commercial banks or credit institutions and the type of collateral they own. For example, if the commercial bank or credit institution own the type of collateral that is expected to increase it's valuation in the future while their strong financial resources, they will not liquidate these collateral at the present time, in other words the commercial bank or credit institution to liquidate these assets in the future when the expected value of these assets at the highest level. On the other hand, when the agreed price on the market gets closer to P*, commercial banks or credit institutions have a higher demand for the sale of these bad debts. Additionally, while commercial bank or credit institution to resolve bad loans, but not be effective in a long time, they are also willing to sell the debt to the buyer at a price that is much lower than the actual value of the collateral. Thus, in addition to the exogenous factors as mentioned above, supply on market of bad debt also depends on the agreed price at the present time, financial resources of commercial banks or credit institutions, appraisal quality of investment projects, characteristics of collateral and the time of bad debts.

Demand in the bad debt market: Derived from profit, the behavior of bad debt collectors is to buy debt from a commercial bank or credit institution at a price lower than the value of the bad debt. Then they collect the debt directly from the debtors or make a liquidation of collateral that banks or credit institutions transfer back at higher prices[11-13]. This means that demand in the bad debt market only exists when the agreed price is lower than the value of the collateral, in other words, at the point where the agreed price equals the actual value of the collateral, demand in the bad debt market will be zero. This means that demand in the market of bad debt is a function converges at 0 when the agreed price in the market of bad debt approaches the price that equals to the value of the debt, $\lim_{P \to PTT} (Q_D) = 0$. So that, demand in the market of bad debt revolves around the price level that equals to the value of the bad debt or the value of collateral that commercial banks or credit institutions transfer to bad debt collectors (Fig. 2).

When the agreed price in the market of bad debt is increasingly lower than the actual collateral value, then demand of bad debts will increase. This is due to that the profit of bad debt collectors gained from the bad debt trading activities will increase. The result is that if the agreed price on the bad debt market is lower than the actual collateral value more and more, it stimulates bad debt collectors to engage in the market of bad debt and lead to demand of bad debt trading increases. Therefore, the agreed price on the market is lower, demand curve has a more gradual slope. The fact that the agreed price on the market of bad debt depends on the characteristics of each type of collateral, information of debts, legality of debts, time of debt as well as the potential of investment projects. For example, if bad debt collectors find that the type of collateral that they acquire is easier to liquidate or have a higher expected value in future, they are willing to pay a higher price. However, this price will be less than the value of the collateral at the time when the firm conducts its transactions in the market. Besides, demand in the market of bad debt also depends on the financial capacity of bad debt collectors, business strategy and legal framework.

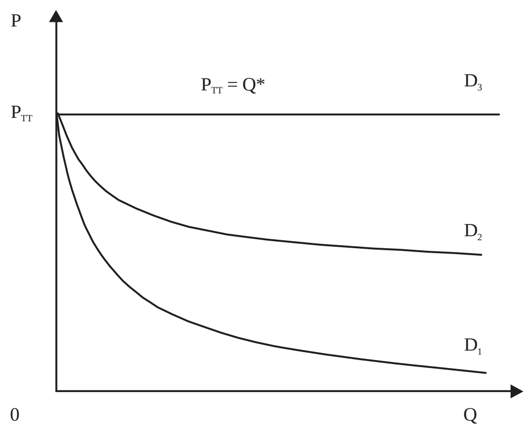

Fig. 2: Demand in the market of bad debt

Balance point on the market of bad debt and social welfare: To identify lost social welfare in financial markets, first of all it is necessary to consider supply and demand in the financial market. Assume that the lending rate in the financial market is r, the amount of money trading in the financial market is Q. S(Q) and D(Q) are supply and demand in the financial market, P is the transaction price in the bad debt trading market. The relationship between the market of bad debt and the financial market is shown in Fig. 3. Assume that r* and Q* are the interest rates and the balance money in the financial market. If loans from a commercial bank or credit institution are paid on time, the social welfare (SW) gained from financial activity is:

$$SW = \int_0^{Q^*} S(Q)d(Q) \quad (1)$$

However, if part of the money in the financial market is transformed into bad debt and commercial bank or credit institutions can not resolve, then social welfare in the financial market will be lost (Fig. 3).

Assumption that Q*- Q_1 is the amount of transaction money that is converted into bad debt, then the welfare of the financial market is lost (LSW) as (Fig. 3):

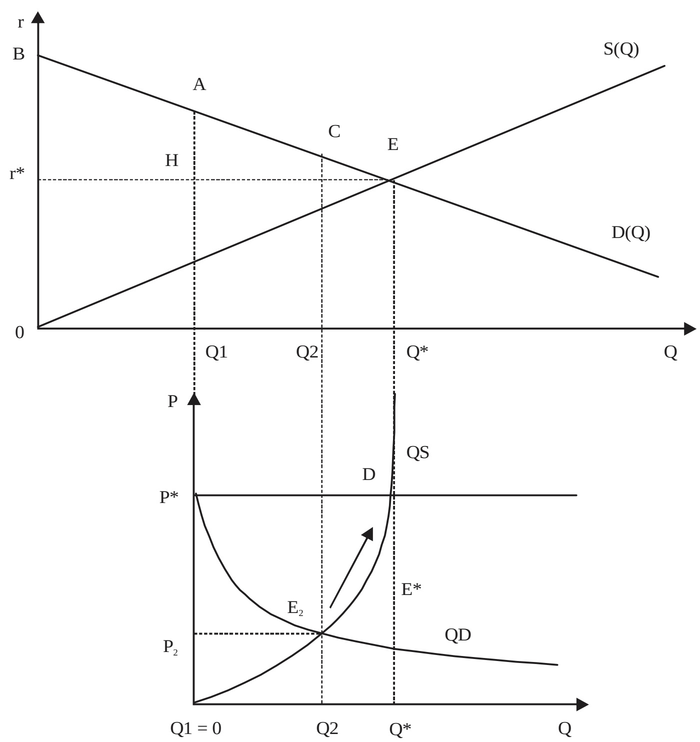

Fig. 3: Relationship between financial market and bad debt trading market

$$\text{LSW} = \int_{Q1}^{Q^*} S(Q)d(Q) \quad (2)$$

Assume that, there is the existence of the bad debt trading market and the relationship between supply and demand in the NPL market is established as Fig. 3. If the equilibrium quantity and price in the NPL market are Q_2 and P_2, then the social welfare (SWs) in the market of bad debt achieved is:

$$\text{SWs} = \int_{Q_1}^{Q_2} D(Q)d(Q) \quad (3)$$

where, Q_1 in the market for NPLs is zero, then the lost social welfare part in the financial market will be compensated by the social welfare obtained in the bad debt trading market. In other words, the actual loss social welfare (LSWs) in the financial market will be equal to the total lost social welfare in the financial market minus the social welfare from the bad debt trading market:

$$\text{LSW} = \text{LSWs-SWs}$$

$$\text{LSW} = \int_{Q_1}^{Q^*} D(Q)d(Q) - \int_{0}^{Q_2} Q_D d(Q) \quad (4)$$

From Eq. 4, it was found that the social welfare in the financial market is damaged at the lowest level, when SWs reaches the maximum value. In other words, the amount of bad debt that exists in the bad debt trading market is sold out to bad debt collectors at P*. On the other hand, from Fig. 3 can notice that the social welfare in the market of bad debt obtain the maximum value to be P*Q*. This implies that in order to gain maximum social welfare when and only if $P_2 \rightarrow P^*$ and $Q_2 \rightarrow Q^*$.

Price model and development of bad debt market: Although the market of bad debt is formed objectively due to the need to settle overdue debts of commercial banks or credit institutions and achieved benefit of bad debt collectors. However, it plays an important role in reducing the part of lost social welfare in financial markets, which inherently has a great influence on the development of an economy. So that, the original purpose of developing the bad debt market is to minimize the loss of social welfare in financial markets. As discussed above, in order to minimize social welfare in the financial market when and only when $Q_2 \rightarrow Q^*$ then $P_2 \rightarrow P^*$. This implies that equilibrium in bad debt trading market shift E_2 to E^* (Fig. 3). Found that when $E_2 \rightarrow E^*$ then $P_2 \rightarrow P^*$ and vice versa (Fig. 3). So that, the difference between P_2 and P* can become a reliable measure to determine the level of development of the bad debt trading market. Call θ is the ratio between P2 and P *, the relationship between them is determined as follows:

$$\theta = \frac{P_2}{P^*}, \text{ with } \theta \in [0,1] \quad (5)$$

From Eq. 5, recognizing that the level of development of the NPL market is a function of price, there is convergence at 1 when $P2 \rightarrow P^*$. So that, it can be expressed as follows:

$$\theta = F(P^*, P_2) \quad (6)$$

Additionally, P_2 is the equilibrium price and it is determined by supply and demand on the market of bad debt. Therefore, P_2 will depend on all the factors that affect supply and demand in the NPL market $P_2 = f(U, V)$. P* is the price determined by the value of the bad debt that the commercial bank or credit institution owns, reflects the amount of bad debt in the market, $P^* = Q^*$. Substitute P_2 and P * to Eq. 6, the development level of the bad debt trading market is affected by the amount of bad debt Q*and factors affecting the supply (U) demand (V) in the bad debt trading market, Eq. (6) is rewritten as follows:

$$\theta = f[Q^*, f(U, V)] \quad (7)$$

Equation 7 reflects the factors that affect the level of development in the NPL market.

RESULTS AND DISCUSSION

When there exists the bad debt, it leads to loss of social welfare in financial market, which has a negative impact on the process of economic development and business operation of enterprises, commercial banks and credit institutions. Treating bad debt through the development of a bad debt trading market could reduce the lost social welfare in the financial market and mitigate the negative effects that bad debt causes[14,15]. However, in order to stimulate the bad debt market develops, in addition to the factors that affect the demand in the bad debt market, it is necessary to consider the types and value of collateral. This is due to that the collateral was an important base to determine the price level and quantity in the NPL trading market that there is a decisive significance to purchasing behavior as such mentioned in Country Report of International Monetary Fund(IMF)[16].

The result also reveals that demand in the bad debt market only exists when and only if the price level in market fluctuates around from 0 to the actual value of collateral and at point where the price level in market equals to the actual value of collateral, demand in the market of bad debt trading equals to zero. This is caused by that the collateral is the basis for trading on the bad debt market and the purpose of bad debt collectors is profit that collectors can be achieved from difference between the buying price of and saleprice of collateral, which have been indicated in Country Report of International Monetary Fund(IMF)[16]. So that, when the price level approaches the actual value of collateral, the difference between the buying price and saleprice of collateral reduces and leads to profit of collectors decrease. As a result, collectors will not enter the market, which make the demand tend to zero. The findings is relatively consistent with the theory of economic behavior[17].

Contrast with demand in the bad debt market, the research results indicated that when the price level closers to the actual value of collateral, supplus in the bad debt market tends to increase and vice versa. This is caused by that the goal of commercial banks or credit institutions is to make a profit from lending activities in financial markets. When the bad debt arises, it will make the profit and business capital of commercial banks or credit institutions decrease, which impact negatively their business in the financial market and commercial banks or credit institutions have a need to sell bad debts to recover capital. So that, when the price level of bad debt quals to the actual value of collateral, which can compensate for loans, commercial banks or credit institutions have the motive to sell off bad debts as mentioned in theory of bank regulation and management compensation[18].

Additionally, the study has also proved that at the point where the market price of bad debt equals to the value of the collateral, social welfare in the NPL market achieved was maximum and the ratio between the market price of bad debt and the value of collateral is a reliable measure to determine the growth rate of the bad debt trading market, which is compatible with theory of social welfare[19,20].

CONCLUSION

By considering supply and demand in the financial market, supply and demand, social welfare, price and output in the market of bad debt, the research indicated that when the market price of bad debt approaches the value of collateral, demand in the bad debt market tends to decrease and the supply in the bad debt market increases and vice versa. At a point where the market price of bad debt was equal to the value of collateral, commercial banks and credit institutions tend to sell off the amount of bad debt that they own and demand for the NPL market tends to be zero. The research result also showed that in order to maximize the social welfare achieved in the bad debt market or minimize social welfare in the financial market, the amount of bad debt must be sold off at a price level that equals to the value of the collateral. Therefore, the best way to deal with bad debt through the bad debt trading market make the price level of and the amount of bad debt closer to the value of collateral, which could gain when stimulate the demand for NPL market develops. Additionally, the difference between the agreed price in the market of bad debt and the value of collateral can be a reliable measurement to consider the level of bad debt market development, which can help policy-makers, managers and researchers determine the level of development of the bad debt market to take out policies that stimulate the market of bad debt develop.

SIGNIFICANCE STATEMENT

This study explains the mechanism of forming bad debt trading market and set up model of bad debt trading development, which can be useful to managers, policy-makers as a basis when making important solution to develop bad debt trading market. This study will help the researchers to uncover the critical area of the relationship between the financial markets and the bad debt trading market, social welfare in the debt market and the measure of the development of the bad debt market that many researchers were not able to explore. Thus, this study represents a new theory of the development of bad debt trading market that is an important solution in dealing with bad debt.

REFERENCES

1. Abd Karim, M.Z., S.G. Chan and S. Hassan, 2010. Bank efficiency and non-performing loans: Evidence from Malaysia and Singapore. Prague Econ. Papers, 2: 118-132.
2. Kuo, H.C., L.H. Wang, Y.H. Lai, S. Yu and C. Wu, 2010. Loan policy and bank performance: Evidence from Taiwan. Banks Bank Syst., 5: 108-120.
3. Appiah, N.B., 2011. Factors influencing loan delinquency in small and medium enterprises' in Ghana commercial bank Ltd. Master's Thesis, Kwame Nkrumah University of Science and Technology, Kumasi.

4. Awunyo-Vitor, D., 2012. Determinants of loan repayment default among farmers in Ghana. J. Dev. Agric. Econ., 4: 339-345.
5. Richard, R., 2008. FDCPA claims arising out of state court collection litigation. National Association of Consumer Advocabas 1730 Rhode Island Ave., NW, Suite 710 Washington, D.C. 20036, USA.
6. Cohn, J.I., 2009. Order denying motion to dismiss and motion to strike. Case No. 09-60487-CIV. United States District Court, S.D. Florida, USA.
7. McDade, 2009. American management consultant v. Carter, 915 N.E.2d 411 (111. App. Ct. 2009). No. 3-07-0714. Appellate Court of Illinois, Third District, USA.
8. Cecchett, S.C., M.S. Mohanty and F. Zampolli, 2011. The real effects of debt. BIS Working papers, No 352, September 2011. https://www.bis.org/publ/othp16.pdf
9. ACA., 2014. The impact of third-party debt collection on the national and state economies. ACA International, USA.
10. Diarmuid, F.O., F.F. Ferdinand and C.F. Raymond, 2009. Mangum v. action collection Serv., Inc., 575 F.3d 935(9th Cir. 2009). No. 08-35191. United States Court of Appeals, Ninth Circuit, USA.
11. Stifler, L. and L. Parrish, 2014. Debt collection and debt buying. The State of Lending in America and its Impact on U.S. Households, Center for Responsible Lending, USA. http://ncbankruptcyexpert.com/wp/wp-content/uploads/2014/05/The-State-of-Lending-Debt-Collection-Debt-Buying.pdf
12. Rubin, R., 2008. Substantive defense to consumer debt connection suits: Appendix. National Association of Consumer Advocabas, 1730 Rhode Island Ave., NW, Suite 710, Washington, DC. 20036, USA.
13. Terp, R. and L. Bowne, 2006. Past due: Why debt collection practices and the debt buying industry need reform now. The East Bay Community Law Center and Consumers Union, Inc. http://consumersunion.org/pdf/Past_Due_Report_2011.pdf
14. Ozurumba, B.A., 2016. Impact of non-performing loans on the performance of selected commercial banks in Nigeria. Res. J. Finance Account., 7: 95-109.
15. Akter, R. and J.K. Roy, 2017. The impacts of non-performing loan on profitability: An empirical study on banking sector of Dhaka stock exchange. Int. J. Econ. Finance, 9: 126-132.
16. IMF., 2017. Bulgaria financial sector assessment program technical note-nonperforming loan reduction stratery. IMF country report No. 17/201. Department of Monetary and Capital Markets, International Monetary Fund, Washington, D.C., USA.
17. Hurwicz, L., 1945. The theory of economic behavior. Am. Econ. Rev., 35: 909-925.
18. John, K., A. Saunders and L.W. Senbet, 2000. A theory of bank regulation and management compensation. Rev. Financial Stud., 13: 95-125.
19. Stoesz, D., 1989. A theory of social welfare. Soc. Work, 34: 101-107.
20. Atsushi, T., 2007. The measurement of social wefare: Discussion paper No. 698. The Institute of Social and Economic Research, Osaka University, Japan.