CHAPER I

INTRODUCTION

1.1   Research Background

Banking as financial institution has a prominence in bettering the economic growth towards social well being. As stated in Act No.10 in 1998, the intermediary function of a bank determines the flow of fund which is prominent in establishing economic competitiveness. The vital role of banking in Indonesia also strengthen by Bank Indonesia (BI) which commented that banks in Indonesia hold responsibility to perform four crucial functions i.e. perform as financial intermediary, payment support system, set and implement monetary policy, and ensure financial stability. It is believed that sound, transparent and prudent banking system is the prerequisite for further economic development of a nation (Indonesian Banking Booklet, 2017).

Regional Development Bank (well known as *Bank Pembangunan Daerah,* hereafter BPD) is one of the banks which runs its operations in national banking industry. BPD has a specialization through its significant functions in the context of developing regional economy because BPD is able to open service network in areas where that is not economically possible for private banks. BPD as holder of local finance, as has been stated in Act No.13 in 1992 on the principles of provision of regional development bank, works as regional economic developer towards people's live improvement, provides source of finance for development finance in the

region, raises funds and distributes and saves the cash area (both cash holder and cash storage areas) in supporting the operation of banking business. BPD has a relationship which cannot be separated with the regional economy, where the BPD is standing. BPD has different characteristics with other banks (stated-owned, private, foreign and joint venture) which is most of the third party funds (TPF) is a government-owned funds, especially local government. Establishment of the BPD is to encourage development in the region.

Based on the data accumulated from Regional Development Bank Association (well known as *Asosiasi Bank Pembangunan Daerah,* hereafter Asbanda) in table 1.1, represented financial indicators in total of current 27 BPD are consistently increased from December 31st, 2011 until December 31st, 2016. The increasing in the amount of total assets, third party funds and
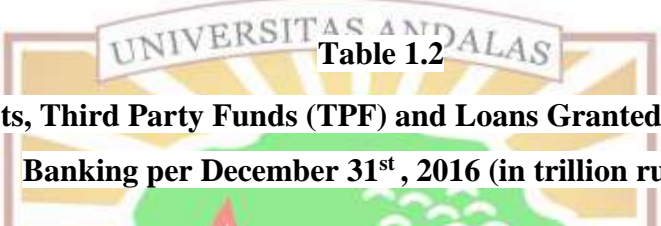
Table 1.1

Assets, Third Party Funds (TPF) and Loans Granted of BPD in Indonesia 2011-2016 (in trillion rupiah)

Description	Per December 31st,						
	2011	2012	2013	2014	2015	2016	*CAGR (%)*
Assets	307.8	371.81	390.17	451.86	486.35	529.19	
Growth (YoY)	*N/A*	*20.8%*	*4.9%*	*15.8%*	*7.6%*	*8.8%*	11.6%
Third Party Funds	232.6	284.01	282.99	333.2	355.53	372.6	
Growth (YoY)	*N/A*	*22.1%*	*-0.4%*	*17.7%*	*6.7%*	*4.8%*	10.2%
Loans Granted	170.99	219.71	255.88	294.6	311.24	334.23	
Growth (YoY)	*N/A*	*28.5%*	*16.5%*	*15.1%*	*5.6%*	*7.4%*	14.6%

Notes: CAGR (*Compound Annual Growth Rate*), YoY (Year over year)
Source: Asbanda (2016)

loans granted with compound annual growth rate (CAGR) 11.6%, 10.2% and 14.6% respectively emerges a must for examining the efficiency. Moreover, the need for evaluating performance of BPD in Indonesia also encouraged by the competitive rank of national banking industry in which BPD in total represents the fifth position in terms of total assets, third party funds (TPF) and loans granted per December 31st, 2016 as shown in table 1.2 below.

Table 1.2

Assets, Third Party Funds (TPF) and Loans Granted of National Banking per December 31st, 2016 (in trillion rupiah)

Bank	Assets	Third Party Funds	Loans Granted
BRI	964.00	723.85	635.30
Mandiri Bank	918.21	687.95	592.67
BCA	662.62	530.17	416.28
BNI	564.85	412.15	372.62
BPD	529.19	372.60	334.23

Source: Bank Indonesia (2016)

Although BPD is recognized as the fifth position in terms of total assets, third party funds (TFP) and loans granted in the national banking industry, it has been long perceived that BPD remain uncompetitive compared to foreign banks, private domestics banks and state-owned enterprises banks. This claim has been widely accepted despite the lack of empirical evidence on performance measurement of BPD.

As one of the performance-based measurement, efficiency has been widely used to overcome the difficulty in determining the performance measurement. In calculating the level of efficiency, there is no a general agreement which results in a dissidence of efficient level among research. The dissimilarity can be caused by either the difference method (parametric or non-parametric approach) or the differences concept of efficiency (cost efficiency, profit efficiency or alternative profit efficiency) (Paramita, 2008). By knowing the efficiency of the banks, then we have the information how the banks can optimize the available resources and distribute more benefits to its customers..

Data Envelopment Analysis (DEA) is the non-parametric mathematical programming approach to frontier estimation. Since Charnes, Cooper, and Rhodes (1978) introduced DEA as a tool for measuring efficiency and productivity of decision making units, DEA has immediately been recognized as a modern tool for performance measurement. A latest survey conducted by Emrouznejad and Yang (2017) indicates that banking is detected as the top 5 application fields of DEA for the last four decades (1978-2016) with the greatest numbers of journal articles in 2015 and 2016. The advantage of DEA such as the ability to identify inputs and outputs of banks which can be utilized as reference to help finding the causes and solutions for inefficient banks as a whole (Haddad *et al*., 2003), this approach can identify the bank which has achieved the highest efficiency so can be used as reference for the banks with lower efficiency and DEA also
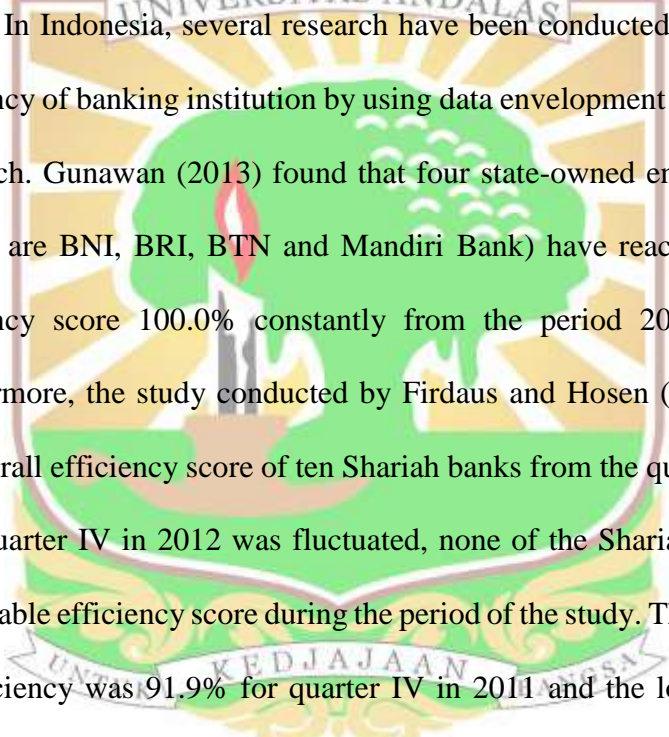
provides information related to the opportunity to improve the usage of resources for inefficient banks.

There has been numerous studies that previously conducted in the banking industry which used DEA. The study by Chansarn (2008) aimed to examine the efficiency of Thai commercial banks during 2003 – 2006 by utilizing DEA. Based on the sample of 13 commercial banks, findings revealed that the efficiency of Thai commercial banks under operation variable approach is very high and stable with the average efficiencies over 90.0% every year, while the efficiency under intermediation variable approach is moderately high and somewhat volatile. In term of size, large, medium and small banks, in average, were efficient via operation variable approach with the average efficiencies of 100.0% every year. However, small banks are the most efficient banks via intermediation variable approach.

In addition, Saeed *et al.* (2013) employed a non-parametric DEA technique with both input and output oriented measures to calculate technical efficiency (TE), pure efficiency (PE) and scale efficiency (SE) of Islamic and Conventional banks in Pakistan over the period of 2007-2011. The result shows mean TE under both Input and output oriented measures of Islamic bank is 83.9% that is better than Public sector banks and foreign banks while lower than Private sector banks. Mean PE under input oriented measure of Islamic bank is 93.2% that is better than public sector banks but weak than private sector and foreign banks. The result of output oriented

measure of Islamic bank is calculated as 92.2% that is again better than public sector and foreign banks but the performance of private sector is much better than Islamic banks. A SE of Islamic bank under both input and output oriented measure is calculated as 88.7% and 89.5% respectively. SE under both input/output oriented measure of Islamic bank is better than public sector and foreign banks but weaker than private sector banks of Pakistan.

In Indonesia, several research have been conducted to measure the efficiency of banking institution by using data envelopment analysis (DEA) approach. Gunawan (2013) found that four state-owned enterprises banks (which are BNI, BRI, BTN and Mandiri Bank) have reached the perfect efficiency score 100.0% constantly from the period 2009 until 2011. Furthermore, the study conducted by Firdaus and Hosen (2013) indicates the overall efficiency score of ten Shariah banks from the quarter II in 2010 until quarter IV in 2012 was fluctuated, none of the Shariah banks which has a stable efficiency score during the period of the study. The highest score of efficiency was 91.9% for quarter IV in 2011 and the lower score was 78.5% for quarter II in 2011.

This thesis examines the performance in term of efficiency of BPD in Indonesia during the period of December 31st, 2011 until December 31st, 2016 by using a non-parametric data envelopment analysis (DEA) approach. The paper commences determining input and output variables based on three variable approaches i.e. intermediation, operation and asset.

Input-orientated variable return to scale (VRS) is specified in data analysis. Finally, the Multi-stage DEA analysis is adopted to generate the efficiency score, projected value and benchmark(s) from efficient frontiers.

1.2 Problem Statement

Based on the description above, the problems to be studied are:

1. How is the efficiency of BPD in Indonesia for the period ended December 31st, 2011 until December 31st, 2016 based on the Multi-stage DEA under intermediation variable approach?

2. How is the efficiency of BPD in Indonesia for the period ended December 31st, 2011 until December 31st, 2016 based on the Multi-stage DEA under operation variable approach?

3. How is the efficiency of BPD in Indonesia for the period ended December 31st, 2011 until December 31st, 2016 based on the Multi-stage DEA under asset variable approach?

1.3 Research Objective

This study is designed to:

1. Examine the efficiency of BPD in Indonesia for the period ended December 31st, 2011 until December 31st, 2016 based on the Multi-stage DEA under intermediation variable approach.

2. Examine the efficiency of BPD in Indonesia for the period ended December 31st, 2011 until December 31st, 2016 based on the Multi-stage DEA under operation variable approach.

3. Examine the efficiency of BPD in Indonesia for the period ended December 31st, 2011 until December 31st, 2016 based on the Multi-stage DEA under asset variable approach.

1.4 Research Benefits

From this research, researcher expects giving the valuable insights:

1. For Bank Indonesia (BI), this research will provide additional information to show the performance achievement of BPD in term of efficiency and also helpful in creating a new policy associated with the current economic condition.

2. For the government, this research will give suggestion to maintain the coordination with Bank Indonesia (BI) in every single decisions to avoid the imbalance policy.

3. For the BPD in Indonesia, this research will give a proof to encourage them in maintaining and continuously improving the performance to catch up efficiency frontiers.

4. For the other stakeholders, such as investor and customer, this research will provide the assessment of BPD that will be helpful in making decision process.

5. For the subsequent researchers and students, this research will provide the information needed regarding the efficiency of BPD in Indonesia.

1.5 Writing Systematic

The structure of this research is divided into several sections, which are begins from chapter I: introduction, this chapter commences an

overview about the urgency to conduct performance evaluation of BPD in Indonesia which elaborated through some parts i.e. the background of the research, the problem statement, the objectives and benefits of the research, and writing systematic. Chapter II: literature review, examines the theoretical basis and previous related-research to overcome the concept in measuring banking performance based on a non parametric DEA.

Then it is continued by chapter III: research method section. This chapter will discuss the way to generate the input and output variables under three variable approaches, the formula used to determine the efficiency score when performing DEA and interpretation to the scores. This chapter devided into the research variables and operational definition of variables, population and sample, types and sources of data, methods of data collection, and data analysis methods. After that, continued by chapter IV: result and analysis of research section. This chapter contains the descriptive statistics of the input and output variable used during the period of observation and the analysis of the result of performance of BPD in accordance with the research methodology. Lastly, the chapter V: conclusion. This chapter will present the conclusions and limitations of the research which has been done as well as the recommendation for the parties concerned and subsequent research.