

## The Introduction and the Application of US' Index Theory to Enhance Quality of Loan within Banking Industry and Financial Institutions Case Study: Bank ABC

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### ABSTRACT

The economic crisis has been decreased the performance of Banking Industry in Indonesia as reflected in the decreasing of Loan Growth and the increasing of Non-Performing Loans (NPLs) ratio since 2015. Increasing NPLs was followed by increasing cost of loan and decreasing ROA of Banks and others financial institutions therefore Bank should be innovate to enhance its loan quality. This study was conducted to determine influence of leverage towards profitability ratios of 68 companies which are debtors of Bank ABC in Performing Loan quality within two groups of US' Index value and tested by Correlation and Linear Regression Analysis. Based on the research's outputs, it was concluded that in group of US' Index  $< 1$  leverage has been influencing negatively to its profitability while on another group, with US' Index  $> 1$ , leverage has been influencing positively. Those conclusions were reinforced by the decline trend of US' Index value on financial performances of 21 debtors were included in the category of watch-list debtors as well as proven in the study case of debtor which is now included into the category of non-performing loans. This study has shown that US' Index theory could be implemented in all stages of loan process, such as to analyze the repayment capacity of applicants at credit approval process, as the loan monitoring system at the middle end, and as a guidance in loan restructuring and collecting repayment at the back end stage. Therefore, this study suggests the use of US' Index theory as a credit risk control strategy to reduce NPLs in the Banks and Financial Institutions in order to enhance its loan quality and generate sustainable profit.

**Keywords:** US' Index, NPLs, Cost of Loan, Capital Structure, Linear Regression.

### BACKGROUND

It has been decades for a classic question raised within the finance and banking industries such as "How much Debt is too much?", and yet that question remain unanswered. It is always a concern of Banking and Financial sectors, as well as enterprise, who would like to borrow money but wanted to stay healthy, not to mention the Government who needs to loan money for building a nation welfare.

Journals regarding this concern are issued from time to time, but none of them give a satisfactory and straightforward answer.

Following are a few examples of journals, that basically refer to the above question regarding leverage, and most of them try to find the answer:

A company with higher leverage may earn higher returns but on the other side, it has higher financial cost than lower leverage company. The relationship between leverage and profitability

has been a topic of interest among finance scholar for many years. Studies by Abor (2005), Ruland and Zhou (2005), Robb and Robinson (2009), Chandra Kumar Mangalam and Govindasamy (2010) found in their studies that there is a positive relationship between leverage and profitability.

On other side, some studies have found negative relationships between leverage and profitability. Studies by Myers (1984), Kester (1986), Titman & Wessels (1988), Sheel (1994), Rajan & Zingales, (1995), Lincoln, Gerlach & Ahmadjian (1996), Chittenden, Hall, and Hutchinson (1996), Sunder and Myers (1999), Michaelas, Chittenden, and Poutziouris (1999), Wald (1999), Negash (2001), Myers (2001), Cassar and Holmes (2003), Gedajlovic, Shapiro, & Buduru (2003) Chen (2003), Phillips and Sipahioglu (2004), Akhtar & Oliver (2009), Olayinka Akinlo and Taiwo Asaolu (2012) found there is a negative relationship between leverage and profitability.

Some international researches about the influence of leverage onto profitability in the last 3 years are described as follows. Akhtar, Javed, Maryam, and Sadia (2012) measured a relationship between the financial leverage and the financial performance of 20 listed public limited companies from Fuel and Energy sector listed at Karachi Stock Exchange (KSE) during 2000 – 2005, concluded that financial leverage has got a positive relationship with profitability. Velnampy and Nireesh (2012) found a negative relationship to return on asset and debt to assets ratio. Shubita and Alsawalhah (2012) explored the Jordan quoted industrial companies during period 2004 to 2009, found that debt to equity has a positive relationship to profitability.

Arora, A., K. (2013) which research population was Marico Industry for the study period 2007 to 2011, suggested the company should reduce its debt level as it is negatively affecting the profitability of the firm. Simiyu and Huo (2013) analyzed 90 real estate companies quoted on Shanghai Stock Exchange (SSE) and Shenzhen Stock Exchange (SZSE) for the period covering 2005 to 2011, concluded that profitability had positive relation with leverage. Bokhari and Khan (2013) in Pakistan listed non-financial sector, found that short term debt (STD) and long term debt (LTD) have a negatively affected return on assets (ROA) and return on equity (ROE) has a negative relation with all the capital structure variables except long term debt (LTD). Mohammadzadeh, Rahimi, Rahimi, Aarabi and Salamzadeh (2013), studies Iranian pharmaceutical companies between 2001-2010, found that there was a significant negative relationship between the profitability and the capital structure and confirmed internal financing as a factor of high profitability.

Mahmoudi (2014) which has research population were 28 companies of Cement Industry listed in Tehran Stock Exchange Iran, data from 2008-2011, concluded that there was a significantly negative correlation between Leverage and Profitability. Kumar (2014) which has research population was Bata Indian Ltd in India, data from 2005 – 2013, concluded that there was positive insignificant correlation between Leverage and Profitability. Yusuf, Onafalujo, Idowu, and Soyebbo (2014) investigated the relationship between capital structure and profitability of conglomerate, consumer goods, and financial services firms quoted in Nigeria Stock Exchange from 2000 to 2011, concluded that there was a significant

relationship in almost all firms between return on equity and debt to equity. Vijayalakshmi and Manoharan (2014), examined the impact of leverage on profitability of firms, which have been listed at both BSE and NSE stock exchange during 1995 -1996 to 2009-2010, concluded that the leverage has an effective influence on profitability. Patel (2014), evaluated the leverage of the Sabar Dairy's financial statements from 1985-86 until 2013-14, concluded that Financial Leverage has inverse correlation with Return of Assets.

Ahmad, Salman and Shamsi (2015) which has research population were 18 companies of Cement Industry listed in Karachi Stock Exchange Pakistan, data from 2005-2010, concluded that there was a significantly negative correlation between Leverage and Profitability.

Refers to all those journals, it can be concluded that the influence of leverage on profitability were varied depending on many factors such as company size, industrial sectors, and the condition of the countries.

By using Correlation and Linear Regression Analysis, this study will examine the relationship between leverage ratio and profitability of companies within groups of US 'Index' > 1 and US' Index < 1.

### **INTRODUCING US INDEX THEORY**

US' Index theory was introduced by Dr. Ir. Uke Marius Siahaan, MBA, he is a faculty member of the Master of Business Administration program, School of Business and Management – Institute of Technology Bandung. This index is a tool and the financial parameters for assessing repayment capacity of a company, as well as a determinant to decide whether a business entity should maximize use of Debt or Equity in running the operation.

Unlike the z-score theory that used as a prediction tools, US' Index theory can could determine a company capability to serve and meet its obligation and be used as a reference during the process a loan analysis because value of US' Index shows the real conditions at the time a company apply for loans to the Bank. The idea of the US Index is to assess the company's repayment capability by comparing its Business Generic Profitability (BGP) to the Loan Interest Rates (I), and formulated as follows:

$$US' Index = \frac{Business\ Generic\ Profitability}{Loan\ Interest\ Rate (X)}$$

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Generic Business Profitability is a profit margin of a company that resulted from its business activities were financed by its capital either in form of debt/loan or equity.

BGP is formulated as follows:

$$BGP = (Earnings\ before\ Interest\ and\ Taxes / Total\ Assets) \times 100\%$$

In doing the business, company needs capital to finance its assets in order to generate Operational Profit. If its capital source was from

debt/loan then company would have an obligation to Bank to pay interest expense as the terms of payment that have been agreed. The loans should be generated Basic Business Profit (BBP) a minimum of Loan Interest Rate (I) so the company could cover its loan interest obligation to the Bank.

The Conceptual Framework of US' Index were basically based on the construction of the financial element analysis and the illustrations below:

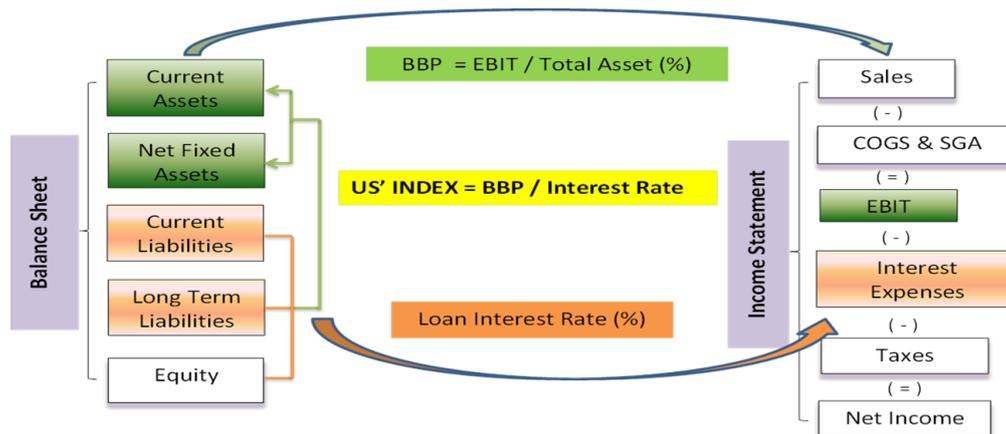


Figure1. Conceptual Framework of US' Index Theory (Developed by Author, 2016)

Company should take the right decision on its capital structure, whether financed by debt or equity, in order to maximize its Operating Profit. Those financing should be able to generate profit greater than its operating cost and financial cost, that's why it called as *leverage*. According to the US' Index theory, signs of US' Index values are defined as follows:

- US' Index > 1 → company should go leverage
- US' Index < 1 → company should go equity
- US' Index = 1 → company free to choose either go leverage or go equity to finance its assets, depend on its Financing Appetite.

## PLOTTING THE US INDEX THEORY IN INDONESIA

The economic crisis has been decreasing the performance of Banking Industry in Indonesia as reflected in the decreasing of Loan Growth and the increasing of Non-Performing Loans ratio (NPLs) since 2015. Increase the NPLs ratio in 2015 due to the increasing number of non-performing loans which caused by the inability of debtors, who get loan from the Bank, as an effect of the economic crisis that hit Indonesia in 2015. On the other hand, slowing economic growth led to slowing the Bank's lending so that the Loan Growth decreased in 2015.

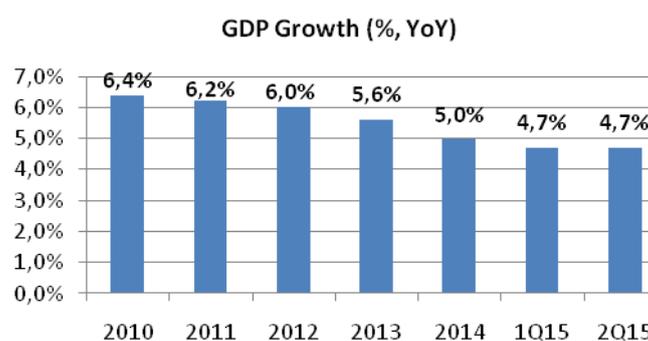


Figure1. GDP Growth of Indonesia (Bloomberg, 2015)

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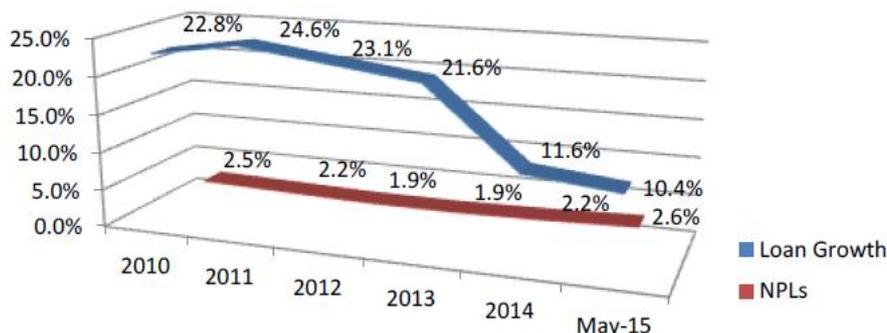


Figure 2. Loan Growth & NPLs Graphs of Indonesia's Banking Industry (Bank Indonesia, 2015)

Currently, performance of Banking Industry in Indonesia is not better than year 2015, seen from the increased levels of NPL in 2016 as follows:

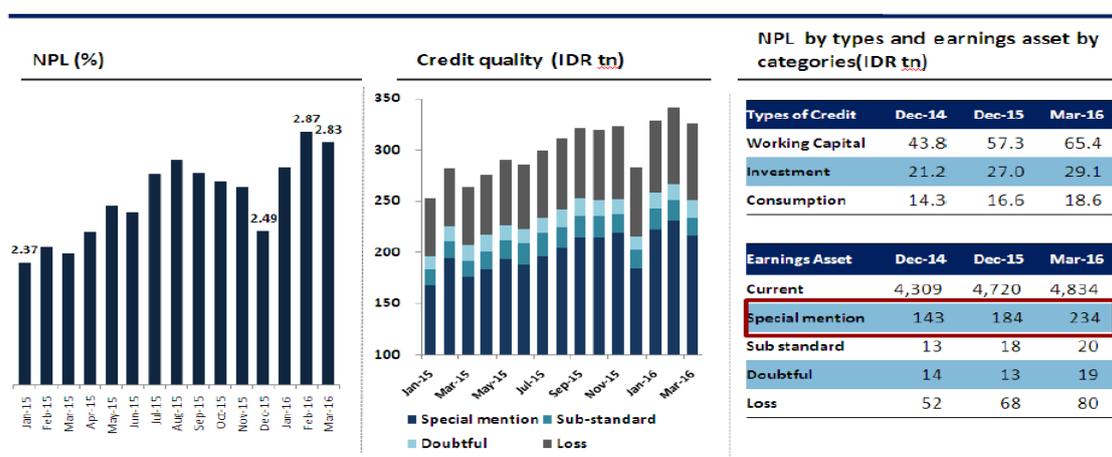


Figure 3. Assets quality of Indonesia's Banking Industry (Bank Indonesia, 2016)

Although banking industry is not recovered yet but Bank as one of the intermediary institutions should be still able to do its function as the depository of public funds and distribute it in the form of loans to the public in order to drive the economy of this country. Therefore, Banks are required to be able to improve its ability to control the credit risks so that the Bank's loan quality will be increase as reflected by declining in NPLs ratio. This study took Bank ABC as an

example to test the implementation of US' Index Theory in the loan process stages.

### BUSINESS ISSUE EXPLORATION

According to Bank Indonesia's regulation No. 14/15 / PBI / 2012 ratified in Jakarta on 24 October 2012 concerning Assessment of Commercial Bank Asset Quality, Bank's loan quality and Allowance for Impairment Losses (*Cadangan Kerugian Penurunan Nilai* i.e. CKPN) of each collectability are determined as:

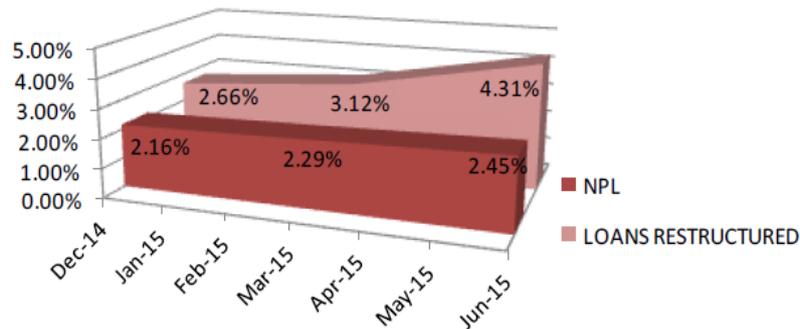
Table 1. Loan Quality and CKPN

Loan Quality	Allowance for Impairment Losses (CKPN)
1 (Pass)	1% x (Loan - Collateral Value)
2 (Special Mention)	5% x (Loan - Collateral Value)
3 (Substandard)	15% x (Loan - Collateral Value)
4 (Doubtful)	50% x (Loan - Collateral Value)
5 (Loss)	100% x (Loan - Collateral Value)

Loan restructuring is the improvement efforts undertaken by Bank on debtors that are experiencing difficulties in paying loan principals and/or interests, still have good business prospects, and are assessed to be able to meet the obligations after debt restructuring.

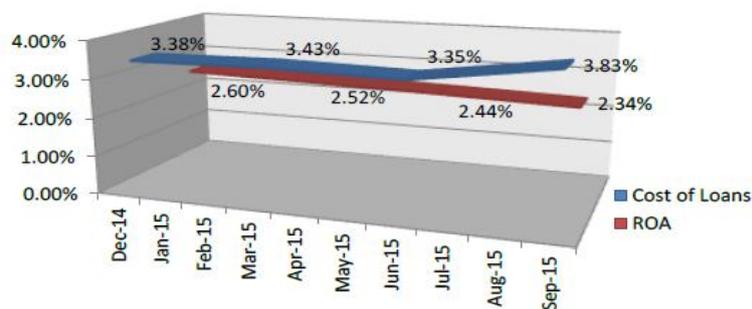
Restructured loans together with non-performing loans with collectability 3, 4, and 5 in the Bank's loan portfolio are categorized as Loan at Risk. The movement of Loan at Risk in Bank ABC is shown as follows:

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**Figure4.** Loan at Risk of Bank ABC (Bank ABC's Financial Statement, 2014 - 2015)

Higher value of Loan at Risk will increase CKPN and automatically increases Cost of Loan. Given that the cost of loan is a deduction value of Net Income then the increasing of Cost of Loan will decline Bank's Return on Assets (ROA) as reflected in the figure below.



**Figure5.** Cost of Loans and ROA of Bank ABC (Bank ABC's Financial Statement, 2014 - 2015)

In Banking Industry and Financial Institutions, loans are the most obvious source of credit risk. Credit risk is defined as the potential that a bank's debtors/borrowers will fail to meet its obligations in accordance with agreed terms. Considering that loan is the largest asset owned by a bank, it is necessary for a Bank to own risk management unit to minimize and mitigate credit risk associated with its loan lending. Credit risk management is aimed at assessing, anticipating, and minimizing losses due to the failure of a borrower or counterparty to fulfill its obligations.

The main task of Credit Risk Management Unit is to perform risk assessment and risk mitigation on loans with more focus on the analysis of the financial aspects. Financial ratios usually use in loan analysis, are:

- Current Ratio, Quick Ratio, and Net Working Capital to measure the liquidity of the applicants.
- Gross Profit Margin, Operating Profit Margin, Net Profit Margin, Return on Equity, and Return on Asset to measure the profitability of the applicants.
- Net Worth, Debt to Equity Ratio, Leverage, Cash Interest Coverage, and Debt Service

Coverage to measure the solvency of the applicants.

- Sales, Account Receivable Turn Over, Inventory Turn Over, Account Payable Turn Over, and Asset Turn Over to define the activity of the applicants.

In addition to assessing the applicant's actual financial performance, the Bank should also be projected financial performance in the future after additional capital in the form of loans from the Bank. The inability to pay its financial costs is one of the causes a bankrupt company. One of the formulas may be used to predict the probability of bankruptcy is *Z-scores* theory (Edward I. Altman, 1968). *Z-score* was formulated as follows:

$$Z = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5$$

Definitions of each component are:

$$X_1 = \text{Working Capital} / \text{Total Assets}$$

$$X_2 = \text{Retained Earnings} / \text{Total Assets}$$

$$X_3 = \text{Earnings before Interest and Taxes} / \text{Total Assets}$$

$$X_4 = \text{Market Value of Equity} / \text{Total Liabilities}$$

$$X_5 = \text{Sales} / \text{Total Assets}$$

Discrimination Zones are:

$$Z > 2.99 \rightarrow \text{"Safe"} \text{ Zone}$$

$$1.81 < Z < 2.99 \rightarrow \text{"Gray"} \text{ Zone}$$

$$Z < 1.81 \rightarrow \text{"Distress"} \text{ Zone}$$

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By knowing the z score of a company, Bank can assess the financial soundness of the company. If the value of z of companies is in the "Gray" or "Distress" category then Bank can anticipate as early as possible (early warning system) before the company suffered financial failure or bankruptcy that can lead to failure its repayment capacity. However, the weakness of z-score theory is z-score just a prediction or forecast in the future so it could not be used as a benchmark in determining whether the company will be bankrupt or not, and also could not be predicted when bankruptcy will happen.

**Table2.** Business Sectors of Data Samples

	Number of Company
Plastics Manufacturing	7
Garment Industry	2
Paper Manufacturing	2
Paper Trading	1
Boiler Manufacturing	1
Tour & Travel Services	2
Accumulator Trading	1
Transportation Services	2
Sea Transportation Rental	2
Oil & Gas Contractor	6
Telecommunication Services	1
Cellular Trading	3
Fertilizer Distributor	3
Consumer Goods Distributor	4
Gold Jewelry Manufacturing	1
Mechanical & Electrical Contractor	2
Food Manufacturing	2
Pharmaceutical Manufacturing	2
Stationery Trading	1
Ceramic Tile Manufacturing	1
Water Treatment Contractor	1
Textile Industry	1
Healthcare Distributor	2
Cosmetics Manufacturing	1
Cosmetics Trading	1
Gas Station	1
Brick Manufacturing	1
Furniture Manufacturing	1
Publisher Services	1
Iron Manufacturing	1
Fishing Equipment Trading	1
Fast Food Restaurant	1
Bottled Water Manufacturing	1
Maintenance Services	1
Granite & Marble Trading	1
Asphalt Trading	1
Steel Pipe Manufacturing	1
Metal Manufacturing	2
Property Industry	2
<b>Total</b>	<b>68</b>

Each company was represented by three periods of the financial statements so the number of data as samples, based on the financial statements taken, was 201 data.

## BUSINESS SOLUTIONS

### US' Index Theory within Performing Loans

In this section, the relevance of US 'Index theory will be tested by correlation and linear regression analysis to determine the influence of leverage ratios towards profitability ratios of debtors within Performing Loans quality. The data used in this study were taken from the financial statement during period of 2012 – 2014, of 68 companies listed as Bank ABC's debtors within Performing Loan Collectability. Those 68 companies were from various business sectors as seen on table below.

In order to fulfill normally assumption, some data were taken out from the data so eventually the number of data was 189 data range as follows:

**Table3.** Range of Data Samples

Information of Companies	Data Ranges
Total Assets	Rp 7,537 million – Rp 3,332,027 million
Total Equity	Rp 2,746 million – Rp 1,248,295 million
Total Debt	Rp 305 million – Rp 1,929,071 million
Sales / period	Rp 5,292 million – Rp 3,365,071 million
EBIT / period	Rp702 million – Rp 458,630 million
Net Income / period	Rp36 million –Rp 389,371 million
Debt to Assets Ratio (DAR)	1.12% - 71.47%
Debt to Equity Ratio (DER)	2.34% - 804.35%
Net Profit Margin (NPM)	0.19% - 48.77%
Return on Assets (ROA)	0.01% - 31.66%
Return on Equity (ROE)	0.30% - 96.81%

Those 189 data are divided into two groups based on the value of US' Index, i.e. US' Index less than 1 and US' Index more than 1. The number of data which US' Index <1 is 89 while US' Index > 1 is 100.

By adopting the equation of Linear Regression,  $y = mx + b$ , the models tested in this study are

**Table4.** Correlation Comparison in Each Groups of US' Index

Models	Variables	Correlations	
		US' INDEX < 1	US' INDEX > 1
1	DER → ROE	Positive	Positive
2	DER → ROA	Negative	Negative
3	DER → NPM	<b>Negative</b>	<b>Positive</b>
4	DAR → ROE	Positive	Positive
5	DAR → ROA	<b>Positive</b>	<b>Negative</b>
6	DAR → NPM	<b>Negative</b>	<b>Positive</b>

The correlation between DER and ROE in both groups, either first group or second group, is positive. It means that in each group, DER has a positive influence towards ROE. In other words, the higher DER generated higher ROE, thus it can be concluded that the companies as the samples of this study could utilize its Loan to increase its Net Income in order to achieve higher ROE annually.

The correlation between DER and ROA in both groups, either first group or second group, is negative. It means that in each group, DER has a negative influence towards ROE. In other words, higher DER made ROA decline annually. As it has been known that greater DER means loan utilization as a source of funds to finance the company's assets become more. Greater value of the loan will be accompanied by greater interest expense. Interest expense is one of the costs that reduce operational profit so it impacted Net Income. ROA shows the rate of Net Income compared to total assets of the company. If DER influence ROA negatively, it means that step up of assets financed by the loan

the influence of leverage ratios, represented by Debt to Equity Ratio (DER) and Debt to Assets Ratio (DAR), towards profitability ratios, represented by Return on Equity (ROE), Return on Assets (ROA), and Net Profit Margin (NPM). The correlation test outputs are shown as follows:

was not accompanied by a comparable increase in Net Income. The influence DER towards NPM in first group is negative while in second group is positive. It means that in group with US' Index < 1 higher DER made lower NPM otherwise in group with US' Index > 1 higher DER made higher NPM. The difference of correlation was due to the differences of US 'Index in those two groups. US 'Index > 1 means that the company could fulfill its obligations, in this case is interest expenses, which derive from its basic business profit. On the other side, US' Index < 1 means that the Basic Business Profit of a company wasn't higher than Loan Interest Rate thus DER growth was not comparable to the increase in Net Income and it causes NPM declined.

The correlation between DAR and ROE in both groups, either first group or second group, is positive. It means that in each group, DAR has a positive influence towards ROE. In other words, the higher DAR generated higher ROE, thus it can be concluded that the companies in both groups utilized its Loan Growth to increase its

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Net Income in order to achieve higher ROE annually.

The influence DAR towards ROA in first group is positive while in second group is negative. Higher percentage of DAR means higher portion of debt used to finance its assets while ROA is formulated as Net Income/Total Assets. Assume that all loans are used to increase the value of assets in a company then the assets would have same value in the calculation of DAR and ROA. Since the increase in the nominal value of the loan is higher than the increase in Net Income then increase in DAR percentage which was accompanied by decrease in ROA percentage is reasonable. This condition happened to companies in second group with US' Index > 1. In first group, companies with US' Index < 1, DAR increase made ROA increased. In this case, it can be assumed that the increased loan was not used entirely to increase the value of company's assets so with the same value of the assets (insignificant added value) higher loan would increase DAR percentage. From total loan increased probably there were partial loan value used as a reserve fund for the payment of obligations to the Bank or maybe used to fund other things outside the company's core business.

The correlation between DAR and NPM is same with the correlation between DAR and NPM, which is negative correlation in first group while positive in second group. In the second group with the US' Index > 1, companies were capable to generate Basic Business Profit higher than Interest Rate so higher DAR could increase NPM. It's because the loans were used effectively and efficiently to finance the company's assets turnover so that companies got sustainable Net Income. According to the analysis as described above, it can be concluded that for debtors with US' Index value was > 1, its loan facilities have

been influencing positively onto its profitability, but instead to the debtors with US' Index was < 1, its loan facilities have been burdening its financial conditions and has adversely impact to the profitability of companies.

This conclusion is relevant to the US' Index theory which says that if the value of the US' Index > 1 then the company could go leverage its profitability by Bank's loans but otherwise if the value of the US' Index < 1 then the company should finance its working capital and investment needs by its equity. This theory can be applied by Banks and other financial institutions in analyzing loan applications from applicants. By using value of US' Index as an additional tools in financial aspect analysis then Banks, especially Credit Risk Management Unit, can assess and project the repayment capacity of applicants. Therefore, Banks should prioritize loan lending to applicants with US' Index value is more than 1.

### US' Index Theory within Restructuring Loans

The conclusions of US' Index theory within Performing Loans will be compared with the realization of the US' Index of debtors who faced problems to fulfill their obligations to the Bank. Those companies will be grouped into a group called the Debtor Restructured Group because all loans owned by those debtors have been restructured to help debtors to solve their problems.

The number of companies took as data samples in that group is 21 companies with variety of industry sectors. Financial Statements used to calculate US' Index of each debtor are financial statements in last three reporting periods. Based on the calculation of US' Index, the movement of the US' Index for each debtor has been restructured during the last three years can be described as follows:

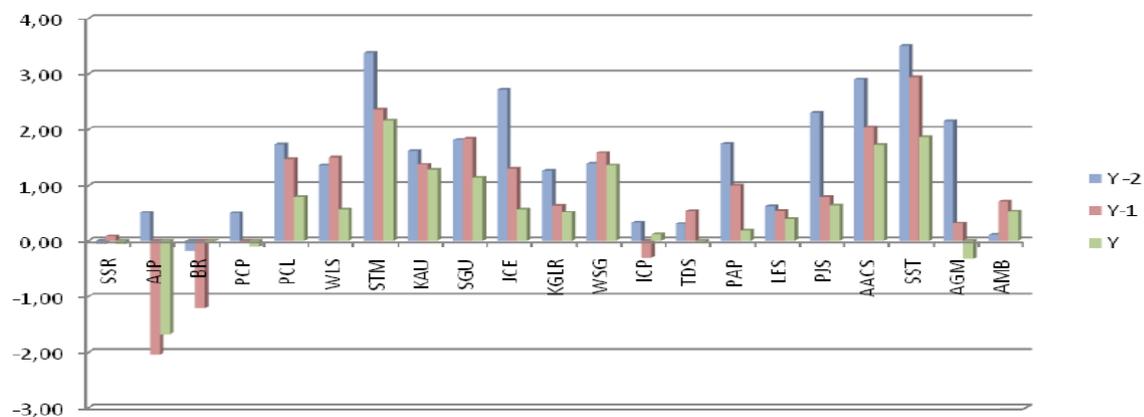


Figure 7. US' Index Graph of Debtor Restructured (Bank ABC, 2015)

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The graph above shows that almost all samples have decreased US 'Index in the last 3 years and  $\pm 70\%$  among all samples have US' Index value less than 1 at the last year. It shows fact that when Debtors began difficult to pay their obligation to the Bank, their US 'Index were in declining condition and most of US' Index samples were worth less than 1 at the time when their loans were restructured.

The impairment of US 'Index shows that the company's ability to generate profit from business operations was declining until at a certain point that US 'Index  $< 1$ , it means that at that point, i.e. US' Index  $< 1$ , its basic business profit was no longer able to cover its obligations to the Bank, and it relevant with US' Index theory.

So, in this section, it can be concluded that US' Index value can be used as a monitoring tool in loan review and monitoring system. By monitoring the change of US 'Index value then the change to be lower than 1 will be known from the beginning and it will be an early warning signal to the Banks to to detect problems faced by the debtors. Thus Banks may find appropriate solutions to solve the problems and maintain loan quality in Performing Loans.

In this way, Banks can mitigate the credit risk and maintain loan quality stay in Performing Loans so cost of loans won't be increase and loan repayments can be maintained properly.

### US' Index Theory within Non-Performing Loans

This section will be test the relevance of US 'Index theory within debtor in Non-Performing Loans. This section will analyze the financial performance of a company, called as PT. XYZ, which is categorized as Non-Performing Loans (NPLs). The financial statements to be presented in this case are financial statements during period 2008 to 2015, where the company was starting to be a Debtor in year 2011. In year 2013, the company started difficult to fulfill its working capital needs and also difficult to pay its obligations to the Bank then in year 2014, the whole loans on behalf of PT. XYZ had been restructured to ease the burden on the company. But the loan restructured scheme did not realize according to the plan so that the loans were continuous declined and now become part of bed loan portfolio in Bank ABC. The financial performances of PT. XYZ during the period 2008 to 2015 are shown in the following table:

**Table 5.** Financial Performances PT. XYZ during 2008 – 2015

PT. XYZ (Rp Million)	Audited 12/31/08	Audited 12/31/09	Audited 12/31/10	Audited 12/31/11	Audited 12/31/12	Audited 12/31/13	Audited 12/31/14	In house 3/31/15
<b>BALANCE SHEET :</b>								
<b>ASSETS</b>								
Current Assets	169,817	168,356	177,823	252,171	261,077	278,190	280,404	287,753
Net Fixed Assets	184,089	178,380	174,369	179,457	176,676	173,943	169,038	140,165
Other Non-Current Assets			20,000	-	-	-	-	-
<b>Total Assets</b>	<b>353,906</b>	<b>346,736</b>	<b>372,192</b>	<b>431,628</b>	<b>437,753</b>	<b>452,134</b>	<b>449,442</b>	<b>427,919</b>
<b>LIABILITIES</b>								
Current Liabilities	118,482	118,479	151,492	217,176	205,482	187,202	192,348	158,260
Long Term Liabilities	27,282	14,454	4,539	12,768	8,681	14,885	5,576	5,361
<b>NET WORTH</b>	<b>208,142</b>	<b>213,803</b>	<b>216,161</b>	<b>201,684</b>	<b>223,590</b>	<b>250,047</b>	<b>251,518</b>	<b>264,298</b>
<b>TOTAL LIABILITIES &amp; NET WORTH</b>	<b>353,906</b>	<b>346,736</b>	<b>372,192</b>	<b>431,628</b>	<b>437,753</b>	<b>452,134</b>	<b>449,442</b>	<b>427,919</b>
<b>INCOME STATEMENT :</b>								
<b>Sales Revenue</b>	<b>202,633</b>	<b>208,736</b>	<b>211,555</b>	<b>211,883</b>	<b>222,311</b>	<b>204,183</b>	<b>183,843</b>	<b>40,982</b>
Cost of Goods Sold	102,363	104,572	106,506	105,440	119,172	107,337	97,081	22,586
<b>Gross Profit</b>	<b>100,270</b>	<b>104,164</b>	<b>105,049</b>	<b>106,443</b>	<b>103,139</b>	<b>96,846</b>	<b>86,762</b>	<b>18,396</b>
Sales, General & Adm Expenses	66,845	67,340	74,346	71,717	71,391	66,234	62,607	14,784
<b>Operating Profit</b>	<b>33,425</b>	<b>36,824</b>	<b>30,703</b>	<b>34,726</b>	<b>31,748</b>	<b>30,613</b>	<b>24,154</b>	<b>3,613</b>
Other (Income) Expense	1,354	1,601	3,495	3,558	3,169	2,200	2,844	985
<b>EBIT</b>	<b>32,071</b>	<b>35,223</b>	<b>27,208</b>	<b>31,168</b>	<b>28,579</b>	<b>28,413</b>	<b>21,310</b>	<b>2,627</b>
Interest Expense	16,536	20,960	15,353	17,395	21,011	22,628	19,127	4,847
<b>EBT</b>	<b>15,535</b>	<b>14,263</b>	<b>11,855</b>	<b>13,773</b>	<b>7,568</b>	<b>5,785</b>	<b>2,183</b>	<b>(2,220)</b>
Income Tax	5,744	6,322	5,900	4,524	3,884	3,328	712	-
<b>EAT (Net Income)</b>	<b>9,791</b>	<b>7,941</b>	<b>5,955</b>	<b>9,249</b>	<b>3,684</b>	<b>2,457</b>	<b>1,471</b>	<b>(2,220)</b>
Net Profit Margin (%)	4.83%	3.80%	2.81%	4.37%	1.66%	1.20%	0.80%	-5.42%
<b>RATIOS :</b>								
<b>Liquidity:</b>								
Current Ratio (%)	143.33%	142.10%	117.38%	116.11%	127.06%	148.60%	145.78%	181.82%
Net Working Capital (NWC)	51,335	49,877	26,330	34,995	55,595	90,988	88,056	129,493

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<b>Profitability :</b>								
Gross Profit Margin (GPM) (%)	49.48%	49.90%	49.66%	50.24%	46.39%	47.43%	47.19%	44.89%
Operating Profit Margin (OPM) (%)	16.50%	17.64%	14.51%	16.39%	14.28%	14.99%	13.14%	8.81%
Net Profit Margin (%)	4.83%	3.80%	2.81%	4.37%	1.66%	1.20%	0.80%	-5.42%
Return on Equity (ROE) (%)	4.70%	3.71%	2.75%	4.59%	1.65%	0.98%	0.58%	-3.36%
Return on Asset (ROA) (%)	2.77%	2.29%	1.60%	2.14%	0.84%	0.54%	0.33%	-2.08%
<b>Solvency :</b>								
Net Worth	208,142	213,803	216,161	201,684	223,590	250,047	251,518	264,298
Debt to Equity Ratio (DER) (%)	65.27%	58.18%	68.46%	109.70%	92.64%	77.38%	75.43%	59.59%
Cash Interest Coverage (EBITDA to I) (%)	249.18%	213.02%	247.00%	220.33%	168.01%	151.42%	166.79%	112.42%
Debt Service Coverage (EBITDA) (%)	249.18%	213.02%	247.00%	220.33%	168.01%	151.42%	166.79%	112.42%
<b>Activity :</b>								
Sales per Month	16,886	17,395	17,630	17,657	18,526	17,015	15,320	13,661
Accounts Receivable Turn Over (days)	78	79	68	71	73	84	96	111
Inventory Turn Over (days)	365	347	361	608	536	573	690	746
Accounts Payable Turn Over (days)	11	8	8	11	10	7	8	3
Net Trade Cycle (days)	431	418	421	668	599	650	778	854
<b>Z Score</b>			<b>1.90</b>	<b>1.52</b>				
BBP	9.06%	10.16%	7.31%	7.22%	6.53%	6.28%	4.74%	0.61%
Interest Rate	10.25%	10.25%	10.25%	10.25%	10.50%	11.25%	12.00%	3.00%
<b>US' Index</b>	<b>0.88</b>	<b>0.99</b>	<b>0.71</b>	<b>0.70</b>	<b>0.62</b>	<b>0.56</b>	<b>0.40</b>	<b>0.20</b>

Loan analysis process on PT. XYZ application was conducted in 2011 by analyzing the financial performance contained in the financial statements of the last 3 years i.e. 2008 to 2010. As figured in the table above, its financial ratios during 2008 to 2010 generally showed that the financial company was in good condition and it reflected in some ratio as follows:

- Current ratio higher than 100% (> 100%) and positive Net Working Capital showed that PT. XYZ was able to fulfill its short-term liabilities and its working capital needs.
- Profitability ratios i.e. Gross Profit Margin, Operating Profit Margin, Return on Equity, and Return on Asset were positive, which means that PT. XYZ was able to generate net profit every year with operating profit at the last year amounted 14.51% of sales and this value was quite high as compared to other companies in similar industries.
- Solvency of PT. XYZ was considered good, reflected by the increased the value of Net Worth although along with increased DER and Debt Service Coverage (DSC) was maintained more than 200%. This indicates that PT. XYZ could generate its operating profit value higher than the total value of its obligations to the Bank so it can be considered PT. XYZ was able to pay its obligations to the Bank.
- Business activity of PT. XYZ had been running well, looked from increased sales

value every year. Turnover business activity during last 3 years fluctuated and Net Trade Cycle at the last yearslowed into 421 days because of stock turnover was longer compared to the previous period which was 347 days change into 361 days.

- The Z score per December 2010, based on the last financial statement period that used in loan analysis, was 1.90 and according to the Altman's z score theory means that this company was in *Gray Zone*, not in *Distress Zone*. *Gray Zone* means that the probability and times of bankruptcy is uncertain so at the time Bank could lend some loans to PT. XYZ.

Based on those of financial performance analysis as described above, loan application from PT. XYZ has been approved and PT. XYZ became debtor of Bank ABC at 2011. At that time, US 'Index has not been included in the financial ratios that used as an assessment tool in the loan analysis process. As shown in the table 5, the US 'Index values during year 2008 to 2010 were always below 1 and the value in the last year was 0.71.

According to the output analysis that has been described above there was a negative correlation between Debt to Equity Ratio (DER) and Net Profit Margin (NPM) in a group of companies with US 'Index <1. In others words, DER influence negatively toward NPM and in this case means that increasing leverage of PT. XYZ

had been decrease its profitability. If Bank used US 'Index theory as a guidance to assess PT. XYZ's repayment capacity in loan analysis then Bank would be early know that PT. XYZ should not go leverage.

Given that its US' Index was  $< 1$  then increasing loan value to PT. XYZ would be decrease its profitability and negatively impact to its repayment capacity to the Bank. It was reflected in the decrease of NPM since year 2012, one year after PT. XYZ obtained additional loan value from the Bank. Therefore, US 'Index can be useful to sharpen the analysis of company's financial performance in order to assess its capacity payment, if US' Index  $< 1$  then Bank should not give loan to any company.

In this case, along with US' Index  $< 1$  during period 2008 to 2015, ARTO and ITO increased every year. Given that the US 'Index is the comparison between Basic Business Profit (BBP) with Loan Interest Rate while BBP formulated as value of operating profit (EBIT) be divided by total value of assets, then there are two ways to increase the value of the US' Index that can be done by the company. First way is to increase operating profit by way of efficiency to reduce production costs. Second way is to reduce its total asset by accelerating the turnover of productive assets or selling assets that are not productive.

As has been described above that the days turnover of Inventory and Account Receivable at PT. XYZ were getting longer every year, therefore the right way to make the performance of the company health, as indicated by the US 'Index greater than 1, is by accelerating the turnover of stock and receivables. By accelerating the turnover of stock and receivables, the value of stocks and receivables are included in the company's assets will be reduced. In addition, increasingly rapid turnover means that company be more efficient in managing its assets so that production costs can be reduced.

According to the research and case study as describes above, it can be concluded that US 'Index theory can be implemented as solution for Bank to reduce its Non-performing Loans so that Bank can keep doing its business and function as Intermediary Institutions even though the economic condition has not recovered yet.

## **CONCLUSION AND RECOMMENDATION**

### **Conclusion**

Based on the research, it can be drawn some conclusions as follows:

- Leverage Ratio has negative influence towards Profitability Ratio in group of companies with US' Index  $< 1$  but has positive influence in group of companies with US' Index  $> 1$ .
- The financial ratios that have been used in the loan analysis must be completed with the use of US 'Index as one of the parameters in assessing the feasibility of providing loans to prospective borrowers.
- Loan lending to company with US 'Index  $< 1$  should be avoided because US' Index  $< 1$  means that the company would not able to fulfill its obligations to the Bank from its business profit.
- US 'Index can be used as a monitoring tools to provide early warning signal at the time debtor started to experience difficulties so Bank can proceed an intensive treatment to restore the company's performance.
- US 'Index can be used as a reference in finding the right loan restructuring scheme to rescue the company and also to save the quality of bank loans.
- US' Index can be used as credit risk mitigation to prevent loan become Non-performing Loan in Bank's loan portfolio.
- Non-performing loans (NPLs) directly affect to the cost of loan which is a deduction from Bank's profits therefore by depressing the value of NPLs will increase Bank's profitability.

### **Recommendation to the Banks**

This study recommends the use of US 'Index as one of the parameters in the loan process, end to end process. Loan process begins at the front end process where Bank starts to evaluate prospective borrower as applicant in all aspects, including financial aspect. US' Index can be used at the front end process as a screening tool to measure applicant's capability to cover its obligation to the Bank. US' Index performance of applicant can be calculated based on its financial statements during last three years and applicant with US' Index  $> 1$  is feasible to be given some loan facilities by the Bank.

At the middle end process, US' Index can be used to monitor and review the existing loans in order to ensure that debtor's performance is going well. US' Index of each debtor should be review quarterly based on its financial

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statement. Over time, the value of US' Index may be changed in accordance with the debtor's performance that is influenced, among other things, by changes in economic conditions that occurred.

When US' Index falls down into  $< 1$  then US' Index become an early warning signal for Bank to review its loans and takes some actions to improve its performance such ways as follows:

- US' Index  $< 1$ , according to US' Index theory, means debtor should go equity to finance its working capital and investment needs. The equity value addition can be done through additional paid-in capital or a cash injection in the form of loan from shareholders without loan interest repayment.
- Refers to the US' Index theory, in order to increase value of US' Index, several ways should be done by debtors are; generating more EBIT (Earnings Before Interest and Tax), lowering its assets value, or asking Bank to give lower Loan Interest Rate. Lowering Debtor's assets value can be done by speed up the turnover of Account Receivable (AR DOH) and Inventory (InvDOH) so its operating costs will be more efficient and will produce higher EBIT. In this way, the value of the debtor's assets, especially its current assets, can be decreased and generates higher EBIT.
- Another step that can be done by Bank is to restructure debtor's loans to ease the burden on the debtor's obligations to the Bank. Bank can offer debtors restructuring schemes such as reduction in loan interest rate and extension of loan period.

By taking those actions, the value of US' Index is expected to increase so US' Index value becomes more than 1 and it means that debtor's business back to normal.

At the back end process, US' Index can be used to define loan restructuring schemes of Non-performing Loan to minimize its cost of loans and optimize its revenue from loans. Using US' Index theory as a guideline will give Bank some options to optimize its return on assets such as:

- Maximize return from collecting repayment through selling Debtor's unproductive assets.
- Reduction of loan interest arrears in loan settlement scheme
- Reduction of loan principal arrears in loan settlement scheme
- Conversion of loans into temporary equity to strengthen debtor's capital for the purpose of improving business condition to Debtor and will positively impact to the loan quality of Bank.

In all those stages, Bank has to do continuous enhancement to be able to adapt to any changes in both macro and micro-economy that occurred in Indonesia.

By implementing the US' Index theory at every stage of loan process, Bank can control the loan risk (which is in banking industry and financial institutions known as *credit risk*) and improve its loan quality. Increasing loan quality characterized by reduced NPLs level which will result in the decrease of the cost of the loan. The declining cost of loan will enhance Bank's achievement of the Net Interest Income so Bank can generate sustainable profit continuously.

Enhancement in loan analysis process will increase the number of good-quality loan and on also will reduce cost of loan so that Bank can generate a sustainable profit. In general, the use of US' Index in loan process flow in order to generate sustainable profit can be described as follows:

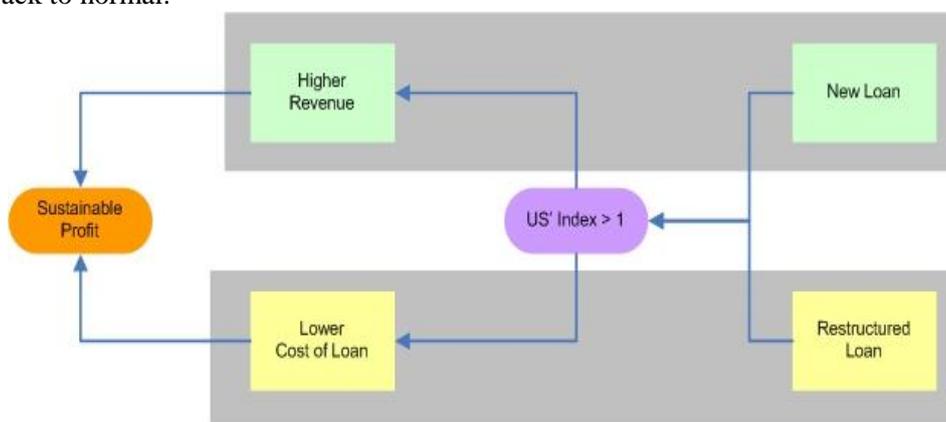


Figure8. Sustainable Profit Chart (Developed by Author, 2016)

### **Recommendation for Future Research**

The limitations of the data variance and scope of this study are expected to be developed by other research in the future. Future Research is expected to give more specific conclusion and precise to be implemented either by the company as the debtor or by the Bank as a creditor in order to improve both of their performances continuously.

Few things are recommended as inputs and require more attention in future research are as follows:

- Further research should be done on all industry sectors in Indonesia, including property industrial sector that have not been included into the sample data in this study.
- In future research, sample data should be grouped by type of industry sector such as manufacturing, trade, or services, to determine the character of companies in similar industries and to measure the impact of the US' Index in determining the right capital structure for each group.
- In future research, sample data should be grouped by company scales which are based on the total value of assets of the companies to determine the impact of the US' Index in determining the right capital structure for each group.
- Conduct further research on companies in certain industrial sectors to analyze outputs that are anomalies and find the cause of anomaly.

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