

# Index of Real Sector Returns as Price Benchmarking for Islamic Banking Products

Researchers of Islamic Banking Department

Central Bank, Republic of Indonesia, a\_sakti@bi.go.id

## Abstract

**Objective** – Islamic Banking is closely related to the real sector. Then, its operation should reflect the real sector which is expected to contribute to the sustainable economic growth. Nevertheless, Islamic banks are still benchmarking the price of their products (profit sharing and sales) on interest rate. This is as an implication of the implementation of the dual banking system. Moreover, the small portion of Islamic banking compared to the total national banks causes the competitiveness of Islamic banking product in terms of pricing has a high correlation with the interest rate of conventional counterpart. This phenomenon indicates the need to find.

**Method** – This research employed library research method since this paper relies on secondary data by thoroughly reviewing the most relevant literature. The paper attempt to propose a pricing indicator which is based on the real sector activities as the root of Islamic banking operations.

**Result** – Theoretically, this indicator can reflect the real rate of return of every industry sector. In addition, it can help Bank Indonesia to monitor the real sector performance and analyze the possible gap between real sector activities and financial sector. Furthermore, when the benchmark of real rate of real sector return is available, the return index of Islamic banking reflecting the profit sharing performance of the whole Islamic banking industry can be formulated. This concept is different with other indexes which are corresponding to the price of financial assets.

**Conclusion** – In general, return index of real sector as a reference for Islamic banking product pricing is expected to define the way of non-interest return analysis, to calculate the non-interest return of selected sectors that becomes the focus of analysis using Cash Recovery Rates (CRR), forming an index of industry by sector in the second stage, by doing a certain weighting of those companies, to analyze the relationship between macro factors and CRR by sector and to forecast.

Key words : Index of Real Sector Returns, Price Benchmarking, Islamic Banking product

## Abstrak

**Tujuan** – Sebagai bank yang berhubungan erat dengan sektor riil, maka sudah seharusnya kegiatan operasional perbankan syariah merupakan cerminan dari sektor riil sehingga diharapkan dapat memberikan kontribusi dalam mendorong pertumbuhan ekonomi yang berkelanjutan. Walaupun demikian penentuan pricing produk oleh perbankan syariah, baik yang menggunakan pola bagi hasil maupun jual beli, masih mengacu pada suku bunga konvensional. Hal ini merupakan implikasi dari implementasi *dual banking system*. Terlebih lagi porsi perbankan syariah yang masih kecil bila dibandingkan dengan total perbankan nasional, menyebabkan daya saing produk bank syariah dari sisi penetapan harga masih memiliki korelasi yang tinggi dengan suku bunga bank konvensional.

**Metode** – Tulisan ini menggunakan studi kepustakaan yang bergantung pada data sekunder dengan teliti meninjau literatur yang paling relevan untuk membuat suatu indikator penetapan harga yang lebih didasarkan pada kegiatan sektor riil sebagai akar operasional bank syariah.

**Hasil** – Indikator ini secara teoritis dapat mencerminkan *real rate of return* masing-masing sektor industri. Selain itu, indikator sektor riil tersebut dapat digunakan oleh Bank Indonesia untuk memantau kinerja sektor riil dan menganalisa gap yang mungkin timbul antara kegiatan sektor riil dengan sektor keuangan. Selanjutnya, jika *benchmark real rate of return* sektor riil telah tersedia, dapat dirumuskan suatu indeks return perbankan syariah yang mencerminkan kinerja imbal hasil

industri perbankan syariah secara keseluruhan. Konsep indeks ini berbeda dengan indeks biasanya yang lebih merupakan indeks penyesuaian kenaikan harga-harga pada aset keuangan.

**Kesimpulan** –Indeks Return Sektor Riil sebagai acuan harga produk bank syariah diharapkan dapat mendefinisikan jalur analisis imbal hasil non-bunga, menghitung imbal hasil non-bunga untuk sektor pilihan yang menjadi fokus analisis dengan *Cash Recovery Rates* (CRR). Selain itu hasil penelitian dapat digunakan untuk pembentukan indeks sektoral industri dengan cara melakukan pembobotan tertentu dari perusahaan tersebut, dan melakukan analisis hubungan faktor makro dengan CRR sektoral dan prediksi.

Kata Kunci : Indeks Return Sektor Riil, Acuan Pricing, Produk Perbankan Syariah

## 1. Introduction

The optimization of function and sustainability of financial system in support of economic development is a challenge for every country. The financial system is expected to function optimally supporting the operation of production functions needed by society. Banking system plays a very important role in saving-investment process to support the availability of sufficient capital from production sector in order to maintain the economic growth rate as expected. Economic growth is expected to occur in all economic sectors, such as agriculture, manufacturing, services and other business sectors. Efforts to enhance the role of banking system to the production sectors is known as financial deepening which aims to open wider frontiers for the financial system to be able to channel its funding to the production sector through various financial markets such as capital market and banking.

Nevertheless, as the development of various financial instruments backed by the innovation in technology sector, the term of investment includes not only capital investment activities to increase the production of goods and investments, but also channeling the capital to the various financial instruments that do not necessarily have a direct relationship with production process of goods and services. On the other hand, each economic sector has different a different rate of returns which is not necessarily higher than the rate of return of investment in financial instruments.

In the analysis of main stream economics, output is calculated aggregately regardless of the productivity of each production sector specifically. Charging interest rate higher than the real return of production sector will lead to the reluctance of the

banks to channel the funds to anticipate moral hazard in financing. Meanwhile, the confidence level of banking in return rate of real sector is dominantly determined by the bankers' perception about the production sector. When the perception sets a lower return, the higher the uncertainty of the return becomes. As a result, it may enlarge the expectation gap between the bankers and businessmen. In the end, it will decrease the supply of financing to the production sector.

The smaller funds channeled to the real sector is exacerbated by the emergence of investment options in the financial instruments that have less relevancy to the real sector but offer higher return than production sector. Experiences in the time of economic crisis that peaked in 1998 showed that the money concentration in the monetary instruments and derivative markets cause the lack of fund channeled to the production sector to maintain the sustainability of the production (financial detachment). One effort to reduce the potential of financial detachment is through the study of the real sector that aims to understand the rate of return better and lower the risk aversion level of bankers.

In the system where the capital market is developing well, the description of return rate of industry can be easily accessed. Even when the coverage level of the firm listed in capital markets has covered the majority, the picture of the performance and the dynamics of the production sector can be represented by the performance indicators in the capital market. However, in the traditional economic system where the coverage of capital market is still small, the index of production sector performance cannot be fully indicated by the capital market indicators.

The existence of Islamic banking, conceptually, is expected to act as partner of business sector and positively contribute to the sustainability of national economic development program. Being a partner of business sector requires a good knowledge about the dynamics of the real sector, especially the performance estimation of the firms that will be financed by Islamic Bank. The good knowledge may prevent the bank from the potency of adverse selection which happens when the bank is not able to distinguish

entrepreneurs who have good prospects and no. This, of course, will give hopes for the preservation of the quality of the Islamic banking financing in the form of both collectability (for fixed income product) and profit sharing-based product.

Some studies have been conducted to model the movement pattern of the performance at the level of either firm or industry that can be grouped into two types of approaches. The first approach is using Structure-Conduct-Performance (SCP) that tries to model the dynamic pattern at the industry level while input-output (I/O) tries to see the sensitivity level of each input variable to the output of industries that are inter-related in their cost structure. Modeling the performance of real sector is expected to be a main reference for Islamic Banks in determining the real rate of return in accordance with the type of business.

Reference rate of return describing the real return of the real sector has some benefits for Islamic finance industry especially Islamic banking at the micro level as follows:

1. A reference of product pricing for financial sector especially Islamic banking.
2. A reference for feasibility study of an investment.
3. To minimize the potential of injustice in the interaction of market players in the banking sector.

In the macro level, reference rate of return has positive impacts to the economy as follows:

1. Provide accurate information to the market that may create justice for all market players and then able to maintain the conducive market.
2. Encourage the establishment of a transparent and efficient financial market.
3. Encourage the optimization of capital formation and resource allocation to enhance investment activities supporting real sector.
4. Encourage the equilibrium between real sector and financial sector, and reduce the gap between them.

5. Encourage market integration.

## 2. Methodology

This research employed library research method since this paper relies on secondary data by thoroughly reviewing the most relevant literature. The paper attempt to **propose a pricing indicator which is based on the real sector activities as the root of Islamic banking operations.** After reviewing the concept and its model, it continuously followed by the discussion about the researcher's opinion.

### *2.1. General Practice of Islamic Banking Products Pricing*

The pricing of Islamic banking products includes the stage of offering profit sharing ratio, murabahah margin, ijara fee and fee based income rates (Fernanda, no year). Pricing in the funding side includes products of current account, savings and time deposit. On the other side, the pricing in financing includes the financing products based on sales, leasing, service and investment.

In General, some factors affecting the pricing of banking products are as follows:

- Market condition/situation; certain market condition usually directly affect the bank's policies in pricing their products. A tight market situation due to crisis encourages the bank to increase the price and vice versa, if the market is stable, the bank will adjust or lower their price.
- Competition: in order to maintain market share both product and business volumes, pricing would optimally support a bank's level of competition in the financial markets/banking.
- Government policies; under certain circumstances a bank will offer special prices on certain products in order to support government programs, such as micro-credit program or mortgage for building cheap houses.

- Regulation; provisions of banking authorities with the aims to maintain the stability and health of the industry through its prudential banking regulations will certainly influence the pricing of banking products.
- Profit target; a given level of earnings set as the target of the bank is one of references to determine the price level of products.
- Period of time; product pricing also consider all aspects related to the time of product (short term and long term). The longer time provides a greater potential for unpredicted things or potential problems in a banking product.
- Corporate reputation; under certain conditions, the bank is also considering its reputation in the market and industry in determining the price of its products.

A very common element attached to the above factors determining the price is an element of risk, where the risk element exists in each factor.

## *2.2. Pricing of Funding Products*

Pricing in the Islamic banking product on the funding side consists of profit sharing product, deposit, mudarabah mutlaqah saving, bonus of current account and wadiah saving and fee of mudharabah muqayadah deposit. The rate of profit sharing ratio of deposit product (either priority customer or regular customer), technically, is influenced by the average of profit-sharing ratio (in Islamic bank) and interest rate. Those variables should be references reflecting customers' willingness to invest his money in bank deposit portfolio rather than invest in the other sharia financial portfolio.

It must be noted that the motivation to deposit is to generating income while keeping the fund in current account and savings is relatively motivated by precautionary reason. Thus, the pricing of current account and savings which are reflected by the level of bonuses (the amount is not prior agreed), is quite flexible for the bank. However, the bank still has to consider the bonus rate in the market in order to maintain its reputation in the industry.

Meanwhile, the preference of customers to put their funds into demand deposit and savings based on trustee (wadi'ah), is more dominated by the completeness and ease of facilities provided than bonuses. This is due to the nature of the product which is short-terms and should be in a liquid condition. On the other hand, the time deposit product relies on the rate of profit sharing. To make it easier to understand the pricing of time deposit product (mudarabah mutlaqah), the following pricing model is presented:

*Profit sharing rate of time deposit = F (average profit-sharing of Islamic banking, interest rate)*

Nevertheless, the rate of profit sharing also considers the internal bank's ability and the level of market acceptance reflected by the aforementioned variables (average profit-sharing Islamic banking and interest rate). The bank's ability includes profitability in the market, operational efficiency and the completeness of product facilities.

In addition, another funding product of Islamic banks is mudarabah muqayadah deposit whereby its pricing is in the form of the determination the fee rate charged to investors as the product is off balance sheet; Islamic bank acts as agent intermediating between investors and entrepreneurs. Determining the fee rate in mudarabah muqayadah product basically has the same method as in the determination of the profit-sharing rate of mudarabah mutlaqah deposit which bases on the average fee rate of Islamic banking and the fee offered by conventional banks. Meanwhile, the technical mechanism to determine the profit sharing and bonuses of funding products (demand deposit, saving and time deposit) can be seen in the attachment.

### *2.3. Pricing of Financing Products*

Pricing mechanism in financing products of Islamic banks is generally still employing the same mechanism as in conventional banks. The different types of financing where in Islamic banks the financing is based on sales and profit sharing (investment), does not change the pricing method. The only difference is the price

representation pricing results. For products based on sale, the price is represented by margin while for profit sharing based product is represented by profit sharing ratio.

Among factors determining the rate of margin or profit sharing ratio in the financing product pricing of Islamic banks are as follows (Fernanda, no year):

1. Total cost of fund: costs incurred to acquire funds and reserve requirement.
2. Profit target: the rate of return desired by the bank that takes into account the level of competition, customer classification and business sector.
3. Operating cost: includes salary cost, administration, maintenance and etc.
4. Reserve for non-performance financing risk: anticipation of non-performance financing risk.
5. Reserve for interest rate fluctuation risk: anticipation of market competition risk due to the fluctuation of interest rate.
6. Tax: tax on the bank's earnings.

In detail, the pricing mechanism of Islamic banks in financing product can be seen in the appendix. The current crucial obstacle is the condition of people who are dealing with Islamic banks is still using the conventional thought pattern. In addition, infrastructure that supports the pricing mechanism of Islamic banks in accordance with the operational logic of Islamic finance, such as information about the return rate index of real sector is still not available to be used as pricing reference.

Furthermore, another problem of pricing in financing products of Islamic banks that needs further debate is how much the return rate imposed on customers as the revenue of bank. For sale-based product such as Murabahah, istisna and salam, the bank is allowed to determine the rate of return as in conventional banks, i.e. 12 %. The return rate is then added to cost of goods sold to be a selling price to the customer. However, there are still more problems. The issue of debate is whether the rate of return is lump sum or per annum.

According to Sharia, there is no double selling price in one contract. It means that if the bank and the customer agreed upon profit rate for 12% per annum where the purchasing price is Rp. 100 million within two years, then, there is two prices in one financing contract. If the customer has installed for twenty months and then fails to pay while he can only pay off after two years and a half, hence, the selling pricing is not purchasing price plus 24% anymore, but the purchasing price plus 30%. That is why Islamic banks got sharp criticism from some people, because such pricing mechanism is not different as the determination of interest rate in conventional banks.

The Issue of decoupling between financial market and real sectors also occur in the discussion of benchmark reference. In the discussion of product, the treasury dealers propose the fatwa issuance of Sharia supervisory board on forward transactions. When they are asked how to calculate the purchasing price of foreign currency after 30 days, they presented a following formula:

$$\text{Nominal foreign currency} \times \text{exchange rate} \{1 + (30/360 \times 15\%)\}$$

All Islamic scholars were surprised to know that 15% is the market interest rate. They wonder why the interest should be the basis of calculation. Is there other alternatives? Unfortunately, the problem of benchmark is not a national problem, but international phenomenon. The critics addressed to Islamic banks because they refer to money market.

Islamic Development Bank, for example, is still using London Inter-Bank Offer Rate (LIBOR) as reference of cost of fund for the channeled fund. The reference of course is obtained from benchmarking to interest rate. Therefore, a special reference for Islamic bank is needed as a substitute for the inter-bank money market. There was a suggestion that the price level of Islamic bank should refer to the price level of real sector with their respective sector. For instance, the return rate in construction sector is 20%. Hence, the bank may charge a price for buying and selling of construction commodities around that rate. Nevertheless, this matter still requires further research, since it may

cause some problems such as jealousy among sectors. For example, a customer who is buying consumptive goods using murabahah may feel aggrieved because he bears a higher price than those who buy capital goods, also through murabahah contract, with a lower price level.

#### *2.4. Instruments Used as Pricing Reference*

Based on microeconomics theory, producer's behaviour (supply) is strongly influenced by the behaviour of consumers (demand). It seems that this theory is applied in national banking market. Likewise, the behaviour of Islamic banking practitioners in the formulation of product pricing depends on the market behaviour of its customers.

The characteristics of national banking market are still liquid between Islamic and conventional banking. This is due to some factors:

1. Islamic banking is still relatively new, then, the market (public) has a lack of information related to the operational and products of Islamic banks.
2. The understanding of the advantages of Sharia concepts has not been well socialized well in society at large.
3. Some perceive Islamic bank as only diversification of financial service in banking sector.

The above factors form the domination of floating customers in Islamic banking market. Hence, Islamic banking, currently, is not only competing among Islamic banks, but also has to compete with conventional counterparts. As long as conventional banks still dominate the structure on national banking market, the business strategy of Islamic banks should consider the behaviour of conventional bank since the potential customers are more familiar with conventional banking. In regard to the product pricing of Islamic bank, Islamic banking given such condition should consider the product financing of conventional banks.

Consequently, Factors and variables used as reference for the calculation of conventional products would also be guideline of Islamic banking calculation. Moreover,

given the current application or operational concept of Islamic bank which is referring to conventional bank, the pricing product mechanism model (including independent variables that influence it) will be not much different. Based on the explanation of the previous sub-section, Islamic banks are still benchmarking to the market interest rate in its product pricing whereby interest rate is also a reference for conventional banks in its product pricing.

### **3. Results and Discussions**

#### *3.1. Gap Analysis: Practice and Theory*

As the concept of profit sharing is the characteristic of Islamic banking operational, then, theoretically, the determination of Islamic banking product pricing is strongly determined by the asset performance. The performance of fund management in the form of profit sharing or margin of financing activities will be the basis of Islamic banks to determine the rate of profit sharing and bonuses for customers in funding side (liability).

However, the current product pricing of Islamic banks still refer to the bank's liability to the customers. So impressed with the product pricing pattern of Islamic banks are still using conventional methods which are not in line with the logic of the financial operations using the concept of profit sharing. In interest-based conventional concepts the funding side will be a point of concern, considering expenses or liabilities that have been promised before in the form of fix saving/deposit interest become a burden that must be considered in the financial operations especially in the financing side.

Meanwhile, the financial operation using profit sharing concept, basically do not have a mechanism such in conventional. The liability in the funding side is not promised in advance, but the amount of liability depends on the performance of financing side. In consequent, the point of concern in Islamic banking is on the financing side. The better the performance of financing side the higher the rate of profit sharing distributed to the

customers. This is the logic that should be a basic understanding to understand the pricing theory of Islamic banks. It means, theoretically, the technical mechanism of product pricing in Islamic banks should not use a pattern or even the same as the conventional method, because the concept of Islamic banking operations differs from conventional banks.

The different concept of Islamic finance (no interest, profit-sharing and sales concept) in the bank operation has different implication compared to the conventional counterpart in the whole aspects, including the mechanism of financing disbursement and product pricing method. In the absence of interest, the financing disbursement of Islamic bank to generate income broadly focused on two methods, sales (profit from sales margin) and investment (profit from profit sharing).

The fact showing that Islamic banking market whereby majority of depositors (customers) are seeking for a high profit offered by the banks caused the operational logic of Islamic banks to deviate from its theory. Due to such market behaviour or such customer, the funding side is still being the central attention of banking operation. By arguing that it should keep the competitive profit rate in the funding side, Islamic banks determine the margin rate and profit-sharing rate of the financing products based on the competitive profit rate.

The ability to identify the different between sale and profit-sharing products provides an access to determine such price level. In the end, the profit rate of sale-based product becomes cost of fund for the whole product including profit-sharing based product. Unfortunately, the calculation is also using per-annum method. Hence, do not be surprised when the customer of mudarabah contract is charged with an amount equals to 20% per-annum. It means that customer as mudarib should pay the profit-sharing to the bank an amount equals to 20% per annum. If the customer earns more than that, he is only liable to pay 20% per-annum whereas if he losses, he must still pay the equivalent though Mudaraba is a profit-sharing contract (it is not a fixed income, it depends on the

business situation). This confusion arises because the bank considers the cost of funds as a target that must be met to achieve a profit level that will be distributed to the depositors without sorting out certain Islamic products that have such behaviour.

If so, the principle of Islamic banking is only in the name since the practice follows the conventional paradigm. It can be seen in the process implemented by Islamic bankers to determine asset liability management. They determine the profit level charged to the financing customers after determining the return rate that will be distributed to the depositors (interest rate of conventional bank as benchmark). In other words, Islamic bankers are implementing cost concept all this time.

When this paradigm is replaced by the revenue concept, the bank as *mudarib* is not liable to share the profit before earning the profit. It means that the cost of fund is zero. Likewise, the cost is zero when the bank acts as trustee of *wadiah* demand deposit. Therefore, Islamic bank is free to determine the profit rate imposed on financing customers, but it easier than conventional banks. However, the main obstacle to realize this hope is the lack of understanding or acceptance of market (society) toward the logic of business and Islamic finance. In addition, another important obstacle is the ability and knowledge of Islamic bankers who determine the operational and work mechanism of Islamic banking.

It must be admitted that the current practice of Islamic banking product pricing has not achieved the ideal mechanism yet. This is also a concern in the gap analysis between theory and practice in the Islamic banking operation. Based on the aforementioned analysis, it can be identified that there at least two factors causing the gap, namely:

### *3.1.1. Factor of Competency and Operational Technique*

Many parties have realized that Islamic banking industry is still classified as an infant industry that is still less than a decade, so the crucial weakness lies in the ability or competency of human resources and operational reliability. This weakness definitely

influences the application of product pricing as being highlighted in the following focus of analysis.

a. Ability and knowledge of bankers (human resources)

A weakness in the competency of human resources will certainly affect the technique or practice of Islamic banking product pricing whereby the human resources of Islamic banks are required to have ability and knowledge about the banking practice which is in accordance with sharia principles alongside the expertise and knowledge about the banking practice based on prudential banking. Currently, the competency of Islamic banking human resources is still limited. Most of them are only expert and knowledgeable about conventional banking. This fact is surely not surprising given the majority of HR Islamic banks are from conventional banks and almost all of them studied conventional formal education. The limited knowledge of the market and the lack of market facilities in the form of detail market price data and updated caused HR Islamic banks to employ methods or techniques similar to conventional including using interest rate as benchmark

b. Common Pricing Technique

Beside the weakness of HR, the using of method which is similar to the conventional in Islamic banking product pricing is also due to the absence of agreement about the better method and familiar to the practitioners of national Islamic banking industry. For instance, there is no any reference rate which is able to replace interest rate in bank product pricing. The real sector as the main basis of Islamic banking operation did not perfectly provide information supporting Islamic banking product pricing.

*3.1.2. Factor of Market Reality*

Beside the weakness of HR and alternative technique of product pricing, the market reality factor whereby Islamic banking faces the competitors both among Islamic banks and conventional banks encourages Islamic banks to keep the interest rate

fluctuation. This condition happens due to at least two factors: A mix market which is dominantly floating customer and unavailability of rate reference alternative.

a. Floating Customer

Sharia principles as the basis of Islamic banking operation are not easily able to attract Indonesian people where Muslims are majority. In other words, Islamic banking operation is not able to change Muslim market potential to be an Islamic market segmentation that may develop Islamic banking industry. Hence, recently Islamic banks are trying to socialize and educate people in order to create conducive market and environment. In fact, Islamic banking is dealing with the same market of conventional bank where the market prefers high return, the completeness of facilities, the easiness of transaction and low risk. It means Islamic bank is not only competing with the other Islamic banks but also have to compete with conventional counterparts. Dealing with such condition, Islamic banks are not necessarily able to apply the ideal things in their applications. In the practice of product pricing technique, the market reality makes Islamic banks should consider the current price levels applied by conventional banks, while the price level that has been the anchor rate is the interest rate.

b. Incomplete Market Infrastructure

Furthermore, Islamic banking does not have any ideal rate which is in line with sharia principles as reference in product pricing. This market reality makes the use of interest rate as reference in product pricing as something which is normal. Ideally, the product pricing should benchmark to the return rate of real market, considering the operation of Islamic banks cannot be separated from the real sector. At the meantime this paper is being written, Bank Indonesia commence discussions aim to compile an index of real sector that can be used as alternative pricing benchmark. Nevertheless, when the index is available, Islamic banks still require programs

developing the HR competency. The objective is the return index of real sector can be benefited especially by Islamic banking practitioners.

### *3.2. Concept and Alternative Pricing*

#### *3.2.1. Alternative Micro-banking Model*

Alternative micro-banking model is developed from the analysis of commodity market equilibrium which is called as “Corn Economy”, by Stiglitz and Greenwald (2003). There are several fundamental principles of this model, they are:

- Monetary policy focusing on the role of financing in financial system. This is based on the observation and analysis that conventional monetary paradigm which is based on the role of money for transaction is not able to explain the behaviour of economic agents in financial market. As a result, the conventional monetary policy fails to prevent financial and banking crisis in many countries around the world as clearly explained in the phenomenon of credit rationing.
- Market is never perfect. Due to imperfect market and the high cost to get information, the role of bank becomes more important and central in the financial system. Banking plays not only as intermediary institution between surplus unit and deficit unit, but it also does screening of customers/borrowers, monitoring and enforcing the debt contract.
- The ability and the desire of bank to channel the credits/financing are influenced by many factors: internal factors (bank’s capital, interest rate offered, and etc) and external factor (banking competition, monetary policy, and etc)

Having this new paradigm, the financial market equilibrium will happen when banking provides credits/financing at the price level after calculating internal and external factors. It means, credit pricing or price of loan contract cannot be simplified and described by only one variable, interest rate. When the price is only based on interest, inefficiency may happen and financial market cannot achieve a stable equilibrium.

For illustration, a bank with  $K$  capital is facilitating savers and borrowers where their number is represented by  $n_0$ . The relationship between bank depositors and borrowers can be summarized in table 4.1. The amount of deposit supplied is determined by the interest earned by depositors  $\rho$  and the bank may incur bankruptcy  $p$  (equation 1). In the competitive market, the bank will receive deposits for amount that is supplied by depositors  $D$  (the amount is given) and promises interest for  $\rho$  (equation 2-4).

Table 1 Alternative Market Equilibrium Model

Depositors	Bank	Borrowers
$S = S(\rho, p)$	$v = U(S(\rho, p)) = V(\rho, p)$	$d = d(r)$
	$\rho = V^{-1}(p, v)$	
	From (1) and (3): $S = (v, p)$	
	$\Pi = f(\rho, r, s, n, D, K, z)$	
	$p = f(\rho, r, s, n, D, K, z)$	
	$\Pi = \pi(r, s, n, D; v, K, z)$	
	$P = \rho(r, s, n, D; v, K, z)$	
<b>(a) <math>n^* \leq n_0</math>; (b) <math>n^* = n_0</math></b>		
<b>(a) <math>D^*(v, K, z) = S(\rho, p) = S^*(v, K, z)</math>; (b) <math>D^*(v, u, K, z) = S^*(v, u, K, z)</math></b>		

Where:

$K$  = Bank's capital

$n$  = A group facilitated by the bank, depositors and borrowers (the number is  $n_0$ )

$D$  = Deposits received by the bank

$p$  = Possibility that the bank may bankrupt (probability of default)

$\Pi$  = Bank's profit

$\rho$  = Interest earned by depositors

$v$  = Depositor's utility

$r$  = Interest paid by borrowers

$u$  = Borrower's utility

$d$  = loan

$s$  = Size of loan

$z$  = Environment factor

This model formulation clearly shows that the equilibrium condition is not dominantly influenced by interest rate. Interest rate is one of variables influencing the banking credit, hence, the credit pricing or price of loan contract cannot be simplified and described by only interest rate variable. The other important factors are the amount of loan, the probability of default and bank's margin (spread). Consequently, the preference of depositors and borrowers ( $u$  and  $v$ ) is the most appropriate factor representing the statistic of market change, the benefit of giving loan to the bank (or save the money in the bank, from depositor's side) and the benefit of taking loan from the bank (borrowers). Therefore, variable  $u$  and  $v$  can be alternatives of interest rate to determine the loan facility/banking financing (Stiglitz and Greenwald, 2003).

### *3.2.2. Pricing Alternative in Islam*

Some Islamic economists suggest that the return rate can be projected from average normal return earned by companies in the various real sectors (Zarqa in Choudhury and Rahman, 2007). From the micro side (company), the normal average return can be seen from several indicators such as RoA (Return on Asset), RoI (Return on Investment), and RoE (Return on Equity).

In the long run, to understand the return rate, it is required to understand how each sector, or specifically companies of that economic sector operate and earn return in the different market structures. Various industrial economic models have tried to explain this relationship, such as SCP model (Structure-Conduct Performance) and non-structural model such as Panzar-Rose model (Kasri and Iman, 2009)

Furthermore, in micro, if the incentive system works well and all agents perform optimal, then, the growth of real sector and the economic growth will increase. Likewise, financial system efficiency may also increase.

### 3.3. Real Sector Profitability Modelling

#### 3.3.1. Profitability Model in Cost Structure

Profitability is one of market performance indicators. Many models have been developed in order to analyze the profitability condition, either at company level or at industry level. One of models is structured-market conduct model (SCP). This model starts from the paradigm in industrial organization).

Profitability estimation models based on SCP paradigm assume that profitability is determined by the market structure where the determinant variables work at the equilibrium condition. The movement of variable value in a particular sub-sector of industry may affect another sub-sector without explaining the transmission of influence among variables. One of factors in the structured-market is cost structure as stated by Scherer & Ross in Skrepnek (2004). In this modelling, the output of upstream industry becomes an input for another sub-sector of industry (downstream industry). Compared to SCP and CAPM model, modelling the profitability level by using cost structure has more advantages in describing the dynamic of inter-sector, although in the calculation technique, the bigger input dimension, and the harder to maintain the stability level of parameter estimation used to do projection.

One of studies concerning the relationship between cost structure and profitability is conducted by Kim-Kuijs (2007). Kim-Kuijs developed the relationship between profitability and cost structure in the following formula:

$$\pi_i = p_i Y_i - \sum_j r_{ij} M_{ij} - w_i L_i - d_i - t_i \dots\dots\dots(1)$$

Where:

- $\pi_i$  : profit of sector  $i$
- $p_i$  : Output price of sector  $i$
- $r_{ij}$  : Input price from sector  $j$  in sector  $i$
- $M_{ij}$  : The number of input from sector  $j$  in sector  $i$

$w_i$	: wage level of sector $i$
$L_i$	: Labour of sector $i$
$d_i$	: depreciation of sector $i$
$t_i$	: input between sector $i$

In his study, Kim-Kuijs used the combination of time series data resulted from company survey on the price, wage and number of labours with the information from input-output table, in order to estimate technical efficiency of the usage of intermediary inputs. The main estimation result is to see the adjustment number of intermediary inputs with the change of price. A compilation of input-output between sub-sectors of industry is used to see the change sensitivity in one sector to another sector in a normalized unit and used as input in drafting policy related to the examined sector.

Input-output (IO) table provides information about the cost structure and the inter-correlation by sector. For illustration, table 5.1 provides an example of input mapping (especially for sector input) in textile sector based on IO table of Indonesia year 2005. Information about the whole sub-sectors can be found in attachment 1 including the IO table of Indonesia in 2005. The X symbol in the column indicates a significant relationship between subsector's inputs (column) and its output (row). For example, textile industry will be affected by 30 input items which is not only covering direct-supporting industries (thread, knitted goods, fibrous crops and cotton) but also supporting industries that indirectly affect the cost structure of textile industry (flour industry, and coal industry). Beside the calculation technique problem, another obstacle of using cost structure modelling is to reach the availability of adequate data between sectors.

The model based on the study of Kim and Kuijs (2007) which is considering input and output factors of industry, wage of labour where the return of industry is usually approached with existing indicators in the capital market may not be an accurate proxy (Choi, Hauser and Kopecky, 1999). Several other factors that are usually considered in the calculation of real sector's return especially which are not through

interest rate, are industrial structure and return. Therefore, another method is developed namely cash recovery rate (CRR) introduced by Ijiri.

### *3.3.2. Profitability Model using CRR*

#### *3.3.2.1. CRR Model*

Cash Recovery Rate (CRR) is introduced by Ijiri as an empirical profitability measurement of a particular company (see Salamon (1982), Stark (1989), Baber and Kang (1996), and Taylor (1999)). Ijiri in Gordon and Hamer (1988) and Salamon (1982) defined CRR as a ratio of cash flow recovery during one period over the investment during that period. Salamon also showed that there is a relationship between IRR and CRR when the company is not reinvesting its whole cash flow (see Gordong and Hamer, 1988).

Ijiri in Salamon (1982) stated that the financial statement presented based on the cash flow data in order to provide consistent information with the capital budgeting policy is not quite influenced by the accounting method used by the company. This statement also stressed on the cash recovery calculation. When some conditions are met, the IRR estimation can be obtained from information about the cash recovery level. Griner and Stark (1988) stated CRR in the general form where the formula can be used to measure the economic performance of the company, moreover, the application can be used in developing public policy and industrial organization.

Baber and Kang (1996) conducted a study on the utilization of financial accounting information available publically aims to approximate the internal economic return or known as economic IRR (internal rates of return). Samples are pharmacy companies in United States. The framework which is widely used can capture the cost structure characteristic of that industry. Studying the relative profitability of pharmacy industry in US, Baber and Kang (1996) focused on the cash flow rather than the conventional accounting measurement.

They employed cash recovery rate of return (CRR) as profitability measurement rather than accounting measurement such as rate of Return on Asset (RoA). Using several techniques proposed by Salamon (1982 and (1985), they found that empirically IRR of industry can be calculated from the value implication of empiric CRR. This indicates that CRR can be used as a basis to calculate IRR or profitability of a particular sector or industry. However, the procedure used by Baber and Kang is still limited to the public companies and the value of IRR resulted can arise a different with cost of capital.

In relation to IRR, CRR can be stated as follows (see Baber and Kang (1986)):

$$CRR_t = \left[ \frac{Q_1(k)}{R^1} + \frac{Q_2(k)}{R^2} + \dots + \frac{Q_N(k)}{R^N} \right]^{-1} \times \left[ \frac{Q_1(k)G^{N-1} + Q_2(k)G^{N-2} + \dots + Q_N(k)G^0}{G^{N-1} + G^{N-2} + \dots + G^0} \right] \dots \dots (2)$$

Where G is growth of certain investment, N is the productivity age and Q is payout profile, given that G, N, and  $Q(k)$ , and  $CRR_t$  is monotonic in R, where R is IRR.

The debate about the validity and robustness of CRR is shown by Griner and Stark (1968). Griner and Stark concluded that the criticism appointed to CRR is generally about the capability of CRR in generating proxy of the true internal rate or return. In addition, the debate is also on the empirical definition of CRR and its components such as the company's growth and average measurements of cash flow value in the past (see Shinnar et. al. (1989)). The issue of CRR as an approach of IRR is shown by Stark (1989, 1993). The issue occurs on the calculation of cost capitalization or expenses related to the investment.

Stark (1989) examined the validity of assumption used in the CCR calculation. The result showed that the cash flow grows at the constant level while CCR will be stable only in a particular period used to result CCR in the estimation process. The occurrence of measurement error in the CCR calculation in a certain year, i.e. five years, does not invalidate CCR approach. Start stated that the understanding of measurement error

becomes important and this may help to decrease the adequate economic performance measurement of CRR.

Stark (1993) said there are two important conditions that can make empirical CCR not adequate measurement for the true CRR. First condition is called as capitalization case, where the advertising and research expenses incurred, then, it must be treated as a combination investment, but it is imposed on the accounting entry. Second condition namely pension case, where empirical CCR cannot measure the true CRR when the combination investment consists of various projects with different periods of investment. When the relationship between these two cases can be identified, then, the impact of error measurement can be minimized.

### *3.3.2.2. Return Measurement of Real Sector Using CRR*

In general, the return of an industry in period  $t$ , or  $r_t$  is calculated with the following method:

$$r_t = \frac{\sum_{i=1}^M x_{i,t}}{\sum_{i=1}^M y_{i,t}} \dots \dots \dots (3)$$

In the above formula, return is measured by the conventional accounting measurement, such as Return on Assets (ROA),  $x_{it}$  is the income of company  $i$  before extraordinary items, minority interests and interest expense in year  $t$ . Meanwhile,  $y_{it}$  is an asset total of company  $i$  in the beginning of year  $t$  or in the end of year  $t-1$ .

Calculation framework is based on Cash Recovery Rates (CRR) method addressed to the companies registered in Indonesia Stock Exchange (BEI). To anticipate the need of information with wider coverage, with an assumption that the valid financial statement data is available, CRR of companies not registered in BEI should also be calculated. The CRR for the companies not registered in BEI follows the framework designed in the CRR calculation for the companies registered in BEI.

To combine the information about the returns of both registered and not registered companies, an index is arranged to monitor the performance of those companies from time to time. A formulation of index is as follows:

$$CRR_{L.s.t} = \sum_{I,i=1}^N w_{L.i.t} CRR_{L.i.s.t} \quad (3.1)$$

$$CRR_{NL.s.t} = \sum_{NL,i=1}^N w_{NL.i.t} CRR_{NL.i.s.t} \quad (3.2)$$

Where CRR is Cash Recovery Rate, subscript of L and NL to identify whether listed or not listed, while  $I$  is an identification of company  $i$ , moreover,  $w$  is a weight of CRR of listed company or non listed (L or NL)  $i$  in sector  $s$  and period  $t$ .

Aggregation by sector is calculated by the same process of 3.1 and 3.2.

$$CRR_{S.t} = \sum_{I,i=1}^N w_{L.s.t} CRR_{L.s.t} + \sum_{NL,i=1}^N w_{NL.s.t} CRR_{NL.s.t} \quad (3.3)$$

Where  $s$  is the calculated sector, hence, the equation (3.3) is a return of sector  $s$  calculated based on the weighted average of companies listed ( $w_L$ ) and companies not listed ( $w_{NL}$ ) in BEI in sector  $s$  and during the period  $t$ .

In equation (3.3), the aggregation of CRR consists of two main components, listed and not companies. In equation (3.1) and (3.2), the weight has a nuance of company's value. In other words, the weight can be approximated by market capitalization or other variables used as a reference for the size of company listed in BEI. Meanwhile, other variables such as the amount of sale and the volume of investment can be used as the basis of weighting in not listed companies.

The aggregation in (3) is combining two different information components, the scale of listed and not listed not listed company. Therefore, it requires a reference of

certain information that can use as the basis of weighting. One of approaches is a subjective weighting using Bayesian Statistics. Hence, the weighting formulation for (3.3) is as follows:

$$W_{L,s,t} = \frac{I_{L,s,t}}{\sum_{s=1}^2 I_{L,s,t}}, W_{NL} = \frac{I_{NL,s,t}}{\sum_{s=1}^2 I_{NL,s,t}}, t = 1 - T, s = 1, 2 \quad (3.4)$$

$$I_{L,s,t} = \frac{1}{\dots} \quad (3.5)$$

Using formula (3.1), (3.2) and (3.3), a reference analysis of the non-interest return covers the analysis from the smallest unit level of the object study, company level, until the aggregate level by sector. The main objective of this analysis is to get the time series reference value of non-interest return. Having the time series data, Bank Indonesia may able to analyze how to anticipate economic condition that becomes the focus of policy with the following general formula:

$$CRR_{S,t} = \beta_0 + \sum_{k=1}^K \beta_k x_{k,t-y} + u_{s,t} \quad (3.6)$$

Where CRRs, t is Cash Recovery Rate for sector  $s$  in the period  $t$ ,  $xk$  is macro economic factors that are hypothesized may affect the rate of CRR in a certain period. The value of  $t-y$  in the subscript of  $xk$  is contemporaneous when the focus of analysis is to get the relationship between macro variables and CRR by sector or it is lagged variable when the focus is for forecasting.

#### 4. Conclusion

In general, return index of real sector as a reference for Islamic banking product pricing is expected to:

1. To define the way of non-interest return analysis. The calculation of nominal value of each variable into the real value measurement in order to catch the impact of the fluctuation of price change in general.

2. To calculate the non-interest return of selected sectors that becomes the focus of analysis using Cash Recovery Rates (CRR).
3. Forming an index of industry by sector in the second stage, by doing a certain weighting of those companies.
4. To analyze the relationship between macro factors and CRR by sector and to forecast.

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