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**Financial Innovations: A Challenge to Regulators and Supervisors**

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### **Abstract**

The influence of a number of economic, technological, and regulatory factors is expected to affect the market share of Islamic banking industry. These factors become a crucial turning point for Islamic banks. Therefore, they have to embark on financial innovations. But several related questions can be attached to it. Why do banks want to explore into a new product? What are the current financial innovations that could be introduced in the market? How do the regulators and supervisors adapt it? Those are the questions that this paper wants to get the answers.

### **1. Introduction**

Great changes were taking place in the financial environment during the last few decades of the twentieth century and in the early 21<sup>st</sup> century while Islamic banking and financial institutions were evolving. Some of the most significant changes were the decline in intermediation and the resort to more active and aggressive management of investment, and the worldwide integration of financial markets in the wake of globalization.

The first changes, symbolized by the repeal of the Glass-Steagall Act in the US, should be advantageous to Islamic finance insofar as financial intermediation was based on interest. In line with this development, Malaysia for example, introduced the universal banking in the early 2000s. Hence, the greater involvement of banks and other financial institutions in investment management is expected. It offers wider scope for the use of Islamic financial techniques such as profit sharing and mark-up financing.

The problem is that investment management in modern conditions boils down to risk management, which is very underdeveloped in Islamic financial theory and practice. In Islamic perception, this is an area of conventional finance in need of drastic reform. Thus we face a dual challenge to develop Islamic techniques of risk management and to see that these new techniques are free of the ills associated with conventional methods. This is different from the challenge faced in the mid-twentieth century, which was to develop a method of financial intermediation free of interest.

These challenges are in line with the points noted by the Bank of International Settlements. Three points are crucial for innovation, i.e., liquidity enhancement, risk transfer and revenue generation. In its early days, Islamic finance had to focus on revenue generation, as it had to compete with conventional finance and show comparable returns. Times have changed. Therefore, there is a need to enhance liquidity and to move toward greater financial innovations.<sup>2</sup> Why do banks want to explore into a new product? What are the current financial innovations being introduced in the market? How do the regulators and supervisors adapt it? Those are the questions that this paper wants to look at.

The remaining discussion will be divided into five sections. Section 2 is aimed to identify the factors that lead towards the greater involvement of Islamic banks in introducing new products. Section 3 will present several current examples of financial innovations. How do the current financial innovations challenge the traditional structure of regulation and supervision? The answer will be deliberately discussed in section 4. Section 5 produces the conclusions.

## **2. Factors Affecting Islamic Banking and Market Shares**

Shifts in the market shares of Islamic banks reflect the influence of a number of economic, technological, and regulatory factors. The principal factors at work are inflation, volatile interest rates, consumers, deregulation, despecialization, globalization, and capital market.

### **a. Inflation and Volatile Interest Rate**

In the late 1990s through 2000s, interest rates continued to decline. The declining interest rates encouraged clients to refinance their financing and others to acquire financing. As savings and loans exited the market, Islamic banks became the largest real estate and consumption financing provider. Hence, Islamic banks faced problems similar to those found in the early 1990s, short-term deposit and longer-term financing, many with fixed

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<sup>2</sup> Although financial engineering embodies many of the skills, techniques and processes that produce new products and new financial organizations, and the application of advances in related technologies that permit the diagnosis, analysis, design, production, pricing and customization of solutions to problems in finance, but this paper will concentrate on the former. I am happy to coin it as part of financial innovations.

rates of return. Due to higher inflation, Islamic banks charge higher mark-up rate to customers.

b. Consumers

Well-informed consumers have played a major role in the changing structure of the Islamic banking industry. Greater education in personal wealth management, as well as high returns on financial products in some periods and losses in others, have made fund flows more volatile. In addition, access to the Internet and online banking and investment services gives consumers of financial services the means to move funds for very small costs.

c. Deregulation

Deregulation has affected the operation of Islamic banks and other Islamic financial institutions. Deregulation of banks refers to the reduction or elimination of laws that placed geographic limits on banks, the product and services they can offer and the rate of return they can pay. The current practice, Islamic banks are limited as to the rate of return that they could pay on deposits. In contrast, the elimination of geographic barriers to entry in the 2000s contributed to the large number of banks mergers and the increased consolidation in the industry, and also the entry of new players in the domestic market.

Further deregulation in the 2000s allowed banks, finance companies, merchant banks, discount houses and takaful companies to come together. For example, RHB Investment Bank resulted from the merger of merchant banking, securities and future businesses.

d. Despecialization

The despecialization of financial institutions has been an important force in changing the structure of the financial service industry. The trend is for banks to become a supermarket that offers all financial services, offering broker/dealer investment services, takaful products, mutual funds, trust services and other financial services. Equally important, the financial service offerings by bank competitors-investment banks, such as CIMB Investment Bank and MIDF Investment Bank, have expanded greatly. One consequence of the expanded services offered by banks and their competitors is the increasing overlap of financial services offered by banks and non-banking firm.

e. Globalization

The world financial markets are integrated as never before. Money moves across national boundaries costlessly and instantaneously. In principle, this change should be favorable to Islam which never much cared for national boundaries. In practice, however, it does pose problems for the Islamic financial movement, for two different reasons. Firstly, the home base of this new trend is in the Middle East and South and Southeast Asia, where the economies are small and the financial systems less sophisticated than in the

developed countries. Secondly, Islamic financial institutions suffer from smallness in size and very few of them operate in more than one country as the major players do. The situation has changed with the entry of some major conventional financial institutions into the field. But this has also made things more difficult for the older Islamic financial institutions, obliging them to consider mergers and consolidation.

Globalization has increased the volatility of almost every financial variable, especially the exchange rates. It has also reduced the efficacy of national economic macro-management. Redress can only come through international agreements curbing speculation and regulating financial markets. In this regard, the insights of the Islamic financial movement concerning sharing modes of finance, commodity-linked financing such as *murabaha*, and reducing the role of debt have great potential.

#### f. Money and Capital Markets

Increased competition from the money markets (short-term funds) and capital markets (long-term funds) has played a role in the decline of banks' market share of financial assets. Large and high quality corporations have found that they can access funds cheaper through direct financing in the capital market (through utilizing commercial paper or other securities) than by acquiring funds from banks.

### 3. Current Financial Innovations

The above factors might reduce the market share of Islamic banks, and could also become as motivations for innovation. We could also view the financial innovation as the central mechanism pushing the Islamic banking system toward its goal of improving performance of what economists call the "real economy". The following discussion will focus on the few examples of current financial innovations. The first two and third would be called as securitization and derivative, respectively.

#### a. Debt-Backed Securities-Mudharabah Cagamas Bond

The debt-backed securities (DBS) involve the removal of (non-traded) assets (debt) from a bank's balance sheet by packaging them in a convenient form and selling the packaged securities in a financial market. This process of reducing the total size of assets of banks and transferring them to markets is already widespread for mortgages. The bondholders receive a share of the payments made by the homeowners who buy the houses.

As a more detailed example, consider a case of mudharabah cagamas bond, as shown in Diagram 1.

**[Insert Diagram 1]**

b. Asset-Backed Securities-Sukuk

The process of issuing asset-backed securities (ABS) is similar with DBS. However, the sukukholders share in the returns or payments arising from specific assets, such as building and highway. The sukukholders receive a share of the payments made by the sukuk issuers. As a more detailed explanation, consider the following examples that have not yet happened, but could-municipal sukuk and private-finance initiative sukuk.

**Example 1:** Pasir Gudang Municipal Sukuk – Diagram 2

**[Insert Diagram 2]**

Transaction structure:

- ❖ Issuer: PG Municipal Assets Berhad (PGMAM)
- ❖ Business Activity: Management and collection of property tax of industrial property in Pasir Gudang
- ❖ Amount: RM80 million sukuk mudharabah (6 tanches)
- ❖ Maturity: 1-6 years
- ❖ Akad: Two parallel mudharabah arrangements, i.e., 1<sup>st</sup> mudharabah: sukukholders-PGMAB; 2<sup>nd</sup> mudharabah: PGMAM-PBTPG. Rabul-mal in both arrangements agreed to forgo amounts in excess of agreed profit sharing amounts. Each tranche of the sukuk mudharabah-refunded at end of each respective investment period

**Example 2:** Private-Finance Initiative Sukuk

The structure of private-finance initiative sukuk involves several following relationships (see, Diagram 3): property owner-special purpose vehicle (SPV), SPV-government, and SPV-investors.

**[Insert Diagram 3]**

(i) SPV-property owner

The government (i.e., property owner) sells, as shown by Figure 1 (number 1) the property (e.g. school building) to SPV (a trust company held by share trustee or also called as PA). SPV pays cash (number 2) to government, then the later uses this proceed to pay the contractor.

## (ii) SPV-government

SPV leases properties to government (number 3) on trust for a certain number of years under the Ijarah principles. Government pays (number 4) lease rental to SPV.

## (iii) SPV-investors

To finance the buying of properties from government, SPV issues sukuk (trust certificates based on musharakah or mudarabah principles) to investors (number 5). Then, SPV pays periodic distribution (coupon) to sukuk holders (number 6).

At maturity date, the investors redeem their sukuk from sale of properties. However, SPV also has an option to renew lease.

## c. Islamic Cross Currency Profit Rate Undertaking-CCPRU-i

Islamic profit rate swaps are arrangements between two counterparties to exchange periodic profit-rate payments over some future period, based on an agreed-upon amount of principal-what is called the notional principal. The term notional is used here because the principal of a swap is not borrowed, lent or exchanged; it just serves as the basis for calculation of the periodic cash flows between the counterparties to the swap.

In the simplest type of profit-rate swap, one party agrees to make payments based on a fixed profit rate, and in exchange the counterparty agrees to make payments based on a floating profit rate. The effect of this agreement is to transform fixed-rate payments into floating-rate payments and vice versa.

Diagram 4 shows a typical profit-rate swap. Bank A agrees to make a payment to a client at a fixed profit rate, in exchange for payments based on a floating rate determined in the market. Both payments are based on the same agreed-upon principal, RM100 million. That is, the notional principal on the swap is RM100 million. Bank A is the fixed-rate payer and the client is the floating-rate payer.

**[Insert Diagram 4]**

Let us consider the government debt managers' problem. Remember that government can issue long-term debt cheaply from the foreign exchange market. But, the payments tend to fluctuate with the exchange rate, going up when ringgit depreciate and down when ringgit appreciate. The solution is to deposit the revenue from issuing debt and enter into an Islamic profit-rate swap.

## d. New innovations

Another important area awaiting innovation and initiative is a vision that encompasses zakat (obligatory charity), waqf (pl. awqaf, charitable endowments) and Islamic financial management. Securitization can help mobilize the tremendous wealth locked up in awqaf properties which in turn can be developed by the investment of zakat funds awaiting distribution. At present only a small fraction of the liquidity generated by zakat passes through Islamic financial institutions, a situation reflecting the distance between these institutions and the poor, non-banking population.

#### **4. Challenges to Regulators and Supervisors**

From the above discussion, we could recognize that: (i) banks are able to aggressively restructure their activity by concentrating more on securitization rather than specializing on their traditional role of extending financings. The increased competition in banking products following financial deregulation, and also more stringent capital requirement dictate that it is no longer optimal for value-maximizing banks to specialize on their traditional role. With all these changes have come assertions that banks are shifting their activity away from making loans to securitization; and (ii) in a world where banks can transact derivatives that promise payment in the event of default, hence the minimum capital level would become almost meaningless.

The stringent capital requirement might be the prime motivators for financial innovation during the past decade. Therefore, financial innovations are done as an attempt to manage risk; i.e. first, reducing the risk by selling the source of it. In general, adjusting a portfolio by moving risky assets to a riskless asset<sup>3</sup> and it can be done either in the spot cash market or in future market; second, reducing the risk by diversification. Diversification consists of simultaneously pooling and sub-dividing risks. While it does not eliminate risk in the aggregate, it distributes it to reduce the risk faced by each individual; and third, reducing the risk by buying takaful against losses. Takaful permits the owner of an asset to retain economic benefits of ownership while eliminating the uncertainty of possible losses. The fee or contribution paid for takaful substitutes a sure loss for the possibility of a larger loss.

By linking Basel I to the above risk, it forces regulators to change the way they thought about bank capital. In adjusting asset risk, Basel I fails to differentiate between sukuk issued by the Malaysian government and those issued by the under-developed market, like Somalia: both received a weight of zero. And sukuk issued by private entity receives 100% regardless of whether it is AAA or junk. In other cases, a bank got no credit for reducing risk through diversification. Making one loan of RM100 million receives the same risk weight as making 1,000 loans of RM100,000 each. These shortcomings encourage banks to shift their holdings toward riskier assets in ways that do not increase their required capital.

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<sup>3</sup> Adjustment can be done by using the following formula: (i) Basel I:  $RWCR = [Tier\ 1 + Tier\ 2 - Deduction] / TRWA(0\% + 10\% + 20\% + 50\% + 100\%)$  or (ii) CAR (refer to appendix A)



The shortcomings of Basel I gives an idea to Islamic Financial Services Board (IFSB) to release an exposure draft number 2 in March 2005 focusing the suggestion for introducing the capital adequacy standard (CAS) for financial institutions offering Islamic banking services (IIFS).<sup>4</sup> The proposal recommended a capital adequacy standard based on the Basle Committee on Banking Supervision's documents on the (a) International Convergence of Capital Measurement and Capital Standards: A Revised Framework, June 2004 (Basel II) and (b) Amendment to the Capital Accord to Incorporate Market Risks, January 1996 (1996 Market Risk Amendment), with the necessary modifications and adaptations to cater for the specifications and characteristics of the *shariah* compliant products and services.

The CAS document encompasses minimum capital adequacy requirements based principally on the standardized approach with respect to credit risk and the basic indicator approach with regard to operational risks of the Islamic financial services (Pillar 1) and the various applicable measurement methods for market risk set out in the 1996 Market Risk Amendment. This document does not address the requirements covered by Pillar 2 (supervisory review) and Pillar 3 (market discipline) of Basel II as these two issues will be covered by separate standards. The CAS is scheduled for finalization in the year 2005 and is expected to be implemented with effect from the year 2007.

The first pillar refines the estimation of risk-adjusted assets to reflect more accurately the risk banks actually take. For example, sukuk issued by highly rated corporations receive 20% weight; junk sukuk, a 150% weight. The second pillars requires the supervisors to attest to the soundness of bank managers' risk estimation and control methods. Supervisors now can review the way banks assess their risk and decide how much capital they should hold. The third pillar requires banks to make public their risk exposure and the level of capital they hold. Banks that can show that they are behaving responsibly will be rewarded in the market with better credit ratings. Hence, for example, they can ask for lower takaful contribution for their deposits.

## 5. Conclusions

Islamic banks could utilize the financial innovations in order to: manage liquidity, share the risk and generate the revenue. However, the continuous process of financial innovations means that regulators and supervisors are constantly adjusting their rules. The current Basel I could not capture the risk that exist due to the current financial innovations.

## Reference

Abdul Ghafar Ismail and Shahida Shahimi (2006) Private Finance Initiative via Sukuk Offers Value for Money. Working Papers WPIEF06012. ([www.ukm.my/ekonis](http://www.ukm.my/ekonis))

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<sup>4</sup> The term "IIFS" as used in the exposure draft refers to such financial institutions that mobilize funds as deposits and investment accounts in accordance with *shariah* rules and principles.

- Abdul Ghafar Ismail and Shahida Shahimi (2006) The Construction of Capital Adequacy Standard for Islamic Financial Institutions: Areas of Possible Concern. Paper presented at the Malaysian Finance Association 8<sup>th</sup> Annual Conference, Kota Kinabalu, Sabah, 8-9 May, 2006
- Bank for International Settlements. 2001. Overview of the New Basel Capital Accord. Basel Committee on Banking Supervision. ([www.bis.org/bebs.index.html](http://www.bis.org/bebs.index.html))
- Islamic Financial Services Board (IFSB). 2005a. Guiding principles of risk management for institutions (other than insurance institutions) offering only Islamic financial services. Exposure Draft No. 1, March 15. Kuala Lumpur: IFSB.
- Islamic Financial Services Board (IFSB). 2005b. Capital adequacy standards for institutions (other than insurance institutions) offering only Islamic financial services. Exposure Draft No. 2, March 15. Kuala Lumpur: IFSB.

#### Appendix A: **The Proposed Minimum Capital Requirements**

The major element of the proposed minimum capital requirements will be discussed in this section. The focus lies on the suggested capital adequacy ratios since the risk weights applied to commercial bank assets and other financial instruments are of primary consequence for commercial banks' credit and bond pricing.

In fulfilling the capital adequacy requirement, the IIFS (financial institutions offering Islamic banking services) maintains the existing capital adequacy ratio (CAR) of not lower than 8% for total capital. Tier 2 capital is limited to 100% of the Tier 1 capital. The new framework of capital adequacy standard (CAS) also retains the existing definition of Tier 1 and Tier 2 as prescribed in Basel II. In the stated formula, the calculation of minimum capital adequacy requirements is based on the definition of (eligible) regulatory capital and risk-weighted assets (RWA). The CAR standard formula is:

$$\text{CAR} = \frac{\text{Eligible Capital}}{\{\text{Total Risk-weighted Assets (Credit Risk + Market Risk) + Operational Risks} \\ \text{Less} \\ \text{Risk-weighted Assets funded by PSIA (Credit Risk + Market Risk)}\}} \quad (1)$$

where credit and market risks refer to credit risk and market risk for on and off-balance sheet exposures, operational risks less risk-weighted assets funded by PSIA refers to Profit Sharing Investment Accounts (PSIA) balances include profit equalization reserve (PER) and investment risk reserve (IRR).

The capital amount of PSIA is not guaranteed by the IIFS and any losses arising from investments or assets funded by PSIA are to be borne by the IAH except for losses arising from IIFS negligence, misconduct of its investment mandate, i.e. fiduciary risk.

The capital requirement for this type of risk is deal with under operational risk. In principle, the commercial risks on assets funded by PSIA do not represent risks for the IIFS's own capital and thus would not entail a regulatory capital requirement for the IIFS. This implies that this kind of assets would be excluded from the calculation of the denominator of the capital ratio as shown in equation (1).

However, in some jurisdictions, the regulators can also consider an extended formula to smooth income to the Investment Account Holders (IAHs) as part of a mechanism to minimize the withdrawal risk and is concerned with systemic risk. The extended formula, known as supervisory discretion formula, can be written as:

$$\text{CAR} = \frac{\text{Eligible Capital}}{\begin{aligned} &\{ \text{Total Risk-weighted Assets (Credit Risk + Market Risk) + Operational Risks} \\ &\quad \text{Less} \\ &\quad (1-\alpha)[\text{Risk-weighted Assets funded by PSIA (Credit Risk + Market Risk)}] \\ &\quad \text{Less} \\ &\quad \alpha[\text{Risk-weighted Assets funded by PER and IRR (Credit Risk + Market Risk)}] \} \end{aligned}} \quad (2)$$

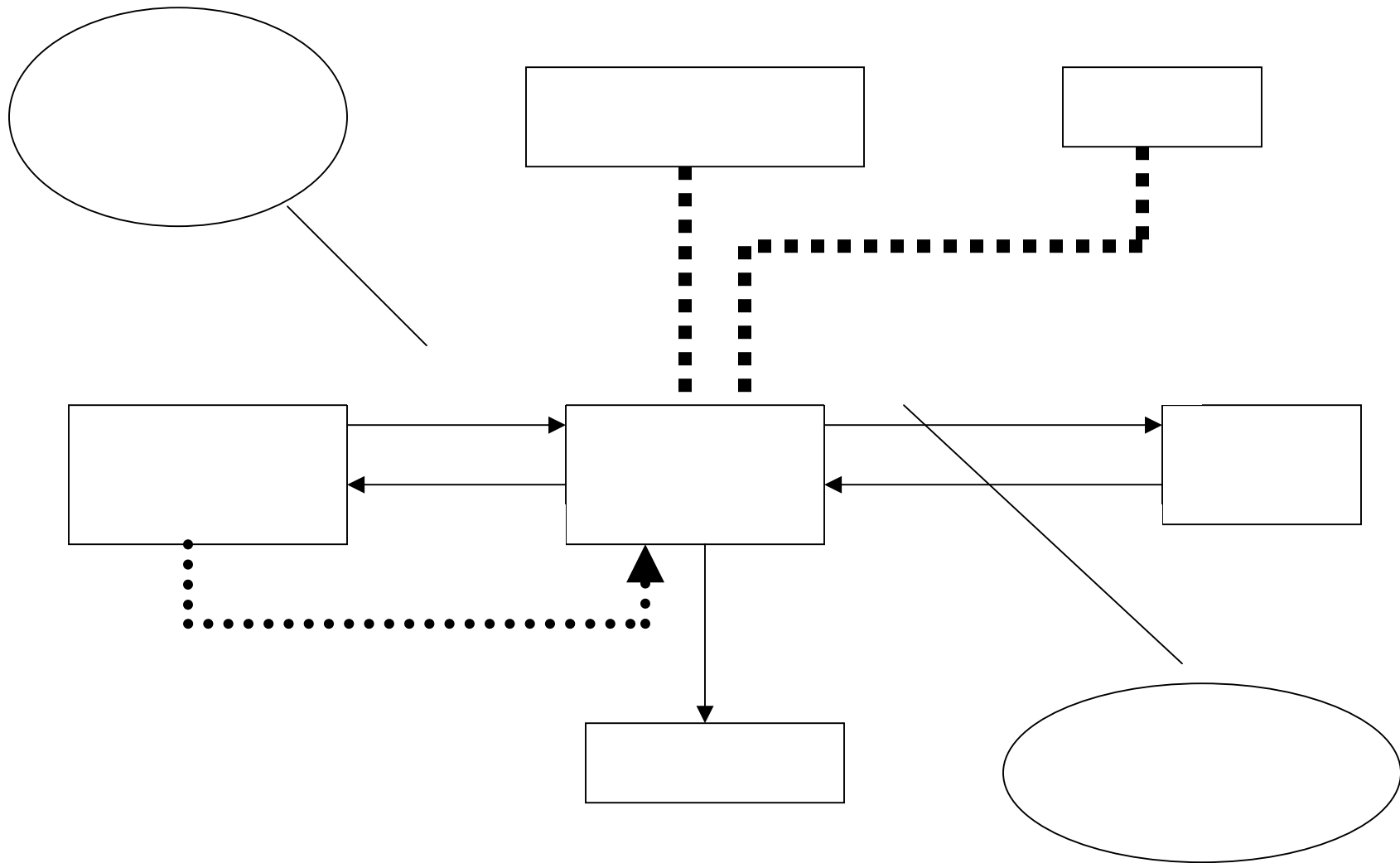
where  $\alpha$  refers to the proportion of assets funded by PSIA which is to be determined by the supervisory authorities. The document suggest that the value of  $\alpha$  would not exceed 30%.

The major changes proposed are in the measurement of denominator, as illustrated in equation (1) and (2) respectively. The denominator covers the total risk-weighted assets and with some adjustments. The regulatory authorities will have the option of applying two different adjustments for the risk-weighting assets, option 1 using the risk-weighted assets funded by profit sharing investment accounts (PSIA) or option 2 using both the risk-weighted assets funded by PSIA as well as profit equalization reserve (PER) and investment risk reserve (IRR). In option 2, the relevant proportion of risk-weighted assets funded by PER and IRR is deducted from the denominator because these reserves have the effect of reducing the displaced commercial risk.<sup>5</sup>

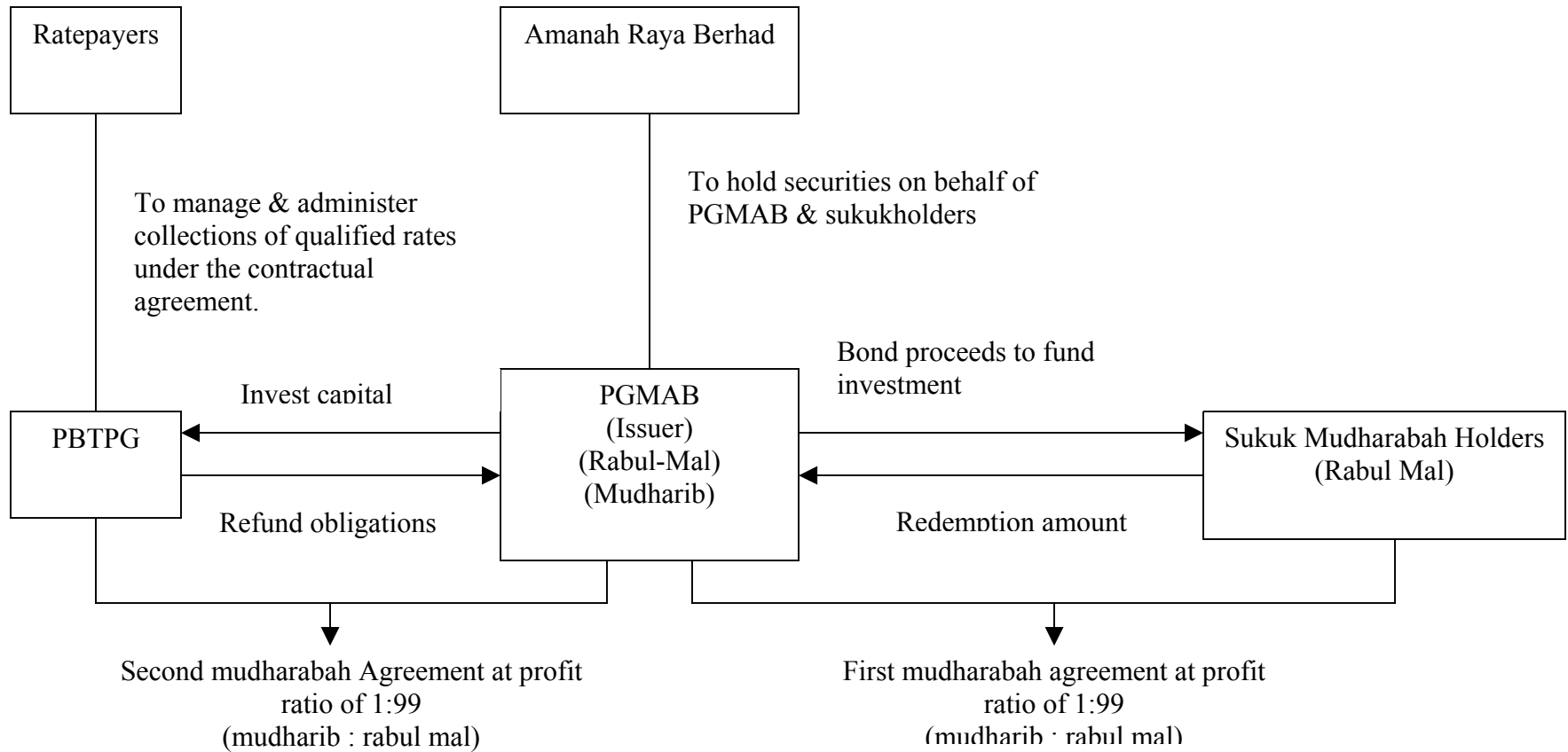
Subsequently, the calculation of CAR should be linked with three elements, i.e., *shariah* compliant instruments, provisions for operational risk and adjustment to denominator.

### Diagram 1: Mudharabah Cagamas Bond Structure

<sup>5</sup> The term 'displaced commercial risk' refers to the risk arising from assets managed on behalf of IAH which is effectively transferred to the IIFS's own capital because the IIFS follows the practice of foregoing its rights to part or all of its *mudharib* share of profit, in order to offer IAH a more competitive rate of return on their funds when it considers this necessary as a result of commercial and supervisory pressure.



**Diagram 2: PG Municipal Assets Berhad Sukuk Mudharabah**



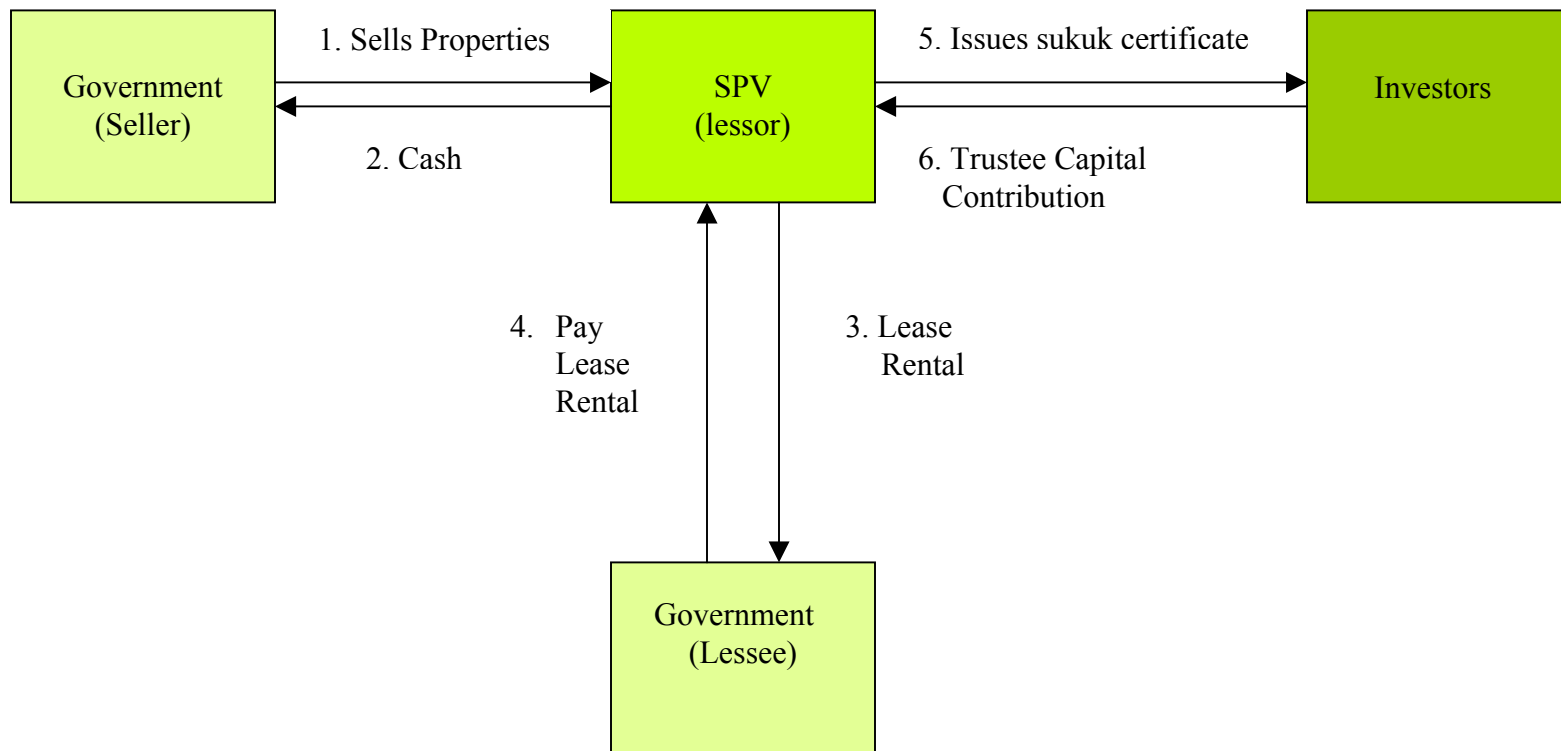
**Diagram 3: Private-Finance Initiative Sukuk**

Diagram 4: Islamic Cross Currency Profit-Rate Undertaking (CCPRU-i)

