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Self-adjusting profit sharing ratios for *Musharakah* financing

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Abstract - Banks avoid participatory financing due to serious information asymmetries, adverse selection and moral hazard problems resulting in negative impacts for the return on capital provided. Even financing instruments with a participatory legal form such as *musharakah sukuk* have been stripped of their risk sharing substance and become functional equivalents of interest-bearing bonds. Several authors have addressed these issues, but some proposals are applicable only for (listed) joint stock companies, while others imply Shariah compliance issues. To overcome these limitations, a “self-adjusting profit sharing ratio” is proposed, based on building blocks found in AAOIFI Shariah standards for *musharakah* financing and *musharakah sukuk*. These building blocks allow a (surprisingly) wide range of discretionary adjustments of participatory contracts, provided the contracting parties come to an agreement in re-negotiations of the contractual terms. This requires an agreement on a fair distribution of profits. What the parties consider a fair distribution is already known when the contract is initially concluded: It determines the parties’ profit shares based on their profit expectations at this point in time. The AAOIFI building blocks allow the structuring of a formula for the profit sharing ratio, which automatically adjusts to changes in the expected or actual profit. It thus ensures continuously a profit distribution in line with the initially agreed-upon principles of fairness. The formula can be calibrated such that the financing party gets under “normal” circumstances a return in line with a predetermined benchmark (e.g., the market rate of fixed term financings plus a risk mark-up) while the financed party has the advantages of an “insurance” against losses and unrestricted upside gains. Thus, financing instruments or *sukuk* with new risk/return profiles and some participatory elements could be structured so as to overcome the problems caused by information asymmetries in “pure” PLS financings.

Keywords: Islamic finance, *musharakah*, profit and loss sharing, information asymmetries

1. Discrepancies between theory and practice of Islamic finance

Islamic economists consider finance based on profit and loss sharing (PLS) (participatory finance) as *the* genuine Islamic mode of finance and the major factor distinguishing Islamic from conventional finance. Indeed, an economic system where PLS is the dominant mode of financing would have different qualities with regard to efficiency, stability and distribution compared to a conventional interest- and debt-based system. However, the practice of Islamic finance (which was factually Islamic banking until the early 2000s) was and is very different from this ideal model.

- PLS *financing* hardly ever takes place in Islamic banks. Bad experiences of pioneering banks and theoretical explanations of adverse selection and

moral hazard issues in PLS financing (where the ratio of profit sharing is fixed in advance and not changed afterwards) can explain the abstinence from participatory modes of financing.

- Banks apply the PLS principle only in the *deposit* business, i.e., in contracts of *mudarabah*-based investment accounts, but even there the practice was quite different from the model: Fluctuations of investment returns were not passed on to the account holders but rather smoothed out by recourse to reserves (investment risk reserves and profit equalization reserves) and, in worst cases, by interest-free loans or even “voluntary” gifts of the shareholders to the account holders. This was done to avoid massive withdrawals by disappointed investment account holders which would have

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created serious problems for the bank. With *ex ante* announced “anticipated” returns which were typically congruent with the realized *ex post* returns, and with the coverage of investment accounts by capital protecting deposit insurance schemes in some jurisdictions, *mudarah*-based investment accounts got the “look and feel” of conventional interest-bearing deposits.

- With the growing popularity of *sukuk* in the 2000s, a new option for PLS financing emerged in the Islamic capital market: *musharakah sukuk*. But again, the practice converted this participatory instrument into an Islamic bond with factually fixed returns for the *sukuk* holders. The applied techniques are explained in detail later in this paper.

Unfortunately, Islamic bankers and Shariah scholars never shared the enthusiasm of Islamic economists for PLS finance in practice. It is not that Shariah scholars did not allow PLS arrangements: *Mudarah* and *musharakah* contracts (and modern derivatives thereof) are explicitly approved as Shariah compliant. However, the approval was done in a way which opened the door widely for Islamic bankers to convert the participatory concepts into close functional equivalents of conventional interest-based and factually risk-free modes of financing. In practice, Shariah scholars have approved the conversion of “equity-based” *sukuk* (participatory instruments with a variable return) into “Islamic bonds” (debt instruments with fixed costs).

The growth of Islamic finance over the last decade was driven by the inroad of Western financial institutions into this new and seemingly lucrative segment of the global financial industry. Many Islamic financial institutions are run by CEOs and management teams who have been socialized in conventional finance before they converted to Islamic finance. In addition, many executives and staff of Islamic financial institutions were hired from the conventional sector. Individuals and teams who were successful in conventional finance before they joined the Islamic finance industry were familiar with strategies and instruments for a good or even outstanding performance of their financial institution. This was probably the reason why they were lured away for their previous employment, and shareholders expect a continuation of such a management performance in the new Islamic environment. Thus, it should not come as a surprise that Islamic bankers who were socialized in the conventional system tried to replicate those strategies and instruments which they had applied successfully in their previous position in conventional finance.

The Islamic economics literature was often too theoretical, abstract, macro-oriented or prescriptive to be of much use for practitioners who were looking for more effective instruments in commercial, for-profit financial institutions. The Islamic economists have not been able to convey their enthusiasm for PLS instruments to Islamic bankers – and probably also not to Shariah scholars. While participatory finance is often seen by Islamic economists as the core of Islamic finance—as sale- and rent-based modes of finance are mentioned only on the sidelines in their models—it is exactly the opposite from the perspective of Shariah scholars: sale- and rent-based contracts have been elaborated over centuries in extensive detail, while financing based on profit and loss sharing were sidelined.

Islamic economists have recognized that the practice of Islamic finance deviates substantially from the ideal, but they did not simply criticize practitioners for this unfortunate development. They analyzed the reasons for the observable discrepancy (mainly agency problems in anonymous markets), and they came forward with a number of proposals suggesting how to solve the identified problems and promote participatory finance.

- The second chapter summarizes and comments on a number of such contributions. Looking at the rapid growth of *musharakah sukuk* in the 2000s, it seemed that at least the Islamic capital market had overcome the agency problems and moved toward the PLS ideal. Unfortunately, this was not the case.
- The third chapter takes a closer look at the structuring of these *sukuk* and explains how equity-based instruments could be converted into functional equivalents of debt instruments with predetermined costs and capital guarantees. After a critique of prevailing practices by a prominent Shariah scholar in 2007, and a resolution of the Accounting and Auditing Organisation of Islamic Financial Institutions (AAOIFI) in 2008, the issuance of *musharakah sukuk* dropped sharply from then until today. Despite the recovery of the *sukuk* market in recent years, the once dominant form of *sukuk* has become marginal by today. This is a deplorable signal because *mudarah* and *musharakah sukuk* were the only financing instruments of significant quantitative weight in the Islamic finance markets which upheld at least the PLS form.
- The fourth chapter outlines the mechanics of a *musharakah sukuk* concept, which is based on the PLS principle but uses building blocks found in the Shariah standards of AAOIFI to overcome agency problems. The concept allows the structuring of a financial instrument that brings differing commercial interests of contracting parties in balance and keeps this balance by a self-adjusting profit sharing ratio. The automated ratio adjustment takes place whenever new information on the expected or actual performance (=profit) of the financed venture becomes available.

2. The agency problem of participatory finance in anonymous markets

Participatory finance is a generic term for different forms of financing on the basis of profit and loss sharing, for example *mudarah* and *musharakah* bank financing or *mudarah* and *musharakah sukuk*.

Bacha (1997) sees *mudarah* financing as a hybrid of elements of debt and equity financing. Somehow the agency problems of both are combined in this hybrid:

- The equity agency problem is that the *mudarib* has a strong incentive to “produce” costs which accrue to him as benefits. This goes on as long as the marginal utility from fringe benefits or perks exceeds the corresponding reduction in the *mudarib*’s share of the profit. In addition, since *mudarah* financing is for a specified project of an existing firm, the firm may have various possibilities to shift overhead and

other costs to the *mudarahab* project, thus reducing the profits which have to be shared with the bank (without reducing the overall profit of the firm).

- The debt agency problem is one of moral hazard: Debt (or more general: external capital at costs lower than the return on total capital) can leverage the return of equity substantially (even if a certain percentage of the profit goes to the provider of the external funds). External *mudarahab* funds have not only a factual but even a contractual loss absorbing quality. Consequently, a high leverage by *mudarahab* funding would create incentives for a firm to embark on projects with high profit potentials and high risks because the upside chances surpass the downside risk for the equity holders.

Bacha concludes that *mudarahab* financing has more agency problems than a pure debt or a pure equity financing and therefore is an inferior option for the capital providing party. To overcome the agency problems of *mudarahab* in its genuine form, Bacha proposed the introduction of “equity kickers:” specified events or outcomes to trigger an equity-related provision in a financing contract. The equity kicker in a *mudarahab* contract would be a clause “whereby in the event of losses in the Mudarahab financed project, the Rab-Ul-Mal absorbs the losses but is ‘reimbursed’ for the amount of losses thru issuance of new equity by the Mudarib to him.” (Bacha 1997, 18). By this clause the *mudarib* transfers benefits to the *rab al-mal* so that in the end the *rab al-mal*’s will be shielded against “avoidable” losses (caused by profit reducing management practices or excessive risk taking), and his risk will decrease. For the *mudarib* the opportunity costs of profit compression or high risk ventures would increase, and this should solve or at least mitigate the agency problems.

A major drawback of the equity kickers approach is that it can be applied only for the *mudarahab* financing of joint stock companies. Start-ups and small and medium sized enterprises (SMEs) usually do not have this legal form. But by far the largest number of enterprises are SMEs, which play a prominent role for employment, income generation and poverty reduction in many Muslim (and non-Muslim) countries.

Another problem is the Shariah compliance of the equity kickers. Shariah principles prohibit a protection of the *rab al-mal*’s capital through a guarantee by the *mudarib*. Bacha claims that this is not the case because the equity kickers are no guarantee against losses. The *rab al-mal* “will make losses if the project makes losses – although it will be much less than under existing Mudarahab.” Ignoring the problem of a *gharar*-free determination of the value of the transferred equity in cases of loss, the fact remains that the equity has some value and thus is a partial compensation for the loss. This could be seen as equivalent to a partial guarantee of *mudarahab* capital by the *mudarib* – which would be a violation of a Shariah stipulation. But Bacha himself sees another violation of a Shariah requirement: “The one Shariah requirement that would not be met by the proposed arrangement is the requirement that in Mudarahab, the financier should absorb all the losses. Any proposal that seeks to overcome the problems of existing Mudarahab would invariably come up against this injunction.” This injunction is repeated over and again

in all AAOIFI standards dealing with *mudarahab* and *musharakah*, and later the IFSB took the same position. A protection against capital losses can only be given by an independent third party, not by the *mudarib*.

Ahmed (2002) also addresses agency problems. He proposes a contractual arrangement that deals with the moral hazard problem arising from an underreporting of profits. It shall be overcome by an incentive-compatible contractual arrangement. The financing bank will have the right to undertake a costly audit if the profit reported by the financed firm falls short of the expected profits (on which the parties have to agree). The auditing expenses will be shared *ex ante* by both parties and become a co-determining factor for the calculation of the profit sharing ratio. But they materialize only if the bank has reason to undertake the audit. If the audit shows that the firm has reported correctly, the bank will refund the firm’s share of the audit costs (as a reward for honesty). If the audit uncovers false reporting, i.e., if it becomes apparent that the actual profit is higher than the reported profit, the firm has to bear the full auditing costs, calculate the bank’s profits share on the basis of the actual profit and pay a significant fine as a (additional) penalty for the false reporting. This contractual arrangement shall reduce (if not eliminate) the moral hazard incentives for the financed firm.

By resolving the firm’s incentive to swindle, the model removes only one of several obstacles that deter Islamic financial institutions to engage more in “true” PLS financings. If the bank has fixed the profit sharing ratio, and the correctly reported profits fall short of the expectations, the bank may not receive the benchmark of, for example, *murabaha* or *ijarah* financings with low risk and predetermined returns (especially not if the bank insisted on an audit and has to bear the full auditing costs). This, however, may be to the advantage of the firm because the PLS financing costs would be less than the costs of sale/rent-based modes of financing with low risk and predetermined returns for the bank. This, by the way, creates another problem – a kind of an *ex ante* replacement of the discouraged *ex post* moral hazard: the higher the profit expectations of the bank, the lower the profit sharing ratio necessary to meet a given benchmark. If the firm is able to present its project in such a way that the bank becomes more optimistic about the future profit than the firm itself, and if the firm’s expectations are correct, then the results for the firm are similar to those of false reporting – but without any risk of penalties.

Hasan (2002) presented a model for the determination of the equilibrium profit share for a bank (as provider of *mudarahab* capital to a firm) in a mixed system (= where the firm has the option of an interest-based loan financing) under alternative constellations of the externally-set market rates of interest (which is a kind of benchmark), a risk premium (to be paid in case of loan financing), the so-called leverage ratio (= share of externally provided capital on interest or *mudarahab* base in the total capital of the firm), and the total return on capital of the firm. The equilibrium profit sharing ratio of the bank will be less than its loss sharing ratio, and it will vary inversely with the return on total capital and directly with the leverage ratio. The model clarified some interdependencies between variables, but it did not explain (without

additional exogenous hypotheses) why the use of *mud-arabah* financing is so low or what could be done to increase its use. Therefore Hasan supplemented his model with contemplations on a change of Muslims' attitudes towards very high-risk aversion in business matters (risk understood as uncertainty, which cannot be measured and insured). Since banks are no exceptions to this behavioral pattern, they are very reluctant to finance risky ventures in which both the earnings and the repayment of the provided capital are uncertain. To improve the situation, Hasan makes two proposals:

- The contracting parties should agree on a clause in the *mudarabah* contract "to treat the bank among the preferential creditors of the borrowing firm in case of insolvency ...
- ... alternatively, the bank can be allotted redeemable preference shares for the money advanced." (Hasan 2002, 49–50).

It is very questionable whether Shariah could accommodate these provisions. For example, AAOIFI had dealt with the Shariah rules and requirements in the Financial Accounting Standard No. 3 on *mudarabah* financing and No. 4 on *musharakah* financing, both adopted in 1996. Neither the treatment of the bank as a preferential creditor nor the allotment of redeemable preference shares, as a kind of security, are compatible with the restrictive Shariah principles spelled out by AAOIFI. AAOIFI explicated the principles in more detail again in the Shariah Standards No. 12 on *musharakah* and No. 13 on *mudarabah*, both adopted in 2002.

Diaw, Bacha and Lahsasna (2012) address agency problems of participatory finance not in banking but for *musharakah sukuk*. They diagnose a fundamental incongruence between (formal) requirements of Shariah contracts and they aim "to reproduce the substance of a financial instrument that is repugnant to their nature and to the Islamic paradigm in finance" (p. 45). The proposed solution takes inspirations from convertible bonds and develops the idea of equity kickers (Bacha 1997) further. Basic agency problems arise in *mudarabah* or *musharakah* arrangements (bank financings or *sukuk*) because the financing contract covers only a limited period of time. It is in the interest of the *mudarib* or the managing party of a *musharakah* and the owners of the financed firm to keep as much of the realised profits within the firm during the period of the participatory financing. A wide range of possible measures to compress the reported profit that has to be shared with the capital provider – from cost allocation to false reporting – has already been indicated. These techniques reduce the value (payouts) of *sukuk* and increase the value of the firm. This is a problem for the capital provider if he cannot participate in the increase of the value of the firm. A solution would be a conversion clause (which is like an embedded option in the financing contract): If the *sukuk* performance falls short of a benchmark (for example, if the return on the *sukuk* is less than a stipulated minimum), the *sukuk* holders have the right (but not the obligation) to convert their *sukuk* into shares of the financed firm. The exercise of the option would not only prolong the initially temporary partnership to an indefinite period but would also grant ownership rights to the previously silent partner.

A weakness of this concept that it is applicable only for joint stock companies and it requires the readiness of the actual shareholders to accept a certain dilution of their ownership rights by the issuance of new or the transfer of existing stocks to new shareholders. This cannot be taken for granted, for example, for family-run businesses.

Further, one may challenge the fairness or balance of a conversion clause for cases where the underperformance is not due to profit skimming of the financed firm but to market forces which lead to an unexpectedly poor performance of the financed project. In such a situation the conversion option may be felt as an undue and very severe penalty for something that was beyond the control of the management and not caused by its "misbehavior." The penalty is severe because the conversion gives the financing party a perpetual claim on parts of all future profits, which may exceed the amount of the initially provided capital by a multiple. While this may be very attractive for the capital provider, it is far from obvious that it would also be acceptable for the financed firm, especially if the *murabahah* or *musharakah* was only for a short to medium term.

Finally, a very similar result for overcoming the moral hazard issues, but without the requirement of a particular legal form of the financed firm (joint stock company) and the "penalty character" of the conversion clause (under adverse market conditions), could be achieved by longer term or even a perpetual *sukuk* with a redemption clause. The redemption clause would be a promise (*wa'd*) of the issuer to redeem *sukuk* certificates at their fair value on the demand of the *sukuk* holders. An increase of the value of the firm would be reflected in the fair value of the certificates.

It has to be mentioned here that Diaw, Bacha and Lahsasna (2012) offer another approach for the analysis of equity-based *sukuk* which is independent from the equity kickers proposal. It is based on the idea of variable profit sharing ratios. A few remarks on differences between their analysis and the model outlined below can be found at the end of this paper.

3. The lack of participatory financing in banking and capital market

While the agency problems of participatory modes of finance can hardly be ignored, it seems that none of the solutions developed in the academic literature have been applied in practice. While *mudarabah* financing is virtually non-existent in banking, *musharakah sukuk* expanded at an extraordinary rate over the first half of the 2000s and became the most widely used form of *sukuk* by 2007 (see chart below).

Profit and loss sharing in banking

The virtual non-existence of participatory (= *mudarabah* or *musharakah*) bank financing may, on the one hand, be explained by the aforementioned agency problems and an adverse selection problem that is summarized in the box below (The "lemon problem" in *mudarabah* financing). These issues in their totality have not been solved in theoretical models.

The “lemon problem” in *mudarabah* financing

An entrepreneur can always compare the costs of Shariah-compliant funding based on the expected profit and a negotiated profit-sharing ratio on the one hand, and the costs of a fixed mark-up sale/rent financing for his project on the other hand. Less religious-minded entrepreneurs could also add *riba*-based financing alternatives offered by conventional banks. The mark-up is determined by competition (within the Islamic banking sector and/or between Islamic and conventional banks) and becomes the benchmark rate to which the profit sharing ratio has to be adjusted for a given expected profit. Roughly-speaking, both for the bank and the entrepreneur the mark-up multiplied by the amount of financing should equal the expected profit multiplied by the respective profit-sharing ratio. If the entrepreneur were able to convince the bank to become optimistic about his project and to expect a profit that is higher than the profit he himself expects realistically (without communicating this to the bank), then the bank would agree on a profit sharing ratio, which is too low (compared with the benchmark or the ratio based on a “realistic” profit expectation). In this setting, the entrepreneur would benefit from profit sharing financing. The bank has to take into account that in principle all customers who ask for a *mudarabah* financing have a strong incentive to present overly optimistic profit projections. The bank could protect itself to some degree against wrong profit projections by a thorough evaluation of business plans. But that requires human resources with a profound knowledge of the markets of their customers, and the experts of the bank should, on average, be better than the entrepreneurs themselves in predicting financial outcomes of business plans. Expert staff with such qualifications is hard to find, very expensive and probably even harder to retain (because these employees have all the qualities to become entrepreneurs by themselves). Therefore, the bank may take recourse to a less expensive protective mechanism, namely a simple “safety margin” on all profit-sharing ratios. But this will be anticipated by the entrepreneurs. If an entrepreneur presents a realistic profit projection, the “safety margin” on the bank’s profit sharing ratio will make the *mudarabah* financing more expensive for him than the mark-up financing. Entrepreneurs with good projects may not like to enter into the troubles of debating with the bank the credibility of their profit projections (in order to eliminate the safety margin). Instead, they prefer fixed-cost financing from the outset. In contrast, for entrepreneurs with weak projects, the mark-up financing may be too expensive, and they have a strong incentive to present an acceptable profit projection to the bank. In the end, the bank will have more weak than strong projects in its *mudarabah* portfolio, and it is highly probable that a number of weak projects will go bust so that the realised profit will fall short of the expectations. To avoid this, it is probably the best option not to enter into participatory financing at all. The market for *mudarabah* and *musharakah* financing will collapse (or never emerge).

On the other hand, Hasan’s reference to an exaggerated risk aversion in Muslim countries points to another issue in Islamic banking: The most widely used Shariah compliant alternative for interest-bearing savings and term accounts are *mudarabah*-based unrestricted investment accounts. Conceptually, losses from the investment of the investment account holders’ funds should be passed on to the investment accounts. The investment account holders are most probably risk averse, although they have signed a profit sharing and risk bearing contract: Muslims who were looking for an alternative for conventional savings and term deposits which could give them a Shariah compliant return have hardly an alternative to a *mudarabah*-based contract, which exposes their funds to a risk of loss. But to accept such a contract because no Shariah compliant alternative is available, does not imply that the account holders would ever want this risk to materialize. Most probably they expect from the bank that all conceivable forms of risk mitigation and risk avoidance are applied. Some Islamic bankers articulate such expectations very forcefully. They defend their banks’ policies of virtually risk free mark-up techniques only and the abandonment of *mudarabah* or *musharakah* in the financing business with their fiduciary duties towards the risk-averse investment account holders.

Mudarabah and Musharakah Sukuk

In view of the serious agency problems of participatory financing, the boom of *musharakah sukuk* is much more surprising than the lack of *mudarabah* or *musharakah* in bank financing. However, a closer look at the practice of

the issuance of *mudarabah* and *musharakah sukuk* offers a simple explanation: In spite of their participatory form and their classification as “equity-based” *sukuk*, most of these *sukuk* have never had a participatory substance. Hence, they did not suffer from the agency problems discussed in the academic literature. Instead, most of the *musharakah sukuk* were intentionally structured as functional equivalents of conventional bonds, i.e., as debt instruments with predetermined returns. On the other hand, “equity-based” *sukuk* are very flexible and allow (in contrast to most other types of *sukuk* such as *murabahah* or *ijarah sukuk*) the issuing of a security, which is not tied to the true or beneficial ownership of an *existing* specific tangible asset. Instead, *mudarabah* and *musharakah sukuk* create joint ventures for the investment of the *sukuk* capital in profit-generating Shariah approved assets, but these assets must not yet exist when the joint venture is formed. The assets can be created by the employment of the *sukuk* resources (i.e., the money paid by the *sukuk* subscribers), and the composition of the assets held by the joint venture can change over the life of the *sukuk*.

This flexibility regarding the underlying asset was the main attraction for practitioners and can explain the rapid growth of *musharakah sukuk*. Their popularity was not due to their equity structure which, in theory, brought them closer to the Islamic economists’ ideal of participatory finance. On the contrary, the equity elements, in particular the possible volatility of returns and the downside risk of a capital loss, were somewhat disturbing and have effectively been removed by contractual engineering.

Debt character of equity-based Sukuk: Capital guarantees

The debt character of equity-based *sukuk* was achieved by a (binding) promise of the obligor to repurchase the *sukuk* certificates at maturity (or in the event of a default) at their issuing price, respectively their face value. This eliminates contractually the risk of a capital loss of the *rab al-mal*, and it is a functional equivalent to the guarantee of the capital of one party by the other. Effectively, losses are not borne in proportion to the capital contributed to the venture, or even not borne at all by the capital providers. An arrangement with such a consequence can hardly meet the Shariah principle that only risk justifies return. The principle of loss sharing or loss bearing has been stated over and over again—from classic legal manuals to contemporary AAOIFI standards (for example, Financial Accounting Standard No. 4 on *musharakah* financing, adopted in 1996, Shariah Standard No. 5 on guarantees, adopted in 2001, No. 12 on *sharika* (*musharakah*), adopted in 2002, and No. 17 on investment *sukuk*, adopted in 2003).

There is but one escape from the rule of loss bearing by the capital provider, namely a voluntary guarantee by an *independent third party*. The case study of the 2005 IDB *sukuk* by Mokhtar (2011, pp. 34–35) reveals that the criteria for the definition of an “independent third party” can be very formalistic and limp in economic substance. IDB had set up for its *sukuk* issuances the *IDB Trust Services Limited* in Jersey, a SPV with an authorized share capital of £10,000 and an issued share capital of £2. All the assets underlying the *sukuk* issuances were transferred from IDB to its SPV, and the prospectus of the 2005 *sukuk* advertised the fact that IDB was the unconditional and irrevocable guarantor of the *sukuk* issuance. The Shariah Board of IDB declared: “As it [IDB] is not the issuer of the Trust Certificates and is not a manager or participant, IDB can enter into contractual obligations which have the effect of guaranteeing the Aggregate Nominal Amount of the Trust Certificates and any Periodic Distribution Amounts in respect of the Trust Certificates.” Unfortunately, the Shariah resolution does not disclose whether the Shariah Board considered his decision in accordance with AAOIFI standards, and if not, how it would justify its different position.

Predetermined returns for equity-based Sukuk

For achieving predetermined returns, *sukuk* engineers used at least three different techniques:

- When actual profits fall short of the expected profits, *sukuk* managers often provided interest-free loans (which should be recovered later) in order to meet the expectations of the *sukuk* holders and to beef-up the payouts to them. AAOIFI made it clear that this practice is not Shariah compliant: “It is not permissible for the Manager of Sukuk, whether the manager acts as Mudarib (investment manager), or Sharik (partner), or Wakil (agent) for investment, to undertake to offer loans to Sukuk holders, when actual earnings fall short of expected earnings. It is permissible, however, to establish a reserve account for the purpose of covering such shortfalls to the extent possible, provided the same is mentioned in the prospectus.”
- Another technique that violates Shariah principles was applied in some *musharakah sukuk* with very

special purchase undertakings (PUs), which did not only guarantee the face value of the certificate at maturity, but factually also the expected profit. These PUs were not only triggered by the maturity of the *sukuk* but also when the venture was not performing well and the obligor failed to pay the expected profit. The exercise of the PU obliged the obligor to pay the outstanding principal plus any so far *accrued* but unpaid profit. Mokhtar (2011, p. 33) points out that “accrued profit is not necessarily actual profit earned. Profit accrued is the expected profit that is earned by the investors as time passes by.” Given that the prospectus indicated an expected profit accrued over the life of the *sukuk*, then the early redemption clause for the PU was effectively a guarantee of a (minimum) predetermined return. This converts the substance of an equity certificate into the equivalent of a conventional bond. It is obvious that this very special form of a “face value plus accrued profit PU” violates Shariah principles even more than a “plain face-value PU” at maturity.

- A more widely used technique for the conversion of a participatory instrument into a close equivalent of a bond with (nearly) predetermined returns for the *sukuk* holders in “good” years (where the *mudarabah* or *musharakah* generates a return that meets or surpasses an articulated profit expectation (=benchmark) were “incentive fees”: The profit share of the *sukuk* holders is set, for example, at 99%. Should the actual profit fall short of the expectation (benchmark), (nearly) all of the profit goes to the *sukuk* holders. But as soon as the actual profit exceeds the expected profit (which should be the normal situation), the amount of the actual profit that exceeds the benchmark is given to the *sukuk* manager as an incentive fee for “good management.” Suppose that the agreed upon expected profit is calculated on the basis of LIBOR plus a risk factor as the benchmark. Then this arrangement implies that *sukuk* holders will receive under “normal circumstances” the equivalent of the risk-adjusted market rate of interest. It may come as a surprise, but such a technique is in harmony with AAOIFI standards and thus should be considered Shariah compliant.

In November 2007 the chairman of AAOIFI’s Shariah Board criticized the prevailing practices that changed the substance of *musharakah sukuk* from an equity-based instrument (as it was conceived) into a functional equivalent of an interest-bearing bond, and in 2008 AAOIFI issued a resolution on *sukuk*. This resolution is a pointed summary of what was already contained in the AAOIFI standards.

Building blocks of “AAOIFI compliant” Sukuk

However, AAOIFI did not summarize in this resolution a number of remarkable provisions in AAOIFI standards, which could be used as “building blocks” for the structuring of more “AAOIFI compliant” *sukuk*:

- The profit sharing formula has to be fixed at the beginning of a *mudarabah* or a *musharakah*: “It is a requirement that the mechanism for distributing profit must be clearly known in a manner that eliminates uncertainty and any possibility of dispute.”

- The profit distribution does not have to be based on a profit sharing ratio which is a simple percentage. The ratio can also be based on a more complex formula: “It is permissible for the partners to agree on the adoption of *any* method of allocation of profit, either *permanent* or *variable*, for example, by agreeing that the percentages of profit shares in the first period are one set of percentages and in the second period are another set of percentages, *depending* on the disparity of the two periods or the *magnitude of the realised profit*. This is allowed provided that using such a method does not lead to the likelihood of a partner being precluded from participation in profit.”
- Irrespective of the complexity of the initially accepted formula, it is “permissible for the parties to *change the ratio of distribution of profit at any time* and to define the duration for which the agreement will remain valid.”
- The changing of the distribution scheme can even be made when the actual profit of the venture is known at the end of the life of the sukuk: “The parties may bilaterally agree to *amend the percentages of profit-sharing on the date of distribution*. Also, a partner may relinquish, on the date of distribution, a part of the profit that is due to him in favor of another party.”
- “It is permissible for the issuer or the certificate holders to adopt permissible methods of managing risk, of mitigating fluctuation of distributable profits (profit equalisation reserve), such as establishing an Islamic insurance fund with contributions of certificate holders, or by participating in Insurance (Takaful) by payment of premiums from the income of the shares of Sukuk holders or through donations (*tabarru’at*) made by the Sukuk holders.”

The changing Sukuk landscape

Instead of using these building blocks to modify *sukuk* in such a way that they meet the 2008 AAOIFI Shariah

pronouncement on *musharakah sukuk*, the practice moved away from equity-based sukuk and switched to *ijarah* and *murabaha sukuk* since 2008.

The trends captured in the graph until 2009 continued: In 2012, the share of *mudarabah* and *musharakah sukuk* in global *sukuk* issuances (in US\$) had declined to 15% while *murabaha* and similar sale-based *sukuk* accounted for 65% and *ijarah sukuk* for 16%.

The growing popularity of sale- and rent-based *sukuk* could be explained as follows:

- *Murabaha sukuk* are based on short term debt creating sale transactions, and a sufficiently large portfolio of such transactions should provide effectively a built-in protection (albeit not a formal guarantee) for the capital invested by the *sukuk* holders and accrued profit shares.
- *Ijarah sukuk* have a longer maturity and a significantly higher market risk that could lead to losses. However, AAOIFI allows for this type of *sukuk* a straightforward guarantee of the capital by a purchase undertaking of the issuer at face value.

Another reason for the departure from *musharakah sukuk* may be that the aforementioned options for more flexible profit distribution rules and re-negotiations were not practicable in the business environment in which *sukuk* flourished, namely the market of institutional investors and the interbank market. The market participants are mostly financial institutions which are hardly interested in participatory components in their contractual arrangements because that would imply an additional rate of return risk. Further, if predetermined returns are the objective, it may be less complicated and less risky to structure sale- or lease-based deals than to insert more complex profit distribution formulas into *musharakah* contracts. Finally, a readjustment

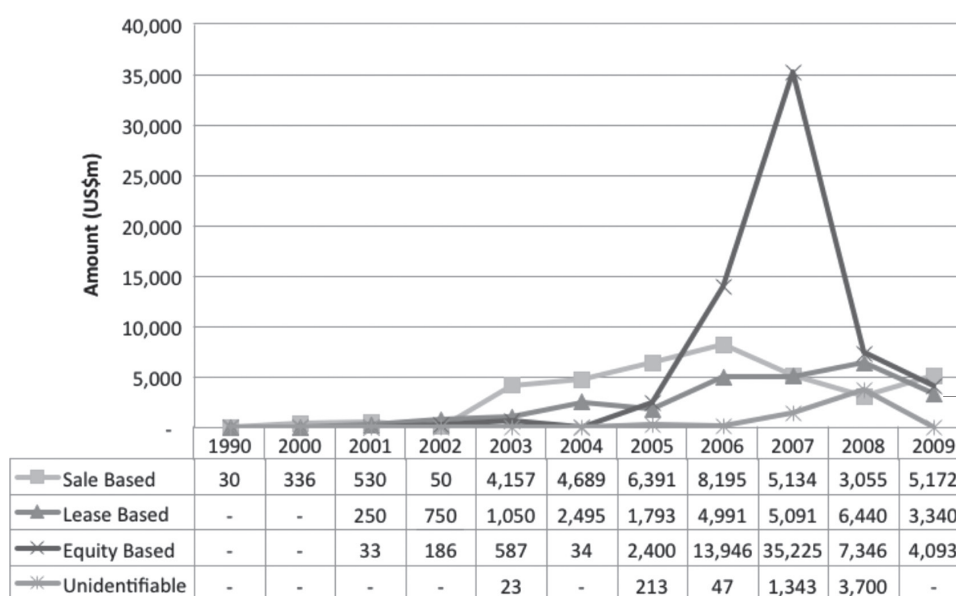


Figure 1. Trend in types of *Sukuk* issued.
Source: Mokhtar 2011, p. 5

of the profit sharing ratios at the day of distribution, i.e., when the distributable profit is known, is commercially equivalent to the fixing of the distribution of the profits in absolute amounts.

More important, a profit sharing ratio agreed upon at the beginning of the contract will generate one allocation of amounts (in absolute figures) on the distribution day, and a revised ratio will generate a different allocation of amounts. To accept the revised ratio implies a definite gain for one party and a definite loss for the other. It is extremely unlikely that banks or institutional investors would voluntarily give up profits which are legally due to them in favour of another bank or institutional investor. Against this background it is not surprising that the additional building blocks for *mudarabah* and *musharakah sukuk* were not utilized in the typical market environment for this kind of *sukuk*.

But the situation could be different under a different market setting and for institutions with somewhat different objectives. For example, “Modarabah Companies” were established in the 1980s in Pakistan. They can have a similar function as an SPV (set up, for example, by a financial holding company or a bank): As non-banks, they could collect funds through the issuance of *mudarabah sukuk* and invest these funds in profitable projects, for example in the leasing of equipment to manufacturing firms on the basis of *ijarah* contracts or in seed or growth financing on a *musharakah* basis. “Initially, there was a desire for the *mudarabah* sector to concentrate on funding SMEs in Pakistan, which were at times neglected by the banks. Unfortunately, due in part to the profit motive, it has steered more toward medium-sized enterprises and big-ticket funding, an area where banks are already involved. Rather than competing with banks, it may prove a competitive advantage to focus on smaller enterprises in a microfinance manner, as was originally envisioned.” (Khawaja 2009, 245).

Non-bank finance companies could utilize for their own funding *sukuk* structures. Their *sukuk* issuances will have similarities but also marked differences to *mudarabah* and *musharakah sukuk* of investment banks and actors in the interbank market.

- Finance companies which do not take deposits but issue *sukuk* would not need a full banking license in most jurisdictions, and they would not be subject to the strict Basel III capital adequacy and liquidity rules for banks.
- Their *sukuk* could be subscribed by institutional investors, but it is also possible to envisage a retail-oriented marketing. Malaysia has recently taken steps towards the creation of a retail *sukuk* market.
- Institutional investors have already shown their strong preference for predetermined returns. On the other hand, it seems reasonable to assume that also retail investors – similar to investment account holders – would be risk averse even if they purchase equity-type securities.
- The profit generating projects of *sukuk*-funded finance companies will be smaller than the big ticket transactions in the actual *sukuk* market. Small and medium sized enterprises (SME) could become a particular target group for the finance companies. On the one hand, SMEs may be still underserved

by commercial banks in many Muslim countries, in particular in those countries where the transformation of the economic system is on the political agenda. On the other hand, SMEs are usually individual or family run enterprises which do not have the legal form of a joint stock company and cannot get funding from the floating of shares.

- Two phases in the life of a SME can be of particular interest to *sukuk*-funded finance companies: the start-up phase and the expansion phase (after a SME has become established and grows in its market) with different risk/return profiles for funds provided. Both could be quite attractive for finance companies compared with financings in areas where stiff competition (by banks) has compressed margins. However, sufficient expertise in the industries of the financed SMEs is required for the assessment of the business plans for start-up or expansion.
- The finance companies could provide sale/rent-based financings (*murabaha*, *istisna'*, *ijarah*) to their target group, but they could also apply equity-based types of financing, for example *mudarabah* for start-ups, *musharakah* for growth financing. Participatory modes of finance could generate higher returns, but they are also associated with higher risks: general business risks, but also the risks resulting from the various agency problems outlined above.

Where SMEs are not joint stock companies, the agency problems in financing cannot be solved by those proposals which are based on a conversion of temporary external participatory capital to permanent equity by providing stocks to *mudarabah* or *musharakah* investors. Some SMEs may have the legal form of joint stock companies, but if they are owned by individuals or families who do not want to dilute the ownership structures through the issuance of new (or transfer of existing) stocks to other parties, they will hardly opt for finance contracts with equity kickers or similar conversion clauses.

4. A Musharakah Sukuk with a self-adjusting profit sharing ratio

Since AAOIFI has provided an interesting but underutilized toolbox for flexible *mudarabah* and *musharakah sukuk* structures, it is possible to reconcile the main interests of *sukuk* holders and financed entrepreneurs, namely:

- the interest of risk-averse *sukuk* holders in risk-mitigated predictable and stable returns,
- the interest of entrepreneurs
 - to get some financial relief in “bad times,” i.e., to have some risk-sharing elements in financing arrangements in a year of unexpectedly poor performance
 - to have shared but uncapped upside potentials in “goods times,” i.e., to avoid a total skimming-off of profits in years of above-average performance

The basic idea of the *musharakah sukuk* with a self-adjusting profit sharing ratio is quite simple: If it is permissible to adjust the profit-sharing ratio at any time during the life of a *mudarabah* or *musharakah sukuk* by consent of the contracting parties, this must not be done in a discretionary manner (by separate negotiations after new

performance information become available). Instead, this can be automated by a simple formula which links the profit sharing ratio to the actual performance (in the simplest case to the actual profit) of the financed project or venture.

To calculate performance-dependent profit sharing ratios for a *musharakah* structure between an SPV and an enterprise, it must be known how much capital is provided externally by the SPV (respectively the *sukuk* holders) and how much internally by the enterprise (originator). At the beginning of the joint venture, a certain total profit is expected which has to be distributed to the external and the internal capital provider. The profit sharing ratio denotes the share of profit allocated to the external capital provider. This profit sharing ratio will not be fixed numerically directly but computed by a formula on which the parties have agreed. This formula is based on a distribution pattern for the profits about which the contracting parties have achieved a consensus. It could be, for example, a fixed relation between the rate of return for the external and for the internal capital, or it could tie one of the rates of return to an external benchmark. The distribution pattern, i.e., a particular relation between the rates of return or the link of one rate to a benchmark, has to be determined at the beginning of the joint venture, and this pattern (= distribution formula) should not be modified afterwards.

A model in which only ratios are agreed upon does not fix *ex ante* the absolute value (in currency units) of the profit for the contracting partners that would violate Shariah principles. It only determines the relative positions of the parties. The absolute volumes depend on the realized profits. To keep the *relative* positions of the parties in the agreed-upon *proportion*, it is necessary that the profit sharing ratio is adjusted automatically whenever new information on the expected or actual profit of the joint venture become available. This is automatically achieved by a simple formula. For the computation of the adjustable profit sharing ratios, the following variables are used:

K_e = external capital (provided by the SPV)
 K_i = internal capital (provided by the entrepreneur)
 $K = K_e + K_i$ = total capital
 P = total distributable profit
 $P_e = s \cdot P$ = profit allocated to the external capital
 $P_i = (1 - s) P$ = profit allocated to the internal capital
 $s = P_e / P$ = profit sharing ratio = share of total profits allocated to the external capital
 β = benchmark rate of return
 $r_e = P_e / K_e$ = rate of return for external capital
 $r_i = P_i / K_i$ = rate of return for internal capital
 $r = P / K$ = rate of return on total capital

Next an “objective function” has to be defined. The contracting parties may discuss various alternatives. For example, they may consider it as a just distribution that both parties achieve the same rate on return on their invested capital. A variant of this approach could be to give one party a predetermined bonus over the share of the other partner (for example, as a compensation for management efforts). Another plausible scenario could be that the provider of the external capital prefers a profit distribution which reduces the volatility of his own profit share and gives him a more stable revenue stream that meets a certain benchmark; for example, the return from an investment in fixed-income securities (such as *ijarah sukuk*); exceeding

profits will remain with the other party in good years, the value of its profit share would be reduced in bad years. The simple model outlined below indicates, *inter alia*, that the distribution parameters could also be calibrated with respect to leverage effects of external capital (provided the parties agree on such a pattern). These are only a few examples for a wide range of conceivable arrangements for the reconciliation of the revealed preferences and interests of the contracting parties in a participatory finance setting such as a *musharakah* (*sukuk* or bank financing). The preferences and interests are contractually recorded and translated into a structure that protects the distributional preferences of the contracting parties by automatic alignments of the distribution parameters (in particular the profit sharing ratio) whenever new performance information of the project or joint venture become available. The automatic adjustment obviates or replaces *ex post* re-negotiations on redistributions which are permissible according to AAOIFI, but very difficult to realise when the gains of one party are the losses of the other party.

The following is an illustration of the basic mechanism underlying the idea of an adjustable profit sharing ratio. Assume that the contracting parties had agreed on one of the following distribution rules (“objective functions” in the model):

The profit sharing ratio should be such that either

- the return on external capital is equal to the return on total capital, or
- the return on external capital is the same as the return on internal capital, or
- the return on external capital equates the benchmark β , or
- the return on internal capital is a multiple or fraction α of the return on external capital

The appropriate profit sharing ratios are determined as follows:

- Cases (1) and (2), profit sharing ratio for $r_e = r_i = r$:
- Case (3), profit sharing ratio for $r_e = \beta$:
- Case (4), profit sharing ratio for $r_i = \alpha \cdot r_e$:

A numerical example is given in the following table. It illustrates the influence of different benchmarks, of a surcharge on the relative return for one party, and of different (actual or expected) profits. The table does not change the relation between external and internal capital, but the relevance of the capital structure is clearly visible from the profit sharing formulas above.

The above sample did explain the basic mechanism of the model only for three simple objective functions. In practice, contracting parties might agree on more complex formulas (for example, with caps or equivalents of “incentive fees”). Admittedly, it would also be possible to define an objective in such a way that one party receives a fixed amount as profit share (provided the volume of the total profit is at least as large as the fixed amount) – which would not be permitted under Shariah. But discretionary re-negotiations can achieve the same result. Insofar the automated system is not better or worse than discretionary practices regarding a possible “misuse.”

Profit Sharing Ratios for Different Objective Functions

Objective function:		$r_e = r (= r_i)$	$r_e = \beta$	$r_e = \beta$	$r_i = \alpha r_e,$ $\alpha = 1.1$	$r_i = \alpha r_e,$ $\alpha = 0.8$
K_e	Assumption	400	400	400	400	400
K_i	Assumption	100	100	100	100	100
$K = K_e + K_i$	Definition	500	500	500	500	500
P	Assumption	50	50	50	50	50
$s = P_e/P$	Definition					
$P_e = s \cdot P$	Def. & result	40	48	32	39	42
$P_i = (1-s)P$	Def. & result	10	2	18	11	8
β and α	Assumption		0,120	0,080	1,100	0,800
$r_e = P_e/K_e$	Def. & result	0,100	0,120	0,080	0,098	0,104
$r_i = P_i/K_i$	Def. & result	0,100	0,020	0,180	0,108	0,083
$r = P/K$	Definition	0,100	0,100	0,100	0,100	0,100
Solutions:						
$s = K_e/K$		$r_e = r (= r_i)$	0,800			
$s = \beta(K_e/P)$		$r_e = \beta$		0,960	0,640	
$s = 1/(1+\alpha K_i/K_e)$		$r_i = \alpha r_e$			0,784	0,833
Objective function:		$r_e = r (= r_i)$	$r_e = \beta$	$r_e = \beta$	$r_i = \alpha r_e,$ $\alpha = 1.1$	$r_i = \alpha r_e,$ $\alpha = 0.8$
K_e	Assumption	400	400	400	400	400
K_i	Assumption	100	100	100	100	100
$K = K_e + K_i$	Definition	500	500	500	500	500
P	Assumption	75	75	75	75	75
$s = P_e/P$	Definition					
$P_e = s \cdot P$	Def. & result	60	48	32	59	63
$P_i = (1-s)P$	Def. & result	15	27	43	16	13
β and α	Assumption		0,120	0,080	1,100	0,800
$r_e = P_e/K_e$	Def. & result	0,150	0,120	0,080	0,147	0,156
$r_i = P_i/K_i$	Def. & result	0,150	0,270	0,430	0,162	0,125
$r = P/K$	Definition	0,150	0,150	0,150	0,150	0,150
Solutions:						
$s = K_e/K$		$r_e = r (= r_i)$	0,800			
$s = \beta(K_e/P)$		$r_e = \beta$		0,640	0,427	
$s = 1/(1+\alpha K_i/K_e)$		$r_i = \alpha r_e$			0,784	0,833

It is clear that the profit sharing mechanism will only work as long as profits are generated. It does not provide an effective protection against the need of “loss sharing” in an individual *musharakah* setting. In the interest of risk mitigation and loss avoidance, the management of a *musharakah sukuk* should, for example, diversify investments by financing not only one entrepreneur but a number of firms in different markets with uncorrelated market trends, and it may also invest some funds in risk-minimized fixed-return instruments. But risk management in Islamic finance in general is a topic which goes beyond the scope of this paper.

The idea of a variable profit sharing ratio can also be found in the paper of Diaw, Bacha and Lahsasna (2012). But their perspective is a theoretical analysis and not the outline of an implementable recommendation for contracting parties

in a *musharakah* structure. They present a general equation that indicates the directions in which different parameters influence the profit sharing ratio. They do not transform their general equation in such a way that it would become an objective function and could be used (after calibration) in negotiations on a distribution pattern. Instead, Diaw, Bacha and Lahsasna present a Monte Carlo simulation, which gives a feeling of implied dependencies and possible dynamics. In addition, they offer a backtesting, which shows relations between the average return on capital, an average benchmark (indicated opportunity costs or benefits), the average return to sukuk, return to equity and the profit sharing ratio. However, their input data for this exercise were taken from *mudarabah sukuk*, i.e., sukuk which do not incorporate a profit sharing ratio. Insofar it is not clear what the results of the backtesting can show.

It may be read such that it shows (on the basis of observed returns on equity and returns on *sukuk* capital) what profit sharing ratios would have been necessary in each period to achieve a certain benchmark return.

Diaw, Bacha and Lahsasna do not explicitly integrate changes of the expected (or actual) profit into their analysis. Changes of profits and those adjustments of the profit sharing ratio during the life of a participatory finance are the main focus here, which are required to sustain the initially stipulated profit distribution pattern.

Islamic economists have made many attempts to overcome agency problems in participatory finance in order to make them more acceptable to market participants, in particular to providers of funds. This is because many see participatory finance as the ideal form of Islamic finance and as the core element of a genuine Islamic financial system. Even if one would not go that far, participatory modes of finance such as *mudharabah* or *musharakah* could fill a gap, for example, in the start-up and growth financing of SMEs. In general, participatory finance gives entrepreneurs some financial relief in times of an unexpectedly poor performance of their business. This risk-reduction can enhance their willingness and ability to ramp up innovations (new products, processes or technologies) or to enter into new markets. This should not only generate private profits but also social benefits in terms of employment and income opportunities. The model presented here outlines a technique which could make participatory modes of financing more attractive to financiers as well as entrepreneurs seeking finance.

5. Conclusion

AAOIFI has allowed a remarkable wide range of “corrective measures” in *mudharabah* and *musharakah* contracts which are deemed Shariah compliant: The contracting parties can re-negotiate factually all commercially relevant aspects of their contracts at any time. A main reason for such re-negotiations will be new information about the performance (profit) of the financed project or venture. The crux of re-negotiations is that they will be successful only if one party is willing to give up advantages (financial gains) of the contractual *status quo*. This voluntary redistribution is not very likely.

The proposal of a self-adjusting profit sharing ratio obviates the need for discretionary re-negotiations. It uses elements of the AAOIFI toolbox to structure a contractual arrangement that maintains the distribution pattern, which was initially agreed upon by the contracting parties. It does so by an automatic adjustment of the profit-sharing ratio whenever new information on the expected profit becomes available. This technique facilitates a solution of fundamental agency problems in participatory finance. It does not require a particular legal form of the financed firm (such as a joint stock company) and can be calibrated such that risk aversion of the financier can be factored in. A *musharakah* contract with a self-adjusting profit sharing ratio is incentive compatible insofar as it does not provide the incentives for profit compression by underreporting, by allocation of fixed cost, by fringe benefits, or by shifting profits into periods after the termination of the *musharakah* contract. All this is achieved without the need for a sophisticated accounting system of the financed enterprise.

For the financed entrepreneur it is beneficial that a participatory financing implies a kind of “embedded” insurance against unexpected downside risks (loss sharing). However, the loss absorbing qualities of a *mudharabah* or *musharakah* contract will not come for free but will be reflected in the costs of funds (e.g., by a risk premium added to a benchmark rate by the financier). On the other hand, the contract can be calibrated such that both parties can enjoy upside gains. This is in contrast to the widespread practice of a complete skimming off of gains by one party in *musharakah sukuk*. The financier can trade in upside opportunities for predictable and stable returns based on a risk-adjusted benchmark rate.

It is obvious that arrangements based on self-adjusting profit sharing ratios are no “real” profit and loss sharing contracts or “full” risk sharing partnerships. Insofar the approach is not the first best solution in an ideal world. However, under real-world circumstances first best models do not work, and the technical and Shariah merits or shortcomings of the approach should be discussed in relation to other real-world proposals to overcome the inherent agency problems of PLS or risk sharing arrangements.

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