CONVENTIONAL VERSUS MUDĀRABAH FINANCING: AN AGENCY COST PERSPECTIVE

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Abstract

Despite very rapid growth, Islamic banks have tended to emphasise short-term trade financing. The Islamic equivalent of term loans and project financing, mudārakah and mushārakah, constitutes a very small portion of Islamic banks' total assets. This paper examines why this has been so. First, the agency problem of both conventional debt and equity financing is examined; it is then shown that in mudārakah financing these problems would be accentuated. A case is made that the reason for this has to do with the characteristics of mudārakah financing as practiced by Islamic banks. It is shown that mudārakah is really a hybrid between conventional debt and equity, since it has features of both and thus has the agency problems of both. Finally, mudārakah financing is viewed in the framework of the signaling theory and control hypothesis of corporate finance.

1. Introduction

Over the last decade Islamic banking has clearly taken root. What began as a novelty has made major strides, not only in many Islamic countries, but also in others like Britain. Citibank's recent announcement that it will introduce Islamic banking counters is testimony to this rapid growth. In Malaysia, the Central Bank's new requirement for all domestic banks to offer interest-free banking services will mean the entry of several well-established ordinary banks into Islamic banking. The entry of these new players is certain to cause major changes in the structure and dynamics of Islamic banking in Malaysia. Until recently Islamic banking in Malaysia has been in the domain of Bank Islam Malaysia Berhad (BIMB).

The rapid growth and success of Islamic banks can be attributed to an existing niche. The banks are able to offer the kind of banking services demanded
by a select customer group. The relatively uncomplicated part of introducing services to meet this demand and tapping the niche has meant rapid growth thus far. However, two factors are likely to cause major changes in the current scenario of Islamic banking: (a) the entry of several new players into Islamic banking will mean quick saturation of whatever is left of the market niche, and (b) to sustain any growth in this newly crowded field, Islamic banking will have to encroach upon and compete directly with conventional banking. This presents major new challenges to Islamic banks. Not only will they have to compete with new products, but more importantly they will have to address and find ways to overcome problems currently faced. This paper addresses the agency problems faced in mudārabah-type financing. In addition, it examines mudārabah financing from the viewpoint of signaling hypothesis and bonding effects.

The paper is divided into six sections. Section 2 explains the motivation for this paper and describes mudārabah and other Islamic financing modes. Section 3 describes the agency problem and the agency costs associated with conventional debt and equity financing. Section 4 lays out the agency problem of mudārabah financing, while the fifth section examines mudārabah in the light of the signaling hypothesis and Jensen’s case of the bonding effect of debt. Section 6 concludes.

2. Motivation and Description of Major Islamic Financing Modes

In introducing Islamic banking operations, the basic strategy of Islamic banks (especially in the Malaysian case) has been to take the sources and uses of funds of conventional banks and transform them into items acceptable to Islamic principles. Thus, on the sources of funds side, savings and current account were redesigned as wadā’ah (safe custody) accounts. Term loans include mudārabah accounts and mushārakah financing. Aside from term loans, which typically constitute a large percentage of total uses of funds, conventional banks have two other major categories of lending facilities: short-term financing or overdraft facilities, and trade financing. Islamic banks offer the same services through use of a number of items. Short-term working capital financing in the form of murābaha (cost-plus) and trade financing largely through bay‘ bi-thaman ājil (deferred sale). In addition, ijārah, kafālah, and ḥiwa‘lāh facilities of Islamic banks correspond to the leasing, letters of guarantee (bank guarantees), and fund transfer services, respectively, of conventional banks. Clearly the ability of Islamic banks to offer all the services of conventional banks cannot be doubted. The difference lies not in whether Islamic banks can offer the kinds of services conventional banks can, but in how the banking transactions are structured. The difference really is in the packaging (features and characteristics), and the underlying laws and contractual obligations; in other words, Sharī‘ah versus conventional transactions law.
An obvious difference between Islamic and conventional banks, visible to even casual analysis, is on the uses side. Whereas conventional banks have a huge portion (typically in the range of 30% to 40%) of total loans in the form of term loans, the Islamic versions of these, *muḍārabah* and *mushārakah* financing, constitute a much smaller portion of the total assets of Islamic banks. In the Malaysian case, total financing under *muḍārabah* is hardly 0.2% of total assets. The largest portion of the Islamic banks’ assets appears to be in the area of short-term working capital and trade financing. This is mostly in the form of *bay` bi-thaman ājil* or its variants. Table 1 (see Appendix A) shows a comparison of loan structure between Malaysian commercial banks and BIMB for 1993.

The heavily lopsided preponderance of Islamic banks to short-term financing results not from preference but from necessity. As will be discussed below, there are serious practical problems with longer-term *muḍārabah* and *mushārakah* financing. To avoid these problems, Islamic banks have chosen to concentrate on *bay` bi-thaman ājil* and other short-term financing modes. Since such movement in the path of least resistance has not caused any retardation in the Islamic banks’ growth rates, there has not been much concern.

There are two reasons why such a trend is indeed worrisome. The first one is the continued emphasis of Islamic banks on short-term trade financing will inevitably cause their relegation to the periphery of the financial system. They will become niche players, much like finance companies in hire-purchase financing or savings & loans (S & L’s) in home mortgages. Without taking centre stage, Islamic banking would always remain in the shadows. The second reason has to do with social needs. Trade financing (as well as other types of short-term financing) is largely the financing of goods already produced. While it certainly performs a very important economic function, such financing does not cause the creation or increase of additional production capital. That is, such financing cannot be used in the financing of production facilities like factories, plants, and infrastructure. Yet, it is in the investment of such facilities that real economic growth rests. Thus, the Islamic banks’ current emphasis on short-term financing would not be congruent with social needs for enhanced real GNP growth.

### 2.1 *Muḍārabah* and *Mushārakah* Financing

The rationale for the prohibition of interest in Islam is based on principles of social justice. Conventional debt financing that typically is collateralized and earns a fixed interest rate is deemed unjust, for there is unequal distribution of risk. The creditor in such financing takes on no risk (in collateralized lending default risk is minimal), yet is assured of a return on his capital. The borrower, on the other hand,
takes on all the risks associated with his investment and regardless of the outcome of his investment is liable for full repayment of principal and accumulated interests. Based on this philosophy, it is clear that mudārabah- and mushārakah-type financing should be at the heart of Islamic finance, being based on the principle of profit sharing. In fact, one could make the case that these two financing modes are the raison d'être of Islamic banks.

**Mushārakah** financing is basically joint-venture profit sharing. Under mushārakah-type financing, two or more parties contribute the capital and jointly manage the investment or business. Profits or losses derived are shared according to preagreed profit sharing ratios. The profit sharing ratio may be based on proportions of capital contributed or the contribution to management (labour and effort) to the business. It is easy to see why mushārakah financing will be a difficult proposition for Islamic banks. Banks will be in no position to comanage businesses. Thus, it is no surprise that mushārakah financing continues to be a small portion of total Islamic bank lending.¹

If mushārakah financing has complications as a banking facility, mudārabah appears tailor made for banking. In mudārabah financing one party, the ṭabb al-māl or financier, provides the capital, while the other party, the mudārīḥ, provides the entrepreneurship and effort and runs the business. The underlying contractual relationship is that of a partnership, with the ṭabb al-māl as the silent or sleeping partner. Profits derived from the business or investment are shared by the two parties according to a predetermined profit-sharing ratio (PSR). This could be, say, 70:30, or 80:20, with the larger portion accruing to the mudārīḥ. In the event of losses, the Sharīʿah stipulates that all losses must be borne by the financier.² Any party may terminate the mudārabah agreement at any time.³ Finally, in a mudārabah arrangement, the financier is not allowed to interfere in the running of the business. Thus, a mudārabah arrangement looks very much like an equity investment by shareholder in a public listed company. In fact, Islamic banks consider mudārabah financing to be the equivalent of equity financing. Whether it is indeed equity will be examined in a later section.

Before going on to a discussion of the incentive effects of mudārabah and the resulting agency problems, the next section defines the agency problems of conventional debt and equity, describes how they arise, and points out their associated costs.

3. The Agency Problem and Agency Costs

Since modern businesses are often run by professional managers as opposed
to the capital providers (shareholders or debtholders), there is often a conflict of interest. This conflict of interest is known as the agency problem. Agency, because the managers are the agents of the owners. Broadly speaking, the agency problem exists whenever there are more parties than a single self-financed owner-manager in a business arrangement.

3.1 The Agency problem of Conventional Equity Financing

Though the objective of managers from a financial management viewpoint should be to maximise the wealth of shareholders, the reality is that, being utility maximizers, they would maximize not shareholder wealth but their own. Their incentive would be to increase the benefits that accrue to them and not that of shareholders, which is placing personal goals ahead of corporate goals.

In its mild form this divergence could be in the form of increased pay and fringe benefits or perks that managers give themselves from corporate resources. A more acute form of the agency problem could be in the form of extreme wastage, efforts to entrench themselves and their interest through the use of such instruments as golden parachutes, issuing of poison pills, or even the acceptance of negative net present value (NPV) projects that harm the corporation over the longer term but enhance management’s position in the short term.

In order to minimize the effect of this divergence of interests or to overcome such agency problems, equity holders will have to incur agency costs. These can be thought of as costs that will have to be borne by the owners to ensure that the agent acts in the way they want him to. Jensen & Meckling (1976) show that total agency costs constitute the following four categories:

(i) Monitoring Costs — expenditures incurred in establishing internal controls, checks and balances, internal hierarchy for decision making.

(ii) Bonding Costs — expenditures in hiring external auditors and consultants; to set and monitor management actions.

(iii) Structuring Costs — expenses of structuring management compensation, for example, stock-option plans and performance bonuses.

(iv) Residual Loss — this can be in two forms: (1) the loss from having put in place the above controls, which are by nature restrictive and can therefore lead to some reduction in managerial efficiency; and (2) the
The above-mentioned costs are taken together and referred to in existing literature as “agency costs.”

### 3.2 The Agency Problem of Conventional Debt Financing

The agency problem associated with debt is a little less obvious and not so straightforward as in the case of equity. The agency problem with debt financing really arises in two forms. Both forms occur as a result of the inherent conflict of debt, which is the terms and conditions governing debt financing. Debt, by definition is a fixed claim on the firm. It is fixed both in the amount repayable (principal plus accrued interest) and time. This is unlike equity, which is a residual and perpetual claim on the firm. Because debt is such a specific contractual claim, “levered equity constitutes a call option on the firm.” This is so because equity holders have share to unlimited upside potential, but have limited downside risk, the limit being the total amount of their equity.

How is levered equity a call option on the firm? For ease of exposition, let us say there is a firm with a single owner-manager who owns all the equity in the firm which amounts to $200,000. Suppose he now takes on $800,000 of debt financing at 10% interest per year and invests the entire $1 million in a project maturing in one year. Then he has a “call option” on the firm, with the exercise price being the amount repayable to the debt holder, in this case the principal plus accrued interest. We call this levered equity position a “call option” because, as shown in Figure 1 (see Appendix B1), the payoff to the equity holder is exactly that of a call option (long call position).

Thus, if the value of the firm is worth anything less than the principal and accumulated interest (in this case $880,000), then the equity holder loses his entire equity, but if the firm is worth anything more than $880,000, he gets to keep everything beyond that amount. Since the maximum value of the firm is technically infinite, his potential gains are unlimited. However, his downside risk is limited since the maximum amount of his loss would be $200,000, being the entire amount of his equity.

The second form of the agency problem associated with debt is moral hazard. If the first form of agency problem, levered equity as a call option, arises from the contractual features of debt, moral hazard can be thought of as the incentive that arises as a result of these contractual features. As such, most of the
existing literature tends to lump both forms together as a single agency problem.

_Moral hazard_ is an insurance term that describes the phenomenon whereby an insured person changes his behaviour subsequent to taking out the insurance to a riskier one. In our situation, the moral hazard problem would be as follows: suppose the owner-manager described above is faced with deciding whether to take on a project that has the following characteristics. The project requires an initial investment of $1 million (the entire value of the firm, $200,000 of his equity plus the $800,000 of debt that he has borrowed), and two possible outcomes, success or failure. The probability of the first outcome, success, is 5%, while the probability of failure is 95%. Should the project be successful, the payoff would be $10 million; if it fails, the payoff is zero. For simplicity, assume further that the life of the project is one year, at the end of which the outcome will be known.

Diagramatically, the situation is as follows:

![Diagram](image)

Under normal circumstances, such a project will never be given serious consideration since its certainty equivalent (CEV) is only $500,000 which is below the initial investment. However, given that levered equity is a call option on the firm (limited downside risk but unlimited upside potential), the owner-manager in this situation may have the incentive to take on the project even though the odds are clearly stacked against the project. This is due to two reasons: (i) if the project fails, he stands to lose much less than the provider of debt, and (ii) he stands to gain $9.12 million at the end of the year after paying $880,000 to the debtholder (principal plus one year’s interest at 10%). This translates into a return of 4.460% on his share of the investment of $200,000.6

There are two points of concern that one could raise against this highly simplified example: (i) this is clearly a highly leveraged situation, the debt to equity
ratio is 4:1, and therefore the incentive effect is exaggerated; (ii) why would a debtholder who has provided most of the capital allow the owner-manager to go ahead with this high risk project? To address the first point, while such high leverage is not a usual situation (except in transactions like leveraged buyouts) and while in conventional financing no creditor will provide that much leverage, it will be obvious from our discussion below that, given the way muddarabah financing is structured, it will be highly leveraged. As to the second point, creditors will not lend to projects that they know to be of high risk. The problem has to do with informational asymmetry: The information and inside knowledge available to the owner-manager by virtue of his direct involvement and expertise in the business is different from the information available to an outside financier. Thus, asymmetric information contributes to accentuating the moral hazard problem.

In summary, both conventional forms of financing, equity and debt, involve agency problems. Though the form of the agency problem of debt is different from that of equity, the debtholder will have to incur much of the earlier-defined agency costs (like monitoring and bonding) to ensure some control over the very divergent incentives between himself and the owner-manager.

4. The Agency Problems of Muddarabah Financing

In trying to identify the agency problems associated with muddarabah financing, one first has to determine whether muddarabah is equity or debt in the conventional sense. Islamic banks classify muddarabah as equity financing because it is a partner relationship. However, for reasons cited below, given the features and the underlying Shariah law, Islamic bank muddarabah financing is really a hybrid. It is neither equity nor debt because it has important features of both.

To a muddarib, the financing that he gets from an Islamic bank is like conventional equity for the following reasons: (i) there are no "fixed" annual payments that are due (unlike interest); (ii) payments made to the Islamic banks come from profits, much like dividends — they need be paid if and only if there are profits; (iii) the Islamic bank cannot foreclose or take legal action if there are no profits and therefore nothing to be shared; and (iv) like equity, using muddarabah financing does not increase a firm's risk the way debt financing does through increased financial leverage.

On the other hand, muddarabah financing can appear to the muddarib as conventional debt for the following reasons: (i) It represents a "fixed" claim by the Islamic bank on his company, being the initial amount plus whatever accrued profits (or losses) are due to the bank. (ii) Like debt, muddarabah financing is terminal,
that is, the arrangement can be ended either by mutual prior agreement or by one party. The muḍārib can end the relationship by repaying the principal and accrued profits to the Islamic bank.

So, unlike equity which represents an unlimited and perpetual claim on the company, muḍārabah, despite the features that make it seem like equity, represents a fixed and terminable claim, much like debt, hence the earlier argument that muḍārabah is really a hybrid in the conventional sense.

If muḍārabah financing has the features of both equity and debt, it follows that muḍārabah will have the agency problems of both equity financing and debt financing. We will now examine if this is indeed true, by reverting to the earlier example of the single owner-manager who has $200,000 of his own money in the business. Assume now that he takes on $800,000 of muḍārabah financing with a profit sharing ratio of 70:30. How would the agency problems of conventional equity and debt apply here?

4.1 Equivalence with the Agency Problem of Equity

In section 3, we described the various forms in which the agency problem of equity could arise. Whether the managers increase their fringe benefits, give themselves better salaries and perks, or take on projects that will make their performance look good in the short term so as to be eligible for bonuses, the underlying theme is that funds are siphoned away from shareholders to themselves.

Does the muḍārib have an incentive to do the same? It is quite obvious that he does. Because profits will be shared and profits are revenues less costs, he will have every incentive to increase those costs that accrue to him alone. For example, every one-dollar increase in fringe benefits or perks will mean a one-dollar increase in his utility while at the same time reducing the profits to be shared by one-dollar. Though this means that his share of the profits will also be reduced, the reduction in his share of profits will be less than the increase in his benefits. As a utility maximizer, it will always be in his interest to increase the benefits that accrue to him alone and minimize the portion that will be shared. In a utility maximization framework, the owner-manager will keep doing this until the marginal utility from increased benefits equals the reduction in his share of profits. If one brings into this picture the reality of taxes, the optimizing point moves even further out, meaning an even further incentive.

Would this type of problem be any worse in muḍārabah than in conventional equity financing? On the one hand, it would be less since here the muḍārib gets to
share in the profits. However, recall that according to the Sharī'ah, the rabb al-māl of mudārābah financing cannot interfere in the management of the business. Thus, the internal controls that conventional equity holders can use to check management actions would be lacking in mudārābah. Still, one thing is clear: in mudārābah, the incentive for the owner-manager to increase his benefits at the expense of the Islamic bank remains.

In addition to the benefits problem just described, there is another, more serious kind of problem with mudārābah that does not exist with conventional equity. This has to do with cost allocation. Imagine a company that resorts to mudārābah financing to finance a single project or to establish a new subsidiary. Then the Islamic bank that provides the financing has claims to only the profits earned by the project or subsidiary, not that of the overall company. Since the profits to be shared will depend on costs, the company will have all the incentive to allocate as much overhead and other costs to the project or subsidiary. Aside from allocation of overheads, the company could also use full-costing as opposed to incremental costs as it really should. Furthermore, if the subsidiary does any transaction with other divisions of the same company, then transfer pricing could also be used to reduce profits in the mudārābah financed subsidiary.11 In each case, profits will be siphoned from the mudārābah financed unit to other units.12 This shuffling of profits from one unit to another does not happen in conventional equity financing, since equity has an unlimited and perpetual claim on all of the company's assets.

4.2 Equivalence with the Agency Problem of Debt

As mudārābah financing constitutes a fixed and terminal claim as does debt, much of the agency cost associated with debt would also remain. The problem of levered equity both as a call option and as a moral hazard will remain, albeit in somewhat altered terms. On the one hand, the profit sharing feature will have a diminishing effect, while on the other, the fact that the muṭārib has first recourse to assets (recall that the provider of capital is responsible for the losses according to the Sharī'ah), accentuates the problem. Figure 2 (see Appendix B2) shows the payoff to the owner-manager with mudārābah financing. There are three important differences here as opposed to Figure 1. First, the area of loss for the owner-manager is much smaller. He only begins to lose if the value of the firm falls to below $200,000 the amount of his stake. All losses up to that amount will be absorbed by the Islamic bank. The second difference is that the takeoff point is now at $800,000 not $880,000. This being the case, since unlike in debt where he has to pay the accrued interest of $80,000 after a year, in mudārābah there is no fixed payment due. The final difference is that the slope of the line (in the positive region)
is not $45^\circ$ as before but lower. It would be $31.5^\circ$, reflecting the fact that he now receives only 70% of the increase in value.

There are two overall points that should be kept in mind when considering Figure 2: (i) The first two of the three differences above represent increased benefits to the owner-manager compared with conventional debt financing. (ii) Overall, the potential for the owner-manager to make unlimited upside potential with limited downside risk remains, (the upside potential is slightly diminished by the lower slope, but the downside risk is now even lower).

Since the problem of levered equity as call option remains, it implies that the moral hazard problem will also remain. Using the same probabilities of success and failure and the respective payoffs as earlier, the owner-manager’s rate of return on his $200,000 would now be 3.12% if the project succeeds. Though this is smaller than the return from conventional debt financing, it still represents a huge potential return and therefore substantial incentives to undertake this risky project.

To summarise on the agency problems associated with mudārah, it is clear that mudārah financing will have both agency problems of equity and of debt. As described above, some forms of the agency problem might be less while others are accentuated. Overall, one would have to conclude that mudārah financing as practised by Islamic banks currently would have more agency problems than conventional equity or debt financing. A final caveat is in order, technically in mudārah, as ordained by the Sharī'ah, the rabb al-māl or capital provider provides the capital while the mudārib provides the labour and effort. Strict interpretation implies that the financier should provide all the financing. If we go by this, then we have a situation of even more leverage (in the conventional sense) than shown in the simple examples above. What this means is that all the described agency problems of mudārah will be even more enhanced if there is 100% financing.

5. **Signaling Theory**

In this section we examine two additional viewpoints that are of relevance to our discussion here. The first is signaling theory. This theory has been put forth as an additional consideration for firms when deciding on their optimal capital structure. According to signaling theory, given asymmetric information, the choice of financing that a firm chooses to use could tell a lot about the type of project or investment that the company is seeking to finance. Given a choice between debt and equity, a firm that seeks to finance a project with very favorable prospects will use debt and not equity. On the other hand, one with an unfavorable prospect
would use equity and not debt. The reason for this has to do with the features of debt and equity.

A firm with a favorable project will use debt because it would not want to share the profits derived from the new project with new shareholders (as new stock is sold, a new group of investors will become shareholders). By using debt to finance such a low risk, high profit project, all the benefits in excess of the amount owed will accrue solely to current shareholders, since debt is a fixed claim. On the other hand, a firm with a project without good prospects would go with new equity since if the project fails the losses can be shared, thereby ensuring that all the losses will not have to be borne by the present shareholders.

Extending this logic of signaling theory to *mudārah* financing, the pitfalls are obvious. Given the features of *mudārah*, it would be an even better alternative than conventional equity for a firm to finance a bad project.

5.1 Bonding Effect of Debt: The Control Hypothesis

Jensen (1986) argues that while debt does have agency problems, there are situations in which the characteristics of debt can reduce certain kinds of agency problems. Whereas managers of equity financed companies would have little motivation to (i) ensure the payment of sufficient dividends even with excess cash flows, (ii) ensure the proper utilization of these excess cash flows by only taking worthy projects, and (iii) make the necessary organisational changes needed when they have in their possession excess cash flow, debt, Jensen argues, ensures controls that equity lacks in such a situation. The “control hypothesis,” as he calls it, states that with debt financing, managers are bonded to make regular payments. The threat caused by failure to make debt service payments serves as an effective motivating force to such organisations to ensure that they are careful with their free cash flows.

Managers have a built-in resistance to paying out excess cash flow as increased dividends. They would much rather invest it in new projects, even if these projects are not really worthy. This happens because such empire building will increase their status and monetary benefits. The problem is substantially reduced with debt financing, since it requires debt-servicing payments. The empirical evidence for this control hypothesis is the financial restructuring and leveraged buyouts that many American companies went through in the 1980s. Jensen argues that most such companies have become leaner and much more efficient precisely because of this controlling effect of debt.
This raises an important question in the context of mudārābah. Does mudārābah, being also a fixed claim like debt, have this same bonding effect? The answer is no. Though it has some features of debt, mudārābah financing requires no fixed or regular payment. Thus, the controlling effect of debt as an effective motivating force of efficient cash-flow management would be absent in mudārābah.

6. Conclusion

This paper has highlighted the agency problems associated with mudārābah financing. Given its features, mudārābah financing would have more agency problems compared to conventional debt or equity financing. Thus, in terms of agency costs, mudārābah would have the highest costs. Obviously, the form most of these costs would take is residual loss or value destruction. As a financing technique, the odds are clearly stacked against the financier. Given this, it should come as no surprise that mudārābah as a financing form for Islamic banks has been minor — less than 0.2%.

Unless a workable solution is found, mudārābah is likely to remain a minor financing technique and with that, Islamic banks as peripheral players. The objective of this paper has been to highlight the problems of mudārābah in an agency framework. It is hoped that such a dissection may help clarify the problem and stimulate thinking towards possible solutions.

End Notes

1. In mushārakah all parties, including the bank, have the option to waive their right to comanage the business or investment. This does not really make things easier. For it now means adjusting the profit-sharing ratio, which in turn will depend on whether the waiver by the bank is a benefit or a disadvantage to the remaining party. Non-interference by the bank in management frees the other party to manage itself, which might be a benefit, but on the other hand the waiver of one party could also mean reduced availability of labour and managerial capacity, which leaves the remaining party disadvantaged. Clearly this is a grey area.

2. The rationale for this is that the muḍārib has already had losses in that he receives no monetary reward (he is not paid a wage or salary), despite having spent his effort and time. However, in the event of willful negligence on the part of the muḍārib, the financier can seek damages to claim his losses.

3. For further elaboration of the injunctions regarding shirkah (partnership) and mudārābah, see Partnership and Profit Sharing in Islamic Law by Muhammad Nejatullah Siddiqi, pp. 16-18.
4. These are charter amendments made to discourage hostile takeovers that will result in retrenchment of top management.
5. Value of firm equals the total value of equity plus debt.
6. The slope of the payoff is therefore 45°, meaning every one-dollar increase in firm value beyond $880,000 represents a one-dollar increase in the owner-manager’s net worth.
7. \( CEV = [(0.95 \times 0) + (0.05 \times $10 \text{ million})] = $500,000. \) Assuming (i) risk neutrality and (ii) zero time value of money.
8. \( \% \text{ return} = \frac{[$(9.12 \text{ million} - 0.2 \text{ million})}{0.2 \text{ million}} \times 100 = 4,460\%. \)
9. The act of purchasing stocks of listed companies is a mudārabah transaction, and is real equity financing in the conventional sense.
10. This is because most fringe benefits are not taxed, while income from profit will be taxed at the mudārib’s income tax bracket. Also, keep in mind that the incidence of increased costs as a result of the fringe benefits provides a tax shelter, thereby reducing the company’s tax bill and so increasing his share of profits. So from a tax viewpoint the mudārib stands to benefit both ways.
11. Determining appropriate cost allocation among projects and subsidiaries is a perennial cost-accounting issue with no satisfactory answers.
12. This type of problem is a serious contemporary problem in joint-ventures. It is another form of agency problem of equity relevant only to situations where profits are to be shared.
13. \( [$10 \text{ million} - 800,000] \times 0.70 = $6,400,000. \) So the rate of return in % is \( = \frac{[$6.440 \text{ million} - 0.2 \text{ million}}{0.2 \text{ million}} \times 100 = 3,120\%. \)
14. The underlying assumption is that the firm has other financing options available, unlike a new firm with little track record nor assets to take on debt and must therefore go with equity.

References


**APPENDIX A**

**TABLE 1**

**LOAN STRUCTURE, CONVENTIONAL BANKS VS BIMB**

<table>
<thead>
<tr>
<th>Conventional Banks (Average for all commercial banks)</th>
<th>Amount RM million</th>
<th>1993 % of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overdraft</td>
<td>32,783</td>
<td>28.3</td>
</tr>
<tr>
<td>Term loans</td>
<td>53,201</td>
<td>45.9</td>
</tr>
<tr>
<td>Trade bills, etc.</td>
<td>13,113</td>
<td>11.4</td>
</tr>
<tr>
<td>Others</td>
<td>16,870</td>
<td>14.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>115,967</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bank Islam Malaysia Berhad</th>
<th>Amount RM thousand</th>
<th>1993 % of total</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Bayāt bi-thaman ājil</em> (Deferred Instalment Sale)</td>
<td>731,082</td>
<td>69.3</td>
</tr>
<tr>
<td><em>Mudārabah</em> (Deferred Lump Sum Sale)</td>
<td>175,875</td>
<td>16.7</td>
</tr>
<tr>
<td><em>Ijārah</em> (Leasing)</td>
<td>102,372</td>
<td>9.7</td>
</tr>
<tr>
<td><em>Mushārakah</em></td>
<td>18,459</td>
<td>1.7</td>
</tr>
<tr>
<td><em>Mudārah</em></td>
<td>2,048</td>
<td>0.2</td>
</tr>
<tr>
<td>Others</td>
<td>25,429</td>
<td>2.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,055,265</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
APPENDIX B1

FIGURE 1

LEVERED EQUITY AS CALL OPTION ON FIRM

Value of Equity

Unlimited Upside Potential

45°

Limited Downside Risk
Maximum Loss is Total Equity

-200

0

$880

Value of Firm
APPENDIX B2

FIGURE 2

LEVERED EQUITY AS CALL OPTION ON FIRM WITH MUḌĀRABAḤ FINANCING
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