

Developing an Islamic Investment Framework for Maritime Assets

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Abstract: This study seeks to develop an Islamic investment framework for maritime assets. Following the recent global financial crisis, the financial performance of international ship-owners has been significantly eroded in the presence of debt-based finance and volatile maritime earnings. Accordingly, this study seeks to develop an Islamic investment framework for maritime assets based on equity finance in order to provide an alternative to conventional debt-based ship financing. The approach taken analyzes the related theoretical concepts in relation to Islamic investment contracts, the Islamic normative theory of profit, inter-temporal choice and investment, efficiency of resource allocation and the Islamic monetary theory of value. The significance of this study clarifies the underlying theories associated with Islamic investment analysis for maritime assets and also provides a broader framework for infrastructure funding of other real assets generally.

Key words: Islamic finance, Islamic investment, international shipping, approach, analysis

INTRODUCTION

Globalization is dependent on the international trade and financing of goods and services and about 85% of global trade is seaborne (Abdullah, 2016a). International shipping has been and will remain, a capital-intensive business: 75% of ship lending has been conducted by European banks and financed on a conventional basis (CRLS, 2016). Following the global financial crisis, traditional conventional bank lending has contracted such that the shipping industry must source alternative forms of capital. The high cost of maritime assets makes shipping a natural destination for institutional and asset-backed capital investment and financing.

However, in order to demonstrate that maritime assets provide a visible, reliable and consistent stream of income that is capable of generating an attractive relative return, in comparison to other real and financial assets over the long term, then from an Islamic perspective, the underlying theories associated with Islamic investment and associated contracts should be clarified. In doing so this study seeks to develop an Islamic investment framework for maritime assets that could equally to apply as a broader framework for infrastructure funding for other real assets.

Therefore by clarifying related Islamic investment contracts given the importance of the Islamic normative

theory of profit in the context of inter-temporal choice and investment, the efficiency of resource allocation and the Islamic monetary theory of value, this study also provides an important framework for Islamic financial institutions and institutional investors, to encourage a Shari'ah compliant alternative to conventional finance in promoting and developing international shipping.

A significant problem has developed involving conventional maritime lenders which post financial crisis have struggled to re-structure and re-capitalize towards Basel 3 reserve requirements. Indeed, post financial crisis, the primary stakeholders in international shipping, as represented by ship-owners, ship-lenders and ship-yards have all been exposed to the impact of over-levered balance sheets and the provision of risk-free debt-finance lent at interest. Historically, many ship-owners have typically internally financed their operations out of cash flow but the increase in economies of scale in shipping and the increase in the cost of ships has driven many ship-owners towards debt-finance at interest whether from traditional maritime lenders or debt issuances from capital markets. Equity finance generally and Islamic private equity finance specifically, restores the ability of ship-owners to navigate through volatile earnings and generate strong returns over the long term, whilst at the same time, sharing risk and reward and appealing to institutional investors (Abdullah, 2016b).

MATERIALS AND METHODS

The methodology involves library research and document analysis which provides for a systematic analysis of academic material and documents (Bowen, 2009). It requires that material be examined and interpreted to gain meaning and understanding, in order to develop empirical knowledge (Corbin and Strauss, 2008). Relevant theories and associated materials were identified and analyzed without our intervention. The selected texts are published and readily available, providing stable, reliable and sufficient material and data for the purpose of this study. The systematic evaluation adopted, inherently involved a review of prior literature which served to support the overall research (Bowen, 2009), although we have not sought to entirely rely on previous interpretation or description within our findings and discussion, except with regard to the appropriate interpretation of Islamic texts.

Moreover, this study yields excerpts, quotations and selected passages that required discovery, selection, appraisal and clarification which were organized through content analysis (Hasanuzzaman and Ayub, 2007). Relevant theoretical themes have been presented and synthesized in regard to Islamic investment contracts and the determination of profit-shares, inter-temporal choice and investment, efficiency of resource allocation and the Islamic monetary theory of value, in order to avoid risk-free debt-finance and develop a framework for Islamic investment analysis which necessitates market risk and thus equity finance.

RESULTS AND DISCUSSION

Islamic investment contracts: the structure of international shipping companies, typically reflects modern conventional company and partnership law. Similarly, modern commercial and transportation contracts encompass the construction of new and second-hand trade sales of vessels and also the carriage of goods by sea where vessels are traded for their usufruct on the spot market or on time-charter. The conventional contracts are functionally equivalent to Islamic contracts involving *musharakah*, *mudharabah* (maritime investment), *istisna'* (newbuilding construction) and *ijarah* (vessel charter employment). From an Islamic perspective, the provision of finance and investment was historically conducted with the adoption of Islamic partnerships either involving a general partnership (*sharikat*) or a trustee partnership (*mudharabah* or *qirad*). Essentially, they encompassed

direct equity participatory joint ventures that combine labour and capital without any financial intermediation. The various types of partnerships as well as the principles governing the conduct of trade were structured to impart justice and obtain lawful earnings. In the presence of fractional reserve banking, assets of Islamic Financial Institutions (IFIs) are long and their liabilities short: hence, assets are categorized in the context of risk and capital requirements.

Risk-Weighted Assets (RWA) are defined by IFSB (2005) in their risk management guidelines. A risk weighting of 100% is required for non-risky *murabahah* transactions along with full-recourse *istisna'* (para.135) but with risky investments the risk weighting is 187.5% for *ijarah wa iqtina* involving market risk (para. 163a), 400% for *mudharabah* (para.190b) and similarly 400% for *musharakah* (para.178b). Seemingly, if one evades risk it is rewarded but if one accepts risk (as required for lawful income) it is penalized. Thus, the riskier the asset portfolio, the higher the capital base will have to be (IFSB, 2005a, b).

The advent of Islamic Financial Services Act (IFSA) in 2013 and its implementation by 2015 includes investment accounts where investors should be accepting the risk of their investments including a loss of the principal invested and as distinct from Islamic deposit accounts which are not guaranteed by the IFI and are not covered by deposit insurance. Nonetheless, this offers new opportunities for Islamic investors and financiers to participate in alternative asset classes, such as shipping (and indeed other asset classes involving SME financing, infrastructure and real estate) through the adoption of private equity investment funds. In this study, this study summarizes the primary Islamic investment and rental contracts that are related to ship-finance and vessel charter employment.

It should be remembered that prior to financial intermediation in the West, "it was by means of partnerships that capital was commonly invested in commercial undertakings" (Postan, 1973). From a combination of labour and capital three medieval partnerships existed; "one in which the capitalist hired the services of a trader; another in which the trader hired capital (the 'financial partnership' proper); the 'complete' or 'real' partnership (*vera societas*) in which all the members contributed both capital and services and which in its pure form was nothing else but a 'joint business' or a union of several undertakings" (Postan, 1973). In essence, the European *compagnia* or Roman *societas* was equivalent to *musharakah* and the *commenda* was equivalent to *mudharabah* (Udovitch, 1970; Hassan, 2006). This is relevant to the structuring

of modern maritime investments with the realization that Western partnership law is similar to the Islamic counterpart. For example, the general partner (historically the tractor) and the limited partner (commendator) are functionally the same as the mudharib (entrepreneur) and the rabb al-mal (capital provider). In essence, the ability to structure private equity funds, maritime funds, structured finance or project finance can be conducted by adopting the traditional methods of mudharabah and musharakah (Usmani, 2014).

Mudharabah (or qirad) involves a trustee partnership where the investment capital (ras al-mal) is supplied by one partner (rabb al-mal) and the labour by the other (mudharib). They share any profits according to an agreed ratio but if a loss the mudharib loses his time and the rabbul-mal his capital (Al-Zuhayli, 2003). It is evident from the various books of fiqh that the terms mudharabah is synonymous with qirad or muqaradah. The Malikis and Shafi'is adopted qirad and to a lesser extent muqaradah and the Hanafis adopted mudharabah (Udovitch, 1970; AAOIFI, 2004).

The legal justification of mudharabah is derived from the Quran "and others who journey through the earth (yadhribuna fi al-ardh) seeking the bounty of Allah" (Al-Quran 73:20) through trade and disposition (Mansuri, 2010). Also in the Sunnah, given the contract of mudharabah to Syria between the Prophet (SAWS) and Khadijah (RA) before his marriage. The Prophet (SWAS) is also reported to have said, "There is great blessing in three things: the credit sale, muqaradah and mixing wheat and barley for domestic consumption not sale" (Ibn Majah; Nyazee, 2002). The Prophet (SAWS) also had entered into a mudharabah with Sa'ib ibn Sharik. In terms of consensus ('ijma) of the Companions of the Prophet, Uthman (RA) practised mudharabah. Qasim bin Mohammad deposited savings with A'isha whom entered into a mudharabah for business purposes. Umar (RA) also concluded a mudharabah on behalf of the bayt al-mal (the State Treasury) and he also gave out the savings of orphans for business purposes in order that their savings might grow (Siddiqi, 1987; Mansuri, 2010).

Whilst investment capital and management is combined in musharakah, in mudharabah the rabb al-mal does not participate in the management of the mudharabah which is the sole preserve of the mudharib (Usmani, 2014), hence it has been referred to as a trustee or silent partnership. There are two types of mudharabah: unrestricted (mudharabah al-mutlaqah) and restricted (mudharabah al-muqayyadah). An

unrestricted mudharabah has an unlimited mandate on the time, place, trade and counterparty but any limitation on such a mandate is defined as a restricted mudharabah (Mansuri, 2010; Usmani, 2014). It is a condition of mudharabah that the investment capital (ras al-mal) must be in the form of money (not goods and commodities) such as gold and silver (Al-Jawziyya, 1991; Majallah, 2001), although the Majallah (2001) also permits fulus or copper coins that are current in circulation.

Mudharabah is a partnership in profit and no profit can be claimed or realised until the investment capital (ras al-mal) is returned intact to the capital provider (rabb al-mal); the mudarib is then entitled to a share of profit as soon as the operations of the mudharabah contract have realized a profit and distributed according to the agreed profit-sharing ratio (Mansuri, 2010; Nyazee, 2002; Thani *et al.*, 2003; AAOIFI, 2004). The Hanafis and Malikis allow the formation of a musharakah with a mudharabah, although the Shafi'is and Hanbalis require the permission of the capital provider (rabb al-mal) but any loss is born by the rabb al-mal and the mudharib loses his time (Siddiqi, 1987). In the case of losses, there would be a claw-back provision such that losses would be made good from distributed profits. The mudharib would be asked to meet such losses out of the profit that had been distributed to him and the amount distributed to the rabb al-mal should be treated as a deduction from the capital (AAOIFI, 2004). Opinion is unanimous that capital from a mudharabah cannot be lent out, since a qard al-Hassan is an interest free loan and the mudharabah is conducted in order for its capital to be employed profitably in business (Siddiqi, 1987). Furthermore, the mudharib cannot mix his private capital with mudharabah capital without the permission of the rabb al-mal (Siddiqi, 1987).

In a mudharabah contract, the mudharib is a trustee (Amin) with the ras al-mal entrusted to him by the rabb al-mal. As such, if the capital is destroyed whilst in the possession of the mudharib, he is not liable for it (Nyazee, 2002), unless he disregarded the instructions of the rabb al-mal or though his own negligence: in either case, the mudharabah is dissolved and the mudharib is liable for the profit and loss and responsible of the capital (Mansuri, 2010). The mudharabah is also dissolved in the case of termination due to the expiry of a fixed period of time or by unilateral termination which can be done if the capital is in the form of cash but not in the form of goods where the mudharib must sell the goods in order to convert them to cash first (Mansuri, 2010).

In terms of financial liabilities, in the event of financial loss or bankruptcy, the maximum loss falling to a partner is equal to the capital invested by him which is similar in simple forms of *musharakah* (not in the case of *mufawadah*). If the *mudharib* unilaterally exceeds the financial liability of the business beyond the invested capital (*ras al-mal*) through borrowing or credit purchases then he is liable for it, unless he has sought permission from his investors (Siddiqi, 1987). This is similar in nature to the conduct of the General Partner (GP) and Limited Partner (LP) in conventional partnership law.

Musharakah refers to a general partnership (*al-Sharikah*) in a specific business with a profit motive, whereby the distribution of profits will be apportioned according to an agreed ratio. In the event of losses, both parties will share the losses on the basis of their equity participation. AAOIFI (2004) defines the contractual partnership (*shariat al-'aqd*) as "an agreement between two or more parties to combine their assets, labour or utilities for the purpose of making profits". With respect to the *mazhab*, the schools differ in classification of the contractual partnership (*shariat al-'aqd*) and in implication of terms used (Nyazee, 2002). The Hanbali jurist Ibn Qudamah in *al-Mughni* classified five types (Nyazee, 2002); *al-'inan*, *al-mufawadah*, *al-abdan* (or *a'mal*), *al-wujuh* as well as *al-mudharabah* (trustee partnership). Shafi'i jurists theoretically considered *sharikat* (Naqib, 1994) to consist of only the co-operative partnership (*inan*) and along with Maliki jurists deemed *mudharabah* an independent contract.

The Hanafi School was and is more widely adopted in commerce, perhaps given Imam Hanafi's (RA) own trading background but it also has a structure of legal analysis and a developed system of law facilitating comparison to classical and modern opinion relating to the law of partnerships (Nyazee, 2002). Reflecting the Hanafi opinion, the *Majallah* (2001) defines the types of partnerships (*Sharikat*) in terms of *sharikat al-mulk* or *sharikat al-'aqd*. *Sharikat al-mulk* is a non contractual co-ownership partnership (voluntary, *al-ikhtiyar* or involuntary, *al-jabr*) involving the undivided ownership of an asset (*musha'*) with each partner's share governed by the rules of *wadiah* (deposit) and a co-owner cannot sell his joint-share without the permission of the other (Majallah, 2001). *Sharikah al-'aqd* is a contractual partnership (Majallah, 2001) which according to the Hanafis had two categories.

The first category of *sharikat al-'aqd* classified by three types of participation and by two types of legal format (Nyazee, 2002) included *sharikat* (partnerships)

in *al-mal* (wealth), *al-'mal* (work) or *al-wujuh* (credit-worthiness) by way of *mufawadah* (full) or *inan* (ordinary). The second category involves *qirad* or *mudharabah* (trustee partnership), *muzara'a* (share-cropping) and *musaqat* (cultivation) which are deemed by the Hanafis as forms of *mudharabah*.

With respect to the first category, the three types of participation are; wealth (*sharikat al-mal*, [pl.] *amwal*) (Majallah, No. 1338-1344, 1365-1384)-partners in wealth/capital to acquire property (*'ayn*) not debt (*dayn*) (Majallah, 2001) which to be traded and resulting profit or loss being shared; work (*sharikat al-'mal*) (Majallah, 2001) partners combine their expertise (*sharikat al-sana'i*) such as with artisans or (*sharikat al-taqabbul*) undertaking or the acceptance of work by lawyers or accountants or combine their manual labour (*sharikat al-abdan*) such as electricians or construction workers. The division of fees or wages is according to the ratio of work performed by each partner. Credit-worthiness (*sharikat al-wujuh*) (Majallah, 2001) partners combine their credit-worthiness as labour with no capital (such as a local co-operative) and are paid on the basis of deferred delivery (e.g., *bai as'salam*), thus property is bought on credit and traded with resulting profit being shared.

With respect to the first category, the two legal formats are by way of *sharikat al-inan* or *sharikat al-mufawadah*; ordinary partnership (*sharikat al-inan*) (Majallah, 2001) is a contract based on *wakalah* that permits participation from its partners in wealth, work or credit-worthiness and the sharing of profits in an agreed ratio (Nyazee, 2002). Each partner is the agent of the other. The undivided share (*musha'*) of a partner is like a *wadiah* (deposit) in the possession of the other partner and governed by the rules of *amanah*. In an ordinary *inan* a partner is not a *kafil* (surety) for another but when *kafalah* is included, liability is joint and several such that the *inan* is no longer limited but has full authority. Capital and profit/loss ratios, including wages, can differ in proportion to liability and contribution of labour and management.

Full partnership (*sharikat al-mufawadah*) (Majallah, 2001) is a contract of participation between two or more persons with the stipulation of complete equality with respect to capital, profit and status for working with their own wealth or with their labour in another's wealth or on the basis of credit-worthiness, so that each partner is a surety for another (Nyazee, 2002). The partners are agents for one another and liability is joint and several and have full control over the partnerships assets (similar to a modern partnership).

The second category of types of partnerships involve labour being supplied by one party and comprise; *mudharabah* the capital is supplied by one partner (*rabbul-mal*) and the labour by the other (*mudarib*) (Majallah, 2001). They share any profits but if a loss the *mudarib* loses his time and the *rabb al-mal* his capital. *Muzara'a* the land is supplied by the land-owner and farmed by the labourer/farmer and the crops divided between them (Majallah, 2001).

musaqat land and trees supplied by the farmer which cared for (cultivated) including supplying water (irrigation) by the labourer/cultivator and the fruit divided between them (Majallah, 2001). AAOIFI and the OIC Fiqh Academy, view the modern corporation as a *sharikat al-'aqd* (contractual partnership) by way of *al-inan* including legal persona (AAOIFI, 2004), although, Nyazee and An-Nabhani disagree: "Islamic Law as expounded by the *fuqaha* does not acknowledge the concept of juristic person" (Nyazee, 2002) and upon incorporation, in reality the members are only acceptors but there is no offerer and this does not satisfy the principles (*rukun*) of a contract involving *ijab* and *qabul* (offer and acceptance), concluding that the modern "company is invalid (*batil*)". However, with regard to the full partnership (*sharikat al-mufawadah*), Al-Kasani (Hanafi, 539H/1134) mentions, "The act of one of them in this partnership (*mufawadah*) is like the act of both and the statement of one of them is like their joint statement. They are in fact (legally) two persons but in the *ahkam* (rules) of trade they are one individual" (Nyazee, 2002). Al-Sarakhsi (Hanafi, d.490H/1096) also stipulates that "the participants in a *mufawadah*, in so far as this is a practice of traders are like a single individual the act of one is like the act of the other. In an *inan* partnership, on the other hand, they have not become like a single individual. Further, in the *mufawadah* partnership each partner has a right to claim what is due the other" (Nyazee, 2002). In any case, these opinions exactly reflect the mercantile notion of the firm which is typically found in any maritime partnership where the firm is considered as a single accounting unit with owners and investors providing the venture with funds and management.

Ijarah involves a rental contract and the legitimacy of *ijarah* (AAOIFI, 2004) is derived from the Quran, "said one of them 'Oh my father, engage him on wages'" (Al-Quran, 28:26) and "if you had wished, surely you could have taken wages for it" (Al-Quran, 18:77) and also from the Hadith, "whoever hired a worker must inform him of his wages" (Ibn Majah) and "give a

worker his wages before his sweat has dried" (Ibn Majah). AAOIFI (2004) states that "the subject of a lease is its usufruct and not the asset itself" and so, *ijarah* involves the rental of a finished item. The Majallah (2001) defines *ijarah* as "hire to be paid for a thing, i.e., the price for the benefit and *ijar* is to give for hire and *istijar* is to take on hire". Interestingly, the Majallah (2001) also defines it more closely as "the sale (*bai'*) of a known benefit in return for its known equivalent". Hence, the price of the usage must have an equivalent counter-value (*'iwad*). In this context, the Majallah viewed *ijarah* in terms of an operational and not a financial lease with the lessor accepting market risk, liability including ownership and maintenance. As such, *ijarah* is exactly equivalent to the operating lease of a spot voyage or time-charter contract in shipping but is different from the conventional financial lease which is often typically reflected in long-term bare-boat charters where the assets are fully amortized and insured against loss or damage.

Islamic finance and the ex ante determination of profit-shares: In the secular theory of producer behaviour, the economic problem for producers is to maximize profits. The key decisions are which outputs to produce, how much of each output to produce and which inputs to use to produce the outputs. On the other hand, Muslim entrepreneurs bear the risk of profit or loss. As a partner, the entrepreneur can trade under two major forms of business, being the contractual partnership (*sharikat al-'aqd*): *mudharabah* and *musharakah*. In each case, general principles of factor pricing and income distribution will be applied in the *ex ante* (before the event) determination of the share of capital and entrepreneurship. Taymiyya (1983) stated that "profit is an increment (*nama'*) gained from the use of one man's labour (*badan*) and another man's capital (*mal*). So, it should be divided among them as any increment resulting from these two factors" (Taymiyya, 1983). However, we learn from Ibn Qudamah that, "it is not permissible to guarantee for any partner a pre-specified number of dirhams. If one partner's profit amount is specified in dirhams or if a specified increment over his profit-share is pre-specified, the partnership is thus invalidated" (Qudamah, 1946).

The *ex-ante* determination of profit and loss sharing for *mudharabah* and *musharakah* are based on factor pricing of capital and entrepreneurship that is based on justice. The income distribution for *musharakah* and *mudharabah* are equitable because each partner receives a share in the profit on the basis

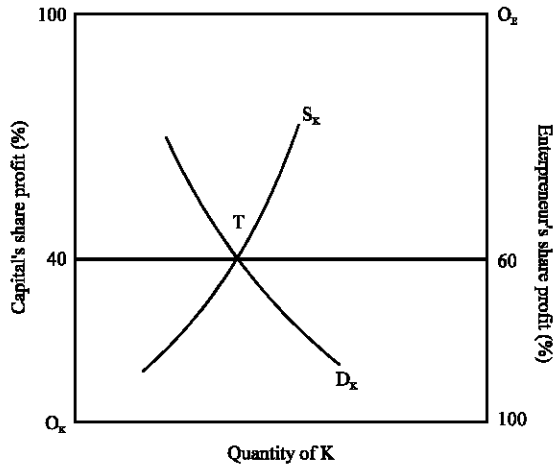


Fig. 1: The ex ante determination of profit shares in mudharabah (Sadeq, 1990)

of the partner's contribution to the production process. In a mudharabah contract, owner of the capital (rabb al-mal) and gives his property the entrepreneur (mudarib), to manage the business and each will have an agreed share of the profit. If there is a loss, the owner of the capital will bear the loss and the mudarib will lose his time and effort.

Provided an incisive analysis of the ex-ante determination of profit and loss sharing for mudharabah and musharakah. In Fig. 1, the ex ante (before the event) determination of the share capital in the case of mudharabah will be determined by the interaction of the Demand for (D_k) and Supply of Capital (S_k). Prices (profit shares) of capital and entrepreneurship in percentage terms are measured along the left and right vertical axes and the amount of capital along the horizontal axis. S_k is upward sloping implying that the quantity of capital supplied increases as the capital provider's profit-share increases. D_k is downward sloping implying that the quantity of capital demanded increases as the capital provider's profit-share decreases. S_k and D_k intersect at T , determines the profit-share ratio such as 60:40. The risk of losses are incurred by the capital provider and the entrepreneur's service will go unrewarded.

Musharakah involves two or more partners combining their capital in a business which they jointly manage and jointly bear the risk of profit and loss in a pre-agreed proportion. The loss is apportioned according the ratio of capital contributed by each partner and the profit is distributed according to a pre-agreed ratio by mutual consent. As per Fig. 2, the

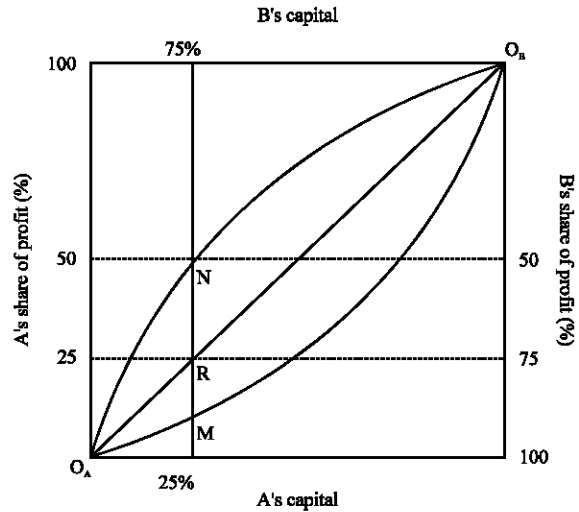


Fig. 2: The ex ante determination of profit shares in musharakah (Sadeq, 1990)

upper and lower horizontal axes represent capital provided by A and B whilst left and right axes depict their respective profit-shares. If Shafi'i or Maliki, partners should share in profits according to their respective contribution of capital, given by O_a-R-O_b , assuming A contributes 25% of the capital and thus A receives 25% of the profit. If Hanafi or Hanbali, partners may vary their profit share reflecting entrepreneurial ability for example, either O_a-N-O_b or O_a-M-O_b . The distribution of any losses are based on the share of capital contributed because the share of entrepreneurial services will go unrewarded. For losses O_a-R-O_b would thus apply.

Clearly, the Islamic economic system encourages and facilitates the mobilization of the factors of production necessary for economic growth. Natural resources are available in abundance for man to explore and use them for the production of goods and services to meet man's needs including moral and social obligations. The optimal use of human resources and hard work is necessary to produce goods and services in order to meet limited needs. But Islam does not undermine capital (like socialism) nor pay capital nominal interest out of net revenues (like capitalism) but recognizes the importance of capital in the production process, through a pre-determined percentage of profits (or losses). Risk and reward are shared by both capital providers and entrepreneurs, indeed, the provision of Islamic finance is by default entrepreneurial. The system of sharing profits (or losses) has the potential to increase investment up to the level at which marginal profit is zero (Sadeq, 1990).

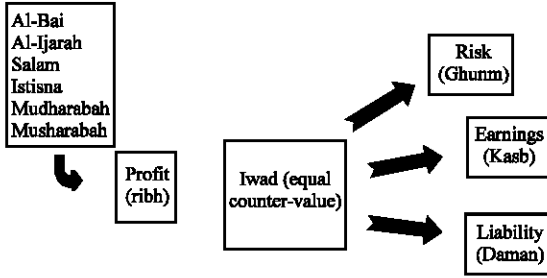


Fig. 3: The Islamic theory of profit (Abdullah, 2016a, b)

Islamic normative theory of profit: An important Islamic legal maxim (al-Qawaid al-Fiqhiyyah) states that “In contracts, attention is given to the objects and meaning and not to the words and form” (Majallah, No. 3). This allows us to evaluate financial transactions in terms of economic substance over legal form (Abdullah, 2016a, b). This enhances the ability to block the legal means to an unlawful outcome (sadd al-dhara’i), thereby avoiding harm (al-darar) attributed to usury (riba) and upholding what is in the public interest (maslahah), in order to fulfill one of the objectives of the Shari’ah (maqasid al-Shari’ah) which is to protect wealth (hafiz al-mal). Accordingly, regarding the Islamic theory of lawful profit, Al-Arabi (1957) said “Every increase which is without an equal counter-value (‘iwad) is riba” and the components of ‘iwad are; risk (ghunm), liability (daman) and earnings (kasb) (Al-Arabi, 1957) cited also by Ziaul (1995), Rosly (2005, 2001) and Rosly *et al.* (2001). As reflected in Fig. 3, the necessary components of ‘iwad must be present for profit (ribh) to be lawful (halal) and if any of the components of ‘iwad are not present in a transaction then the income is unlawful (haram).

In terms of risk (ghunm) it refers to market risk; earnings (kasb) implies to strive to earn or gain wealth, thus implying work and effort (amal); whereas, liability (daman) includes ownership (milkiyyah). The Majallah reaffirms this with a number of important maxims: “reward begets risk” (al-ghurm bi al-ghurm) (Majallah, No. 87), “benefit begets liability” (al-kharaj bi al-daman) (Majallah, No. 85) and “burden is proportional to benefit and benefit is proportional to burden” (Majallah, No. 88). Indeed, the Majallah also affirms that under the rules of contractual partnership (shariqat al-‘aqd), “if (property, work and responsibility) is not found, there is no right to the profit. Therefore, if one says to another, “Trade with your property and let the profits be shared between us,” there, partnership does not follow and he cannot take a share in the profit which arises in this case” (Majallah, No. 1348).

Inter-temporal choice and investment: Bohm-Bawerk (1988, 1990) developed inter-temporal choices involving a time preference theory of interest by justifying a theory of interest in terms of price formation between present and future goods. He argued that a loan is a real exchange of present goods against future goods and present goods possess a greater value than future goods such that present goods possess a premium over future goods and this premium is interest (Bohm-Bawerk, 1890). A creditor must be compensated for forgoing present consumption with interest as a price of credit. A positive time preference theory of interest is primarily due to the view that a dollar today is worth more than a dollar tomorrow. In capitalism, generally there is always positive time preference. Creditors have forgone the pleasure of current consumption and stipulate a pre-determined, guaranteed contractual profit (interest) on their loans as compensation for postponing current consumption. A creditor is being compensated at interest involving a positive time preference. Bohm-Bawerk’s time preference theory of interest is related to the time value of money: his treatment of inter-temporal choice as an allocation of consumption among time periods was subsequently formalized by Fisher (1930).

In Fisher (1930)’s model, time preference (impatience) is a derivative of an individual’s “marginal want for present and his marginal want for future income”. An individual makes investment and savings decisions in a firm or as a consumer. With the consumer, an inter-temporal budget constraint indicates present and future income (m_0, m_1) and by making a decision on present and future consumption (c_0, c_1) also makes a present savings decision ($s_0 = m_0 - c_0$) yielding future savings $(m_0 - c_0)(1+r)$, given a known market rate of interest (r). The absolute value of the budget constraint is $(1+r)$ corresponding to the increase in future consumption from present savings.

Preferences indicated by an inter-temporal utility function $u(c_0, c_1)$ are presented in the form of indifference curves. The absolute value of the slope of these indifference curves yields the individual’s inter-temporal Marginal Rate of Substitution (MRS) which measures the value of present consumption in terms of future consumption and reveals a decreasing Marginal Rate of Substitution (MRS): as individuals increase present consumption, its value in terms of future consumption decreases. The MRS is the ratio of the marginal utility of present consumption to the marginal utility of future consumption and at optimal consumption (with the indifference curve tangent to the budget constraint line) the consumer’s MRS equals one

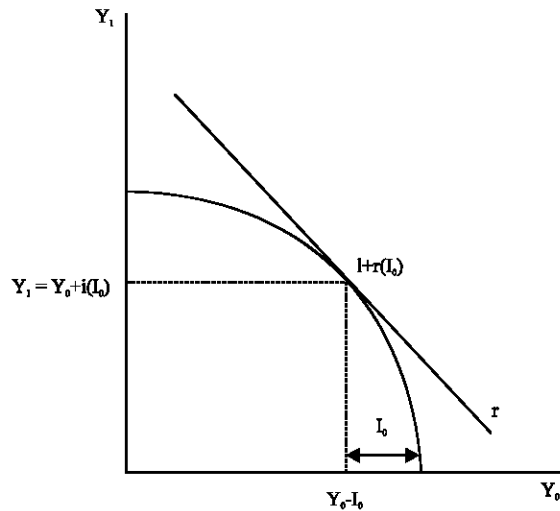


Fig. 4: Fisher (1930)'s investment frontier (MacMinn, 2005)

plus the interest rate ($MRS = 1+r$). Therefore, at optimal consumption an individual values present and future consumption at its opportunity cost.

In terms of optimal savings and investment decisions, the objective for the individual is to maximize utility subject to a budget constraint. Fisher (1930)'s separation between a firm and consumer reflects that all individuals, irrespective of their preference for present or future consumption, select the same investment plan which maximizes the PV of total income and is equivalent to maximizing the NPV of the investment (MacMinn, 2005).

The Fisher model has been the foundation of corporate finance: in terms of investment analysis we discount future net cash flows involving the TVM. For Fisher, the optimal decision for the firm's investment decision is where the marginal rate of return over cost equals the interest rate. We may realize that Fisher's rate of marginal return over cost is equivalent to Keynes (1936) marginal efficiency of capital. Fisher's investment frontier is concave (Fig. 4) which reflects the diminishing marginal returns to investment.

The investment decision will be optimal where the investment frontier is tangent to the interest rate (capital market) line which is given by the combination:

$$Y_0 - I_0, Y_0 + i(I_0)$$

Where:

I = The yield on investment

r = The market interest rate such that the condition

$I(I_0) = \text{The } r \text{ holds}$

An entrepreneur will continue to invest until the marginal return over cost equals the interest rate which is the absolute value of capital market line $= 1+r$. Fisher thus laid the foundations for the Capital Asset Pricing Model (CAPM) where the value of an asset (a vessel) is independent of its capital structure, "the market value of any firm is independent of its capital structure and the average cost of capital, to any firm is completely independent of its capital structure and is equal to the capitalization rate of a pure equity stream of its class" (Modigliani and Miller, 1958). Whether through the discount rate or with the IRR (as we shall explore in the subsequent section), in reality the cost of capital equals the unlevered cost of equity, in the form of an annual compound rate which can be benchmarked to other assets priced along the yield curve.

Efficiency of resource allocation: Implies increased investment leads to growth in GDP. The theory of investment is a theory of the demand for capital but from a conventional perspective, the return on capital is subject to the cost of interest and assuming profit maximization as a basic motive for investment, firms will decide on the profit maximizing level of capital stock. Keynes suggested an alternative method of investment decision, adopting the Marginal Efficiency of Capital (MEC) or the marginal efficiency of investment.

Keynes (1936) defined the MEC which is otherwise known as the Internal Rate of Return (IRR) as "that rate of discount which would make the present value of the series of annuities given by the returns expected from the capital-asset during its life just equal to its supply price". It is the rate of discount that makes the discounted present value of an expected income stream equal to the cost of capital such that the MEC (IRR) makes the Net Present Value (NPV) equal to zero. Given the MEC, a lower interest rate will increase investment which caused Keynes (1936) to also admit that interest sets "a limit to the level of employment (and) holds back investment in production".

Furthermore, an optimum investment rule occurs when the MEC equals the rate of interest ($MEC = r$) which reveals that the MEC schedule represents the investment demand schedule for an individual firm. Once we derive an investment demand curve, we can easily determine the demand for investment capital given the level of interest but in any case, an entrepreneur will stop investing when the $MEC = r$.

In terms of efficiency of resource allocation, investment can be carried out by the entrepreneur to the fullest potential in an Islamic economy. For example

Table 1: Efficiency of resource allocation in a secular and an Islamic economy

Islamic economy		Secular economy					Total invest.	Total profit
Rabbal-Mal 40%	Mudarib 60%	1	2	MEC				
208.0	312.0	470	50	-	520	5000		
220.0	330.0	490	60	30	550	6000		
228.0	342.0	500	70	20	570	7000		
234.0	351.0	505	80	15	585	8000		
238.0	357.0	505	90	10	595	9000		
241.2	361.8	503	100	8	603	10000		
243.2	364.8	498	110	5	608	11000		
244.4	366.6	491	120	3	611	12000		
245.2	367.8	483	130	2	613	13000		
245.2	367.8	473	140	0	613	14000		

(Table 1) assuming the pre-determined profit-sharing ratio is 60:40 between the entrepreneur (mudarib) and capital provider (rabb al-mal).

If capital is borrowed from a conventional bank at an interest rate of \$10 per \$1,000 for a project then an entrepreneur can invest up to \$9,000, since the marginal efficiency of capital equals the interest payment. At this level of investment, the additional \$1,000 of invested capital generates \$10 in profit but he has to pay \$10 in interest. The borrowed capital costs a total of \$90 in interest with profits after interest payment of \$595-90 = \$505. If he invests \$8,000, the profit after interest is also \$585-80 = \$505, therefore, the lower investment is less risky, since it is financed by debt at interest.

On the other hand, an Islamic entrepreneur will continue investing capital up to \$13,000, since the partners continue to receive positive profits and may even invest \$14,000 without further risk even when the net gain is zero (Sadeq, 1990). Given the MEC, a lower interest rate will increase investment. Furthermore, an optimum investment rule occurs when the MEC equals the rate of interest ($MEC = r$) which reveals that the MEC schedule represents the investment demand schedule for an individual firm. A lower interest rate makes investment relatively more attractive (Fig. 5). If the interest (r) is 10% then only projects with a Rate of Return (RoR) > 10% will be profitable. Once we derive an investment demand curve, we can determine the demand for investment capital given the level of interest but in any case, an entrepreneur will stop investing when the $MEC = r$.

Investment and in turn employment is expected to be higher in an Islamic economy. Ultimately investment financed by debt at interest is less efficient than equity finance (from savings) and profit sharing. Investment, production, employment and economic growth (real GDP) all increase (Fig. 6). In the Keynesian expenditure

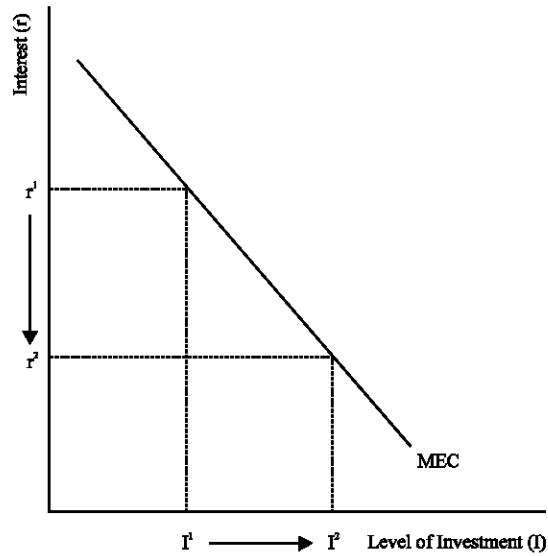


Fig. 5: The MEC and investment

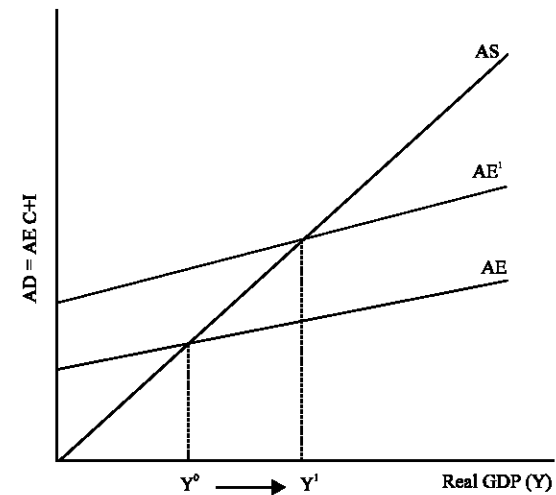


Fig. 6: Aggregate expenditure model ($AE = Y$)

model, Aggregate Expenditure (AE) equals Consumption (C) and Investment (I) is equivalent to the monetarist MV which represents the monetary sector and the real economy is reflected in national income (Y) or real GDP. Modern national income accounting was developed from the output method (measured by GDP) and expanded to reflect the identity that total production = total income = total expenditure, so that by definition $GDP = GDI = GDE$. Therefore, Keynes's admission that interest "holds back investment in production" (Keynes, 1936) due to the reduced marginal efficiency of interest-based capital (Keynes, 1936) is revealing, since this would clearly undermine the efficient allocation of investible resources.

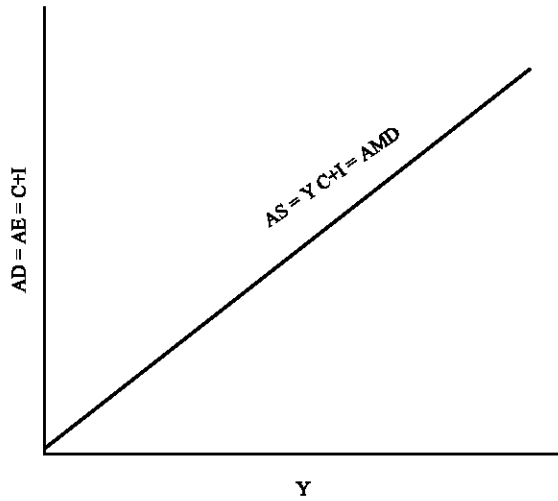


Fig. 7: The Ibn Khaldun income and expenditure model (AE = Y) (Abdullah, 2016a, b)

Keynes claimed that AD falls short of AS due to hoarded accumulated savings in the form of money rather than capital goods. For Keynes to argue that effective demand for finished goods and employment occurs only when Aggregate Expenditure (AE) is in equilibrium with income (Y) cannot be accurate. All points on the 45° line shows the equality of income (Y) with Consumption (C) plus Investment (I) such that $Y = C + I$. Thus, Y must equal AE (= C + I) by definition and the Aggregate Demand (AD) function must be identical with the Aggregate Supply (AS) function, regardless of whether Y and employment are in equilibrium. The supply and demand for goods and services is not the supply and demand for labour and this “apprehension is perhaps, the best test of a sound economist” (Stephen, 1881).

Interestingly, it was Ibn Khaldun and not Keynes who observed that “Income and expenditure balance each other in every city. If the income is large, the expenditure is large and vice versa. And if both income and expenditure are large, the inhabitants become more favourably situated and the city grows” (Khaldun, 1958). This reveals the relationship between Consumption (C) and income (Y) such that $C = Y$. Unfortunately for Keynes, this anticipated and logically reaffirms Say’s law of the markets. For the only reason man produces is to acquire property and consume it to satisfy his needs, a concept that has been elucidated by many Islamic scholars including Ibn Khaldun, not because supply creates its own demand but as reflected in Fig. 7, the 45° line can also be regarded as the Aggregate Supply (AS) function, since the value of output constitutes an economy’s money income such

that Aggregate Supply (AS) must always equal Aggregate Demand (AD). Since, AD equals Consumption (C) plus Investment (I) or Aggregate Expenditure (AE). In turn, AE by definition must equal Aggregate Monetary Demand (AMD) such that Savings (S) are synonymous with Investment (I) in an Islamic economy.

Islamic monetary theory of value: Abdullah (2016a, b) provided an important analysis on monetary policy with qualitative analysis of Islamic texts and a quantitative empirical investigation involving the store of value function of money over the long term. He developed an Islamic monetary theory of value where, “the value of money as reflected in its rate of exchange with a fixed amount of precious metal, depreciates (or appreciates), due to an excessive increase (or decrease) in the supply of money in relation to demand, the effect of which is to increase (or decrease) the price level” (Abdullah, 2016a, b). He found that a high value currency ensured low and constant prices over the long term: a devaluation of money was the cause and an increase in prices was the effect of a change in monetary policy. Inflation is thus a monetary phenomenon and indeed, the common denominator for all economic transactions is money. Therefore, the price of a commodity is affected by the underlying value of money and may be expressed as the ratio of the demand and supply of that commodity as the numerator, over the demand and supply of money as the denominator.

Abdullah’s findings are highly relevant when expressing the nominal value of maritime assets over the long term as an index and adjusting it with an index of the price of gold, in order to obtain real prices in terms of gold. In doing so, we can evaluate to what extent nominal prices of maritime assets are affected by monetary policy. This is an important contribution to an Islamic investment analysis of maritime assets, since the primary focus of maritime research by stakeholders (shipping companies, shipyards, shipbrokers, maritime lenders) involves just the supply and demand of vessels and the derived demand of those vessels from seaborne trade and the real economy.

CONCLUSION

In summary, we have analyzed from the Shari’ah perspective, with regard to Islamic investment contracts and the underlying Islamic normative theory of profit which identified the importance of participatory equity finance and the determination of risk and reward. Our analysis found similarities with regard to the structure

of conventional partnership funding (with GPs and LPs) and mudharabah, providing an important mechanism for the involvement of IFIs, investors and the development of Islamic equity finance rather than debt-based investment instruments (Ahmed *et al.*, 2014).

We have also demonstrated how inter-temporal choice and investment can be adopted as a framework for investment analysis of maritime assets where an unlevered stream of equity cash flows involving the return on equity, can be benchmarked to other financial and real assets along a yield curve. Furthermore, the marginal efficiency of capital (the internal rate of return) confirms that equity finance and profit and loss sharing is more efficient in allocating investible resources than debt finance at interest, in terms of increasing investment and economic growth (as measured by real GDP and national income). Finally, we also assessed the Islamic monetary theory of value in order to incorporate it in our investment analysis of maritime assets to measure the extent that monetary policy has on the nominal price of assets.

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