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The Islamic Research and Training Institute (IRTI) was established by the Board of Executive Directors (BED) of the Islamic Development Bank (IDB) in conformity with paragraph (a) of the Resolution No. BG/14-99 of the Board of Governors adopted at its Third Annual Meeting held on 10th Rabi-ul-Thani, 1399H corresponding to 14th March, 1979. The Institute became operational in 1403H corresponding to 1983. The Statute of the IRTI was modified in accordance with the resolutions of the IDB BED No.247 held on 27/08/1428H.

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بسم الله الرحمن الرحيم
In the name of Allah, the Most Merciful, Most Beneficent

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An Economic Theory of Islamic Finance Regulation

MABID ALI M. M. AL-JARHI•

Abstract

We argue that regulation can improve the performance of conventional banks up to a limit, but cannot eliminate the inefficiencies resulting from the use of the conventional loan contract.

Islamic finance requires complicated and costly procedures compared to conventional finance. Yet, it has significant macroeconomic benefits, which cannot be internalized by individual banks. Therefore, Islamic bankers tend to mimic conventional finance in order to cut costs and maximize short-term profits. Regulation can modify bankers' incentives in order to capture the benefits of Islamic finance.

Keywords: banking regulation, financial intermediaries, Islamic banking, monetary economics.
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1. Introduction

The economic theory of bank regulation can be considered as a part of the whole theory of regulation.[1] The latter theory can take a normative approach, where regulation is justified by market failure or a positive approach where regulation is a result of the interaction between government bodies, banking and financial institutions as well as the active parties in the political process (Hebbink and Prast, 1998). Arguments of this approach are usually presented under the title of government failure. This paper attempts to complete the economic theory of bank regulation by covering the missing part related to Islamic finance.

Since Islamic finance has special characteristics that influence the extent of information asymmetry and introduces new questions related to monitoring, we expect the regulation theory related to conventional finance to be influenced. Some modifications would have to be ultimately introduced. While we focus on regulating Islamic banks, we try to point out some of the modifications required on the conventional banking side.

The economic theory of bank regulation attempts to explain why banks should be regulated and how. The theory provides two alternative justifications for bank regulation: government failures and market failures. While both types of failure seem to have some role, some economists, e.g., Heremans (2000) believe that market failures are becoming the dominant rationale for banking regulation[2]. Conventional finance, being based on the classical loan contract exposes financial intermediaries to information asymmetry. In addition, the banking industry gravitates towards large-size banks. This has started the controversy whether regulations should focus on protecting such banks from failure or protecting finance users from insolvency or bankruptcy.

Islamic finance introduces a different twist to the story of regulation. It is not supposed to use the classical loan contract. Instead, there are sixteen financing contracts available some of which would be subject to information asymmetry and others would not. An Islamic financial intermediary would mix and match such contracts in order to structure the financing it provides to customers.

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[1] Readers unfamiliar with Islamic finance are well advised to start with reading the three appendices provided at the end of the paper

[2] One way to explain this is to look into the increasing role of pressure groups in Western democracies, which is not sufficiently counterbalanced by the effectiveness of government branches.

In addition, Islamic finance seem to provide macroeconomic benefits to the economy[3]. Since such benefits cannot be internalized, and since Islamic finance requires costlier and more roundabout methods to mix and match financing contracts, Islamic bankers find it more profitable to mimic conventional finance. Regulating Islamic banks must therefore be directed to establishing proper incentives to follow the true Islamic finance paradigm in order to benefit from its significant externalities. This is the core objective of our theory. In addition, such regulation must provide sufficient safeguards against information asymmetry and the exposure of Islamic banks to its resulting risking

The paper is organized in six parts. The first section starts by explaining the nature of an Islamic bank and whether they, like their conventional counterparts, emerged endogenously. The paper then explains why Islamic banks find it beneficial to mimic conventional banks. The second section discusses market imperfections in relation to Islamic finance, including screening, monitoring and liquidity risk. The third section discusses the incentives to monitor as related to asset safety. The forth section discusses the relationship between market failures and regulation. Section five discusses some related issues of monetary policy. Issues of aggregate liquidity related to the proposed set of regulations are discussed in the last section. Finally, the paper summarizes its conclusions.

2. Market imperfections and regulation

Four alternative theories have developed to explain why banks exist in response to financial market imperfections (Freixas and Santomero, 2002). Let us consider the implications of each for Islamic banking.

2.1. Screening of Potential Borrowers

Conventional banks screen potential clients *ex ante* on behalf of depositors), either because they are better at screening (Grossman and Stiglitz, 1980), or they do it on behalf of a large number of interested parties (Campbell and Kracaw, 1980). In both cases, banks enjoy economies of scale in monitoring (Ramakrishnan and Thakor, 1983).

However, the presence of economies of scale does not automatically lead to conventional banks actually monitoring their customers. Since monitoring is costly, conventional banks try to avoid it by requiring borrowers to provide collateral and guarantees. This happens to be the general trend in conventional banking. Banks prefer to take risk on collateral rather than sharing in the business risk of their customers.

[3] See Appendix II.

In addition, monitoring would be generally restricted to large-volume transactions, where structured finance can be used. When a conventional bank finances a huge industrial or construction operation, it may find it economical to attach to it a system of monitoring. However, the majority of lending activities would not take such huge amounts of finance. In addition, borrowers with large financial requirements often find it to their advantage to resort to issuing bonds in financial markets in order to avoid monitoring, whose costs would be included in higher borrowing rates. That may explain the growth in issuing corporate bonds.

In Islamic finance, there is a need as well as an incentive for Islamic banks to screen finance users.

In financing consumption, consumers "compete" for the commodities by expressing their willingness to purchase each at a price or a markup over cost that is commensurate with their marginal value in use as well as their time preference related to each commodity[4]. Competition would result in an equilibrium that equates the price of each with its marginal value in use. In addition, commodities are financed through their sale against future payment or their future delivery against spot payment. Screening would therefore depend on the bidding by each customer in addition to the ability of each commodity financed to serve as collateral.

The issue of how much finance to allocate to each commodity is resolved through a process that invokes its value in use as well as the commodity time preference. Both Islamic and conventional finance benefit from the existence of economies of scale in screening consumers seeking finance. Islamic banks would also have a comparative advantage in screening sale finance customers than conventional banks in screening borrowers because of the virtually non-existence of information asymmetry in the case of five out of six Islamic sale finance contracts.

Regulation must therefore be directed to establishing procedures for Islamic sale finance that would provide for the proper use the financed commodities as collateral until full repayment is concluded. When commodities cannot serve as collateral, because they are either perishable or with high cost of repossession, additional regulations must be set. This would include procedures for penalizing delinquency and verifying temporary insolvency.

As to Salam finance, the agricultural commodities designated for future delivery cannot be used as collateral. The ability of the finance user to deliver such

[4] When present money is lent against future money, time preference in money becomes central. When goods are delivered against future payments, or present payments are made against future delivery of goods in Islamic finance, time preference would be related to the goods and not to cash balances. The implication is that different goods would command different markups, depending on their rates of time preference. Such markups would be equated at the margin under perfect competition.

commodities depends on how their price received in advance is used towards cultivating them. Information asymmetry is therefore associated with such contract. The bank purchasing goods through Salam needs to ascertain that the use of the advanced funds will lead to producing sufficient quantities to be delivered.

Screening investors is a process that goes beyond the verification of the ability to pay. Investors, whether they obtain finance through sale, or partnership (in product or profit), must prove the feasibility of their investment, because it influences their ability to recover the finance they obtain. In this respect, regulation of Islamic banks must ascertain that they are properly equipped with the abilities to prepare, review feasibility studies, and monitor investments made through *Muḍārabah* and *Wakālah* (investment agency). Monitoring would be done automatically with partnership in product and profit, because in both cases, Islamic banks participate in management and have direct access to investors information.

2.2. Monitoring Banks and Customers

Banking theory focuses on the monitoring of borrowers' actions after loan approval. Models here have concentrated on one of the following (Freixas and Santomero, 2002).

i. The actual use of borrowed funds (Boot and Thakor, 1993),

ii. Effort involved (Allen and Gale, 1988), and

iii. Ex post outcome revelation (Diamond, 1984, Gale and Hellwig, 1985).

In this context, Islamic finance monitoring of finance users' actions during the use of finance takes a different form. In partnership finance, an Islamic bank or financial institution, in its capacity as partner, is a part of the management[5]; information flows automatically into its hands. Regulations must therefore stipulate that the Islamic bank must ascertain that the finance user is properly equipped to collect and disseminate all necessary information.

In sale finance, an Islamic bank or finance institution would provide commodities, not cash, to finance users. Therefore, there is no need to worry about *how funds are used*. What remains is that the financier must ascertain through maintenance and insurance contracts that the use of commodities provided would

[5] That means membership in boards of directors of financed companies. The amount of partnership finance would be set by an Islamic bank in order to reduce the cost of monitoring to minimum. In other words, the share of the bank in the company should be large enough to afford it membership in the board of directors and continuous flow of information.

not be contrary to their ability to be used as collateral[6]. Regulations must therefore provide rules against obtaining finance for commodities that would be automatically resold to others. Commodities, which cannot be used as collateral, because of their nature, should be given special treatment, like requiring guarantees or suitable collateral.

In contrast, Salam finance presents a need to monitor how the fund user utilizes the funds in order to finance the production of a sufficient amount of product for future delivery. This type of finance is marred with serious information asymmetry which must be confronted with either matching it with partnership finance or imposing special procedures to facilitate inexpensive monitoring[7]. The rules listed below for PLS and *Wakālah* finance must therefore apply to Salam.

The question of how customers use funds after obtaining finance arises also in the cases of *Amana or trust finance*, which includes *Muḍārabah* (profit-and-loss sharing, PLS) and investment *Wakālah* (agency investment), both unrestricted and restricted. Therefore, it becomes necessary for *Rabb al-māl* (fund owner) to insure against encroachment, negligence and violation of contract. Towards that end, regulations can set suitable guidelines for *Amana finance* (*Muḍārabah* and *Wakālah*) as well as Salam, including the following.

1. Making feasibility studies to estimate the expected or indicative rate of return, by whose figures and results the finance users must be bound, except for changes that occur for reasons beyond their power. In such case, the burden of proof falls squarely on the shoulders of the finance users.
2. The investment agent, *Muḍārib*, managing partner, or Wakeel (investment agent) must hold orderly bookkeeping and supply audited financial statements regularly (monthly or quarterly) containing the information necessary for proper monitoring.
3. Control of payables and receivables of financed operation must be done through an account with the bank or finance institution, where all outward movements would be approved by both the financier and the finance user.

[6] Consequently, an Islamic financial institution has direct interest in refusing to finance commodities for those who obtain finance for liquidity purposes, i.e., purchase goods for immediate resale, or *Tawarruq*. The ability of financed goods to serve as collateral would significantly diminish under such behavior.

[7] The need to exercise monitoring with Salam finance could be ignored because the contract does not stipulate the delivery of the goods to be cultivated, horticulture or even manufactured, but goods to be delivered must be chosen to be easily available in the market which the fund user can acquire and deliver. However, we think that the contract has been originally developed as a means to finance production of goods to be delivered.

4. To avoid such costly procedures, PLS, *Wakālah* and Salam could be joined with *Mushārakah* or partnership finance, where the bank is continuously informed about business developments in the financed company. Regulations should therefore accept that, as a substitute for the above procedure.

When it comes to monitoring banks by customers, we find that the incentive to *monitor one's bank* is rather week in conventional banking. This is because all deposits are presumed to be guaranteed under the classical loan contract, both principal and interest. Obviously, such guarantee is valuable only to the extent of which the occurrence of bank failures is not possible and deposits are insured.

Perhaps, monetary economists assume that since deposit insurance usually covers small-size deposits, those with large deposits can afford monitoring their banks. However, this still does not explain how this monitoring would be done. Besides, the mere dependence on the follow up of published financial statements and other data about the bank is not sufficient for effective monitoring. The question of how customers of conventional banks monitor their banks effectively remains to be answered.

In Islamic banks, investment accounts are held under the rules of PLS[8] and are not guaranteed[9]. Finance providers in this case are far less informed than finance users. Because of information asymmetry, they face the risk of moral hazard whose reduction requires monitoring. Investment account holders would have a strong incentive to monitor Islamic banks, but have no effective way to doing so. Regulation may fill out this gap by providing access to investment account holder to monitoring Islamic banks through enforcing a governance rule that appoints some of the holders with highest investment-account balances as members of the board of directors.

The rationale for such representation is that investment accounts face the same risks as shareholding in the bank. How much representation should be accorded to them? Proportional representation would make account holders a majority in banks' boards of directors. Meanwhile, considering that some of these accounts are transitory, regulations can set a criterion that considers both account size and maturity for the eligibility to sit on the board.

Obviously, with most investment accounts maturing at the end of the financial year, holders of investment accounts can become a majority in the Board of

[8] Some also can be held under *Mushārakah* and *Wakālah*, which would equally require monitoring.

[9] In some developing countries, all deposits are guaranteed by the government. This introduces an element of moral hazard in banking, balanced by the power of monetary authorities to monitor banks through regulation and supervision. The monetary authorities would monitor banks on behalf of customers, hence. Sometimes, the monetary authority limits the risk each bank is allowed to take. This would introduce an element of inefficiency in the banking sector.

Directors. A new type of a banking establishment, managed by "depositors" could arise. Islamic banking would be radically changing its institutional structure and moving further away from conventional finance.

2.3. Liquidity Risk Insurance & Maturity Mismatch

The justification of providing guaranteed deposits, offered by Diamond and Dybvig (1983), assumes uncertainty of consumption timing. Conventional banking contracts allow for some *ex ante* insurance. Despite the possible instability of conventional banks, their guaranteed deposit contracts are preferred to financial securities (McCulloch, 1986).

The provision of guaranteed, instead of PLS deposits returns the financial system to the *prisoners' dilemma*. If all holders of "investable balances" were to be provided with guaranteed deposits, risk would be borne by only one side of the financial system, namely, fund users. Lack of coordination would deprive the system from the compactness associated with system-wide risk sharing, whose benefits would outweigh the private benefits accruing to each individual depositor.

Both conventional and Islamic banks mobilize resources which are mostly short-term through accepting deposits or investment accounts. Yet, they require longer-term funds in order to provide loans to conventional bank customers and make profitable investments by Islamic banks. Maturity mismatch is therefore a common hazard of the banking industry.

Regulations attempt to protect conventional banks from maturity mismatch through ascertaining that each has a viable system of liquidity management that assigns to each future payment to be made, a matching sufficient inflow that cover it over the short- and medium-term. This can also be done in the case of Islamic banks.

Another means is to securitize investment accounts by issuing investment certificates of long maturities that can be sold by their holders before maturity. This adds liquidity and flexibility to investment accounts, similar to certificates of deposits in conventional finance.

A third means is to finance long-term projects through *Ṣukūk*. The sale of *Ṣukūk* would bring in sufficient proceeds to finance the project. In addition, *Ṣukūk* would be tradable, which affords their holders a good measure of both liquidity and return.

Islamic banks do accept demand deposits like conventional banks. Their assets, too, have longer maturity than their demand deposits and investment accounts. However, they have more tools to use in bridging the maturity gap than do conventional finance. In particular, they can apply the following methods:

1. The use of restricted investment accounts, based on restricted PLS or *Wakālah*, to attract funds directed to financing certain projects or portfolios with maturities longer than available through unrestricted investment accounts. This enables Islamic bank to earmark the proceeds of some restricted investment accounts to certain long term investments. It would be an effective means to mobilize funds with maturities that exactly match the maturity of assets to be created. Naturally, the rate of return on accounts with longer maturities would be sufficiently convincing. In contrast, conventional finance does not have access to attracting restricted *Wakālah* and PLS accounts.
2. Securitization of long-term projects, portfolios and syndicated finance into *Ṣukūk* of long maturities to attract funds with longer maturities. This enables Islamic banks to establish the exact match between their assets and liabilities. It is notable that *Ṣukūk* transfers the title to the securitized assets from banks to *Ṣukūk* holders, which provides an effective way to match maturities. Meanwhile, the use of securitization of some of their assets by conventional banks does not transfer titles to the assets to security holders. Conventional banks remain stuck with the titles to their assets. Maturity mismatching relief would therefore be limited.
3. Securitizing investment accounts into PLS and investment *Wakālah Ṣukūk* of various maturities in order to make them liquid to depositors. Trading investment account *Ṣukūk* will allow investment account holders to exit without deposit withdrawal. This affords the Islamic bank an opportunity to turn investment accounts into negotiable investment certificates of long maturities (that can be sold by their holders before maturity). This adds liquidity and flexibility to investment accounts, similar to certificates of deposits in conventional finance.

Regulations must therefore set rules for the holders of restricted investment accounts in order to allow them some monitoring rights with regard to the projects, funds or portfolios in which they invest. In addition, proper procedures must be set for securitization into *Ṣukūk*, in order to insure that *Ṣukūk* holders control the special purpose vehicles and not banks or *Ṣukūk* issuers. The true sale of securitized assets must be effected in order to ascertain their title transfer to *Ṣukūk* holders. This would effectively remove those assets from banks balance sheets. In addition, regulations must set proper rules for trading such *Ṣukūk* in primary and secondary markets in coordination between monetary and financial market regulators.

2.3. Creating a Safe Asset

Gorton and Pennacchi (1990, 1993) consider banks as an optimal security design. Bank deposits provide an investment in a safe asset, which is not affected by information in the financial markets and is a feasible, efficient asset in optimal portfolio decisions.

Yet, such security leads to concentration of risk in the hands of few specialists, namely bankers. Deposits in conventional banks are loans guaranteed both principal and interest. Such guarantees influences banks behavior. When banks face higher risks, they tend to transfer a larger share of risk to their customers through higher interest rates (Tovar, Jaramillo and Hernández, 2011). At times of crises, the increased vulnerability of the system leads banks to fear bank-runs started by one of the banks going bankrupt. Their competitive drive is attenuated by their interest in protecting their "fellow banks" from failure. Financial crises, therefore, reduce banks' incentives to compete, and induce them to use crises as coordinating signals for collusion. That is why they are capable of raising the interest rates charged to their customers.

The experience of the 2008 international financial crisis has clearly shown that the multiple layers of deposit guarantees by banks and insurance agencies do not play an important role in creating a safe asset. The way monetary authorities handled the crisis ended up with dipping into taxpayers' pockets to bail out banks. Safety or rather lack of it seems to be intertwined with the behavior of bankers, and their inability to resist temptation to give in to moral hazard.

Islamic banks guarantee only demand deposits. The risk is fully borne by Islamic banks themselves. Because they guarantee the repayment of demand deposits, they allow themselves to invest a proportion of them in the PLS asset pool[10]. Shareholders money and (unrestricted) investment deposits are invested side-by-side in that pool. This in turn places limits on the risks taken for the whole pool, as banks' shareholders automatically share a part of this risk. The tendency to fall into moral hazard is not significantly reduced due to the participation of shareholders in the *Muḍārabah* pool. As such, banks' share would be a small proportion, leaving the lion's share to investment deposits.

The behavior of Islamic banks towards bearing risk stands in contrast with that of conventional banks. During financial crises[11], the risk carried by Islamic banks

[10] This is the collection of assets in which Islamic banks invest its shareholders' money together with a discretionary proportion of demand deposits and all (unrestricted) investment deposits.

[11] Financial crises can strike Islamic finance in mixed financial systems. This can be attenuated by the availability of financial assets that facilitate interbank deals among Islamic banks. In a purely Islamic

and investment account holders increase. Islamic banks do not shift part of their risk to investment account holders by reducing the profit-sharing ratio assigned to the latter. Instead, we find that the rate of return earned by both parties becomes lower.

In order to maintain competitive profit rates on investment accounts, Islamic banks may decrease their own profit-sharing ratio in favor of their customers. Other *direct cushioning* devices are used, like withdrawal from the profit stabilization reserve and the investment risk reserve in order to prop up the profit rate distributed to investment accounts.

This, however, does not mean that profits distributed to investment account holders do not fall during crises. We have noticed that such rates did fall significantly during the latest international financial crisis. This can be related to the exercise of extra care by Islamic banks or the dearth of profitable investment opportunities rather than moral hazard.

Still, there is a need to bar Islamic banks at times of crises from shifting risk to their customers and to strengthen the banking system against the temptation to moral hazard. This may require few steps to be taken by regulators. The first step is to make sure that each Islamic bank has sufficient resources in the form of direct cushions. Rules for setting aside a proportion of profits earned at good times to be used in topping up such cushions could be one of the ways to do so.

The second step is to make sure that Islamic banks provide a rate of return on investment accounts that is higher than the interest rate paid by conventional banks on time and saving deposits to compensate investment account holders for the extra risk they take in financing real economic activities instead of providing collateralized loans[12]. It is rather anomalous, yet common, for Islamic banks to pay a rate of return on their investment accounts that is not significantly different from the rate of interest paid out on conventional deposits. Reasons for such phenomenon can be found in the tendency of Islamic bankers to mimic the financial products offered by conventional banks, after dressing them into an Islamic attire. This would lead to the convergence of rates of return in both Islamic and conventional banks.

Perhaps, we can detect some degree of *negative moral hazard* on the side of Islamic banks. Islamic banks may have gone too far in mimicking conventional banking by evading the tradeoff between risk and return and focusing on sale

finance system, the possibility of crises is removed by the virtue of the absence of risk trading and the strong binding of the financial with the real sector.

[12] The nominal rate of growth of the economy could be used as a benchmark to the rate of return on investment. If an Islamic bank is not distributing the benchmark as a minimum, its operations should be scrutinized to check whether the Islamic bank in question is placing some of its resources in conventional outlets.

finance, where collateral can be easily obtained. Meanwhile, finance based on partnership in product and profit may be willfully avoided. This will be dealt with later with more regulatory tools, as it involves several other ramifications.

3. Incentives to Monitor and Asset Safety

Monitoring distinguishes German universal banking from Anglo-Saxon commercial banking. It also distinguishes conventional from Islamic banking, should Islamic banks be true to their own paradigm and act like universal banks. Monitoring also distinguishes banking loans, which are presumably subject to monitoring from tradable debt (bonds) which are not.

Monitoring can be done in two directions: banks monitoring their customers (finance users) and depositors or investment-account holders monitoring their banks. Optimality requires that monitoring be exercised both ways. However, the incentives to monitor are not always present on both sides. Obviously, universal banks have a greater incentive as well as the effective tools to monitor their customers. However, the extent and effectiveness of such monitoring has been debatable (Baliga and Polak, 1995)[13]. This ultimately depends on the extent to which universal banks take equity in the companies to which they provide finance. Active membership of universal banks in their customers' boards of directors and the degree of their involvement in management sets the borders of such monitoring.

The relationship between universal banks and firms have been subject to much scrutiny. Some authors report substantial monitoring as old as early Twentieth Century (Hilferding, (1910); Riesser (1909)). Fohlin (1993), meanwhile, argues that banks representation on boards was much lower before 1900. In addition, Edwards and Fischer (l994) as well as Edwards and Ogilvie (1995) argue that the influence of such boards both past and present has been exaggerated.

This author has previously claimed in other writings that universal banks are well placed to monitor their customers, based on the presumption that such banks are allowed to take equity in the firms to which they provide financing in the form of conventional loans. The fact is that such assumed practice is not always the case. In many cases, German banks sat on firms "*supervisory board*", an institutional organ that has a vague role, which is different from the firm's "board of directors" that represents equity shareholders in the firm and does the actual management, (Guinnane, 2001). We now realize that German banks have had a complicated relationship with business and cannot simply be assumed to behave like equity-holders in customer firms.

[13] The debate has continued since the date of this article in 1995. See for example, 23. Elsas and Krahnen, 2003.

However, our main assertion remains. If a conventional bank is allowed to provide finance in the form of equity in addition to conventional loans, information asymmetry attached to the conventional loan vanishes and the bank is automatically freed from the risks of adverse selection and moral hazard. The lesson learned from such assertion is that universal banking as we perceive it, is an effective way to eliminate information asymmetry. Islamic banks use 16 finance and investment contracts six of which suffer from information asymmetry. The paradigm of Islamic banking should therefore include operating like a universal bank that takes equity in the businesses they finance[14].

Monitoring is therefore critical to both Islamic and conventional banking, simply because it eliminates information asymmetry. Such elimination removes the risk of adverse selection and moral hazard faced by customers providing deposits or investment accounts to banks, and by banks providing finance to customers.

Therefore, we can conclude that the quality of assets held by banks through financing activities and of assets held by the public through placing deposits or investment accounts with banks, depends upon the incentive of banks and customers to monitor each other. Optimality requires *Pareto optimal* incentives for banks to screen, monitor and invest and for customers to monitor banks with which they place funds. With incorrect incentives, market failures in the banking industry will occur, reducing social welfare and real economic activity (Gertler, 1988). Such problem can be remedied with proper regulation as explained below.

3.1. Banks and Customers' Incentives to Monitor

Conventional banks incentives to monitor borrowers do not come naturally through the market mechanism. Lack of conventional banks' incentives to monitor emanates from their use of the classical loan contract and their resulting insistence to limit their risk-taking to the risk on collateral. To provide them with incentives to monitor requires a radical change in their behavior that would turn them to assuming some degree of *business risk*.

Holders of demand and time deposits with conventional banks have little incentive to monitor their banks, as their deposits are guaranteed in principal and interest by banks as well as fully or partially insured by deposit insurance schemes. They can be induced to monitor their banks only if the classical loan contract is no longer the basis for providing such deposits and if deposit insurance coverage is limited to small deposits.

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[14] We must remember that equity finance is the same as *Mushārakah* and diminishing *Mushārakah*, which are two of the Islamic finance sixteen contracts.

In other words, introducing incentives to monitor into conventional banking by both banks and deposit holders would require systemic changes. This would call for the discussion of banking reforms, which is beyond the scope of this research.

The safety of assets held by Islamic banks will generally depend on their underlying Islamic finance and investment contracts, investment feasibility and safeguards to insure transparency and disclosure.

Islamic banks practices indicate their preference to sale over partnership and agency-investment finance. When an Islamic bank provides sale finance, it does not give cash to customers, but rather purchases merchandise and assets and provides them to customer. Only in the case of Salam or deferred-delivery sale that cash is advanced against later delivery. This means that, except for Salam, sale finance includes a self-monitoring mechanism. Sale finance is therefore free from information asymmetry and requires no extra monitoring beyond its self-monitoring mechanism[15].

The choice of the underlying Islamic finance and investment contracts provide Islamic banks a unique opportunity to create assets with self-monitoring mechanism. There is a menu of sixteen finance and investment contracts from which to choose. Each contract has a different degree of embedded risk, depending on its implicit monitoring. Mixing and matching contracts, or what is commonly known as *product structuring*, can be an effective method to sculpture quality assets.

Joining PLS, Salam or *Wakālah*, which has no self-monitoring mechanism with *Mushārakah* or diminishing *Mushārakah*, with their powerful self-monitoring mechanism, in one product would significantly reduce information asymmetry and its related risks[16]. Risks of *Mushārakah* itself can be mitigated through joining it with *Ijārah*. The size of the menu of Islamic investment and finance contract indicates that the number of products can go into several hundreds.

To benefit from such advantage may require proper regulation. Islamic bankers, interested in short-term objectives and being aware of their inability to internalize the external benefits of Islamic finance may shy away from using certain contracts, particularly those of partnership in profit and product, like PLS and *Mushārakah*.

[15] One exception needs to be mentioned, that regulators must set conditions for the resale of financed assets before full finance repayment, in order to make sure that the quality of banks' collateral will not deteriorate due to premature sale, which is usually practiced under *Tawarruq*. We propose as a condition that the new buyer would pay all remaining installments in full

[16] Notice the similarity of this approach with that is supposedly used by universal banks (Al-Jarhi, 2001), when they actually provide equity finance side-by-side with conventional loans.

Therefore, regulators have to make sure that Islamic banks under their supervision use the art of product structuring to its full potential.

This can be handled through considering that failure to use product structuring effectively can be a source of operating risk. Regulations must therefore ascertain that each Islamic bank has sufficient resources and proper procedures to structure Islamic finance products. In addition, supervision should review samples of previously structured products to test for their propriety and their ability to fulfill customer objectives and bank goals.

We can therefore conclude that the classical loan contract stands as an obstacle against motivating conventional bankers and depositors to monitor each other. Such motivation requires a systemic change to provide an alternative to the classical loan contract. Meanwhile, Islamic banks require regulatory discipline to force an imaginative effort towards mixing and matching among the sixteen available Islamic finance and investment contracts.

3.2. Customers' Incentives to Monitor and Asset Safety

We mentioned above that customers in their capacity as depositors and investment-account holders have little incentive to monitor their banks beyond comparing interest rates paid by conventional banks on deposits, rates of return paid by Islamic banks on investment accounts as well as other banking services. This deprives customers from early-warning signals indicating the imminent collapse of their banks.

Deposits in conventional finance are defined as loans from customers to banks. The conventional loan contract makes banks liable to depositors to repay their deposits and accrued interest in full. While it is generally understood that all loans, albeit in different degrees, are subject to default, depositors do not have sufficient incentives to continuously assess the default risk of their banks. Again, we find that in order to create the proper incentives to monitor, customers must place their funds with banks on a basis that is different from the classical loan contract. This as mentioned above begs the question of bank reform.

Customers of Islamic banks who deposit their funds in *investment accounts* have a different position. First, their investment account is placed on the basis of profit-and-loss sharing. No guarantee is therefore implicit. Second, despite the similarity between the positions of investment-account holders and bank shareholders, the latter have an effective way of monitoring their bank by electing its board of directors and looking into their audited financial statements every financial year, while the former have no way whatsoever. They must therefore rely on the monetary authority

for monitoring their bank. Past recurrence of bank failures indicate that the monetary authority monitoring is not sufficient to protect investment account holders.

Regulations must therefore provide the means for customers monitoring of banks. The mechanism we propose should be similar to that assigned to shareholders. That is to insure that depositors would be represented in the board of directors in proportion of their deposits (or investment accounts) to the total funds invested by the bank. In order to do so, we must assign a number of seats in the board to depositors. Then, we select those who should occupy these seats from the top investment-account holders, considering their investment account balances and their length to maturity.

4. Market Failures and Regulation

There are three sources of market failure: the presence of public goods, externalities and monopolies (market power).

4.1. Public Goods and Regulation

The banking and finance system itself, once established, renders benefits to all users, like the provision of a means of exchange and the use of monetary policy, in order to gauge monetary growth to the requirements of economic growth and to control inflation. There is no way to apply the exclusion principle to all beneficiaries. Of course, banks can charge for their services, but cannot charge for the benefits from their mere existence. The monetary authority itself cannot charge individuals who happen to gain from monetary policies. Taxes must ultimately be used to cover the costs of establishing, maintaining, regulating the banking system and managing monetary policy.

Does banking and finance in general contain an element of public goods that justify its regulation? Would that apply equally to both conventional and Islamic finance? How would regulation provide a reasonable solution to the public good problem in both cases? These are the questions into which we would like to look.

4.1. The Public Good Element in Conventional Banking

If we excluded the mere existence of the financial system as a whole, financing services provided by banks are not pure public goods, as the exclusion principle can easily be applied to conventional finance. The existence of banking complements the institution of money by providing monetary services, like accepting deposits, organization of payments (transfers, clearance, etc.). Regulation of banks preserves the quality of banking services and monetary policies preserve the quality of real balance. Such benefits are not subject to the exclusion principle and must be financed through taxation.

Conventional finance is provided, based on creditworthiness and collateral. In addition, the conventional banking system is associated with some public bads. Those result from the use of the classical loan contract (Al-Jarhi, 2001).

- Finance through the classical loan contract causes the allocation of resources to be based on "lending criteria" rather than "investment criteria" (Al-Jarhi, 2001). Since the size of the debt to be repaid would be subject to cumulative interest, debt can augment indefinitely and ultimately become unsustainable. The financial sector would experience an enormous amount of innovation in the field of risk trading, causing it to be remotely connected to and much larger in size than the commodity sector, ultimately resulting in the lack of compactness of the economic system.
- A conventional bank or financial institution is inherently unstable. Its liabilities are guaranteed both principal and interest, while its assets are subject to default risk.
- A positive interest rate, guaranteed to be paid, on loans encourages the substitution of real resources for money in transactions, thereby reducing efficiency.
- Information asymmetry exposes commercial banking to risks of adverse selection and moral hazard. Mitigation of such risks require expensive monitoring or the switch from commercial to universal banking (Al-Jarhi, 2005).
- Financial innovations through the use of risk trading exposes the economy to instability and contagion.
- In a democracy with imperfect information, bank size becomes a critical element in economic policy, giving rise to the claim that some banks are *too big to fail*. Policymakers tend to draw taxpayers' money to subsidize them during crises (Al-Jarhi, 2009).

4.2. The Public Good Elements in Islamic Banking

The Islamic banking and finance system would have the same elements of public goods as its conventional counterpart, namely the provision of a means of exchange and monetary policy. In contrast to conventional finance, Islamic finance has a much lower share of public bads, as seen below.

- Islamic banking and finance, properly applied allocates resources according to investment rather than lending criteria. In addition, the size of debt (associated with sale finance) would be predetermined at the outset and not

subject to increase. Debt would therefore be sustainable[17]. The financial system would be closely connected to and smaller in size than the real sector. Therefore, the economic system would be compact[18].

- An Islamic bank or financial institution has no guaranteed liabilities, with the exception of demand deposits. Compared with the presence of risks associated with its assets, it appears to be more stable than a conventional bank or financial institution. In addition, sale finance of assets (provision of commodities on credit) automatically provides for sufficient collateral. Asset creation by Islamic banks would therefore involve an element of risk self-mitigation that is not automatically available to conventional finance.
- Return on Islamic banks investment accounts is not guaranteed, providing no incentive to substitute real resources for cash in transactions. The system would therefore stay efficient[19].
- Ten out of the sixteen Islamic finance and investment contracts enjoy perfect information symmetry between finance providers and users. Only PLS, Salam and *Wakālah* (restricted and unrestricted) contracts are subject to information asymmetry. Their use in conjunction with *Mushārakah* would be an inexpensive way to provide perfect monitoring.
- Islamic finance is prohibited from innovating through risk trade. Innovation comes as a result of introducing new products through mixing and matching of the existing sixteen contracts. An important source of instability and contagion is removed from the financial system, hence. However, innovation can lead to finance products of ill repute[20]. They would be

[17] Temporary insolvent debtors would be provided rescheduling at no extra charge or increase in their debt. Only in cases of delinquency, debtors are subjected to penalty fees, which are given to charity and not transferable to banks.

[18] We are assuming a monetary structure, where all money issued is placed by the central bank into central investment accounts and the central bank has an exclusive monopoly on money creation. In addition, banks provide finance only through the sixteen Islamic investment and finance contracts Al-Jarhi 1983. See Appendix III.

[19] When the return on deposits is guaranteed, as in the case of the rate of interest, people are tempted to economize on holding cash for transactions purposes by substituting real resources for cash in transactions. This brings the economy down to a suboptimal level of output. In an Islamic economy, there is no guaranteed return on cash balances. Investment accounts are provided on a profit-and-loss-sharing basis. There would be no incentive to substitute real resources for cash in transactions.

[20] Islamic finance products of ill repute result when Islamic banks attempt to use conventional finance products after dressing them into an Islamic garb, like 'Einah, *Tawarruq*, and products based on the sale of debt. The author coined this term to refer to such products that appear Islamic but are truly conventional, or those that fulfill the formal validity of the contracts used, but violate the General Objectives of Sharī'ah or *Maqāṣid* al-Sharī'ah.

instrumental in converging the Islamic finance system to conventional finance, thereby depriving the former from its important comparative advantages. In this respect, we find room for regulations to prevent slippage into products of ill repute.

- The rise of large banking units in societies using Islamic finance is still possible. Whether this can be used to support the claim that such large banks are *too big to fail*, will depend on the game-theoretic structure of the political system[21]. However, using tax money to provide fund users with temporary illiquidity during crises through debt rescheduling instead of directly subsidizing banks would prove more effective in avoiding both recessions and bank failures simultaneously. While this coincides with the teaching of Islam, it requires regulations to direct the regulators' attention to providing relief to insolvent debtors, penalizing the delinquent and prohibiting direct subsidies to banks.

4.3. Regulation and Monitoring

4.3.1. Regulation and Monitoring in Conventional Banking

Regulation by itself cannot remove the public bads described above from the system of conventional banking and finance. They turn to be systemic ills that require modifying the system.

Regulation can do little in reducing information asymmetry that is associated with the classical loan contract. However, regulation can enforce monitoring by both conventional banks and their depositors. Since in both cases "loaned" cash is provided to one party to use in some fashion, monitoring would require some changes in the rules of the game. An example would be project finance, where regulations would require dividing projects into stages and providing loaned cash in installments, each disbursed upon the completion of a specific stage[22].

However, setting procedures for monitoring finance users while using the provided finance would make conventional finance cumbersome and costly. This would negate the benefits of using the classical loan contract resulting from its simplicity. It would of course be better to choose one or more Islamic finance contracts that would be free from information asymmetry instead of the classical

[21] Whether democracy practiced under Islam (e.g., as in Indonesia, Malaysia, Senegal, Tunisia, and Turkey) would also be associated with strong interest groups and large-size banks will depend on many political factors that are beyond our scope. However, constitutions used as bases for democratic rules in countries where Islamic values are held, can be tailored to minimize the influence of interest groups.
[22] Such procedure would be similar to the one used in conjunction with *Istiṣnā'* contract.

loan contract. However, financial innovation has not been known to go into that direction.

As to the monitoring of banks by depositors, a possible proposal that depositors would be represented in the boards of directors of conventional banks in proportion of their deposits to total resources. This can hardly be justified, since depositors provide deposits as "loans" guaranteed to be repaid both principal and interest.

In addition, as deposits usually exceed paid up capital by many folds, giving depositors a share in bank management would change the character of conventional banks radically. In itself, such action would be a serious institutional change and not merely a regulatory action.

Generally, banks cannot effectively monitor the finance users unless money is not given in cash, but used jointly by both banks and customers. This, in turn, would be a serious institutional change.

The conclusion is that regulation itself is not sufficient to induce both conventional banks and their customers to monitor each other. The optimum amount of monitoring in the conventional banking system cannot be reached without forsaking the concept of the classical loan contract.

4.3.2. Regulation and Monitoring in Islamic Banking

Since Islamic finance does not rely on the classical loan contract, it would be easier to fine-tune monitoring to the optimum level through regulation. In this regard, regulation can help Islamic finance in the following areas:

1. Placing guidelines for the use of *Amana finance*, through the contracts that provide cash to finance users, namely, PLS, Salam and *Wakālah*, in order to facilitate their use, in conjunction with *Mushārakah*. Such guidelines which have been outlined in section II above, would reduce the extent of information asymmetry imbedded in PLS and *Wakālah*.

2. To prevent products of ill repute, regulations must clearly define all Islamic finance products and currently prevalent non-compliant products (of ill repute)[23] and establish a Shari'ah Supervisory Board in the regulatory and supervisory agency, while doing away with Shari'ah Boards in Islamic banks. The presence of a Shari'ah Board within the regulatory and supervisory agency would then be sufficient, once definitions of Islamic finance products, permissible and non-permissible, have been added to banking, commercial

[23] It is also important to add such definitions to the banking law, financial markets law and civil law to facilitate litigation regarding conflicts between parties involved in Islamic finance and to reduce reliance on religious interpretation.

and financial-market laws.

3. In line with the above proposal, each Islamic bank can maintain a special department for product structuring that employs people with proper expertise. The department would configure the financing deals provided to customers, using a combination of the sixteen Islamic finance and investment contracts to satisfy customers' requirements while maintaining economic feasibility.

4. The meaning of compliance of Islamic finance products should be extended to include the non-violation of *Maqāṣid* al-Sharī'ah or the objectives of Sharī'ah, in economics. This means that transactions must be valid in both form and objectives. Objectives here refer to the ultimate consequence of transactions. For example, transactions that are formally valid (satisfying the required contractual form), can still be non-permissible if they lead to unemployment, inflation, instability or inequity or violate the ethical standard of Islamic investment[24].

4.3.3. Regulation and Saving Banks from Bankruptcy

Monetary authorities in conventional economic systems have been accustomed at times of crises to save banks from bankruptcy, usually starting with big banks. The reason is the fear that the demise of one bank could trigger a *domino effect* on the whole banking system. Such process implies huge transfers from taxpayers to banks' shareholders. In this respect, larger-size banks enjoy a higher priority in obtaining such subsidies. Such policy often protects banks from bankruptcy. However, it provides no protection to the economy from recession, as banks during times of crises have relatively conservative lending policies.

In Islamic banking, the protection of banks from bankruptcy remains a legitimate objective. However, Islamic banks, properly managed, ought to show more resilience than conventional banks. This is due to the different nature of their balance sheets. While Islamic banks assets are subject to investment hazards, their liabilities are not guaranteed because investment accounts are usually based on PLS or profit-and-loss sharing, PLS.

Regulations can prohibit providing direct subsidies to banks that face bankruptcy risks. Instead, they should offer assistance to customers who face temporary insolvency at times of crises in the form of rescheduling. In addition, they should impose substantial penalties on delinquent finance users[25].

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[24] Such standards include in addition to dealing in interest, risk trading and cheating, human trafficking and inflicting harm on life or environment.

[25] The distinction between *temporary insolvency* and *delinquency* is central to this proposal. Temporary insolvency can be perceived as a shortage of present cash that prevents debtors from meeting their

At times of crises, subsidizing banks to prevent their bankruptcy would not encourage them to keep providing financing economic activities at the same pace. Reduction in financing would push the economy down into recession. However, if insolvent borrowers obtained rescheduling breaks, they would be able to repay their debt, albeit at a longer period and with lower rates of return to banks. Aggregate spending will not be seriously affected, banks will not face bankruptcy and the economy will not fall into recession (Al-Jarhi 2008).

Obviously, such proposal will involve no wealth redistribution between tax payers and banks shareholders. To the contrary, banks shareholders may face a slightly lower rates of return because of forced rescheduling on temporarily insolvent customers.

5. Related Issues of Monetary Policy

5.1. Forced Wealth Redistribution.

In conventional finance, banks as monopolies are implicitly allowed by law to create money collectively in the form of derivative deposits. Such a permission is granted by default through the fractional reserve system. The process of money creation through derivative deposits is a result of collective behavior and not that of a single bank.

Such money creation imposes an externality on the non-banking public. Money collectively created by banks is lent to customers at an interest rate. Charging interest on lending is rationalized by the fact that money has transactions services. Yet, such services emanate from the fact that money is generally accepted as means of exchange by the public[26].

Since the public is the source of general acceptability, it should earn any return resulting therefrom. Nonetheless, such reward, which is the source of monyness, does not go to the public. It goes to banks instead. Therefore, conventional banks force a redistribution of wealth to their favor through their creation and lending of money in the form of derivative deposits.

The provision of the money issued by banks as interest-bearing loans imposes another externality. The underlying classical loan contract suffers from information asymmetry and imposes on the whole society extra risks of adverse selection and

payment obligations. Delinquency implies an intentional refusal to pay one's financial obligations in order to spend the currently available cash on something else.

[26] Notably, outside money issued by the monetary authority (the monetary base) is usually a small fraction of the money supply. Banks collectively can create a multiple of the monetary base in terms of derivative deposits. The wealth redistributed from the public to banks' shareholders is proportionately high.

moral hazard. Such risks ultimately lead to an aggregate level of output below optimum. As explained above, risk-sharing would be a better arrangement for the whole economy. However, lack of coordination between economic agents forces them to stick to continue to use the interest-rate mechanism.

Regulation has only one way to internalize such externalities to the benefit of the whole society. Regulators, through the enforcement of total reserves, give the monopoly of issuing money total and complete to the monetary authority.

In both of an Islamic and a conventional economy, the application of the total reserve system prevents wealth redistribution from the public to banks' shareholders. However, it will not insure against information asymmetry in a conventional economy. In both Islamic and conventional economies, the total reserve system may not be sufficient. Guidelines must be set on the proper disposal of seigniorage gained by the monetary authority.

5.2. Forced Hidden Taxation

In conventional banking, the monetary authorities issue the monetary base against government debt. The interest paid by the government to the monetary authority on its debt returns to the government in the form of monetary authority surplus. This means that the government obtains free financial resources at the expense of the whole society. The cost of such resources would be equivalent to a hidden tax that facilitates government sector expansion at the expense of the private sector. The tax would be approximately equal to the resulting increase in the rate of inflation. This is similar to the crowding-out effect that is accompanied by an inflation tax.

It is notable in this regard that the expansion of the public sector through borrowing from the monetary authority is a political decision that more often than not does not satisfy the efficiency criteria. The crowding-out effect would ultimately imply an element of inefficiency; unless competition is assured between the public and the private sectors, the allocation of resources will remain suboptimal.

We can therefore propose that the expansion of the public sector by political decisions should be limited to activities that cannot be provided at a price, i.e., for which the exclusion principle cannot be applied. Moreover, government activities that can be provided under the exclusion principle should compete with those provided by the private sector on equal basis. Such competition can be assured when government activities of this type are financed through banks, where banks allocate financial resources among different activities using economic-feasibility criteria.

Additionally, transparency rules can be introduced. Government budget should add all items of seigniorage to "non-tax revenues" for which the government would

be accountable. For the sake of transparency, such items should not be lumped together in one figure but duly itemized.

As to public goods, where the exclusion principle cannot be applied, taxation (with representation) would be used. In addition, the establishment of *Awqāf*, the collection and disbursement of *Zakāh* and other charities should be facilitated, in order to lessen the need for government provision of public services.

5.3. How The Newly Issued Money is Used?

Some may argue for giving all monetary balances issued by the monetary authority to the government in the form of interest-free loans. This begs the question of how to allocate economic activities between the public and the private sectors. Efficiency may require the use of market mechanism jointly with democratic political rules for such a division. Providing the government with free monetary balances may bias such resource allocation at the outset in favor of the public sector.

We have to find a different way to dispose of the newly issued monetary balances, whose issue and allocation to different uses can be based on efficiency criteria and not merely lending criteria. Al-Jarhi's model (1981) has two distinct proposals in this regard.

First: the monetary authority should follow up the real growth of the economy and gauge any issued (or destroyed) money to the monetary requirements of real growth. The reason is rather obvious. Growth indicates higher output, requiring a larger size of transactions to produce and trade the expanded volume of goods and services. When more transactions are required, more monetary balances would also be required to conclude the necessary transactions, if the rate of inflation is to remain constant.

How much more money should be issued to support a rise in real growth by one percent? This question can be answered by the close follow-up of how the rate of inflation responds to a higher rate of monetary expansion. The monetary authority would learn from experience and discover how to gauge monetary expansion to the transactions requirements of growth, without causing inflation[27].

Second, Al-Jarhi's model proposes a different way to dispose of monetary balances. In this model, the monetary authority adds to the total money supply by issuing money and placing it in investment (deposits) accounts with banks. Such

[27] Notice that in this model, the issue of money would not be politically influenced and price stability would be assigned a higher priority than it obtains in a conventional economy. In addition, monetary-policy makers would have more power to control both monetary expansion and the rate of inflation, as they hold absolute monopoly on the production of money, rendering it the highest degree of independence from political influences.

central deposits would be allocated among banks according to efficiency criteria, where banks that are more profitable would obtain relatively higher proportions of central deposits. Perhaps the monetary authority would attempt to equate the rate of return from its central deposits in different banks at the margin.

In the absence of fractional reserves and the discount window, and in order to provide a financial instrument to serve as a tool for monetary policy, the monetary authority can issue *central deposit certificates,* CDC's as financial instruments, which both banks and the public can hold and trade. Such equity-based instruments can be used as a tool to change the money supply through open market operations, and to provide banks with temporary liquidity as part of the monetary authority function of acting as a last-resort provider of liquidity to banks.

The monetary authority would gain profits from placing its own central deposits with Islamic banks and acting as a *first-tier Muḍārib* for the proceeds of central deposit certificates. This would be considered seigniorage whose disposal would be subject to transparency rules. The monetary authority surplus is balanced by banks' providing finance both to the government and to the private sector through market mechanism on equal terms[28].

5.4. The Market Mechanism

In comparison with the banking sector in an Islamic economy, the conventional banking system has some distinct characteristics. Banks gain monopoly power through licensing. In addition, the banking system becomes a price setter, as the monetary authorities set the rates of interest, which are used as bases for pricing loans. Conventional banks income on lending comes from the interest differential that may not change much with the level of interest rates set by the monetary authority[29]. The cost of funds is not therefore, market determined. This introduces an element of inefficiency to the finance system.

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[28] An important aspect of the Islamic economy is that social action determines the size of the public sector. Redistribution of wealth is done yearly through the levy of *Zakāh* on those whose wealth exceed a certain limit. The redistributive branch of the economy can be privately managed but government controlled. *Awqāf* (or charitable foundations) can be established to provide for many public services, including health and education. The size of the public sector will be influenced by the extent to which the public is interested in providing public services through *Awqāf,* which has a special religious significance, but unfortunately, its role has been curtailed by modern governments in the Islamic world. In other words, an Islamic economy would be less encumbered with a government-budget deficit.

[29] Banks would put a markup on the central bank or prime rate to calculate the borrowing rates paid on deposits. They add the interest rate differential to the borrowing rate in order to arrive at the lending rate. Assisted by monopoly power, banks could set the interest rate differential as a percentage of the central bank or prime rate. Raising that rate under this scenario would mean a higher differential in absolute terms. The total income from bank lending will ultimately depend on its volume.

Lifting the monetary authority control on interest rates in a conventional economy would not be acceptable. Interest rates are considered an important policy tool that monetary authorities would not conceivably yield.

In Islamic banking and finance, funds are provided through the provision of goods and services on credit as well as through partnerships and investment agency. The rate of return on financing is market determined. Monetary policy is exercised exclusively through changing the monetary base and by open market operations in Islamic financial instruments.

Investment certificates, or as currently known as *Ṣukūk*, properly defined, can be issued in this economy by Treasury to obtain financing for its own projects. The monetary authority issues its own *Ṣukūk* as mentioned above. Banks and business enterprises can also issue their own *Ṣukūk* as a means to obtain financing through financial markets.

It is theoretically possible that the monetary authority would attempt to set the rates of return on these *Ṣukūk* (markup, rental and profit rates) through open market operations in each kind of certificates. This would be too laborious. The control of money supply would require trading certain value of certificates for each targeted level of monetary base. Selective trading by underlying contracts would not be necessary. We claim that the *Ṣukūk* markets for different funding outlets are sufficiently segmented to make government control of their rate of return impossible.

One of the important aspects of the Islamic monetary system is its reliance on the market mechanism. This is an advantage that should not be lost against temptations to interfere in the market. Regulation can enforce the competitiveness of Islamic banking and finance by reducing restrictions on entry and complete avoidance of setting rates of return on either investment accounts or financing provided by banks.

6. Aggregate Liquidity

6.1. Liquidity Definition

Monetary economists look at liquidity as a spectrum of assets, with currency on the top, followed by demand deposits, time deposits, government securities, corporate securities and so on. The first layer usually included currency and demand deposits, or M_1. The second layer includes saving and time deposits, or quasi money. Both layers are added together of form domestic liquidity or M_2. In Islamic finance, currency, demand deposits and investment accounts hold similar liquidity connotations. M_1 would be equal to currency plus demand deposits and M_2 would be equal to M_1 plus investment accounts.

The big difference lies in the rest of government and corporate securities. In Islamic finance, there are no *interest-bearing securities* issued by economic agents. *Ṣukūk* represent titles to combinations of assets, fully owned by their holders under *real sale*. The process of Islamic finance allows banks to create derivative deposits as well as derivative investment accounts. We have argued above for the enforcement of total reserves against demand deposits, while the public and banks to collectively create liquidity in the form of investment deposits.

6.2. Cost of Liquidity

Aggregate liquidity is the responsibility of the monetary authority. It justifies its monopoly over money creation (Friedman and Schwartz, 1963). This assigns the systemic stability role to the monetary authority.

The need for the monetary authority to regulate the financial sector comes from the role played by conventional banks in asset transformation. They have illiquid assets and *allegedly* liquid liabilities. While economists consider deposits as money, Fama (1980) asserts that bank deposits are not liquid, but they are private contracts with different levels of risk. This must be taken with the fact that investment accounts are not the parallel product to time and saving deposits. They are based on PLS. They can also be based on *Mushārakah* and *Wakālah*. Therefore, the concept of asset transformation takes a different twist in Islamic banking.

The role of the monetary authority, as a regulator and as responsible for aggregate liquidity may be different in the case of Islamic finance. Such responsibility will usually be influenced by whether banks are allowed to produce collectively derivative deposits through the imposition of fractional reserves.

In addition, the "liquidity" created by Islamic banks may have a different effect on the price level due to the fact that Islamic finance, unlike conventional finance, does not finance the demand side only. In partnership-in-product and in-profit, Islamic banks finance the supply side, which ultimately influences demand to the extent of payments to factors of production. Sale finance, meanwhile, extends finance to both the demand and supply sides simultaneously. In both cases, the effect of the demand increase on price is attenuated by preceding or parallel effect of an increase in supply. In addition, Islamic banks do not finance risk trade, which could represent an important leakage from the commodity to the financial sector.

Finally, the regulation of Islamic banking based on "supervising liquidity" would require the regulator or the monetary authority to act as the ultimate "fund provider", a role that is parallel to that of the "ultimate lender" in conventional banking. We will take up each one of the three points below.

6.3. Derivative Deposits and Derivative Investment Accounts in Islamic Banking

When an Islamic bank provides sale finance, it acquires merchandize and assets from suppliers which it provides to customers against future payment. In the instance when the bank acquires merchandize or assets to be grown or manufactured for future delivery against present payment, the bank credits their counter value to the sellers' accounts. In addition, when it provides *Mushārakah*, PLS or *Wakālah* finance, it places some of the capital provided as a demand deposit into the finance user's account[30]. Therefore, finance users receive cash only when they are not getting their finance in kind.

Finance users, once received the funds, start spending on their investment activities to purchase factors of production. The cash flows therefrom to the owners of such factors will restart another cycle of flows to banks. In the other instances where Islamic banks provide sale finance, cash is added to the demand deposits of commodity suppliers.

If all such flows or most of them end up with Islamic banks[31], it provides another cycle of financing to its customers, thereby creating derivative investment-accounts and derivative demand-deposits with them. Banks will use some of the new balances placed in investment accounts to finance more assets in the *Muḍārabah* pool. New balances in demand deposits will be similarly used. The proportion of the new balances used to create new investment depends on the required reserve ratio applied on such accounts and deposits. This will cause successive rounds of derivative products both as investment accounts and as demand deposits.

6.4. The Effects of Money Creation by Islamic Banks on Prices

From above, we realize that Islamic banks are capable, as a group, of adding to the supply of money through derivative deposits. Banks use balances over and above their liquidity as well as reserve requirements, if any, to invest and add to their assets.

Islamic banks invest through providing finance in the forms of partnership, *Wakālah*, or sale finance. In partnership cases, finance goes to increase the supply of commodities. In sale finance, the bank acquires merchandized and assets from suppliers first and then sell them to customers, stimulating supply and then demand. The time delay between supply and demand stimulation depends on whether the bank acquires merchandize and asset already in inventory or commands their production, as in *Istiṣnā'*.

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[30] When a bank provides some or all capital in kind (e. g. land, machinery and equipment), it will make payments to the suppliers of the physical capital.

[31] In a multiple finance system (conventional and Islamic), some funds will flow out of Islamic into conventional banks and vise versa.

In conclusion, the increase in Islamic finance investments due to the increase in money supply in the form of derivative investment-accounts and derivative demand-deposits would have no significant effect on inflation. This is contrary to conventional finance which is mostly directed to demand and can easily be inflationary.

We might add in this respect, that Islamic banks, when properly regulated, should be prohibited from financing risk-trade transactions, e. g., speculation in the stock market or trading in derivatives[32]. This would be an additional measure to prevent money created by Islamic banks to lead to inflation and/or instability.

In contrast, conventional finance provides financial resources to those who trade in risk. Risk trading is done mostly for gambling purposes. It hits the economy from time to time with instability and contagion. Risk trading redistributes wealth haphazardly, and could influence consumption demand directly.

The phenomenon of collective money creation by conventional banks and its effect on the price level, the cost of real balances and wealth redistribution against the public and in favor of banks would all justify regulations in favor of total reserves. However, collective money creation by Islamic banks may have less influence on the price level and the cost of real balances, but would still have the same redistributive effects in favor of banks. The enforcement of total reserves would still be in order. Meanwhile, more transparency is required in the government use of seigniorage.

6.5. The Ultimate Liquidity Provider

Should the monetary authority claim final responsibility for the aggregate liquidity of the economy, it must stand ready to play the role of the last liquidity provider to banks. However, the role of the lender of the last resort does not seem to apply equally to Islamic banking. The reason is that most monetary authorities regulating and supervising Islamic banks in a mixed financial system do not have the tools to act as the ultimate liquidity provider to Islamic banks.

Monetary authorities perform the function of the ultimate lender through a single conventional means, namely, the discount window; banks requiring extra liquidity can discount some of their government-debt holdings. This would not be acceptable for Islamic banks. The alternative is that the government or monetary authorities issue Islamic investment certificates (e.g., *Muḍārabah* certificates) whose proceeds

[32] This brings up the question of regulating financial markets under Islamic finance. Obviously, there are several ways of preventing speculation in stocks and trading in derivatives. What concerns us here is that Islamic banks regulations should block any attempts of Islamic banks to finance speculative or risk-trade transactions.

are invested either directly or through Islamic banks. Banks holding such certificates would sell them in the open market or to the monetary authority to obtain liquidity relief.

7. Conclusions

Islamic banking dependence on mixing and matching between sixteen contracts may appear to bankers, originally trained in conventional banking, as cumbersome and costly. Yet, it has several advantages over conventional finance especially in the areas of information asymmetry, efficiency, stability and debt sustainability. Most of such advantages are reflected as external effects in the form of macroeconomic and long-run benefits. Islamic bankers, failing to internalize such benefits, have little incentive to adhere strictly to the Islamic finance paradigm. To the contrary, they have every incentive to mimic conventional finance, with a view to reduce costs and streamline operations. Regulations are therefore required to change such behavior in a way to allow the economy to reap the benefits of Islamic finance.

Regulation that ignores the special characteristics of Islamic finance would hinder the growth of Islamic banks and deprive them from their comparative advantage in handling finance relative to conventional banking. Worse still, such regulation would lead Islamic banks to slip gradually into the practices of conventional finance, ultimately forcing one-sided convergence between Islamic and conventional finance. Islamic finance would then lose its *raison d'être* and become totally meaningless.

Regulatory and supervisory authorities must seriously consider how differently Islamic banks handle market imperfections in order to design their proper regulation.

Both Islamic and conventional banks benefit from economies of scale in screening customers. However, Islamic banks have a comparative advantage in screening the seekers of sale finance, because of the absence of information asymmetry. Regulation of Islamic banks must verify the existence of proper procedures to offer sale finance and to ascertain the use of financed commodities and their availability as collateral until the finance is fully repaid.

Screening investors seeking finance by Islamic banks requires procedures to verify investment feasibility. Regulation must ascertain that Islamic banks have the capability and resources to perform such function.

Regulation must insure that banks properly monitor their customers and depositors and investment account holders monitor their banks. Islamic banks face no information asymmetry in sale and *Mushārakah* finance. The monitoring problem is automatically solved, hence. Monitoring partnership finance through PLS and *Wakālah* requires procedures to make it less costly. The paper offers such procedures.

Investment account holders in Islamic banks must monitor their banks because their accounts, unlike demand deposits, are not guaranteed. Regulations must allow for proportionally representing investment account holders on the board of directors of Islamic banks in order to reduce the risk of moral hazard. Regulation must set minimum size and maturity requirements for the representation of account holders.

Both Islamic and conventional banks face maturity mismatch between assets and liabilities. Islamic banks have more tools than conventional banks to close this gap. Regulations must therefore make sure that Islamic banks use such tools to the extent that maturity mismatch becomes negligible.

Conventional banks face greater instability than Islamic banks. Time and saving deposits in conventional banks are guaranteed, both principal and interest. Risk is therefore concentrated in the hands of conventional banks. They tend to shift back this risk to customers at times of crises, by charging higher margins on loans. This behavior includes a higher degree of coordination between banks at times of crises.

Islamic banks, meanwhile, share risk in proportion to their shareholders' equity. Investment account holders face risk in proportion to their account balances. Risk is therefore distributed more uniformly in Islamic finance. Islamic banks use the profit stabilization reserve and the investment risk reserve as cushions during times of low profits in order to pay a competitive rate of return on investment accounts.

Regulation must ascertain the buildup of sufficient cushions during good times and their proper use during adversity. They must also make sure that the rate of return on investment accounts is sufficiently higher than the interest rate paid on time and saving deposits, to compensate for the higher risk taken in financing real economic activities rather than providing collateralized loans.

While regulation must provide Islamic banks with procedures to tighten their monitoring of PLS and *Wakālah* investment, the quality of their assets hinges upon product structuring in order to benefit from the risk mitigation advantages of the majority of Islamic finance and investment contracts. Regulation must therefore make sure that banks internal processes include product structuring. Product structures must be tested internally for both business viability and compliance.

Regulation can help Islamic finance deal with the public goods problem. It can set guidelines for the use of Amana finance (PLS and *Wakālah*) in order to facilitate their use in conjunction with *Mushārakah*. In order to prevent the products of ill repute, regulations must clearly define all permissible and non-permissible products and add their definitions in the relevant laws. The regulator must establish a Shari'ah Supervisory Board in the regulatory agency, while doing away with Shari'ah Boards in each Islamic bank

Regulations can prohibit providing subsidies to Islamic banks that face bankruptcy risks. Instead, regulators should offer assistance to customers who face temporary insolvency. In addition, heavy penalties should be imposed on delinquent customers.

In Islamic finance, the government would have to compete with the private sector in order to obtain finance for its economic activities from Islamic banks using the Islamic finance and investment contracts. The monetary authority seigniorage is balanced by providing finance to the government through market mechanism on equal basis with the private sector and enforcing transparency and disclosure rules on the seigniorage use by Treasury.

The role of the monetary authority to protect aggregate liquidity depends on whether banks are allowed to produce collectively derivative investment-accounts and demand-deposits through the imposition of fractional reserves. The "liquidity" created by Islamic banks may have a different effect on the price level due to the fact that Islamic finance does not finance the demand side only, but extends its finance to both the demand and supply sides. Finally, the regulation of Islamic banking based on "supervising liquidity" would require the regulator or the monetary authority to properly equip itself to act as the ultimate "liquidity provider"; a role that is parallel but not similar to that of the "ultimate lender" in conventional banking.

APPENDIX I

Debt Predictability, an Illustration

1. Unpredictability Of Conventional Debt

Under conventional finance debt has no predictable maturity. The outstanding value of debt at the i^{th} period, or D_i is equal to the amount borrowed B minus the amount paid out until the i^{th} period, or P_i. In other words:

$$D_i = B - P_i \quad (1)$$

Debt service payment at the end of the period (i) is equal to the amount outstanding multiplied by the rate of interest prevailing at i^{th} period:

$$\frac{D_i}{(N-i)}\ (1 + r_i) \quad (2)$$

Quite often, the borrower could fall into arrears. When this happens, banks add a penalty margin to the current rate of interest and apply it to the whole outstanding balance. This means that the debt service due in the i^{th} period is equal to:

$$\frac{D_i}{(N-i)}\ \{1 + (r_i + p_i)\} \quad (3)$$

The total value of debt service for a borrowed amount that is equal to D, is equal to the sum of debt service payments between 1 and N., or

$$\sum_{i=1}^{N} \frac{D_i}{(N-i)}\ \{1 + (r_i + p_i)\} \quad (4)$$

The total amount of debt service would be known only if N, rate of interest prevailing during each period until maturity and the penalty interest margin are known. In most cases, none of the three parameters is known, which makes the value of debt service rather unpredictable.

Added to this that interest is compounded every period, which can be augmented by the penalty margin, the value of outstanding debt can continue to increase, while the amount of service payment can equal several multiples of the borrowed amount.

2. Predictability of Debt Under Islamic Finance

In Islamic finance, the amount of finance is the same as the amount to be paid. In other words, the total amount due is equal to the base amount (B_0, cost in Murabaha or spot price in case of deferred payment sale) plus the markup (B_1). The sum of both are divided into equal or unequal installments, to be paid over a certain number of periods, N.

$$B = B_0 + B_1 = \sum_{i=1}^{N} B_i \quad (5)$$

All the debt parameters are set from the beginning and the debtor is perfectly certain about their values. Should the debtor run into temporary illiquidity, he will be granted (subject to proving his case) free rescheduling. There will be no penalty rates to apply and consequently no increase in the debt value.

APPENDIX-II

Definitions of Islamic Finance and Investment Contracts

1. Partnership in Product

Partnership in product started as a way to finance agriculture through joint ventures. Partners share inputs and product according to a pre-agreed formula.

A. *Muzāra'ah*

A contract between a proprietor and a farmer, where the first provides a piece of arable land and the farmer provides farming labor. Working capital can be provided by either party or both in agreed proportion. Product is shared in an agreed proportion.

B. *Mughārassah*

A contract between an owner of arable land and a farmer, where the former provides a piece of land and the latter undertakes to plant the same with a certain number of fruit and/or lumber trees of specific types. In return, the farmer earns the title to a share of the land planted with trees.

C. *Musāqāh*

A contract between an orchard owner and a farmer, where the first provides an orchard planted with trees producing fruit or lumber and the second provides farming labor. The second party takes care of irrigating, pruning and caring for the trees in return of a share in fruit or lumber.

2. Partnership in Profit

Partnership finance is similar to equity finance in the conventional sense. Partners share profit according to a pre-agreed formula. However, sharing loss is strictly according to shareholding.

A. *Mushārakah*

A contract between two or more partners who provide capital and share management and profit in a joint venture. The objectives of the venture, the proportions of shareholding and profit sharing ratios are set from the beginning. Loss is shared according the capital shares. Shareholders can participate in management either directly or through delegation.

B. *Mushārakah Mutanāqiṣah* (Diminishing *Mushārakah*)

A joint venture of a limited period, where capital shares are extinguished over a prespecified number of years, during which one of or more of the partners buy the shares of others who have agreed to exit at the end.

C. Unrestricted *Muḍārabah*

Muḍārabah itself is a partnership in profit, between *Rabb al-māl* (the financier) who provides capital, but does not participate in management and the *Muḍārib* (investor) provides investment management. Profit is shared according to pre-agreed proportions. In cases of loss, the financier loses some or all of his capital and the investor loses investment effort.

This contract has been customarily used by Islamic banks to attract deposits (investment accounts).

D. Restricted *Muḍārabah*

In this form of *Muḍārabah*, the activities of the *Muḍārib* (investor) are restricted in the contract. Restrictions can be placed on goods to be traded, sector, countries, in which to invest, etc.

E. Diminishing *Muḍārabah*

The bank supplies the *Muḍārib* with financial resources on *Muḍārabah* basis, with a stipulation that they would be extinguished gradually over a certain number of periods.

3. Sale Finance

Sale finance is a means through which the financier purchases and possesses goods and services including assets and sells them to a finance user for a price that includes a premium over cost.

A. *Murābaḥah*

This the most common mode of finance used by Islamic banks. It is a contract in which the finance user signs a promise to purchase certain goods at prespecified cost-plus price. Based on the promise, the financier acquires and possesses the same goods and then sells them as agreed to the finance user.

B. *Bay' bi al-thaman al-ājil*

It is a contract through in which the financier sells goods in his or her possession for a negotiated price to the finance user.

C. *Istiṣnā'*

It is a contract through which the financier commands the finance user to manufacture certain goods, usually not readily available in the market, and pays the price to the manufacturer wholly or partly in advance of, during or after manufacturing. The manufacturer may do the manufacturing himself or through a third party

D. *Salam*

Salam is a contract through which a financier purchases merchandize that is readily available in the market for future delivery and pays the seller the price spot. One of the advantages of this contract is to facilitate the financing of agricultural crops.

E. *Ijārah*

Ijārah is a contract in which the financier sells the usufruct of a property whose title or title to its usufruct he/she holds. *Ijārah* can also be used with services, like education, travel, etc. The finance user buys the usufruct, pays for it periodically or the services, and pays for them in installments.

F. *Ijārah Muntahia Bettamleek*

Ijārah Muntahia Bettamleek is a contract in which the financier sells the usufruct of a fixed asset (e.g., a real estate) and allows the buyer (finance user) to purchase the title to a portion of the asset every year. After an agreed period, the title to the whole asset ends with the finance user.

4. Investment Agency

A. Unrestricted *Wakālah*

Unrestricted *Wakālah* is a contract through which a fund owner (principal) authorizes an investment expert to invest the funds provided in profitable placements. The agent obtains a commission regardless of the investment results. In addition, the contract may stipulate a profit share for the agent, as an incentive, when the profit rate reaches a certain hurdle rate.

B. Restricted *Wakālah*

Restricted *Wakālah* may include restrictions on the investment activities exercised by the agent that would limit activities to certain assets, sectors, geographic locations, etc.

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The Relation between Return and Volatility in ETFs Traded in Borsa Istanbul: Is there any Difference between Islamic and Conventional ETFs?

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Abstract

In this study, we aim to analyze the relation between return and volatility in different types of exchange-traded funds (ETFs) traded in the Borsa Istanbul. The types we examine are Islamic stock index, conventional stock index, bond, commodity, and U.S. dollar ETFs. We employ the following battery of causality analysis methods that have different statistical advantages to each other: Toda-Yamamoto (1995); bootstrap based Hatemi-J (2005); volatility spillover, which allows investigating causality in variance; frequency domain, which decomposes causality due to different time frequencies; and asymmetric causality, developed by Hatemi-J, which enables finding causation linkages for different types of shocks in each variable. Although the results obtained from our analyses show that a negative relationship between return and volatility is valid for most ETF types, an asymmetric relation running from negative return shocks to positive volatility shocks is valid for only some conventional stock ETFs and U.S. dollar ETFs. On the other hand, Islamic ETFs and commodity ETFs have an asymmetric relation running from positive return shocks to negative volatility shocks. Our results show that the

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hypotheses investigated in this study vary with the ETF type included in the model.

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JEL Classification: G12, G23, C22.

1. Introduction

The relationship between return and volatility in the price of a stock index has a crucial role in hedging losses in financial markets. In this context, researchers have investigated the interaction between volatility and returns for numerous financial tools to understand the nature of volatility as an indicator of risk and to try to build an early warning system to reduce the risk of loss. One of the warning systems is the use of returns of an index to implicate future volatility. Empirical evidence obtained from studies shows that there is a negative relationship between the return of any kind of financial asset and its volatility. Despite consensus about the type of relation, the debate on how variables affect each other in different shock types is ongoing.

Black (1976) and Christie (1982) are the initial studies explaining the interaction between variables. According to them, a drop in the value of a stock increases financial leverage, which makes the stock riskier and increases volatility (Wu, 2001: 838). To put it more clearly, the leverage hypothesis states that when the value of a firm falls, the value of its equity becomes a smaller percentage of the firm's total value. Since the equity of the firm bears the entire risk of the firm, the volatility of equity should subsequently increase (Hibbert et al., 2008: 2255).

Black (1976) and Christie (1982), French et al. (1987) and Campbell and Hentschel (1992) try to explain the interaction between return and volatility of stock price in the opposite direction. According to them, if volatility is priced, an anticipated increase in volatility raises the required return on equity, leading to an immediate stock price decline (Wu, 2001: 838). The volatility feedback hypothesis states that for firms with high systematic risk, market wide shocks may significantly increase their conditional covariance with the market. The resulting higher required return leads to a volatility feedback effect on the conditional volatility, which would be absent or weaker for firms less sensitive to market level shocks. So, increases in volatility indicate that required future returns will increase and current stock prices will decline (Bashdad, 2013: 239).

Although they agree with both of the hypotheses on the negative relationship mentioned above, later studies criticize them in two ways. The first way deals with

asymmetry in the negative relation, while the second way focuses on the time frequency used to explain the interaction. Giot (2005: 98) finds that negative returns for the stock index yield much larger relative changes in the implied volatility than do positive returns, which supports the findings of Campbell and Hentschel (1992: 2). The findings of Giot (2005) are related to risk aversion behavior. According to risk aversion behavior, losses loom larger than gains. This could translate into greater responsiveness of downside price pressure on raising risk relative to the responsiveness of the upside price pressure on lowering risk (Low, 2004: 527-528). The new insight of the asymmetric relation between volatility and return is called the behavioral explanation hypothesis.

Hibbert et al. (2008: 2256) explain the recent hypothesis in terms of representativeness, affect, and extrapolation bias. This explanation sheds light on why a negative asymmetric return-volatility relation can exist, even for short intraday periods (Padungsaksawasdi and Daigler, 2014: 262). According to them, managers and investors judge the risk-return relation for stocks to be negative, as investors view high return and low risk to be representative of good investments. They conclude that such behavior is valid for the whole market and can be interpreted as a market behavior. Related to representativeness is a feature that affects characteristics, where people form emotional associations with activities, with a positive effect label being considered good and a negative effect label being considered bad. The findings of Bekaert and Wu (2000, 38-39) state that negative shocks increase conditional covariance substantially, whereas positive shocks have a mixed impact on conditional variances.

Another area of criticism of the leverage and volatility feedback hypotheses is the time frequency of responsiveness. According to Badshah (2013: 240), the asymmetric relation is a contemporaneous rather than a lagged phenomenon. That is one way conventional hypotheses fail to explain the relation between stock returns and volatility. Because both are based on fundamental explanations, the effect of return volatility should involve a greater lag in lower frequencies than in higher frequencies.

Over the past two decades, investment in ethical equity mutual funds, whether based on social responsibility principles, environmental considerations, good corporate management, engagement in local communities, or adherence to religious beliefs, have grown considerably around the world (Ashraf, 2013: 106; Bin Mahfouz and Hassan, 2012, 2013). In this regard, Islamic financial tools such as Islamic mutual funds, Islamic stock indices, and Sharī‘ah based financial tools have become very popular among Islamic countries.

Basically, the ethical/Islamic investors prefer to satisfy their ethical criteria and are not interested in traditional risk-return trade off (Renneboog, 2008; 308). In the light of behavioral differences between ethical investors and conventional investors, there might be differences between conventional and Islamic financial tools in terms of returns, sentiment, volatility, and so forth. Thus, the possible relation between volatility and return in different kinds of ETFs, including Islamic ones, might be different.

With the rapid growth of Islamic finance, there has been an emergence of Sharīʿah compliant ETFs, which seek to provide investment opportunities beyond the existing pool of investment for Muslim investors and ethical investors as part of its integration process into the international financial system (Alam, 2013: 28). In this regard, ETFs provide numerous benefits such as diversification, lower expense ratio, lower transaction cost, tradability and transparency, but Islamic ETFs also provide conformity to the Sharīʿah principles and practices, which are important to Muslims, Non-Muslims may also wish to invest in such funds based on Sharīʿah principles.

Most of the major index providers offer Sharīʿah-compliant indices created under the guidance of advisory boards comprised of experts in Islamic Law, often representing multiple countries and various schools of Islamic thought. The screening process varies from index to index, but generally Sharīʿah indices exclude businesses with trade activities in the following industries: alcohol, gambling and entertainment, pork, tobacco, and financials, with the exception of Islamic banks, Islamic financial institutions and Islamic insurance companies (Smith, 2013).

Implementing Sharīʿah rules has some advantages. According to Smith (2013), application of financial / leverage screening is one of the major differences. Only those companies that pass certain financial ratios relating leverage (highly indebted companies are excluded) and interest income will be considered Sharīʿah compliant. By excluding companies with high levels of debt, the resultant portfolio has lower financial risk and superior credit fundamentals.

In addition, the removal of tobacco, alcohol and (as is the case with most Sharīʿah indices) defense companies, reduces the political risk, as these industries are often subject to the political whim of politicians (Smith, 2013).

Islamic ETFs are suitable for investors who are searching for a low-cost passive approach to investing in an equity portfolio which comprises Sharīʿah-compliant

stocks. Islamic ETFs can either be used for long term investments, as asset – allocation tools, or as a flexible intra – day trading instrument. Islamic ETFs provide an easy way for investors to gain diversified exposure to a portfolio of Islamic stocks through one instrument (SSSC, 2016: 5).

In fact, Islamic ETFs and conventional ETFs share common characteristics. The main difference between a conventional ETF and an Islamic ETF is the benchmark index that the Islamic ETF tracks. An Islamic ETF tracks a benchmark index wholly comprising constituent securities that are Sharī'ah compliant, whereas conventional ETF may track any benchmark index regardless of the Sharī'ah status of its constituents (Alam, 2013: 28). Sharī'ah principles and guidelines are important to manage Islamic ETFs.

In the official website of MyETF, there are four basic features of conventional and Islamic ETFs. While conventional ETFs include any desired index, Islamic ETFs tracks only Sharī'ah compliant index. Sharī'ah governance is absent in conventional ETFs. It also holds securities included in the securities/stocks universe of the index and of the manager. On the other hand, Islamic ETFs only holds Sharī'ah – compliant securities as approved by the Sharī'ah advisor at the company level and regulatory level.

An Islamic ETF is also required to appoint a Sharī'ah adviser/committee to provide expertise and guidance to ensure that its structure, investments and all matters related to the funds' activities comply with the Shairah (SSSC, 2). Sharī'ah committee investigates the Islamic ETF to ensure if the Sharī'ah principles are followed by the issuer of the ETF.

There are a number of studies comparing Islamic and conventional financial tools in the existing literature. They all investigate the connection between two types of financial system tools. Aloui et al. (2016) compare indices in the context of sentiment and both Islamic and conventional equity returns in the U.S. They conclude that Sharia rules have no influence on the connection between sentiment and Islamic equity returns. Hassan and Girard (2011) compare Islamic mutual funds and conventional mutual funds. They conclude that the performance of Islamic mutual funds is better than that of conventional ones. According to Ashraf (2013), this may be a result of long-term investment behavior that induces lower volatility, lower cash flows, and higher investor commitment to the funds. Merdad et al. (2010) investigate the return-performance behavior of Islamic and conventional mutual funds in Saudi Arabia and find no significant difference between the two. Although the total volume of Islamic financial tools has increased, Abderrezak (2008) implies

that ethical-based mutual funds underperform compared to conventional funds due to lower diversification and missed investment opportunities.

The comparison between Islamic ETFs and conventional ETFs are made by Diaw et al. (2010) and Alam (2013). Alam (2013) compare them in the context of risk-adjusted performance measures. Findings show that Islamic ETFs beat conventional ETFs and the market benchmark index based on risk – adjusted performance measures. In an early study of Diaw et al. (2010), they compare the conventional and Islamic ETFs in Malaysia. They find that Islamic ETF perform better than conventional one.

In light of the theoretical explanations above, we aim to investigate the validity of three hypotheses to the exchange-traded funds (ETFs) traded in the Borsa Istanbul in order to understand the nature of Islamic/ethical based financial system tool and ETFs based Islamic stock indices. We investigate the relation between stock return and volatility as a risk indicator by employing a battery of causality analysis methods and daily data belonging to five different types of ETFs. These are the Toda-Yamamoto (1995) Granger type causality, bootstrap based Hatemi-J (2005 and 2006) Granger type causality, frequency domain causality, causality in variance, and asymmetric causality analysis methods. While the frequency domain causality method gives a hint about the time frequency of causation linkage, the asymmetric causality test finds an asymmetric relation in different market shocks. Moreover, we compare the causal relationship between causality in mean and in variance by employing volatility spillover, Toda-Yamamoto, and bootstrap based Granger causality analysis methods.

Another purpose of this study is to compare ETFs holding different assets such as commodities, stocks, bonds, U.S. dollar, and Islamic stocks. By doing so, we will be able to examine possible differences in the behavior of investors investing in different ETFs. Do they behave asymmetrically as described in the behavioral explanation hypothesis? Is the relation for all types of ETFs contemporaneous or lagged? By comparing Islamic ETFs to conventional ETFs we will be able to understand the possible differences between them.

In the following section, we summarize the existing literature. In the third section, we describe the data and method used to calculate conditional volatility. We present the econometric methods in the fourth section. Empirical results and conclusions are discussed in the fifth and sixth sections, respectively.

2. Pertinent Literature on Conventional Stock and ETF

The literature related to the relationship between return and volatility is focused mainly on stock indices. Badshah (2013), Low (2004), Hibbert et al. (2008) investigate this relation to test the validity of each hypothesis in stock markets. They find an asymmetric relation, supporting the behavioral explanation hypothesis in stock markets. The number of studies investigating the relation in ETFs is limited.

Analyses investigating this relation in ETFs find a relatively weaker relationship. Daigler et al. (2014: 74) find that the relation between return and volatility in Euro currency exchange traded funds (FXE) can possess either a positive or negative sign, is asymmetric, and is weaker. Padungsaksawasdi and Daigler (2014: 261) employ four different types of commodity exchange traded funds in order to test the validity of an asymmetric relation between return and volatility. They find a positive relation between variables in gold ETFs. Moreover, the relation in Euro, oil, and gold ETFs is weaker than in stock markets. Hassan et el (2013) examine the determinants of a widely discussed derivative instrument Credit Default Swaps (CDS) in recent literature that was blamed for the financial crisis of 2007-2009. Hassan et al (2015) examine the relationships between CDS and sovereign debt markets using a variety of econometric techniques.

3. Data

There are five different types of ETFs traded in the Borsa Istanbul. These are stock index, Islamic, bond, U.S. dollar, and commodity ETFs. In our study, we employ four of these ETF types, namely the commodity ETFs, stock indices ETFs, Islamic ETFs, and U.S. dollar ETFs. The names of ETFs, components, and issue dates are listed in Table 1. It is possible to classify commodity ETFs into two sub-classes according to issuer—Islamic commodity ETFs issued by participation banks and conventional commodity ETFs issued by conventional banks.

All daily data belonging to ETFs are obtained from the Bloomberg database. The daily return of each ETF is calculated by

$$R_t = \ln P_t - \ln P_{t-1} \quad (1)$$

Where P_t is the daily closing price adjusted for any dividends and splits and P_{t-1} is the closing price of the previous day.

The volatility of each ETF is measured based on the range of high and low prices within a given day. This measure is simple to construct and has been shown to be

very efficient because it overcomes the market microstructure related biases of a volatility measure that is based on high-frequency intraday returns (Alizadeh et al. 2002). Parkinson (1980) suggests the following range based estimator of daily volatility that Li and Hong (2011) employ,

Table-1
ETFs Traded in Borsa Istanbul

Name of ETF	Code	Type	Inception Date
Down Jones Islamic Market Turkey Index	DJIMTR	Islamic	02.02.2006
Katilim Model Portfoy Index	KATMP	Islamic	09.07.2014
Katilim 30 Index	KAT30	Islamic	06.01.2011
Katilim 50 Index	KAT50	Islamic	09.07.2014
FTSE Istanbul Bond B type	FBIST	Bond	24.10.2007
Dow Jones Istanbul 20 Equity Intensive	DJIST20	Stock Index	14.01.2005
Turkey Large Cap Banks Equity Intensive	BNKTR	Stock Index	09.09.2009
BIST-30 Index Equity Intensive	IST30	Stock Index	07.04.2009
BIST-30 Index Equity Intensive	ISY30	Stock Index	25.05.2007
U.S. treasury bill dollar Intensive	USDTR	U.S. dollar	02.05.2012
Silver participation	SLVRP	Silver/Islamic	21.05.2012
Gold participation	GOLDP	Gold/Islamic	02.08.2010
Gold ETF	GLDTR	Gold	28.09.2006
Silver B type ETF	GMSTR	Silver	02.05.2012

$$\hat{\sigma}_t^2 = \left(\frac{1}{4}\ln 2\right)\left(\ln H_t - \ln L_t\right)^2 \qquad (2)$$

Where H_t and L_t are daily high and low prices, respectively. This measure is static in nature and does not incorporate dynamic evolution of volatility in the financial markets. Following Hsieh (1993) and as used in Li and Hong (2011), we specify the dynamic counterpart of the above specification as,

$$R_t = \sigma e_t \quad e_t \text{ is } i.i.d.(0,1) \qquad (3)$$

$$\ln \hat{\sigma}_t^2 = a + \sum_{i=1}^{m} \beta \hat{\sigma}_{t-1}^2 + \upsilon_t \cdots\cdots \upsilon_t \text{ is } i.i.d.(0,\upsilon_\upsilon^2) \qquad (4)$$

4. Methodology

In this section, we introduce the empirical methods used. In the first step, we introduce a causality test that investigates causality in variance. Then we summarize the causality analyses to investigate causality in the mean. By doing so we will be able to determine whether causality appears in the variance of volatility. The tests to find the causality in means are as follows: Toda-Yamamoto (1995) Granger type causality; bootstrap based Hatemi-J (2005 and 2006) Granger type causality; frequency domain causality developed by Breitung and Candelon (2006) which investigates causality in different time frequencies; and asymmetric causality which finds the causality in different types of shocks. Employing various causality analyses allows us to determine the validity of the leverage and volatility feedback hypotheses for longer time periods. We also test the asymmetries between return and volatility and better understand the existence of affect and representativeness notions in ETF markets by employing the Hatemi-J and Roca (2014) asymmetric causality test.

4.1. Causality-in-Variance (Volatility Spillover) Test

Even though linear and nonlinear causality methods are capable of capturing predictive power from one variable to another variable, they are not able to detect volatility spillover between two variables since volatility corresponds to fluctuations in the variance of data. Therefore, in addition to analyzing causality, it is useful to conduct a causality-in-variance test to better understand transmission mechanisms between variables. In order to determine the volatility spillover, this study adopts the causality-in-variance test recently developed by Hafner and Herwartz (2006). In examining volatility spillover between two series, we use the causality-variance test of Cheung and Ng (1996) and Hong (2001), which is based on cross-correlation functions (CCF) of standardized residuals obtained from univariate general autoregressive conditional heteroscedasticity (GARCH) estimations. It is utilized in the applied literature on commodity prices. However, the CCF based Portmanteau test is likely to suffer from significant oversizing in small and medium samples when the volatility process are leptokurtic (Hafner and Herwartz, 2006).

In addition to this drawback of Cheung and Ng's procedure, the results from CCF based volatility spillover testing are sensitive to the orders of leads and lags which in turn places doubt on the robustness of findings. The volatility spillover test of Hafner and Herwartz (2006), based on the Lagrange multiplier (LM) principle, overcomes the shortfalls of Cheung and Ng's method and is very practical for empirical illustrations. Furthermore, the Monte Carlo experiment carried out in

Hafner and Herwartz (2006) indicates that the LM approach is more robust against leptokurtic innovations in small samples and the gains from carrying out the LM test increase with sample size.

The results further show that an inappropriate lead and lag order choice in the CCF test distorts its performance and thereby leads to the risk of selecting a wrong order of the CCF statistic. In what follows, we briefly explain the details of Hafner and Herwartz (2006) causality-in-variance test.

In the Hafner and Herwartz (2006) approach, testing for causality in variance is based on estimating univariate GARCH models. The null hypothesis of non-causality in variance between two return series is described as follows:

$$H_0 : Var\left(\varepsilon_{it} \middle| F_{t-1}^{(j)}\right) = Var\left(\varepsilon_{it} \middle| F_{t-1}\right) \qquad j = 1,..., N,\ i \neq j \tag{5}$$

where $F_t^{(j)} = F_t \setminus \sigma(\varepsilon_{j\tau}, \tau \leq t)$ and ε_{it} is the residuals from the GARCH model. The following model is considered to test for the null hypothesis:

$$\varepsilon_{it} = \xi_{it}\sqrt{\sigma_{it}^2 g_t}, \qquad g_{it} = 1 + z'_{jt}\pi, \quad z_{jt} = \left(\varepsilon_{t-1}^2, \sigma_{t-1}^2\right)' \tag{6}$$

where conditional variance $\sigma_{it}^2 = \omega_i + \alpha_i \varepsilon_{it-1}^2 + \beta_i \sigma_{it-1}^2$ and ξ_{it} denotes the standardized residuals of the GARCH model**.** In equation (6), the sufficient condition is $\pi = 0$ which ensures that the null hypothesis of non-causality in variance $H_0 : \pi = 0$ is tested against the alternative hypothesis $H_1 : \pi \neq 0$. The score of the Gaussian log-likelihood function of ε_{it} is given by $x_{it}\left(\xi_{it-1}^2\right)/2$ where the derivatives $x_{it} = \sigma_{it}^{-2}(\partial\sigma_{it}^2 / \partial\theta_i)$ such that $\theta_i = (\omega_i, \alpha_i, \beta_i)'$. Hafner and Herwartz (2006) propose the following LM test in order to determine the volatility transmission between the series:

$$\lambda_{LM} = \frac{1}{4T}\left(\sum_{t=1}^{T}(\xi_{it}^2 - 1)z'_{jt}\right)V(\theta_i)^{-1}\left(\sum_{t=1}^{T}(\xi_{it}^2 - 1)z_{jt}\right) \tag{7}$$

where

$$V(\theta_i) = \frac{\kappa}{4T}\left(\sum_{t=1}^{T} z_{jt}z'_{jt} - \sum_{t=1}^{T} z_{jt}x'_{it}\left(\sum_{t=1}^{T} x_{it}x'_{it}\right)^{-1}\sum_{t=1}^{T} x_{it}z'_{jt}\right), \quad \kappa = \frac{1}{T}\sum_{t=1}^{T}(\xi_{it}^2 - 1)^2$$

The asymptotic distribution of the test statistic in equation (7) will depend on the number of misspecification indicators in z_{jt}. Since there are two misspecification indicators in λ_{LM}, the test has an asymptotic chi-square distribution with two degrees of freedom.

4.2. Toda-Yamamoto (1995) Granger Type Causality Test

Toda and Yamamoto (1995) represent an improvement over the standard Granger causality test by ensuring that the latter's test statistic follows a standard asymptotic distribution (Squalli, 2007). This technique has the advantage of being applicable irrespective of the integration and co-integration properties of the system. In this approach, VAR $(k + d_{\max})$ has to be estimated to use the modified Wald test for linear restrictions on the parameters of a VAR (k) which has an asymptotic distribution. All we need is to determine the maximal order of integration $d_{\max}$ that we suspect might occur in the model and then to over-fit intentionally a level VAR with additional lags (Toda and Yamamoto, 1995). In the first step of the Toda and Yamamoto causality test, the lag length of the variables (k) can be set according to the Akaike Information criterion (AIC) and then to identify integration of variables ($d_{\max}$) stationary tests. In the last step of the test, a modified Wald test is employed to estimate following the VAR system where the null hypothesis of no causality is not rejected when $\beta_{1i} = 0$, $\lambda_{1j} = 0$, and $\delta_{1j} = 0$.

4.3. Hatemi-J (2005) Bootstrap Process-Based Toda-Yamamoto Granger Causality Test

The Granger-type causality test developed by Toda-Yamamoto (1995) is based on the ordinary least squares method, where heteroscedasticity, auto-correlation, and functional problems are taken into account and thus model construction errors are solved. But the method of Toda-Yamamoto (1995) may have biased results that prevent the obtainment of robust results when using small sample sizes and having ARCH effects in error terms. Hatemi-J (2005) has developed a bootstrapped causality test based on Efron (1979). By doing so, the causality method which tests data for normality and the presence of ARCH effects also tests the co-integration

order of variables. The optimal lag length has to be chosen according to the minimum criteria for HJC[1]. If the variables are co-integrated in the $VAR(p+d_{\max})$ model, we can write the equation with a simpler expression as follows:

$$y_t = v + A_1 y_{t-1} + ... + A_p y_{t-p} + ... + y_{t-p-d_{\max}} + \varepsilon_t, \quad (8)$$

and including

$$Y = (y_1,..., y_T), D = (v, A_1,..., A_p,..., A_{p+d_{\max}}), \delta = (\varepsilon_1,..., \varepsilon_T) \text{ and } Z_t = \begin{bmatrix} 1 \\ y_t \\ y_{t-1} \\ . \\ . \\ . \\ y_{t-p-d+1} \end{bmatrix}$$

The equation can be written as,

$$Y = DZ + \delta \quad (9)$$

The null hypothesis claims that there is no Granger causality (causality non-Granger). The modified Wald test (modified WALD) statistics developed by Toda-Yamamoto (1995) are calculated by equation (10). The bootstrap based causality test also employs the same test statistics.

$$MWALD = (C\beta)'\left[C((Z'Z)^{-1} \otimes S_U)C'\right]^{-1}(C\beta)\ \chi^2_p \quad (10)$$

where $\otimes$ is the Kronecker product, C is a $pxn(1+n(p+d_{\max}))$ selector matrix, S_U is variance-covariance matrix of residuals, and $\beta = vec(D)$ signifies the column-stacking operator. In contrast to Toda-Yamamoto (1995), Hatemi-J (2005) employs critical values obtained from the bootstrap process and gets more robust results.

4.4. Hatemi J and Roca (2014) Asymmetric Causality Test

P_{1t} and P_{2t} are two co-integrated variables (Hatemi J, Roca, 2014; 7)

$$P_{1t} = P_{1t-1} + \varepsilon_{1t} = P_{1,0} + \sum_{i=1}^{t} \varepsilon_{1i} \quad (11)$$

[1] Please see Hatemi-J (2003) for detailed information about HJC information criteria.

and

$$P_{2t} = P_{2t-1} + \varepsilon_{2t} = P_{2,0} + \sum_{i=1}^{t} \varepsilon_{2i} \quad (12)$$

Where t is t=1,2,…,T; $P_{1,0}$ and $P_{2,0}$ are constant terms; and $\varepsilon_t = (\varepsilon_1, \varepsilon_2)\ is\ iid(0, \sigma^2)$. Positive and negative changes in each variable are $\varepsilon_{1i}^{+} = \max(\varepsilon_{1i}, 0)$, $\varepsilon_{2i}^{+} = \max(\varepsilon_{2i}, 0)$, $\varepsilon_{1i}^{-} = \min(\varepsilon_{1i}, 0)$, and $\varepsilon_{2i}^{-} = \min(\varepsilon_{2i}, 0)$, respectively. We estimate results as $\varepsilon_{1i} = \varepsilon_{1i}^{+} + \varepsilon_{1i}^{-}$ and $\varepsilon_{2i} = \varepsilon_{2i}^{+} + \varepsilon_{2i}^{-}$. So,

$$P_{1t} = P_{1t-1} + \varepsilon_{1t} = P_{1,0} + \sum_{i=1}^{t} \varepsilon_{1i}^{+} + \sum_{i=1}^{t} \varepsilon_{1i}^{-} \quad (13)$$

$$P_{2t} = P_{2t-1} + \varepsilon_{2t} = P_{2,0} + \sum_{i=1}^{t} \varepsilon_{2i}^{+} + \sum_{i=1}^{t} \varepsilon_{2i}^{-} \quad (14)$$

The accumulation of positive and negative shocks in each variable are $P_{1t}^{+} = \sum_{i=1}^{t} \varepsilon_{1t}^{+}$, $P_{1t}^{-} = \sum_{i=1}^{t} \varepsilon_{1t}^{-}$, $P_{2t}^{+} = \sum_{i=1}^{t} \varepsilon_{2t}^{+}$, and $P_{2t}^{-} = \sum_{i=1}^{t} \varepsilon_{2t}^{-}$, respectively (Hatemi J, Roca, 2014: 8). $P_t^{+} = (P_{1t}^{+}, P_{2t}^{+})$ vector is used in order to test causation linkage between positive shocks. For detailed information about optimal lag length selection and bootstrap processes please see Hatemi-J (2003, 2008) and Hatemi J and Roca (2014), respectively.

4.5. Frequency Domain Causality Test

While conventional time domain causality tests produce a single test statistic for the interaction between the variables of concern, frequency domain methodology generates tests statistics at different frequencies across spectra. The frequency domain approach to causality thereby permits investigation of causality dynamics at different frequencies rather than relying on a single statistic as is the case with conventional time domain analysis (Ciner, 2011). Hence, it seems to be very meaningful to carry out frequency domain causality tests to better understand temporary and permanent linkages between policy rates and credit rates. To test for causality based on frequency domain, Geweke (1982) and Hosoya (1991) define a two-dimensional vector of time series $z_t = [x_t, y_t]'$ where z_t has a finite-order VAR;

$$\Theta(L)z_t = \varepsilon_t \tag{15}$$

where $\Theta(L) = I - \Theta_1 L - ... - \Theta_p L_p$ and lag polynomial with $L^k z_t = z_{t-1}$. Then Granger causality at different frequencies is defined as;

$$M_{y\to x} = \log\left[\frac{2\pi f_x(\omega)}{\left|\psi_{11}(e^{-i\omega})\right|^2}\right] = \left[1 + \frac{\left|\psi_{12}(e^{-i\omega})\right|^2}{\left|\psi_{11}(e^{-i\omega})\right|^2}\right] \tag{16}$$

if $\left|\psi_{12}(e^{-i\omega})\right|^2 = 0$ that y does not cause x at frequency ω .

Breitung and Candelon (2006), who use a bivariate vector autoregressive model, propose a simple test procedure that is based on a set of linear hypotheses on the autoregressive parameters. The test procedure can be generalized to allow for cointegration relationships and higher-dimensional systems. Breitung and Candelon (2006) assume that ε_t is white noise with $E(\varepsilon_t) = 0$ and $E(\varepsilon_t, \varepsilon_t') = \Sigma$, where Σ is positive definite. We can use this representation for spectral density of x_t ;

$$f_x(\omega) = \frac{1}{2\pi}\{|\psi_{11}(e^{-i\omega})|^2 + |\psi_{12}(e^{-i\omega})|^2\} \tag{17}$$

Breitung and Candelon (2006) investigate the causal effect of $M_{y\to x}(\omega) = 0$ if $|\psi_{12}(e^{-i\omega})|^2 = 0$. The null hypothesis is equivalent to a linear restriction on the VAR coefficients. *y* does not cause *x* at frequency ω if

$$|\Theta_{12}(e^{-i\omega})| = \left|\sum_{k=1}^{p}\theta_{12,k}\cos(k\omega) - \sum_{k=1}^{p}\theta_{12,k}\sin(k\omega)i\right| = 0 \tag{18}$$

with $\theta_{12,k}$ denoting the (1,2)-element of Θ_k .

5. Empirical Results

Before the presentation of empirical findings, it is prudent to check the statistical properties of the time series employed in the analysis. In Table 3, we summarize descriptive statistics of series belonging to variables included in the model. According to Table 1, the return series of all Islamic stock ETFs are skewed to the left while other series for all Islamic ETFs are skewed to the right. Kurtosis coefficients of variables show that return and risk series are steep. Probability values of the Jarque – Bera hypothesis imply that series are distributed abnormally and the alternative hypothesis is accepted.

Table-2
Descriptive Statistics

	ETFs	Mean	Max.	Min.	Standard Dv.	Skewness	Kurtosis	Jarque-Bera (p-value)
Islamic ETFs	$r_{KATLIMP}$	-0.000116	0.012752	-0.017398	0.004013	-0.693782	5.059371	113.0496 (0.00)
	$\hat{\sigma}^2_{KATLIMP}$	2.98e-06	3.48e-08	2.44e-07	3.55e-06	4.552536	32.51988	32.51988 (0.00)
	$r_{KATLM\,30}$	-0.000194	0.020855	-0.022755	0.004791	-0.301245	5.401154	338.0909 (0.00)
	$\hat{\sigma}^2_{KATLM\,30}$	4.34e-06	8.22e-05	1.98e-07	6.52e-06	5.449288	43.91853	98919.6 (0.00)
	$r_{KATLM\,50}$	-0.000353	0.020066	-0.001780	0.004378	-0.284030	5.073106	84.708847 (0.00)
	$\hat{\sigma}^2_{KATLM\,50}$	3.42e-06	3.03e-06	2.00e-07	3.87e-06	3.679293	20.71995	6749.336 (0.00)
Commodity ETFs	r_{DJIMTR}	0.000106	0.046987	-0.037616	0.006253	-0.429850	7.6811624	2777.33 (0.00)
	$\hat{\sigma}^2_{DJIMTR}$	7.47e-06	0.000397	0.00	1.39e-05	11.32911	11.32911	7130804.6 (0.00)
	r_{GLDTR}	1.26e-05	0.098986	-0.020048	0.004734	4.555048	89.72159	759095.5 (0.00)
	$\hat{\sigma}^2_{GLDTR}$	4.02e-06	0.000752	5.47e-08	2.06e-05	26.08983	835.8690	69523280.8 (0.00)
	r_{GOLDP}	0.000384	0.100745	-0.044044	0.006901	9.172117	130.9153	994275.9 (0.00)
	$\hat{\sigma}^2_{GOLDP}$	4.77e-06	0.000783	0.00	4.28e-05	16.27025	272.7269	4394858.6 (0.00)
	r_{GMSTR}	0.000161	0.094976	-0.026872	0.0066255	3.995139	60.06633	136136.8 (0.00)
	$\hat{\sigma}^2_{GMSTR}$	6.64e-06	0.000707	6.40e-08	3.22e-05	19.478861	408.2690	9796185.4 (0.00)
	r_{SLVRP}	2.85e-05	0.091190	-0.024882	0.007815	3.485072	38.55230	53158.23 (0.00)
	$\hat{\sigma}^2_{SLVRP}$	1.54e-05	0.002190	0.00	9.23e-05	16.37172	16.37172	4605319.7 (0.00)
Stock ETFs	$r_{DJIST\,20}$	-0.000115	0.097774	-0.030055	0.006909	3.576216	56.20243	175180.7 (0.00)
	$\hat{\sigma}^2_{DJIST\,20}$	6.60e-06	0.000779	8.09e-05	2.97e-05	23.81170	23.81170	22685182.4 (0.00)
	r_{BNKTR}	-0.00035	0.096294	-0.047262	0.008513	0.265543	12.08116	9033.498 (0.00)

	ETFs	Mean	Max.	Min.	Standard Dv.	Skewness	Kurtosis	Jarque-Bera (p-value)
	$\hat{\sigma}^2_{BNKTR}$	1.10e-05	0.00076	0.00	2.88e-05	13.84766	13.84766	84736668.1 (0.00)
	r_{IST30}	-0.000171	0.102173	-0.038127	0.007244	2.720637	43.17194	120625.4 (0.00)
	$\hat{\sigma}^2_{IST30}$	7.66e-06	0.000786	1.83e-08	2.89e-05	22.13916	576.2623	24270830.4 (0.00)
	r_{ISY30}	0.000684	0.106219	-0.022132	0.011041	6.198688	54.48402	102240.1 (0.00)
	$\hat{\sigma}^2_{ISY30}$	1.19e-05	0.000849	0.00	7.78e-05	9.635690	94.79581	320755.2 (0.00)
BOND	r_{FBIST}	0.000224	0.098186	-0.008944	0.003206	26.36653	802.1799	56796761 (0.00)
BOND	$\hat{\sigma}^2_{FBIST}$	9.62e-07	0.000726	0.00	2.22e-05	31.69552	1019.796	91896647 (0.00)
USD	r_{USDTR}	0.000239	0.093160	-0.009977	0.003830	14.62876	353.7825	5080078.4 (0.00)
USD	$\hat{\sigma}^2_{USDTR}$	3.84e-06	0.000723	0.00	4.29e-05	15.74546	251.3527	2569501.6 (0.00)

Conventional stock ETFs, commodity ETFs, bond ETFs, and U.S. dollar ETFs have similar statistical properties. They are skewed to the right. The Kurtosis coefficients show that all time series are steep. The null hypothesis claiming series are distributed normally is rejected in light of Jarque-Bera hypothesis p-values.

Prior to employing VAR based causality analysis, it is important to identify stationarity of variables in order to prevent the spurious regression problem. With this aim, we employ unit root tests developed by Dickey-Fuller (1979, 1981) (hereafter ADF) and Phillips-Perron (1988) (hereafter PP). According to both unit root test results in Table 3, it is possible to conclude that all variables belonging to each type of ETFs are stationary in level. Therefore, it is possible to use time series in level values.

In Table 4, the results of both Toda – Yamamoto (1995) and bootstrap based Hatemi-J (2005 and 2006) Granger causality analyses are presented in a combined version. According to both test results, there is a uni-directional causation linkage running from return to volatility in all Islamic stock ETFs. On the other hand, the uni-directional causality in the same direction is valid for two of the four commodity based ETFs. These are GLDTR and SLVRP.

For U.S. dollar based ETFs, the causality running from return to volatility on a daily basis exists at the 1% significance level. Lastly, uni-directional causality running from returns to volatility is valid for DJIST, BNKTR, and IST30. Neither the Toda-Yamamoto nor the Hatemi-J Granger causality test supports the validity of such a relationship in FBIST, bond ETFs, ISY30, and conventional stock ETFs. In light of these results, the leverage hypothesis may be valid in all Islamic ETFs, two of the commodity ETFs, three of the conventional stock ETFs, and U.S. dollar ETFs. Results indicating causality running from returns to volatility in each ETF type also give some hints about the validity of the behavioral explanation hypothesis.

Table-3
ADF (1979, 1981) and PP (1988) Unit Root Test Results in Level

		Variables	ADF	PP	*Variables*	ADF	PP	*Variables*	ADF	PP	*Variables*	ADF	PP
Constant	Islamic ETFs	$r_{KATLIMP}$	-21.62 (0) [0.00]***	-21.62 (2) [0.00] ***	$r_{KATLM\,30}$	-38.43 (0) [0.00] ***	-38.42 (2) [0.00] ***	$r_{KATLIMP}$	-21.61 (0) [0.00] ***	-21.61 (2) [0.00] ***	$r_{KATLM\,30}$	-38.46 (0) [0.00] ***	-38.43 (3) [0.00] ***
		$\hat{\sigma}^2_{KATLIMP}$	-17.39 (0) [0.00] ***	-18.27 (9) [0.00] ***	$\hat{\sigma}^2_{KATLM\,30}$	-12.46 (2) [0.00] ***	-24.40 (17) [0.00] ***	$\hat{\sigma}^2_{KATLIMP}$	-17.83 (0) [0.00] ***	-18.37 (8) [0.00] ***	$\hat{\sigma}^2_{KATLM\,30}$	-12.55 (2) [0.00] ***	-24.40 (17) [0.00] ***
		$r_{KATLM\,50}$	-21.36 (0) [0.00] ***	-21.39 (6) [0.00] ***	r_{DJIMTR}	-51.84 (0) [0.00] ***	-51.81 (17) [0.00] ***	$r_{KATLM\,50}$	-21.41 (0) [0.00] ***	-21.43 (6) [0.00] ***	r_{DJIMTR}	-51.83 (0) [0.00] ***	-51.804 (17) [0.00] ***
		$\hat{\sigma}^2_{KATLM\,50}$	-9.08 (2) [0.00] ***	-18.93 (10) [0.00] ***	$\hat{\sigma}^2_{DJIMTR}$	-14.94 (5) [0.00] ***	-53.45 (30) [0.00] ***	$\hat{\sigma}^2_{KATLM\,50}$	-9.17 (2) [0.00] ***	-18.95 (10) [0.00] ***	$\hat{\sigma}^2_{DJIMTR}$	-18.91 (3) [0.00] ***	-52.46 (29) [0.00] ***
	Commodity	r_{GLDTR}	-49.46 (0) [0.00] ***	-49.61 (14) [0.00] ***	r_{GOLDP}	-23.24 (1) [0.00] ***	-38.45 (17) [0.00] ***	r_{GLDTR}	-49.48 (0) [0.00] ***	-49.61 (14) [0.00] ***	r_{GOLDP}	-23.32 (1) [0.00] ***	-38.36 (16) [0.00] ***
		$\hat{\sigma}^2_{GLDTR}$	-30.02 (1) [0.00] ***	-33.13 (7) [0.00] ***	$\hat{\sigma}^2_{GOLDP}$	-6.44 (14) [0.00] ***	-39.73 (19) [0.00] ***	$\hat{\sigma}^2_{GLDTR}$	-30.02 (1) [0.00] ***	-33.12 (7) [0.00] ***	$\hat{\sigma}^2_{GOLDP}$	-6.72 (14) [0.00] ***	-39.45 (18) [0.00] ***
		r_{GMSTR}	-33.72 (0) [0.00] ***	-33.63 (7) [0.00] ***	r_{SLVRP}	-27.30 (0) [0.00] ***	-27.88 (11) [0.00] ***	r_{GMSTR}	-33.74 (0) [0.00] ***	-33.66 (6) [0.00] ***	r_{SLVRP}	-27.49 (0) [0.00] ***	-27.87 (10) [0.00] ***
		$\hat{\sigma}^2_{GMSTR}$	-31.21 (0) [0.00] ***	-31.21 (2) [0.00] ***	$\hat{\sigma}^2_{SLVRP}$	-7.74 (6) [0.00] ***	-30.74 (15) [0.00] ***	$\hat{\sigma}^2_{GMSTR}$	-31.43 (0) [0.00] ***	-31.43 (6) [0.00] ***	$\hat{\sigma}^2_{SLVRP}$	-8.23 (6) [0.00] ***	-30.53 (14) [0.00] ***
	Stock ETFs	$r_{DJIST\,20}$	-37.70 (0) [0.00] ***	-37.71 (5) [0.00] ***	r_{BNKTR}	-46.53 (0) [0.00] ***	-46.75 (11) [0.00] ***	$r_{DJIST\,20}$	-37.70 (0) [0.00] ***	-37.71 (5) [0.00] ***	r_{BNKTR}	-46.52 (0) [0.00] ***	-46.74 (11) [0.00] ***
		$\hat{\sigma}^2_{DJIST\,20}$	-37.31 (0) [0.00] ***	-37.37 (7) [0.00] ***	$\hat{\sigma}^2_{BNKTR}$	-21.35 (3) [0.00] ***	-50.66 (24) [0.00] ***	$\hat{\sigma}^2_{DJIST\,20}$	-37.38 (0) [0.00] ***	-37.42 (6) [0.00] ***	$\hat{\sigma}^2_{BNKTR}$	-21.42 (3) [0.00] ***	-50.59 (24) [0.00] ***
		$r_{IST\,30}$	-42.12 (0) [0.00] ***	-42.17 (11) [0.00] ***	$r_{ISY\,30}$	-14.04 (2) [0.00] ***	-27.70 (12) [0.00] ***	$r_{IST\,30}$	-42.11 (0) [0.00] ***	-42.16 (11) [0.00] ***	$r_{ISY\,30}$	-14.40 (2) [0.00] ***	-27.75 (10) [0.00] ***
		$\hat{\sigma}^2_{IST\,30}$	-40.68 (0) [0.00] ***	-40.88 (10) [0.00] ***	$\hat{\sigma}^2_{ISY\,30}$	-2.82 (20) [0.05]*	-27.98 (15) [0.00] ***	$\hat{\sigma}^2_{IST\,30}$	-40.67 (0) [0.00] ***	-40.87 (10) [0.00] ***	$\hat{\sigma}^2_{ISY\,30}$	-3.08 (20) [0.109]	-27.80 (14) [0.00] ***
	BOND	r_{FBIST}	-45.17 (0) [0.00] ***	-45.17 (2) [0.00] ***				r_{FBIST}	-45.22 (0) [0.00] ***	-45.22 (1) [0.00] ***			
		$\hat{\sigma}^2_{FBIST}$	-46.137 (0) [0.00] ***	-46.13 (2) [0.00] ***				$\hat{\sigma}^2_{FBIST}$	-46.25 (0) [0.00] ***	-46.25 (5) [0.00] ***			
	USD	r_{USDTR}	-30.51 (0) [0.00] ***	-30.53 (5) [0.00] ***				r_{USDTR}	-30.51 (0) [0.00] ***	-30.53 (5) [0.00] ***			
		$\hat{\sigma}^2_{USDTR}$	-7.44 (8) [0.00] ***	-23.40 (6) [0.00] ***				$\hat{\sigma}^2_{USDTR}$	-8.15 (9) [0.00] ***	-23.66 (9) [0.00] ***			

Constant +Trend

Notes: The figures in parentheses denote the lag length selected by the Schwarz criterion. ***, **, and * denote statistical significance at the 1%, 5% and 10% level, respectively. Values within the brackets show the probability ratios. For the ADF test: The results of the Dickey Fuller test are in the case of zero lag length and lag length chosen due to SIC criteria. For both models the Mac Kinnon(1996) critical values are -.3.485 and -2.885 at the 1% and 5% levels respectively. For the PP test: Values in the parentheses show bandwidths obtained according to Newey-West using Bartlett Kernel criteria. The Mac Kinnon (1996) critical values for the first model are -3.483 and -2.884 at the 1% and 5% levels respectively and for the second model are -4.033 and -3.446 at the 1% and 5% levels respectively.

Table-4
Toda-Yamamoto (1995) and Bootstrap Based Hacker-Hatemi J (2005, 2006) Granger Causality Test Results

ETFs	Hypothesis	$k+d_{max}$	MWALD	%1 Bootstrap CV Değeri	%5 Bootstrap CV Değeri	%10 Bootstrap CV Değeri	Hypothesis	$k+d_{max}$	MWALD	%1 Bootstrap CV Değeri	%5 Bootstrap CV Değeri	%10 Bootstrap CV Değeri
Islamic ETFs	$r_{KATLIMP} \not\Rightarrow \hat{\sigma}^2_{KATLIMP}$	6	12.700 (0.026)**	17.444	12.936	10.877*	$\hat{\sigma}^2_{KATLIMP} \not\Rightarrow r_{KATLIMP}$	6	6.950 (0.224)	17.309	12.364	10.314
	$r_{KATLM30} \not\Rightarrow \hat{\sigma}^2_{KATLM30}$	4	19.025 (0.00)***	12.604***	10.042**	7.716*	$\hat{\sigma}^2_{KATLM30} \not\Rightarrow r_{KATLM30}$	4	6.703 (0.081)*	12.746	9.131	6.650*
	$r_{KATLM50} \not\Rightarrow \hat{\sigma}^2_{KATLM50}$	3	10.627 (0.00)***	11.790	6.190**	4.851*	$\hat{\sigma}^2_{KATLM50} \not\Rightarrow r_{KATLM50}$	3	0.447 (0.799)	7.371	4.688	3.779
	$r_{DJIMTR} \not\Rightarrow \hat{\sigma}^2_{DJIMTR}$	19	80.110 (0.00)***	37.274***	31.163**	28.154*	$\hat{\sigma}^2_{DJIMTR} \not\Rightarrow r_{DJIMTR}$	19	42.697 (0.00)***	41.499***	30.184**	27.422*
Commodity ETFs	$r_{GLDTR} \not\Rightarrow \hat{\sigma}^2_{GLDTR}$	3	8.043 (0.045)**	12.246	7.633**	4.979*	$\hat{\sigma}^2_{GLDTR} \not\Rightarrow r_{GLDTR}$	3	6.108 (0.106)	12.396	4.741**	4.074*
	$r_{GOLDP} \not\Rightarrow \hat{\sigma}^2_{GOLDP}$	8	6.567 (0.475)	72.260	27.823	19.055	$\hat{\sigma}^2_{GOLDP} \not\Rightarrow r_{GOLDP}$	8	28.402 (0.00)***	67.022	29.560	19.957*
	$r_{GMSTR} \not\Rightarrow \hat{\sigma}^2_{GMSTR}$	2	0.382 (0.825)	44.571	4.234	4.439	$\hat{\sigma}^2_{GMSTR} \not\Rightarrow r_{GMSTR}$	2	2.593 (0.273)	15.543	6.599	3.698
	$r_{SLVRP} \not\Rightarrow \hat{\sigma}^2_{SLVRP}$	7	21.171 (0.00)***	52.504	17.867**	11.505*	$\hat{\sigma}^2_{SLVRP} \not\Rightarrow r_{SLVRP}$	7	3.131 (0.792)	37.836	16.280	10.561
Stock ETFs	$r_{DJIST20} \not\Rightarrow \hat{\sigma}^2_{DJIST20}$	5	24.700 (0.00)***	94.614	10.210**	7.935*	$\hat{\sigma}^2_{DJIST20} \not\Rightarrow r_{DJIST20}$	5	2.395 (0.66)	65.261	9.753	8.008
	$r_{BNKTR} \not\Rightarrow \hat{\sigma}^2_{BNKTR}$	4	25.567 (0.00)***	17.27***	11.70**	9.465*	$\hat{\sigma}^2_{BNKTR} \not\Rightarrow r_{BNKTR}$	4	14.579 (0.00)***	18.29	12.177**	9.729*
	$r_{IST30} \not\Rightarrow \hat{\sigma}^2_{IST30}$	2	8.014 (0.00)***	13.404	4.686**	1.980*	$\hat{\sigma}^2_{IST30} \not\Rightarrow r_{IST30}$	2	0.987 (0.320)	13.282	3.839	2.531
	$r_{ISY30} \not\Rightarrow \hat{\sigma}^2_{ISY30}$	7	7.311 (0.293)	52.175	25.487	16.492	$\hat{\sigma}^2_{ISY30} \not\Rightarrow r_{ISY30}$	7	17.267 (0.00)***	55.108	18.862	14.899*
BOND	$r_{FBIST} \not\Rightarrow \hat{\sigma}^2_{FBIST}$	4	0.3967 (0.94)	8.711	3.505	1.780	$\hat{\sigma}^2_{FBIST} \not\Rightarrow r_{FBIST}$	4	6.205 (0.102)	8.922	4.302**	3.244*
USD	$r_{USDTR} \not\Rightarrow \hat{\sigma}^2_{USDTR}$	10	211.406 (0.00)***	121.135***	31.500**	15.606*	$\hat{\sigma}^2_{USDTR} \not\Rightarrow r_{USDTR}$	10	7.918 (0.542)	192.964	22.797	16.448

Note: ***, **, and * denote the existence of causation linkage between variables at significance levels 1%, 5%, and 10%, respectively. $k+d_{max}$ value shows the total amount of stationary level and optimal lag length chosen due to the AIC information criterion. Values in parentheses show asymptotically distributed probability value.

Table-5
Frequency Domain Causality Results

ETFs	ω_i	Long Term		Med Term		Short Term		ω_i	Long Term		Med Term		Short Term	
		0.01	**0.05**	**1.00**	**1.50**	**2.00**	**2.50**		**0.01**	**0.05**	**1.00**	**1.50**	**2.00**	**2.50**
Islamic ETFs	$r_{KATLIMP} \not\Rightarrow \hat{\sigma}^2_{KATLIMP}$	8.75*	8.68*	0.29	0.29	6.84*	8.27*	$\hat{\sigma}^2_{KATLIMP} \not\Rightarrow r_{KATLIMP}$	6.46*	6.45*	0.92	2.10	3.00*	3.34*
	$r_{KATLM\,30} \not\Rightarrow \hat{\sigma}^2_{KATLM\,30}$	24.47*	24.36*	1.54	0.59	2.46	6.65*	$\hat{\sigma}^2_{KATLM\,30} \not\Rightarrow r_{KATLM\,30}$	8.92*	8.96*	1.48	10.85*	0.27	2.67
	$r_{KATLM\,50} \not\Rightarrow \hat{\sigma}^2_{KATLM\,50}$	8.80*	8.69*	0.27	2.77	5.36*	0.64	$\hat{\sigma}^2_{KATLM\,50} \not\Rightarrow r_{KATLM\,50}$	6.19*	6.27*	3.47*	0.66	1.41	3.53*
	$r_{DJIMTR} \not\Rightarrow \hat{\sigma}^2_{DJIMTR}$	81.55*	81.20*	9.66*	7.74*	3.45*	0.47	$\hat{\sigma}^2_{DJIMTR} \not\Rightarrow r_{DJIMTR}$	13.90*	13.60*	1.01	4.04*	4.96*	4.90*
Commodity ETFs	$r_{GLDTR} \not\Rightarrow \hat{\sigma}^2_{GLDTR}$	2.53	2.52	0.60	0.00	2.73	2.71	$\hat{\sigma}^2_{GLDTR} \not\Rightarrow r_{GLDTR}$	1.83	1.82	0.99	2.55	0.08	13.03*
	$r_{GOLDP} \not\Rightarrow \hat{\sigma}^2_{GOLDP}$	4.35*	4.35*	2.60	1.86	8.68*	0.69	$\hat{\sigma}^2_{GOLDP} \not\Rightarrow r_{GOLDP}$	11.72*	11.74*	12.59*	17.59*	1.45	7.47*
	$r_{GMSTR} \not\Rightarrow \hat{\sigma}^2_{GMSTR}$	0.35	0.35	1.61	0.42	0.14	0.35	$\hat{\sigma}^2_{GMSTR} \not\Rightarrow r_{GMSTR}$	0.00	0.00	3.01*	0.55	0.49	0.92
	$r_{SLVRP} \not\Rightarrow \hat{\sigma}^2_{SLVRP}$	5.71*	5.64*	19.41*	2.43	1.76	1.31	$\hat{\sigma}^2_{SLVRP} \not\Rightarrow r_{SLVRP}$	0.31	0.34	2.17	0.13	2.88	3.27*
Conventional ETFs	$r_{DJIST\,20} \not\Rightarrow \hat{\sigma}^2_{DJIST\,20}$	18.87*	18.91*	2.70	0.82	2.49	2.09	$\hat{\sigma}^2_{DJIST\,20} \not\Rightarrow r_{DJIST\,20}$	0.52	0.51	0.71	0.49	3.04*	1.76
	$r_{BNKTR} \not\Rightarrow \hat{\sigma}^2_{BNKTR}$	18.55*	18.46*	0.79	0.25	3.39*	4.47*	$\hat{\sigma}^2_{BNKTR} \not\Rightarrow r_{BNKTR}$	0.98	1.03	15.81*	0.06	5.56*	6.64*
	$r_{IST\,30} \not\Rightarrow \hat{\sigma}^2_{IST\,30}$	19.84*	19.73*	4.14*	1.16	1.77	4.56*	$\hat{\sigma}^2_{IST\,30} \not\Rightarrow r_{IST\,30}$	0.03	0.03	5.83*	0.44	4.30*	2.72
	$r_{ISY\,30} \not\Rightarrow \hat{\sigma}^2_{ISY\,30}$	4.22*	4.21*	2.32	5.54*	0.51	0.66	$\hat{\sigma}^2_{ISY\,30} \not\Rightarrow r_{ISY\,30}$	7.25*	7.26*	0.30	8.25*	0.40	1.07
BOND	$r_{FBIST} \not\Rightarrow \hat{\sigma}^2_{FBIST}$	0.23	0.23	0.99	2.36	1.41	0.66	$\hat{\sigma}^2_{FBIST} \not\Rightarrow r_{FBIST}$	3.26*	3.21*	3.10*	5.05*	2.06	3.42*
USD	$r_{USDTR} \not\Rightarrow \hat{\sigma}^2_{USDTR}$	29.39*	28.86*	20.42*	47.52*	0.74	86.96*	$\hat{\sigma}^2_{USDTR} \not\Rightarrow r_{USDTR}$	3.49*	3.48*	1.29	0.51	1.02	1.83

Notes: The lag lengths for the VAR models are determined by SIC. F- distribution with (2, T-2p) degrees of freedom equals about 2.99. For every ω_i (frequency) between 0 and π, $\omega \in (0, \pi)$.

According to the Toda-Yamamoto and Hatemi-J causality analyses results, the uni-directional causality running from volatility to returns is found in a small number of ETFs. It is valid in two of the Islamic stock ETFs (KATLM30 and DJIMTR), two of the commodity ETFs (GLDTR and GOLDP), and two of conventional stock ETFs (BNKTR and ISY30). On the other hand, there is no causality running from volatility to returns in U.S. dollar ETFs and bond ETFs. Results indicate that the volatility feedback hypothesis does not exist in all ETFs.

In order to better understand the validity of the behavioral explanation, leverage, and volatility feedback hypotheses we apply frequency domain tests which allow for the investigation of interactions between variables in different time frequencies. The test results imply causation linkages running from return to volatility in both short- and long-run for all Islamic ETFs. Similar to Toda-Yamamoto (1995) and bootstrapped Hatemi-J (2005 and 2006) test results, uni-directional causality is valid for U.S. dollar ETFs in both short- and long-run. Return affects volatility in all conventional stock ETFs. The interaction is valid in the short- and long-run for all conventional stock ETFs but not for DJIST in the short-run. The results of our analysis imply that our hypotheses are valid for GOLDP and SLVRP commodity ETFs. Analysis results show that there is no causation linkage between variables in any time period for bond ETFs. Frequency domain causality analysis reports that causality between variables may occur in both long- and short-run. This means the leverage and volatility hypotheses in the longer periods and behavioral explanation hypothesis in the shorter periods are valid for most ETFs.

Results of the causality-in-variance test, which analyzes the existence of causality between variables in variance (as opposed to conventional causality analyses which test the causality in mean), are presented in Table 6. According to our test results, the causation linkage running from volatility to return exists in only two Islamic stock ETFs. These are KATLM30 and DJIMTR, which matches the results of Toda-Yamamoto and Hatemi-J Granger causality tests. These results indicate that variance of volatility induces volatility in returns for KATLM30 and DJIMTR. Consequently, the volatility feedback hypothesis is valid for two Islamic ETFs, while the leverage hypothesis is not valid for any kind of ETF. Despite two empirical methods supporting each other for two Islamic ETFs, results differ for other ETF types.

Unlike the causality tests employed above, the Hatemi-J and Roca (2014) test allows for investigation of the causation linkage between variables in different types of shocks. In this regard, testing the relation between return and volatility of an ETF helps to better understand the validity of the hypotheses explained above.

In Table 7, each type of ETF result is grouped. In order to save space we report only asymmetric causality results. According to the results of our analysis on Islamic stock ETFs, there is uni-directional causality from increase in returns to decrease in volatility. Increasing returns in Islamic ETFs will reduce volatility. This is consistent with the leverage hypothesis. On the other hand, the results imply that a reduction in returns will not increase volatility. Return of an Islamic stock ETF affects volatility of the ETF only in the case of positive return shock.

On the other hand, an increase in volatility will reduce the return of Islamic ETFs, except for KATLMP. However, a decrease in volatility will not affect the return in the same way. This means there is no relationship between negative shocks in volatility and positive shocks in returns. DJIMTR is the only exception.

To sum up, our results are consistent with the leverage hypothesis and the volatility feedback hypothesis, with exceptions. Moreover, our results differ from the behavioral explanation hypothesis. Contrary to the suggestions of Badshah (2013) implying that negative returns have a greater impact on the volatility index than do positive returns, our results show that there is a causation linkage running from positive returns to negative volatility. This indicates that an increase in returns will reduce volatility in Islamic stock ETFs.

In the second part of Table 7, results of the asymmetric causality test are presented for commodity ETFs. According to our results, there is uni-directional causality running from positive returns to negative volatility in all commodity ETFs. On the other hand, there is no causality between variables in the case of negative shocks in returns. These results support the leverage hypothesis but not the behavioral explanation hypothesis as implied by Badshah (2013).

The effect of volatility on returns is asymmetric in all commodity ETFs. A positive volatility shock will reduce returns. Moreover a negative shock in volatility will increase returns in commodity ETFs except for GOLDP. These results support the volatility feedback hypothesis in commodity ETFs.

In the third part of Table 7, asymmetric causality test results for conventional stock ETFs are presented. According to our results, a positive shock in returns will reduce volatility in all stock based ETFs. Contrary to other types of ETFs, a negative shock in returns of BNKTR and ISY30 ETFs will increase volatility. These results support the leverage hypothesis and the behavioral explanation hypothesis. In this type of ETF, an increase in volatility will reduce returns. DJIST is the only exception.

These results imply that the volatility feedback hypothesis is valid for three of four conventional stock ETFs. For bond ETFs, results show that there is no causation linkage in any case, just like in other causality test results.

Table-6
Results of Causality-in-Variance Analysis

ETFs		Statistic (p-value)		Statistic (p-value)
Islamic ETFs	$r_{KATLIMP} \not\Rightarrow \hat{\sigma}^2_{KATLIMP}$	0.141 (0.931)	$\hat{\sigma}^2_{KATLIMP} \not\Rightarrow r_{KATLIMP}$	4.481 (0.106)
	$r_{KATLM30} \not\Rightarrow \hat{\sigma}^2_{KATLM30}$	0.147 (0.928)	$\hat{\sigma}^2_{KATLM30} \not\Rightarrow r_{KATLM30}$	21.922 (0.00)***
	$r_{KATLM50} \not\Rightarrow \hat{\sigma}^2_{KATLM50}$	0.712 (0.700)	$\hat{\sigma}^2_{KATLM50} \not\Rightarrow r_{KATLM50}$	1.240 (0.537)
	$r_{DJIMTR} \not\Rightarrow \hat{\sigma}^2_{DJIMTR}$	0.156 (0.924)	$\hat{\sigma}^2_{DJIMTR} \not\Rightarrow r_{DJIMTR}$	12.91 (0.00)***
Commodity ETFs	$r_{GLDTR} \not\Rightarrow \hat{\sigma}^2_{GLDTR}$	0.031 (0.984)	$\hat{\sigma}^2_{GLDTR} \not\Rightarrow r_{GLDTR}$	0.108 (0.947)
	$r_{GOLDP} \not\Rightarrow \hat{\sigma}^2_{GOLDP}$	0.265 (0.875)	$\hat{\sigma}^2_{GOLDP} \not\Rightarrow r_{GOLDP}$	0.738 (0.691)
	$r_{GMSTR} \not\Rightarrow \hat{\sigma}^2_{GMSTR}$	0.027 (0.986)	$\hat{\sigma}^2_{GMSTR} \not\Rightarrow r_{GMSTR}$	2.461 (0.292)
	$r_{SLVRP} \not\Rightarrow \hat{\sigma}^2_{SLVRP}$	0.050 (0.975)	$\hat{\sigma}^2_{SLVRP} \not\Rightarrow r_{SLVRP}$	0.257 (0.879)
Stock ETFs	$r_{DJIST20} \not\Rightarrow \hat{\sigma}^2_{DJIST20}$	0.009 (0.995)	$\hat{\sigma}^2_{DJIST20} \not\Rightarrow r_{DJIST20}$	0.789 (0.673)
	$r_{BNKTR} \not\Rightarrow \hat{\sigma}^2_{BNKTR}$	0.032 (0.983)	$\hat{\sigma}^2_{BNKTR} \not\Rightarrow r_{BNKTR}$	1.071 (0.585)
	$r_{IST30} \not\Rightarrow \hat{\sigma}^2_{IST30}$	0.034 (0.982)	$\hat{\sigma}^2_{IST30} \not\Rightarrow r_{IST30}$	0.062 (0.969)
	$r_{ISY30} \not\Rightarrow \hat{\sigma}^2_{ISY30}$	0.154 (0.925)	$\hat{\sigma}^2_{ISY30} \not\Rightarrow r_{ISY30}$	0.781 (0.676)
BOND	$r_{FBIST} \not\Rightarrow \hat{\sigma}^2_{FBIST}$	0.005 (0.997)	$\hat{\sigma}^2_{FBIST} \not\Rightarrow r_{FBIST}$	0.011 (0.994)
USD	$r_{USDTR} \not\Rightarrow \hat{\sigma}^2_{USDTR}$	0.042 (0.979)	$\hat{\sigma}^2_{USDTR} \not\Rightarrow r_{USDTR}$	0.320 (0.851)

Notes: ***, **, and * denote statistical significance at the 1%, 5%, and 10% level of significance, respectively.

Finally, the results of the asymmetric causality analysis for U.S. dollar based ETFs are presented at the end of Table 7. According to our results, a positive shock in returns will reduce volatility. On the other hand, a negative shock in returns will increase volatility. Our results support the leverage and behavioral explanation hypotheses, implying an asymmetric relation between returns and volatility. But

contrary to the implication of Badshah (2013), the power of negative shocks in returns is not supported by the test results. A positive (negative) shock in volatility will induce a negative (positive) change in returns for this type of ETF. This result also supports the volatility feedback hypothesis.

6. Concluding Remarks

In this study, we analyze the probable interactions between return and volatility in different types of ETFs traded in the Borsa Istanbul by employing various recently developed causality analysis methods, namely Toda-Yamamoto (1995) Granger, bootstrap based Hatemi-J (2005 and 2006) Granger, causality-in-variance, frequency domain developed by Breitung and Candelon (2006), and Hatemi-J and Roca (2014) asymmetric causality.

First, interactions between our variables are valid in both short- and long-run. Contrary to the conclusions of earlier research that the relation exists only in the short-run and can be explained by the behavioral explanation hypothesis, we find that the relation exists in the long-run and can therefore be explained via the leverage hypothesis. Moreover, the volatility feedback hypothesis is valid in the longer periods. Thus, the negative relation between return and volatility exists and the results are consistent with the literature.

Moreover, our asymmetric causality analysis results also support the negative relation. However, the asymmetric causality relation implied by Low (2004), Hibbert et al. (2008), and Badshah (2013) is not valid for every type of ETF. While the authors claim that negative return shocks are more impactful than positive ones on volatility, such a relation is valid for only two of the conventional stock ETFs. Most of the asymmetric relation exists in the case of positive return shocks, contrary to Badshah's (2013) implications. Negative return shocks effect volatility for just two stock ETFs and U.S. dollar ETFs. The same results are found in the case of commodity ETFs. These results imply that a positive return shock induces a decrease in volatility, but negative shocks do not induce positive volatility in Islamıc stock ETFs.

In the case of bond ETFs, there is no negative or asymmetric causality. None of the hypotheses are valid for bond ETFs. On the other hand, the behavioral explanation hypothesis may be valid for U.S. dollar ETFs. There is a uni-directional causality running from negative returns to positive volatility as well as reverse causality.

As can be seen, our results differ with the type of ETF examined. It is clear that a negative relation between return and volatility is valid for all type of ETFs except bond ETFs. However, the validity of asymmetric causality explained by Low (2004) and Hibbert (2008) is somewhat complicated. Although we find some evidence implying that the behavioral explanation hypothesis may be valid for U.S. dollar ETFs and some conventional stock ETFs, other evidence does not fit well into this hypothesis, implying that negative return shocks are more impactful than positive ones on volatility.

The disparity between the existing literature about the behavioral explanation hypothesis and our findings may arise from the disparity in the financial tools examined. Padungsaksawasdi and Daigler (2014) and Daigler et al. (2014) claim that the asymmetric relation is weaker in ETFs compared to stock indices. Moreover we employ different ETF types. Consequently, the relation between return and volatility for ETFs may be hypothesized separately from stock indices.

When we compare Islamic stock ETFs to other/conventional stock ETFs, we find that the causality between returns and volatility is stronger in conventional stock ETFs than in Islamic stock ETFs. This means that conventional hypotheses are better suited to explaining conventional ETFs than Islamic ones. This is also consistent with the findings of Abderrezak (2008) regarding the performance of Islamic mutual funds. Moreover, our findings on the frequency domain support Ashraf (2013), who claims that ethical financial tools perform better in the longer periods. As a consequence of this study, we find that Islamic ETFs perform quite differently from conventional tools. This feature of the Islamic ETFs may provide advantage for not only Muslim investors, but also for investors who look for long term investment opportunities. This will lead to more financial inclusion by bringing more investors in the capital market, and will contribute to economic growth.

Table-7
Hatemi J-Roca (2014) Asymmetric Causality Test Results

Islamic ETFs									
Hypothesis	**MWALD**	**%1 BCV**	**%5 BCV**	**%10 BCV**	**Hypothesis**	**MWALD**	**%1 BCV**	**%5 BCV**	**%10 BCV**
$(r_{KATLIMP})^{+} \not\Rightarrow (\hat{\sigma}^2_{KATLIMP})^{-}$	6.783 (0.034)**	12.028	6.386**	4.546*	$(\hat{\sigma}^2_{KATLIMP})^{+} \not\Rightarrow (r_{KATLIMP})^{-}$	3.116 (0.211)	12.106	6.752	4.883
$(r_{KATLIMP})^{-} \not\Rightarrow (\hat{\sigma}^2_{KATLIMP})^{+}$	1.027 (0.587)	11.847	6.885	4.917	$(\hat{\sigma}^2_{KATLIMP})^{-} \not\Rightarrow (r_{KATLIMP})^{+}$	1.434 (0.488)	11.929	6.927	4.832
$(r_{KATLM30})^{+} \not\Rightarrow (\hat{\sigma}^2_{KATLM30})^{-}$	122.169 (0.00)***	15.435***	8.632**	6.201*	$(\hat{\sigma}^2_{KATLM30})^{+} \not\Rightarrow (r_{KATLM30})^{-}$	66.647 (0.00)***	12.074***	6.569**	4.498*
$(r_{KATLM30})^{-} \not\Rightarrow (\hat{\sigma}^2_{KATLM30})^{+}$	0.771 (0.856)	11.931	7.756	6.357	$(\hat{\sigma}^2_{KATLM30})^{-} \not\Rightarrow (r_{KATLM30})^{+}$	4.208 (0.122)	11.028	5.745	4.251
$(r_{KATLM50})^{+} \not\Rightarrow (\hat{\sigma}^2_{KATLM50})^{-}$	14.571 (0.00)***	12.820***	6.624**	4.952*	$(\hat{\sigma}^2_{KATLM50})^{+} \not\Rightarrow (r_{KATLM50})^{-}$	6.256 (0.044)**	11.623	6.616	4.697*
$(r_{KATLM50})^{-} \not\Rightarrow (\hat{\sigma}^2_{KATLM50})^{+}$	2.688 (0.261)	11.412	6.334	4.807	$(\hat{\sigma}^2_{KATLM50})^{-} \not\Rightarrow (r_{KATLM50})^{+}$	3.274 (0.195)	11.504	6.073	4.697
$(r_{DJIMTR})^{+} \not\Rightarrow (\hat{\sigma}^2_{DJIMTR})^{-}$	80.224 (0.00)***	17.111***	7.882**	6.050*	$(\hat{\sigma}^2_{DJIMTR})^{+} \not\Rightarrow (r_{DJIMTR})^{-}$	38.321 (0.00)***	14.637***	8.595**	6.104*
$(r_{DJIMTR})^{-} \not\Rightarrow (\hat{\sigma}^2_{DJIMTR})^{+}$	2.388 (0.496)	13.784	8.153	6.486	$(\hat{\sigma}^2_{DJIMTR})^{-} \not\Rightarrow (r_{DJIMTR})^{+}$	65.830 (0.00)***	15.476***	7.672**	5.618**
Commodity ETFs									
Hypothesis	**MWALD**	**%1 BCV**	**%5 BCV**	**%10 BCV**	**Hypothesis**	**MWALD**	**%1 BCV**	**%5 BCV**	**%10 BCV**

$(r_{GLDTR})^{+} \not\Rightarrow (\hat{\sigma}^2_{GLDTR})^{-}$	238.816 (0.00)***	18.253	9.437**	6.584*	$(\hat{\sigma}^2_{GLDTR})^{+} \not\Rightarrow (r_{GLDTR})^{-}$	155.981 (0.00)***	17.381***	8.379**	6.250*
$(r_{GLDTR})^{-} \not\Rightarrow (\hat{\sigma}^2_{GLDTR})^{+}$	1.034 (0.793)	14.483	8.866	6.398	$(\hat{\sigma}^2_{GLDTR})^{-} \not\Rightarrow (r_{GLDTR})^{+}$	37.174 (0.00)***	17.194***	8.752**	5.847**
$(r_{GOLDP})^{+} \not\Rightarrow (\hat{\sigma}^2_{GOLDP})^{-}$	357.285 (0.00)***	16.657***	9.489**	6.611*	$(\hat{\sigma}^2_{GOLDP})^{+} \not\Rightarrow (r_{GOLDP})^{-}$	379.811 (0.00)***	18.808***	8.526**	5.742*
$(r_{GOLDP})^{-} \not\Rightarrow (\hat{\sigma}^2_{GOLDP})^{+}$	5.455 (0.141)	14.869	8.246	5.844	$(\hat{\sigma}^2_{GOLDP})^{-} \not\Rightarrow (r_{GOLDP})^{+}$	1.107 (0.775)	14.891	7.305	5.763
$(r_{GMSTR})^{+} \not\Rightarrow (\hat{\sigma}^2_{GMSTR})^{-}$	79.239 (0.00)***	9.420***	5.928**	4.597*	$(\hat{\sigma}^2_{GMSTR})^{+} \not\Rightarrow (r_{GMSTR})^{-}$	37.402 (0.00)***	8.878***	5.951**	4.564*
$(r_{GMSTR})^{-} \not\Rightarrow (\hat{\sigma}^2_{GMSTR})^{+}$	3.248 (0.197)	8.936	5.848	4.508	$(\hat{\sigma}^2_{GMSTR})^{-} \not\Rightarrow (r_{GMSTR})^{+}$	14.554 (0.00)***	9.830***	6.263**	4.556*
$(r_{SLVRP})^{+} \not\Rightarrow (\hat{\sigma}^2_{SLVRP})^{-}$	58.930 (0.00)***	11.151***	6.398**	4.708*	$(\hat{\sigma}^2_{SLVRP})^{+} \not\Rightarrow (r_{SLVRP})^{-}$	29.182 (0.00)***	9.346***	6.223**	4.662**
$(r_{SLVRP})^{-} \not\Rightarrow (\hat{\sigma}^2_{SLVRP})^{+}$	3.150 (0.207)	9.940	6.306	4.314	$(\hat{\sigma}^2_{SLVRP})^{-} \not\Rightarrow (r_{SLVRP})^{+}$	18.884 (0.00)***	10.719***	5.703**	4.275*
Conventional Stock ETFs									
Hypothesis	**MWALD**	**%1 BCV**	**%5 BCV**	**%10 BCV**	**Hypothesis**	**MWALD**	**%1 BCV**	**%5 BCV**	**%10 BCV**
$(r_{DJIST20})^{+} \not\Rightarrow (\hat{\sigma}^2_{DJIST20})^{-}$	74.957 (0.00)***	13.049***	8.232**	6.124*	$(\hat{\sigma}^2_{DJIST20})^{+} \not\Rightarrow (r_{DJIST20})^{-}$	69.062 (0.00)	15.481	8.400	6.342
$(r_{DJIST20})^{-} \not\Rightarrow (\hat{\sigma}^2_{DJIST20})^{+}$	1.583 (0.663)	11.266	7.842	6.095	$(\hat{\sigma}^2_{DJIST20})^{-} \not\Rightarrow (r_{DJIST20})^{+}$	14.460 (0.00)	15.475	7.530	6.017
$(r_{BNKTR})^{+} \not\Rightarrow (\hat{\sigma}^2_{BNKTR})^{-}$	24.524 (0.00)***	12.344***	6.348**	4.464*	$(\hat{\sigma}^2_{BNKTR})^{+} \not\Rightarrow (r_{BNKTR})^{-}$	11.629 (0.00)***	13.038	5.529**	4.272*
$(r_{BNKTR})^{-} \not\Rightarrow (\hat{\sigma}^2_{BNKTR})^{+}$	9.587 (0.00)***	11.739	6.400**	4.560*	$(\hat{\sigma}^2_{BNKTR})^{-} \not\Rightarrow (r_{BNKTR})^{+}$	0.892 (0.64)	12.683	6.720	4.575

$(r_{IST30})^{+} \not\Rightarrow (\hat{\sigma}^2_{IST30})^{-}$	29.670 (0.00)***	11.494***	6.298**	4.935*	$(\hat{\sigma}^2_{IST30})^{+} \not\Rightarrow (r_{IST30})^{-}$	27.806 (0.00)***	10.295***	5.800**	4.352*
$(r_{IST30})^{-} \not\Rightarrow (\hat{\sigma}^2_{IST30})^{+}$	2.582 (0.275)	11.863	6.592	4.667	$(\hat{\sigma}^2_{IST30})^{-} \not\Rightarrow (r_{IST30})^{+}$	2.452 (0.294)	13.279	7.058	4.293
$(r_{ISY30})^{+} \not\Rightarrow (\hat{\sigma}^2_{ISY30})^{-}$	65.800 (0.00)***	15.184***	10.100**	7.943*	$(\hat{\sigma}^2_{ISY30})^{+} \not\Rightarrow (r_{ISY30})^{-}$	46.771 (0.00)***	15.481***	10.703**	8.359*
$(r_{ISY30})^{-} \not\Rightarrow (\hat{\sigma}^2_{ISY30})^{+}$	8.246 (0.083)*	16.133	10.907	8.171*	$(\hat{\sigma}^2_{ISY30})^{-} \not\Rightarrow (r_{ISY30})^{+}$	7.593 (0.108)	16.441	10.035	7.904

Bond ETF

Hypothesis	MWALD	%1 BCV	%5 BCV	%10 BCV	Hypothesis	MWALD	%1 BCV	%5 BCV	%10 BCV
$(r_{FBIST})^{+} \not\Rightarrow (\hat{\sigma}^2_{FBIST})^{-}$	0.381 (0.826)	13.727	6.695	4.288	$(\hat{\sigma}^2_{FBIST})^{+} \not\Rightarrow (r_{FBIST})^{-}$	0.307 (0.858)	17.502	7.414	4.361
$(r_{FBIST})^{-} \not\Rightarrow (\hat{\sigma}^2_{FBIST})^{+}$	0.523 (0.770)	19.092	8.808	4.277	$(\hat{\sigma}^2_{FBIST})^{-} \not\Rightarrow (r_{FBIST})^{+}$	0.258 (0.879)	17.583	7.664	4.510

USD ETF

Hypothesis	MWALD	%1 BCV	%5 BCV	%10 BCV	Hypothesis	MWALD	%1 BCV	%5 BCV	%10 BCV
$(r_{USDTR})^{+} \not\Rightarrow (\hat{\sigma}^2_{USDTR})^{-}$	157.927 (0.00)***	19.432***	8.833**	6.325*	$(\hat{\sigma}^2_{USDTR})^{+} \not\Rightarrow (r_{USDTR})^{-}$	70.075 (0.00)***	14.402***	8.464**	6.363*
$(r_{USDTR})^{-} \not\Rightarrow (\hat{\sigma}^2_{USDTR})^{+}$	26.624 (0.00)***	14.021***	8.587**	6.596*	$(\hat{\sigma}^2_{USDTR})^{-} \not\Rightarrow (r_{USDTR})^{+}$	54.286 (0.00)***	15.501***	9.216**	6.213*

Note: $\not\Rightarrow$ denotes the null hypothesis claiming there is no causality. Values in parentheses show asymptotically probability. ***,**, and * denote significance level of causality between variables at 1%, 5%, and 10%, respectively. The number of bootstraps is 10,000.

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Sharī‘ah and SRI Portfolio Performance in the UK: Effect of Oil Price Decline

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Abstract

In accordance with decline in oil price and portfolio performance, this study attempts to examine the effect of oil price on Sharī‘ah *portfolio performance, which Socially Responsible Investment (SRI) portfolio is also constructed as a comparison. This study is different from other empirical studies which use stock index as proxy for stock market returns since this study constructs its own* Sharī‘ah *and SRI portfolio investment in the UK taking the companies included in FTSE 100 from 2008 up to 2015.*

This study shows that the decline in oil price has higher impact on Sharī‘ah *portfolio compared to SRI portfolio, which is shown by lower value of Sharpe's ratio and Treynor ratio. On the other hand,* Sharī‘ah *portfolio has higher beta and Jensen's alpha compared to SRI portfolio. It provides insight to the regulatory body and scholars to reconsider the* Sharī‘ah *screening criteria in order for* Sharī‘ah *portfolio to be able to have better performance and more sustainable in the long run in order to be able to overcome different type of crisis.*

Keywords: oil price, portfolio, Sharī‘ah, SRI, performance

Introduction

2014 was marked as a crisis for countries whose economy depends highly on energy sector, especially oil commodities since there has been a sharp decline starting on June 2014, which continued until early 2015 (Bloomberg, 2016). The oil price has been successfully rebounded on February and May 2015 although it decreased again in June 2015 until the present days. One of countries that was affected by the decline in oil price is United Kingdom since oil and gas sector plays

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an important role in the UK's economy. Oil and gas contributes to 70% of energy needed by the UK for running the electricity, heating, and all the energy-based activities, without neglecting the high supply chain in the oil and gas companies itself ranging from the reservoirs, wells, facilities, marine and subsea, and support services which provides employment for 400 thousand people in the UK (HMG, 2013; EY, 2016). Considering that the decline in oil price affected the revenue of oil and gas companies, it would be reflected in companies' share price and decreased investors' portfolio.

Regarding with the portfolio investment, the development of Islamic finance has introduced the requirements for Islamic portfolio, which is called as Sharī'ah screening criteria established by scholars in each country. The screening criteria determines stocks which categorized as Sharī'ah-compliant stocks that investors who consider about Sharī'ah-compliance can invest in those stocks. The screening criteria consists of two different requirements, which are qualitative and quantitative criteria. As for the Sharī'ah-compliance qualitative criteria, oil and gas companies do not contrast with the Sharī'ah qualitative criteria which make those companies can be included in Islamic portfolio as long as they also fulfil the Sharī'ah quantitative criteria.

Other than the oil and gas companies which are directly affected by the changes in oil price, companies which heavily rely on oil and gas such as transportation and distribution companies might be indirectly affected by oil price changes. Some of these companies which might be included in Islamic portfolio will have an effect on the Islamic portfolio performance.

In accordance with decline in oil price and portfolio performance, this study attempts to examine the effect of oil price on Sharī'ah portfolio performance. In order to be able to provide better view regarding the Sharī'ah portfolio performance, Socially Responsible Investment (SRI) portfolio is also constructed as a comparison. This study is different from other empirical studies which use stock index as proxy for stock market returns since this study constructs its own Sharī'ah and SRI portfolio investment in the UK taking the companies included in FTSE 100 from 2008 up to 2015. After constructing the first portfolio in 2007, the portfolio composition is evaluated annually to obtain portfolio which fulfils requirement of Sharī'ah screening criteria and SRI criteria. Having the portfolio composition for every year, portfolio performance is examined using risk-adjusted performance, which are Sharpe ratio, Treynor ratio, and Jensen's alpha. In addition, macroeconomic variables, including oil price, are examined in order to provide information regarding their effects on portfolio performance.

Literature Review

This study attempts to evaluate the effect of oil price on capital market performance, specifically stock returns, which many previous empirical studies have conducted and they found different findings whether there is an effect or not and whether the effect is positive or negative. Studies conducted by Ajmi, *et al*. (2014) in MENA countries from 2007 until 2012, Narayan and Gupta (2015) for US stock markets in 150 years, Huang, *et al*. (2015) in China, Demirer, *et al*. (2015) in Gulf Arab countries, and Xu (2015) in the UK find that there is relationship between oil price changes and stock market returns whether the relationship is linear or nonlinear. In different sample and time frame, Park and Ratti (2007) used data from the US and 13 European countries from January 1986 until December 2005 finds that there is positive response of real stock return to an oil price. Using Norwegian data conducted with VAR methodology, Bjornland (2008) finds that there is positive effect of oil price on stock market. In addition, using US data with different approach, Tsai (2015) and Salisu and Oloko (2015) find that US stock returns respond positively to the changes in oil price and there is bidirectional between oil and stock markets. Using data from China and employing Extreme Value Theory, Chen and Lv (2015) finds that there is positive dependence among Chinese stock market, world oil price, and global economy cycle.

On the other hand, using data from Canada, Germany, US, and UK, Jimenez-Rodriguez (2014) find that there is negative response for real stock returns due to the oil price changes. In addition, Richard and Philip (2015) and Kang, *et al*. (2015) also find that there is negative relationship between oil price changes and stock market return in Nigeria and US economy.

Other than existence of relationship and the direction of the relationship between oil price changes and stock market return, other studies find mixed effects or there is no relationship of those two economic activities. Using data from China, India, and Russia, Fang and You (2015) find that the relationship is mixed in those three countries since those markets are partially integrated with other stock markets and oil price changes. Looking at the industry level in China, Zhu, et al. (2015) find that the result is different for different industries in different time period due to the structural breaks and asymmetric effects of oil price changes. Using different point of view, that is market condition, Jammazi and Nguyen (2015) find that the effect of oil price changes is different in bull and bear market condition which suggests that stock market in bear period is less affected by oil price changes than in bull period.

The similar result is also found by Liao, et al. (2016), which suggests that there is no significant effect in bear period, while only decrease in oil price that increases stock market return. On the other hand, studies by Siddiqui and Seth (2015), Bastianin, et al. (2015), Ghosh and Kanjilal (2016) and Reboredo and Ugolini (2016) suggest that there is no relationship between oil price changes and stock market return using different sample and time period for the observation. The empirical studies suggest that the findings regarding the relationship between oil price changes and stock market returns are different based on the countries, time period, industry, and market condition whether it is in bear or bull period.

Data and Methodology

This study employs data from companies listed in London Stock Exchange and included in FTSE 100, which the data consists of monthly adjusted stock prices, annual UK interbank 1-month as proxy for risk-free rate of return, monthly FTSE 100 price index as the market return. In addition, some data stated in income statement and balance are also generated from Datastream, while data for annual interest income and expense are taken from Bloomberg.

The first portfolio construction employs monthly stock price from January 1997 up to December 2007, which is the starting period of the portfolio investment. As for the Sharī‘ah portfolio optimization, the constraints are constructed from information in income statement and balance sheet, while there is no quantitative constraints for SRI portfolio construction. Both portfolio compositions are evaluated annually using information from balance sheet and income statement, also from the end of the year stock price from 2008 up to 2015 to examine the portfolio performance.

Islamic and SRI Screening Criteria

Before constructing the portfolio, the first step to do is to select companies that fulfil criteria of Sharī‘ah qualitative screening, which consists of prohibiting companies involved in money-lending transactions, production, distribution, and/or profiting from alcohol, pork meat and non-halal meat, tobacco, gambling, weapons, music, entertainment, hotels, and airlines which serve alcohol on their premises. Having this set of Sharī‘ah-compliant companies, their historical risk and return from 1997 until 2007 are simulated annually using Markowitz portfolio theory combining with some constraints related to Sharī‘ah quantitative screening consisting of liquidity ratio, interest ratio, debt ratio, and non-permissible ratio to have the optimum group of stocks which could be invested as a set of portfolio. The objective of annual simulation is to obtain the optimum portfolio due to there might be a

change in financial condition of the companies, which is used as base in the Sharī'ah quantitative screening, and cause the companies to be no longer Sharī'ah-compliant companies.

Along with the construction of Sharī'ah portfolio, it has been mentioned that Socially Responsible Investment (SRI) is also constructed using the similar process with Sharī'ah portfolio with difference in the screening criteria since SRI has its own criteria of qualitative screening and it does not have quantitative criteria. The investment criteria for SRI is divided into positive and negative, which the positive screening is that companies with strong labour relations and workplace conditions, concern about sustainability, employment diversity, renewable energy, biotechnology, community involvement, involved in recycling, waste reduction, and environmental clean-up. As for the negative screening, investors must not invest in companies involving in tobacco, alcohol, gambling, defence/weapons, marketing scandals, human rights violation, animal testing, irresponsible foreign operations, antitrust violations, consumer fraud, development of genetic engineering for agricultural applications, interest-based financial institutions, and pork producers. The stocks composing SRI portfolio might be different from Sharī'ah portfolio since SRI portfolio does not allow companies that is not responsible to the environment such as oil and gas companies, due to their exploration which might damage the environment, to be included in SRI portfolio resulting in different portfolio performance.

Portfolio Optimization

Mean-variance portfolio optimization was introduced by Markowitz (1952), which explained that investor would choose portfolio with highest mean or expected return and the lowest variance. The objective of this optimization is to have minimum variance with certain value of expected return. Equations 1 to 4 provides the objective and constraints for the portfolio optimization:

$$Min\ Variance = \sum_{i=1}^{n}\sum_{j=1}^{n} X_i X_j \sigma_{ij} \quad (1)$$

Subject to:

$$Expected\ return = \sum_{i=1}^{n} X_i \mu_i = targeted \quad (1)$$

$$\sum_{i=1}^{n} X_i = 1 \quad (3)$$

$$X_i \geq 0, \qquad i = 1, 2, 3, \ldots, n \quad (4)$$

where X_i is weight of asset *i*,μ_i is the return of asset *i*, and σ_{ij} is covariance between asset *i* and asset *j*.

This study extends the constraints regarding Sharīʿah-compliance to be imposed in the portfolio optimization by following the extension developed by Derigs & Marzban (2009). Equation 5 to 9 provides the additional constraints which are imposed in the portfolio optimization:

$$r_i(g) \leq T(g), \qquad r_i = financial\ ratio, \quad T = permissible\ threshold \tag{5}$$

$$X_i = 0 \text{ if } r_i(g) > T(g) \tag{6}$$

$$z_i = \begin{cases} 1\ if\ it\ is\ compliant \\ 0\ otherwise \end{cases} \tag{7}$$

Thus, the additional constraints are:

$$X_i \leq z_i, \qquad i = 1, 2, 3, \dots, n \tag{8}$$

$$r_i(g).z_i \leq T(g), \quad i = 1, 2, 3, \dots, n \tag{9}$$

The additional constraints being imposed in the Sharīʿah portfolio are related with financial ratios that need to be fulfilled by companies to be categorized as Sharīʿah-compliant companies. Equation 10 to 14 provides the formula and the threshold value of the financial ratios:

$$Liquidity\ ratio = \frac{Cash + Account\ receivables}{Total\ assets} = 50\% \tag{10}$$

$$Interest\ ratio\ (1) = \frac{Cash\&\ short-term\ investment}{Total\ assets} = 33\% \tag{11}$$

$$Interest\ ratio\ (2) = \frac{Total\ interest\ expense}{Total\ revenue} = 5\% \tag{12}$$

$$Debt\ ratio = \frac{Total\ debt}{Total\ assets} = 33\% \tag{13}$$

$$Non-permissible\ income\ ratio = \frac{Total\ interest\ income}{Total\ revenue} = 5\% \tag{14}$$

Having the constraints and value of expected return being set, many portfolios can be constructed to develop minimum-variance set line. The upper part of the minimum-variance set is called as efficient frontier which all portfolios lie in this line have higher expected return with the same risk compared to portfolios in bottom part of the minimum-variance set line. In order to obtain the optimal portfolio, indifference curve which provides the information regarding investors' risk appetite is drawn. The tangency point between both curves is the optimal portfolio which the performance will be evaluated.

Portfolio Performance

Obtaining the optimum portfolio for each year from 2008 up to 2015, the performance of portfolio is evaluated annually using risk-adjusted return portfolio

performance measurements such as Sharpe's ratio, Treynor ratio, and Jensen's alpha (Bodie *et al*., 2011). Sharpe's ratio indicates that portfolio with higher Sharpe's ratio has higher excess return by having the same risk, Treynor ratio indicates that portfolio with higher Treynor ratio has higher excess return by having the same systematic risk, and Jensen's alpha indicates that portfolio with positive Jensen's alpha generates abnormal return compared to return calculated using Capital Asset Pricing Model (CAPM) assuming that CAPM holds. The market return is using the return of FTSE 100 price index and the risk-free rate of return is using the UK interbank 1-month. Equation 15 to 19 provides the formula of the ratios:

$$Sharpe's\ ratio = \frac{r_p - r_f}{\sigma_p} \tag{3.16}$$

$$Treynor\ ratio = \frac{r_p - r_f}{\beta_p} \tag{3.17}$$

$$Jensen's\ alpha = \alpha_p = r_p - \left[r_f + \beta_p\left(r_m - r_f\right)\right] \tag{3.18}$$

$$\beta_p = \frac{\sigma_{i,M}}{\sigma_M^2} \tag{3.19}$$

where r_p is the return of portfolio, r_f is risk-free rate of return, $\sigma_p$is standard deviation of portfolio return, $\beta_p$is systematic risk (beta) of portfolio, $\sigma_{i,M}$ is covariance between return of asset *i* and market, and σ_M^2 is variance of market return.

Time-series Analysis

Having obtained both SRI and Sharī'ah portfolios performance for five years, the existence of oil price effect can be examined by doing time series regression analysis for each portfolio. The time series regression utilizes crude oil price as the independent variable together with other macroeconomic variables as control variables and portfolio performance as dependent variable to examine the effect and relationship between oil price and portfolio performance. This study expects that there is significant difference in portfolio performance before and after the oil price decline, also oil price decline has significant effect on both portfolios' performance.

Table 1 provides the variables used in this regression analysis in order to examine the effect of macroeconomic variables on the return of portfolio:

Table -1: Macroeconomic Variables

Variable	Definition	Calculation
rshar	Sharī'ah portfolio return	$rshar = \sum_{i=1}^{n} X_i \mu_i$
rsri	SRI portfolio return	$rsri = \sum_{i=1}^{n} X_i \mu_i$
dInd	Change in Industrial production index	$dInd_t = Ind_t - Ind_{t-1}$
dExch	Change in Exchange rate (£/$)	$dExch_t = Exch_t - Exch_{t-1}$
dUnemp	Change in Unemployment rate	$dUnemp_t = (Unemp_t - Unemp_{t-1})/100$
dTerm	Change in Term structure	$dTerm_t = \frac{(LTGB_t - Tbill_t) - (LTGB_{t-1} - Tbill_{t-1})}{12x100}$
dInflation	Change in Inflation	$dInflation_t = \frac{(CPI_t - CPI_{t-1})}{CPI_{t-1}} - \frac{(CPI_{t-1} - CPI_{t-2})}{CPI_{t-2}}$
dM1	Change in Money supply	$dM1_t = \ln(M1)_t - \ln(M1)_{t-1}$
dOil	Change in Crude oil price	$dOil_t = \ln(Oil)_t - \ln(Oil)_{t-1}$

Results and Discussion

Sharī'ah and SRI Screening Criteria

In this section, this study begins by explaining the sample selection for portfolio construction. From 101 companies included in FTSE 100, there will be only 15 stocks selected to be constructed as the portfolio. The first screening is employing qualitative screening for each Sharī'ah and SRI set of stocks based on FTSE Sharī'ah Global Equity Index Series Ground Rules and FTSE4Good Index Inclusion Criteria, which companies classified as having risk of level 3 for environmental management are excluded. The next screening is related with data availability, which companies who do not have stock price data from January 1997 are excluded resulting that there are 21 and 50 stocks for each Sharī'ah and SRI are selected. The last step is by dividing the stocks for Sharī'ah portfolio into three parts based on their capitalisation and select 5 stocks from each part. As for stocks to construct SRI portfolio, companies which are classified as risk level 1 are selected first followed by companies in risk level 2. Table 2 provides the list of companies included to construct the portfolios:

Table-2: List of Stocks

Sharī'ah Stocks			**SRI Stocks**		
No	Company Name	Code	No	Company Name	Code
1	Weir Group	WEIR	1	Ashtead Group	AHT
2	GKN	GKN	2	Babcock International	BAB
3	Meggitt	MGGT	3	Bunzl	BNZL
4	Bunzl	BNZL	4	Sage Group	SGE
5	Persimmon	PSN	5	G4S	GFS
6	Shire	SHP	6	ITV	ITV
7	Capita	CPI	7	Capita	CPI
8	Tullow Oil	TLW	8	WPP	WPP
9	Antofagasta	ANTO	9	Vodafone Group	VOD
10	Smith & Nephew	SN.	10	IMI	IMI
11	Royal Dutch Shell B	RDSB	11	Travis Perkins	TPK
12	Astrazeneca	AZN	12	Barratt Developments	BDEV
13	BG Group	BG.	13	Weir Group	WEIR
14	Anglo American	AAL	14	GKN	GKN
15	Rio Tinto	RIO	15	Persimmon	PSN

Portfolio Optimization and Composition

The portfolio is constructed by calculating the expected return and covariance matrix based on the historical stock prices, which the first portfolio is constructed using historical data from January 1997 up to December 2007. Having the expected return and covariance matrix of the data, also the constraints being imposed, minimum-variance set can be developed. The next step is to develop indifference curve which depicts the utility function of the investors.

$$U = E(r_p) - 0.5A\sigma_p^2 \quad (12)$$

where U is the utility value, E(rp) is expected return of portfolio, A is risk aversion parameter, and σ_p^2 is variance of portfolio. This study employs risk aversion parameter of 6 for both portfolios, which the value is determined after series of simulations to obtain optimum value of 6.

Having the efficient frontier and indifference curve, the tangency point is obtained which reflects the optimum portfolio. After constructing the first portfolio

at the end of 2007, the portfolio is evaluated annually since the financial ratios of the companies included in the first portfolio might change due to changes in the operational activities of the companies. Having the same procedure to construct the portfolio, Table 3 provides the information regarding portfolio composition from end of 2007 to end of 2015.

Table-3: Annual Portfolio Composition

SHARĪ'AH	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
WEIR	13.14%		1.92%	7.70%	7.20%		4.04%	1.37%
BNZL			5.69%		4.90%	12.23%	12.02%	16.43%
PSN	8.11%	9.58%	2.10%		21.49%	4.88%	5.02%	6.49%
SHP	19.32%		18.40%	16.99%		19.51%	20.71%	21.59%
TLW						13.53%	8.92%	
ANTO				20.10%	13.35%		6.59%	6.60%
SN.			13.69%	9.40%	7.57%	9.48%	7.28%	11.20%
AZN	2.18%	21.19%	4.95%	4.53%	7.27%	12.51%	8.76%	16.73%
BG.	57.26%	68.68%	51.02%	41.27%	38.22%	26.44%	26.65%	19.60%
AAL		0.55%						
RIO			2.23%			1.42%		
SRI	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
AHT	2.92%	2.23%	3.23%	3.85%	4.17%	6.03%	5.82%	4.20%
BAB	23.35%	26.07%	25.39%	19.31%	20.54%	24.12%	22.96%	18.26%
BNZL	11.30%	14.91%	10.70%	6.23%	9.60%	11.82%	14.41%	20.76%
GFS	11.43%	9.69%	12.71%	13.56%	13.29%	10.97%	8.74%	10.86%
CPI	28.98%	36.07%	34.28%	31.21%	28.38%	29.53%	27.19%	22.18%
VOD	14.51%	11.02%	9.69%	10.78%	10.63%	7.92%	12.28%	15.62%
WEIR	1.13%			15.05%	13.39%	8.31%	4.82%	2.17%
PSN	6.36%		3.99%			1.30%	3.79%	5.95%

Table 3 shows the portfolio composition for both Sharī'ah and SRI portfolio for every year, which provides information that Sharī'ah portfolio is more dynamic regarding with companies selected based on mean-variance portfolio optimization. Sharī'ah portfolio begins with only 5 companies included in the portfolio, but the number of companies increases to 7 companies at the end of year 2014. On the other hand, SRI portfolio has relatively stable number of companies between 6, 7, 8 companies for every year. In addition, Figure 1 and 2 depicts more clear portfolio composition and its changes from year to year.

Figure-1: Portfolio Composition – Sharī'ah

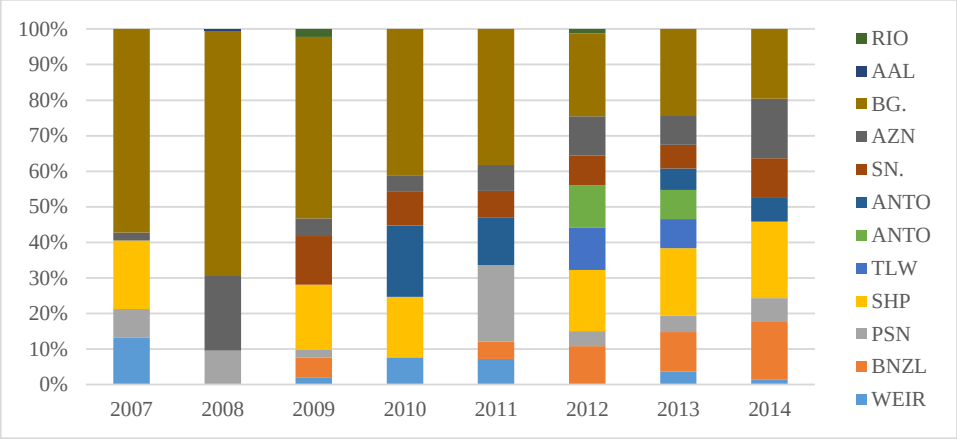

Figure 1 shows that the proportion of BG Group (BG.) decreases from year to year, while the proportion of Astrazeneca (AZN) and Bunzl (BNZL) increases from year to year. Other companies experience different type of pattern, such as Shire (SHP) has relatively stable proportion from year to year.

Figure-2: Portfolio Composition – SRI

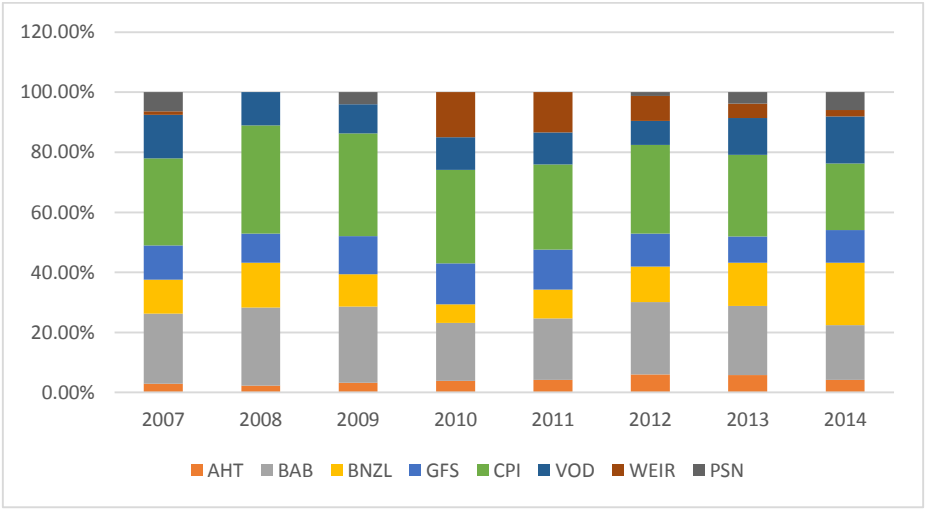

Figure 2 provides information that SRI portfolio is dominated by Babcock International (BAB) and Capita (CPI) from 2007 to 2014. The smallest proportion is Ashtead Group (AHT) accounted for around 2-4% every year.

Portfolio Performance Evaluation

Having the portfolio composition for Sharī'ah and SRI from 2007 to 2014, the portfolio performance could be examined a year after the first investment and the years after that is 2008 until 2015. Figure 3 depicts that the movement of return for Sharī'ah and SRI portfolio relatively align to each other although it has different direction for certain times such as in the late 2009, early 2013, and late 2014. Considering the monthly return of both portfolio, portfolio performance such as portfolio beta, Sharpe's ratio, Treynor ratio, and Jensen's alpha are calculated and provided in Table 4.

Figure-3: Sharī'ah and SRI Portfolio Monthly Returns

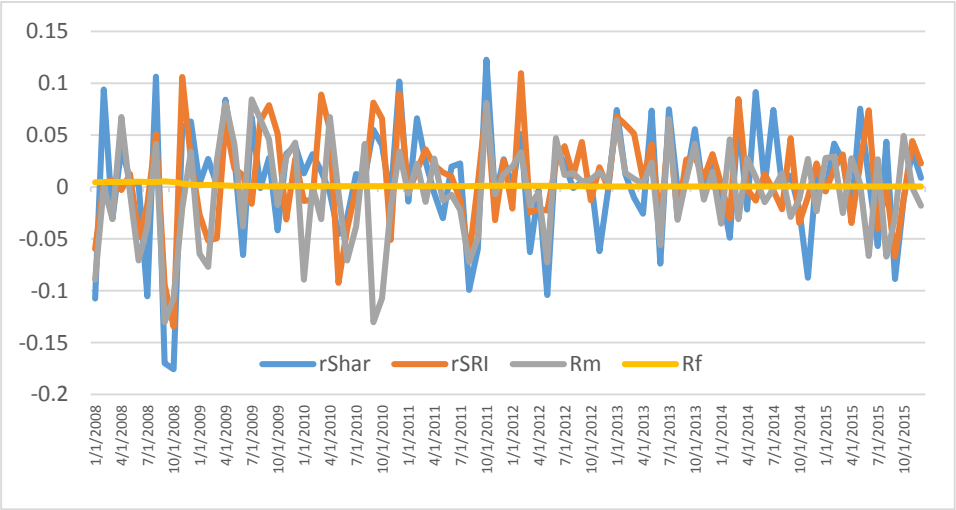

Table 4 provides the portfolio beta, expected return, standard deviation, Sharpe's ratio, Treynor ratio, and Jensen's alpha for both portfolios and from 2008 to 2015. Portfolio beta for Sharī'ah and SRI portfolio in 2014 and 2015 is negative indicating that both portfolio have negative and different direction from market portfolio or FTSE 100 price index. In addition, the expected return of both portfolios have negative value in 2008. In order to have clear view regarding the performance of both portfolio, Figure 4 to 7 depict the movement of both portfolio performances.

Table-4: Portfolio Performance

Sharī'ah	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Beta	1.3666	0.4500	0.6089	1.3117	1.2621	1.1672	-0.8625	-0.1758
Expected return	-0.0185	0.0170	0.0157	0.0053	-0.0093	0.0174	0.0065	0.0044
Standard Deviation	0.0991	0.0417	0.0391	0.0572	0.0450	0.0462	0.0515	0.0457
Sharpe's Ratio	-0.2291	0.3918	0.3890	0.0824	-0.2171	0.3677	0.1190	0.0873
Treynor Ratio	-0.0166	0.0363	0.0250	0.0036	-0.0077	0.0146	-0.0071	-0.0227
Jensen's Alpha	0.0228	0.0085	0.0104	0.0108	-0.0156	0.0036	0.0041	0.0033
SRI	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Beta	0.7712	0.3958	0.9028	0.7616	0.7084	0.8433	-0.8239	-0.3777
Expected return	-0.0125	0.0115	0.0144	0.0073	0.0119	0.0263	0.0047	0.0046
Standard Deviation	0.0647	0.0462	0.0608	0.0362	0.0393	0.0343	0.0339	0.0392
Sharpe's Ratio	-0.2578	0.2346	0.2296	0.1855	0.2899	0.7569	0.1270	0.1071
Treynor Ratio	-0.0216	0.0274	0.0155	0.0088	0.0161	0.0307	-0.0052	-0.0111
Jensen's Alpha	0.0090	0.0039	0.0068	0.0102	0.0081	0.0163	0.0024	0.0027

Figure 4 shows that Sharī'ah portfolio always has higher portfolio compared to SRI portfolio although it has lower beta in 2010 and 2014, which indicates that in those years the Sharī'ah portfolio has lower correlation with market portfolio compared to SRI portfolio.

Regarding with the next portfolio performance, Figure 6 depicts the movement of Treynor ratio for both portfolio, which shows that Sharī'ah portfolio has better performance in 2008, 2009, and 2010. On the other hand, the performance is lower compared to SRI portfolio from 2011 to 2015. This performance indicates that Sharī'ah portfolio has lower excess return by having the same systematic risk with SRI portfolio.

The last portfolio performance is by calculating Jensen's alpha for both portfolio, which is depicted in Figure 7. Figure 7 shows that Sharī'ah portfolio has higher abnormal return compared to SRI portfolio in 2008 up to 2011 and 2014 to 2015, but Sharī'ah portfolio has lower Jensen's alpha in 2012 and 2013. It indicates that Sharī'ah portfolio is able to generate higher abnormal return compared to SRI portfolio.

In overall, Sharī‘ah portfolio performs better in some years and has lower performance in other years. The next section discusses the effect of macroeconomic variables in return of portfolio.

Effect of Macroeconomic Variables

The effect of macroeconomic variables in return of portfolio is examined by developing multiple regression using Arbitrage Pricing Theory (APT) with ordinary least square procedure by imposing different macroeconomic variables to examine the appropriate variables which have significant effect on portfolio return (Brooks, 2002). Table 5 provides the regression result for both portfolio and macroeconomic variables which have effect on each portfolio return.

Figure-4: Sharī‘ah and SRI Portfolio Beta

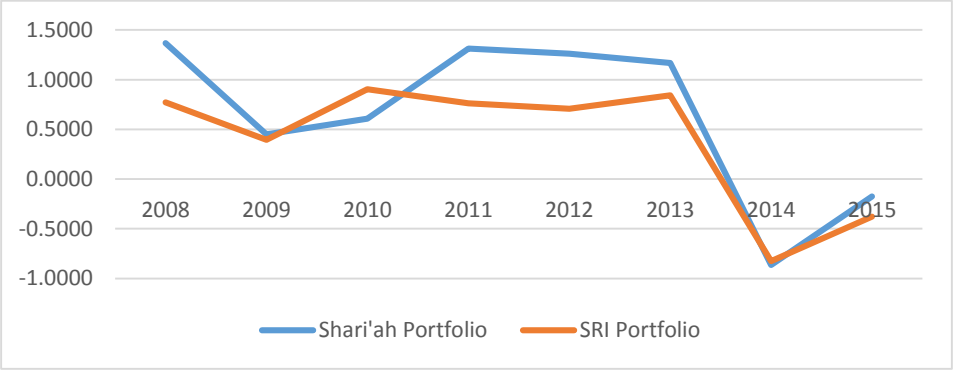

Figure 5 depicts the Sharpe’s ratio movement for Sharī‘ah and SRI portfolio from 2008 to 2015, which shows that Sharī‘ah portfolio has better performance in 2008, 2009, and 2010 and experience lower performance compared to SRI portfolio from 2011 onwards. It indicates that Sharī‘ah portfolio has higher excess return given the same risk with SRI portfolio. Figure 5 also shows that Sharī‘ah portfolio has negative Sharpe’s ratio in 2008 and 2012.

Figure-5: Sharī'ah and SRI Portfolio Sharpe's Ratio

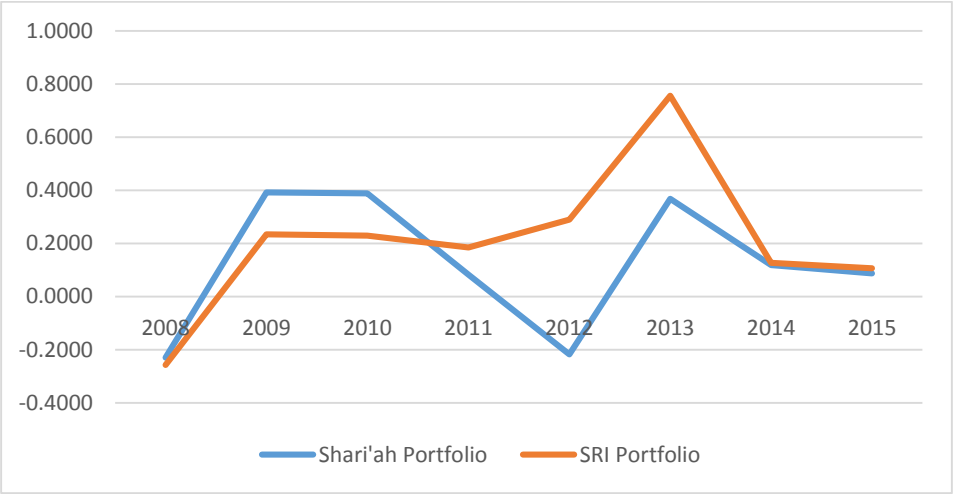

Figure-6: Sharī'ah and SRI Portfolio Treynor Ratio

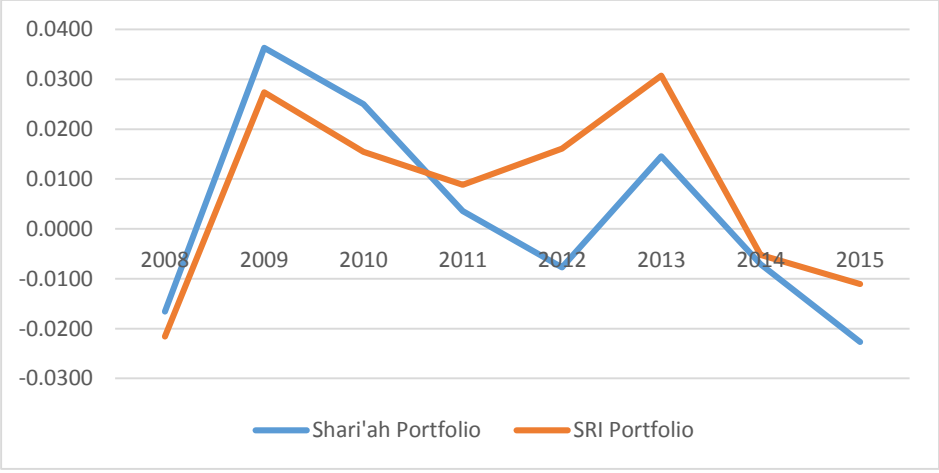

Figure-7: Sharī‘ah and SRI Portfolio Jensen’s Alpha

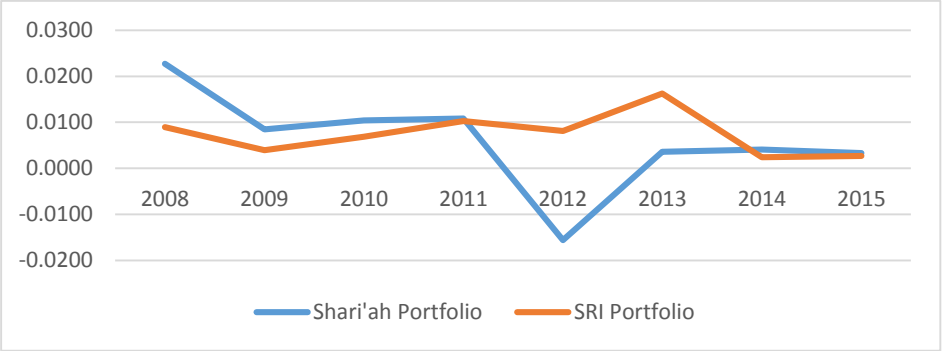

Table-5: Regression Results

Dependent variable	Sharī‘ah portfolio return	SRI portfolio return
Constant	0.0081	0.0090**
dOil	0.1507***	0.0991**
dInd	-0.8694	
dM1	-0.6682*	
R-squared	0.1376	0.0472
Adj R-squared	0.1095	0.0371
Prob(F-stat)	0.0034	0.0334
Durbin-Watson stat	2.4960	2.1623

Note: ***, **, * show significant in 1%, 5%, and 10% respectively

The regression result shows that return of Sharī‘ah portfolio is affected by change in crude oil price at time *t* and change in money supply at time *t*, while return of SRI portfolio is only affected by change in crude oil price at time *t*. The effect of change in oil price for both portfolio is positive indicating that higher oil price leads to higher portfolio return, while lower oil price leads to lower portfolio return. As for the effect of change in money supply, it has negative effect meaning that higher amount of money supply leads to lower Sharī‘ah portfolio return and otherwise.

Discussion

Relating portfolio performance with the decline in oil price in 2014 and 2015, the result shows that Sharī‘ah portfolio has negative portfolio beta in 2014 and 2015

meaning that Sharī'ah portfolio in this study moves in the different direction from market portfolio. It could be a positive signal that holding Sharī'ah portfolio could give unexpected good return which is supported by higher abnormal return generated by Sharī'ah portfolio in 2014 and 2015 shown in Figure 7.

Looking at the Sharpe's ratio and Treynor ratio, Sharī'ah portfolio has lower performance for both ratios compared to SRI portfolio in 2014 and 2015 when there is decline in oil price. It could be because Sharī'ah portfolio contains companies in oil and gas sector, while SRI portfolio does not allow oil and gas companies to be included in its portfolio due to the issue with environmental sustainability. The effect of oil price is further supported by the regression result, which shows that change in crude oil price has higher and more significant effect on Sharī'ah portfolio return indicated by higher coefficient and higher probability of significant compared to the effect on SRI portfolio return.

To compare the performance of Sharī'ah portfolio in different type of crisis, the portfolio performance in 2008 and 2009, shown in Figure 5 to 7, when there is global financial crisis shows that this portfolio performs better than SRI portfolio which could be due to the stocks composed the portfolio where Sharī'ah portfolio does not allow financial services to be included in the portfolio selection.

Conclusion

Relating Islamic portfolio with sustainability, it is perceived that Islamic finance is more prone to financial crisis than conventional finance due to the basic prohibition of *ribā* and *gharar* in the Islamic financial activity also prohibition of derivatives' products (Smolo & Mirakhor, 2010; Moeljadi, 2012). As a result, when financial crisis is caused by financial service companies, Islamic portfolio, that excludes these companies from portfolio selection, might result in better performance compared to other portfolios. On the other hand, different type of crisis might have different effect on the Islamic portfolio performance.

This study shows that the decline in oil price has higher impact on Sharī'ah portfolio compared to SRI portfolio, which is shown by lower value of Sharpe's ratio and Treynor ratio indicating that Sharī'ah portfolio has lower excess return by having the same risk with SRI portfolio. On the other hand, the portfolio beta and Jensen's alpha of Sharī'ah portfolio indicates that Sharī'ah portfolio has higher probability in generating higher abnormal return meaning that the portfolio works in less efficient manner due to the ability to speculate and generate higher abnormal return.

It implies that different type of crisis has different effect on Sharīʿah portfolio return, which decline in oil price has negative effect compared to financial crisis in 2008. It could be due to the stock selection in Sharīʿah portfolio which does not allow financial service companies, while it allows oil and gas companies to be included in Sharīʿah portfolio. On the other hand, SRI portfolio, which considers about environmental and sustainability, has better performance in facing oil price decline compared to global financial crisis which could be due to stock selection to be included in SRI portfolio.

It provides insight to the regulatory body and scholars to reconsider the Sharīʿah screening criteria in order for Sharīʿah portfolio to be able to have better performance and more sustainable in the long run in order to be able to overcome different type of crisis.

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APPENDIX

Appendix-1: Expected Return and Covariance for Sharī'ah Stocks

Covariance	WEIR	GKN	MGGT	BNZL	PSN	SHP	CPI	TLW	ANTO	SN.	RDSB	AZN	BG.	AAL	RIO
WEIR	0.0079	0.0038	0.0040	0.0027	0.0039	0.0018	0.0009	0.0021	0.0025	0.0014	0.0024	0.0002	0.0004	0.0036	0.0028
GKN	0.0038	0.0080	0.0036	0.0028	0.0023	0.0015	0.0011	0.0009	0.0022	0.0014	0.0022	0.0003	0.0003	0.0031	0.0023
MGGT	0.0040	0.0036	0.0087	0.0029	0.0029	0.0005	0.0009	0.0024	0.0026	0.0013	0.0017	0.0015	0.0014	0.0031	0.0022
BNZL	0.0027	0.0028	0.0029	0.0052	0.0021	0.0007	0.0008	0.0011	0.0016	0.0020	0.0012	0.0012	0.0006	0.0029	0.0019
PSN	0.0039	0.0023	0.0029	0.0021	0.0098	0.0003	0.0012	0.0009	0.0028	0.0012	0.0017	0.0001	0.0010	0.0042	0.0027
SHP	0.0018	0.0015	0.0005	0.0007	0.0003	0.0108	0.0016	0.0008	0.0003	0.0010	0.0012	-0.0011	0.0004	0.0020	0.0004
CPI	0.0009	0.0011	0.0009	0.0008	0.0012	0.0016	0.0108	0.0042	0.0007	0.0017	0.0010	0.0003	-0.0002	0.0010	0.0013
TLW	0.0021	0.0009	0.0024	0.0011	0.0009	0.0008	0.0042	0.0152	0.0030	0.0013	0.0007	-0.0007	0.0013	0.0028	0.0025
ANTO	0.0025	0.0022	0.0026	0.0016	0.0028	0.0003	0.0007	0.0030	0.0096	0.0013	0.0022	0.0009	0.0007	0.0053	0.0041
SN.	0.0014	0.0014	0.0013	0.0020	0.0012	0.0010	0.0017	0.0013	0.0013	0.0060	0.0009	0.0009	0.0006	0.0023	0.0014
RDSB	0.0024	0.0022	0.0017	0.0012	0.0017	0.0012	0.0010	0.0007	0.0022	0.0009	0.0044	0.0007	0.0018	0.0032	0.0032
AZN	0.0002	0.0003	0.0015	0.0012	0.0001	-0.0011	0.0003	-0.0007	0.0009	0.0009	0.0007	0.0056	0.0012	0.0004	0.0005
BG.	0.0004	0.0003	0.0014	0.0006	0.0010	0.0004	-0.0002	0.0013	0.0007	0.0006	0.0018	0.0012	0.0049	0.0020	0.0028
AAL	0.0036	0.0031	0.0031	0.0029	0.0042	0.0020	0.0010	0.0028	0.0053	0.0023	0.0032	0.0004	0.0020	0.0115	0.0074
RIO	0.0028	0.0023	0.0022	0.0019	0.0027	0.0004	0.0013	0.0025	0.0041	0.0014	0.0032	0.0005	0.0028	0.0074	0.0091
Expected return	0.0136	0.0059	0.0152	0.0119	0.0137	0.0179	0.0236	0.0222	0.0227	0.0115	0.0064	0.0046	0.0212	0.0154	0.0181

Appendix-2: Expected Return and Covariance for SRI Stocks

Covariance	AHT	BAB	BNZL	SGE	GFS	ITV	CPI	WPP	VOD	IMI	TPK	BDEV	WEIR	GKN	PSN
AHT	0.0399	0.0039	0.0014	0.0036	0.0008	0.0070	-0.0015	0.0049	0.0018	0.0037	0.0006	0.0041	0.0046	0.0026	0.0049
BAB	0.0039	0.0112	0.0017	0.0027	0.0017	0.0043	-0.0009	0.0025	0.0005	0.0024	0.0024	0.0023	0.0032	0.0031	0.0027
BNZL	0.0014	0.0017	0.0052	0.0018	0.0017	0.0016	0.0008	0.0018	0.0004	0.0026	0.0023	0.0032	0.0027	0.0028	0.0021
SGE	0.0036	0.0027	0.0018	0.0166	0.0034	0.0064	0.0042	0.0071	0.0044	0.0014	0.0018	0.0017	0.0009	0.0029	0.0022
GFS	0.0008	0.0017	0.0017	0.0034	0.0080	0.0019	0.0015	0.0040	0.0011	0.0011	0.0014	0.0012	0.0009	0.0012	0.0013
ITV	0.0070	0.0043	0.0016	0.0064	0.0019	0.0121	0.0027	0.0065	0.0025	0.0033	0.0026	0.0034	0.0040	0.0042	0.0020
CPI	-0.0015	-0.0009	0.0008	0.0042	0.0015	0.0027	0.0108	0.0058	0.0019	0.0003	0.0015	0.0016	0.0009	0.0011	0.0012
WPP	0.0049	0.0025	0.0018	0.0071	0.0040	0.0065	0.0058	0.0104	0.0031	0.0023	0.0024	0.0028	0.0028	0.0037	0.0029
VOD	0.0018	0.0005	0.0004	0.0044	0.0011	0.0025	0.0019	0.0031	0.0076	0.0001	-0.0009	-0.0015	0.0006	0.0005	-0.0013
IMI	0.0037	0.0024	0.0026	0.0014	0.0011	0.0033	0.0003	0.0023	0.0001	0.0072	0.0030	0.0037	0.0039	0.0041	0.0024
TPK	0.0006	0.0024	0.0023	0.0018	0.0014	0.0026	0.0015	0.0024	-0.0009	0.0030	0.0075	0.0054	0.0023	0.0031	0.0038
BDEV	0.0041	0.0023	0.0032	0.0017	0.0012	0.0034	0.0016	0.0028	-0.0015	0.0037	0.0054	0.0121	0.0044	0.0030	0.0084
WEIR	0.0046	0.0032	0.0027	0.0009	0.0009	0.0040	0.0009	0.0028	0.0006	0.0039	0.0023	0.0044	0.0079	0.0038	0.0039
GKN	0.0026	0.0031	0.0028	0.0029	0.0012	0.0042	0.0011	0.0037	0.0005	0.0041	0.0031	0.0030	0.0038	0.0080	0.0023
PSN	0.0049	0.0027	0.0021	0.0022	0.0013	0.0020	0.0012	0.0029	-0.0013	0.0024	0.0038	0.0084	0.0039	0.0023	0.0098
Expected return	0.0171	0.0212	0.0119	0.0184	0.0154	0.0011	0.0236	0.0125	0.0135	0.0037	0.0102	0.0097	0.0136	0.0059	0.0137

Appendix-3: Descriptive Statistics for Sharī'ah Stocks

	AAL	ANTO	AZN	BG.	BNZL	GKN	CPI	MGGT	PSN	RDSB	RIO	SHP	SN.	TLW	WEIR
Mean	0.003	0.014	0.007	0.013	0.012	0.009	0.017	0.012	0.015	0.004	0.010	0.018	0.010	0.011	0.012
Median	0.007	0.012	0.000	0.013	0.012	0.001	0.015	0.010	0.006	0.010	0.003	0.018	0.008	0.011	0.014
Maximum	0.472	0.474	0.227	0.394	0.305	0.853	0.588	0.465	0.331	0.215	0.298	0.428	0.333	0.480	0.297
Minimum	-0.37	-0.35	-0.21	-0.22	-0.16	-0.38	-0.32	-0.37	-0.34	-0.22	-0.42	-0.36	-0.17	-0.34	-0.42
Std. Dev.	0.112	0.107	0.069	0.077	0.065	0.110	0.088	0.096	0.105	0.065	0.103	0.096	0.072	0.123	0.097
Skewness	0.06	0.32	0.30	0.39	0.35	1.75	1.29	0.05	0.01	-0.17	-0.13	0.05	0.48	0.22	-0.47
Kurtosis	4.964	4.479	3.827	5.825	4.398	17.497	12.087	5.806	3.824	3.794	4.352	5.163	4.355	3.999	5.186
Jarque-Bera	36.63	24.63	9.96	81.11	23.19	2103.92	843.98	74.56	6.43	7.09	17.91	44.35	26.06	11.35	53.48
Probability	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.04	0.03	0.00	0.00	0.00	0.00	0.00
Sum	0.666	3.287	1.498	3.003	2.690	1.996	3.876	2.629	3.367	0.796	2.305	4.072	2.380	2.444	2.726
Sum Sq. Dev.	2.814	2.609	1.061	1.335	0.966	2.753	1.763	2.084	2.508	0.967	2.401	2.065	1.188	3.413	2.145
Observations	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227

Appendix-4: Correlation between Sharī'ah Stocks

	AAL	ANTO	AZN	BG.	BNZL	GKN	CPI	MGGT	PSN	RDSB	RIO	SHP	SN.	TLW	WEIR
AAL	1.000	0.611	0.067	0.407	0.320	0.416	0.154	0.389	0.263	0.509	0.674	0.251	0.217	0.336	0.466
ANTO	0.611	1.000	0.088	0.291	0.253	0.343	0.113	0.361	0.284	0.442	0.558	0.111	0.183	0.301	0.442
AZN	0.067	0.088	1.000	0.149	0.193	0.111	0.044	0.209	0.004	0.206	0.060	-0.028	0.136	-0.026	0.072
BG.	0.407	0.291	0.149	1.000	0.212	0.163	0.109	0.251	0.158	0.457	0.442	0.148	0.130	0.378	0.263
BNZL	0.320	0.253	0.193	0.212	1.000	0.382	0.190	0.435	0.304	0.332	0.237	0.183	0.372	0.150	0.383
GKN	0.416	0.343	0.111	0.163	0.382	1.000	0.156	0.537	0.389	0.311	0.377	0.194	0.261	0.142	0.495
CPI	0.154	0.113	0.044	0.109	0.190	0.156	1.000	0.149	0.169	0.199	0.119	0.184	0.200	0.314	0.150
MGGT	0.389	0.361	0.209	0.251	0.435	0.537	0.149	1.000	0.331	0.320	0.270	0.167	0.262	0.208	0.487
PSN	0.263	0.284	0.004	0.158	0.304	0.389	0.169	0.331	1.000	0.166	0.275	0.076	0.273	0.095	0.357
RDSB	0.509	0.442	0.206	0.457	0.332	0.311	0.199	0.320	0.166	1.000	0.447	0.280	0.151	0.215	0.424
RIO	0.674	0.558	0.060	0.442	0.237	0.377	0.119	0.270	0.275	0.447	1.000	0.061	0.197	0.253	0.459
SHP	0.251	0.111	-0.028	0.148	0.183	0.194	0.184	0.167	0.076	0.280	0.061	1.000	0.165	0.130	0.211
SN.	0.217	0.183	0.136	0.130	0.372	0.261	0.200	0.262	0.273	0.151	0.197	0.165	1.000	0.072	0.189
TLW	0.336	0.301	-0.026	0.378	0.150	0.142	0.314	0.208	0.095	0.215	0.253	0.130	0.072	1.000	0.310
WEIR	0.466	0.442	0.072	0.263	0.383	0.495	0.150	0.487	0.357	0.424	0.459	0.211	0.189	0.310	1.000

Appendix-5: Descriptive Statistics for SRI Stocks

	AHT	BAB	BDEV	BNZL	CPI	GFS	GKN	IMI	ITV	PSN	SGE	TPK	VOD	WEIR	WPP
Mean	0.026	0.016	0.017	0.012	0.017	0.010	0.009	0.008	0.009	0.015	0.016	0.013	0.009	0.012	0.012
Median	0.032	0.015	0.003	0.012	0.015	0.006	0.001	0.006	0.005	0.006	0.007	0.004	0.012	0.014	0.010
Maximum	1.096	0.312	0.724	0.305	0.588	0.293	0.853	0.360	0.641	0.331	0.744	0.689	0.282	0.297	0.394
Minimum	-0.75	-0.29	-0.68	-0.16	-0.32	-0.28	-0.38	-0.29	-0.40	-0.34	-0.23	-0.46	-0.24	-0.42	-0.28
Std. Dev.	0.180	0.091	0.150	0.065	0.088	0.080	0.110	0.091	0.115	0.105	0.107	0.112	0.075	0.097	0.091
Skewness	0.95	0.19	0.52	0.35	1.29	-0.28	1.75	0.10	0.61	0.01	1.67	1.16	-0.11	-0.47	0.25
Kurtosis	10.665	3.880	8.479	4.398	12.087	5.112	17.497	4.940	7.368	3.824	12.638	10.958	3.936	5.186	4.881
Jarque-Bera	589.52	8.71	294.35	23.19	843.98	45.18	2103.92	35.94	194.47	6.43	984.00	649.83	8.76	53.48	35.89
Probability	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.01	0.00	0.00
Sum	5.871	3.743	3.834	2.690	3.876	2.168	1.996	1.814	1.955	3.367	3.531	3.002	2.045	2.726	2.768
Sum Sq. Dev.	7.287	1.887	5.104	0.966	1.763	1.445	2.753	1.873	2.971	2.508	2.573	2.840	1.279	2.145	1.869
Observations	227	227	227	227	227	227	227	227	227	227	227	227	227	227	227

Appendix-6: Correlation between SRI Stocks

	AHT	BAB	BDEV	BNZL	CPI	GFS	GKN	IMI	ITV	PSN	SGE	TPK	VOD	WEIR	WPP
AHT	1.0000	0.2444	0.2957	0.1631	0.0235	0.0766	0.3185	0.3665	0.3775	0.2937	0.2261	0.2813	0.1469	0.3347	0.3323
BAB	0.2444	1.0000	0.1583	0.2681	0.0218	0.2081	0.2828	0.2976	0.3361	0.2064	0.2432	0.2613	0.1364	0.3439	0.2715
BDEV	0.2957	0.1583	1.0000	0.3101	0.1676	0.1496	0.4986	0.4517	0.4076	0.7209	0.1764	0.6842	-0.0020	0.3275	0.3686
BNZL	0.1631	0.2681	0.3101	1.0000	0.1901	0.3020	0.3823	0.4017	0.2516	0.3037	0.2455	0.3487	0.1761	0.3827	0.3480
CPI	0.0235	0.0218	0.1676	0.1901	1.0000	0.1684	0.1558	0.1159	0.2443	0.1693	0.3297	0.2078	0.2252	0.1498	0.5143
GFS	0.0766	0.2081	0.1496	0.3020	0.1684	1.0000	0.1283	0.1588	0.1966	0.1264	0.2737	0.1757	0.1930	0.1324	0.4076
GKN	0.3185	0.2828	0.4986	0.3823	0.1558	0.1283	1.0000	0.6235	0.5667	0.3894	0.2945	0.6385	0.1571	0.4951	0.5152
IMI	0.3665	0.2976	0.4517	0.4017	0.1159	0.1588	0.6235	1.0000	0.4606	0.3515	0.2219	0.5327	0.1113	0.5898	0.4244
ITV	0.3775	0.3361	0.4076	0.2516	0.2443	0.1966	0.5667	0.4606	1.0000	0.2728	0.4100	0.4652	0.2822	0.3667	0.5957
PSN	0.2937	0.2064	0.7209	0.3037	0.1693	0.1264	0.3894	0.3515	0.2728	1.0000	0.2285	0.5665	-0.0379	0.3566	0.3603
SGE	0.2261	0.2432	0.1764	0.2455	0.3297	0.2737	0.2945	0.2219	0.4100	0.2285	1.0000	0.2445	0.4113	0.1841	0.5429
TPK	0.2813	0.2613	0.6842	0.3487	0.2078	0.1757	0.6385	0.5327	0.4652	0.5665	0.2445	1.0000	0.0829	0.4219	0.4561
VOD	0.1469	0.1364	-0.0020	0.1761	0.2252	0.1930	0.1571	0.1113	0.2822	-0.0379	0.4113	0.0829	1.0000	0.1242	0.3801
WEIR	0.3347	0.3439	0.3275	0.3827	0.1498	0.1324	0.4951	0.5898	0.3667	0.3566	0.1841	0.4219	0.1242	1.0000	0.3885
WPP	0.3323	0.2715	0.3686	0.3480	0.5143	0.4076	0.5152	0.4244	0.5957	0.3603	0.5429	0.4561	0.3801	0.3885	1.0000

Appendix-7: Descriptive Statistics for Macroeconomic Variables

Variables	*DEXCH*	*DIND*	*DM1*	*DOIL*	*DUNEMP*	*INFLATION*	*LTGB*	*RSHAR*	*RSRI*
Mean	-0.0027	-0.0009	0.0050	-0.0048	0.0000	-0.0003	0.0024	0.0048	0.0085
Median	-0.0030	0.0000	0.0054	0.0043	0.0000	0.0021	0.0022	0.0078	0.0080
Maximum	0.0881	0.0284	0.1046	0.2632	0.0441	0.0100	0.0043	0.1228	0.1099
Minimum	-0.0933	-0.0325	-0.0264	-0.3463	-0.0417	-0.2237	0.0011	-0.1757	-0.1346
Std. Dev.	0.0278	0.0102	0.0141	0.0991	0.0186	0.0233	0.0008	0.0554	0.0452
Skewness	-0.3199	-0.4489	3.5886	-0.3482	0.2746	-9.2916	0.4004	-0.7169	-0.1809
Kurtosis	4.4509	4.3077	27.6099	4.2867	2.7676	89.5330	2.1073	4.0834	3.3080
Jarque-Bera	10.0587	10.0640	2628.6440	8.5628	1.4226	31333.1800	5.7526	12.9180	0.9031
Probability	0.0065	0.0065	0.0000	0.0138	0.4910	0.0000	0.0563	0.0016	0.6366
Sum	-0.2578	-0.0851	0.4757	-0.4608	-0.0031	-0.0266	0.2278	0.4625	0.8189
Sum Sq. Dev.	0.0733	0.0099	0.0188	0.9328	0.0328	0.0517	0.0001	0.2918	0.1941
Observations	96	96	96	96	96	96	96	96	96

Appendix-8: Correlation between Macroeconomic Variables

	DEXCH	*DIND*	*DM1*	*DOIL*	*DUNEMP*	*INFLATION*	*LTGB*	*RSHAR*	*RSRI*
DEXCH	1.0000	0.0596	-0.1517	0.6272	-0.0899	0.0329	-0.0610	0.1337	0.1601
DIND	0.0596	1.0000	-0.0085	0.1045	-0.4004	0.0615	-0.0984	-0.1309	0.0183
DM1	-0.1517	-0.0085	1.0000	-0.2188	-0.1107	-0.0960	-0.0078	-0.2271	-0.1281
DOIL	0.6272	0.1045	-0.2188	1.0000	-0.0036	0.0848	0.1433	0.2898	0.2173
DUNEMP	-0.0899	-0.4004	-0.1107	-0.0036	1.0000	0.2355	0.4514	0.0210	-0.0676
INFLATION	0.0329	0.0615	-0.0960	0.0848	0.2355	1.0000	0.0505	0.0334	0.0311
LTGB	-0.0610	-0.0984	-0.0078	0.1433	0.4514	0.0505	1.0000	-0.0349	-0.1251
RSHAR	0.1337	-0.1309	-0.2271	0.2898	0.0210	0.0334	-0.0349	1.0000	0.6393
RSRI	0.1601	0.0183	-0.1281	0.2173	-0.0676	0.0311	-0.1251	0.6393	1.0000

RESOLUTIONS OF OIC *FIQH* ACADEMY

Islamic Economic Studies
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Resolution of OIC Fiqh Academy
(related to Islamic Economics and Finance)

بسم الله الرحمن الرحيم

Resolution No. 212 (8/22)

Provision of Guarantee by Bank against Mal Investment Decisions and Compensation of Clients for Consequent Losses

The Council of the International Islamic Fiqh Academy (IIFA), of the Organization of the Islamic Cooperation (OIC), in its 22nd Session, held in Kuwait (State of Kuwait), during the period *2 – 5 Jumada-II, 1436H* (March 22 – 25, 2015).

Having reviewed the research papers submitted to IIFA on "*Provision of Guarantee by Bank against Mal Investment Decisions and Compensation of Clients for Consequent Losses***"**, and listened to discussions on the subject,

Resolved the following:

Firstly: Provision of guarantee by bank, in this context, means that the bank bears total or partial loss of depositors and owners of investment accounts' funds.

Secondly: The capacity in which the bank holds deposits funds has two forms:

(1) **Holding under Guarantee**: which means holding the funds as an owner, or to its own benefit as a holder, such as: holding by purchaser, or recipient of purchase price; or holding by mortgagee, extorter, owner and borrower. Bank accounts that fall under guarantee holding are demand deposits (current accounts). In this regard the Council reiterates what has been stated about deposits in its Resolution No. 68 (9/3), Clause (Firstly) that "*Demand (current) deposits with Islamic banks are loans in the Fiqh perspective, because the receiving bank holds them under guarantee, and is committed, according to* Sharī'ah*, to repay them on demand*".

(2) **Holding under Trusteeship:** which indicates holding the funds on behalf of rather than in the capacity of an owner. Holding of the funds in this case is permitted by the owner, and it includes holding of the: deposit keeper, lessee, partner, *muḍārabah* worker, *waqf* supervisor, guardian and the like. Islamic Bank accounts that fall under this type of holding are investments deposits. In this connection the Council reconfirms what has been stated in Clause [Secondly/ (b)] of its Resolution referred to in point (1) above "Deposits delivered to banks that are committed to rules of Islamic Sharī'ah, based on an investment contract and for a share in profit, are *muḍārabah* capital and subject to *muḍārabah* (*qiradh*) rulings in Islamic *Fiqh*, which include – among others – impermissibility of guaranteeing *muḍārabah* capital by the *muḍārabah* worker/*muḍārib* (the bank in this case).

Thirdly: The bank when assuming the role of the *muḍārib* should not guarantee total or partial loss of investment accounts, except in case of transgression negligence or breach of contract, as indicated by general rules of Sharī'ah. Among cases of transgression are the following:

(1) Noncompliance of the bank with Sharī'ah controls stipulated in contracts and agreements of opening the different types of investment accounts.
(2) Violation of banking and commercial regulations, laws, or practices issued by supervisory bodies responsible of regulating banking business, unless such regulations, laws and practices contradict with rules and principles of Islamic Sharī'ah.
(3) Slackness in preparation of adequate feasibility studies for investment operations.
(4) Selection of the wrong operational modes and mechanisms.
(5) Violation of internal directives and operational controls.
(6) Failure to obtain sufficient collaterals, as per normal practice in the industry.

Fourthly: It is impermissible to stipulate provision of guarantee by the bank as *a muḍārib*, because such stipulation contradict with the essence of the *muḍārabah* contract. Therefore the Council reconfirms what has been stated in its Resolution No. 86 and its Resolution No. 30 (5/4) on *Muḍārabah ṣukūk*, which indicates that "*Muqāraḍah ṣukūk or prospectus should not include any text indicating that muḍārabah worker is to guarantee the capital or any lump sum or percentage return on capital. When such stipulation is implicitly or explicitly introduced the guarantee becomes invalid and the muḍārib becomes entitled to profit of similar muḍārabah transactions*".

Fifthly: When the bank claims loss, the burden of proofing shifts - contrary to the case in principle - to the bank, provided that there is evidence contradicting with the bank's claim of not committing transgression. Among the factors that support resorting to this procedure are the following:

(1) If traditionally people do not accept such claim of the *muḍārib* (the bank) unless it provides an evidence validating the claim of not committing transgression or negligence.
(2) Certitude of accusation against trustee: which means preponderance of suspicion about the trustee's (the *muḍārib*) honesty in denial of transgression and negligence, because the *muḍārib* is normally expected to preserve invested capital amounts against loss and achieve profits.
(3) Certitude of interest in shifting of burden of evidence to *muḍārib* (the bank) in order to shield investors' funds against loss, in case of *muḍārib's* claim or loss of investor's funds.

Sixthly: It is permissible for the bank to donate part of its profit share without stipulating that in the contract.

Seventhly: Several bodies are normally entrusted with determination of responsibility of the bank towards abuse of the funds of investment accounts holders including the following:

(1) Supervisory bodies like central banks, whether a full-fledged Islamic regulatory body or a traditional body with committees specialized in Islamic Banking.
(2) Centers of reconciliation, arbitration and conflict resolution such as the Islamic International Center for Reconciliation and Arbitration in Dubai.
(3) Auditors as per the generally accepted practices of the profession. According to Accounting Standard No. (5), issued by the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) – Bahrain this responsibility is considered to constitute part of the responsibilities of the external auditor. This task can also be assigned to the Sharī'ah Supervisory Board.

Eighthly: Compensation for losses in investment accounts should be confined to actual harm - whether loss is total or partial – without guaranteeing probable profit that has not been realized (opportunity cost), because it is nothing more than an unrealized expectation.

And recommends the following:

(1) Islamic banks should be keen while investing depositors' funds to pursue methods and mechanisms that would mitigate investment risks and safeguard these funds against loss. Suitable arrangements in this regard may include establishment of special funds and allocation of necessary reserves.

(2) Islamic countries are called upon to enact laws for establishment of institutions for deposits insurance, or introduce amendments in the existing laws and regulations to cater for cooperative insurance funds to be established by Islamic financial institutions, and managed in view of the rulings stated in IIFA's Resolution No. 200 (6/20) on "*Bases of Cooperative Insurance:* Sharī'ah *Rulings and Controls*".

EVENTS AND REPORTS

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The 11th International Conference on Islamic Economics and Finance, Kuala Lumpur, Malaysia, 11-13 October 2016

The 11th International Conference on Islamic Economics and Finance (11th IClEF) was held from 11 to 13 October 2016 in Kuala Lumpur, Malaysia. This year the conference theme was "Rethinking Islamic Economics and Finance: Paving the Way Forward for Inclusive and Sustainable Development." Some key topics covered under this theme included:

- The Sharī'ah and its role in economics and finance;
- Institutional aspects of Islamic economics;
- Islamic economics in theory and practice;
- Socio-Economic justice and human development;
- The Socio-Economic role of *zakāh*, *waqf* and Islamic microfinance;
- Economic reforms;
- Business ethics, marketing, and corporate social responsibility from an Islamic perspective;
- Socially responsible investments (SRIs);
- Islamic corporate finance and capital markets;
- Risk management and stability of the Islamic financial services industry;
- Regulatory and legislative landscape for Islamic financial markets and institutions;
- Central banking and monetary reforms; and
- Financial reforms.

Besides the opening and closing addresses, there were four keynote speeches, three plenary sessions and several parallel sessions. Approximately 103 presenters from more than 35 countries presented their papers. A symposium on Islamic economics and finance education also took place on the last day to discuss the issues of curriculum and quality of teaching.

The conference was a joint effort of the Kulliyyah of Economics and Management Sciences (KENMS), International Islamic University Malaysia (IIUM); the Islamic Development Bank (IDB) Group through its Islamic Research

and Training Institute (IRTI); and the International Association for Islamic Economics (IAIE), with the support of Ministry of Finance Malaysia as Strategic Partner.

The 11th conference communique (Kuala Lumpur Declaration) issued at the end of the conference had following key messages:

- The need for development of a consistent theory of Islamic economics and finance to strengthen the practices of Islamic finance.
- The Conference agrees that another area of emphasis should be policy-oriented research in the fields of Islamic economics and finance.
- The Conference participants noted the need for further consolidation, coordination and streamlining efforts in teaching and research in Islamic economics and finance.
- The Conference also agreed that there must be a balance between growth strategies and equity considerations.
- A genuine risk sharing system that is rooted in Islamic economic philosophy must be developed to replace the existing risk transfer/risk shifting system that has caused much concern and destruction in many communities.

The conference noted that the 12th ICIEF will be held in March/April 2018 in Makkah al-Mukarramah hosted by the Umm al-Qura University and co-organized with IRTI and IAIE.

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Global Report on Islamic Finance 2016 (GRIF)

Background

The Islamic Development Bank Group (IDBG) partnered with the World Bank Group to publish the GRIF 2016. The theme of this years' is "Islamic Finance: A Catalyst for Shared Prosperity". It was launched at a side event during the Annual Meetings of the World Bank Group and the International Monetary Fund in Washington on 06 October, 2016. It provides a comprehensive overview of trends in the various sectors of Islamic finance; identifies the major challenges hindering the industry's growth; and recommends policy solutions to leverage Islamic finance to help eliminate extreme poverty and build shared prosperity. The report is available at http://irti.org/English/Pages/Publications.aspx.

Overview of the report

The report develops a theoretical framework of Islamic economics and finance towards promoting development, growth, and shared prosperity based on four fundamental pillars: (i) an institutional framework and public policy oriented to the objectives of sustainable development and shared prosperity in line with the broader objectives of Islam; (ii) prudent governance and accountable leadership; (iii) promotion of the economy and entrepreneurship based on risk sharing; and (iv) financial and social inclusion for all, promoting development, growth, and shared prosperity.

Islamic banking sector is the largest component of the Islamic finance sector. For Islamic banking sector to contribute to the shared prosperity, there is a need of creating an enabling regulatory and supervisory environment that address the systemic risk across jurisdictions; introducing innovative risk-sharing products and services, rather than replicating conventional risk-transfer products; harmonizing Sharīʿah governance through efforts to unify cross-country Sharīʿah rulings about Islamic finance, which would help accelerate the growth of the industry; enhancing the scale and access to Islamic finance to include low-income earners; improving liquidity and ensuring stability; bolstering human capital and literacy in Islamic finance.

The development of capital markets with wider access to the public under a strong legal and governance framework is desirable to promote shared prosperity. *Ṣukūk* offer great potential for promoting shared prosperity. The use of *ṣukūk* by governments and governmental agencies' to mobilize financing is essential to develop a long-term yield curve and to develop a corporate *ṣukūk* market, as well as to promote transparency and efficiency of the asset pricing. Tax neutrality for *ṣukūk* issuers and investors could further boost the market.

The risk-sharing and asset-backed nature of Islamic finance products are more suitable for providing financial services through Nonbank financial institutions (NBFIs) such as *takāful*, asset management companies, housing finance, and leasing companies. This sector is currently under-developed and under-utilized in Islamic finance, and therefore should be given priority by policy makers.

The role of Islamic social finance has great significance in countries with high levels of exclusion and deprivation. This report estimates that for most countries in South and Southeast Asia and Sub-Saharan Africa, the resource needs to alleviate deprivation could be met adequately if the potential of institutions of *zakāt* and *waqf* were realized, even if only in part.

The report also provides an overview of recent policy initiative taken by several

OIC member countries to highlight recent developments in, and the enactment and implementation of, policies to promote shared prosperity. The main highlights include, Islamic financial sector development and financial inclusion are integrated within the national development or financial development plans. Strengthening Sharī'ah governance, improving the alignment of the national-level banking regulations with the principles issued by international Islamic financial infrastructure institutions, and establishing diversified financial institutions has become an explicit part of their agenda. Similarly, financial inclusion, its promotion by integrating *zakāt* and *awqāf*, and fostering the financing of a wider set of economic sectors, are gaining policy importance.

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Islamic Finance Country Reports (IFCRs)

Islamic Finance Country Reports (IFCRs) is one of the outputs of the long-term strategic partnership of Islamic Research and Training Institute (IRTI) Thomson Reuters (TR) to enhance the Islamic Finance service industry. The IFCRs focus on countries where Islamic Finance has a great potential of development to attract both domestic and foreign investors. These Reports not only profile the Islamic Finance Development status of the member countries, but also provide market analysis and practical insights for local, regional, and international investors to offer or invest in Islamic financial services in the target countries. These insights aims to better inform investors of the Islamic finance potential for these emerging or developed markets vis-à-vis the retail and corporate markets. The reports also provide an assessment of the developing regulatory environment. As to date, IRTI-TR have lunched IFCRs for Tunisia, Morocco, Oman, Turkey, Malaysia, Kazakhstan, Indonesia, Sudan and Pakistan.

Of these reports, The Indonesia, Sudan and Pakistan reports are launched in 2016. The most recent Islamic Finance Country Report in 2016 is for Pakistan, this is the ninth in a series of unbiased, in-depth and market-oriented country reports that have become an industry reference and benchmark in their own right. Leading industry players and stakeholders have very well received these reports. We are expecting three more reports to be launched in 2017. All reports are available at: http://irti.org/English/Pages/Publications.aspx.

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ABSTRACTS OF ARTICLES PUBLISHED IN *DIRASAT IQTISADIAH ISLAMIAH* IN VOL. 22 No. 2

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الأساس الوقفي للتأمين الإسلامي

د. هناء محمد هلال الحنيطي*

ملخص البحث

(Published in Dirasat Iqtisadiah Islamiah Vol. 22 No.2)

هدف البحث هو الوقوف على مدى إمكانية تطبيق الوقف في شركات التأمين الإسلامي. وتتضح أهمية البحث من خلال التركيز على الأساس الوقفي للتأمين الإسلامي وإيجاد رؤية شرعية قادرة على الإسهام في توظيف التأمين الوقفي في مجال التكافل العام ووضع تصور أولي لصعود مؤسسات إسلامية جديدة منافسة للمؤسسات التقليدية في أنشطة التأمين والرعاية الاجتماعية. ويقوم البحث على المنهج الوصفي التحليلي الذي يستمد أصوله من الموروث التاريخي الإسلامي، إلى جانب تحليل الرؤية الشرعية في إطار الموازنة بين الأدلة المختلفة. وقد عمد البحث إلى بيان الأساس الوقفي للتأمين الإسلامي، وبيان كيفية إنشاء صندوق التأمين الإسلامي من خلال الوقف، ثم توضيح أغراض التجربة المطبقة في الشركات ذات العلاقة، بحيث عُززت باستعراض نماذج من الصور التطبيقية والواقعية للتأمين الإسلامي من خلال الوقف، وتوصل البحث إلى أن التأمين الإسلامي من القرب المشروعة التي يصح إقامة الوقف على أساسها؛ لأن التكافل من المعاني والقرب الشرعية، ولا يضر أن يستوي في هذا الفقير والغني في أصل استحقاق التعويض، غير أن بعض الفقهاء ذهب إلى أنه يُقدَّم الفقير على الغني حتى عند التساوي في سبب الاستحقاق. وأوصى البحث شركات التأمين الإسلامي الاستفادة من تجارب شركات التأمين الإسلامي القائمة على أساس الوقف.

وقد انتظم البحث في مقدمة، وأربعة مباحث، وخاتمة تضمنت أبرز النتائج والتوصيات.

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The Endowment Basis of Islamic Insurance

HANA MOHAMMED HILAL ALHANAITI•

Abstract

The Aim of this paper is to find out the possibility of applying waqf (endowment) as a basis for Islamic insurance. The importance of the research stems from focusing on the endowment basis of Islamic insurance and on a Sharī'ah *compatible vision that is able to contribute towards using endowment based insurance in the field of general takāful, and putting forward an initial perception on the rise of new Islamic institutions that compete with traditional conventional institutions in the insurance and social welfare activities. The research is based on the descriptive analytical methodology, which draws its origins from the Islamic historical heritage, as well as the analysis of its* Sharī'ah *legitimacy in the context of balancing between different conflicting evidences.*

The research focuses on showing the waqf (endowment) basis on Islamic Insurance and on demonstrating how to create an Islamic insurance fund through Awqaf. The paper, then clarifies the purposes of the experiments through the review of the relevant experiences of relevant takāful insurance companies.

The research found that the Islamic insurance is one of the good legitimate deeds that one does to please God and on which insurance could be established because it is one form of solidarity that Islam encourages. There is no harm to compensate the poor and the rich equally, although some scholars argued that compensating the poor should take precedence over compensating the rich, even when having equal reasons at compensation time. The paper recommends that the Islamic insurance companies should benefit from the experiences of Islamic insurance companies that are based on Waqf.

The research is divided into an introduction, four sections and a conclusion, which included the main findings and recommendations.

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دور صكوك الإجارة في تمويل مؤسسات التعليم العالي: فلسطين نموذجا

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الملخص

هدفت الدراسة إلى التعرف على صكوك الإجارة من حيث مفهومها وخصائصها وأنواعها، ومن ثم التعرف على أسباب العجز المالي لدى مؤسسات التعليم العالي الفلسطيني. بهدف إبراز أهمية صكوك الإجارة (بصفتها أداة معاصرة) في تمويل مؤسسات التعليم العالي الفلسطيني. وقد تم تطوير استبانة لجمع البيانات الاولية اللازمة لاختبار الفروض، حيث تم توزيع 300 استبيان على ذوي العلاقة بالتخصصات الاقتصادية والمالية من خريجي الجامعات والعاملين بالجامعات والقطاعين العام والخاص. وقد توصلت الدراسة إلى عدة نتائج، أهمها أن صناعة صكوك الإجارة تعتبر حديثة العهد، بالإضافة إلى صلاحية استخدام صكوك الإجارة بصفتها أداة تمويلية معاصرة في تعبئة الموارد المالية اللازمة لتمويل مؤسسات التعليم العالي الفلسطيني، وذلك لتنوع هياكلها وملاءمة هذه الهياكل لطبيعة عمل مؤسسات التعليم العالي. كما بينت الدراسة بأن مؤسسات التعليم العالي تواجه صعوبات وتحديات تعيق نموها وتطورها، تعزى إلى قلة الموارد المالية وعدم وجود خطط مستقبلية واضحة لإنهاء هذا العجز المالي لدى مؤسسات التعليم العالي، مما يستلزم استخدام صكوك الإجارة لتمويل هذا العجز المالي. وقد أوصى البحث بضرورة العمل على نشر ثقافة صكوك الإجارة، وذلك من خلال عقد المؤتمرات والندوات وورش العمل وجميع الفعاليات التي تساهم في ذلك، بالإضافة إلى ضرورة العمل على سن التشريعات القانونية واللوائح الداخلية التي تعمل على تنظيم إصدار وتداول وإطفاء صكوك الإجارة بكافة أنواعها، بالإضافة إلى ضرورة العمل على إلغاء كافة القيود التي تعيق صناعة الصكوك الإسلامية لاستقطاب استثمارات خارجية تساهم في بناء المؤسسات التعليمية والمؤسسات المجتمعية الأخرى، إضافة إلى حث مؤسسات التعليم العالي على تمويل احتياجاتها المالية من خلال إصدار صكوك إجارة لتشرك المجتمع في بناء مؤسساته التعليمية.

الكلمات المفتاحية: صكوك الإجارة، الاقتصاد الإسلامي، تمويل التعليم، فلسطين.

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The Role of *Ijārah Ṣukūk* in Financing Higher Education Institutions: Case Study of Palestine

MAHMOUD MOHAMMED SABEH*

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Abstract

This study aims at introducing the concepts, the characteristics and the types of Ijārah ṣukūk. It also aims at explaining the causes of the financial deficit of the Palestinian institutions of higher education. To achieve these aims, we used quantitative method and developed a questionnaire to collect the necessary preliminary data to test the hypotheses. We distributed 300 questionnaires to university graduates that are related to the economic and financial disciplines, and to related employees in the public and private sectors universities. The main results are as follows:

Ijārah ṣukūk industry is recent, suitable and valid investment means to provide financial resources to finance and fund the deficit of the Palestinian institutions of higher education. This is because the ṣukūk structures are varied and suitable in a work environment of higher education institutions.

The Study shows that the institutions of higher education are facing difficulties and challenges that hinder their growth and development; due to the lack of financial resources and to the lack of a clear future plans to overcome this deficit, which requires the use of Ijārah ṣukūk to fund it.

In addition, the need to work on spreading the culture of Ijārah has been recommended through conferences, seminars, workshops and all activities that

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contribute to this target. On the other hand, we recommend enacting legislation and internal regulations that work to regulate the issuance, trading and amortization of Ijārah of all kinds.

In addition, the study also recommends the abolition of all restrictions that impede the Islamic ṣukūk industry in order to attract foreign investments, contribute to the educational institutions and other community institutions, as well as to urge higher education institutions to fund their financial needs through the issuance of ṣukūk involving the community in the construction of educational institutions.

Keywords: *Ijārah Ṣukūk*, Islamic Economics, Educational Finance, Palestine
JEL Classification: I22, P45

الفرز القطاعي للأسهم المتوافقة مع الشريعة: إشكالات وحلول*

د. عبد الحليم عمار غربي°

ملخص

لا شكّ في أن ظاهرة الاستثمار والمتاجرة في أسهم الشركات المختلطة هي واحدة من أهم القضايا المعاصرة التي أثارت اهتمام شريحة واسعة من الأفراد الذين طرحوا حولها تساؤلات فقهية ومالية عديدة.

ولقد اجتهد الباحثون في مجال الفقه والتمويل الإسلامي في وضع حلول لهذه التساؤلات؛ من خلال الفرز القطاعي للأسهم؛ حتى يكون الاستثمار متوافقاً مع الشريعة.

ومع ذلك لا تزال هناك العديد من الإشكالات الشرعية والمالية المتعلّقة بالفرز القطاعي؛ الأمر الذي يجعل من الممارسات المتّبعة في هذا المجال تخضع للتحسين المستمر.

وتأتي هذه الدراسة لتقديم جانب مهم من جوانب التجديد في القطاع المالي، وهو سوق الأسهم المتوافقة مع الشريعة؛ في إطار مشروع بحث مسحي كبير يتعلّق بالفرز الشرعي

* بحث ممول من قِبل برنامج المنح البحثية في كرسي سابك لدراسات الأسواق المالية الإسلامية بجامعة الإمام محمد بن سعود الإسلامية.

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للأسهم، ويغطّي في أجزائه الأخرى الموضوعات التي لم تتمّ تغطيتها من قِبل هذه الورقة البحثية، وهي الفرز المالي والتطهير المالي.

الكلمات المفتاحية: الأسهم المتوافقة مع الشريعة، الفرز الشرعي للأسهم، الفرز القطاعي، فرز النشاط التجاري، الفرز النوعي، قطاع الشركة.

Sectoral Screening of Sharī'ah Compliant Equities: Issues and Solutions•

ABDUL HALIM AMMAR GHARBI≠

Abstract

There is no doubt that the phenomenon of investment and trading in the shares of mixed companies is one of the most important contemporary issues, which aroused the attention of a large segment of individuals who put forward many fiqh and financial questions about it.

Researchers have worked hard in the field of fiqh and Islamic finance in developing solutions to these questions; through sector screening; in order to make Sharī'ah-*compliant investment. However, there are still many issues related to qualitative screening; which make the practices in this area subject to continuous improvement.*

This study presents an important feature from the many other different aspects of the financial sector, which is the Islamic equity market; in the framework of a large survey research project, related to the Sharī'ah *stock screening, it covers in the other parts topics that are not covered by the current paper which are financial screening and purification processes.*

Keywords: Sharī'ah–Compliant Stocks, Sharī'ah Stock Screening, Sector Screening, Business Activity Screening, Qualitative Screening, Company's Line of Business.

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Mohammed Obaidullah

The book proposes a two-pronged strategy to poverty alleviation through micro-enterprise development based on the dichotomy between livelihood and growth enterprises. With a focus on provision of Sharī'ah-compliant financial services for micro-enterprises, it reviews thematic issues and draws valuable lessons in the light of case studies from three IsDB member countries – Bangladesh, Indonesia, and Turkey.

☐ **ISLAMIC ECONOMICS IN A COMPLEX WORLD: AN EXTRAPOLATION OF AGENT-BASED SIMULATION, (2008), pp. 149** **Price $ 15.00**

Sami Ibrahim al-Suwailem

This research paper (book/occasional paper) discusses the possible use of recent advances in complexity theory and agent-based simulation for research in Islamic economics and finance

☐ **ISLAMIC MICROFINANCE DEVELOPMENT: INITIATIVES AND CHALLENGES (Dialogue Paper No. 2), (2008), pp. 81.** **Price $ 10.00**

Mohammed Obaidullah and Tariqullah Khan

This paper highlights the importance of microfinance as a tool to fight poverty. It presents the "best practices" models of microfinance and the consensus principles of microfinance industry.

☐ **THE ISLAMIC VISION OF DEVELOPMENT IN THE LIGHT OF *MAQASID* AL-SHARĪ'AH**, (**1429H, 2008),** pp.65 **Price $ 15.00**

M. Umer Chapra

This paper asserts that comprehensive vision of human well-being cannot be realised by just a rise in income and wealth through development that is necessary for the fulfilment of basic needs or by the realization of equitable distribution of income and wealth. It is also necessary to satisfy spiritual as well as non-material needs, not only to ensure true well-being but also to sustain economic development over the longer term.

☐ **THE NATURE AND IMPORTANCE OF SOCIAL RESPONSIBILITY OF ISLAMIC BANKS, (1431H, 2010),** pp. 460 **Price $ 15.00**

Mohammed Saleh Ayyash

This book attempts to analyse the essential aspects of social responsibility of Islamic Banks and the means to achieving them. Apart from encapsulating the Sharī'ah formulation of the social responsibility and its relation to the objectives of Sharī'ah, the book also addresses the linkage between social responsibility and the economic and social development of Muslim communities. Furthermore, it demonstrates the impact of the nature of social and developmental role which should be undertaken by Islamic banks, not only for achieving socio-economic development but also for making the earth inhabitable and prosperous.

☐ **ISLAMIC BANKING STRUCTURES: IMPLICATIONS FOR RISK AND FINANCIAL STABILITY, (1432, 2011),** pp 50 **Price $ 10.00**

Abd Elrahman Elzahi Saaid Ali

The results of this research are expected to be valuable to the management of Islamic banks and to those who are engaged in the fields of Islamic banking and finance.

☐ **HANDBOOK OF ISLAMIC ECONOMICS, Vol. 1, Exploring the Essence of Islamic Economics, (1432, 2011),** pp.348 **Price $ 35.0**

Habib Ahmed & Muhammad Sirajul Hoque

This "Handbook of Islamic Economics" is part of the project to make important writings on Islamic economics accessible by organizing them according to various themes and making them available in one place. The first volume of this Handbook subtitled "Exploring the Essence of Islamic Economics" collects together the eighteen important articles contributed by the pioneers of the subject and presents them under four broad themes: (i) Nature and Significance of Islamic Economics, (ii) History and Methodology, (iii) Sharī'ah and *Fiqh* Foundations, (iv) Islamic Economic System.

☐ **BUILD OPERATE AND TRANSFER (BOT) METHOD OF FINANCING FROM SHARĪ'AH PERSPECTIVE, (1433, 2012),** pp.115 **Price $ 15.00**

Ahmed Al-Islambouli

Literature on BOT techniques from Shariah perspectives are few and far between. This book surveys and reviews the previous studies as well as experiences of BOT financing by individuals and institutions and concludes with a Sharī'ah opinion. It finds BOT to be a combination of *Istiṣnā'* and other contracts. The BOT would be a valid method after appropriate modifications

☐ **CHALLENGES OF AFFORDABLE HOUSING FINANCE IN IDB MEMBER COUNTRIES USING ISLAMIC MODES (1433, 2012),** pp.266 **Price $ 20.00**

Nasim Shah Shirazi, Muhammad Zulkhibri Salman Syed Ali & SHAPE Financial Corp.

The focus of this book is on financial products and infrastructure innovation for housing finance. It quantifies the demand for housing in IDB member countries, estimates the financial gap, and evaluates the current Islamic house financing models and practices in the IDB member countries and elsewhere in the world. It also identifies niche areas where intervention by the IDB Group can promote development of housing sector to meet the housing needs in its member countries.

Lectures

☐ **THE MONETARY CONDITIONS OF AN ECONOMY OF MARKETS: FROM THE TEACHINGS OF THE PAST TO THE REFORMS OF TOMORROW (1993),** pp.64 **Price $ 10.00**
Maurice Allais
This lecture by the nobel laureate covers five major areas: (1) potential instability of the world monetary, banking and financial system, (2) monetary aspects of an economy of markets, (3) general principles to reform monetary and financial structures, (4)review of main objections raised against the proposed reforms and (5) a rationale for suggested reforms.

☐ **THE ECONOMICS OF PARTICIPATION (1995),** pp.116 **Price $ 10.00**
Dmenico Mario Nuti
A case is made that the participatory enterprise economy can transfer dependent laborers into full entrepreneurs through changes in power sharing, profit sharing and job tenure arrangements.

☐ **TABUNG HAJI AS AN ISLAMIC FINANCIAL INSTITUTION: THE MOBILIZATION OF INVESTMENT RESOURCES IN AN ISLAMIC WAY AND THE MANAGEMENT OF HAJJ (1995),** pp.44 **Price $ 10.00**
It provides history and objectives of Tabung Haji of Malaysia, outlines saving and investment procedures of the Fund and gives an account of its services to *hajjis*.

☐ **ISLAMIC BANKING: STATE OF THE ART (1994),** pp.55 **Price $ 10.00**
Ziauddin Ahmad
The paper reviews and assesses the present state of the art in Islamic banking both in its theoretical and practical aspects.

☐ **ROLE OF ISLAMIC BANKS IN DEVELOPMENT (1995),** pp.54 **Price $ 10.00**
Ahmad Mohamed Ali
The paper analyses the concept of development from an Islamic perspective, highlighting the role of Islamic banks in achieving the same.

☐ **JURISPRUDENCE OF *MAṢLAḤAH* AND ITS CONTEMPORARY APPLICATIONS (1994),** pp.88 **Price $ 10.00**
Hussein Hamid Hassan
The paper discusses the Islamic view as well as applications of *Fiqh al Maṣlaḥah* in the field of economic and finance.

☐ ***AL GHARAR* (IN CONTRACTS AND ITS EFFECT ON CONTEMPORARY TRANSACTIONS) (1997),** pp.79 **Price $ 10.00**
Siddiq Al Dareer
This study presents the Islamic Sharī'ah viewpoint regarding *gharar* and its implications on contracts, particularly in connection with sale contracts and other economic and financial transactions.

☐ ***ISTIHSAN* (JURISTIC PREFERENCE) AND ITS APPLICATION TO CONTEMPORARY ISSUES (1997),** pp.148 **Price $ 10.00**
Mohammad Hashim Kamali
The lecture deals with an important subject. It is a common knowledge that Qur'an and *Sunnah* are the primary sources of Islamic jurisprudence. It presents a cross section of Islamic legal issues, which are of vital importance to Islamic countries.

☐ **ECONOMIC COOPERATION FOR REGIONAL STABILITY (1996),** pp.34 **Price $ 10.00**
Bacharuddin Jusuf Habibie
The paper highlights significance and implications of economic cooperation for regional stability in the context of Asian countries. Given the importance of economic cooperation between the developing countries in general and Islamic countries in particular.

☐ **WHAT IS ISLAMIC ECONOMICS? (1996),** pp.73 **Price $ 10.00**
Mohammad Umer Chapra
This lecture deals with an important subject. It explained both the subject matter of Islamic economics as well as its methodology in his usual mastering fashion.

☐ **DEVELOPMENT OF ISLAMIC BANKING ACTIVITY: PROBLEMS AND PROSPECTS (1998),** pp.24 **Price $ 10.00**
Saleh Kamel
This lecture explores the origin of Islamic banks and explains their problems and prospects which have attracted the attention of scholars.

☐ ***AL-QIYAS* (ANALOGY) AND ITS MODERN APPLICATIONS (1999)**, pp.132 **Price $ 10.00**
Muhammad Al-Mukhtar Al-Salami
The paper presents the juridical theory of *Qiyas* and its applications to contemporary issues.

☐ ***MUḌĀRABAH* AND THE PAKISTAN PERSPECTIVE (2000),** pp.46 **Price $ 10.00**
Justice (Retd.) Tanzilur Rahman
The lecture deals with *Muḍārabah* characteristics and its applications in accordance with Sharīʿah and the Pakistan perspective.

☐ **SUSTAINABLE DEVELOPMENT IN THE MUSLIM COUNTRIES (2003),** pp.104 **Price $ 10.00**
Monzer Kahf
IDB Prize Lectures analyses the concept of sustainable development from an Islamic perspective and surveys the state of development in Muslim countries.

Others

☐ **TRADE PROMOTION ORGANIZATIONS IN OIC MEMBER COUNTRIES (1994),** pp.40 **Price $ 10.00**
A directory of trade promotion organizations. A reference for those interested in trade promotion in OIC member states.

☐ **A BIBLIOGRAPHY OF ISLAMIC ECONOMICS (1993),** pp.840 **Price $ 20.00**
A very significant bibliography of Islamic economics organized according to (1) Call Number Index, (2) Descriptor Index, (3) Subject Term Index for Call Numbers, (4) Author Index (5) Corporate Author Index.

☐ **PETROCHEMICAL INDUSTRY IN OIC MEMBER COUNTRIES (1994),** pp.89 **Price $ 10.00**
Useful and up-to-date information on Petrochemical Industry in OIC member States are brought together in this study to promote trade among them in this area.

☐ **FERTILIZER INDUSTRY AND TRADE IN OIC MEMBER COUNTRIES (1995),** pp.603 **Price $ 20.00**
It serves as a useful and up-to-date guide to fertilizer industry, technology and trade in OIC member countries.

☐ **CEMENT INDUSTRY IN OIC MEMEBR COUTNIRES – (SECOND EDITION) (1993),** pp.560 **Price $ 20.00**
It is a guide to the Cement industry in the OIC member countries to promote trade among them in the area of cement and to enhance the quality and productivity of cement.

☐ **FINANCIAL DEVELOPMENT IN ARAB COUNTRIES (BOOK OF READINGS, No.4) (2005)**, pp.298 **Price $ 20.00**
This book of readings provides fruitful policy recommendations on various financial development issues in the Arab World such as operational efficiency and service quality in banking. It also examines different aspects related to stock markets development such as efficiency, volatility, hedging, and returns

Actes de Séminaires

☐ **L'ORGANISATION ET LE FONCTIONNEMENT DU CONSEIL MALAIS DE DIRECTION DES PELERINS ET DU FONDS DU PELERINAGE (1987),** 109 pages **Prix $ 10.00**
Comme institution consacrée à l'organisation du pèlerinage, TABUNG HAJI (Conseil de Direction des Pèlerins) a servi comme modèle type à cette journée d'étude.

☐ **L'ADMINISTRATION PUBLIQUE DANS UN CONTEXTE ISLAMIQUE (1995),** 150 pages **Prix $ 10.00**
Yassine Essid and *Tahar Mimm, (éd.)*
Outre l'histoire de l'administration en Islam, cet ouvrage traite de nombreux aspects tant théoriques que pratiques de l'administration d'un point de vue islamique et qui touchent à l'actualité du monde islamique.

☐ **LA ZAKĀT: ASPECTS JURIDIQUES, ECONOMIQUES ET SOCIAUX (1995),** 248 pages **Prix $ 20.00**
Boualem Bendjilali and *Mohamed Alami (éd.)*
Actes de séminaire sur LA ZAKĀT dont l'objectif est d' ouvrir de nouvelles voies à la reflexion et de faire connaître les concepts, la méthodologie et les principes de base de la collecte et de la répartition de la Zakāt.

☐ **DEVELOPPEMENT D'UN SYSTEME D'INSTRUMENTS FINANCIERS ISLAMIQUES (1995),** 328 pages **Prix $ 20.00**
Mohamed Ariff and *M.A. Mannan* (éd.)
Actes de séminaire dont l'objectif principal était d'identifier les voies et moyens pour l'émission d'instruments financiers islamiques viables qui pourraient préparer le terrain à une mobilisation efficace des ressources financières dans les pays membres de la BID.

☐ **INTRODUCTION AUX TECHNIQUES ISLAMIQUES DE FINANCEMENT (1997),** 210 pages **Prix $ 20.00**
Actes de séminaire don't l'objectif principal était d'offrir aux cadres supérieurs des pays francophones membres de la BID une introduction d'ordre théorique et pratique sur les modes de financement islamiques utilisés par les banques et les institutions financières islamiques.

☐ **CONFERENCES EN ECONOMIE ISLAMIQUE (1996),** 555 pages **Prix $ 20.00**
Ausaf Ahmed and *Kazim Awan*
Actes de séminaire dont l'objectif principal est de servir comme outil de base pour les étudiants et aux enseignants en économie islamique.

☐ **LE DEVELOPPEMENT DURABLE, (1997),** 256 pages **Prix $ 20.00**
Taher Memmi (éd.)
Actes d'un séminaire sur le développement durable qui présente, entre autres, la stratégie en cette matière de quelques pays membres de la BID.

☐ **PROMOTION ET FINANCEMENT DES MICRO-ENTREPRISES (1997),** 187 pages **Prix $ 10.00**
Taher Memmi (éd.)
Actes de séminaire sur la promotion et financement des micro-entreprises qui peuvent être utiles à tous ceux, décideurs, hommes et femmes du terrain, soucieux de faire de la micro-entreprise un outil efficace et durable de lutte contre la pauvreté.

☐ **LA ZAKĀT ET LE WAQF : ASPECTS HISTORIQUES, JURIDIQUES, INSTITUTIONNELS ET ECONOMIQUES (1998),** 387 pages **Prix $ 20.00**
Boualem Bendjilali (éd.)
Actes de séminaire qui visent à faciliter l'accès des lecteurs francophones à la littérature sur l'économie islamique en général et la Zakāt et le Waqf en particulier.

☐ **LES MODES DE FINANACEMENT ISLAMIQUES (1993)**, 48 pages **Prix $ 10.00**
Boualem Bendjlali (éd.)
Rapport d'un séminaire sur les modes de financement islamiques tenu en Mauritanie en 1413H (1992).

☐ **LES SCIENCES DE LA CHARI'A POUR LES ECONOMISTES: LES SOURCES DU FIQH, SES PRINCIPES ET SES THEORIES; LE FIQH DES TRANSACTIONS FINANCIERES ET DES SOCIETES; ET SON APPLICATION CONTEMPORAINE (2001),** 572 pages **Prix $ 25.00**
Boualem Bendjilali (éd.)
Actes de séminaire sur les sciences de la Chari'a pour les économistes dont l'objectif principal est de servir comme outil de base aux chercheurs, étudiants et enseignants en économie islamique sur les sources du *Fiqh.*

Recherches

☐ **LA COOPERATION ECONOMIQUE ENTRE LES PAYS DU MAGHREB (1985),** 138 pages **Prix $ 10.00**
Ridha Saadallah
Cet ouvrage traite de nombreux thèmes dont les ressources naturelles et humaines au Maghreb, le potentiel de coopération agricole et industrielle au Maghreb, etc.

☐ **PROFITS ET INTERETS BANCAIRES ENTRE L'ANALYSE ECONOMIQUE ET LA CHARI'A (1994),** 150 pages **Prix $ 10.00**
Abdelhamid El-Ghazali
Cet opuscule traite de l'intérêt bancaire face au profit en tant que mécanismes de gestion de l'activité économique. Une analyse de deux points de vue différents, celui de l'économie conventionnelle et celui de la Chari'a.

☐ **LA MOUDHARABA SELON LA CHARI'A ET SES APPLICATIONS CONTEMPORAINES (1994),** 83 pages — **Prix $ 10.00**
Hassan El-Amin
Cette étude traite de nombreux aspects pratiques: légal, économique et bancaire.

☐ ***JOUALA* ET *ISTISNA,*** — **Prix $ 10.00**
***Analyse juridique et économique* (1994) ,** 65 pages
Chaouki Ahmed Donia
L'intérêt de cette recherche réside dans le fait qu'elle aborde un nouveau domaine d'application des transactions économiques islamiques se basant sur deux contrats, à savoir "La Jouala et L'Istisna".

☐ **LA PROPRIETE FONCIERE EN ISLAM (1994) *(Enquête),*** 52 pages — **Prix $ 10.00**
Mahmoud A. Guilaid
Le but de cette étude est d'examiner les questions les plus importantes concernant le droit de propriété foncière en Islam.

☐ **LES RELATIONS COMMERCIALES ENTRE LE CONSEIL DE COOPERATION DU GOLFE ET LA COMMUNAUTE EUROPEENNE (1995),** 152 pages, — **Prix $ 10.00**
Du Passé Récent au Lendemain de 1992
Ridha Mohamed Saadallah
Cette étude procède à une analyse minutieuse des statistiques passées, des échanges commerciaux entre les pays du CCG et ceux de la Communauté Européenne en vue de dégager les tendances profondes et les caractéristiques structurelles du commerce Euro-Golfe.

☐ **ERADICATION DE LA PAUVRETE ET DEVELOPPMENT DANS UNE PERSPECTIVE ISLAMIQUE (1995),** 180 pages — **Prix $ 10.00**
Abdelhamid Brahimi
Cette recherche, divisée en deux parties, traite dans la première des facteurs internes et externes de blocage et de l'impasse. La seconde est consacrée à la conception et à la mise en oeuvre de politiques économiques dans une perspective islamique.

☐ **JUGEMENT DU TRIBUNAL FEDERALISLAMIQUE DU PAKISTAN RELATIF A L'INTERET *(RIBA)* (1995),** 478 pages — **Prix $ 25.00**
Ce document constitue un outil de travail et une référence indispensables à tous ceux, parmi les décideurs politiques et chercheurs dans les pays membres de la Banque, qui sont désireux de voir se développer l'alternative d'un système financier exempt d'intérêt.

Eminents Spécialistes

☐ **LES CONDITIONS MONETAIRES D'UNE ECONOMIE DE MARCHES DES ENSEIGNEMENTS DU PASSE AUX REFORMES DE DEMAIN (1993),** 64 pages — **Prix $ 10.00**
Maurice Allais (Prix Nobel d'Economie - 1988)
L'auteur, dans son examen, critique du système monétaire international, appelle à des réformes tant économiques que morales.

☐ **JURISPRUDENCE DE LA *MAṢLAḤAH* ET SES APPLICATIONS CONTEMPORAINES (1995),** 92 pages — **Prix $ 10.00**
Hussein Hamed Hassan
L'étude, présente le point de vue islamique se rapportant à la question de l'intérêt publique, son lien avec la législation, ses conditions et ses dimensions juridiques; avec un certain nombre d'applications contemporaines.

☐ **JURISPRUDENCE DE LA NECESSITE (*FIQH* DE LA *DHARURA*) ET SON APPLICATION DANS LA VIE CONTEMPORAINE : PERSPECTIVE ET PORTEE (1996),** 259 pages — **Prix $ 20.00**
Abd al-Wahab I. Abu Sulayman
Cette recherche sur le *Fiqh de la Ḍarūrah* aborde le point de vue de la Chari'a islamique par rapport à la notion de *Ḍarūrah* (nécessité), ses conditions et ses perspectives juridiques.

☐ **COOPERATION ECONOMIQUE POUR UNE STABILITE REGIONALE (1996),** 37 pages — **Prix $ 10.00**
Bacharuddin Jusuf Habibie
Cet ouvrage porte sur l'importance coopération économique entre les pays en développement en général et entre les pays islamiques en particulier.

☐ **LE QIYAS ET SES APPLICATIONS CONTEMPORAINES (1996),** 139 pages — **Prix $ 10.00**
Mohamed Mokhtar Sellami
Uni conférence qui traite de l'une des sources de la jurisprudence, reconnue dans la science des fondements du droit sous le nom d'analogie (Qiyâs) et reconnue par l'ensemble des écoles juridiques comme preuve légale et méthode d'extraction des jugements.

Prix de la BID

☐ **LE SYSTEME BANCAIRE ISLAMIQUE : LE BILAN, (1996),** 65 pages — **Prix $ 10.00**
Ziauddin Ahmed
Le but de ce papier est d'examiner et d'évaluer la situation actuelle dans le domaine des banques islamiques aussi bien du point de vue théorique que pratique.

☐ **QU'EST-CE QUE L'ÉCONOMIE ISLAMIQUE? (1996),** 81 pages — **Prix $ 10.00**
Mohammad Umer Chapra
Conférence donnée par Dr. Chapra lauréat du Prix de l'économique islamique 1409H (1989) sur : l'économie conventionnelle et l'économie islamique.

☐ **EVOLUTION DES ACTIVITES BANCAIRES ISLAMIQUES: PROBLEMES ET PERSPECTIVES (1998),** 30 pages — **Prix $ 10.00**
Saleh Kamel
Conférence donnée par Cheikh Saleh Kamel lauréat du Prix de la BID en système bancaire islamique pour l'année 1416H (1995/96). Elle constitue une grande contribution à la compréhension de l'économie et du système bancaire islamiques et à leur évolution.

Traductions

☐ **VERS UN SYSTÈME MONÉTAIRE JUSTE, (1997),** 352 pages **Prix $ 20.00**
Mohammad Umer Chapra
Ce livre développe avec habilité la logique islamique de la prohibition du *Riba*, et démontre avec rigueur la viabilité et la supériorité du système de financement basé sur la participation au capital.

Documents occasionnels

☐ **DEFIS AU SYSTEME BANCAIRE ISLAMIQUE, (1998),** 90 pages **Prix $ 10.00**
Munawar Iqbal, Ausaf Ahmad et Tariquallah Khan
Le but de ce document occasionnel est que les théoriciens et praticiens dans le domaine bancaire islamique doivent explorer les voies et moyens permettant au système bancaire islamique de soutenir son rythme de progrès au moment où il entre dans le 21ème siècle.

TRANSLITERATION TABLE

Arabic Consonants

- Initial, unexpressed medial and final:

ء	’	د	d	ض	d	ك	k
ب	b	ذ	dh	ط	t	ل	l
ت	t	ر	r	ظ	z	م	m
ث	th	ز	z	ع	[	ن	n
ج	j	س	s	غ	gh	هـ	h
ح	h	ش	sh	ف	f	و	w
خ	kh	ص	s	ق	q	ي	y

- Vowels, diphthongs, etc.

Short	ـَ	a	ـِ	i	ـُ	u
Long	أ	a	ي	i	و	u
Diphthongs	ؤ	aw	ئ	ay		

Notes To Contributors

1. The papers submitted to *IES* should make some noticeable contribution to Islamic economics, either theoretical or applied, or discuss an economic issue from an Islamic perspective.
2. Submission of a paper will be held to imply that it contains original unpublished work and is not being submitted for publication elsewhere.
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4. All papers must include an abstract of no more than 150 words. It is strongly advised that the length of the article should not exceed 6000 words.
5. All papers should have an introductory section in which the objectives and methodology of the article are explained and a final section, which summarizes the main points, discussed and the conclusions reached.
6. Manuscripts should be typed double-spaced, on one side of the paper only. References, tables and graphs should be on separate pages.
7. Detailed derivations of the main mathematical results reported in the text should be submitted separately. These will not be published.
8. References should be listed at the end of the text in the following style:
9. Articles: Al-Qari, Mohamed Ali (1993), "Towards an Islamic Stock Market", *Islamic Economic Studies*, Vol. 1, No. 1; Books: Khan, A. R. (1993), *Financial Intermediation*, New York: Springer Publishers. Page references to works referred to in the text should take the following form: Al-Qari (1993:17). Citations within the text should follow Harvard APA style.
10. The verses of the Qur'ān quoted should carry *surah* number and *ayah* number as (3:20).
11. Complete reference to the source of aḥādīth quoted should be given.
12. Contributions may be sent in English, Arabic or French and should be addressed to the Editor, *Islamic Economic Studies*, on the following

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