

Quantification of Fiduciary Risks: Islamic Sources of Funds, Neo-Institutionalism and SARWAR Bank

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Abstract

Islamic banks, besides conventional banking risks like credit, market, liquidity and operational etc., are also faced with unique risks like displaced commercial risk or fiduciary risk. These two types of risks can even trigger a deposit withdrawal risk or a quasi bank run. Fiduciary risk means breaching of investment contract or mismanagement of funds by the bank. From depositors' point of view this definition conveys two points. First one is that banks can default on the investment contract with depositors because in Islamic banks depositors hold the investment contracts with bank and this originates liabilities side risk of Islamic banks' balance sheets. Second point is that because of lack of due diligence on part of the Islamic banks' management or information asymmetries leading to moral hazard or adverse selection, either mismanagement of funds by the bank can occur or user of funds can breach the investment contract. This fact points to the asset side risks of banks' balance sheets. Neo-Institutionalism describes the links between institutional factors, economic decision making and stakeholders. This study has tried to quantify the fiduciary risks in banks by measuring the risks inherent in Shariah financial products on both sides of the balance sheet. A multi-criteria decision making method know as Analytical Hierarchy Process as weighting technique and minmax as scoring method have been used to rank various balance sheets based on market orientation of banks. Six theoretical banks types with different balance sheet structures has been ranked in a search for an Islamic bank with least fiduciary risks which can rightly be called as Socially Adopted, Risk Weighted and Analytically Rated (SARWAR) Bank.

Keywords: Neo-Institutionalism in Finance, Fiduciary Risk, Asset Liabilities Risk Management, Islamic Products' Financial Risks

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Introduction

Banking sector has gone through a lot of developments in last decade. These include, but are not limited to, globalization of banking industry and thus an increase in international banking competitiveness, an increase in the volatility of market prices, domestic and international regulatory changes and requirements as well as technological and methodological advances, besides an environment of hostile takeovers, investors' activism and corporate raiding (Schroeck; 2002; p55-56). Traditionally banking risks are categorized as financial and non financial. Reilly et al (1997) has put banking risks into two main categories - business and financial risks (Ahmed; 2007). Khan and Ahmed (2001) have provided the details on financial, business and operational risk factors. Financial risk factors include credit risks (default, down grade, counter party and settlement risks), market risks (price, rate of return and exchange rate risks) and liquidity risks (funding liquidity, asset liquidity and cash management risks) (Beig; 2009). Business risk factors include management risks related to planning, organization, reporting and monitoring as well as strategic risks related to research and development, product design and development, market dynamics, economics and reputation. Finally Operational risk factors include people risk, external risk, legal risk, equity investment risk and system and IT risks. Besides strategic risks, Gunther (2006) has also mentioned reputation, capital and earnings risks and the process of aggregation of these risks with conservative handling of correlations and use of uniform holding period and uniform confidence level. Some readings has included competition risk (i.e. related to better products and services) in strategic risk category and has also added a new category called hazard risks in ERM list.

The wheel of misfortune describes the industry and the firms which have experienced large losses and the amount of money lost as well as the reason for the losses. It describes this in the form of a wheel which has four circles from the inner to the outer most. The two innermost circle provides the description of five names of five industries in the first one and name of related companies in the second circle i.e. corporations (Parmer, Bausch and Lomb and Cendant), banks (Barings, Bankers Trust and Kidder), asset management cos. (LTCM and Morgan Grenfell), insurance cos. (Confed Life and Lloyd's) and energy cos (MG and PCA) which have suffered huge losses.

The third wheel provides the amount of losses and the outermost circle (fourth one) gives the reasons of the losses for each firm which are charge off, misreported revenue accounting fraud, false profits, lawsuits, trading losses, rescue fund requires, questionable trades, losses, settlement, trading losses and claims respectively. It has been mentioned that, though not a failure of derivatives market, many of the losses in the Wheel of Misfortune has resulted from companies using derivatives to speculate (Schroeck; 2002).

Risk management in banks can be said to be a distinct process of set of activities. This process is divided into the steps including defining, identifying, and classifying (e.g. into firm-specific versus market risks or continuous versus event risk) of a firm's risk exposure, knowledge of sources of risk (risk factors), analysis and quantification of the risk exposure (including correlations between the risk factors) before entering into mitigating risks phase. Many studies have discussed and analyzed most of these risks in the context of conventional banking as well as Islamic banks, in details in literature. However, deposits in Islamic banks are Qard Hasan or debt or Amanah and these introduce additional risks for using these funds. Besides, because of the profit sharing nature of savings and investment deposit (Mudaraba and Musharaka, both unconstrained and constrained), it requires banks to reward depositors with banks' variable profits and as noted by the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) it introduces few other risks in Islamic banks (Ahmed; 2002). These risks include fiduciary risk (or breaching of investment contract or mismanagement of funds by the bank) and 'displaced commercial risk (DCR)' or withdrawal risk. And quantification of the risk being the main step towards the effective risk management, this is what we are focused here regarding fiduciary risk.

The article has been divided into six parts. 'Introduction' is out part I followed by part II which is devoted to the 'nature of liabilities in Islamic banks' and problems of frictions. Part III is about 'market frictions and neo-classical finance'. Part IV provides the 'survey of neo-institutionalism' in various disciplines including the neo-institutionalism in finance. Part V is about the 'transparency as a response to risk management for financial institutions. Part VI describes the 'methodology for quantification of Fiduciary risk' in Islamic banks. Part VII gives the 'results and conclusion'.

Nature of Liabilities in Islamic Banks

The objective of financial institution, in general, is to maximize profit and shareholders value added by providing different financial services and this objective is achieved through the successful management of various risks (Hefferman; 1992 & Scholtens et al.; 2000 in Khan; 2010). However to achieve these objectives is not an easy task especially in a highly risky and competitive banking environment. Although the pressure to remain efficient is not only specific to Islamic banks rather it is equally there for non-Islamic banks as well because of the fact the general banking environment has become more volatile. This volatility translates into an increase in the risk to the firm value and it necessitates for the bank to focus on enterprise wide management of risks ERM to minimize over all risks. Along with this necessary condition and maximization of the firm's value as the objective, the sufficient condition to enterprise wide risk management (ERM) is that risk management should increase the firm's value (Schroeck; 2002). The structure and stability of the deposit base are of utmost importance. Broader trends also come into play. An analysis of private sector deposits (including deposits from repurchase agreements and certificates of deposit) highlight economic trends related to the level of spending, as well as its effect on inflation. Furthermore, growth in money supply is calculated using total deposits in the banking system. A change in the level of deposits in the banking system is therefore one of the variables that influence monetary policy. Within the deposit structure, some items are more risky than others e.g. large corporate deposits are less stable than household deposits, because they are more concentrated actively managed. A large proportion of non-retail or non-standard deposits can be unstable, which tends to indicate that the bank's investment and partnership accounts holders may be paying higher "rates" than they would at another bank or that depositors may be attracted by liberal credit policies. Cash collateral and various types of loan escrow accounts may also be counted as deposits, although these funds can only be used for their stated purpose (Greuning; 2008).

Although there are some differences in the objectives and working of an Islamic bank and conventional bank, however, both can play the same vital societal role. A sound, vibrant and market-driven financial services industry can create opportunities and therefore address the human development challenges of our societies by efficiently and equitably channeling financial resources towards productive opportunities and employment generation. (IRTI and IFSA; 2007). When we say that the depositor is the king then we should also turn our eye to objectives and concerns of this key stakeholder in order to avoid CBR risk.

The same objective of greater societal good can be achieved by effectively managing depositors' life-cycle needs as an effective financial system facilitates the efficient life-cycle allocation of household consumption (Ahmed; 2002). The same theme has been projected by neoclassical market theory by stating that an ultimate goal of any economic activity is also to maximize an individual's utility. In a capitalized world, an investor's utility is determined by the stream of income available for consumption. This stream of income is characterized by three dimensions like its absolute value(s), time structure i.e. its time of occurrence and its risk characteristics. Any investment (deposits in various forms of savings and investment accounts) is an economic activity that gives up some of this stream of consumption in order to increase consumption in the future. As the future is uncertain so is the future stream of income and thus consumption. This necessitates the decision rule for any economic activity which is whether an investment increases the utility that the investor hopes to extract in the form of consumption from the investment's future income stream, while considering preferences with regard to the time structure and uncertainty of this income stream (Schroeck; 2002). Depositors will be focused on this efficient life-cycle allocation of household consumption and knowing this as one of the main parameters of depositors' retention, Islamic banks give part of the profit to depositors to prevent withdrawals. This efficiency hypothesis coupled with the specific profit sharing nature of liabilities of Islamic banks brings in the nature of risks of balance sheet liabilities of Islamic banks into picture.

Islamic banks can also take up activities which traditionally are related to non-bank financial institutions. These roles can be like that of Islamic leasing and factoring companies, finance companies, Ijarah and Mudarabah companies, Islamic housing cooperatives, Islamic microfinance institutions, credit sale subsidiaries of trading companies, private equity/venture capital, Islamic insurance and re-insurance (or Takaful and re-Takaful) operators, Islamic capital market players (brokerage houses, investment and fund management institutions e.g. Islamic asset management companies i.e. mutual funds/unit trusts, hedge funds, etc. Banks can also be engaged in managing Haj funds, Awqaf, Zakah and Sadaqah (IRTI and IFSA; 2007). Balance-sheet (BS) structure lies at the heart of the asset-liability management (ALM) process. The composition of a bank's balance-sheet (BS) assets and liabilities is one of the key factors that determine the level of risk faced by the institution and the growth in the BS and resulting changes in the relative proportion of assets or liabilities affect the risk management process.

Changes in the relative structure of assets and liabilities should be a conscious decision of a bank's policy makers i.e. the board of directors and monitoring key components of the balance sheet may alert the analyst to negative trends in the relationships between asset growth and capital retention capability. It is important to monitor the growth of low, non-earning, and off-balance-sheet items (Greuning; 2008). Details on the assets and liabilities sides of the balance sheet of Islamic banks have been provided, besides others, in Anjum (2014e) and (2014c) in details. Sources of funds or Liabilities (i.e. funding) side of the balance sheet of the conventional bank is composed of demand deposits, savings deposits or certificates of deposit, short and long term liabilities, reserves and equity of shareholders. On the liabilities side, owned funds, demand deposits and reserves of Islamic banks have similar risk characteristics to their conventional counterparts (IRTI and IFSA; 2007). Putting it in another way, Greuning (2008) says that amounts due to banks and other financial institutions include all deposits, loans, and advances extended between banks and are normally regarded as volatile sources of funding.

Liabilities side of the balance sheet in an Islamic bank is based on the "two-window" theoretical model where funding side has two deposit windows, one for demand deposits and the other for investment or special investment accounts, in addition to equity capital. Besides leaving the choice of window to depositors, demand deposits are Qard Hasan and are placed as Amanah. Thus demand deposits in Islamic banks yield no returns, are repayable on demand at par value and also meaning that money creation through the multiplier effect is limited in Islamic banking (Greuning; 2008). Customer deposits, which include Amanah (trust), investment accounts, and special investment accounts, usually constitute the largest proportion of a bank's total liabilities and it demand and investment deposits, and funding products, such as savings, fixed, and foreign currency deposits in conventional banks. Cash collateral and various types of loan escrow accounts may also be counted as deposits, although these funds can only be used for their stated purpose. The Islamic financial system is based on a set of contracts. These contracts include contracts for real economic activities, financing, intermediation, and social welfare. Both the assets and liabilities side of an Islamic bank balance sheet are based on Shariah-compatible financial instruments (Greuning; 2008). Islamic banks, on the liability side, provide owners of funds opportunities to place their financial resources profitably through implicit partnerships sharing their net profits while also carrying a proportional share in risks (Al-Jarhi; 2000).

Investing instruments are vehicles for capital investment in the form of a partnership and may take two forms – MDB (or fund management or principal-agent partnership or a limited partnership) and Musharaka (or MSK or equity partnerships). MDB can be short, medium, or long term and is a trust-based financing agreement where profits are based on a prearranged, agreed ratio. Mudarabah is used on both the liabilities and the assets side. MSK can be either medium or long-term, is a hybrid of Shiraka (partnership) and Mudarabah, combining the act of investment and management. The Shariah is fairly comprehensive in defining different types of partnerships, in identifying the rights and obligations of the partners, and in stipulating the rules governing the sharing of profits and losses (Greuning; 2008). The concept of a Mudarabah company (MDC) is very similar to that of a close-end fund managed by a specialized professional investment management company and is incorporated as a separate legal entity like a mutual fund. Mudarabah (MDB) can be one of two types – multipurpose (MP) and specific purpose (SP). MP-MDB has more than one investment objectives all MDBs, however, are independent of each other and none is liable for the liabilities of or is entitled to benefit from the assets of any other MDB or MDC.

Unlike an Islamic bank, MDC is not permitted to accept deposits, is funded by equity capital provided by the sponsor's own subscribed capital and by MDB investment certificates which are open to general investors through a public offering. Profits on investments are distributed among subscribers on the basis of their contribution, with the manager of the funds earning a proportion of the profits. MICs can play a critical role in the financial landscape of a developing economy, especially for small and medium size enterprises (SMEs) (Greuning; 2008). The investment accounts of an Islamic bank are not liabilities in a strict sense because investors-depositors in Islamic banks are like partners. Investment accounts can be restricted or unrestricted and restricted ones are often shown as off-balance-sheet funds under management. Investment account holders (IAH) are knowledgeable about risk-bearing nature of projects and thus no guarantee is justified. IAH acts as the supplier of funds (Rab al-mal) and the bank invest these funds on their behalf acting as an agent (Mudarib) in a Mudarabah. Because IAH share profits accruing to the bank's investments on the assets side, therefore, such profit-sharing (PS) investment deposits are not liabilities. IAH's capital is not guaranteed i.e. they incur losses if the bank does and the form is considered closer to a limited-term, non-voting equity or a trust arrangement.

Some Islamic banks also offer special investment accounts (SIA) developed on the basis of a special-purpose (SP) or restricted Mudarabah (MDB) or on profit and loss sharing (PLS) or Musharakah (MSK). The SIA are similar to close-end mutual funds and are highly customized and targeted toward high-net-worth individuals (Greuning; 2008).

International borrowing, being a part of liabilities and may occur in the same form as bank's domestic borrowing, except that it normally exposes a bank to additional currency risk. Direct forms of international borrowing include loans from foreign banks, export promotion agencies in various countries and international lending agencies. Indirect forms include notes, acceptances, import drafts, and trade bills sold with the bank's endorsement, guarantees, and notes or trade bills rediscounted with central banks in various countries. The acceptable reasons for reliance on inter-bank funding include temporary or seasonal loan or cash requirements and the matching of large and unanticipated withdrawals of customer deposits. Money centers or large regional banks engaged in money market transactions tend to borrow on a continuous basis. Otherwise, heavy reliance on inter-bank funding indicates that a bank carries a high degree of funding risk and is overextended in relation to its normal volume of deposits. An analysis of inter-bank balances may point to structural peculiarities in the banking system e.g. if funding for a group of banks is provided by one of its members.

Other liabilities normally include trade creditors, amounts owed to the central bank and other sundry items. In an Islamic bank, the unpaid portion of depositors' share of profits would be an important component (Greuning; 2008). The most frequent reason for borrowing from the central bank is that changes have occurred in the volume of required reserves as a result of fluctuations in deposits. Longer-term credit from the central bank indicates an unusual situation because of national or regional difficulties e.g. exceptional fed funding to banks during 2008 crisis in US or to fund deficit for development financing. As Chaudhary and Anjum (1996) has noted that any such unusual credit from central bank can create series of contingent claims in integrated banking balance sheets and should only be encouraged in exceptional circumstances. Historically, central bank financing was often directed toward special purpose development goals of the government and sectoral policies. The capital (or equity) of a bank represents the buffer available to protect creditors against losses that may be incurred by managing risks imprudently. According to international norms, banks normally have primary and secondary capital components i.e. tier 1 and tier 2 capital.

While the types of liabilities present in an Islamic bank's balance sheet are nearly universal, their exact composition varies greatly depending on the particular bank's business and market orientation, as well as the prices and supply characteristics of different types of liabilities at any given point in time. Anjum (2014c) has defined balance sheets for three theoretical bank types: 2-tier PS Commercial (TTC), 2-tier PS Investment (TTI) and one-tier Mudarabah (OTM). Adding more three more theoretical bank types i.e. Wakala (WAK or Commission Agent), Islamic Window of Conventional banks (IWC) and Universal (UNV) banks, Anjum (2014e) has used six types of Islamic banks to rank based on Shariah products on the asset side of the bank's balance sheet. The liabilities or sources of funds on the balance sheets for all the six theoretical Islamic bank types (i.e. WAK, TTC, TTI, OTM, IWC and UNV) have been consolidated in table 1.

	WAK	OTM	TTC	TTI	IWC	UNV
Generic	PS, FI & AT	PS & AT	PS & ATE	PS & ATE	PS & ATE	PS & ATE
Priceability	RP	RP	RP	RP	RP & NRP items	RP & NRP items
Demand Deposits	CA - QH & AM	CA - QH & AM	CA - QH & AM	NA	CA - QH & AM	CA - QH & AM
Savings Deposits	MUD - UCN	MUD - UCN	MUD - UCN	MUD - UCN	MUD - UCN	MUD - UCN
Investment Accounts	NA	MUD - CN	NA	MUD - CN	MUD - CN	MUD - CN
	NA	MSK - UCN	NA	MSK - UCN	MSK - UCN	MSK - UCN
	NA	MSK - CN	NA	MSK - CN	NA	MSK - CN
Accrued Zakah	AZ - AM	AZ - AM	AZ - AM	No AZ	No AZ	AZ - AM
Total Equity (TEQ)	MUD - UCN only	MUD & MSK - UCN/CN	MUD - UCN only	MUD & MSK - UCN/CN	MUD - UCN / CN & MSK - UCN Only	MUD & MSK - UCN/CN
Reserves - AM	Reserves - AM	Reserves - AM	Reserves - AM	Reserves - AM	Reserves - AM	Reserves - AM
Notes: WAK = Wakala (or Commission Agent), TTC = 2-tier PS Commercial, TTI = 2-tier PS Investment; FI = Fixed Income; OTM = One-tier Mudarabah; AT = All tiers; IWC = Islamic Window of Conventional (IWC) Bank; UNV = Universal bank; PS = Profit sharing; (U)RP = (Un)Re-Priceable; AT = All Terms (i.e. ST, MT, LT); AR = Amanah Reserves; CA = Current Accounts; AM = Amanah; QH = Qard Hasan; NRP = Non-Repriceable; RP = Repriceable; AZ = Accrued Zakah; MDB = Mudarabah; MSK = Musharaka; (U)CN = (Un)Constrained; NA = Not Applicable; EQ = Equity; TEQ = Total Equity;						

The funding structure of a bank directly affects its cost of operation and therefore determines a bank's potential profit and level of risk. The structure of bank liability side of balance sheet reflects its specific asset-liability management and risk management policies (Greuning; 2008).

Ahmed (2002) uses contemporary banking theory to model Islamic bank using both sides of the BS, have analyzed the effects of liability side on composition of assets of banks and have considered risks of the PS mode to understand the nature of the Islamic Bank. The study defines Islamic bank which is a commercial bank with demand and unrestricted PS savings deposits (low risk and liquid) and is also an investment intermediary with restricted investment deposits (high risk with higher expected rate of return (ROR)). The business of banking is traditionally based on the concept of low margins and high leverage. Consequently, a special feature of a bank's balance sheet is its low ratio of capital to liabilities, which would normally be unacceptable to any other business outside the financial services industry (Greuning; 2008).

The relationship on the liability side of banks (depositor-bank relationship) similar to that of the relationship between the common stockholders with their corporation and as the performance of the banks on assets sides will automatically be transmitted to the liability side meaning that in the worst case scenario of a shock to the assets, the liabilities will automatically be revalued and re-priced in exact proportions. Thus Islamic PLS banks will never need to turn to liability management as compared to conventional banks (Khan; 2000). The acceptable level of risk associated with a typical liability structure is measured and prescribed, says Greuning (2008), according to risk-based capital requirements, which are, in turn, linked to the composition of a bank's assets. Within the deposit structure, some items are more risky than others e.g. large corporate deposits are less stable than household deposits, because they are more concentrated actively managed.

Market Frictions and Neo-Classical Finance

Khan (1999) focuses on asset side of banks' balance sheet with demand (fund user side) as well as supply (bank or investor/depositor side) aspects and Aggraval et al. (2000) describes that Islamic banks, because of agency problem especially severity of moral hazard problem, use of shared modes is lacking and that PS equity contracts work well only if cost of projects is small and rate of diversion is low (Ahmed; 2002). These market frictions like agency problems are not covered under the Neoclassical Finance Theory presented in 1958 by Modigliani and Miller (M&M). Though a great theoretical contribution has been attributed to this theory and it also led to the development of the development of extremely useful models such as the Capital Asset Pricing Model (CAPM) (by Sharpe in 1964) it, however, provides only a partial solution at the best to the practical world.

M&M world is based on rigid assumptions that capital markets are perfect and complete. In M&M world, value can only be created on the left-hand side (asset side) of the balance sheet when companies make good investments that ultimately increase (expected) operating cash flows. Value, however, has no relevance with how companies finance these investments on the right-hand side of the balance sheet (whether through debt, equity, or retained earnings) i.e. capital structure of the firm does not matter. However in reality markets are neither perfect nor complete. Markets are not perfect because in practical world markets and/or players both are faced with taxes, transaction costs (i.e. markets are not frictionless), contractual costs, restrictions on investments in securities (i.e. plenty of regulation and limitations on short-selling), huge differences in information across investors (i.e. markets are not efficient) and all market players are not price takers. Markets are not complete because not all streams of cash flows can be traded, not all the assets are marketable or perfectly divisible i.e. they face restrictions on amount, time structure or risk profile, not all the players are faced with same risk free rate, expectations are heterogeneous and arbitrage opportunities exist. Even neoclassical assumptions are also not the absolute reality of true world as firms do operate dynamic investment programs, pay price for an access to capital markets as well as taxes are not neutral.

Classical and neo-classical financial theories lead us to a conclusion that all non-financial preferences of the market players to be neglected, individuals are risk averse despite being expected utility maximizers and asset returns are either (jointly) normally distributed or individuals have quadratic utility functions. The derived theories like CAPM has also led us to the conclusions that individual risk averse investors care about trade-off between risk and return but only about systematic risks (because of being well-diversified) and that risk management is irrelevant in financial institutions as it does not create a value for the firm. This is because in efficient capital markets, corporate financing decisions can only reshuffle cash flows among investors. However, in reality banks do exist and offer variety of financial products and services and investors pay premium for these products and services, investors don't hold diversified portfolios, market participations face fixed and marginal costs and banks conduct risk management practices (Schroeck; 2002). Islamic finance is based on "real" assets, as compared to financial assets, and equity-type profit-sharing facilities.

By promoting risk-sharing through asset-based equity-type facilities on the assets side and profit-sharing investment accounts on the funding side, Islamic finance could in principle contribute to a better balance between debt and equity, thereby fostering stability. However (as noted in the subsection 2.1.4E, below), in practice, the use of equity-type financing facilities is limited due to risks linked to considerations of asymmetric information and adverse selection (IRTI and IFSA; 2007). Thus in reality it is not the neo classical theory which helps us with market frictions issue rather it is Neo-Institutional (economics and finance) Theory which has relaxed the rigid assumptions, without ignoring results, of the neoclassical world though and offered transaction cost and incentive based approaches for trade relationships between two or more constituents of a firm.

Neo-Institutionalism – A Brief Survey

The term “New Institutionalism” as being coined in different disciplines of political science, sociology and economics carries a considerable confusion about what it is, how it differs from other approaches and what sort of problems and promises it displays. As a matter of fact, “new Institutionalism does not constitute a unified body of thought, instead there are at least three different analytical approaches with same name has appeared over past fifteen to twenty years of period. These may be called three schools of thoughts of “New Institutionalism”. These are Historical Institutionalism, Rational Choice Institutionalism and Sociological Institutionalism. All these approaches have emerged to a common reaction to behavioral perspectives of 1960s and 1970s. There are two fundamental questions to any Institutional analysis namely how to construe the relationships between institutions and behavior and how to explain the process whereby institutions change. All these three schools were developed quite independently with a little interchange among them (Hall and Taylor; 1996). Institutions can be defined as a set of rules, compliance procedures, and moral and ethical behavioral norms designed to constrain the behavior of individuals (Feeny; 1988). As so defined “institutions” encompass the fundamental rules of the game within which the economic system operate. Economic historians have been particularly concerned with broad changes in those rules, which accompanied the emergence of modern capitalism. Institutions in the “rules of the game” sense provide the context in which markets operate – influencing both their efficiency and distributive impact. Institutions define the terms under which the various actors in the market confront each other, molding their expectations and defining their rights.

In this sense, economists should be very much at home with institutional questions, relating as they do to the central concern of neo-classical economics, namely the operation of markets.

Describing the outline of modern institutional economics, old institutionalism (esp. Hodgson; 1989) stressed the importance of institutions, routine and habits and it underline the value of descriptive work on the nature and functioning of politico-economic institutions with the danger of falling into empiricists trap. The old institutionalism of Hodgson, central issue is the nature of information and knowledge and social process involved in their acquisition. As the data is not short rather in over-abundance, a distinction should be made between sense data, information and knowledge. On the other hand new institutional economics (NIE) of Oliver Williamson and others is different from old institutionalism. Society is not seen as a network of contractual relations emerging from individual actions of maximizing individuals. Not everything can be contractual. The market is not considered a magic process resulting in equilibrium but a set of social institutions in which a large number of commodity exchanges of a specific type regularly take place. Firm is not an efficient market in which information about production characteristics is more cheaply available but has an ability to store and reproduce gene like habits and routines, which fulfills and important protective function. Firms and organizations can not be explained solely in terms of efficiency because theory of selection of most efficient organization is missing. In short the institutional approach is process oriented and evolutionary, which implies a dynamic and open-ended conception of need [Hodgson (1989)].

Historical institutionalism is developed in response to the pluralist and neo-Marxist variants of group theories of politics and structural-functionalism prominence in political science. This Cultural approach, in contrast to calculus approach, sees individual as satisfiers rather utility maximizers. Sociological Institutionalism arose primarily within the sub-field of organization theory. Since Weber (the father of modern sociology), sociologists has seen the bureaucratic structures that dominate the modern landscape, in the government departments, firms, schools, interest organizations etc. as a product of an intensive effort to devise ever more efficient structures for performing the tasks associated with modern society. These forms were the result of rationality or efficiency in performing these tasks; culture was seen as something altogether different.

Against this view of the conventional sociology, the new institutionalism in sociology began to argue that many of these institutional forms and procedures used by modern organizations were not only the product of efficiency or transcendent rationality rather are culturally-specific practices, akin to myths and ceremonies of many societies. The new institutionalism in organization theory takes a rather different starting point. As we will see in the coming lines that the new institutional economics sees institutions as the deliberate creations of instrumentally oriented individuals; organization theorists argue that while institutions arise out of human activity, they are not necessarily the products of conscious design. Economics is often seen defining institutions in two contexts –rules of game and organization. There is an interesting analytical point to be made about the two different concepts of “institutions”-rule of game versus organizations- and their relationship to economics. Douglas North differentiates between organizations and institutions in his comparative study of economic performance as players versus rules. The purpose of the rule is to define the way game is played while the purpose of a team of players within those rules is to win the game by combinations of skills, strategy and coordination [Khalil (1995)]. Khalil (1995) defines organizations as agents like households, firms and states that has preferences and objectives. Institutions are formal and informal social constraints (rules, habits, constitutions, laws, and conventions) which reduce the available resources available. Thus in describing “institutions” either as “rules of the game” or as “organizations” there are both formal and informal characteristics to be considered. Economists concern is whether these institutions are real schemes, which define the cognitive ability of the agent as whether they are subject to optimization rationality and are nominal social constraints. The following matrix can differentiate the different paradigms in economics related to the issue of organizations versus institutions.

The issue of “institutions” was raised by the American institutionalists, following an earlier tradition of the German historical school, arguing that propositions of economic theory (i.e. mainstream neo-classical economics) were highly relative and were based upon unstated institutional assumptions of much less universal applicability that implied by the theorizing “Institutionalism” was therefore presented as a challenge to economic theory in its dominant form [Arkadie, Brain Van (1989)]. No economist would have claimed that political institutions, social attitudes etc are unimportant; the argument was rather that in the intellectual division of labor they were not the proper subject of study for the economist, or that economists had no particular competence or contribution to make to such study.

In neoclassical school of economics, both tastes and preferences of the individuals and the technological possibilities and constraints that impinge upon the economy are regarded as exogenous. Neither the Austrian school, nor many behavioral economists nor even some Keynesians diverge significantly from the orthodoxy of this point. [Hodgson (1989)]. The dominant neo-classical approach in economics traditionally takes institutional contexts as given fixed and exogenous. "Institutional" economists like Veblen challenged this Neo-Classical Tradition (NCT) in the early decades of the twentieth century. Neo-classical reliance on simplifying theoretical and mathematical models has been criticized in literature. They argued that political and social structures could block and distort "normal" economic processes. They proposed an interdisciplinary approach to economic problems, drawing on insights from sociology, politics and law. Interest in institutions reaches a low point after the Second World War, only reviving after the 1960s with the work of economic and business historians (like North and Thomas 1973; and Chandler 1977) and organizational economists, notably Williamson (1985) [Clark (1988)].

In the development debate, the earlier institutionalist criticisms of neo-classical economics were echoed in the structuralist critique. The structuralist approach emerged from the tradition of neo-classical economics. Some aspects of the structural approach have similarities with (and in some instances specific origins in) Keynesian economics. Another response by economics faced with institutional questions has been to call on the help of other disciplines for a joint attack on the problem i.e. with a multidisciplinary approach. The other main challenge to the neo-classical paradigm is from Marxist analysis. The strength of the Marxist paradigm when addressing institutional issues is precisely in its holistic ambitions, which never accepted the boundaries traditionally, defined for neo-classical "economics". Systems theory and Information Theory also involved in the debate by arguing that economic and social systems are so interrelated that they cannot meaningfully be separated and for whom there is no such thing as equilibrium growth (Perez; 1985). So new analysis must incorporate Systems Theory and Information Theory into account and in this way the analysis of living will take into account the properties like non-linearity, openness to external influence, hierarchy and adaptively. Thus the evolutionary economics, suggested that instead of just assuming away the free play of markets forces, appropriate institutional forms becomes the means of ensuring socially productive information flows among and between the various components of S/T (S and T are scientific and Technological Sectors respectively) and economic system.

Thus many of the properties of the technological change and how it impinges on economic systems and leads to development can best be described as "Informational Flow" rather than "Resource Flow". The new institutionalist economics departs from the earlier institutional tradition as well as from the neo-classical and structuralist point of views. The new institutionalist departed in its claim that institutions can be analyzed within the mainstream equilibrium-oriented neo-classical approach. The task explains Williamson is to develop a "micro-analytical approach to the study of economic organization". While accepting assumptions of individuals' utility-maximizing behavior, the new institutional economics highlights the emergence and persistence of institutions in the face of cognitive limits, incomplete information, and difficulties in monitoring and enforcing agreements. The fundamental hypothesis is that institutions exist where their benefits exceed the costs involved in creating and maintaining them. Rational Choice Institutionalism (RCI) School in political science arose from the study of American Congressional behavior. RCI in political science drew fruitful analytical tools from 'new economics of organization' which emphasizes the importance of property rights rent seeking and transactions costs to the operation and development of institutions [Moe 1984].

Especially influential was Williamson [1975] in his argument that the development of a particular organization form can be explained as a result of an effort to reduce the transaction costs. North [1973] applied the same argument to the history of political institutions. And theories of agency focus on the institutional mechanisms whereby 'Principles' can monitor and enforce compliance on their 'agents'. Efficient approach to institutions can best be illustrated with reference to Williamson's work on "markets and hierarchies". Williamson asks under what conditions economic functions are performed within the boundaries of a firm, rather than through market processes which cross firm boundaries. He proposes that transactions, which are uncertain in outcome, recur frequently and require "transaction specific investments" are more likely to take place within firms. The institution of the firm allows association between transacting agents to be secured through hierarchical authority rather than market exchange. Such arrangements are more efficient for transactions, which are characterized by bounded rationality, and by opportunism. By internalizing this type of transaction, there is no need to anticipate and weight all contingencies, and the possibility of opportunism is reduced through authority relations and closer identification between transacting partners. At the same time, exchange in the open market remains the most efficient institutional arrangement for transactions which are straightforward, non-repetitive and require no transaction-specific investments.

Put most simply, the approach sees the main purpose and effect of institutions as economizing on transaction costs. The question always is will it pay to bring an extra exchange transaction under the organizing authority? The new institutional economics has been criticized as ahistorical and over-abstract: an over-simplification of the motivational complexity involved in creation and maintaining different institutional arrangements. Criticism on Williamson's characterization of both market and hierarchy has argued that each is "embedded" in prevailing social relations. Markets are not necessarily anonymous and disordered; firms are not necessarily tightly neither controlled nor ordered. How each institution operates is dependent upon personal relations and networks of relations between and within firms. Relational contract theory has been used to explain why an individual transaction takes place within a relationship between two actors rather than within a firm or in a market.

The nucleus of neo-institutionalism approaches in finance is the separation of ownership and decision/control power in modern corporations. Transaction costs, a result of asymmetric information and the limited rationality of the market participants, are the costs associated with the initiation, determination, transfer, enforcement, and adaptation of contractual arrangements on property rights. Asymmetric information leads to moral hazard and adverse selection problems. These problems are resolved via ex post monitoring structures (a costly endeavor), which are costly, because they try to remove these information and incentive problems. Difference in transaction costs determines, depending on the specificity and the frequency of a transaction, whether open market or within-a-firm transaction is cost-efficient. The incentive based approach can be differentiated into two branches called the property rights theory and agency theory. Property rights theory provides valuable insights and explains the effects of legal and institutional rules on the behavior of the various constituents by saying that for efficient allocation of resources, positive and negative externalities should be internalized and this can be done only if all authority rights, property rights, and disposition rights are specified and are tradable in appropriate markets. Agency theory says that diverging interests need to be aligned for the delegation of disposition rights from principals to agents. These diverging interests originate because of asymmetric information (because of costs), uncertainty, external effects and a consequence of non-financial preference. Agency costs, either agency costs of equity (mitigated by financial leverage) or agency costs of debt (increased by leverage), can be minimized via ex ante contractual arrangements.

As higher leverage increases the probability of default thus increasing the indirect cost of default i.e. it lowers the market value of the firm and Jensen and Meckling (1976) projected an optimal degree of leverage that minimizes the total agency costs. Because of frictional costs originating from market imperfections (asymmetric information, agency problems and management incentive structures, limited availability of external funds (and are costly), transaction costs, default costs (direct and indirect) and convex schedule of taxes) and the stochastic nature of investment opportunities (i.e. are dependent on the prevailing economic conditions), corporate risk management can be beneficial in the neo-institutional world and banks can benefit from Tufano's (1996) shareholder Value Maximization Hypothesis (Schroek; 2002).

All banking theories describe that banks promise to pay on demand with only fractional reserves of the promised assets. In the same primary antecedent condition for par redemption in banks, Bank liability theory emphasize that bank liabilities are used as a medium of exchange and payment (Williamson; 1992, Freeman; 1996a&b, Green; 1997 and McAndrews & Roberds; 1999 as quoted in Dawyer; 2007). These studies consider a framework in which agents or frictions like they are spatially separated so they cannot contract and trade with everyone else at the same time, or there are problems of contract enforcement. Because of these facts that markets are not frictionless, Fiqh committee is also concerned about the vulnerability of deposits and one of the unresolved Fiqhi issues is the issue of third party liability. This has arisen because, in Islamic banking, funding of assets through demand deposits has given rise to leverage and limited liability confines the investors' risks to the extent of their contribution to total equity or their investment (plus unpaid calls, in the case of shareholders). This has also given rise to the unresolved corporate governance issue regarding protection of the rights of investment account holders versus shareholders. (IRTI and IFSA; 2007). The impact of agency costs of debt and equities and their inter-relationship to transaction costs have been described in Figure 3.2 in Schroek (2002). The agency costs of debt are related to likelihood of default which in turn has an effect on asset substitution, level of underinvestment, coordination of investment and financing as well as on risk preference problem of managers and other stakeholders related to equity under-investments. In nutshell, these agency costs, problems of moral hazard and asymmetric information leads to adverse series of interactions across debt through likelihood of default, over investments in equities, transaction costs (esp. in times of financial distress), coordination of investment and financing, taxes and other market imperfections.

Transparency and Risk Management

In order to counter these adverse cycles as well as for a risk-based approach to bank management to be effective, useful information must be provided to supervisors, national authorities, current and prospective share-holders and bondholders, depositors and creditors, correspondent and other banks, counterparties, international financial institutions and the general public. Transparency is a prerequisite for accountability and both are mutually reinforcing. During last decade of 19th century and first half of the first decade of 20th century, world economy and financial flows have entailed increasing internationalization and interdependence, placing the issue of openness at the forefront of economic policy making. Banking legislation traditionally has forced disclosure of information through the publication of relevant qualitative and quantitative information. In order to be transparent, accounting and financial statements' information should be useful and based on the assumptions of accrual basis and going concern, have relevance, faithful representation, comparability, understandability and comprehensiveness in order to provide a fair presentation of financial position, performance and cash flows with the constraints of timeliness, benefit versus costs and balancing qualitative characteristics. With these features in disclosures, it was assumed, that the creditors will be able to monitor borrowers more adequately and depositors are able to keep an eye on banks i.e. the poor decisions do not go unnoticed or unquestioned (Greuning; 2008).

Although, specific disclosure requirements has varied among regulators, the disclosure requirements of financial risk management practices have increased from adoption of International Financial Reporting Standards (IFRS) and inclusion of the Framework for the Preparation and Presentation of Financial Statements in it. The improvement process has gone, as per Greuning (2008), from GAAP and later on from International Accounting Standard (IAS) to full disclosure approach enabled with the transfer of IAS 32's disclosure requirements to IFRS 7.

IFRS 7 aims to rectify some of the remaining gaps in financial risk disclosure by adding, to the accounting standards, loans and receivables (designated as fair value through profit or loss), the amount of change in the financial liability's fair value (that is not attributable to changes in market conditions), the method used to determine the effects of the changes from a benchmark interest rate, recording of impairment of a financial asset through an allowance account, the amount of ineffectiveness recognized in profit or loss on cash flow hedges and hedges of net investments, gains or losses in fair value hedges arising from remeasuring the hedging instrument and on the hedged item attributable to the hedged risks and the net gain or loss on held-to-maturity investments, loans and receivables, and financial liabilities measured at amortized cost. In addition, under IAS 32 (Financial Instruments: Disclosure), information should be disclosed about both on-balance-sheet (recognized) and off-balance-sheet (unrecognized) financial instruments. IAS 39 contains supplementary disclosures about recognition and measurement of financial instruments. Besides, reporting requirements of U.S. accounting standard setters adopted in Statement of Financial Accounting Standards (SFAS) 157 (Fair Value Measurement), Statement of Financial Accounting Standards (SFAS) 115 (Accounting for Certain Investments in Debt and Equity Securities), SFAS 133 (Accounting for Derivative Instruments and Hedging Activities) and SFAS 159 (The Fair Value Option for Financial Assets and Financial Liabilities) have supplemented the disclosure process (Reidle (2009) in Anjum (2014d) and (2014f). The links between various financial variables and risks can be looked up in Anjum (2014g).

However, despite these successive improvements in disclosure, transparency and accountability, the global financial system could not stop itself from hitting the economic meltdown of 2008 that engulfed majority of financially integrated world economies, though to varying degree. The contagion effects even forced many banks to bankruptcy and thus turning back on their basic promise i.e. to pay par at demand. While this highlighted the risks that banks pose to the greater society as well as the risks that banks are faced to in this complex world of global financial markets. In the aftermath, it was felt that current regulations should be further strengthened and it gave birth to new Basel III and Dodd-Frank Act (DFA) amendments.

Harzi (2009) cover the impact of Basel III on Islamic banks. Besides other things, DFA covers systemic risk regulation, the Volker rule, swaps pushout rule, bank capital (Collins amendment), amendments to regulation of bank and thrift holding companies and depository institutions, payment, clearing and settlement, insurance, derivatives, regulation of advisers to hedge funds, investor protection, strengthening broker-dealer regulation, securities laws enforcement, capital markets, credit rating agencies, credit retention requirements, executive compensation and corporate governance and Sarbanes-Oxley (DFA; 2010).

Quantification of Fiduciary Risk: Methodology

In the post US financial meltdown and its contagion impact world over, ERM is focusing on minutest details of the risk management in banks. The specific nature of liabilities in Islamic banks it makes fiduciary risk as the most important component of CBR risk to monitor. And as relative share of various components of the balance sheet - liabilities, in this instance - is a good indication of the levels and types of risks to which a client is exposed through bank, liability side risks can be used as a measure of fiduciary risks that an Islamic bank is more susceptible of having because of specific nature of its liabilities (Greuning; 2008). Besides, these liability side of risks which clients face directly i.e. the risks of Islamic products on the liability sides of bank balance sheet (which has been provided in a survey reported in Chapra and Khan; 2000), because the assets sides of the balance sheets of Islamic banks also have Shariah products with specific Islamic risks which also put extra fiduciary burden on Islamic banks, we need to consider both asset and liabilities side of Islamic product risks to quantify the Islamic bank risks from Clients' perspective. The assets side of the balance sheet risks of Islamic banks has been ranked in Anjum (2014e) for various bank types and the quantification of fiduciary risk can use this along with additional estimation and ranking for liability side of risks. An increase in the level of non-retail deposits or funding could expose a conventional bank to greater volatility in satisfying its funding requirements, requiring increasingly sophisticated liquidity risk management. Certain funding instruments also expose a bank to market risk. In order to monitor the fiduciary risk, we need to quantify this risk in the first place. This has been taken up in this study based on the application of approach used by Anjum (2014e) which has defined six theoretical bank types based on their market orientation, unique balance sheet structures and portfolio of Shariah financial products.

The article then went on to rank all these six banks based on the risk features of assets sides of their balance sheets i.e. the study has used the balance sheet structure and risks of the product portfolio for the ranking of Islamic banks. This Islamic risks ranking of Islamic banks was carried out by using the survey data from the literature to rank the Islamic banks based on their unique structure of balance sheets based on five risk factors as criteria, analytical hierarchy process AHP as weighting technique and minmax as scoring method. The five risk factors include market risk (MR), credit risk (CR), liquidity risk (LR), operational risk (OR) and withdrawal risk (WR). WR was assumed to be constant and thus same value for all the bank types. Based on this ranking framework, the normalized scores of various banks' balance sheet asset portfolios are calculated out of percentages for various risks from survey results for various Islamic financial products. The final normalized aggregated scores for various bank types as well as the relative scores of each product in a particular bank type were calculated which are presented in second last row of Table 2. The UNV, IWC, OTM, TTI, TTC and WAK alternatives have received first, second, third, fourth, fifth and sixth positions with respective relative scores as 0.310, 0.219, 0.215, 0.154, 0.086 and 0.045.

Categories	WAK Bank	OTM Bank	TTC Bank	TTI Bank	UNV Bank	IWC Bank
MDB - UCN	1	0.236	1	0.236	0.236	0.321
MDB - CN	***	0.236	***	0.236	0.236	0.321
MSK - UCN	***	0.264	***	0.264	0.264	0.358
MSK - CN	***	0.264	***	0.264	0.264	***
GRR –Liabilities (L)	0.056	0.238	0.056	0.238	0.238	0.175
Grand Relative Ranks (GRR) – Assets (A)	0.045	0.071	0.117	0.193	0.310	0.264
GRR–Assets & Liabilities	0.051	0.154	0.086	0.215	0.274	0.219

Analytical Hierarchy Process (AHP) technique (Saaty; 1980) has been applied to banks for ranking in Čehulić (2012) and in this article AHP has been used as weighting technique for the liabilities of six types of Islamic banks (WAK, IWC, TTC, TTI, OTM and UNV) which has been defined in Anjum (2014c&e). In order to quantify fiduciary risk, this article has applied the same minmax scoring technique as used by Anjum (2014e) but there are some differences. The first such difference is that the current study has applied same approach on the liabilities side of the balance sheet for the same six bank types. Secondly, it has combined the scores of various banks types achieved with liabilities side of the balance sheet only to the scores based on assets sides as calculated in Anjum (2014e).

This combined ranking in turn gives the fiduciary risks of these bank types because fiduciary risk can arise from both sources and uses of the funds in Islamic banks because of the nature of equity based products on the both, asset and liability, sides of the balance sheets in Islamic banks. Although for layman type client only liability side of risks are obvious fiduciary risk of the bank but a lot of Islamic bank clients are either well informed high net worth individual clients or fully informed corporate clients participating especially in Mudarabah and Musharaka products, thus they also have an eye on the asset side risks of the balance sheets as there can be either an information asymmetric based risk which may lead to moral hazard and adverse selection problems by banks and thus creates a fiduciary risk for clients. Weights obtained from pair-wise comparison matrix using the sum method in Hierarchy Analytical Process (AHP) are same as used in Anjum (2013b) which provides the AHP weights as 0.536, 0.230, 0.116, 0.067 and 0.050 for CDR, MR, OR, LR and CR respectively. Besides, minmax as scoring method has been used to eliminate incommensurability by normalizing the scores between the range of 0 to 1 (Riggs et al.; 2007 and Anjum (2014a) and Anjum (2013a)). The normalized scores of six bank types for liabilities side of the balance sheet are given in table 2 along-with the relative scores of asset side of the balance sheet taken from Anjum (2014e). Besides these simplified calculations, research can also be extended to the scenario analysis for forward looking balance sheet risks and risks inherent in financial statement identities and a discussion on consolidated balance sheets and scenario analysis has been provided in Chaudhary and Anjum (1996).

Results and Conclusion

The results, presented in table 2, for various Islamic financial products like Mudarabah and Musharaka (both constrained and unconstrained types) have been provided in first four rows and are relative scores of those products within a particular bank type and these relative scores add up to unity. Thus if a particular bank type offers only one of those products, then the relative score for that one product will be one. The results in the row "GRR –Liabilities (L)" (fifth row in table 2) are relative weights across various alternative types. The liability side of the balance sheet of various Islamic bank types has shown the relative scores of 0.238, 0.238, 0.238, 0.238, 0.175, 0.056 and 0.056 for UNV, TTI, OTM, IWC, WAK and TTC respectively.

It is evident from this result that if we look only on the liability side, it gives only a partial picture of fiduciary risks because only limited Islamic financial products are offered on the sources of funds side than on the uses of funds side. The diversity of products offered on the sources of funds side increase the liability side of fiduciary risk as is evident from the least risk scores for WAK and TTC (the last position for both) which is because of only one Islamic product offered on liability side. IWC is also the low risk because it is assumed that it does not offer constrained Musharaka. Constrained products add more fiduciary risks for the clients than unconstrained ones as per liability side focus only and this reveals us the importance of inclusion of the diversity of asset side product risks into fiduciary risks so that due diligence benefits of asset sides can offset this skewed picture of only liability side risks. Finally the second last row of table 2 i.e. "Grand Relative Ranks (GRR) – Assets (A)" has been taken from Anjum (2014e) and the last row provides the ranks of all the six alternatives along-with relative grand scores for the fiduciary risk. The results for both, the 'assets-only' as well as for 'liabilities-only', have confirmed the benefits of diversification of products hypothesis.

In assets only case, it has been shown that UNV, IWC, OTM, TTI, TTC and WAK alternatives have received first, second, third, fourth, fifth and sixth lowest scores respectively. But in the liabilities only case, the ranking is a little different and WAK and TTC have got the same rank and have come as the last in the ranking. Amongst the rest of the four alternatives, all got the same score and have come first in the ranking except IWC which is second in the score. As we have mentioned above that fiduciary risk is the combination of both assets and liabilities sides risk in Islamic banks because of the profit sharing nature of the Shariah financial products. Last column in table 2 shows ranks based on fiduciary risk and the final ranks for the six alternatives are that UNV, IWC, TTI, OTM, TTC and WAK have achieved scores in the descending order meaning that the less products a bank have the higher the fiduciary risks can be. Six Universal Islamic bank with least fiduciary risks can rightly be named as Socially Adopted, Risk Weighted and Analytically Rated (SARWAR) Bank. Besides, our results have supported the conglomeration hypothesis that diversification is positively related to performance and has negated the strategic focus hypothesis that diversification is negatively related to performance which has also been supported for insurance industry by Liebenberg and Sommer (2008). However, SARWAR Bank does not necessarily need to support only conglomeration hypothesis rather it should be equally Socially Adopted, Risk Weighted and Analytically Rated (SARWAR) Bank even with a strategic focus.

This is because it does not compromise on three main dimensions that each bank need to put top priority focus which are its clientele, risk management and analytical dimension and all these three dimensions stress the importance of information technology, besides service and due diligence, for all these three dimensions.

The limitations of this analysis are the same as has been detailed in Anjum (2014e). In the first place this analysis needs to be applied on the balance sheets of real world Islamic banks. Secondly, the survey data on which this analysis has been based was conducted after 1997's Asian financial crisis but well before the US sub-prime meltdown of 2008 which has reshaped the global financial and banking landscape. Therefore, there may be some changes in risks in Shariah financial products as well. Analysis ignores correlation effects among the products and their respective risks. But important implication of this analysis can be that Islamic banks should try to diversify both sides of the balance sheet – whether sources or uses of funds – in order to diversify various risks. Last but not least, because of the quasi bank run risk because of fiduciary risk, Islamic banks need to focus on the institutional dimensions of the balance sheet risks rather than focusing on the economic and business dimensions only.

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