DETERMINANTS OF SUSTAINABLE GROWTH: A COMPARATIVE ANALYSIS OF CONVENTIONAL AND ISLAMIC BANKS

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Abstract

The purpose of this paper is to empirically examine the effect of intangible and financial resources on accounting- and market-based performance of two bank business models i.e. conventional and Islamic banks operating in fourteen different countries worldwide for two periods referred as pre (2006-2007) and post (2009-2010) financial crisis (568 observations). The required data to calculate different constituents of intangible (i.e. intellectual capital (IC)) and financial resources is derived from Bankscope database. The results reveal that both IC and financial capital resources are necessary for banks being conventional or Islamic to create value at all times i.e. pre- and post-crisis period. The results further indicate a positive relationship between IC, financial capital and accounting performance of both sets of banking; however IC and financial capital are only significantly associated with the market value of Islamic banks.

Keywords: Bank Business Model; Intangible Resources; Financial Performance; Market Value; Financial Crisis

1. INTRODUCTION

The world has witnessed various evolutionary stages in the field of banking and finance. Liberalization of financial markets at a global scale, the IT revolution and an upward trend in using advanced technologies are all those factors which have put competitive pressure on financial institutions and banks in particular (Carvallo and Kasman, 2005). As a result, competition in banking has intensified over the past decade (Ariss, 2010). Banks operating in the emerging economies are particularly facing this pressure as they constitute the main financial intermediaries to channel savings and investments. In this context, the competitive advantage is enhanced if banks can function efficiently (Mohamad *et al.*, 2008).

Parenthetically, conventional financial institutions (CFIs) are enjoying several advantages over the alternative ethical banks i.e. Islamic financial institutions (IFIs). CFIs, for instance, have proven track record in offering banking solutions on a global scale, enjoy huge sums of capital, and have more expertise along with advanced technologies as compare to IFIs. Despite the odds, Islamic banking is one of the fastest growing segment in the contemporary finance (Ernst and Young, 2013; Nawaz and Haniffa, Forthcoming), Islamic finance have become systemically important in many markets and too big to ignored in others i.e. Europe and the Americas (Nawaz, 2013b; Nawaz, 2015). Given the robust growth of Islamic finance industry, many leading conventional banking groups i.e. Citibank, HSBC, Standard Chartered bank etc. have expended into Shariah-compliant business via their extended hands, Islamic Shariah-windows (ISWs). As a consequence, the number of financial institutions offering Shariah-compliant products has increased causing competition within Islamic finance industry. Consequently, IFIs have to compete with (i) CFIs, (ii) IFIs, and (iii) ISWs.

Urged by the diversity in the financial sector, many studies have analyzed the performance efficiency of CFIs and IFIs (Bashir, 1999; Samad and Hassan, 1999; Hassan and Bashir, 2003; Yudistira, 2004; Olson and Zoubi, 2008). The empirical literature submits significant differences between conventional and Islamic financial institutions in terms of their performance efficiency particularly, during the financial crisis. The empirical evidence further posit for the sound financial health of Islamic finance industry and reports an upward trend in the growth of total assets held by the IFIs (Hasan and Dridi, 2010; Beck *et al.*, 2013; Johnes *et al.*, 2014).

While these studies are clearly important, they do not explain why some financial institutions performed better than others, despite that these institutions were exposed to the same macroeconomic factors. Further, these studies looked at the effects of tangible or financial assets on bank performance but paid little attention to the investigation of how financial intermediaries exploit their intangible resources i.e. intellectual capital (IC) in a knowledge-driven economy. IC is a strategic asset which helps an organization to maintain its profitability and sustain competitive advantage in the market. IC is highly significant to financial institutions because the basic nature of the banking business is knowledge intensive (Chen *et al.*, 2014). Therefore, knowing how intangible aspects (IC) affect performance is of paramount importance. Comprehending whether higher IC efficiency has a significant effect on bank's survival likelihood and how this effect differs during a time of financial turmoil is an important detail for all concerned stakeholders.

Given the absence of any study as such in the literature, the issue of the effects of knowledge-

assets and tangible-resources on the economic performance of different financial institutions, the magnitude of these effects, and how they might differ across time horizons boils down to an empirical question, one that is confronted in this paper. Against this background, the goal of this paper is to empirically examine and compare the proportionate effects of IC and financial resources on two dimensions of bank performance, accounting performance based on ROA and market performance based on Tobin's Q in pre- and post-crisis period.

The paper proceeds as follows. The next section presents a review of the literature and development of the hypotheses. Section 3 describes the research method employed followed by empirical analysis in Section 4. Section 5 provides discussion of the findings while the final section presents the concluding remarks.

2. BACKGROUND AND HYPOTHESIS DEVELOPMENT

The basic assumption underlying the conventional banking theories is that banks accept deposits at lower interest rate and resell those deposited funds to those seeking for economic activities on higher interest rate thus, profit in conventional banking is mainly driven by the spread between the interest rates i.e. interest rate received from the capital borrowers and interest rate paid to the depositors (Santos, 2001). The contention here is that IFIs perform the same intermediary function with the exception of predetermined interest rate. In other words, IFIs do not receive or pay a prefixed interest rate instead profit is earned through investments in legitimate projects and shared on the basis of agreements between depositors and borrowers. Thus, Islamic banking is considered as a different banking stream wherein the whole phenomenon is based on Shariah (Islamic) law, which guides Islamic Economics[1].

Sustained performance of Islamic finance industry during the global financial crisis has attracted increased attention on Islamic way of banking. Academics and policy makers alike point to the advantages of Islamic banking model and how it helped contain the adverse impact on profitability during the crisis. Hasan and Dridi (2010), for instance, submit that the credit and asset growth of Islamic finance were at least twice higher than that of conventional banks during the global financial crisis. While the financial crisis gave Islamic finance an opportunity to prove their resilience, it also highlighted the need to address important challenges facing Islamic finance industry. IFIs came into existence to provide ethical/cooperative financial solutions to the society at large and are not subject to any ethnical group. Therefore such institutions are expected to be more innovative in providing alternate banking solutions. In order to compete effectively and sustain competitive advantage, IFIs need to come up with newly products as to fulfil the increasing needs of their clients, which are more diversified than before. Such product innovation requires higher knowledge resources, especially human intellectually. Equally, sophisticated structural capital is needed to execute the innovative ideas and convert them into tangible assets. At the same time IFIs are constrained by the Shariah-code, not to raise capital from illegitimate sources. As an intellectually intensive sector, knowledge resources i.e. IC tend to be extremely important for financial institutions being CFIs or IFIs.

Stewart and Ruckdeschel (1998) posits that every business relies increasingly on knowledge and old-fashioned experience. Added together, this knowledge is intellectual capital and it can be defined as the sum of everything everybody in the company knows that will help to provide competitive edge in the market. According to Sullivan (2000), IC basically constitutes knowledge, lore and innovations while Sveiby (1997) describes IC as the knowledge, experience, employee intellect and knowledge resources stocked up in an organization's databases system processes, culture and philosophy. IC is further divided into various components. The study adopts the IC calcification of Edvinsson and Malone (1997), who classified IC into human capital and structural capital. The former is grounded on the knowledge created and stored by a firm's employees, while the latter is based on the embodiment, empowerment and supportive infrastructure of human capital.

2.1. Development of hypothesis

The resource-based view of the firm argues that differences in profitability across organizations can be explained by differences in their portfolio of resources and how these resources are articulated (Wernerfelt, 1984). According to Barney (1991) the resource-based theory recognizes intangible assets as critical factors in generating sustainable competitive advantage necessary for the creation of superior business performance. Markets around the globe have witnessed an industrial shift from being capital-intensive to knowledge-based with more intangible resources. The traditional performance measures fail to measure and monitor multiple dimensions of performance as they concentrate almost exclusively on financial aspects of the organizations (Amaratunga *et al.*, 2001). Therefore, new techniques are necessary to measure the value of intangibles and their impact on firm's performance.

2.1.1. Value added and performance

According to O'Cass and Ngo (2011), the primary pursuit of business is to create and maintain value. The concept of value added, which refers to the overall value creation efficiency of all resources a firm possesses, is increasingly viewed as an important variable in assessing performance (Biondi and Rebérioux, 2012). Various authorities argue that value creation in the knowledge-intensive sectors such as the banking industry require both IC and physical assets (Watson and Holland, 2010; Chen *et al.*, 2014). Watson and Holland (2010) exposes how IC and financial resources impact on the value creation process in banking whereas Chen *et al.* (2014, p. 566) regards IC and knowledge-based intangibles as 'the primary sources of sustainable

[1] Under Shariah, IFIs are duty-bound: 1) not to charge interest payments; 2) not allowed for speculation; and 3) are prohibited from financing of specific illicit activities. Furthermore, the risk sharing principle and real economic transactions backed by tangible asset, suggests clear differences in the funding and activity structures of Islamic and conventional financial institutions (Beck et al., 2013).

competitive advantage in banking'. Accordingly, it is expected that higher a firm's aggregate stock of IC, more successful the firm will be and greater will be its competitive advantage. In other words, the higher the total value added (TVA) that the CFI or IFI has, the higher will be their accounting- and market-based performance at all times i.e. pre- and post-financial crisis. Hence, the main hypothesis to be tested is that IC enhances the survival probability of banks in normal times as well as in the times of financial turbulence. The hypothesis is in line with the resource-based view of the firm by anticipating a positive contribution of IC as a strategic asset, and in line with the stakeholder view by measuring bank performance by the net value added created. Therefore, the first set of hypotheses is as follows:

Hypothesis 1: *There is a significant positive relationship between TVA and financial performance of CFIs based on ROA in pre- and post-financial crisis period*

Hypothesis 2: *There is a significant positive relationship between TVA and market performance of CFIs based on Tobin's Q in pre- and post-financial crisis period*

Hypothesis 3: *There is a significant positive relationship between TVA and financial performance of IFIs based on ROA in pre- and post-financial crisis period*

Hypothesis 4: *There is a significant positive relationship between TVA and market performance of IFIs based on Tobin's Q in pre- and post-financial crisis period*

2.1.2. Intellectual capital and performance

Human capital is a critical organizational capability which corresponds directly to the propensity to service innovativeness to satisfy customer needs and improve firm value (Dotzel *et al.*, 2013; Nawaz and Goj, 2013; Nawaz, Forthcoming-a). Likewise, Colombo and Grilli (2005) suggest that firms with greater human IC (i.e. higher education or skill) are likely to have better entrepreneurial judgment and as long as human IC continues to be developed, staff can improve their job performance and ultimately improve the firm's performance (Hsu, 2007; Nawaz, Forthcoming-a). Equally, structural IC provides an environment which enables an organization to create and leverage knowledge. An organization with strong structural IC will have a supportive culture that encourages employees to try and learn new knowledge (Florin *et al.*, 2003). De Brentani and Kleinschmidt (2004) submit that an organization's operation processes and the organizational commitment of sufficient resources have a significant impact on performance whereas Youndt et al. (2004) found structural IC to be typically associated with financial returns and Tobin's Q. Similarly, Hsu and Wang (2012) posit that structural IC, i.e. operations, procedures and the processes of knowledge management, propels organizations' value creation activities which have a positive effect on their performance. This argument is in line with the resource-based view of the firm, which attributes superior economic performance to organizational resources and capabilities (Bharadwaj, 2000). Since RBV explicitly recognizes the importance of tangible and intangibles i.e. value added by intellectual capital (ICVA), it offers a significant opportunity to explore these theoretical complementarities in examining the relationship between IC resources and the economic performance of different financial institutions. Therefore, the next set of hypothesis is;

Hypothesis 1a: *There is a significant positive relationship between ICVA and financial performance of CFIs based on ROA in pre- and post-financial crisis period*

Hypothesis 2a: *There is a significant positive relationship between ICVA and market performance of CFIs based on Tobin's Q in pre- and post-financial crisis period*

It should be noted that human IC is important for IFIs as employees are expected to not only have conventional knowledge and skills related to the provision of such services but also having good knowledge on Shariah as this will enhance the credibility and reputation of IFIs in the market place (Nawaz, 2013b; Nawaz, 2013a; Nawaz *et al.*, 2014). The knowledge embedded in the human IC employed by the IFIs is valuable, rare, and isolated from imitation or substitution (Nawaz, 2016). Likewise, IFIs adopt different structural process and system to track and record their transactions hence, requires development and investment in the structural processes that will enhance their performance. Furthermore, IFIs adopt a rare structural mechanism, which is not imitated by its conventional rivers. Therefore, hypotheses to be tested are:

Hypothesis 3a: *There is a significant positive relationship between ICVA and financial performance of IFIs based on ROA in pre- and post-financial crisis period*

Hypothesis 4a: *There is a significant positive relationship between ICVA and market performance of IFIs based on Tobin's Q in pre- and post-financial crisis period*

2.1.3. Financial capital and performance

Research generally, explains that IC has to be contextualized by other resources including physical and financial ones (de Castro and Sáez, 2008; Murthy and Mouritsen, 2011; Chen *et al.*, 2014). At the crux of theses research is that IC does have the positive agenda of growth proposed by the IC model where it is understood to bring financial capital forward. Yet, the dilemma is that IC is not only a resource; it is also expensive and has to compete with many other types of investments that emerge as part of organizational processes such as financial planning and budgeting (Hsu and Wang, 2012). While prior research has identified difficulties in establishing credible, statistical relations between non-financial and financial performance measures (Ittner, 2008; Wyatt, 2008), Murthy and Mouritsen (2011) analyzed the relationship between IC and financial capital and submit that the relationships between IC and financial capital are challenging to specify because they are complementary rather than causal. However, the study was able to suggest that higher firm performance is subject to the combination of firm's IC and financial capital. Likewise, most recent empirical evidence Beltratti and Stulz (2012), Berger and Bouwman (2013), and Chen *et al.* (2014) posit that financial capital helps bank to enhance the survival probability and market share at all times i.e. normal times and times of financial distress. Accordingly, value added by financial capital (FCVA) is expected to be positively associated with firm performance. Hence, the next set of hypotheses is;

Hypothesis 1b: *There is a significant positive relationship between FCVA and financial performance of CFIs based on ROA in pre- and post-financial crisis period*

Hypothesis 2b: *There is a significant positive relationship between FCVA and market performance of CFIs based on Tobin's Q in pre- and post-financial crisis period*

Most of the IFIs are based along the Arabian Peninsula, which is blessed with petrodollar. The powerful groups in the Gulf-region refer to particularly the Royal families, their extended families, and to a lesser degree those having close working relationship with them (Hudaib and Haniffa, 2009). These groups own most of the wealth in the Gulf-region. This provided Islamic banking an opportunity to lure the huge sums of petrodollars amassed in Royal hands, as well as the small group of local capitalist élites, to benefit the wider society. This brings huge sums of money into the Shariah-compliant business and alternatively, increases the physical and financial capital base of IFIs (Nawaz and Haniffa, Forthcoming). The financial capital raised from shareholders and depositors must be managed efficiently as it is based on the Islamic concept of *Amanah* (trust) (Nawaz, Forthcoming-b). Since no interest is involved in Islamic way of banking and profit is solely earned through employing capital in different projects, therefore, it is expected the efficiency of capital employed to be positively associated with the overall performance of IFIs. Hence, the next hypotheses are;

Hypothesis 3b: *There is a significant positive relationship between FCVA and financial performance of IFIs based on ROA in pre- and post-financial crisis period*

Hypothesis 4b: *There is a significant positive relationship between FCVA and market performance of IFIs based on Tobin's Q in pre- and post-financial crisis period*

Borrowing from the agency theory of the firm, it is argued that conventional banking model is based on the central assumption of self-interest of individuals, who tend to maximize their own returns by all means available to the firm, which might result in conflicts between both parties, known as the agency problem (Eisenhardt, 1989; Baiman, 1990; Kunz and Pfaff, 2002). While IFIs are not expected to suffer from the same due the trust factors among the parties involved in business. In sum, the operating mechanism of conventional and Islamic banking system is entirely different so as the knowledge stock i.e. IC and tangible resource base i.e. physical and financial capital. Taken the significance of the arguments together, both sets of banking are expected to utilize their resource base i.e. IC, physical, and financial resources differently hence, achieve different level of performance as a consequence. Therefore, the hypothesis to be tested here is that there exist significant differences in the IC performance of both sets of banking i.e. CFIs and IFIs at all times.

Hypothesis 5: *There are significance differences in the effect of IC and financial resources on economic performance of CFIs and IFIs at all times*

3. METHODOLOGY, VARIABLES AND DATA

The sampled banks in the present study were selected based on the BankScope database. After eliminating banks with insufficient information, 142 banks (71 individual CFIs and 71 IFIs) using stratified sampling technique (Sekaran (2006) were selected. Hence, obtaining 568 (284 for each set of banking) firm-year observations for the fiscal years 2006–2007 (referred as pre-crisis) and 2009–2010 (referred as post-crisis).

Considerable empirical evidence suggests that IC efficiency has positive effects on the accounting- and market-based performance of banks. Following the prior bank performance literature (Hasan and Dridi, 2010; Hsu and Wang, 2012; Beck *et al.*, 2013) and consent with the suggestion of Hirschey and Wichern (1984) and Venkatraman and Ramanujam (1986), two distinct performance measures: ROA and Tobin's Q to measure economic performance of both sets of banking were employed. ROA is computed as the net income available to stockholders divided by total assets while Tobin's Q is measured as the sum of market capitalization and book value of liabilities divided by total assets.

The value added intellectual coefficient (VAIC) devised by Pulic (2000) forms the basis in measuring the efficiency of value added (VA) by a firm's total resources as well as each major resource component (Ho and Williams, 2003). VAIC[2] is a composite sum of three indicators termed as: (1) Human Capital Efficiency (HCE), an indicator of the efficiency of VA by human capital resources employed; (2) Structural Capital Efficiency (SCE), an indicator of the efficiency of VA by structural capital; and (3) Capital Employed Efficiency (CEE), which indicates how much value is created for every monetary unit invested in financial or physical capital.

Several control variables as suggested by the extant literature (Majid *et al.*, 2010; Parashar and Venkatesh, 2010; Beltratti and Stulz, 2012; Berger and Bouwman, 2013) are also employed to account for the potentially confounding effects of bank-specific characteristics. The control variables used in the main regressions are: (i) bank-size, proxied by the natural logarithm of total capital; (ii) leverage; (iii) number of subsidiaries; (iv) listing status, dichotomous, yes/no; and (v) type of auditor (big-four vs. non-big four).

4. EMPIRICAL RESULTS AND ANALYSIS

4.1. Descriptive statistics and correlation matrix

Table 1 reports descriptive statistics and correlation matrix for selected firm characteristics, including mean, standard deviation, minimum, maximum, skewness and kurtosis for CFIs before (Panel A) and after (Panels B) the financial crisis for all variables used in the main analysis. Overall financial performance of sampled CFIs before-crisis is sound as indicated by ROA with a mean of 1.74, however, it should be noted that the mean of 0.88 for ROA, after-crisis demonstrate the substantial impact of the financial crisis on accounting performance of CFIs.

[2] Value added of a firm is calculated by subtracting expenses from revenues. HCE is calculated by dividing a company's VA by its expenditures on human capital. SCE is calculated by dividing a company's investment expenses on structural capital by its VA. A firm's CEE is obtained by dividing its VA by the book value of the net assets. A high coefficient indicates a higher value creation using the firm's resources including IC. Consistent with Ho and Williams (2003) VAIC scores are a proxy for TVA; and the sum of HCE and SCE scores proxy for ICVA; and CEE scores proxy for FCVA.

Table 1. Descriptive Statistics and Correlation Matrix for CFIs before- and after-crisis

	Mean	Std. Dev.	Min.	Max.	Skew.	Kurt.	1	2	3	4	5	6	7	8	9
1. ROA	1.740	1.310	-1.860	3.240	-0.860	3.270	1.00								
2. Tobin's Q	0.220	0.310	-0.090	0.900	1.330	3.380	-0.150								
3. TVA	4.360	1.410	0.680	6.170	-0.860	3.450	**0.490**	**-0.370**							
4. ICVA	3.990	1.400	0.630	5.870	-0.670	2.770	**0.570**	**-0.350**	**0.880**						
5. FCVA	0.240	0.100	0.040	0.420	-0.490	2.710	**0.420**	**-0.350**	**0.390**	**0.460**					
6. BSIZE	14.570	1.250	12.270	16.450	-0.580	2.340	0.280	**-0.690**	**0.420**	**0.460**	**0.540**				
7. LEV	37.450	19.230	0.550	71.150	0.210	1.900	0.010	-0.010	-0.020	0.030	0.190	0.180			
8. NSub	5.810	6	0	17	0.870	2.310	0.160	-0.190	0.100	-0.020	0.040	0.100	-0.270		
9. Listing	0.590	0.490	0	1	-0.380	1.150	0.080	-0.260	0.090	0.020	0.000	0.190	0.060	**0.330**	
10. ATYP	0.880	0.330	0	1	-2.270	6.140	0.200	-0.080	0.180	0.130	0.030	0.110	-0.070	**0.300**	-0.120
	Mean	**Std. Dev.**	**Min.**	**Max.**	**Skew.**	**Kurt.**	***1***	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***
1. ROA	0.876	1.509	-1.859	3.239	-0.294	2.096	1.00								
2. Tobin's Q	0.175	0.323	-0.091	0.903	1.368	3.414	-0.026								
3. TVA	3.682	1.736	0.682	6.172	-0.316	2.062	**0.304**	-0.255							
4. ICVA	3.468	1.570	0.632	5.873	-0.140	1.922	0.244	-0.236	**0.960**						
5. FCVA	0.212	0.114	0.041	0.419	0.342	2.309	0.170	-0.126	**0.445**	**0.409**					
6. BSIZE	14.479	1.454	12.273	16.454	-0.169	1.701	0.098	**-0.611**	**0.492**	**0.519**	0.270				
7. LEV	44.502	22.169	0.983	77.276	-0.430	2.112	0.106	-0.098	**0.324**	0.274	**0.383**	0.246			
8. NSub	5.813	6.002	0	17	0.866	2.313	0.015	-0.201	-0.230	-0.209	-0.042	0.119	**-0.374**		
9. Listing	0.594	0.493	0	1	-0.382	1.146	0.173	**-0.441**	-0.065	-0.086	-0.013	0.087	0.011	**0.325**	
10. ATYP	0.875	0.332	0	1	-2.268	6.143	0.001	-0.046	-0.061	-0.038	**-0.289**	0.180	-0.259	**0.296**	-0.120

Notes: *ROA = net income available to stockholders/total assets, Tobin's Q = market capitalization + total liabilities / total assets. VA = total income – total expenses; HC = total personal expenses, HCE = VA/HC; SC = VA – HC, SCE = SC/VA; Physical capital (CE) = physical and financial capital employed, FCVA = VA/CE, and TVA = ICVA + FCVA. Bank-size (BSIZE) = log of total assets; Leverage = using total debt/ total assets; NSub = total number of existing subsidiaries; Listing status (Listing) = dichotomous, yes/no, and Type of auditor (ATYP) = big four vs. non-big four. Pearson Correlations significant at the 1% level are shown in bold*

Table 2. Descriptive Statistics and Correlation Matrix for IFIs before- and after-crisis

	Mean	Std. Dev.	Min.	Max.	Skew.	Kurt.	1	2	3	4	5	6	7	8	9
1. ROA	1.923	2.066	-3.810	3.809	-1.310	4.220	1								
2. Tobin's Q	0.825	0.273	0.245	1.126	-1.064	2.936	0.171								
3. TVA	4.490	1.854	0.361	7.030	-0.853	3.137	**0.435**	**0.504**							
4. ICVA	4.171	1.774	0.310	6.841	-0.581	2.614	**0.571**	**0.498**	**0.896**						
5. FCVA	0.220	0.136	-0.094	0.488	-0.058	3.040	**0.483**	**0.413**	**0.376**	**0.423**					
6. BSIZE	14.313	1.447	10.787	16.836	-0.807	3.099	**0.370**	**0.423**	**0.336**	**0.386**	**0.455**				
7. LEV	39.318	22.325	4.369	77.986	0.363	2.073	0.079	-0.014	0.040	0.055	**0.446**	0.273			
8. NSub	5.875	6.799	0	20	1.026	2.714	0.228	0.087	-0.054	-0.014	0.191	0.262	0.063		
9. Listing	0.484	0.502	0	1	0.063	1.004	0.200	0.277	0.222	0.272	0.185	0.264	0.231	**0.313**	
10. ATYP	0.813	0.392	0	1	-1.601	3.564	-0.128	-0.100	**-0.292**	**-0.329**	-0.074	-0.188	-0.036	0.053	-0.015
	Mean	**Std. Dev.**	**Min.**	**Max.**	**Skew.**	**Kurt.**	***1***	***2***	***3***	***4***	***5***	***6***	***7***	***8***	***9***
1. ROA	-0.045	2.168	-3.810	3.809	-0.454	2.203	1								
2. Tobin's Q	0.822	0.284	0.245	1.126	-0.990	2.625	0.284								
3. TVA	3.505	2.082	0.361	7.030	0.137	2.100	**0.583**	0.263							
4. ICVA	3.252	1.953	0.374	6.874	0.353	2.132	**0.623**	**0.357**	**0.943**						
5. FCVA	0.176	0.168	-0.094	0.488	0.142	2.169	**0.617**	**0.395**	**0.658**	**0.658**					
6. BSIZE	14.383	1.676	10.787	16.836	-0.545	2.411	**0.402**	**0.431**	**0.415**	**0.471**	**0.451**				
7. LEV	47.098	20.903	4.369	77.986	-0.436	2.342	**0.353**	0.002	**0.308**	**0.333**	**0.478**	**0.406**			
8. NSub	6.188	6.980	0	20	0.953	2.517	0.125	0.121	-0.090	-0.070	-0.052	0.218	-0.185		
9. Listing	0.477	0.501	0	1	0.094	1.009	**0.326**	**0.409**	0.103	0.148	0.186	0.202	0.157	0.233	
10. ATYP	0.813	0.392	0	1	-1.601	3.564	-0.142	-0.039	**-0.373**	**-0.410**	-0.135	-0.167	-0.082	0.088	-0.023

Notes: See Table 1 for variable definitions. Pearson Correlations significant at the 1% level are shown in bold.

Similar trends for the market-based performance of CFIs can be observed, in which average Tobin Q is decreased from 0.22 to 0.18 in before- and after-crisis period respectively. As for the continuous independent variables, it can be seen that the average mean of TVA is 4.36 and 3.68 before- and after-crisis respectively, suggesting that the sampled CFIs were generally effective in generating value from their IC and physical capital base. Similar declining trends in the sub-components of TVA can also be observed. Turing to the firm-specific control variables, it can be seen that bank-size has slightly decreased after the crisis whereas leverage has substantially increased from 37.45 in before crisis to 44.50 in after crisis period. All dummy variables remain constant over the period.

Results of correlations analysis are provided in eighth to seventeenth columns of Table 1. ROA is positively related with TVA before- and after-crisis, indicating that efficiency in creating corporate value or the extent of corporate intellectual ability enhances firm's financial performance

Similarly, ROA is found to be significantly related with ICVA and FCVA in pre-crisis period, however, the relationship is not statistically significant after the crisis. Conversely, Tobin's Q relates (negatively) with TVA, ICVA, and FCVA respectively only before the financial crisis. Among firm-related variables bank-size significantly relates with Tobin's Q at all times, in the negative direction. Similarly, BSIZE relates positively and significantly with TVA and its sub-components at all times, except for FCVA where the relationship is not significant after the crisis

Table 2 reports descriptive statistics and correlation matrix for selected firm characteristics, including mean, standard deviation, minimum, maximum, skewness and kurtosis for IFIs before (Panel A) and after (Panels B) the financial crisis for all variables used in the main analysis. Overall financial performance of sampled IFIs before-crisis is sound as indicated by ROA with a mean of 1.92, however, it should be noted that the mean of -0.05 for ROA, after- crisis demonstrate the substantial impact of the financial crisis on accounting performance of IFIs. Interestingly, Tobin's Q is steady with a mean of 0.82 at all times, suggesting that investors' confidence in IFIs remained unshaken. As for independent variables, it can be seen that mean of TVA is 4.49 and 3.51 before- and after-crisis respectively, suggesting that the sampled IFIs were generally effective in generating value from their IC and FC base.

The sensitivity analyses of the sub-components of TVA also suggest similar trends. As for the microeconomic control variables, it can be noted that unlike the CFIs size of IFIs has increased from 14.31 (before-crisis) to 14.38 (after-crisis). Likewise, NSub has also increased from 5.88 to 6.19 in pre- and post-crisis period respectively. The dummy variables *viz*. listing status and type of auditor have remained unchanged.

Results of correlations analysis are provided in eighth to seventeenth columns of Table 2. ROA is positively related with TVA, ICVA, FCVA, and BSIZE at all times. Interestingly, ROA relates with leverage and listing status after the crisis. In contrast, Tobin's Q significantly relates with TVA and its sub-components before the crisis whereas after the crisis Tobin's Q is only significantly correlated with ICVA and FCVA. Among firm-related variables, BSIZE relates with Tobin's Q at all times whereas listing status relates positively with the market-based performance of IFIs after the crisis.

4.1. Multivariate Analysis

To examine the effects of intangible and financial resources on the economic performance of both sets of banking in pre- and post-financial crisis period, the study estimates alternative versions of the following panel regression specification:

$$PERF = \alpha + \beta 1TVA + \beta 2FIRM\ (lnBSIZE + LEV + NSub + Listing + ATYP) + \varepsilon \quad (1)$$

where, PERF denotes one of the alternative performance measures (ROA or Tobin's Q), TVA is total value added from IC and financial resources, and FIRM includes all five firm-specific control variables.

4.1.1. Accounting performance of CFIs and IFIs in pre- and post-crisis period

4.1.1.1. Accounting performance of CFIs before- and after-financial crisis

Table 3 reports the estimation results of alternative versions of Eq. 1 with ROA as the dependent variable for CFIs. Models 1, 1a, and 1b are parsimonious versions of Eq. 1.

Table 3. Cross-sectional OLS regression of ROA on TVA, ICVA, FCVA and control variables for CFIs before- and after-financial crisis

	Before Crisis			*After Crisis*		
	Model 1	***Model 1a***	***Model 1b***	***Model 1***	***Model 1a***	***Model 1b***
N	142	142	142	142	142	142
Constant	-1.495	-0.616	-0.0391	0.799	0.577	-0.729
Adj. R^2	0.225	0.324	0.207	0.103	0.062	0.030
R^2	0.2675	0.361	0.2509	0.1528	0.1139	0.0836
F-Value	7.81***	13.35***	10.01***	3.45**	2.68*	1.96*
TVA	0.405***			0.342***		
ICVA		0.530***			0.299***	
FCVA			5.853***			2.864*
BSIZE	0.0657	-0.0268	-0.0209	-0.142	-0.114	0.0147
LEV	0.00225	0.00242	-0.00422	0.00295	0.00488	0.000888
NSub	0.0194	0.0313*	0.0125	0.0157	0.0107	-0.0154
Listing	0.0226	0.0918	0.162	0.602**	0.616**	0.631**
ATYP	0.314	0.320	0.479*	0.239	0.235	0.412

Notes: *** p<0.01, ** p<0.05, * p<0.1.

Focusing first on the results of Model 1, reported in the second and fifth columns of Table 3, the estimated coefficients for TVA are positively and statistically significant with ROA at the 1% level at all times thereby suggesting that higher TVA improves CFI's profitability. Thus hypothesis (H_1) is supported. Results from Model 1a, reported in third and sixth columns of Table 3 respectively, indicates significant positive relationship at 1% level between ICVA and ROA. Likewise, results in Model 1b, reported in the fourth and seventh columns of Table 3, suggest a significant positive relationship between FCVA and ROA at 1% and 10% level in pre- and post-crisis period respectively. Therefore, consistent with the hypotheses (H_1a and H_1b) the estimates indicate that strong IC and FC efficiency have positive effect on profitability of CFIs at all times. In contrast, none of the firm-related variables is associated with the accounting-based performance of CFIs in the pre-crisis period except for listing status which relates positively with ROA after the crisis.

4.1.1.2. Accounting performance of IFIs before- and after-financial crisis

Table 4 reports the estimation results of alternative versions of Eq. 1 with ROA as the dependent variable for IFIs. Models 1, 1a, and 1b are parsimonious versions of Eq. 1.

Table 4. Cross-sectional OLS regression of ROA on TVA, ICVA, FCVA and control variables for IFIs before- and after-financial crisis

	Before Crisis			After Crisis		
	Model 1	***Model 1a***	***Model 1b***	***Model 1***	***Model 1a***	***Model 1b***
N	142	142	142	142	142	142
Constant	-4.327**	-3.890**	-2.039	-4.773***	-4.143***	-3.166*
Adj. R^2	0.242	0.365	0.273	0.431	0.463	0.420
R^2	0.2842	0.3997	0.3134	0.4619	0.4922	0.4519
F-Value	8.08***	9.76***	4.98***	15.81***	19.58***	17.10***
TVA	0.433***			0.542***		
ICVA		0.662***			0.653***	
FCVA			7.040***			6.657***
BSIZE	0.274*	0.169	0.219*	0.0697	0.00310	0.0916
LEV	0.000165	0.00183	-0.0183*	0.0179**	0.0175**	0.00688
NSub	0.0630***	0.0689***	0.0285	0.0443*	0.0475**	0.0354
Listing	-0.0627	-0.298	0.327	0.847**	0.720**	0.755**
ATYP	-0.0859	0.239	-0.498	0.294	0.434	-0.369

Notes: *** p<0.01, ** p<0.05, * p<0.1.

Focusing first on the results of Model 1, reported in the second and fifth columns of Table 4, the estimated coefficients for TVA are positively and statistically significant with ROA at the 1% level, before-and after-crisis, thereby suggesting that higher TVA improves IFI's profitability. Thus hypothesis (H_3) is supported. Results from Model 1a, reported in second and fifth columns of Table 4 respectively, indicates significant positive relationship at 1% level between ICVA and ROA. Likewise, results in Model 1b, reported in the fourth and seventh columns of Table 4, suggest a significant positive relationship at 1% level between FCVA and ROA. Therefore, consistent with the hypotheses (H_3a and H_3b) the estimates indicate that strong IC and FC efficiency have positive effect on profitability of IFIs at all times. The results for the firm-related control variables are also different from those observed for CFIs. NSub relates with the accounting based performance of IFIs at 1% level and 10% level in the pre- and post-crisis period respectively. This implies that profitability in IFIs increase as number of subsidiaries increase while BSIZE is associated with ROA in pre-crisis period. Interestingly, listing status and leverage relate positively with ROA and 5% level, suggesting that increase in leverage as well as listing status increase IFI's profitability.

4.1.2. Market performance of CFIs and IFIs in pre- and post-crisis period

4.1.2.1. Market performance of CFIs before- and after-financial crisis

Table 5 presents the regression results for the effects of IC and FC efficiency on market performance of CFIs, based on Tobin's Q. Like before, Models 2, 2a, and 2b are estimated using parsimonious versions of Eq. 1 with Tobin's Q as the dependent variable.

The estimates indicate that TVA is not associated with market valuation of CFIs at all times. Thus, hypothesis (H_2) is rejected. Likewise, none of the sub-component of TVA is associated with Tobin's Q at all times i.e. pre- and post-crisis period. Hence, no support is find for hypotheses H_2a and H_2b. Surprisingly, firm size relates negatively with the market-based performance of CFIs at all times at 1% level, suggesting that market value of CFIs decreased as firm size increases. In contrast operating region relates positively with Tobin's Q at 5% at all times, suggesting that CFIs based in the Gulf region remained profitable. Likewise, listing status relates negatively with Tobin's Q, suggesting listed CFIs were highly affected by the financial meltdo.

Table 5. Cross-sectional OLS regression of Tobin's Q on TVA, ICVA, FCVA and control variables for CFIs before- and after-financial crisis

	Before Crisis			*After Crisis*		
	Model 2	***Model 2a***	***Model 2b***	***Model 2***	***Model 2a***	***Model 2b***
N	142	142	142	142	142	142
Constant	2.689***	2.695***	2.807***	2.139***	2.169***	2.132***
Adj. R^2	0.505	0.501	0.499	0.550	0.551	0.555
R^2	0.5323	0.5281	0.5267	0.5749	0.5761	0.5796
F-Value	18.25***	18.33***	18.17***	17.89***	18.25***	17.75***
TVA	-0.0209			0.00257		
ICVA		-0.0134			0.00927	
FCVA			0.142			0.237
BSIZE	-0.163***	-0.166***	-0.179***	-0.130***	-0.134***	-0.133***
LEV	0.00146	0.00152	0.00151	0.000683	0.000677	0.000304
NSub	-0.00252	-0.00281	-0.00265	0.00190	0.00226	0.000970
Listing	-0.0928*	-0.0951**	-0.0909*	-0.262***	-0.261***	-0.256***
ATYP	-0.0336	-0.0386	-0.0436	-0.0160	-0.0137	0.00609

*Notes: *** p<0.01, ** p<0.05, * p<0.1.*

4.1.1.3. Market performance of IFIs before- and after-financial crisis

Likewise, parsimonious versions of Eq. 1 are used to estimate the results of market-based performance of IFIs. Results are reported in Table 6. Consistent with the accounting-based performance of IFIs, the estimates indicate that the coefficient estimates for TVA are significantly associated with Tobin's Q at 1% and 10% level respectively in pre- and post-crisis period in both regression specifications, thus, hypothesis (H_4) is supported.

Table 6. Cross-sectional OLS regression of Tobin's Q on TVA, ICVA, FCVA and control variables for IFIs before- and after-financial crisis

	Before Crisis			*After Crisis*		
	Model 2	***Model 2a***	***Model 2b***	***Model 2***	***Model 2a***	***Model 2b***
N	142	142	142	142	142	142
Constant	-0.263	-0.227	-0.00624	-0.320	-0.268	-0.133
Adj. R^2	0.337	0.321	0.328	0.347	0.376	0.421
R^2	0.3738	0.3589	0.3654	0.3831	0.4105	0.4529
F-Value	12.07***	10.03***	11.13***	10.89***	11.96***	20.13***
TVA	0.0566***			0.0227*		
ICVA		0.0572***			0.0396***	
FCVA			0.792***			0.618***
BSIZE	0.0578**	0.0563**	0.0547***	0.0793***	0.0712***	0.0704***
LEV	-0.00184	-0.00185	-0.00398***	-0.00444***	-0.00461***	-0.00585***
NSub	-0.00138	-0.00191	-0.00569**	-0.00565*	-0.00515	-0.00566*
Listing	0.101**	0.0972**	0.152***	0.232***	0.224***	0.222***
ATYP	0.0864	0.0973*	0.0330	0.110**	0.137***	0.100**

Notes: *** p<0.01, ** p<0.05, * p<0.1.

Similar results can be observed for the sensitivity analysis, which shows significant positive relationship between Tobin's Q and variables ICVA and FCVA respectively at 1% level before- and after-crisis, thus, supporting hypotheses (H_4a and H_4b). The estimated coefficients for firm-specific control variables suggest that bank-size and listing status relate positively with Tobin's Q at times and the relationship gets stronger at 1% level after the crisis. This result is in line with the previous studies in the context of conventional and Islamic finance (Bashir, 1999; Čihák and Hesse, 2010; Majid *et al.*, 2010). The significant size effect on market-based performance suggests that large IFIs possess relatively higher share of physical and financial capital base and their operations are often more complex so as their need for IC stocks. Such increased access to resources influences the development and level of IC y(Luthans and Youssef, 2004). Whereas leverage and type of auditor both relate significantly with the market based performance of IFIs at 1% and 5% level respectively in the post-crisis period. This implies that market valuation of IFIs increases with BSIZE and listing status and decreases with higher leverage. Likewise, increase in statistical significance suggests that type of auditor have become significant in explaining the market performance. Strikingly, number of existing subsidiaries as observed in the accounting based performance of IFIs relate positively with ROA, in contrast, SUB relates negatively with Tobin's Q at 10% level, suggesting that market value decreases as number of existing number of subsidiaries increases. The overall analysis suggests that markets put substantially higher value to those IFIs, which are large in size, have lower leverage, are listed, and to a lesser statistical significance, are audited by large audit firms.

4.1.2. Impact of IC and financial capital on bank business model

The findings depict a positive relationship between IC and financial performance of CFIs and IFIs. The result implies that both sets of banking remained efficient in creating value through their IC and financial capital resource base at all times and consequently, offered higher returns on assets.

Hence, the empirical evidence suggests that there are no significant differences in the IC performance of both sets of banking. On the other hand, the market-based performance suggests significant differences between both sets of banking, where TVA is only significantly related with Tobin's Q in case of IFIs. In which strong financial capital (FCVA) and value added IC play a significant role to determine the market-based performance of IFIs at all times. The analysis also shows that strong firm characteristics i.e. BSIZE and listing status play a pivotal role in determining the market valuation of IFIs. Hence, the overall results imply significant differences in the IC performance of CFIs and IFIs. Thus, hypothesis (H5) is accepted.

5. DISCUSSION OF FINDINGS

5.1. Accounting performance of CFIs and IFIs

Intangible (i.e. IC) and tangible (i.e. financial capital) resources were expected to be the major determinants for accounting-based performance of CFIs and IFIs. The significant positive relationship between TVA and the accounting performance of CFIs and IFIs suggests an akin effect of IC and FC on the financial performance of banks across the industry. The results observed in the present study agree with the earlier findings of Samad and Hassan (1999), Hussein (2004) and Bader *et al.* (2008), who reported no significant differences in the financial performance of conventional and Islamic banks.

Further, the sensitivity analysis of sub-components of TVA suggests that the accounting based performance of CFIs and IFIs is mainly driven by VA financial capital in addition to VA intellectual capital efficiency at all times. These results lend support the argument of Beltratti and Stulz (2012), Berger and Bouwman (2013), and Chen *et al.* (2014), who posit that financial capital helps bank to enhance the survival probability and market share at all times. The overall analysis offered no significant differences between both sets of banking in utilizing their IC and financial resources, indicating that IC has similar impact on the accounting performance of banks being conventional or Islamic. The overall results are in agreement with previous studies (e.g. Al-Musali and Ismail, 2014; Curado et al., 2014), which documented a positive relationship between IC and bank's financial performance.

5.2. Market performance of CFIs and IFIs

Likewise, IC and FC efficiency was expected to be one of the major determinants for market-based performance of CFIs and IFIs. However, the analysis shows a significant positive relationship between market performance of IFIs and the variables, VA financial capital efficiency and VA intellectual capital efficiency, suggesting that the market capture the total value added from strong FC and IC efficiency. The analysis suggests that increase in capital base impacts positively on the market valuation and profitability of IFIs. These results agree with the findings of Hassan and Bashir (2003), Majid *et al.* (2010) and Khan (2010). Another interpretation of the results is that the human capital of Islamic banks is ambidextrous which expertise in Shariah-knowledge and knowledge of contemporary finance. With such ambidextrous profile, these individuals invested the generated funds in ethically correct projects to create value for its stakeholders. Such ethicality also helped IFIs not only sustain profitability but prove their resilience during the financial crisis. Thus, IFIs created value through efficient HC (i.e. IC) and strong capital base (FC), which in turn have had positive impact on IFIs' market value as well as it boosted investor's confidence in the IFIs. As a result, IFIs maintained a competitive advantage over CFIs during the financial crisis. Similar trends are reported by Parashar and Venkatesh (2010). In agreement with the previous studies (Nimtrakoon, 2015; Reed et al., 2006), the overall analysis confirms that banks with greater IC have tend to have higher market value.

In sum, the estimates of accounting and market regressions are dissimilar for both sets of banking. The result implies that IFIs possess strong profitability and market valuation at all times thus, it can again be interpreted that knowledge-resources i.e. IC is the main value driver for IFIs. In contrast, IC is only significant with the accounting performance of CFIs, indicating that depressed market valuation of CFIs amidst the market meltdown is largely attributable to CFIs with weaker IC efficiency. Segregate analysis proves the resilience of IFIs at all times, in contrast CFIs are not immune from to crisis. Equally, the analysis highlights the significance of firm-size in determining the economic performance of IFIs.

6. CONCLUSIONS

Guided by the existing theories, this paper empirically addresses the impact of knowledge-assets i.e. intellectual capital and tangible resources i.e. physical and financial capital on accounting- and market-based performance of conventional and Islamic financial institutions in pre- and post-crisis period, controlling for firm-specific variables. The main results are as follows. First, knowledge-resources i.e. IC helps to sustain profitability of both CFIs and IFIs, measured by ROA at all times. The effects of pre-crisis IC on accounting-based performance of CFIs appear to be manifested through strong IC and FC efficiency. While listing status appears to be a significant factor in determining the financial stability of CFIs in post-crisis effect of IC in addition to CE and HC efficiency. Likewise, IC and FC efficiency helped IFIs maintaining profitability at all times. Additionally, the financial performance of IFIs is manifested through bank-size and firm opacity in pre-crisis period whereas listing status, high leverage, and number of existing subsidiaries play a pivotal role in determining the financial performance of IFIs in post-crisis period. In contrast, IFIs sustained sound market valuation at all times in which the market captured TVA from financial capital and IC, BSIZE and listing status. In contrast, both IC and financial capital are not the main determinants of market valuation for CFIs.

In sum, the results reveal that both IC and financial capital resources are necessary for banks being conventional or Islamic to create value at all times i.e. pre- and post-crisis period. The results further indicate a positive relationship between IC,

financial capital and accounting performance of both sets of banking; however IC and financial capital are only significantly associated with the market value of Islamic banks. The strong statistically significant relationship indicates that Islamic banking model is more resilient to financial shocks; however, being a young industry, Islamic banking and finance requires more empirical research.

REFERENCES

1. Amaratunga, D., Baldry, D. and Sarshar, M. (2001), "Process improvement through performance measurement: the balanced scorecard methodology", Work study, Vol. 50, No. 5, pp. 179-189.
2. Bader, M.K.I., Mohamad, S., Ariff, M. and Hassan, T. (2008), "Cost, revenue and profit efficiency of Islamic versus conventional banks: international evidence using data envelopment analysis", Islamic Economic Studies, Vol. 15, No. 2, pp. 23-76.
3. Baiman, S. (1990), "Agency research in managerial accounting: A second look", Accounting, Organizations and Society, Vol. 15, No. 4, pp. 341-371.
4. Barney, J. (1991), "Firm resources and sustained competitive advantage", Journal of management, Vol. 17, No. 1, pp. 99-120.
5. Bashir, A.-H.M. (1999), "Risk and profitability measures in Islamic banks: the case of two Sudanese banks", Islamic Economic Studies, Vol. 6, No. 2, pp. 1-24.
6. Beck, T., Demirgüç-Kunt, A. and Merrouche, O. (2013), "Islamic vs. conventional banking: Business model, efficiency and stability", Journal of Banking & Finance, Vol. 37, No. 2, pp. 433-447.
7. Beltratti, A. and Stulz, R.M. (2012), "The credit crisis around the globe: Why did some banks perform better?", Journal of Financial Economics, Vol. 105, No. 1, pp. 1-17.
8. Berger, A.N. and Bouwman, C.H. (2013), "How does capital affect bank performance during financial crises?", Journal of Financial Economics, Vol. 109 No. 1, pp. 146-176.
9. Bharadwaj, A.S. (2000), "A resource-based perspective on information technology capability and firm performance: an empirical investigation", MIS quarterly, Vol. 24, No. 1, pp. 169-196.
10. Biondi, Y. and Rebérioux, A. (2012) Accounting Forum. Elsevier.
11. Carvallo, O. and Kasman, A. (2005), "Cost efficiency in the Latin American and Caribbean banking systems", Journal of International Financial Markets, Institutions and Money, Vol. 15 No. 1, pp. 55-72.
12. Chen, L., Danbolt, J. and Holland, J. (2014), "Rethinking bank business models: the role of intangibles", Accounting, Auditing & Accountability Journal, Vol. 27, No. 3, pp. 563-589.
13. Čihák, M. and Hesse, H. (2010), "Islamic banks and financial stability: an empirical analysis", Journal of Financial Services Research, Vol. 38, No. 2-3, pp. 95-113.
14. Colombo, M.G. and Grilli, L. (2005), "Founders' human capital and the growth of new technology-based firms: A competence-based view", Research policy, Vol. 34, No. 6, pp. 795-816.
15. De Brentani, U. and Kleinschmidt, E.J. (2004), "Corporate culture and commitment: impact on performance of international new product development programs", Journal of product innovation management, Vol. 21, No. 5, pp. 309-333.
16. de Castro, G.M. and Sáez, P.L. (2008), "Intellectual capital in high-tech firms: The case of Spain", Journal of Intellectual capital, Vol. 9, No. 1, pp. 25-36.
17. Dotzel, T., Shankar, V. and Berry, L.L. (2013), "Service innovativeness and firm value", Journal of Marketing Research, Vol. 50, No. 2, pp. 259-276.
18. Edvinsson, L. and Malone, M.S. (1997), Intellectual Capital: Realizing Your Company's True Value by Finding Its Hidden Roots. New York: HarperCollins Publishers, Inc.
19. Eisenhardt, K.M. (1989), "Agency theory: An assessment and review", Academy of management review, Vol. 14, No. 1, pp. 57-74.
20. Ernst and Young (2013) The World Islamic Competitiveness Report 2012–2013.
21. Florin, J., Lubatkin, M. and Schulze, W. (2003), "A social capital model of high-growth ventures", Academy of Management Journal, Vol. 46, No. 3, pp. 374-384.
22. Hasan, M. and Dridi, J. (2010), The effects of the global crisis on Islamic and conventional banks: A comparative study. International Monetary Fund.
23. Hassan, M.K. and Bashir, A.-H.M. (2003) 10th ERF Annual Conference, Morocco.
24. Hirschey, M. and Wichern, D.W. (1984), "Accounting and market-value measures of profitability: Consistency, determinants, and uses", Journal of Business & Economic Statistics, Vol. 2, No. 4, pp. 375-383.
25. Ho, C.-A. and Williams, S.M. (2003), "International comparative analysis of the association between board structure and the efficiency of value added by a firm from its physical capital and intellectual capital resources", The International Journal of Accounting, Vol. 38, No. 4, pp. 465-491.
26. Hsu, D.H. (2007), "Experienced entrepreneurial founders, organizational capital, and venture capital funding", Research Policy, Vol. 36, No. 5, pp. 722-741.
27. Hsu, L.C. and Wang, C.H. (2012), "Clarifying the effect of intellectual capital on performance: the mediating role of dynamic capability", British Journal of Management, Vol. 23, No. 2, pp. 179-205.
28. Hudaib, M. and Haniffa, R. (2009), "Exploring auditor independence: an interpretive approach", Accounting, Auditing & Accountability Journal, Vol. 22, No. 2, pp. 221-246.
29. Hussein, K.A. (2004), Banking Efficiency in Bahrain: Islamic vs. Conventional Banks. Islamic Development Bank, Islamic Research and Training Institute.
30. Ittner, C.D. (2008), "Does measuring intangibles for management purposes improve performance? A review of the evidence", Accounting and Business Research, Vol. 38, No. 3, pp. 261-272.
31. Johnes, J., Izzeldin, M. and Pappas, V. (2014), "A comparison of performance of Islamic and conventional banks 2004–2009", Journal of Economic Behavior & Organization, Vol. 103, No., pp. S93–S107.
32. Khan, A.K. (2010), "God, government and outsiders: The influence of religious beliefs on depositor behavior in an emerging market", Harvard, Cambridge MA.
33. Kunz, A.H. and Pfaff, D. (2002), "Agency theory, performance evaluation, and the hypothetical construct of intrinsic motivation", Accounting, organizations and society, Vol. 27, No. 3, pp. 275-295.

34. Luthans, F. and Youssef, C.M. (2004), "Human, Social, and Now Positive Psychological Capital Management:: Investing in People for Competitive Advantage", Organizational dynamics, Vol. 33, No. 2, pp. 143-160.
35. Majid, A.M., Saal, D.S. and Battisti, G. (2010), "Efficiency in Islamic and conventional banking: an international comparison", Journal of Productivity Analysis, Vol. 34, No. 1, pp. 25-43.
36. Mohamad, S., Hassan, T. and Bader, M.K.I. (2008), "Efficiency of conventional versus Islamic banks: international evidence using the Stochastic Frontier Approach (SFA)", Journal of Islamic Economics, Banking and Finance, Vol. 4, No. 2, pp. 107-130.
37. Murthy, V. and Mouritsen, J. (2011), "The performance of intellectual capital: mobilising relationships between intellectual and financial capital in a bank", Accounting, Auditing & Accountability Journal, Vol. 24, No. 5, pp. 622-646.
38. Nawaz, T. (2013a), "Blind-trust–a Pave Stone for Islamic Financial Institutions", Research Journal of Finance and Accounting, Vol. 4, No. 6, pp. 226-235.
39. Nawaz, T. (2013b), "How serious is the Erudite Shariah-compliant Business in Europe? Evolution, Pivotal Challenges and the way forward", European Journal of Management and Management, Vol. 4, No. 6, pp. 226-235.
40. Nawaz, T. (2015), Ethical Banking in the Land of Redistributive Policies. Saarbruchen, Germany: Scholars Press.
41. Nawaz, T. (2016), "Talent Management and Corporate Governance: The Case of Islamic Finance", International Journal of Management and Applied Science, Vol. 2, No. 7, pp. 58-61.
42. Nawaz, T. (Forthcoming-a), "Human capital development in socio-economic malaise: evidence from the UK", International Journal of Learning and Intellectual Capital, Vol. No.
43. Nawaz, T. (Forthcoming-b), "Momentum Investment Strategies, Corporate Governance, and Firm Performance: An Analysis of Islamic Banks", Corporate Governance, DOI (10.1108/CG-03-2016-0052).
44. Nawaz, T. and Goj, T. (2013), "Intellectual Capital: A Synthesis of Current Research with Special Reference to Islamic Banking and Finance", International Journal of Business and Management Studies, Vol. 2, No. 1, pp. 303-317.
45. Nawaz, T. and Haniffa, R. (Forthcoming), "Determinants of financial performance of Islamic banks: An intellectual capital perspective", Journal of Islamic Accounting and Business Research. DOI (10.1108/JIABR-06-2016-0071).
46. Nawaz, T., Haniffa, R. and Hudaib, M. (2014) International Conference on Intellectual Capital and Knowledge Management and Organisational Learning. Academic Conferences International Limited.
47. Nolan, R. (1994), "Note on Estimating the Value of the IT Asset", Harvard Business School, Vol. 9 pp. 195-197.
48. O'Cass, A. and Ngo, L.V. (2011), "Examining the firm's value creation process: a managerial perspective of the firm's value offering strategy and performance", British Journal of Management, Vol. 22, No. 4, pp. 646-671.
49. Olson, D. and Zoubi, T.A. (2008), "Using accounting ratios to distinguish between Islamic and conventional banks in the GCC region", The International Journal of Accounting, Vol. 43, No. 1, pp. 45-65.
50. Parashar, S.P. and Venkatesh, J. (2010), "How did Islamic banks do during global financial crisis", Banks and Bank systems, Vol. 5, No. 4, pp. 54-62.
51. Pulic, A. (2000), "VAIC™–an accounting tool for IC management", International journal of technology management, Vol. 20, No. 5, pp. 702-714.
52. Samad, A. and Hassan, M.K. (1999), "The performance of Malaysian Islamic bank during 1984-1997: an exploratory study", International Journal of Islamic Financial Services, Vol. 1, No. 3, pp. 1-14.
53. Santos, J.A. (2001), "Bank capital regulation in contemporary banking theory: A review of the literature", Financial Markets, Institutions & Instruments, Vol. 10, No. 2, pp. 41-84.
54. Sekaran, U. (2006), Research methods for business: A skill building approach. John Wiley & Sons.
55. Stewart, T. and Ruckdeschel, C. (1998), 'Intellectual capital: The new wealth of organizations'. Wiley Online Library.
56. Sullivan, P.H. (2000), Value driven intellectual capital: how to convert intangible corporate assets into market value. John Wiley & Sons, Inc.
57. Sveiby, K.E. (1997), The new organizational wealth: Managing & measuring knowledge-based assets. Berrett-Koehler Publishers.
58. System, B.o.G.o.t.F.R. (2010) Bank Holding Company Supervision Manual, Supplement 38. Washington, D.C: Board of Governors of the Federal Reserve System.
59. Venkatraman, N. and Ramanujam, V. (1986), "Measurement of business performance in strategy research: a comparison of approaches", Academy of management review, Vol. 11 No. 4, pp. 801-814.
60. Watson, R. and Holland, J. (2010), "Banks, knowledge and crisis: a case of knowledge and learning failure", Journal of Financial Regulation and Compliance, Vol. 18, No. 2, pp. 87-105.
61. Wernerfelt, B. (1984), "A resource- based view of the firm", Strategic management journal, Vol. 5, No. 2, pp. 171-180.
62. Wyatt, A. (2008), "What financial and non-financial information on intangibles is value-relevant? A review of the evidence", Accounting and business Research, Vol. 38, No. 3, pp. 217-256.
63. Yudistira, D. (2004), "Efficiency in Islamic banking: an empirical analysis of eighteen banks", Islamic Economic Studies, Vol. 12, No. 1, pp. 1-19.