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DO ICT INVESTMENTS IMPROVE BANK PERFORMANCE IN OMAN? RESEARCH IN PROGRESS

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Abstract

The Oman 2020 vision aims at the diversification of the national economy. The banking sector is playing a major role in diversification and economic development. Information and communications technologies (ICT) is vital for the development of a diversified and knowledge-based economy. Assessing the impact of ICT investments in the banking sector is critical for operational and strategic planning. Based on data gathered from 2001-2015 in three banks in Oman, this study found that ICT asset value is positively correlated with financial indicators such as operating income, profit before tax, and yearly profit; whereas it is negatively correlated with financial ratios such as return on average assets, return on average equity, and return on investment. This in-progress research provides some useful insights from an under-investigated region. However, it has some limitations, and further research is needed before any conclusions can be drawn about the impact of ICT on bank performance in Oman.

Keywords: ICT Value, Banking Sector, Financial Performance, Productivity paradox

1.0 Introduction

Information and communications infrastructure is one of the main pillars of a knowledge-based economy, according to the World Bank (World Bank, 2012). Today, Information and Communications Technologies (ICT) plays a crucial role in individual, organization, government, and economy performance and competitiveness. The importance of ICT has been emphasized by several international organizations, such as the World Bank and the World Economic Forum. Oman's government has recognized the crucial role of ICT on the development of Oman's individuals, organizations, and economy. This recognition has been illustrated in the Oman 2020 vision of the national economy and by the establishment of the Information Technology Authority in Oman in May 2006. Accordingly, massive ICT investments worth millions of Omani Rials have been conducted at governmental- and

organizational-levels to improve the competitiveness, efficiency, and productivity of Omani organizations and Oman's economy. As in any other nation, Oman's financial institutions sector is one of the major sectors in Oman. Financial institutions' trend of massive investment in ICT is illustrated by the early adoption of ATMs and the recent adoption of e-banking and mobile banking in several major Omani banks.

However, since 1987 when economist Steven Roach raised the "Productivity Paradox" of ICT investment, the productivity of ICT investments has been a major concern in ICT and economic (finance) research; Roach concluded that the tremendous increase in computerization has had little effect on productivity and economic performance (Brynjolfsson and Hitt, 1998). Despite massive investments in ICT in developed economies, "the ICT impact on productivity and business performance continues to be questioned" (Willcock & Lester, 1996, p.279). Since then, several studies have been conducted to assess ICT business value, such as Kanungo and Jain's (2011) study on government organizations and Beccalli's (2007) study on banking. However, until today, the business value of ICT investments remains one of the major research issues for IS researchers, according to recent literature reviews (Melville et al., 2004; Schryen, 2013; Turedi & Zhu, 2012), and more empirical studies are needed to provide hard evidence.

Only very limited studies have investigated the return of ICT in Omani organizations (including Omani banks) in general at a firm level. Some of these attempts were made by Riffai et al.'s study on assessing the acceptance of online banking in Oman (2012) and Al-Busaidi's study on corporate portals (2012); however, these studies assessed intangible benefits (such as consumer or user acceptance) and mostly only at an application level. Thus, the need to enhance Omani organizations by huge investments in ICT is indispensable (Al-Busaidi, 2014; Al-Rahbi, 2008). However, assessing the value of these ICT investments is of greater importance for firms, especially financial institutions like profit organizations, and consequently this is essential for the country as a whole. With huge investments in ICT, a periodic assessment of these investments' benefits and costs is critical for continuous adoption, future ICT investments, and strategic ICT planning (Brynjolfsson and Hitt, 1998; Turban &

Volonino, 2010; Schryen, 2013; World Bank, 2003). Consequently, the objective of this proposed study is to assess the return of ICT investments in banks in Oman.

The banking sector in Oman plays a major role in diversification and economic development. All Omani banks operate under the supervision and regulation of the Central Bank of Oman (CBO). According to the CBO, “In the context of Oman, while currency-to-GDP ratio declined somewhat, it is the sharp increase in deposits-to-GDP ratio since the mid-1970s that pushed up the money supply, reflecting a greater role of the banking sector in economic development” (CBO, 2014, pg.6). The value of the domestic banking sector dominates the other financial sectors (insurance, finance & leasing, exchanging houses, and foreign banks) in Oman. In 2010, the financial sector contributed to the national GDP by 4%; the Oman 2020 vision aims to diversify the economy and reduce reliance on the oil sector, thus increasing the financial institution’s contribution to the national GDP by 8% (Bank Muscat, 2012).

2.0 Literature Review

2.1 Bank Performance

In the banking sector, there are several key performance indicators. For instance, Farouk and Dandago (2015) assessed the banks’ performance based on return on assets (ROA), return on equity (ROE), net profit margin (NPM), and earnings per share (EPS). Becalli (2007) assessed bank performance based on ROA, ROE, profit efficiency, and cost efficiency. Bank performance can also be assessed by production efficiency and profitability (Paradi and Zhu, 2013). Ho and Wu (2009) assessed banks’ financial performance based on their revenue. Seçme et al. (2009) evaluated the Turkish banking sector’s performance by grouping financial ratios into groups of capital adequacy, assets quality, liquidity, profitability, income, and expenditure structure. In Oman, Al-Muharrami (2007, 2010) assessed Omani banks’ performance based on improvement in efficiency and productivity.

2.2 ICT Investments and Bank Performance

At the firm level, the value of ICT investments can be assessed by intangible benefits such as employee and customer satisfaction or product quality. The value of ICT in profit organizations can be linked to their financial performances such as income, ROI, ROA, and ROE (Brynjolfsson & Hitt, 1998; Turban & Volonino, 2010; Schryen, 2013). Sabherwal and Jeyaraj (2015) identified a comprehensive list of studies that assess ICT investments in firms' performance based on several indicators.

A number of studies have investigated the value of ICT investments in bank performance. At an IT application level, several studies demonstrated improved bank performance in terms of related business processes. For instance, Khasawneh and Abu-Shanab (2012) illustrated that the use of e-CRM to make customer service more effective and efficient in the Egyptian Arab Land Bank in Jordan. De Marco et al. (2011) showed that e-sourcing solutions implemented by an Italian bank have allowed large savings in terms of lower purchase prices. In Brazil, through the use of ICT-based branchless banking, ICT successfully helped to scale up microfinance in a bank (Diniz et al., 2014). Hung et al. (2012) found that ATMs had a positive relationship with profitability in Taiwanese domestic banks, although there was no association between ATMs and growth performance.

However, at a firm level, studies that have examined overall ICT value and its impact on overall bank performance have yielded different results. Suhaimi et al. (2012) detected the significance of Information and Communications Technology (ICT) on the profit efficiency of commercial banks in Malaysia. Beccalli (2007) investigated IT investments (in terms of spending on IT hardware, IT software, and IT services) in the banking sectors of five European countries from 1995 to 2000, finding that investment in IT services (such as consulting services, training and education, and support services) has a positive influence on accounting profit, whereas the acquisition of hardware and software has a negative impact on bank profitability. Markus and Soh (1993) found that IT investments have no positive financial benefits on most US banks; however, they found that, more specifically, statistics from small banks did not show a significant relationship between IT investment and profitability, while the

numbers from large banks showed negative returns from their IT investments. Similarly, in Nigeria, Farouk and Dandago (2015) assessed ICT investment (based on capital inputs, labour inputs, and other related inputs) on Nigerian banks' performance (in terms of ROA, ROE, NPM, and EPS), and found the effects on all four measures of financial performance to be negative, thus revealing the existence of the IT productivity paradox in the Nigerian banking sector.

3.0 Methodology and Analysis

3.1 Data and Analysis

This study's analysis uses secondary data (available financial reports such as income statements, balance sheets, etc. from 2001-2015) from Omani banks listed as part of Oman's Muscat Securities Market (MSM). According to the MSM, there are eight banks. However, only three of these have reported a full set of the investigated data every year from 2001 to 2010. Some of the banks have missing values for ICT asset value, and others were recently established within the last few years. Thus, the study included the records of only three banks from 2001 to 2015. However, one bank had reports missing in 2008 and 2009, and two banks had missing reports in 2005. SPSS software was used for data analysis (correlations analysis). The study assessed the impact on banks' success by examining the correlation between the ICT asset value and each of the following: net operating income, profit before tax, profit for the year, return on average assets (ROA), return on average equity (ROE), and return on investment (ROI).

3.2 Results

As indicated earlier, this study assesses the impact of ICT asset value on bank performance by examining the correlation between ICT asset value and each of the following: net operating income, profit before tax, profit for the year, return on average assets (ROA), return on average equity (ROE), and return on investment (ROI). Table 1 illustrates the descriptive statistics (averages) of several banks' financial indicators, demonstrating that the values of banks in Oman and their ICT asset values have increased from 2001 to 2015. This increase demonstrates the banks'

increased interest in ICT investments and the recognition of ICT's roles in improving bank operations.

Table 1.Descriptive statistics (Average) of the Reported Banks Financial Indicators (in OR)

Year	Total Banks	ICT value	Total Assets	Total Liabilities	Total Equities	Net Operating Income	Total Operating Expenses	Profit Before Tax	Profit for the Year	Earning Per Dividend
2015	3	3,191,333	2,563,756,000	1,346,312,333	1,217,443,667	78,674,667	42,085,000	32,747,667	29,140,667	6.511
2014	3	3,292,667	2,360,616,667	1,234,544,667	1,126,072,000	71,105,333	39,710,000	29,084,000	25,943,000	5.878
2013	3	3,195,667	2,055,250,667	1,124,412,667	930,838,000	67,521,333	39,644,333	35,175,333	30,766,667	6.084
2012	3	2,874,333	1,885,292,000	1,103,966,333	781,325,667	59,328,000	32,991,000	24,955,000	21,761,333	6.278
2011	3	2,566,861	1,380,014,667	705,371,276	674,643,455	49,939,670	22,281,870	17,895,134	15,909,459	7.577
2010	3	2,555,919	1,208,499,138	638,830,655	569,668,483	45,748,035	19,928,085	24,644,617	21,655,055	5.882
2009	2	1,119,500	1,274,297,500	1,075,534,000	187,593,000	54,042,500	21,528,000	26,733,500	23,457,500	0.029
2008	2	1,210,000	1,171,008,000	517,019,000	653,989,000	50,542,500	19,877,500	30,137,500	26,580,000	0.037
2007	3	1,057,666	780,959,839	418,371,063	362,588,776	31,988,511	13,167,699	19,836,812	17,694,885	0.028
2006	3	1,175,036	597,688,717	343,694,817	252,798,900	29,210,632	11,421,746	18,671,886	16,746,397	0.135
2005	1	1,067,000	618,225,000	79,405,000	538,820,000	29,980,000	13,170,000	16,131,000	14,199,000	0.338
2004	3	644,031	464,669,422	258,959,751	205,709,671	23,940,571	10,856,857	10,856,381	9,574,380	0.219
2003	3	592,532	404,704,961	224,259,077	180,445,885	21,710,008	10,635,089	9,739,252	8,653,862	0.195
2002	3	747,661	348,371,586	206,645,491	141,726,095	20,429,370	9,661,417	10,409,286	9,524,999	0.204
2001	3	1,139,969	349,577,449	214,019,019	135,558,430	19,015,842	10,929,828	3,527,680	3,077,719	0.121

Figure 1 shows the correlation analysis between ICT asset value and each of the following: net operating income, profit before tax, profit for the year, return on average assets (ROA), return on average equity (ROE), and return on investment (ROI). Clear positive correlations exist between ICT asset value and standard financial indicators: net operating income (correlation= 0.843; significance= 0.01), profit before tax (correlation=0.728; significance: 0.01), and profit for the year (correlation=0.725; significance: 0.01). However, as indicated in the figure, the correlation between ICT asset value and financial ratios (ROA, ROE, and ROI) was negative; correlations between ICT asset value and ROA, ROI, and ROE are -0.394, -0.394, and -0.327, respectively, and all were significant at a 0.05 level (2-tailed).

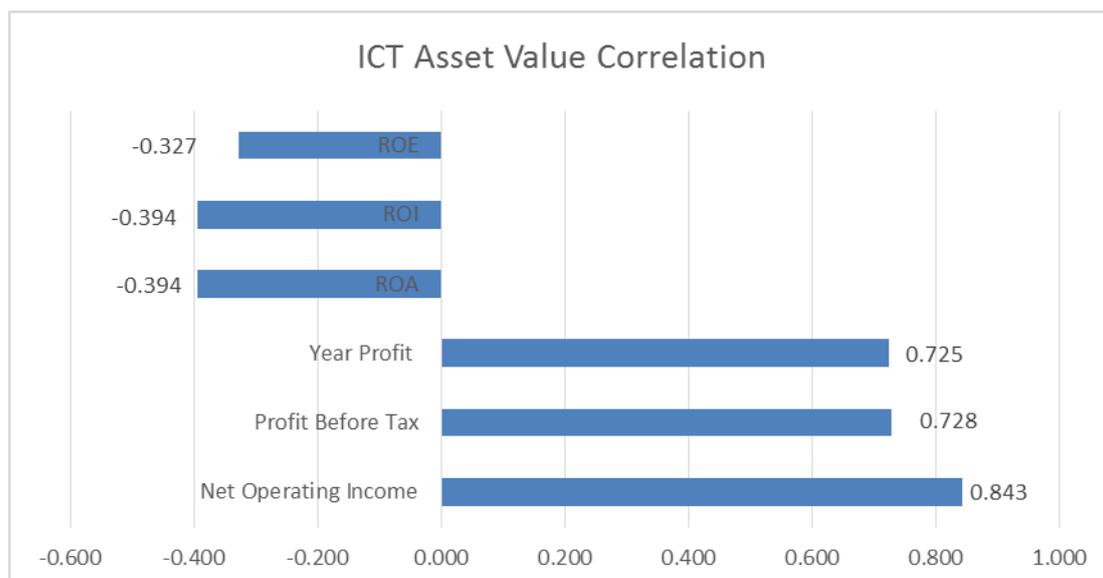


Figure1: ICT Asset Value Correlations with Financial Indicators and Ratios

4.0 Discussion & Conclusion

Information and communications technologies (ICT) are the backbone and driving force of a knowledge-based economy. ICT is vital for the development of a diversified and knowledge-based economy. The ICT sector is imperative for this transformation. ICT play a major role in individual, organizational, sectors, governmental, economic, and societal performance, productivity, and competitiveness. Assessing the value of ICT investments in a major sector such as the banking sector is just as critical as financing investments for strategic ICT planning.

Previous studies that assessed the impact of ICT in the banking sector demonstrated varying results. This current research in progress also shows conflicting results, as ICT asset value is positively correlated with financial indicators (net operating income, profit before tax, profit for the year) but negatively correlated with financial ratios (return on average assets, return on average equity and return on investment). These results suggest that ICT has a positive impact on the banks' overall performance (income and profit) in the last 10 years, but that these benefits ratios have been decreasing.

This study in progress has provided some useful insights into an under-investigated region. In addition, this study adds value to the economics of information systems literature. As indicated earlier, the productivity and business value of ICT remain a major research issue in IS and economics research (Melville et al., 2004; Schryen, 2013; Turedi & Zhu, 2012).

It is important to note that this study has some limitations in terms of indicators, full data availability, and analysis methodology. Further research is needed before any conclusions can be drawn about the return of ICT asset on bank performance in Oman, and certainly in general. For instance, a more rigid analysis (such as a longitudinal study or a data evolution analysis) is needed on the full data of all banks in Oman.

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