

Review of literature regarding it investments finance essay

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Information Technology (IT), has been defined by many ways by many authors. Whitten et al. (2004, p. 12.) stated that " information is an arrangement of people, data, process, and information technology that interact to collect, process, store and provide as output the information needed to support an organization," which indicates that information system is an arrangements of groups, data, processes and technology that act together to accumulate, process, store and provide information output needed to enhance and speed up the process of decision making. Also Shelly et. al,(2004) extended this definition by including hardware, software, databases, networks, and other related components in it which are used to build information systems. Vasudevan(2003) argues that IT, within a short span of time has become the necessity of every organization. IT is revolutionizing all the living ways and it has given a new meaning to the word " Convenience". It is not possible now to do business without computer Long & Long(1999) demonstrate IT as a major contributor to the progress both for developing and developed countries. In relating to bankins sector Berger (2003) mentioned in recent years the utilization of information technology has been magnificently increased in the banking industry, which by using Information Technology related products such as internet banking, electronic payments, security investments, information exchanges. Many of the literature state that every country adopts IT in banking sectors. In relation to Sri Lanka Raneer Jayamaha said that IT development has undoubtedly brought-in enormous benefits to banks, particularly in terms of productivity increases, cost reduction through labour saving and increased profitability. Consequently, IT development in banks has become more

products centric and retail and wholesale IT products have positively influenced productivity and profitability. IT use has increased outputs and reduced costs as both IT capital investments and IT human resources have a positive relationship to productivity. Banks should stay ahead of the game and sustain growth by taking bold decisions to survive and beat competition. The time has come to move towards a customer-centric approach, as customers should be given an opportunity to enjoy their share of benefits stemming from IT development. This would increase banks' competitiveness through differentiation and customer service improvement, reduced transaction costs, better risk avoidance, and maintaining a stable customer base and market share. (Speech by Dr Ranees Jayamaha, Deputy Governor of the Central Bank of Sri Lanka, at the Trans Asia, Colombo, 22 January 2008.) Martini (1999) while narrating the history of computer usage in banking says that the use of computers in banking first began in the early 1950s, when the first large commercial computer was built for Bank of America. Automated Teller Machine (ATM) (Don Wetzel developed ATM in 1973 and it was first installed at Chemical Bank in New York (Shelly et. al. (2004)), is considered one of the most significant technological investments made by the commercial banks. ATM's introduced the power of computer technology to the general public and made banking convenient for consumers (Nsouli, 2002). IT investment The size of IT investments has put increasing pressure on managers to assess its business value. These massive investments on IT also created a serious dilemma for management today. It was generally accepted that increased investment in IT would naturally lead to increase performance of organization but it is not true in all the cases (Odedra and

Kluizer, 1998). Frei, Hunter and Harker (2001) noted that high investment in information technology affect to increase quality and availability of customer self service facilities such as automated teller machine and internet banking services. Farrell and Saloner, (1985), examined two positive effects regarding the relation between IT and banks' performance. Those are the IT can reduce banks' operational cost such as bill payments, balance inquiries, account transfer trough online and IT can facilitate transactions among customers within the same network. NegativeSolow Paradox (1987) defined that Information Technology may essentially affect negatively on banks efficiency and may reduce productivity. This idea was noted by Solow " you can see the computer age everywhere these days, but in the productivity statistics". In an article by Shu and Strassmann (2005), a survey was conducted on 12 banks in the US for the period of 1989-1997. They noticed that even though Information Technology has been one of the most essential dynamic factors relating all efforts, it cannot improve banks' earnings. Eglund (1998) estimated the number of US banks offering Internet banking and analyzed the structure and performance characteristics of these banks. It not found any evidence of major differences in the performance of the group of banks offering Internet banking activities compared to those that do not offer such services in terms of profitability and efficiency. Morrison and Berndt (1990) concluded that additional IT investments contributed negatively to productivity, arguing that " estimated marginal benefits of investment in IT are less than the estimated marginal costs". However, there are many literatures approving the positive impacts of Information Technology expenses to business value. Kozak (2005) investigates the

influence of the evolution in Information Technology on the profit and cost effectiveness of the banking zone during the period of 1992-2003. The study indicates positive relationship among the effective Information Technology and productivity and cost savings. Over the years several studies have been conducted both at the industry and firm level to examine the impact of IT on productivity and profitability. Some of them have drawn on statistical correlation between IT spending and performance measures such as profitability or stock's value for their analysis (Dos Santos et al; 1993). They found an insignificant correlation between IT spending and profitability measures, implying thereby that IT spending is unproductive. Brynjolfsson and Hitt(1996), however, caution that these findings do not account for the economic theory of equilibrium which implies that increased IT spending does not imply increased profitability. More recent firm level studies, however, point a more positive picture of IT contributions towards productivity. These findings raise several questions about mis-measurement of output by not accounting for improved variety and quality and about whether IT benefits are seen at firm level or at the industry level. Such issues have been discussed in detail by Brynjolfsson (1993) and to a lesser extend by Brynjolfsson and Hitt (1996). One illustration of the industry level studies is that of Morrison and Bernlt(1990), which found that in manufacturing industry ' estimated marginal benefits of investment in IT are less than the marginal cost, implying the problem of over investment. More specifically they found that for each dollar spent on IT, the marginal increase in output was only 80 cents. Similarly Loveman(1994) found insignificant contribution of IT expenditure to the output of manufacturing firms. Lichtenberg(1995),

on the other hand, concludes that there are significant benefits from investment in IT to the firms. Using Cobb- Douglas production function, he found increasing returns on investment in computers. They further found that one information system(IS) employee is equivalent to six non-IS employees in terms of marginal productivity. Brynjolfsson and Hitt (1996) in their study by using Cobb-Douglas production function have found that computerization aids to the firm's level output significantly. In fact they found that computer related capital investment contributes 81 percent to the marginal increase in output, where as non-IT capital contributes only 6% to the marginal output. They also show that IS labor is more than twice as productive as non- IS labor. Most of such studies relating to the contribution of IT towards firm's level productivity have been restricted to the manufacturing industry, possibly owing both to a lack of data at the firm level in the service industry and perhaps, more significantly, in the difficulty of unambiguously identifying the " output" of a service industry. The latter problem is particularly persistent in the banking industry, which is the focus of this study. The study by Parsons, Gotlieb, and Denny (1993), is one of the studies that deal with the impact of IT in banking productivity per se. They conclude from their estimation of data from five Canadian banks R. K. Mittal and Sanjay Dhingra 66 using translog production function that, while there is a 17-23 percent increase in productivity with the use of computers, the returns are very modest compared to the levels of IT investments. The other study to examine the effect of IT investment on both productivity and profitability in the US retail banking sector is conducted by Prasad and Harker (1997). They conclude that additional investment in IT capital may

have no real benefits and may be more of strategic necessity to stay within the competition. However, the results indicate that there are substantially high returns to increase in investment in IT labor. The other study conducted by Launardi, Becker and Macada (2003), found competition, products and services, and customers, the main strategic variables affecting the IT and there is no difference of opinion between IT executives and other functional executives, regarding their perception of the impact of IT on strategic variables. Another important study undertaken by offsite monitoring and surveillance division of department of Banking Supervision (2002) used financial indicators to derive indirect linkages by assuming computerization as one of the factor in the improvement in efficiency. They concluded that higher performance levels have been achieved without corresponding increase in the number of employees. Also, it has been possible for Public Sector Banks and Old Private Banks to improve their productivity and efficiency over a period of five years. Choudhari and Tripathy (2004) applied DEA to measure the relative performance of public sector banks and conclude that the Corporation Bank is the efficient in all indicators i. e. profitability, financial management, growth, productivity, and liquidity, while Oriental Bank of Commerce is next most efficient. Kamakura and Ratchford(1996) evaluated multiple retail stores for their efficiency using DEA and translog cost function. Many other studies used DEA in a banking setting. Some incorporated computer terminals as input measurement(Oral and Yolalan 1990; Vassiloglon and Giokas 1990) or access time(Soterion and Zenios 1999; Zenios, et al. 1999). This study also uses DEA to analyze the impact of computerization on productivity and profitability of banks. Furst

(2000) found that banks in all size categories offering Internet banking were generally more profitable and tended in comparison to non-Internet banks. But the researcher concluded that Internet banking was too small a factor to have affected banks' profitability. DeYoung (2005)'s study found relatively lower profits at the Internet-only institutions than the branching banks because of the high labor costs, low fee based revenues. However, consistent with the standard Internet banking model, the results indicated that Internet-only banks tended to grow faster than traditional branching banks. Internet-only banks have access to deeper scale economies than branching banks and because of this they are likely to become more financially competitive over time as they grow larger.