

Investigating the Risk Perception of the Bank Employees towards Internet Banking Services: A Study of Punjab

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ABSTRACT

Banking system plays a significant role in the growth of economy. The economic strength of any country depends upon the efficiency of its financial system and banks are one of the oldest financial intermediaries in financial system. The development of Information Technology (IT) has influenced all aspects of banking activities during the past two decades. All financial transactions these days are dominated by Internet banking technologies, which have ultimately brought a considerable decrease in paper-based banking. As internet banking has become an inevitable part of the banking system, this paper is an attempt to understand the perception of bank employees regarding risk involved in internet banking. The results of the study suggest that majority of employees perceive that the level of risk associated with internet banking services is low and further this concludes that there is a very weak association between demographic characteristics of bank employees and risk perception.

1. Introduction

Banking system plays a pivotal role in the growth of economy. Banking system reflects the health of the economy of the country. Further, economic strength depends upon the efficiency of the financial system and the banks are the biggest financial intermediaries in the financial system. Banking sector basically performs the three functions for sound and healthy economic system of the country such as efficient operation of payment system, mobilization of deposits and allocation of deposits to investment products. Banking was the first major service industry which implemented information technology extensively some four decades ago and today it can be considered a sector with the outstanding experience in the field of IT and automation (de Wit, 1990; Bauser and Colgan, 2001). Since early 90s, each Indian bank is doing some IT improvement efforts. The first and foremost reason for this is the severe competition in this field. IT gives an alternative channel to banks through which the customers can make transactions anytime - anywhere via internet easily and thus reduce the needs for financial mediators (Cheung and Liao, 2003). The developments in IT have influenced all aspects of banking sector. IT provides new prospects for banks and enables them to move from local level to global frontiers (Mavri and Ioannou, 2006). Further these developments are substituting the computers for paper and labour intensive techniques and also have made easier the customer's deposits, withdrawals and many internal processes. While looking at the required architecture/infrastructure for the IT, consideration should be given to realities like management of data handling, customer services, support for new product development etc.

2. Internet Banking: The Concept

Amongst the various electronic banking technologies, internet banking is considered to grow most rapidly in the

future. Karjaluoto et al. (2002a) suggest that the main electronic delivery channel in banking is the internet accessed thru personal computer. The study further suggests that in the future, all financial transactions shall be controlled by internet banking technologies, which ultimately will lead to reduction in paper based banking (Daniel, 1999). Understanding the nature of innovation is a fundamental step in managing the changes associated with any innovation (Afuah, 2003). Internet Banking is the latest wave sweeping the banking services in the recent times. Internet banking involves the inter-connection of communication networks which enables the customers to perform almost all the banking activities over internet. In other words, internet banking means the placement of banking products and services over electronic and communication networks, directly to the customers. Internet banking includes the transactions such as payments, account transfer, investment, Dr card services, Cr card services, Insurances etc. It is a system of accessing accounts and general information about different bank products and services through a computer while sitting anywhere. Internet banking enables customers to do banking outside the regular banking hours provided the internet access is available.

In the present era, internet banking is the key channel for e-banking. Internet banking offers several benefits to both banks and their customers. The main benefits which the banks enjoy are cost savings, increasing efficiency, attracting new customers, enhancing reputation, ensuring satisfied and retained existing customers, increasing sales and market share, increasing profit margins and developing better customer relationship (Jayawardhena and Foley, 2000; Jeevan, 2000; Downes and Mui, 1998; Wylie, 1999; Quelch and Klein, 1996; Prescott and Slyke, 1997; Mandville, 1998; Peterson et al., 1997; Furash, 1999; Mols, 1999; IAMA, 2006 etc). With the arrival of internet, banking is no longer bound to specific time or geographical area. Now banks do not need to

have bricks and mortar networks, they can use direct channels, such as internet to reach their target customers (Lange and Blandin, 2002)

Amongst all E-Banking facilities internet banking remained the biggest hit amongst customers, due to its speed, convenience and round the clock access which helps to conduct of various banking activities like paying bills, accessing account statement, transferring funds etc. (Haque et al 2009). That is why today, internet banking has become the most successful strategic weapon available to banks to remain profitable in volatile and competitive market conditions. Different banks have different types of services to offer starting from level-1 where only information is dispersed through internet to level-3 where online transactions can be done. This paper focuses on understanding the perception of employees of banks towards risk involved in internet banking.

3. Review of Literature

Jeevan (2000) observed that the internet banking enabled banks offer low cost and high value added financial services. Whereas Jayawardhena and Foley (2000) contended that e-banking is providing numerous good opportunities to banking and non-banking financial institutions to add low cost distribution channel to their existent distribution channels in order to serve their customers better. Nath et al. (2001) indicated that bankers see internet banking as a strategic opportunity which can reduce transactional costs, improve customer service, increase the customer base and expand cross-selling opportunities. Hasan et al. (2002) stated that in respect of almost all performance parameters, the internet group outperformed the non-internet group. Further Liao & Cheung (2003) suggested that the internet helps in saving costs, generation of additional revenue, extension of marketing and building, maintaining and developing long-term customer relations. Khalfan et al., (2006) stated that online banking assists banks to maintain and increase the loyalty of their existing customers, enhance satisfaction of the customers, provides opportunities to banks and enables them to broaden their market share, reduce organizational and operational cost and to improve competitive positions of banks against their business rivals. Malhotra and Singh (2007) also suggested that the adoption of internet banking by other banks increases the probability that a decision to adopt would be made. Xue et al (2011) asserted that there are large numbers of benefits of using internet banking both to banks and to their customers. Bhalla et al (2015) found that bankers consider the adoption of e-banking as vital in today's complex business environment and banks offer exciting services to their customers so as to encourage them to avail the benefit of click and mortal banking. Naidu and Paramasivan (2015) too indicated that bankers are satisfied regarding the access rate and retention rate of e-banking customers and they are also satisfied with switching-over rate of customers from traditional banking system to internet based banking. Narayana and Veena (2018) also indicated that employees agreed to the statement that internet banking has enhanced productivity of both branch as well as the employees. Further employees also agreed to the statement that internet banking offers cost-saving opportunities for customers as well. However, Oladejo and Akanbi (2012) indicated that bankers believe that electronic banking

increases the probabilities of government and other stakeholders' access to the public data, which results in an upsurge in the chances of fraud and lack of information security. The review of literature provided that internet banking services may have a negative impact on the profitability of banks in the short but in the long run these services have a positive impact on the profitability of banks. Further many studies have been done to understand the perception of the customers towards level of satisfaction and specially risk involved while using internet banking services. However, there is very limited literature is available exploring perception of bank employees particularly towards risk involved in internet banking services. Therefore, a study with following objectives would be helpful in bridging the gap in existing literature.

4. Objectives of the study

1. To analyze the risk perceived by public and private sector bank employees with regard to Internet banking services.
2. To study the association between risk perceived vis-a-vis selective demographics of bank employees.

5. Research Methodology

All the public and private sector banks functioning in the country constituted the universe for this study. A sample of 20 banks considering 10 each from public sector and private sector was selected on the basis of highest deposits as on March 31, 2017. Data required for the study was collected from bank employees through self-designed structured questionnaire. Tool for collecting the data was designed after extensive review of literature and preliminary interviews with officials of few banks. Pilot survey was conducted on small number of 40 respondents first and then required changes were incorporated before administering the final questionnaire. Responses were collected from 200 bank employees posted in branches of selected banks across major cities of Punjab. In order to verify the internal consistency of the data, Cronbach's Alpha was used. It is most commonly used method to determine the internal consistency and reliability of data collected through questionnaire having Likert type scale. As per the rule of thumb, 0.60 is the lowest acceptable value of Cronbach's alpha whereas 0.70 or any higher value is considered to be very good representative of reliability of the data. With regard to data collected for this study, value of Cronbach's alpha was found to be 0.73 which signifies sufficient reliability of the data. Overall score of risk was calculated using all Likert type statements in the questionnaire. Score of risk thus arrived was converted in three relevant levels of risk using Cube root method for requisite analysis. Difference in the risk perceived by employees from public sector and private sector was analyzed using independent sample t-test. Single sample t-test is also used to compare the risk perceived by employees of particular bank with their respective sector of ownership. Chi-square test of independence was used to investigate the association between levels of risk perceived with different demographic variables such as age, education level and experience of bank employees. Further the strength of association was analyzed using value of Phi and Cramer's V. 5% level of significance was used throughout the study. Table No-1 particularizes the demographic profile of the respondents.

Table No-1: Demographic profile of the Employees (N = 200)

| Characteristics | Level | Frequency | Percentage |
|---------------------------|-----------------------|-----------|------------|
| Age Group | 20-30 years | 116 | 58.0 |
| | 30-40 years | 60 | 30.0 |
| | 40-50 years | 18 | 9.0 |
| | 50 years & above | 6 | 3.0 |
| Sex | Male | 132 | 66 |
| | Female | 68 | 34 |
| Marital Status | Married | 117 | 58.5 |
| | Unmarried | 83 | 41.5 |
| Monthly Income | Less than Rs. 25000 | 54 | 27.0 |
| | Rs. 25000 – Rs. 50000 | 94 | 47.0 |
| | Rs. 50000 – Rs. 75000 | 36 | 18.0 |
| | Above Rs. 75000 | 16 | 8.0 |
| Educational Qualification | Under Graduate | 114 | 57.0 |
| | Post Graduate | 61 | 30.5 |
| | Diploma | 6 | 3.0 |
| | Professional | 19 | 9.5 |
| Years of experience | Less than 5 years | 110 | 55.0 |
| | 6 – 10 years | 64 | 32.0 |
| | 11 – years | 8 | 4.0 |
| | Above 15 years | 18 | 9.0 |

6. Data and Interpretation

The perception of bank employees with respect to the level of risk perceived associated with internet banking was gathered and the results are compiled in Table 2. The results show that the mean score of risk level worked out to be the highest i.e. 1.498 in the case of public sector banks, while the respective figure turned out to be 1.233 in case of private

sector banks, respectively. The public and private sector banks together i.e. the figure with respect to mean score of risk level on an overall basis worked out to be 1.366. Based on the perception of the bank employees, it may be concluded that the level of risk associated with internet banking services was very low in both the banks.

Table No-2: Mean & Standard Deviation of risk perceived by sample bank employees with regard to Internet Banking Services (N = 200)

| Variable | Mean | Std. Deviation |
|---|-------|----------------|
| Risk perceived by all employees towards Internet Banking Services | 1.366 | 0.0254 |
| Risk perceived by all employees of public sector banks towards Internet Banking Services | 1.498 | 0.3416 |
| Risk perceived by all employees of private sector banks towards Internet Banking Services | 1.233 | 0.3275 |

Table 3 shows that 73 i.e. 36.50% respondents have perceived there is low risk involved in internet banking, 66 respondents have opinion that there is medium level of risk in internet banking and 61 respondents (30.50%) have perception that there is high risk involved in internet banking.

Table-3: Classification of sample bank employees according to level of risk perceived with regard to internet banking services

| Risk level | Score | No | Percent |
|--------------|---------|------------|---------------|
| Low | 01-73 | 73 | 36.50 |
| Medium | 74-146 | 66 | 33.00 |
| High | 147-220 | 61 | 30.50 |
| Total | | 200 | 100.00 |

The present study has attempted to compare the perception of bank employees with respect to level of risk associated with internet banking in public and private sector banks. It is hypothesized that there is no difference in the level of risk associated with internet banking services for public and private banks. Table 4 indicated that the mean score with respect to level of risk calculated to be 1.498 in case of public sector banks, while the corresponding figure was 1.233 in case of private sector banks, respectively. The value of mean difference among public and private sector banks estimated to be 0.263. The results of independent t-test clearly indicated that mean difference of risk level between public and private sector banks differ significantly from each other.

Table No- 4: Independent Sample t-test showing difference in Risk perceived by employees of Public and Private Sector Banks with regard to Internet Banking Services

(N₁ = 100, N₂ = 100)

| | Public Sector Banks (Mean ± S.D) | Private Sector Banks (Mean ± S.D) | Mean Diff. | t-value | p-value |
|---|-------------------------------------|--------------------------------------|------------|---------|---------|
| Risk perceived with regard to Internet Banking Services | 1.498 ± 0.3416 | 1.233 ± 0.3275 | 0.265 | 5.608 | 0.000 |

It is further hypothesized that the perception level of bank employees with respect to the level of risk associated with internet banking service may vary within the ownership sector as well. In this regard, one sample t-test was applied to compare the mean score of risk of individual banks within the group of ownership structure. Table 5 presents the results of one sample t-test which compares the risk of individual banks with average risk perceived by employees of public sector banks. Risk perceived come out to be the highest in Canara Bank (1.769), followed by Corporation Bank (1.754), Union Bank of India (1.738), Bank of Baroda (1.577), Syndicate Bank (1.546), Bank of India (1.408), Punjab National Bank (1.308), IDBI (1.308) and the lowest in State Bank of India (1.039). It was noticed that the mean score with respect to risk level reported to be higher than test value (1.498) in case of five banks namely Canara Bank (1.769), Corporation Bank (1.754), Union Bank of India (1.738), Bank of Baroda (1.577) and

Syndicate Bank (1.546), respectively. This implies that the degree of risk observed to be higher among these five banks as presumed by the bank employees. Out of all public sector banks, the mean score with respect to risk level differ significantly among bank employees in three banks namely corporation bank, state bank of India and Union Bank of India, while it was statistically non-significant in all other banks. The deviation from mean score was the highest in Central Bank of India (0.3477) and least in State Bank of India (0.1218), while it was varied between 0.2321-0.3444 in all other banks. As perceived by the sample bank employees, the level of risk was the highest in Canara Bank. Four other banks namely Corporation Bank, Union Bank of India, Bank of Baroda and Syndicate Bank were also recognized as high level of risk associated with internet banking services as the mean score on account of risk level among bank employees of respective banks came out to be higher than test value.

Table No-5: One Sample t-test comparing Bank-wise Score of Risk perceived by employees of Public Sector Banks (N = 10 for each Bank; Test Value = 1.498)

| Public Sector Banks | Mean ± S. D | Mean Diff. | t-value | p-value |
|-----------------------|----------------|------------|---------|---------|
| Bank of Baroda | 1.577 ± 0.3444 | 0.078 | 0.720 | 0.490 |
| Bank of India | 1.408 ± 0.2923 | - 0.091 | 0.981 | 0.352 |
| Canara Bank | 1.769 ± 0.2321 | 0.271 | 3.690 | 0.005 |
| Central Bank of India | 1.538 ± 0.3477 | 0.040 | 0.366 | 0.723 |
| Corporation Bank | 1.754 ± 0.1529 | 0.255 | 5.279 | 0.001 |
| IDBI | 1.308 ± 0.3342 | - 0.191 | 1.805 | 0.104 |
| Punjab National Bank | 1.308 ± 0.2854 | - 0.191 | 2.114 | 0.064 |
| State Bank of India | 1.039 ± 0.1218 | - 0.460 | 11.945 | 0.000 |
| Syndicate Bank | 1.546 ± 0.2389 | 0.048 | 0.631 | 0.543 |
| Union Bank of India | 1.738 ± 0.2490 | 0.240 | 3.048 | 0.014 |

Similarly, individual score of risk perceived by private sector banks was compared to average score of all private sector banks. Table 6 revealed that mean score with respect to level of risk came out to be the highest in South Indian Bank (1.692), followed by Karnataka Bank (1.677), J & K Bank (1.315), Kotak Bank (1.300), ICICI Bank (1.245), while it was lower than test value i.e. 1.233 in all other banks. It was noticed that HDFC bank emerged as the safe bank in terms of risk as the value of risk level was the lowest i.e. only 1.031

than that of all other banks, respectively. The deviation from mean score was the highest in Karnataka Bank (0.3712) and least in HDFC Bank (0.0974), while it was varied between 0.1218-0.3231 in all other banks. As perceived by the sample bank employees, the level of risk associated with internet banking services was low in all banks. However, the level of risk was found to be higher than test value in case of five banks namely South Indian Banks, Karnataka Bank, J & K Bank, Kotak Bank and ICICI Bank, respectively.

Table No-6: One Sample t-test comparing Bank-wise Score of Risk perceived by employees of Private Sector Banks (N = 10 for each Bank; Test Value = 1.233)

| Private Sector Banks | Mean ± S. D | Mean Diff. | t-value | p-value |
|----------------------|----------------|------------|---------|---------|
| Axis Bank | 1.039 ± 0.1218 | - 0.195 | 5.052 | 0.001 |
| Federal Bank | 1.062 ± 0.1945 | - 0.172 | 2.789 | 0.021 |
| HDFC Bank | 1.031 ± 0.0974 | - 0.202 | 6.565 | 0.000 |
| ICICI Bank | 1.245 ± 0.2679 | 0.012 | 0.142 | 0.890 |
| IndusInd Bank | 1.069 ± 0.2189 | - 0.164 | 2.367 | 0.042 |

| | | | | |
|-------------------|----------------|---------|-------|-------|
| J & K Bank | 1.315 ± 0.3231 | 0.082 | 0.806 | 0.441 |
| Karnataka Bank | 1.677 ± 0.3712 | 0.444 | 3.781 | 0.004 |
| Kotak Bank | 1.300 ± 0.2700 | 0.067 | 0.786 | 0.452 |
| South Indian Bank | 1.692 ± 0.1540 | 0.459 | 9.425 | 0.000 |
| Yes Bank | 1.146 ± 0.2159 | - 0.087 | 1.271 | 0.235 |

In order to explore the association between the levels of risk perceived by bank employees with their respective selected demographic characteristics, chi-square test of

independence have been used. Only three characteristics i.e. age, educational qualifications and experience have been used for the analysis.

Table No-7: Chi-square test of Independence showing association between age of bank employees with Level of Risk Perceived with regard to Internet Banking Services

(N = 200)

| Age group of Bank Employees | Count | Levels of Perceived Risk | | | Total |
|-----------------------------|----------------|--------------------------|----------|------|--------------|
| | | Low | Moderate | High | |
| 20 – 30 years | Observed Count | 49 | 38 | 29 | 116 |
| | Expected Count | 42.3 | 38.3 | 35.4 | 116 |
| 30 – 40 years | Observed Count | 20 | 18 | 22 | 60 |
| | Expected Count | 21.9 | 19.8 | 18.3 | 60 |
| 40 – 50 years | Observed Count | 4 | 8 | 6 | 18 |
| | Expected Count | 6.6 | 5.9 | 5.5 | 18 |
| Above 50 years | Observed Count | 0 | 2 | 4 | 6 |
| | Expected Count | 2.2 | 2.0 | 1.8 | 6 |
| Total | Observed Count | 73 | 66 | 61 | 200 |
| | Expected Count | 73.0 | 66.0 | 61.0 | 200 |
| Pearson Chi-square | | | | | 9.807 |
| p-value | | | | | 0.133 |
| Phi | | | | | 0.221 |
| Cramer's V | | | | | 0.157 |

Here in the table 7, p-value is 0.133 that is greater than the alpha value i.e. 0.05 which means our null hypothesis doesn't get rejected. Which means that association between age and level of risk perceived by bank employees, is found to be insignificant. As per the data analyzed in the above table Phi Value is 0.221 which depicts that there is little or weak and insignificant correlation between perceived risk and

demographic profiles of the bank employees. In order to provide a measure of the strength of the relationship between two variables from a contingency table, Cramer's V can be used. Calculation of this test in large part derives from chi-square, provides results which vary between 0 and +1. The coefficient as shown in the table is 0.157, suggesting a weak relationship.

Table No-8: Chi-square test of Independence showing association between Educational Qualification of bank employees with Level of Risk Perceived with regard to Internet Banking Services

(N = 200)

| Educational Qualifications of Bank Employees | Count | Levels of Perceived Risk | | | Total |
|--|----------------|--------------------------|----------|------|-------|
| | | Low | Moderate | High | |
| Graduate | Observed Count | 47 | 39 | 28 | 114 |
| | Expected Count | 41.6 | 37.6 | 34.8 | 114.0 |
| Post Graduate | Observed Count | 17 | 21 | 23 | 61 |
| | Expected Count | 22.3 | 20.1 | 18.6 | 61.0 |
| Diploma | Observed Count | 1 | 2 | 3 | 6 |
| | Expected Count | 2.2 | 2.0 | 1.8 | 6.0 |
| Professional | Observed Count | 8 | 4 | 7 | 19 |
| | Expected Count | 6.9 | 6.3 | 5.8 | 19.0 |
| Total | Observed Count | 73 | 66 | 61 | 200 |
| | Expected Count | 73.0 | 66.0 | 61.0 | 200.0 |

| | |
|---------------------------|--------------|
| Pearson Chi-square | 7.019 |
| p-value | 0.319 |
| Phi | 0.187 |
| Cramer's V | 0.132 |

Table no. 8 shows that, p-value is 0.319 that is greater than our alpha value i.e. 0.05. It means the null hypothesis doesn't get rejected. Hence there is no significant association between educational qualification of bank employees and the risk perception of bank employees. Further Phi Value i.e. 0.187 also depicts that there is no association between these two

variables. Also the value of coefficient of Cramer's rule as shown in the table 1.3 is 0.132, which suggests that there is very weak and not acceptable association between educational qualification of bank employees and risk perception of the employees.

Table No-9: Chi-square test of Independence showing association between Experience of bank employees with Level of Risk Perceived with regard to Internet Banking Services (N = 200)

| Years of Experience of Bank Employees | Count | Levels of Perceived Risk | | | Total |
|---------------------------------------|----------------|--------------------------|----------|------|---------------|
| | | Low | Moderate | High | |
| Less than 5 years | Observed Count | 49 | 36 | 25 | 110 |
| | Expected Count | 40.2 | 36.3 | 33.6 | 110.0 |
| 6 to 10 years | Observed Count | 20 | 22 | 22 | 64 |
| | Expected Count | 23.4 | 21.1 | 19.5 | 64.0 |
| 11 to 15 years | Observed Count | 3 | 1 | 4 | 8 |
| | Expected Count | 2.9 | 2.6 | 2.4 | 8.0 |
| More than 15 years | Observed Count | 1 | 7 | 10 | 18 |
| | Expected Count | 6.6 | 5.9 | 5.5 | 18.0 |
| Total | Observed Count | 73 | 66 | 61 | 200 |
| | Expected Count | 73.0 | 66.0 | 61.0 | 200.0 |
| Pearson Chi-square | | | | | 15.602 |
| p-value | | | | | 0.016 |
| Phi | | | | | 0.279 |
| Cramer's V | | | | | 0.197 |

P-value as shown in table no. 9 is 0.016 which is less than the alpha value i.e. 0.05. It means that null hypothesis gets rejected and hence there is a significant association found between number of years of experience of bank employees and the risk perception of bank employees. The level of risk is found to be increasing with experience. In other words, it can be said that employees with more experience are tend to have high risk perception towards internet banking services. Further Phi Value i.e. 0.279 shows that these two variables are moderately associated. However, the value of coefficient of Cramer's rule is 0.197, which suggests that there is weak association between 'number of years of experience of bank employees' and risk perception of the employees.

7. Conclusion

It is evident from the present research that the risk perception of bank employees towards the internet banking services is found to be overall low in both public and private banks. However, on comparison of risk perceived by employees of public sector with that of private sector banks, it is clear that risk perception of employees belonging to public sector banks is found to be high. Therefore, to strength employees' perception towards internet services, the banks should undertake more training programs so as to enhance

their outlook towards new and existing internet banking products. These programs will help build confidence amongst employees to market internet services products to its customers. Moreover, within the public sector banks, employees belonging to Canara Bank, Corporation Bank and Union Bank of India are found to have high risk perception in comparison to average risk perception of public sector banks whereas employees from SBI are found to be having low level of risk perception. In case of private sector banks, employees from Karnataka Bank and South Indian Bank are found to be having high risk perception in comparison to average risk perception of the group. On the other hand, employees from Axis Bank, Federal Bank and IndusInd Bank are having low score of risk perception in comparison to group average. Study established an insignificant association between the risk perception and the demographic characteristics such as age and educational qualification of the bank employees. However, the association between experience of bank employees and risk perception is found significant but weak which implies that employees with more experience are having high level of risk perceived. This finding once again reflects the need for more awareness and training programmes amongst employees of public and private sector banks.

References

1. Afuah, A. (2003). *Innovation Management*. New York: Oxford University Press.
2. Bhalla, R., Arora, I. S. and Bansal, S. K. (2015). A Study of Bankers' Perspective on E-Banking with Special Reference to Punjab. *Indian Journal of Research*, 4(12), 209-213.
3. Liao, Z. & Cheung, M.T. 2003. Challenges to internet e-banking. *Communications of the ACM*, 46(12): 248–250.
4. Lange, G. and Blandin, A. (2002). The Impact of Internet on European Banking. In Vivek Gupta (Ed), *E-Banking-Global Perspective*, ICFAI, New Delhi.
5. Mathur, S. (2007). Indian IT Industry: Performance Analysis and a Model for Possible Adoption. <http://mpra.ub.uni.muenchen.de/2368/> MPRA paper No.2368, posted 26, March 2007.
6. Haque, A., Ismail, A. Z. H., & Daraz, A. H. (2009). Issues of e-banking transaction: an empirical investigation on Malaysian customers' perception. *Journal of applied Sciences*, 9(10), 1870-1879.
7. Bauser, C. and Colgan, J. (2001). Planning for Electronic Commerce Strategy: An Explanatory Study from the Financial Service Sector. *Logistics Information Management*, 14(1/2), 24-32.
8. Daniel, E. (1999). Provision of Electronic Banking in the UK and the Republic of Ireland. *International Journal of Bank Marketing*, 17(2), 72-82.
9. De Wit, G.R. (1990). The Character of Technological Change and Employment in Banking: A case-study of Dutch Automated Clearing House (BGC). In C. Freeman & L. Soete (eds.) *New explorations in the Economics of Technical Change*, Printer Publishers, London & New York.
10. Downes, L., and Mui, C. (1998). *Killer App: Digital Strategies for Market Dominance*, Harvard Business School Press, Boston, MA.
11. Furash, E.F. (1999). Internet Strategy: Why Banks May be Getting it Wrong – and How to Get it Right. *Journal of Retail Banking Services*, 21(2), 37-42.
12. Hasan, I., Maccario, A. and Zazzara, C. (2002). Do Internet Activities Add Value? The Italian Bank Experience. *Working Paper, Berkley Research Center, New York University*
13. IAMA (2006). IAMA's Report – Online Banking 2006. Available [online] at <http://www.iamai.in/IAMAOnlineBanking.html>, Accessed on October 23th 2018.
14. Jayawardhena, C. and Foley, P. (2000). Changes in the Banking Sector: The Case of Internet Banking in the UK", *Internet Research: Electronic Networking Applications and Policy*, 10 (1), 19-30
15. Jeevan (2000). Changes in the banking sector: the case of internet banking in the UK. *Internet Research: Electronic Networking Applications and Policy*, 10 (1), 19-30.
16. Karjaluoto, H., Mattila, M. and Pentto, T. (2002A). Electronic Banking in Finland- Consumer Beliefs and Reactions to a New Delivery Channel. *Journal of Financial Services Marketing*, 6(4), 346-361.
17. Khalfan, A., Yaqoub, S.Y., AlRefaei, Y., Al-Hajery, M., (2006). Factors influencing the adoption of Internet banking in Oman: a descriptive case study analysis. *International Journal of Financial Services Management* 1 (2), 155–172.
18. Malhotra, P. and Singh, B. (2007). Determinants of Internet banking adoption by banks in India. *Journal of Internet Research*, 17(3), 323-339.
19. Mols, N.P. (1999). The Internet and the Banks' Strategic Distribution Channel Decisions. *International Journal of Bank Marketing*, 17(6) 295-300.
20. Mols, N.P. Bukh, P.N.D. and Nielson, J F. (1999). Distribution Channel Strategies in Danish Retail Banking. *International Journal of Retail and Distribution Management*, 27(1), 37-47.
21. Naidu, V. K. and Paramasivan, C. (2015). A Study on Banker's Perception of Electronic Banking. *International Journal of Multidisciplinary Research Review*, 1(7), 5-11.
22. Narayana N. and Veena K. P. (2018). A Case Study On Employee Perception Towards E-Banking. *International Journal of Engineering Development and Research*, 6(2), 375-379.
23. Nath, R., Schrick, P. and Parzinger, M. (2001). Banker's Perspectives on Internet-Banking. *e-service journal*, 21-36.
24. Oladejo, M., & Akanbi, T. (2012). Banker's perceptions of electronic banking in Nigeria: A review of post consolidation experience. *Research Journal of Finance and Accounting*, 3(2), 1-11.
25. Peterson, R. A., Balasubramanian, S. and Bronnenberg, B. J. (1997). Exploring the Implications of the Internet for Consumer Marketing. *Journal of the Academy of Marketing Science*, 25(4), 329-346.
26. Prescott, M.B. and Slyke, V.C. (1997). Understanding the Internet as an Innovation. *Industrial Management and Data Systems*, 97(3), 119-24.
27. Quelch, J.A. and Klein, L.R. (1996). The Internet and International Marketing. *Sloan Management Review*, 37(3), 60-76.
28. Wylie, I. (1999). Online, But on the Case?" *The Guardian*, (January 23), p. 23.
29. Xue, Hitt, & Chen. (2011). Determinants and outcomes of internet banking adoption. *Management Science*, 57(2), 291-307.