

LINKING KNOWLEDGE MANAGEMENT APPROACHES AND CREDIT RISK MANAGEMENT AS AN INNOVATIVE STRATEGY IN BANKING INSTITUTIONS: A PERSPECTIVE FROM MALAYSIA

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Abstract:

This study is expected to shed light on establishing an effective credit risk environment with the appropriate credit risk strategy, the infusion of Knowledge Management (KM) approaches into Credit Risk Management (CRM) practices of selected banking institutions. Managing effectively on credit risk matters requires innovative and local-based banking strategy. A survey which consists of 4 active KM approaches and CRM performance, which measures according to four perspectives of Balance Score Card (BSC) developed by Kaplan & Norton (1996) has been established. Questionnaires are sent to 100 respondents from respective CRM department of participating banking institutions' headquarters. Mean score analysis is applied to examine the efficacy of banking institution in managing its credit risks and active KM approaches. The study further determines the relationship between KM approaches and CRM performance in the selected banking institution. The findings reveal that active KM approaches implementation and CRM performance in banking institutions are at medium extent and also at high level respectively. Further, it is evinced that there is a significant positive relationship between active KM approaches and innovative CRM performance.

Keywords: Knowledge Management, Active Knowledge Management Approaches, Credit Risk Management, Innovation, Malaysia Banking Institutions

1. INTRODUCTION

Today, knowledge management (KM) has been utilized actively as an enabler for process improvements and it currently plays its strategic control role in knowledge-intensive business process in many financial institutions such as customer relationship management and creditworthiness ratings with reported success (Chong et al., 2000). Research report by Wang et al. (2006) has also indicated that KM processes has played an important role in CRM context to improve the team capabilities and skills in enhancing the way they share knowledge and the tools that they use.

The pursuit of organizational sustainability as a lever for competitive advantage has contributed to the necessity of increased attention for banking institutions to strengthen the performance of both CRM and KM practices. Therefore, the axle of this study is to develop a clearer conceptual understanding on the efficacy of banking institution in managing its credit risks and KM towards maximizing and innovating the next-level organizational performance. Furthermore, an attempt is made in order to unfold the utilization of KM approaches in CRM context by effectively managing, evaluating and controlling credit risks. The study further determines the relationship between KM and CRM practices in the selected banking institutions.

1.1 Research background

Rodriguez & Edwards (2008a) has described a methodology to analyze the risk modelling process based on KM principles. Pilot results for the retail banking sector have been presented by Rodriguez & Edwards (2008b), showing that KM and CRM theoretical framework are based on the two conceptual pillars: effective management of knowledge is the key of managing risk and risk minimization has been regarded as new fundamental objective of KM application (Marshal & Prusak, 1996) in addition to the ones asserted by (Abecker, A. & Van Elst, L., 2004).

Understanding the necessities of implementing KM and CRM to enhance the organizational performance of banking institutions for long-term sustainability will develop a fruitful research. This study is primarily aimed to develop conceptual understanding of the need to implementing KM approaches in CRM as a competitive strategy in Malaysia banking institutions. Apart from that, the relationship between KM and CRM is outlined in the research paper.

1.2 Problem statement

The move towards K-economy is part and parcel of Malaysia's strategic plan to become a fully developed and knowledge-rich country by year 2020. Bank Negara Malaysia, BNM (2001) has developed policies to channel the banking institutions in fostering KM processes implementation in order to facilitate the internal processes (Yap et al., 2009). However, the level of institutionalization of KM and implementation of KM approaches in banking institutions remains an issue of interest (Chong et al., 2009). It is recognized that implementing KM approaches in managing credit risks can positively affect the banking performance of the banking institution, yet previous studies in Malaysia are quite inadequate in investigating this phenomenon. As a result, this study is intended to provide a preliminary framework of developing the use of KM approaches in CRM context.

1.3 Research questions

- What is the level of KM approaches implemented in selected banking institutions in Malaysia?
- What is the extent of CRM performance in selected banking institutions?
- Is there a significant relationship between KM and CRM performance in the selected banking institutions?

1.4 Objectives

- To study the level of KM approaches implemented in selected banking institutions in Malaysia.
- To evaluate the extent of CRM performance in the selected banking institutions.
- To examine the relationship between KM and CRM performance the banking institutions.

1.5 Research scope

The scope of the study is focused on headquarters of selected banking institutions which is located at Kuala Lumpur with its CRM framework and KM approaches being examined.

1.6 Significance of The Study

The study is expected to be a prerequisite for systematic research into the underlying relationship between KM and CRM as well as for easing the emergence of implementing KM approaches into CRM practice to ensure sustainable revenue growth and long-term competitiveness of banking institutions in Malaysia. Additionally, it is envisaged that the results of the study would help to create better understanding on the sequential dependency among KM approaches. Apart from that, the outcomes of the study will contribute towards the successful implementation of knowledge sharing as part of organizational KM initiatives in other business areas to enhance organizational learning and growth, internal business process, customer satisfaction and financial performance.

2. LITERATURE REVIEW

2.1 Theoretical Background of Knowledge Management (KM)

Definition of Knowledge Management (KM)

Ernst & Young (1998) refers KM as development of processes which link knowledge application to business strategies. The similar denotation is given by Debowski (2006) who has stated that KM is a process of identifying, capturing, organizing and disseminating the intellectual assets to achieve sustainable organizational performance. KM is also defined as a process which helps organization to identify, select, organize and transfer critical information which resides within the organization (Turban, 2006).

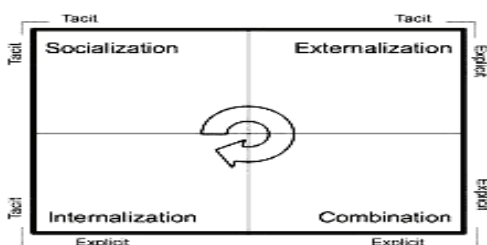
Definition of KM Approaches

Despite the discrepancies in the literatures appear in the delineation of the KM approaches, the KM approaches that are adopted in this dissertation refer to knowledge creation, knowledge storage and retrieval, knowledge dissemination or sharing and knowledge utilization (Zack et al., 2009; Alavi & Leider, 2001; Davenport & Prusak, 1998; Boisot, M., 1995).

Knowledge Creation

Nonaka (1994) has suggested a spiral model of KM namely SECI model which enables the interactions and conversions from tacit knowledge to tacit knowledge (socialization), from tacit knowledge to explicit knowledge (externalization), from explicit knowledge to explicit knowledge (combination) and from explicit knowledge to tacit knowledge (internalization). This study adopts the SECI model for knowledge creation since it has been widely implemented in many research areas such as IT and organizational learning (Dickinson, 2001). The SECI model is illustrated in Fig. 1 below:

Figure 1: Knowledge Conversion Activities between Tacit Knowledge and Explicit Knowledge



Source: Nonaka, 1994

Knowledge Storage and Retrieval

Stein & Zwass (1995) have emphasized that storage and retrieval of organizational knowledge are referred as organizational memory which includes knowledge residing in various form such as written documentation, documented organizational policies and procedures, and codified knowledge stored in database, data mining, data warehouse or other business intelligence tools.

Knowledge Sharing

Knowledge sharing is the principal source of value creation and has been playing a key role in strategic management. In the literature of Marshal, C. & Prusak, L. (1996), successful knowledge sharing results in organizations mastering in new internal process, organizational designs and innovative practices. Study report by Rodriguez, E. & Edwards, J. S. (2008a) has proven that web channel functionality like groupware, electronic newsletters, discussion forums and intranet is positively associated with risk knowledge sharing too.

Knowledge Utilization

Fielden, T. (2001) has noted that creation and consolidating knowledge will not improve an organization's performance except that knowledge is applied in decision-making, strategic process, production and operation. In many situations, knowledge particularly tacit knowledge is embedded in people hence organization should encourage its employees to share knowledge so that knowledge could be transferred, adapted and adopted by others and further be applied in practices (Alavi, M. & Liender, E., 2001).

2.2 Theoretical background of Credit Risk Management (CRM)

Definition of Credit Risk Management (CRM)

According to the report of Basel Committee on Banking Supervision (1999), the principal goal of CRM is to maintain credit risk exposure within acceptable parameters to maximize the risk-adjusted rate of return in a banking institution. Brian C. (2000a) has outlined that standardized policies and procedures have to be applied for granting credit to customers, collecting payment and have proper credit control. Additionally, he has addressed that CRM requires the embodiment of credit policy, a system for decision-making on credit issues and credit culture in monitoring and controlling credit. CRM has been identified as identification, assessment, mitigation and monitoring of risk associated with credits (Barnhill et al., 2002).

General Principles of Sound CRM practices in Banking Institutions

The implementation of CRM strategies can be applied in conjunction of sound practices related to assessment of asset quality, adequacy of reserves of credit risk knowledge and controlling of credit risks. The capital adequacy guidelines which are established by Basel Committee on Banking Supervision (1999) have shown the general principles of sound CRM practices in banking institutions include: establishing an appropriate credit risk environment, operating under a sound credit-granting process, maintaining an appropriate credit administration, measurement and monitoring process, and lastly ensuring adequate controls over credit risk.

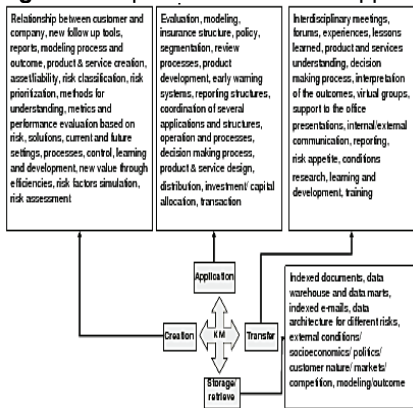
CRM Practices in Banking Institutions, Malaysia

The document of BNM (2001) has emphasized the importance of adopting credit culture, credit organization, credit policies and CRM process based on the principles of the capital adequacy guidelines which are established by Basel Committee on Banking Supervision (1999) and banking institutions have been adopted CRM practices based on the guidelines stated.

2.3 Implementing KM Approaches in CRM Context

The study of Van, G.H. & Brajovic, S. (2003) has indicated that banking institutions which have broader credit risk exposure requires better understanding on risk modelling knowledge (RIKMAN) which can help them dealing with financial, business and operational risks. The perceived link between KM and CRM has been widely discussed by Rodriguez, E & Edwards, J S (2008a) which supports the role of CRM in strategic management development. Within CRM context, KM approaches are recognized as important resources which have an economic value apart from enhancing efficiency of an organization's internal processes, increasing productivity and provide the banking institution with competitive advantages (Ermine, J., 2000). Ideally, the implementation of KM approaches within CRM context is illustrated in Fig.3:

Figure 2: Implementation of KM approaches within CRM context (Source: Ermine, J., 2000).

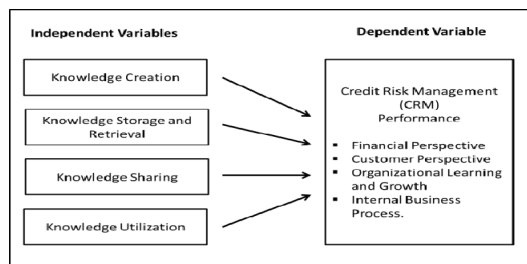


3. METHODOLOGY

3.1 Research Framework

In order to attain the objectives stated earlier, the independent variables in this research are the four KM approaches elements i.e. knowledge creation, knowledge storage and retrieval, knowledge sharing and knowledge utilization. In contrast, the CRM performance in which this research intends to explore is the independent variable for this research. Each variable is measured by a number of items, again derived from previous studies reported in the literature.

Figure 3: Research Conceptual Framework



3.2 Research design

In order to attain the objectives of the research, quantitative approach methodology is applied in this research in which the results obtained will be in numerical form.

3.3 Research Population and Sampling

Research Population

There are 26 commercial banks, 16 Islamic banks, 15 Investment banks and 5 international Islamic banks enumerated under List of Licensed Banking Institutions in Malaysia (2012). The population of this research is comprised of 100 employees who involve in CRM and KM relevant activities in headquarter of selected banking institutions at Kuala Lumpur.

Sampling Method

The sampling method used in this research is non-probability sampling with the technique selected is purposive sampling. Purposive sampling is appropriate as the targeted respondents are those who involve in activities in the field of CRM and KM in financial institutions represents a homogeneous population who possess the relevant knowledge since the research is intended to investigate CRM and KM practices within the banking institutions. Furthermore, this sampling technique is chosen due to the confidentiality of bank employees, the limits of duration in conducting the research and to

minimize the sampling error in this research. The results of purposive sampling are usually expected to be more precise than those accomplished with other sampling techniques (Sharma, 2007).

Research Sample

The research sample is 80 employees from CRM department in headquarter of commercial banks and Islamic banks enumerated under List of Licensed Banking Institutions in Malaysia (2012). The research sample of 80 respondents is sufficiently substantial as a valid representation since sample size of 80 is in conformity with Krejcie, R.V. & Morgan, D.W. (1970) who has indicated that sample size of 80 is sufficient when the population is 100.

3.4 Data Collection Methods

Data Sources

Primary data and secondary data are used for this research. In terms of primary data collection for this research, survey method using questionnaires which are developed based on the information obtained from the secondary data source. In addition, the secondary data sources which are used for the research include review papers, journals, magazines, thesis, newspapers, online resources and other synthesis of work in the area of CRM and KM.

Research Instrument

The research instrument which is used in this research is survey method using questionnaires. The questionnaire design consists of three parts as shown in Appendix A.

3.5 Data analysis methods

The articulated data of the research is analyzed by using IBM Statistical Package Social Science (SPSS) Version 19. Both descriptive and inferential analyses are applied in this research. The results from the mean analysis are used for determining the level of KM approaches adoption and the extent of CRM performance among the headquarters of participated banks. Meanwhile, the relationship between both KM approaches and CRM performance is deduced by using inferential analysis i.e. bivariate correlation test results.

4. DATA ANALYSIS AND RESULTS

4.1 Reliability Test

The total number of questions in this questionnaire tested is 46 questions which have been answered by 12 bankers. Cronbach's alpha value of all constructs for pilot test i.e. 0.890 achieves excellent reliability meaning that the overall data is appropriate to be constructed for the real study.

4.2 Response Rate

100 sets of questionnaires have distributed to the respective banking institutions' employees whom work in CRM department via e-mail or direct approach with regards to the banks' preference of questionnaire distribution method. The total set of questionnaires that have been collected is 80 sets which are equivalent to 80% response rate with the table portrays the list of participated banking institutions and the corresponding of response rate contributed by each bank is shown in Appendix B.

4.3 Demographic Analyses

Respondents' Age (years)

Table1: Distribution of Respondents by Age (years) in Percentage

	Frequency	Percent
21-30	16	20.0
31-40	23	28.8
41-50	28	35.0
51 and above	13	16.3

	Frequency	Percent
21-30	16	20.0
31-40	23	28.8
41-50	28	35.0
51 and above	13	16.3
Total	80	100.0

Table1 shows that majority of the respondents are aged between 41-50 years old. They account for 35% from the whole sample. The next group of respondents are aged between 31-40 years old who account for 29% from the whole sample, followed by 20% respondents among the sample aging 21-30 years. The minimum age of respondents is 51 and above who account for 16% of the sample.

Respondents' Gender

Table 2: Distribution of Respondents by Gender in Percentage

	Frequency	Percent
Male	28	35.0
Female	52	65.0
Total	80	100.0

As shown in Table 2, male and female have constituted 35% and 65% respectively. In other words, 28 male respondents and 52 female respondents from headquarter of participated banking institutions have taken part in this research. It is obvious that female respondents outnumbered the male counterpart, this may be due to female employees are more enthusiastic about answering questionnaires.

Respondents' Current Job Position

Table3: Distribution of Respondents by Current Job Position in Percentage

	Frequency	Percent
Junior employee	3	3.8
Senior employee	4	5.0
Assistant manager	14	17.5
Manager	27	33.8
Asst. vice president	1	1.3
Executive/Officer	31	38.8
Total	80	100.0

Table 3 portrays that about 90% respondents are belonged to mid-level job positions. It undoubtedly demonstrates that this matured and well-aware class of employees have clear inclination towards banking process and have contributed valid inputs for the research. Out of 90% of the respondents, 39% of the respondents are holding executive/ officer job position, followed by 34% bank managers and 17% assistant managers of banking institutions respectively. The results portrayed in the table have also shown that the rest of respondents are constituted by 5% senior employees, 4% junior employees and 1% assistant vice president.

Respondents' Working Experience

Table 4: Distribution of Respondents by Working Experience in Percentage

	Frequency	Percent
less than 5 years	10	12.5
6-10 years	17	21.3
11-15 years	23	28.8
16-20 years	16	20.0
more than 21 years	14	17.5
Total	80	100.0

Table 4 has outlined that majority of the respondents are well-experienced as 29% of the respondents have worked in banking sectors for 11–15 years, 20% of the respondents work for their respective

banking institution for 16–20 years and 17% of the respondents have more than 21 years working in their banking institutions. Succinctly stated, 53 respondents out of 80 respondents have instilled with high KM and CRM related experience with their capabilities. It can be envisaged that high job security for employees to work in banking institutions. The lowest percentage of respondents being employed by banking institutions is 13% whom work with the organization for less than 5 years while the remaining 21% respondents work for their respective banking institution for 6–10 years.

Respondents' Familiarity and Experience with Knowledge Management (KM)

Table 5: Distribution of Respondents by Familiarity and Experience with KM in Percentage

	Frequency	Percent
Introductory	17	21.3
Intermediate	53	66.3
Advance	10	12.5
Total	80	100.0

In terms of familiarity and experience with KM based on Table 5, 66% of the respondents have intermediate familiarity and experience with KM, followed by 21% of respondents are in introductory level of familiarity and experience with KM and 13% respondents are in advanced level of familiarity and experience with KM. From the results, it can be therefore anticipated that the importance of KM has been recognized and has entered the argot of banking institutions but the employees are still inadequately understand how to leverage knowledge to enhance bank's performance.

Respondents' Familiarity and Experience with Credit Risk Management (CRM)

Table 6: Distribution of Respondents by Familiarity and Experience with CRM in Percentage

	Frequency	Percent
Introductory	10	12.5
Intermediate	45	56.3
Advance	25	31.3
Total	80	100.0

The Table 6 covers the level of familiarity and experience of the respondents with CRM. The results indicate that a significant proportion of the respondents (56% respondents) from these banking institutions have intermediate level of familiarity and experience with CRM. Further, 31% of the respondents have advanced level of familiarity and experience with CRM whereas the lowest percentage (13%) of bank employees who are representing their banking institutions have introductory level of familiarity and experience with CRM.

4.4 Mean Score Distribution and Standard Deviation

In this research, mean is used in place of percentages by classifying the level of KM approaches implemented in banking institutions and the extent of CRM performance in banking institutions into low, medium and high level according to the tabulation of the extent level of mean (Tasmin & Woods, 2008) as shown in Table 7. In additional, standard deviation is used to show how much variation or dispersion exists from the mean score. A low standard deviation value signifies that most observations cluster around the mean, vice versa.

Table 7: Extent Level of Mean (Tasmin, R. & Woods, P., 2008)

Extent	Range
Low	1.0 – 2.3
Medium	2.4 – 3.7
High	3.8 – 5.0

Mean Score Distribution and Standard Deviation for the Level of Knowledge Management (KM) Approaches

Mean Score Distribution and Standard Deviation for Knowledge Creation

From Table 8, we can note that the item which scores the highest mean score is obtain useful information and suggestions from brainstorming activities and face-to-face meetings with the value of 3.96. Such evidence provides practical support that bank employees can formally learn and actively create knowledge in face-to-face meetings and brainstorming activities. Accordingly, we can conclude that employee involvement in communicating ideas, knowledge and experiences through meetings, conferences and brainstorming promotes credit risk knowledge creation.

Meanwhile, the item which scores the lowest mean score is 'corporate repositories provide information needed' with the value of 3.52 which is deemed as moderate performance. This suggests that banking institutions have considerable room for improvement in re-structuring or enhancing their corporate repositories. The overall mean is 3.76 which falls in the medium category based on Table 8 while the overall standard deviation is 0.685 which is low, indicating that the data is closed to mean.

Table 8: Mean Score Distribution and Standard Deviation for Knowledge Creation

Knowledge Creation	Mean	SD	Extent
learn tacit knowledge	3.93	0.591	High
brainstorming and face-to-face meetings	3.96	0.605	High
organizational culture	3.78	0.763	High
commerce postgraduate	3.59	0.791	Medium
Corporate repositories provide info.	3.52	0.675	Medium
Overall	3.76	0.685	Medium

Mean Score Distribution and Standard Deviation for Knowledge Storage and Retrieval

Table 9 shows the level of KM approaches in terms of knowledge storage and retrieval is moderate with the overall value i.e. 3.74. It is envisaged that banks store knowledge in codified forms or oriented procedures and the information is readily available to be retrieved through networking solutions apart from knowledge repositories. The table also illustrates that the element i.e. organizational routines are documented has been ranked with the highest mean score and standard deviation are 3.93 and 0.652 correspondingly. Meanwhile, the element which scores the lowest mean is 'electronic databases and backend applications' with the value of 3.62. Hence, it is veracious to mention that organizational routines are well documented using traditional methods such as flow charts, policy declarations and other documentations, yet perseverance in making information available through backend applications electronically is still much to be desired in this era where information system is getting more significant.

Table 9: Mean Score Distribution and Standard Deviation for Knowledge Storage and Retrieval

Knowledge Storage and Retrieval	Mean	SD	Extent
Codified info. in files, portal, forums, etc.	3.93	0.591	High
organizational routines are documented	3.96	0.605	High
Sort, add, combine and classify the readily info.	3.78	0.763	High
networking solutions	3.59	0.791	Medium
electronic database and backend application	3.52	0.675	Medium
Overall	3.76	0.685	Medium

Mean Score Distribution and Standard Deviation for Knowledge Sharing

With respect to knowledge sharing dimension, Table 10 shows that the overall mean is very close to the mean of knowledge creation with the value of 3.77 which falls in the medium category. It displays that most of the respondents have chosen internal and external trainings or seminars as the most important element for facilitating knowledge sharing. The mean value of this element is 4.07 while its standard deviation is 0.671. Meanwhile, low mean value on job rotation shows that majority positions within banking institutions required to be specialized or may not eligible for rotation or it can be due to these job positions may not fit the profile for rotation opportunities.

Table 10: Mean Score Distribution and Standard Deviation for Knowledge Sharing

Knowledge Sharing	Mean	SD	Extent
internal and external trainings or seminars	4.07	0.671	High
encouraged to provide feedbacks	3.95	0.710	High
job rotation	3.48	0.842	Medium
information about new credit risk is circulated	3.71	0.660	Medium
constructive suggestion and information sharing are available	3.63	0.718	Medium

and easily accessed

Overall	3.77	0.720	Medium
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Mean Score Distribution and Standard Deviation for Knowledge Utilization

Table 11 reveals the overall mean score for knowledge utilization falls onto the medium category with the value of 3.78 while its overall standard deviation is 0.642. The element 'Timely and relevant information enable clearer understanding of customers' needs and respond quickly to customers' complaints' has the highest mean value which is 3.90 which falls on the high extent of mean category, thus we can conclude that knowledge can be utilized by banking institutions' employees for product development and enhance customer relationships. Meanwhile, bank employees' responses show that two elements of knowledge utilization score the lowest mean value i.e. 3.69, including 'new perspectives; insights and point of views' and 'decisions can be made confidently'. These weaknesses can be overcome by increasing employee's involvement in decision-making process either for back office functions, enhance understandings on customers' needs, and for bank operational decisions to emerge.

Table 11: Mean Score Distribution and Standard Deviation for Knowledge Utilization

Knowledge Utilization	Mean	SD	Extent
new perspectives, insights and point of views	3.69	0.608	Medium
best practices are adopted	3.85	0.638	High
decisions can be made confidently	3.69	0.686	Medium
proliferation of existing collaborative portal	3.79	0.610	Medium
understand customer needs and respond quickly	3.90	0.668	High
Overall	3.78	0.642	Medium

Summary on Mean Score Distribution and Standard Deviation for the Level of KM Approaches

As illustrated in Table 12, the overall level of KM approaches is medium for the headquarters of participated banking institutions with mean value of 3.76 and standard deviation 0.678. The KM process which attains the highest mean score is knowledge utilization which means that participated banking institutions have actively implementing and utilizing knowledge related to customers in the decision-making process in granting loan apart from ensuring banking institutions' credit worthiness and profitability.

Table 12: Mean Score Distribution and Standard Distribution for the Level of KM Approaches

KM Approaches	Mean	SD	Extent
Knowledge Creation	3.76	0.685	Medium
Knowledge Storage and Retrieval	3.74	0.668	Medium
Knowledge Sharing	3.77	0.720	Medium
Knowledge Utilization	3.78	0.642	Medium
Overall	3.76	0.678	Medium

Mean Score Distribution and Standard Deviation for the Level of Credit Risk Management (CRM) Performance

In order to achieve the second research objective of the study that is to evaluate the extent of CRM performance in banking institutions, mean scores and standard deviations have calculated for the questionnaire items. The CRM performance in this research are measured according to the four perspectives of BSC developed by Kaplan & Norton (1996), explicitly financial perspective, customer perspective, organizational learning and growth and internal business process.

Level of CRM Performance in terms of Financial Perspective

In Table 13, it is bona fide to conclude that Basel II framework requirements have been given with high priority with the highest mean value i.e. 3.98 and low standard deviation value i.e. 0.616. It signifies that banking institutions have keen awareness of the need to identify measure, monitor and control credit risk as well as to determine that they hold adequate capital against these risks and they are

adequately compensated for risks incurred. There is only one questionnaire item which obtains medium mean score (3.78) for measuring the CRM performance in terms of financial perspective is profit forecast reliability. Successively, the overall mean score and standard deviation of the level of CRM performance in terms of financial perspective is 3.87 and 0.617 respectively.

Table 13: Mean Score Distribution and Standard Distribution of CRM Performance in terms of Financial Perspective

Financial Perspective	Mean	SD	Extent
internal capital allocation	3.84	0.719	High
Basel II framework requirements	3.98	0.616	High
profit forecast reliability	3.78	0.573	Medium
return on risk-adjusted capital	3.85	0.553	High
credit rating approaches	3.88	0.624	High
Overall	3.87	0.617	High

Level of CRM Performance in terms of Organizational Learning and Growth Perspective

Table 14 illustrates that policies and strategy have been chosen as the most important element by respondent with the mean value and standard deviation are 4.06 and 0.581 respectively. It is due to good CRM policies will engender banking institutions having a lower loan default rate and relatively higher interest income. Meanwhile, the results have depicted that personnel are not always motivated for intelligent risk-taking and problem-solving as the element attains 3.71 mean which falls onto the category of medium mean extent. The overall mean score distribution and standard distribution of CRM performance in terms of organizational learning and growth perspective is 3.85 and 0.612 respectively. This advocates that organizational learning and growth of banking institutions can be improved by placing focuses on the internal skills and capabilities of the employees that are required to support the value-added CRM process.

Table 14: Mean Score Distribution and Standard Distribution of CRM Performance in terms of Organizational Learning and Growth Perspective

Organizational Learning and Growth Perspective	Mean	SD	Extent
leadership development	3.74	0.759	Medium
policies and strategy	4.06	0.581	High
teamwork and engagement	3.89	0.503	High
motivation in intelligent risk-taking and problem solving	3.71	0.660	Medium
communication among departments	3.83	0.591	High
Overall	3.85	0.612	High

Level of CRM Performance in terms of Internal Business Process Perspective

Table 15 illustrates each of the questionnaire items for measuring CRM performance in terms of internal business process perspective has achieved high extent of mean score distribution and low standard distribution, contributing overall mean of 3.88 and overall standard deviation of 0.585. The results reveal that degree of formalization and governance has the highest mean score of 4.03 among five questionnaire items in this perspective, reflecting that a set of policies (principles, rules, and guidelines) formulated or adopted by banking institutions to reach their long-term goals and typically published in forms that are widely accessible to ensure standardized governance. Conversely, time duration for decision making has the lowest mean value of 3.83.

Table 15: Mean Score Distribution and Standard Distribution of CRM Performance in terms of Internal Business Process Perspective

Internal Business Process Perspective	Mean	SD	Extent
productivity	3.84	0.561	High
time duration for decision-making	3.83	0.569	High
appropriate credit risk strategies and tools	3.87	0.582	High
degree of formalization and governance	4.03	0.636	High
credit risk or problem reduction	3.85	0.576	High

Overall	3.88	0.585	High
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Level of CRM Performance in terms of Customer Perspective

Table 16 shows that the customer satisfaction is measured by determining the likeliness of existing customers to recommend the bank's products and services to the others, whereby its lowest mean value i.e. 3.46 which shows customer satisfaction is moderate. The subsequent questionnaire item i.e. sound lending practices of the bank conforms to the perceived credit quality of customers has the highest mean value of 3.70 in this perspective. Inclusively, the overall mean score and standard deviation of CRM performance in terms of customer perspective are 3.65 and 0.588 respectively.

Table 16: Mean Score Distribution and Standard Distribution of CRM Performance in terms of Customer Perspective

Customer Perspective	Mean	SD	Extent
customer loyalty	3.54	0.635	Medium
customer satisfaction	3.46	0.594	Medium
perceived customer credit quality	3.70	0.582	Medium
number of new customers	3.69	0.542	Medium
brand image perception	3.85	0.569	High
Overall	3.65	0.584	Medium

Summary on Mean Score Distribution and Standard Deviation for the Level of CRM Performance

After the comparisons with all the overall mean scores in the table below, it is plausible to conclude that the low level of CRM performance in terms of customer perspective while other perspectives are fall in category of high extent of performance. Thus findings reflect that banking institutions have to improve their banking product and services to the customers and to satisfy the customers' needs. The overall mean score distribution and standard distribution for the level of CRM performance is 3.81 and 0.613 respectively.

Table 17: Mean Score Distribution and Standard Distribution for the Level of CRM Performance

CRM Performance	Mean	SD	Extent
Financial Perspective	3.87	0.617	High
Organizational Learning and Growth Perspective	3.85	0.612	High
Internal Business Process Perspective	3.88	0.585	High
Customer Perspective	3.65	0.584	Medium
Overall	3.81	0.613	High

4.5 Inferential Analysis

Since normality test results show that the data are normally distributed, therefore parametric correlation test method is used for examining the relationship between KM approaches and CRM performance. Pearson product-moment correlation coefficient (r) which is the most frequently used correlation coefficient in data analysis for parametric data is used in this context of research.

The value of correlation coefficient, $r = 0.830$ indicates a significant, positive and strong correlation. According to the correlative rule of thumb that r which falls in the category of 0.7 - 0.9 indicating a very high strength of relationship between KM approaches and CRM performance.

Table 18: Correlations Between KM Approaches and CRM Performance

Measures	KM Approaches	CRM Performance
KM Approaches	_____	0.830
CRM Performance	0.830	_____

**Correlation is significant at the 0.01 level (2-tailed).

5. DISCUSSION, RECOMMENDATIONS AND CONCLUSION

5.1 Discussion on the Findings

Findings in the previous chapter indicate that the level of KM approaches is in medium range in the CRM department of the participated banking institutions' headquarters in Kuala Lumpur with mean value of 3.76. This finding shows that KM approaches adoption is slightly improved as compared to the mean value of KM approaches which is 3.75 in the research conducted by Tan *et al* (2010). The KM approaches implementation in banking institutions is moderate due to inferiority complex. Most Malaysian are not outgoing and passive in sharing knowledge as they are afraid of being corrected for their information or being criticized. This is totally in contrast to their western counterpart (Yap *et al.*, 2009). Another reason that causes KM approaches implementation in banking institutions appear to be moderate is bank secrecy. Bank secrecy is widely recognised as playing a legitimate role in protecting the confidentiality of the financial affairs of individuals and legal entities of banking institution as a whole. This engenders professional obligation of bankers to keep the strategic approach of their banking institutions remain confidential as to accomplish competitive advantage.

Furthermore, the findings reveal the CRM performance of headquarters of participated banking institutions is considered high with the value of 3.81. However, banking institutions still have considerable room for improvement in maintaining credit risk exposure within acceptable parameters consistent with the principles established in Basel II framework. The findings have shown that the customer perspective of CRM performance is moderate compared to the other perspectives. Aligning with Abdallah, A. (2010), it is important for banking employees to apply knowledge related to customers to the various credit facilities associated with customers as these facilities are presumed to default concurrently. The mean value of 3.65 for customer perspective suggests that a lax of assessment of customers and moderate credit quality of customers. As a result, up-to-date information regarding customers' needs and customers lending status has to be articulated by the banking employees.

Furthermore, the high strength of relationship between both KM and CRM shows that the research findings are consistent with previous findings on KM approaches implementation in enterprise-wide risk management such as research performed by Rodriguez, E & Edwards, J S (2008a) and findings of research performed on KM approaches incorporated in managing credit risk by Abdallah, A. (2010). As CRM in banks utilizes a combination of key variables with knowledge which impacts on financial performances as well as the internal business process primarily, it is bona fide to say that knowledge is a risk asset which can be costly to the banking institutions if not appropriately managed and applied (Abdallah, A.,2010; Mashal & Prusak, 1996).

5.2 Recommendations

BNM is recommended to encourage headquarters of banking institutions as well as the branches to build a KM department to support different banking operations in general and CRM in particular. Another recommendation is that the study has highlighted some positive determinants of efficiency in KM approaches which enhance CRM performances such as establishment of credit policies and standards that conform to regulatory requirements and the bank's overall objectives; and organizing of seminars and training programmes, workshops, conferences from time to time. Consequently, information systems, business intelligence techniques, BSC and other robust information technologies can be deployed and integrated into CRM practices. Further, banking institutions are encouraged to organize employees training and development programmes for CRM department as credit risk can be managed and mitigated efficiently through better quality of human resources (Ho, S.F. & Yusoff, N.I., 2009).

5.3 Conclusion

In a nutshell, it is enlightening to conclude that the research objectives have been successfully obtained and this research provides insights on how to establish an effective credit risk environment with the appropriate credit risk strategy, the infusion of active KM approaches into innovative CRM practices and significant portfolio management of the participated banking institutions. The research shows that integration of active KM approaches to the CRM performance has enhanced innovative

approaches in financial performance, customer satisfaction, internal business process and organizational learning and growth is evident.

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Appendix A

Questionnaire Design

Part A : Demography			
	1. Age 2. Gender 3. Current Job Position 4. Working Experience 5. Familiarity and Experience with KM 6. Familiarity and Experience with CRM		
Part B: Knowledge Management (KM) Approaches			
Section	Construct	Item no.	
Section 1	Knowledge Creation	7 – 11	
Section 2	Knowledge Storage and Retrieval	12 – 16	
Section 3	Knowledge Sharing	17 – 21	
Section 4	Knowledge Utilization	22 – 26	
Part C: Credit Risk Management (CRM) Performance			
		27 – 46	

Appendix B

List of Participated Banking Institutions

No.	Participated Banking Institutions	Response Rate (%)
1.	Affin Bank Berhad	8.75
2.	Agro Bank Berhad	10.00
3.	Bank Islam Malaysia Berhad	2.50
4.	Bank Muamalat Malaysia Berhad	7.50
5.	Bank Pembangunan Malaysia Berhad	7.50
6.	Bank Perusahaan Kecil & Sederhana Malaysia Berhad (SME Bank)	2.75
7.	Bank Simpanan Nasional Berhad	12.50
8.	Export-import Bank of Malaysia (EXIMBank)	8.75
9.	Hong Leong Bank Berhad	11.25
10.	Malayan Banking Berhad (Maybank)	13.75
11.	OCBC Bank (Malaysia) Berhad	6.25
12.	Public Bank Berhad	6.25
13.	RHB Bank Berhad	2.50
Total Response Rate		100.00