Banks' risk management: a comparison study of UAE national and foreign banks

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Abstract

Purpose – The purpose of this research is to examine the degree to which the UAE banks use risk management practices and techniques in dealing with different types of risk. The secondary objective is to compare risk management practices between the two sets of banks.

Design/methodology/approach – The authors developed a modified questionnaire, divided into two parts. The first part covers six aspects: understanding risk and risk management; risk identification; risk assessment and analysis; risk monitoring; risk management practices; and credit risk analysis. This part includes 43 closed-ended questions based on an interval scale. The second part consists of two closed-ended questions based on an ordinal scale dealing with two topics: methods of risk identification, and risks facing the sample banks.

Findings – This study found that the three most important types of risk facing the UAE commercial banks are foreign exchange risk, followed by credit risk, then operating risk. It also found that the UAE banks are somewhat efficient in managing risk, and risk identification and risk assessment and analysis are the most influencing variables in risk management practices. Finally, the results indicate that there is a significant difference between the UAE national and foreign banks in the practice of risk assessment and analysis, and in risk monitoring and controlling.

Originality/value – The article will be of value to those interested in the banking industry.

Keywords Risk management, Risk analysis, Credit management, United Arab Emirates, Banks, Foreign exchange

Paper type Research paper

Introduction

Risk management is a cornerstone of prudent banking practice. Undoubtedly all banks in the present-day volatile environment are facing a large number of risks such as credit risk, liquidity risk, foreign exchange risk, market risk and interest rate risk, among others – risks which may threaten a bank's survival and success. In other words, banking is a business of risk. For this reason, efficient risk management is absolutely required. Carey (2001) indicates in this regard that risk management is more important in the financial sector than in other parts of the economy. The purpose of financial institutions is to maximize revenues and offer the most value to shareholders by offering a variety of financial services, and especially by administering risks. Recently many commercial banks have appointed senior managers to oversee a formal risk management function.

Risk can be classified into systematic and unsystematic risk. Systematic risk is associated with the overall market or the economy, whereas unsystematic risk is

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related to a specific asset or firm. Some of the systematic risk can be reduced through the use of risk mitigation and transmission techniques. In this regard Oldfield and Santomero (1997) refer to three generic risk-mitigation strategies:

(1) eliminate or avoid risks by simple business practices;

(2) transfer risks to other participants; and

(3) actively manage risks at the bank level (acceptance of risk).

Thus, financial intermediaries may avoid specific risks by simplifying business practices and minimizing activities that inflict risk. Activities with which the financial institution is committed to proceed can be adeptly managed or transferred. Certain risks which are inevitable or transferred must be engulfed by the bank. Inevitable risks are those too complex to separate from assets. The subsequent risk is accepted by the bank as being crucial to its business; banks are specialized in dealing with this sort of risk, and reap the benefits. According to the consultative paper issued by the Basel Committee on Banking Supervision (1999), for most banks loans are the largest and most obvious source of credit risk. Banks are increasingly facing credit in various financial instruments other than loans, including acceptances, interbank transactions, trade financing, foreign exchange transactions, financial futures, swaps, bonds, equities, options, the extension of commitments and guarantees, and the settlement of transactions. The Basel II regulation is likely to add fuel in this regard because new rules on how much capital banks must hold, will make a few lending decisions even more profitable.

The objective of this study is to examine the degree to which the UAE banks use risk management practices and techniques in dealing with different types of risk, and effective risk management practices followed by the UAE national and foreign banks. The objective also is to compare risk management practices between the two sets of banks.

To the best of the authors' knowledge most UAE banks suffer from loan default problems. In addition to credit risk, these banks face other types of risk: foreign exchange risk, market risk and interest rate risk, among others. The current study also intends to identify the most important type or types of risk facing the UAE commercial banks

Literature review

There have been a large number of studies published about risk management in general. However, the number of the empirical studies on risk management practices in financial institutions was found to be relatively small. The following is an attempt to summarize the main conclusions of some selected studies.

Linbo Fan (2004) examined efficiency versus risk in large domestic USA banks. He found that profit efficiency is sensitive to credit risk and insolvency risk but not to liquidity risk or to the mix of loan products. Ho Hahm (2004) conducted an empirical study on interest rate and exchange rate exposures of banking institutions in pre-crisis Korea. Results indicated that Korean commercial banks and merchant banking corporations had been significantly exposed to both interest rate and exchange rate risks, and that the subsequent profitability of commercial banks was significantly associated with the degree of pre-crisis exposure. The results also indicated that the Korean case highlights the importance of upgrading financial supervision and risk management practices as a precondition for successful financial liberalization.

Niinimäki (2004) in his paper entitled "The effects of competition on banks' risk taking" found that the magnitude of risk taking depends on the structure and side of

the market in which competition takes place. He also concluded that if the bank is a monopoly or banks are competing only in the loan market, deposit insurance has no effect on risk taking. Banks in this situation tend to take risks, although extreme risk taking is avoided. In contrast, introducing deposit insurance increases risk taking if banks are competing for deposits. In this case, deposit rates become excessively high, thereby forcing banks to take extreme risks. Wetmore (2004) examined the relationship between liquidity risk and loans-to-core deposits ratio of large commercial bank holding companies. He concluded that the average loan-to-core deposit ratio had increased over the period studied, which reflects a change in the asset/liability management practices of banks. He also concluded that there is a positive relationship occurring between market risk and the change in loan-to-core deposits ratio after 1994, with a negative relationship occurring before 1994.

Wang and Sheng-Yung (2004) studied foreign exchange risk, world diversification and Taiwanese American depository receipts (ADRs). In this study they tried to answer the following question: Should USA investors purchase American depository receipts issued by Taiwanese multinationals? Empirical results indicated that foreign exchange risk is priced in Taiwanese ADRs. Moreover, Taiwanese ADRs were shown to help USA investors diversify their portfolios globally. These findings suggest that Taiwanese ADRs are valid investment tools for USA investors who seek international diversifications.

Khambata and Bagdi (2003) examined off-balance-sheet (OBS) credit risk across the top 20 Japanese banks. The main results of this study indicated that financial derivatives are heavily used by the top four banks and that loan commitments are the largest source of credit risk among traditional OBS instruments. The results also indicated that there is a wide difference across the banks in the use of derivative leverage. As compared to USA and European banks, Japanese banks use fewer OBS instruments as a percentage of their assets. This implies that Japanese banks are more conservative and risk-averse in general than their USA or European counterparts, especially given the bad financial condition of Japanese banks.

Al-Tamimi (2002) investigated the degree to which the UAE commercial banks use risks management techniques in dealing with different types of risk. The study found that the UAE commercial banks were mainly facing credit risk. The study also found that inspection by branch managers and financial statement analysis were the main methods used in risk identification. The main techniques used in risk management according to this study were establishing standards, credit score, credit worthiness analysis, risk rating and collateral; the study also highlighted the willingness of the UAE commercial banks to use the most sophisticated risk management techniques, and recommended the adoption of a conservative credit policy.

Salas and Saurina (2002) examined credit risk in Spanish commercial and savings banks; they used panel data to compare the determinants of problem loans of Spanish commercial and savings banks in the period 1985-1997, taking into account both macroeconomic and individual bank-level variables. The GDP growth rate, firms, family indebtedness, rapid past credit or branch expansion, inefficiency, portfolio composition, size, net interest margin, capital ratio and market power are variables that explain credit risk. Their findings raise important bank supervisory policy issues: the use of bank-level variables as early warning indicators, the advantages of mergers of banks from different regions, and the role of banking competition and ownership in determining credit risk.

Oldfield and Santomero (1997) investigated risk management in financial institutions. In this study, they suggested four steps for active risk management techniques:

(1) the establishment of standards and reports;
(2) the imposition of position limits and rules (i.e. contemporary exposures, credit limits and position concentration);
(3) the creation of self investment guidelines and strategies; and
(4) the alignment of incentive contracts and compensation (performance-based compensation contracts).

Based on the literature review above, the following comments can be made:

- Profit efficiency is sensitive to credit risk and insolvency risk but not to liquidity risk or to the mix of loan products.
- Risk management practices are a precondition for successful financial liberalization.
- Commercial banks are mainly faced with credit risk; loans are the largest and most obvious source of this type of risk.
- Inspection by branch managers and financial statement analysis are the main methods used in risk identification.
- The appropriate risk weight for an off-balance-sheet contract is likely to depend on the size of the bank.

Research methodology

Research questions and hypotheses

This study attempts to answer the following questions:

RQ1. Do the UAE banks' staff understand risk and risk management?

RQ2. Have the UAE banks clearly identified the potential risks relating to each of their declared aims and objectives?

RQ3. Do the UAE banks efficiently assess and analyze risk in general?

RQ3. Do the UAE banks have an efficient risk monitoring and controlling system?

RQ3. Do the UAE banks have efficient risk management?

RQ3. What are the methods used in risk management in general?

Based on the stated purpose and the questions mentioned above, the following hypotheses are formulated:

H1. There is a positive relationship between risk management practices and understanding risk, and risk management, risk identification, risk assessment and analysis, risk monitoring, risk, and credit risk analysis.

H2. There is a difference between the UAE national and foreign banks in the understanding of risk and risk management.

H3. There is a difference between the UAE national and foreign banks in the practices of risk identification.

H4. There is a difference between the UAE national and foreign banks in the practices of risk assessment and analysis.

H5. There is a difference between the UAE national and foreign banks in risk monitoring and controlling.

H6. There is a difference between the UAE national and foreign banks in the context of risk management practices.

H7. There is a difference between the UAE national and foreign banks in the practice of credit risk analysis.

Instrument

The authors developed a modified questionnaire, divided into two parts. The first part covers six aspects: understanding risk and risk management; risk identification; risk assessment and analysis; risk monitoring; risk management practices; and credit risk analysis. This part includes 43 closed-ended questions based on an interval scale, where eight questions correspond to the understanding risk and risk management aspect, five questions correspond to risk identification, seven questions correspond to risk assessment and analysis, six questions correspond to risk monitoring, ten questions correspond to risk management practices, and seven questions correspond to credit risk analysis. Respondents were asked to indicate their degree of agreement with each of the questions on a seven-point Likert scale.

The second part consists of two closed-ended questions based on an ordinal scale dealing with two topics: methods of risk identification, and risks facing the sample banks. The responses were classified into national and foreign banks. The aim of this classification is to find out if there are any differences between the national banks and foreign banks regarding risk management practices. It is worth mentioning here that most foreign banks represent branches of highly sophisticated banks, and so it is assumed that these banks use sophisticated risk management techniques.

To assess the scales' content validity the author asked six experts – three academicians and three practitioners – to examine the scales, as was suggested by Devellis (1991). Accordingly, the author made some changes to the first draft in terms of eliminating, adding to or rewording some of the questions included in that draft.

Sampling and data collection

The UAE has 46 commercial banks, 21 of which are national banks and the remaining 25 of which are foreign banks (branches of banks located outside the UAE). The targeted population are those heavily involved in risk management among the major conventional banks whose total assets exceed AED 7 billion or US$ 1.9 billion in the three largest cities of the UAE, namely, Abu Dhabi, Dubai and Sharjah. These cities host more than 80 per cent of the UAE population. The sample includes eight national conventional banks: Abu Dhabi National Bank, Dubai National Bank, Abu Dhabi Commercial Bank, Mashriq Bank, Dubai International Bank, the National Union Bank, First Gulf Bank and Commercial Bank of Dubai. The sample also includes the five largest foreign banks: HSBC Bank Middle East, Bank Saderat Iran, Citi Bank, Standard Chartered Bank and Arab Bank.

Regarding the four Islamic banks (Dubai Islamic Bank, Abu Dhabi Islamic, Emirates Islamic Bank, and Sharjah Islamic Bank), the authors decided to distribute questionnaires to all officers involved in risk management in the three cities because of the small number of the Islamic banks. The total assets of the four Islamic banks was

about 48,904 billion (US$ 12.485 billion), constituting around 11.1 per cent of the total assets of the UAE commercial banks in 2004 (Emirates Banks Association, 2004).

The authors handed questionnaires to the banks' head offices and branch managers who were requested to kindly pass the questionnaires to the targeted officers. The questionnaires were distributed to those officers involved in risk management activities, namely, branch managers, senior risk management officers and senior credit officers. From the 188 questionnaires we received, the screening process resulted in excluding 31 responses from the study because of missing data questions. The remaining 157 responses represent an effective response rate of around 49 per cent of the total sample (the number of officers involved in risk management is around 319). Of these respondents, 73.9 per cent were officers from national banks and 26.1 per cent were officers from foreign banks. The high percentage of respondents from national banks can be explained by the fact that the total assets of national banks constituted about 76.5 per cent of the assets of UAE commercial banks in 2004.

Data analysis

First of all the reliability of the scales was evaluated using Cronbach's alpha, which measures the consistency with which respondents answer questions within a scale. Regarding the answers to the research questions, some descriptive statistics were used. Finally, regression analysis and one-way ANOVA were run to test the research hypotheses.

Reliability of the measures

It was mentioned above that the questionnaire adopted in this study consists of 43 questions distributed over six aspects of risk. Reliability of the measures was assessed with the use of Cronbach's alpha. Cronbach's alpha allows us to measure the reliability of different variables. It consists of estimates of how much variation in scores of different variables is attributable to chance or random errors (Selltiz *et al.*, 1976). As a general rule, a coefficient greater than or equal to 0.7 is considered acceptable and a good indication of construct reliability (Nunnally, 1978). The overall Cronbach's alpha for the six aspects is (0.70). Cronbach's alpha for the individual aspects – understanding risk and risk management (URM); risk identification (RI); risk assessment and analysis (RAA); risk monitoring (RM); risk management practices (RMP); and credit risk analysis (CRA) – is (0.679), (0.689), (0.620), (0.652), (0.677) and (0.638) respectively. These results show that all of these aspects are reliable (see Table I).

Risk management aspects	Cronbach's alpha
Understanding risk and risk management (URM)	0.679
Risk identification (RI)	0.689
Risk assessment and analysis (RAA)	0.620
Risk monitoring (RM)	0.652
Risk management practices (RM)	0.677
Credit risk analysis (CRA)	0.638

Table I. The six risk management aspects and their internal consistency

Results of testing the research questions and hypotheses

In order to answer our research questions, the following risk management aspects will be dealt with.

Understanding risk and risk management

Table II shows that the mean of responses on the eight questions about understanding risk and risk management is 5.820. The respondents' answers on these eight questions indicate that the UAE banks' staff understand risk and risk management, giving a positive answer on the first question. The table also indicates the relative importance of the eight questions. However, there is not a big difference between the highest and lowest means of the eight questions, as Table II shows. The highest mean (6.00) was that of question four, in which respondents viewed managing risk as important to the performance and success of their bank; the lowest mean (5.490) was of item eight, concerning the bank's objective regarding the application of advanced risk management techniques, which is a feature of good risk management. It is obvious that the UAE banks' staff have a good understanding of risk and risk management, which might give an indication about the ability of these banks to manage risks efficiently in the future.

Risk identification

Risk identification is very important step in risk management. The study questionnaire includes five questions about risk identification. Table III provides the means and standard deviations. It can be seen from the average of the means (5.062) that the UAE banks have clearly identified the potential risks relating to their declared aims and objectives. The answers on the five questions about risk identification represent a positive answer on question two of our research questions, which is also consistent with the above-mentioned conclusion regarding risk understanding, as the more the staff understand the risk, the more easily they can identify it. The table also indicates

Table II.
Respondents' answers on questions about understanding risk and risk management

	Questions	Frequency of 5, 6 and 7	%	Means	SD
1	There is a common understanding of risk management across the bank	146	91	5.7	0.758
2	Responsibility for risk management is clearly set out and understood throughout the bank	141	89.8	5.8	0.841
3	Accountability for risk management is clearly set out and understood throughout the bank	142	90.45	5.87	0.827
4	Managing risk is important to the performance and success of the bank	145	7.7	6.00	1.085
5	It is crucial to apply the most sophisticated techniques in risk management	137	12.7	5.834	1.309
6	Your bank's objective is to expand the applications of advanced risk management techniques	145	7.7	5.987	0.884
7	It is important for your bank to emphasize on the continuous review and evaluation of the techniques used in risk management.	147	6.4	5.885	1.091
8	Applications of risk management techniques reduce costs or expected losses	133	84.7	5.490	1.089
	Average			5.820	

No.	Questions	Frequency of 5, 6 and 7	%	Means	SD
1	The bank carries out a comprehensive and systematic identification of its risks relating to each of its declared aims and objectives	137	87.3	5.636	1.050
2	The bank finds it difficult to prioritize its main risks	62	60.6	4.172	1.637
3	Changes in risk are recognized and identified with the bank's roles and responsibilities	131	883.6	5.356	1.043
4	The bank is aware of the strengths and weaknesses of the risk management systems of other banks	81	51.8	4.592	1.621
5	This bank has developed and applied procedures for the systematic identification of investment opportunities	138	87.9	5.554	0.901
	Average			5.062	

Table III. Respondents' answers on questions about risk identification

the relative importance of each question. The first question obtained the highest mean value of 5.636, indicating that the UAE banks carry out a comprehensive and systematic identification of their risks, followed by question five with a mean value of 5.554, which indicates that the UAE banks have developed and applied procedures for the systematic identification of investment opportunities. However, the UAE banks appear to face difficulties in prioritizing their main risks, given the mean value of the respondents' answers on question two shown in Table III. In other words, the UAE banks need to know how to prioritize their main risks efficiently.

Regarding risk identification methods, the questionnaire includes a closed-ended question about risk identification methods based on an ordinal scale, as previously described. Table IV shows the respondents' answers on this question. It can be seen that the most important four methods, chosen by more than 90 per cent of the respondents, are:

(1) inspection by the bank risk manager;

(2) audits or physical inspection;

(3) financial statement analysis; and

(4) risk survey.

No.	Risk identification method	Frequency	%
1	Inspection by the bank risk manager	155	98.7
2	Audits or physical inspection	149	94.9
3	Financial statement analysis	145	92.4
4	Risk survey	143	91.1
5	Process analysis	132	84.1
6	SWOT (strengths, weaknesses, opportunities, threats) analysis	130	82.8
7	Inspection by outside expert	130	82.8
8	Benchmarking	125	79.6
9	Scenario analysis	120	76.4
10	Internal communication, such as internal conversation with employees	110	70.1
11	Others	39	24.8

Table IV. Frequency distribution of risk identification methods

These results are consistent with those reached by Al-Tamimi (2002). It can be concluded that the UAE commercial banks are highly aware of risk identification.

Risk assessment and analysis

The questionnaire includes seven questions about risk assessment analysis. The results of the responses are shown in Table V. The mean of the sample responses on the seven questions is 5.650, which indicates that the UAE commercial banks are efficiently assessing and analyzing risk, representing a positive answer on the third of our research questions. It can also be seen from the table that there is not a big difference between the means of the seven questions, which means that respondents viewed fairly equally the questions of risk assessment, such as the analysis of the likelihood of risks, the use of quantitative analysis methods, the use of qualitative analysis methods, the assessment of the costs and benefits of addressing risks, and the prioritizing of risks.

Risk monitoring

Risk monitoring can be used to make sure that risk management practices are in line with desired practices. Proper risk monitoring also helps bank management to discover mistakes early. The questionnaire includes six questions addressing risk monitoring. Table VI summarizes the sample responses on these questions. The mean of the sample's responses on the six questions is 5.76, which indicates that the UAE commercial banks have an efficient risk monitoring and controlling system. The sample's responses represent a positive answer on the fourth question of our research questions. It can also be seen from the table that there is no big difference between the means of the six questions, which indicates that respondents viewed the questions of risk monitoring fairly equally.

Risk management practices

Risk management practices might be considered the most important aspect of risk management. Even if the bank staff understand risk and risk management, risks are

Table V.
Respondents' answers on questions about risk assessment and analysis

No.	Question	Frequency of 5, 6 and 7	%	Means	SD
1	This bank assesses the likelihood of occurring. risks	136	86.7	5.407	0869
2	This bank's risks are assessed by using quantitative analysis methods	135	86	5.535	1.047
3	This bank's risks are assessed by using qualitative analysis methods(e.g. high, moderate, low)	130	82.9	5.535	1.047
4	Your bank analyses and evaluates opportunities it has to achieve objectives	146	93	5.885	0.0986
5	Your bank's response to analyzed risks includes an assessment of the costs and benefits of addressing risks	140	89.2	5.866	0.934
6	Your bank's response to analyzed risks includes prioritizing of risks and selecting those that need active management	136	86.6	5.770	0.992
7	Your bank's response to analyzed risks includes prioritizing risk treatments where there are resource constraints on risk treatment implementation	133	84.8	5.554	0.989
	Average			5.650	

No.	Question	Frequency of 5, 6 and 7	%	Means	SD
1	Monitoring the effectiveness of risk management is an integral part of routine management reporting	136	86.6	5.719	1.018
2	The level of control by the bank is appropriate for the risks that it faces	141	89.8	5.783	1.178
3	Reporting and communication processes within your bank support the effective management of risk	141	89.8	5.802	1.070
4	The bank's response to risk includes an evaluation of the effectiveness of the existing controls and risk management responses	141	89.8	5.789	0.0967
5	The bank's response to risk includes action plans for implementing decisions about identified risks	142	91.1	5.751	1.016
6	The bank's response to risk includes an assessment of the costs and benefits of addressing risks	149	94.9	5.758	0.0983
	Average			5.76	

Table VI. Respondents' answers on questions about risk monitoring and analysis

clearly identified and the bank adopts sophisticated methods in risk assessment and risk analysis, it still may not be the case that there are efficient risk management practices. The questionnaire includes ten questions about risk management practices; Table VII shows the sample's responses to be 5.50, which indicates that the UAE banks are efficient in risk management practices. The highest value, 6.070, occurs on question six, which states "Efficient risk management practices is one of the bank's objectives." This also confirms that UAE banks intend to have efficient risk management. The lowest value, 4.917, occurs on question eight, which states "The application of Basel Capital Accord by your bank would improve the efficiency of risk management." The answers give an indication that the UAE banks' staff should be more aware of the application of the Basel Capital Accord, which was introduced to improve the efficiency of banks' risk management. This recommendation is mainly based on the authors' interviews with a large number of the respondents, as well as on the respondents' answers on question eight.

The questionnaire includes a general question about risk management practices: "Overall, I consider the level of risk management practices of this bank to be excellent." The mean of the sample's responses is 5.484, which supports the above arguments regarding efficient risk management practices.

Credit risk analysis

It was mentioned earlier that credit risk of commercial banks represents the most important type of risk, and also that the UAE banks did encounter a credit risk and that they might face this type of risk again in the future. As credit risk is the most important type of risk, the questionnaire includes seven questions about credit risk. Table VIII provides information about the sample's responses on these questions. The mean of the responses on the seven questions is 5.443, which provides evidence about the efficiency of credit risk management in the UAE commercial banks. The most important answers were on questions about undertaking credit worthiness analysis; undertaking a specific analysis including the client's character, capacity, collateral capital and conditions; and requiring sufficient collateral.

	Questions	Frequency of 5, 6 and 7	%	Means	SD
1	The bank's executive management regularly reviews the organization's performance in managing its business risks	144	92.7	5.751	1.089
2	Your bank has highly effective continuous review/feedback on risk management strategies and performance	144	92.7	5.732	1.015
3	The bank's risk management procedures and processes are documented and provide guidance to staff about managing risks	138	87.9	5.662	1.028
4	Your bank's policy encourages training programs in the area of risk management	143	91.1	5.815	0.0853
5	This bank emphasizes the recruitment of highly qualified people in risk management	140	89.2	5.828	1.261
6	Efficient risk management is one of the bank's objectives	146	93	6.070	0.0994
7	It is too dangerous to concentrate bank's funds in one specific sector of the economy	89	56.8	4.961	1.628
8	The application of Basel capital Accord by your bank would improve the efficiency of risk management	86	54.8	4.917	1.423
9	Bank's capital is adequate if the ratio of capital to total risk-weighted assets is equal to 8 percent	85	54.2	4.866	1.276
10	Overall, I consider the level of risk management practices of this bank to be excellent	134	85.4	5.484	1.065
	Average			5.508	

Table VII.
Respondents' answers on questions addressing risk management practices

No.	Question	Frequency of 5, 6 and 7	%	Means	SD
1	This bank undertakes a credit worthiness analysis before granting loans	144	91.8	5.719	1.164
2	Before granting loans your bank undertake a specific analysis including the client's characters, capacity, collateral capital and conditions	133	84.8	5.649	1.085
3	This banks' borrowers are classified according to a risk factor (risk rating)	130	83.4	5.592	1.037
4	It is essential to require sufficient collateral from the small borrowers	127	80.9	5.343	1.259
5	This bank's policy requires collateral for all granting loans	114	57	5.133	1.177
6	It is preferable to require collateral against some loans and not all of them	117	74.5	4.955	1.528
7	The level of credit granted to defaulted clients must be reduced	17	89	5.713	1.121
	Average			5.443	

Table VIII.
Respondents' answers on questions addressing credit risk analysis

Types of risk

The UAE commercial banks face different types of risk, and the respondents were asked to indicate and rank in order of importance the risks facing their bank. Their answers are summarized in Table IX. It was found that UAE commercial banks face all different types of risk, but to varying degrees, the most important three types being foreign exchange risk, followed by credit risk, then operating risk. The authors believes the answers on this question were actually not accurate for two reasons: first, as far as the researches know the UAE banks do face foreign exchange risk but it is not the most important risk; and secondly, the respondents ranked liquidity risk fourth, which is questionable because the evidence indicates that the UAE banks do not suffer from liquidity problems. For example, the liquidity ratio (i.e. total loans and advances divided by total deposits) was 76 per cent in 2004, which can be interpreted to mean that the UAE had sufficient liquidity (Emirates Banks Association, 2004), the other interpretation being that the UAE banks did not utilize the available resources properly.

In order to test *H1*, the following regression model is used:

$$\mathrm{RMP} = f(\mathrm{URM}, \mathrm{RI}, \mathrm{RAA}, \mathrm{RM}, \mathrm{CRA})$$

where:

RMP = risk management practices;

URM = understanding risk and risk management;

RI = risk identification;

RAA = risk assessment and analysis;

RM = risk monitoring; and

CRA = credit risk analysis.

Using more than one variable to examine the contribution of independent variables to the regression model may suggest a multicollinearity problem among these variables. A multicollinearity test was carried out to assess the degree of correlation among variables. Pearson's correlation was used to analyze correlations among the independent variables, namely understanding risk and risk management (URM),

No.	Type of risk	Frequency	%
1	Foreign exchange risk	152	96.82
2	Credit risk	151	96.18
3	Operating risk	147	93.63
4	Liquidity risk	141	89.81
5	Legal risk	141	89.81
6	Solvency risk	133	84.71
7	Interest rate risk	128	81.53
8	Counterparty risk	126	80.25
9	Price risk	120	76.43
10	Reputation risk	118	75.16
11	Strategic risk	117	74.52
12	Others	78	49.68

Table IX.
Types of risks facing the UAE commercial banks

risk identification (RI), risk assessment and analysis (RAA), risk monitoring (RM), and credit risk analysis (CRA). Table X reveals the correlation coefficients between the independent variables. The "rule of thumb" test suggested by Anderson *et al.* (1990) states that any correlation coefficient exceeding (0.7) indicates a potential problem. An examination of the results of correlations presented in Table X suggests that there is no problem of multicollinearity among the independent variables.

Table XI shows the regression results. It can be seen from the results provided in Table XI that the *R* square is 0.235. This indicates that the five independent variables explain 23.5 per cent of the variations in risk management practices. The estimated coefficients of two independent variables were, as expected, positive and statistically significant at the 1 per cent level in the case of RI and at the 5 per cent level in the case of RAA. The estimated coefficients of URM, RM and CRA had insignificant positive impact on risk management practices.

Hypothesis 1. It can be concluded that *H1* of our research hypotheses is confirmed. Furthermore, the results indicate that risk identification (RI) and risk assessment an analysis (RAA) were the most important variables or the most influencing variables in risk management practices, which means that the UAE banks need to give more attention to risk identification and risk assessment and analysis.

In order to test the remaining five hypotheses, a one-way ANOVA was run. The results of the analysis will be ordered according to the research hypotheses. Table XII shows the results of ANOVA analysis.

Hypothesis 2. There is a difference between the UAE national and foreign banks in the understanding of risk and risk management. Table XII reveals that there is a significant difference between the UAE national and foreign banks in the understanding of risk and risk management, which means *H2* is confirmed. These results were expected because it is assumed that staff of foreign banks have better

	URM	RI	RAA	RM	CRA
URM	1.000				
RI	0.066	1.000			
RAA	0.389**	0.273**	1.000		
RM	0.437**	0.210**	0.461**	1.000	
CRA	158*	0.286**	0.269**	0.238**	1.000

Table X.
The correlation coefficients between independent variables

Notes: ** Correlation is significant at the 0.01 level (2-tailed); * correlation is significant at the 0.05 level (2-tailed)

R	R^2	Adjusted R^2	*F*
0.484	0.235	0.209	9.255
	Beta	*t*	Sig.
(Constant)		3.605	0.000
URM	0.271	0.160	0.873
RI	0.200	3.545	0.001
RAA	0.092	2.350	0.020
RM	0.120	1.071	0.286
CRA	0.013	1.570	0.119

Table XI.
OLS regression results

	Source	SS	DF	MS	*F*-value	Sig.
URM	Between groups	0.970	1	0.970	3.970	0.048
	Within groups	37.870	155	0.244		
	Total	38.840	156			
RI	Between groups	0.686	1	0.686	1.276	0.260
	Within groups	83.382	155	0.538		
	Total	84.068	156			
RAA	Between groups	2.960	1	2.960	7.762	0.006
	Within groups	59.097	155	0.381		
	Total	62.057	156			
RM	Between groups	2.498	1	2.498	5.690	0.018
	Within groups	68.044	155	0.439		
	Total	70.542	156			
RMP	Between groups	0.485	1	0.485	1.523	0.219
	Within groups	49.402	155	0.319		
	Total	49.888	156			
CRA	Between groups	0.208	1	0.208	0.739	0.391
	Within groups	43.571	155	0.281		
	Total	43.779	156			

Table XII.
The results of analysis of variance for national banks and foreign banks

understanding of risk and risk management, compared with staff of the national banks. Based on this finding, the UAE national banks should give more attention to training and professional development of their staff in the area of risk management.

Hypothesis 3. There is a difference between the UAE national and foreign banks in the practice of risk identification. Table XII shows that there is no significant difference between the UAE national and foreign banks in the practices of risk identification, which means *H3* is not confirmed. These results are consistent with those provided in Table III, where it was concluded that all the UAE banks (i.e. both national and foreign banks) are clearly identifying the potential risks relating to each of their declared aims and objectives.

Hypothesis 4. There is a difference between the UAE national and foreign banks in the practice of risk assessment and analysis. Table XII indicates that there is a significant difference between the UAE national and foreign banks in the practice of risk assessment and analysis, which means that *H4* is confirmed. These results were expected because it is assumed that foreign banks have more qualified staff, and accordingly they will be more efficient in risk assessment and analysis. Thus, the UAE national banks need to review the methods and techniques they use in risk assessment and analysis.

Hypothesis 5. There is a difference between the UAE national and foreign banks in risk monitoring and controlling. Table XII reveals that there is a significant difference between the UAE national and foreign banks in risk monitoring and controlling, which means that *H5* is confirmed. These results also were expected, and are consistent with the above-mentioned results, which indicate that there is a difference between the UAE national and foreign banks in understanding risk and risk management and the practices of risk assessment and analysis. The difference between UAE national and foreign banks in risk monitoring and controlling is highly related to these two aspects. In this regard, the UAE national banks need to review the methods and techniques they use in monitoring and controlling risk activities.

Hypothesis 6. There is a difference between the UAE national and foreign banks in the context of risk management practices. Table XII shows that there is no significant

difference between the UAE national and foreign banks in the context of risk management practices, which means that *H6* is not confirmed. These results were not expected and are not consistent with those mentioned above. The results might be attributed to the fact that both the national and foreign banks are working in the same environment and subject to same rules and instructions.

Hypothesis 7. There is a difference between the UAE national and foreign banks in the practice of credit risk analysis. Table XII reveals that there is no significant difference between the UAE national and foreign banks in the practice of credit risk analysis, which means that *H7* is not confirmed. These results were not expected and are not consistent with the above-mentioned results, for the same reason mentioned above.

Conclusions

The main results of this study are:

(1) The three most important types of risks facing the UAE commercial banks are foreign exchange risk, followed by credit risk, then operating risk.

(2) The four most important methods of risk identification, chosen by more than 90 per cent of the respondents, are: inspection by the bank risk manager, audits or physical inspection, financial statement analysis and risk survey.

(3) The UAE banks are somewhat efficient in assessing and analyzing risks, risk management practices, risk monitoring and, and risk identification.

The results also provide some amount of evidence about efficient credit risk management in the UAE commercial banks. Finally, the results indicate that there is a significant difference between the UAE national and foreign banks in the practice of risk assessment and analysis and in risk monitoring and controlling, whereas there is no significant difference between the UAE national and foreign banks in the aspects of risk identification, risk management practices and the practice of credit risk analysis.

Areas for further research

The authors tried in this study to cover most of the aspects of risk management. However, this paper did not address in detail credit risk management. This type of risk can be addressed in future studies as credit risk represents the most challenging type of risk. Further research may also consider analyzing liquidity risk management as liquidity position affects the continuity of commercial banks and a weak liquidity position might lead to the liquidation of commercial banks. Further research may also focus on Basel II and risk management, one of the hottest topics in the banking industry.

Finally, the study could usefully be conducted in another country, using the same methodology. Different and interesting results may be expected, because risk management practices are mainly affected by specific factors such as economic conditions, competition and regulations.

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Further reading

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