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Operational Risk Management of Omani Banking Industry

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Abstract: **The aim of this paper is to study the operational risk management in the case of Omani banking industry. It is noted that the higher the banks' average gross banking income, the greater the capital requirement for operational risk. Among Omani banks, the researcher will aim both conventional banks as well as Islamic banking practices in Oman. This is the result of the nature and volume of the activity of each bank. This approach uses annual reports which have the advantage of being available through the Muscat Securities Market. The results are immediate, but the amount of required capital remains substantial and risk exposure measurement is always rough, and not accurate. It is therefore necessary for Omani banks to opt for a more advanced and accurate approach, which allows for estimating capital requirement and building internal models that guarantee a greater sensitivity to real risk.**

Keywords: **Omani Banking Industry, Operational Risk Management.**

1. INTRODUCTION

World economies have continued to reflect structural changes since 1980s and this is attributed to the accelerated pace of globalization as well as financial liberalization. In addition, liberalization was the key driving force in the international banking industry. This led to deregulation of the banking activities, disintermediation of financing and change of loan locations or dematerialization. Moreover, private sector has influenced the credit institutions and governance and management structure were the main constituents for the same. Paradoxically, the structural changes in the banking industry increased risk exposure for these constituents.

Research Question

The researcher paper presents fundamental question of "what is the impact of operational risk management and the capital requirements of Omani banks listed in MSM?"

2. LITERATURE REVIEW

Banking risk in 1988 led Basel Committee to establish some standards which are commonly known as Basel 1 accord. This ensured minimum risk exposure to the banks if they adopt the standards set by the Basel committee. Over the years, the standards of Basel agreement saw some additions in the capital adequacy ratios and the main motive was to reduce the banking risk or the transfer it appropriately.

Some examples of banking risk and exposure:

English Barings Bank was created in 1762 but disappeared by the year 1995 due to bankruptcy. The same was perceived with Commercial Bank in England which was nearly 233 years old in the business. Irish Allied Irisk Bank (AIB) lost nearly $ 700 million in 2001 due to poor banking practices. Nan et al (2017) states that in the year 1999, banking industry demanded introduction of new capital adequacy norms in the form of Basel II guidelines that reduced the operational risk of the banks. More than 100 operational risk losses were identified that exceeded $ 100 million over the few years. The researcher quotes that some of these losses arise from the following facets of the banking industry:

Internal Fraud: The Allied Irisk Bank (AIB), the Barings Bank (BB) and the Japanese Bank Daiwa lost $ 700 million, $ 1 billion and $ 1.4 billion, respectively, due to fraudulent transactions.

External Fraud: Republic New York Corporation lost $ 611 million due to fraud committed by a customer.

Employment Practices and Workplace Safety: Merrill Lynch (US Bank) lost $ 250 million as a result of a court ruling on charges on discriminatory recruitment.

Customers, Products and Business Practices: Household International lost $ 484 million due to fraudulent loans; Providian Financial Corporation lost $ 405 million due to fraudulent sales and billings.

Property Damage: Bank of New York lost $ 140 million due to the September 11, 2001 terrorist attacks.

Business Interruption and System Outdating: Salomon Brothers (US Investment Bank) lost $ 303 million due to a change in the computer system.

Execution of Operations, Deliveries and Processes: Bank of America (BoA) and Wells Fargo Bank (WFB) lost $ 225 million and $ 150 million respectively due to system integration failures and transaction processes.

The above examples were pertaining to the operational risk of the banking industry. Basel II accord of 2004 highlighted the banks to set up a new ratio referred to as McDonough ratio instead of adhering to the Cooke ratio. McDonough ratio was confined to the accounts of credit risk, often referred to as counterparty risk. The principle risk of hedging by 8 % capital was considered while the market and operational risks were taken into consideration. Zijderveld (2017) states that the operational risk and its hedging approach is becoming more and more important. This is due to the impact of applying prudential standards in terms of credit management. The researcher has taken the study of Omani banks listed in the Muscat Securities Market (MSM).

The research paper tries to answer the question of operational risk management and its implications in the Omani banking industry. The internal and external risk factors are to be considered for the efficient system of banking in Oman and referring to the governance and internal control.

3. OPERATIONAL RISK

According to Dhar & Stein (2017), operational risk is not a new risk in the banking industry, just like banking frauds. Operational risk has become significant during the few years due to the governance and internal control issues in the banking sector. The operational risk has resulted in exposure of real time transactions within the bank. This also creates settlement risk involving the legal risk and complex information system. Banking sector in Oman is exposed to these risks, especially in the conditions for adequate internal control of their outsourced transactions.

The importance of the operational risk management for banks is evident for the amount of money put on stake. In addition, resources as well as customer satisfaction is exposed while operational risk management is pursued by the banks. Basel committee has found that the hedging practices could also be fulfilled with the help of capital requirements. Pillar 1 of Basel II requirement is pertaining to the minimum capital requirements that mitigate the credit risk and market risk (Nan et al, 2017).

Wanke, Hassan & Gaviao (2017) states that The Basel Committee has tried to define precisely the scope of operational risks in a clear, common definition applicable to the banking industry in Oman. However, the new Basel Agreement, in its April 2003 conservative version, defined operational risk as “the risk of losses resulting from deficiencies or failures of procedures, personnel and internal systems or external events” (Farooqi & Iqbal, 2017). This definition, which represents the reference framework, retains only legal risk and excludes strategic risk (risk of loss resulting from a bad strategic decision) and reputation risk (risk of loss resulting from an attack on the reputation of the bank). This includes human error, fraud and malpractice, information system failures, personnel management issues, commercial litigation, accidents, fire and floods. Accordingly, we infer the following:

a. Any event that disrupts the normal course of a process and any event that generates financial losses is considered to be an operational risk.

b. Likely to be considered losses those that may occur in the future since the definition retains the notion of loss risk. These losses result from deficiencies or failures, i.e., errors in design, implementation, poor monitoring or degradation over time. They relate to internal aspects, namely, the organizational system, the information system or personnel and external aspects, namely, external fraud, claims, lawsuits, penalties and fines of any kind, regulations and terrorism.

c. Whatever definition is adopted, it is crucial that banks have a perfect understanding of it for effective management and control. For example:

a. The effectiveness of management and an internal control system against risk;

b. Methods to monitor and report risk;

c. Bank procedures for effective and timely resolution of risk events;

d. Internal control, review and audit processes to ensure the integrity of the overall operational risk process;

e. Effectiveness of the bank's efforts in the field of operational risk mitigation;

f. The quality and scope of Disaster Recovery Plans and Business Continuity Plans; and

g. The process of assessing the bank's capital adequacy for operational risk in relation to its risk profile and, where appropriate, its internal capital objectives.

Yang, Hsu, Sarker & Lee (2017) states that organizations in industries face operational risk wherever they turn. Lyon & Popov (2017) emphasized that the right for operational risk management are in terms of inherent cultural, moral, and ethical risks. The researcher argues the role of technology risks that are compounded as organizations embrace new technologies like automation, robotics, and artificial intelligence in their respective industries.

Baijal (2017) emphasizes that operational risk is the risk of doing business. Critical control failures and minimized issues, if left unchecked could lead to a higher risk materialization and firm based failures. Stoel, Ballou & Heitger (2017) underlines this as a chain reaction that could be fatal to a firm's reputation and possibly even to its existence in the industry. Suetens, Flood & Dicorato (2017) states that the maturity of operational risk varies by industry but many firms treat the operational risk management as an obligation, adding more risk to an already risky endeavour.

Nan et al (2017) states that to prevent an event that could cripple or kill the profession, firms should consider gaining a better understanding of their operational risk portfolio as well as their risk tolerance and appetite. Management of these firms should formulate and adopt their own work place risk culture in addition to setting up a much anticipated moral and ethical guidance to their organization. Zijderveld (2017) states that they also need to understand, prioritize and articulate the materiality of risks that balances the organizational needs, stakeholders and customer demands, service and product specifications, and ultimately shareholder requirements.

Dhar & Stein (2017) emphasizes that as the stakes are high, it's time to make operational risk management as an organizational objective and recognize the operational risk management processes as the critical tool. Wanke, Hassan & Gaviao (2017) states that the management of operational risk management can encourage greater risk taking and increased visibility within the scope of its risk appetite and tolerance.

Table 1: Risk Classification

The researcher has addressed the operational risk of the Omani banking industry with the help of following matrix :

Table 1: Classification of the Seven Risk Categories for Operational Risk According to Basel II

Risk Categories (ELs)	Label
EL_1	Internal Fraud
EL_2	External Fraud
EL_3	Employment Practices and Workplace Safety
EL_4	Customers Products and Business Practices
EL_5	Property Damage
EL_6	Interruption of Business and System Failures
EL_7	Execution, Deliveries and Processes Management

Note: EL imply Event Line.

There are a total of seven risk classifications pursued by the researcher to the Omani banks, viz the internal fraud, external fraud, employment practices / work place safety, customer & product practices, property damages, interruption of business, and execution of deliveries / operations.

Table 2: Business Categories or Business Lines

The following categories are taken by the researcher in terms of the business categories in the Omani industry :

Table 2: Classification of Eight Business Lines for Operational Risk According to Basel II		
Business Lines	**Label**	**Weight Factor of the Business (β_i) (%)**
BL_1	Business Financing	18
BL_2	Market Activity	18
BL_3	Retail Bank	12
BL_4	Commercial Bank	15
BL_5	Payment and Settlement	18
BL_6	Agency Functions	15
BL_7	Assets Management	12
BL_8	Retail Brokerage	12
Note: BL imply Business Line.		

There are eight identified business categories, vi the business finance, marketing activities, retail banking, commercial banking, payment & settlements, agency functions, asset management and retail brokerages. These identified business categories in the Omani banking industry were given proper risk weightage based on the study of Padmaja, Rifaya & Valli (2017).

The employee's attitude towards adoption of electronic business services is an important consideration to cater to the operational risk management of banks. This is because employees are the key stakeholders for operational effectiveness or to its failures to the bank. Employee attitude is having a contributing factor for success or failures for operational risk management.

Table 3: Matrix of Operational Losses

Table 3: The Matrix of Distribution of Operational Losses							
Risk Categories (ELs) / **Business Lines**	EL_1	EL_2	.	.	EL_5	.	EL_7	**Total**
BL_1	$UL_{(1,1)}$	$UL_{(1,2)}$						$UL_{(1,.)}$
BL_2	$UL_{(2,1)}$	$UL_{(2,2)}$						$UL_{(2,.)}$
BL_3	$UL_{(3,1)}$				$UL_{(3,5)}$			
.								
.								
i	$UL_{(i,j)}$							$UL_{(i,.)}$
.								
.								
.								
.								
BL_8								
Total	$UL_{(.,1)}$	$UL_{(.,2)}$						$\sum_{i,j} UL_{(i,j)}$
Note: UL is the risk cell.								

The above table combines the risk categories and the business line in the form of a matrix that reflects the operational loss distribution based on the banking industry exposures.

4. OMANI BANKING INDUSTRY

The Omani financial system consists of the Central Bank of Oman, 8 listed banks in Muscat Securities Market (MSM), out of which two banks are totally Islamic banks and other five are conventional banks and has Islamic banking window. Like the rest of the economic activities, the Omani banking sector has been engaged for some years in a process of gradual financial liberalization. The Central Bank of Oman (CBO) has published rules for management, governance and prudential standards applicable to credit institutions. The implementation of good governance within banks may avoid financial excesses and difficulties. However, the organization and functioning of the board of directors, as well as its characteristics, may affect the quality of the internal control system and the effectiveness of risk management, in particular, the management of operational risk. The role of the board of directors is, to a large extent, a factor behind the development of a banking governance system.

Banks listed in the MSM:

1. Ahli bank
2. Bank Dhofar
3. Al Izz Islamic Bank
4. Bank Muscat
5. Bank Nizwa
6. Bank Sohar
7. HSBC Bank Oman
8. National Bank of Oman

5. METHODOLOGY

The researcher will use the three operational risk measurement methods under Basel II Pillar 1 are as follows:

a. The Basic Indicator Approach (BIA) - a flat-rate method.

b. The Standardized Approach (SA) - a flat-rate method.

c. The Advanced Measurement Approach (AMA) - a direct measurement method or a complex measurement approach.

The Basic Indicator Approach

This approach is based on the flat rate approach of the Basel Committee that indicates the operational risk on the average gross banking income over the years.

$$K_{BIA} = \alpha \times GI$$

Where by

Alpha is the weighted coefficient risk set at 15 % by the supervisory authority

GI is the gross income (of the exposure indicator)

Capital Requirement = Average (GBI) Gross Banking Income of 3 years × 15%

Banks apply this approach for referring to the following aspects:

a. Development of an adequate environment to manage operational risk,

b. Risk Management: Identification, evaluation, monitoring and control or mitigation of operational risk,

c. Role of supervisors,

d. Role of financial communication.

Capital Requirement for BIA:

$$K_{BIA} = \alpha . \sum_{j=1}^{3} \frac{Max\,[O, GI_j]}{Max\,[1, n]}$$

Whereby

Alpha is uniformly fixed at 15%.

GI denotes the income for year *j*.

n is the no of yrs for which *GI* is positive over the immediate past 3 yr.

The Standardized Approach

$$K_{SA} = \frac{1}{3} . \sum_{j=1}^{3} max\left[0, \sum_{i=1}^{8} GT_{i,j} . \beta_i\right]$$

Where the following standardized approach is adopted for risk weightage:

Table 4: Beta – Standardized Approach

i	Business Lines	Gross Income	Beta (β_i) (%)
1	Company Financing	GI	18
2	Market Activities	GI	18
3	Retail Bank	GI	12
4	Commercial Bank	GI	15
5	Payment and Settlements	GI	18
6	Agency Functions	GI	15
7	Assets Management	GI	12
8	Retail Brokerage	GI	12

$GT_{i,j}$: Income indicator GI for a given BL *i* (a business segment or a given activity category *i*) for the year *j*.

β_i: A given fixed percentage, identical for all banks, for a given BL *i* (or a given activity category *i*).

This approach has the breakdown of banking activities into the following segments :

a. Corporate Finance
b. Trading and Sales
c. Retail Banking
d. Commercial Banking
e. Payments and Settlements
f. Agency Functions
g. Asset Management
h. Retail Brokerage

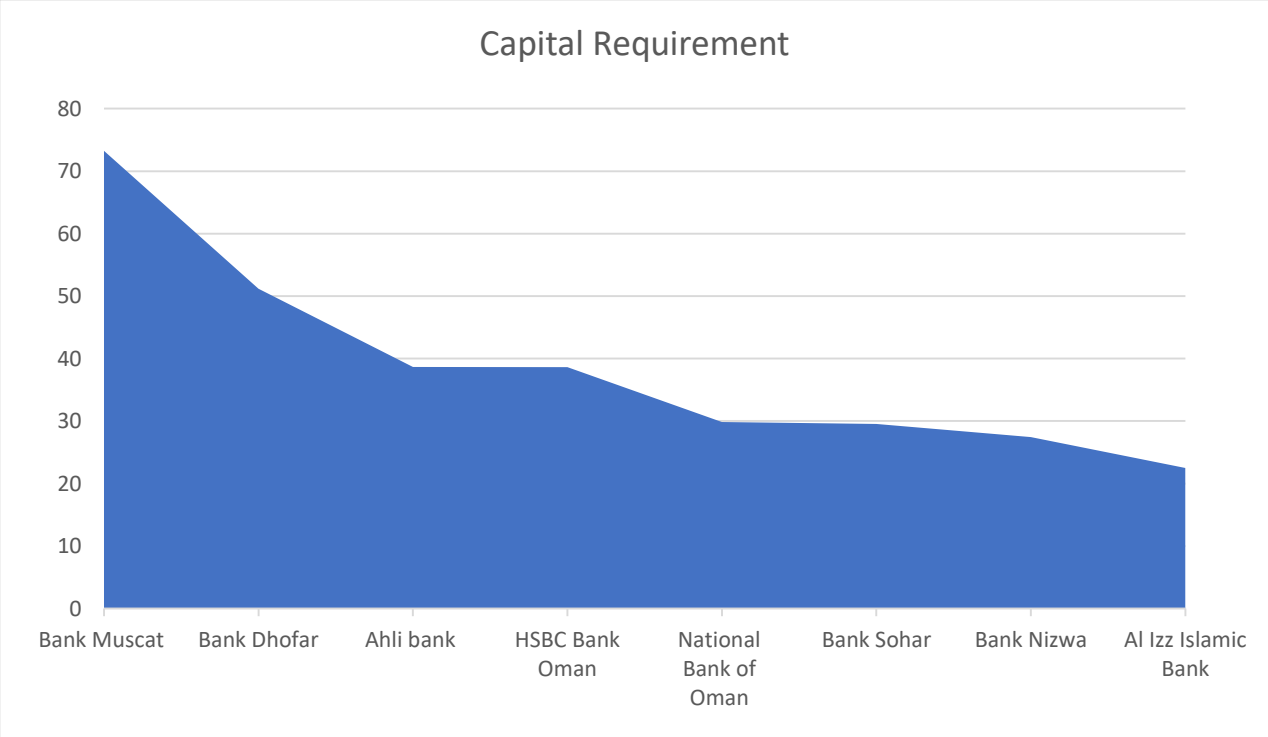
$$K_{SA} = \sum_{i=1}^{8} \beta_i \times GI_i$$

Where *GIi* is the gross income of the *i*th BL. The coefficients are defined by the local regulators.

6. RESULTS AND DISCUSSION

Table 5

Bank	Net Banking Income					Required capital (K) for operational risk
	2014	2015	2016	Total	Mean	
Bank Muscat	29	28	28	85	488.307	73.246
Bank Dhofar	22	22	22	66	341.206	51.180
Ahli bank	14	15	15	44	257.749	38.662
HSBC Bank Oman	12	12	13	37	257.549	38.632
National Bank of Oman	11	11	9	31	199.027	29.854
Bank Sohar	9	9	8	26	196.946	29.542
Bank Nizwa	2	2	3	7	182.927	27.439
Al Izz Islamic Bank	1	1	2	4	149.983	22.497
	100	100	100			



The Basel II reform does not only concern the Western countries, but also GCC countries, like Oman. Credit institutions in Oman also face credit, market and operational risks, which are targeted by Pillar 1 of the Basel II agreement on 'minimum capital requirement' and Pillar 2 of the Basel II agreement on "the prudential supervisory process by national supervisors". The banking sector in Oman has witnessed the implementation of new solvency standards and the strengthening of the prudential component of banking activity in line with international standards.

Capital requirements for operational risk are calculated to cover losses arising from a failure due to a human factor (e.g. theft, internal fraud), information system (technical breakdown ...) and external events. To calculate the regulatory capital requirement, the preliminary method used is that of the BIA before using the standard method. As for the AMA, it remains complex and needs prerequisites in terms of organization, tools, procedures and information systems.

Synthesis: *Common Challenges and Painful Lessons*

Farooqi & Iqbal (2017) states that for many firms, operational risk management is the weakest link to looking for a sustainable and reliable organization that meets the demands of its key stakeholders like customers, regulators, shareholders, etc. Padmaja, Rifaya & Valli (2017) states that firms struggle to support a risk culture that encourages the organization to escalate risks appropriately, empowers risk accountability, and understands operational risk losses. According to Yang, Hsu, Sarker & Lee (2017), some organizations continue to operate on a blind faith in terms of understanding their controlled environment and the subsequent material operational risks that are exposed to them.

Lyon & Popov (2017) suggests strong operational risk management programs as a mitigation tool. Operational risk has become more multifaceted to manage as firms are driven by growth in globalization, technology, competition, and shrinking profit margins. Baijal (2017) emphasizes that the identity crisis that surrounds operational risk has grown because many firms incorporate risk management in their IT, compliance, or other functions of their business. Stoel, Ballou & Heitger (2017) underlines that as operational risk management grew up as a largely reactive function, many firms find themselves besieged with manual and disjointed systems, over-engineered programs, and metrics that are reported for the sake of regulations or compliance.

Best Operational Risk Management Program:

1. *Establish operational risk management as an integral function:* Suetens, Flood & Dicorato (2017) states that establish ORM as a central function and promoting firm-wide understanding of the program's responsibilities are key to the ORM program's value proposition.

2. *Leverage technology for change, not simply reporting:* Nan et al (2017) emphasizes that technology can increase ORMs value to the business, the C-suite, and the organization.

3. *Let operational risk management stand alone:* Zijderveld (2017) argues that one of the main functions within an operational risk program is capturing and aggregating operational risk data.

4. *Focus operational risk management on risk, not rule breaking:* Dhar & Stein (2017) suggests that the ORM functions add real business value when they refrain from testing for violations of the rules and focus on helping the business reduce material risk exposures and extend risk-taking activity where the business benefits outweigh the risks.

5. *Position operational risk management as a partner, not a competitor:* Wanke, Hassan & Gaviao (2017) argues that the effectiveness of an ORM team is, in part, dependent on its ability to partner with other functions within the organization.

When the management perceives operational risk management programs, they should strive to build the strongest, best function for their firm. For the management to build the strongest operational risk management programs, they should think about the limited available resources they have and the optimum utilization of them to meet their most critical business objectives. This includes leveraging the resources, upgrading the technology, and optimizing the program management.

For example, from a managerial and HRM perspective, firms may be able to implement the operational risk management program by making modifications to available resources. Looking across the technological growth, firms might consider using a united technological base to aggregate the use of technology and its solutions that support different operational risk components (including the risk control and self-assessments, identifying key risks, improving performances, managing control, & loss scenario analysis). Baijal (2017) states that the operational risk program depends on the regulatory requirements and the rationale of certain components, firms may look to reduce unnecessary components and reorganize the risks to identify and build a thorough approach in mitigating the material risks.

Looking at these considerations with an eye toward rightsizing is an important consideration for the operational risk management program. With the correct talent, tools, and support, the operational risk management can build and sustain the value proposition that they advance as an integral business function.

7. CONCLUSION

The present work has tried to explain the operational risk in the Omani banking industry. It is indicated that this risk should be internalized by the Omani banks. For Omani banks, Bank Muscat's average NBI is the highest (488 NBI) which has a capital requirement of 73.246 K, whereas Al Izz Bank which has an average NBI of 149.983 MTD and requires only 22.497 K. This is the result of the nature and volume of the activity of each bank. This approach uses annual reports which have the advantage of being available to all institutions. The results are immediate, but the amount of required capital remains substantial and risk exposure measurement is always rough, not accurate. It is therefore necessary for Omani banks to opt for a more advanced and accurate approach, which allows for estimating capital requirement and building internal models that guarantee a greater sensitivity to real risk.

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