Open University Cyprus **Hellenic *Open University***

Master's join degree/post graduate Programme
Enterprise Risk Management (ERM)

MASTER THESIS

Organizational Risk Management Maturity in Banking

Elena Tsangari

Supervisor
Dr. Pandelis Ipsilandis

May 2020

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This thesis submitted for partial fulfilment of the requirements of the
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Summary

"Every business and every product has risks. You cannot get around it". Lee Iacocca

The initial purpose of this work is to procure a closer insight to the comprehending, use and application of Risk Maturity Models and the advantages of their execution in an Organizational Level.

The first chapters of the thesis are about a comprehensive analysis of Risk Management, Risk Management Maturity, and Risks in Banking nowadays. The analysis helps the reader to understand the main attributes and domains we examined in the section of assessment.

The basic goal of the research part that follows is to execute one of the most important Maturity Models to a financial institution in Cyprus. The collection of data was made through questionnaires based on the Maturity Model we have selected in literature. The researcher has done three interviews to high positioned stuff members of the organization to complete the research findings.

The last section of the dissertation includes a visual presentation of the data, provides conclusions and some limitations that must be taken into account for common future works.

Acknowledgement

I would like to express my special thanks to my supervisor, Dr. Pandelis Ipsilandis for the confidence he showed in me by assigning me this research, his guidance and advice throughout its duration and, above all, the opportunity he gave me to work on with a particularly interesting subject.

It was fascinating for me having to perform a research in my specialty field and it has helped me expand my knowledge even more. After a huge effort of combining work and study, I realized that I have people around me that are very valuable in my life. I would like to express my deepest gratitude to my family and my friends. Their encouragement when the times got rough are much appreciated and duly noted.

Last but not least, I would like to dedicate my thesis to my father, Panayiotis that learned us not to stop until we are proud.

Table of Contents

Chapter 1

Introduction

1.1 Enterprise Risk Management (ERM) and its Importance

Enterprise risk management (ERM) according to (Ciorciari and Blattner 2008: 6) is a procedure or a system, which is impacted by the staff of an organization and generally by its management. It is implemented in strategy setting of policies and it aims to find contingent occurrences that can have harmful impacts in the organization, to administer any hazards and to procure rational assurance concerning the gaining of the goals of an organization. Furthermore, (Merna and Al-Thani 2005: 2) defines Enterprise Risk Management as the procedure that an organization can identify, assess, plan, monitor and manage its risks. This process administers the threats and the possible opportunities of an organization.

(Merna and Al-Thani 2005: 49) categorizes the benefits of Enterprise Risk Management into two kinds, soft and hard benefits. Soft benefits bring improvement to the communication, teamwork and the capacity of the personnel for risk assessment throughout the company. Also the company focalizes in project management attention on the actual and most significant issues and in this way it expedites greater risk taking thus increasing the advantages gained. Hard benefits drive the company to the identification and distribution to the best risk owner, better and reliable plans,

schedules and estimations and the usage of the most appropriate type of contract. Therefore, the organization permits a momentous evaluation of sudden and potential risks and demoralizes the admission of unsafe projects in the financial sector.

1.1.1 ERM Objectives, Vision and Culture

According to (Beasley 2016: 3), the core objective of ERM is to evolve a portfolio perspective of the most important risks to the achievement of the most notable goals throughout an organization. ERM tries to gather both negative and positive risks that can affect an entity.

(Steinberg, Martens, Everson, Nottingham 2004: 3) classify the objectives of ERM in four categories: strategic, reporting, operation and compliance. Strategic are high level collimated objectives that maintain the vision of the organization. Trustworthiness is the core of reporting goals like that is the laws and regulations for the compliance objectives. Finally, with effective and efficient use of the resources the organization can achieve its operation objectives.

(Sonnelitter 2009: 18) refers that ERM ensures that management has a procedure that determine the goals of an organization and that the selected goals are maintained and aligned with its vision. Alongside, (Moeller 2007: 95) states that all types of organization have to acquire some level of a strategic vision or plan. An organization, in order to succeed in its vision, it must have powerful and efficient governance and management arrangements.

(Dallas 2006: 112) characterizes ERM culture as the core component that can impact the approximation of an organization to its value and risk management. In an organization it is probably that a considerate culture will have created, through formalized practices and other culture building events, or through the interaction between management and

personnel. Most of the time ERM culture shows us the values and moralities own by senior management.

1.1.2 ERM Framework

The implementation of an ERM framework meliorates the risk awareness at strategic to operative level. It aims to find all the possible events that can influence the organization with positive or negative way and the risks that can harm an organization and its objectives, mentioned by (Ciorciari and Blattner 2008: 5, 6). The structure of an enterprise risk management framework practices regardless of the size and the dimensions of an organization or the way that an organization wants and tries to classify its risks.

1.1.3 Risk Identification

Risk identification, as determine by (Audit Scotland 2018: 10), is the process that aims to determine the risks that can keep the objectives of an organization safe. These objectives can be strategic and operational.

Some of the appropriate tools and techniques that help an organization to identify the risks are reviews of documentation, brainstorming sessions, interviews, SWOT analysis that represents the strengths, weaknesses, opportunities and threats of a business, probability matrices, historical data analysis and risk mapping. (Öngel 2009: 18).

1.1.4 Typical Sources of Risk to Business

Event identification implicated to identify potential events from sources that can affect achievement of objectives. Risk sources are both external (e.g. economic, financial, environmental, political, social, technological) and internal (e.g. technology, infrastructure, personnel, procedures) to an organization. In this subsection we will study about some of the basic risks that an organization can face and their main sources as mentioned by (Merna, Al-Thani 2005: 14).

First of all the market risk originates in changes of price, the market competition, the demand and satisfaction of costumers. Economic and financial risks emanate from the interest and exchange rates, treasury policy, taxation and cost inflation, bankruptcy and insurance. Finally, legal risks are associated with changes in legislation and business structure.

1.1.5 Risk Analysis and Assessment

As (Sonnelitter 2009: 21) mentioned, Risk Analysis is the procedure of an organization to understand and define the substance and the level of risk. This process affects the risk evaluation and treatment. One of its core scopes is to determine how the identified risks should be managed and how to protect the objectives of an organization that are related with risks.

(Audit Scotland 2018: 10) mentions that risk assessment procures the organization with a system which contributes to the identification and the analysis of how the internal controls in the financial sector reporting is related and subscribed to the aims an organization can achieve. The assessment examines the probability of risk and its impact.

It is important to mention that a range of results possibly is related with a contingent event as a result the actions around these fields and more specific the organization's management need to assume them together.

1.1.5 Risk Monitoring and Reporting

In ERM, monitoring is the means and process to identify deviations from the 'norm'. As claimed by (Öngel 2009: 20) monitoring procedure includes the observation of the

identified risks, the control of the remaining risks, the acknowledgment of new risks, review of the implementation of risks and the assess of their impacts.

Based on another author's view, (Walker and Renn 2008: 36) the monitoring process must be created to evaluate predictable and unpredictable results. The procedure must share new information for new and already existed risks. It is vital to have the organizations implementing the risk and concern assessments take part in monitoring and oversight. Therefore, the analytic skills and the specialization of the personnel may be used to assess the attribution of the organization.

An organization, as argued from (Ciorciari and Blattner 2008: 18) must report faults to the appropriate parties to take needful actions. Reports must be monitored until absolute performance is efficient. Also, reports ensure that core risks are plainly recognized and that determined actions are suitable and are being implemented.

1.1.6 Risk Appetite

Risk appetite is the place of equilibrium between development, risk and performance. Management defines a philosophy respecting risk and inducts a risk appetite (Borghesi, Gaudenzi 2013: 66). The goals of an organization have to incur before management may acknowledge contingent events that may impact its achievement. Likewise, Enterprise Risk Management obtains that there is a procedure to determine the goals of an organization and that the selected goals maintenance and collimate with the organization's delegation and are fixed with its risk appetite. This process is in place by management (Steinberg, Martens, Everson, Nottingham 2004: 3).

1.1.7 Risk Response

(Sonnelitter 2009: 18) cites that Risk Response is a chosen approach by the management or the appropriate practices that aim to evaluated risks with the risk appetite alignment within an organization. More specially, Risk response helps an

organization to align assessed strategy and its goals. It is affiliated to inner controls in behalf of financial reporting. According to (Merna and Al-Thani 2005: 46), unfolding responses to menaces and risks and searching for improvements and solutions belong to the procedure of risk response. The outcomes of risk response method are defined from the owners for every considerable risk and appropriate options of risk response, the unique tactics that an organization work while is facing notable and serious risks, the strategies that are selected for performance in every circumstance and distribution of risk for all the parties in a project.

1.1.8 Risk Mitigation

(Ciorciari and Blattner 2008: 6, 15) states that Risk mitigation is in essence a set of strategies. These tactics are the regulations and operations that aim to decrease the probability of appearance of the risk, or reduce the effects of the risk if it does exist. The organization's management should evolve monadic and alternative risk mitigation tactics-plan for every one of its hazards. In a financial sector, a resolution of expenses versus profits is the basis for the response strategy plan. The chosen strategy must be related and chaperoned by a performance plan. According to (Öngel 2009: 76) mitigation strategies to face future potential events are always speculated in contrast with projects without risks, but only regarding to unofficial gatherings. All Directors or Heads of an organization examine hazards and operations in Risk Mitigation intensively as an integral and essential part of the planning procedure throughout a business.

1.1.9 Risk Escalation

Risk Escalation is the procedure that obtain that notable risks and threats within an organization are escalated to the proper individual or team. This is indispensable to guarantee the right and suitable operations to get over the impacts of any type of a hazard. The most important advantage of Risk Escalation is that risk information and generally the communication about the risk are provided to the right individual or team as soon as possible (Audit Scotland 2018: 14). There is not a limitation on anything that can be escalated, nevertheless the basic criteria is that many types of interruption is

demanded from more senior management. Escalation (or threshold triggers) alerts the managers of an organization to fields of serious hazards with the tactic of finding the differences between deals and events with foregone criteria. If a significant event happens, the organization will need more assessment of the risks or a direct correspondence (Steinberg, Martens, Everson, Nottingham 2004: 27).

1.1.10 Risk Prompts and Tools

There are many risk prompts and tools and risks are most likely to be identified where different tools are espoused based on the circumstances and cases.

PESTLE as refer to (Rastogi, Trivedi 2016: 385) is a tool of a strategic planning used to assess and analyze the effects of factors in Political, Economic, Social, Technological, Environmental and Legal sectors that they could show up on a project. It is a way to secure all risks and issues in the external environment of an organization. The tool has simple usage and aid to confine the effect of future threats throughout a company.

SWOT as refer to (Ciorciari and Blattner 2008: 13) is a technique of identification of the strategy choices by analyzing the Strengths, Weaknesses, Opportunities and Threats of an organization. An organization can decrease the likelihood of failure and comprehend its needs, and finally can erase the dangers that could hurt it. This procedure should be implemented on a continued basis.

According to (Rooney and Vanden Heuvel 2004: 45), Root Cause Analysis (RCA) is a procedure designed for practice to rummage and classify the root reasons of events with security, health, ecological, quality, credibility and derivation effects. It is a tool designed to assist acknowledge of the type of an event, the way and the reasons an event happened. (Andersen and Fagerhaug 2006) add that RCA is more efficient when practiced by employees who need to meliorate their work, work condition and the products or functions they produce.

Risk Register, as cited to (Dunović, Radujković and Vukomanović 2013: 24), is an inclusive tool for the Risk Assessment process that is utilized as an authoritative process for Risk Identification, classification, and for deploying a cost efficient system for Risk Control. It is an inevitable component of Risk Management methodologies. Its main objective is to perennially provide data on the risks versed on anterior projects and to create an origin of data for handling risks. It provides continual and effective monitoring and controlling of risks and therefore it gives the way of communication between participators in a project.

Another tool, as noted by (Ouabouch and Amri 2013: 37), is the Probability and Impact Matrix. It is a technique that combines the probability (of occurrence) and the impact scores of risks and illustrated a ranking based on their poignancy. Every risk is comprehended in context to the larger project. Therefore, the most crucial risks can be acknowledged and prioritized.

The last tool is Brainstorming that brings high-quality ideas about potential risks that organization's members would not possibly produce. According to (Beasley and Jenkins 2003: 2), a brainstorming session may give ways to insufficiencies and diversions that eventually could disorientate the members' capability to focalize on relative potential risks. To start the brainstorming procedure, the organization must evaluate the risks that could affect its projects by retrospection of the project documentation, historic data and lessons learned from contiguous projects.

1.2 Risk Management and Project Management Maturity and its Dimensions

Based on other authors, (Öngel 2009: 21) states that if the meaning of maturity is adjusted to an entity, then the entity will be in the appropriate position to manage and achieve its goals. Generally, maturity shows us of how much an entity performs its

procedures. (Yazici 2009: 356) cites that there is no one optimum level of maturity that is suitable for every entity. (Ittner, Keusch 2015: 12) also cite in their article that more mature risk management procedures aligned with nether volatility and tail risks in an organization.

Risk management Maturity is significant to project and business performance throughout an organization (Öngel 2009: 2). Risk Management Maturity is the measurement that an organization adoptees. This measurement aids to comprehend better its total risk situation, becomes an operation that notes every output of organization from the valid goals of Enterprise Risk Management and estimates contingent effects on goals in near future. Organization unfolds its Risk Management Maturity by investing on the sources of its risk framework and the adeptness to develop to what level it needs to be.

(Yazici 2009: 357) mentions that Project Management Maturity intended to complete, evaluate and meliorate Project Management processes. Thereinafter, Project Management Maturity is a momentous part of strategic planning because it procures a system of methods and a right direction to define and minimize the vacuums on organization's resources and capacity.

According to (Öngel 2009: 21), Maturity can be characterized through a blend of three alterative dimensions for an organization. The first dimension is "Action" that defines the capacity of an entity to operate and decide. The second dimension is "Attitude" that determines the promptness to be involved and finally third is "Knowledge" that gives to an organization the chance of understanding of the effects of promptness and operations.

The organizations that have a higher maturity level, as (Yazici 2009: 356) supports, are anticipated to be felicitous in the fields of project implementation and have an antagonistic benefit in the world of business. Over and above, an advisable alignment of

the culture within an organization and project management maturity tries can drive it to a better performance.

1.2.1 Characteristics of Immature and Mature Organizations

As (Souza and Gomes 2015: 92) argue, immature organizations are described by extemporization in operations, without inducting the conjunction demanded in the varied areas of awareness. As (Öngel 2009: 24) refers, immature organizations can occasionally perform projects with perfect outcomes, but it is broadly an outcome of the strong efforts of a devoted group more than continued and confirmed processes of a mature organization.

In different circumstances, mature organizations have planned and structured procedures and systems that are exactly acknowledged by the personnel. Roles, liabilities and accountabilities are determined and pronounced for the whole business and its projects. Also the nature of the products and the pleasure of the costumers are monitored.

(Kerzner 2019: 15) argues that organizations must be ready to implement a repeated self-assessment to be confident that the organization is constantly meliorated and coming up some level of Maturity. Moreover, the author tells that only the organizations that want to keep themselves in business and stay antagonistic must aim to Maturity. However, aiming and gaining some level of Maturity does not warrant that business will meliorate.

Table 1 lists the differences between mature and immature organizations. The differences are categorized on organizational procedures, roles and responsibilities, quality of products, client satisfaction, management and project success.

Immature and Mature Organizations		
	Mature Organization	***Immature Organization***
Procedures	**Planned**	**Indefinite**
Roles and Responsibilities	**Clear and Defined**	**Unclear and Indefinite**
Product Quality	**Monitored**	**Unmonitored**
Client Satisfaction	**Monitored**	**Unmonitored**
Management	**Structured**	**Improvisation**
Procedures in Place	**Specific**	**Multiple**
Success in Projects	**Always**	**Sometimes**

Table 1. Differences between Immature and Mature Organizations.

In conclusion, mature organizations will be better placed to bring success in organizational projects. For with scheduling and elaborated determinations, waste and damages can be obviated and the lessons learned in the past must be retained projects in the future, conducing to the obtainment of abilities that require the obtainment of Maturity (Souza and Gomes 2015: 100).

1.2.2 Policy, Governance and Leadership

For the authorities of policy, governance and leadership (Anderson 2017: 10) argues that the policies of an organization should be part of its vision and mission, and be root of a solid establishment of the achievements of the organization and advance a stable approximation to health and safety at all of its degrees. The leadership of an organization should define a clear management that strengthens a fixed approximation to health and safety and forms its operations. Thus, every level of leadership must operate in a fixed way that amplifies the culture, worthiness and morality that is needed to contact and achieve its goals.

1.2.3 The Need for Maturity Research

(Öngel 2009: 22) states that maturity models are used for a lot of operations like product and software development, quality, knowledge and supply chain management, innovation, costumer's satisfaction, business continuity etc.

(Souza and Gomez 2015: 101) suggest a deeper research on the maturity models and especially on their similarities and differences. Likewise, it is essential to evaluation of Risk Management Maturity in different kinds of businesses, thus comparing the previous researches that have already been done in the past. Moreover, it is recommended to comprise to research other databases, practice a qualitative approximation for the promulgations thru a historical account and measure the perspectives for the evolution of the Maturity throughout an organization. (Steenbergen, Bos, Brinkkemper, Weerd, Bekkers 2010) argue that the key for further research is the work on how conditionally can be fetched within the focus region Maturity Model growth and the existence of a focus area Maturity Model for every concrete organization.

Through this thesis we will unfold the need for further research in Risk Management Maturity and we will see how its definition that includes its levels and models relates and results in business performance.

Chapter 2

Risk Management Maturity

2.1. Levels of Risk Management Maturity

Regarding to (Crawford 2015: 4), Risk Management Maturity is defined through five levels: Level 1- Initial Process, Level 2- Structured Process and Standards, Level 3- Organizational Standards and Institutionalized Process, Level 4- Managed Process and Level 5- Optimizing Process. These are the stages that organizations go through to be entirely completed with the best practices within their Enterprise Risk Management.

Level 1- Initial Process (Ad-Hoc):

Initial process as (Crawford 2015: 4) claims, is ad-hoc risk management ability, with no constant and structured procedures and environment. There are no sanctioned standards. This stage permits of organization's estimation of its potencies and inabilities against the practices and to determine its objectives.

According to (Estevens 2017: 6), the actions that are taken by the organization are reactionary instead of precautionary. The outcomes of the Risk Management are unpredictable and depend on the capacities of the personnel throughout an organization instead of the practice of a confirmed procedure. This level is not tolerable or covetable.

The biggest provocation in an ad-hoc nature with cruelly each ERM process is that many unannounced events and surprises are existed. Moreover, Maturity Level 1 is too expensive for the organization, as (Eickelmann 2004: 12) mentions, because the organization does not have the intelligence to schedule and implement processes against risks when they could probably be agreed with more inexpensive and facile way.

Level 2- Structured Process and Standards (Basic)

(Elmaallam and Kriouile 2011: 181) argues that in this stage there is an exertion from the stakeholders of the organization to deal with best practices. Nevertheless, there are no fixed procedures for assessing the possible outcomes. Also this level is made up to focus mostly on the events within projects.

A number of ERM capacities as (Yazici 2009: 17) also mentions, are determined and not practiced. There is no stable comprehension and mandate of the management to conform to all organizational practices. In conclusion, at this level of maturity, there are no demanded usability operations. Nevertheless, it is possible to take usability into account as mentioned by (Jokela and Lalli 2003: 1).

An organization that does not have all of the information expendable is sometimes more risky than owning none information. The implementation of ERM at the Basic Level implies that bigger events and problems are disregarded. After that, (Estevens 2017: 7) cites that the organization failing in uniformity within its ERM for depravity and related violations and it may be considerably alterative via its divisions and departments.

Level 3- Organizational Standards and Institutionalized Process (Defined)

In the defined Level 3, according to (Paulk and Konrad 1994: 6), there are formalized and standardize tactics for every operation within organization's ERM procedure. This results to documented procedures and constant application. The ERM procedure is described and comprehended in fixed functions, tools and techniques. The procedure is

practiced to canonize continuity throughout an organization and offer a concentrated approximation to ERM. Therefore, the ERM process is meliorated gradually and continuously, as noted by (Jokela and Lalli 2003: 1).

In the Defined Stage, the organization is in a satisfying level of execution. On the other hand, ERM is not commanded within the organization or undivided to the selection of its projects.

Level 4- Managed Process (Improving)

(Elmaallam and Kriouile 2011: 181) notes that in this level of Maturity the organization practices quantitative and statistical processes and systems to administer and assess the effectiveness and coherence of the ERM procedure and its activities. The processes of ERM are practiced in an early stage on during the identification step. Risks are comprised in organization cases in that way to obtain that the decisions are checked thru absolute and clear information. Therefore, (Paulk and Konrad 1994: 6) concludes that the organization succeeds in its measurable quality objectives and management of the ERM processes.

Sometimes, an organization at Improving Level, as (Heumann 2003: 4) mentions, will evolve a definite tactic before beginning a project and thus will record it in the ERM process. This tactic will determine the levels demanded and the way that are suitable in the prelateship. Also the organization's processes of identifying, elaborating, analyzing, monitoring and reporting of the related data need effort and generally time.

Level 5- Optimizing Process (Optimized)

In the Optimized level, according to (Pennypacker 2005: 75), Risk Management operations are part of a consecutive improvement. Procedures are entirely integrated, stationed and practiced to meliorate ERM operations. The results, that are concentrated

after implementation, are used to comprehend the overall performance and meliorate a future manage of a competence decision-making.

(Estevens 2017: 7,8) adds that in Level 5 everybody is devoted to ERM and it is regarded as a core strategic process. The organization that "lives" into this Level innovates and evolves the ERM procedure continually.

At Optimized level, because of the upper stages of Risk Maturity there is a danger that the management of an organization believe that all procedures are done. Therefore, the existing or the new personnel must be fully informed and continually upgraded regards to risks and their challenges.

Table 2 that follows provides the characteristics of the Five Levels of Maturity and therefore the differences between them.

Five Levels of Maturity					
	Initial (1)	***Basic (2)***	***Defined (3)***	***Improving (4)***	***Optimized (5)***
Tools	**Not present**	**Limited**	**Defined**	**Scalable**	**Perfected**
Procedures	**No procedure-oriented approximation**	**Procedure amelioration initiatives**	**Upgraded procedure operations, Defined procedure flows**	**Completed support and operational procedures**	**Dynamic procedure review, Use of Root Cause Analysis (RCA)**
Integration	**Not supported**	**Ad-hoc structures**	**Documented and standardized**	**Supported, Controlled**	**Achieved, Strive for excellence**
Technology	**No controls exist**	**Some controls with limited documentation**	**More controls documented and deployed**	**Controls monitored and measured for compliance**	**Controls more comprehensively performed, Automated**
Architecture	**Initial performance**	**Transitional**	**Incosistent**	**Homogeneous**	**Sustained, Collimated**
Resources	**Operations unstaffed and uncoordinated**	**Informal communication**	**Some roles and liabilities**	**Raised resources, awareness, Determined roles and liabilities**	**Culture supports continual melioration to security skills, procedures, and technology**

Table 2. Differences between the five Levels of Maturity based on (Presecan 2018).

2.1.1 Upgrading to Higher Levels of Maturity

First of all, (Yazici 2009: 24) mentions that organizations must keep on investing and gaining and improving advanced levels of Maturity, as Level 3 and above standardization is not achieved at all organizations nowadays. To achieve the Defined Level (Level 3), an organization must implement all the procedure areas of the Basic Level (Level 2) and the procedure areas determined for the Defined Level. Similarly, Improving and Optimized Maturity Levels (Levels 4 and Level 5) need the performance of recent procedure areas and those of the reduced level procedure areas, as noted in (Jokela and Lalli 2003: 2).

According to (Crawford 2015: 14, 15), an organization will be ready to achieve Level 3 with a usage of a simple common-practice approximation of utilizing a risk record to maintain routine reviews of the impacts of risks and the efficacy and performance of the responses planned to handle them. Moreover, to achieve Level 3 of Maturity, all ERM procedures must be located and sanctioned as organizational norms. These procedures implicate internal and external customers as effective and undivided parts of the whole team.

To achieve Level 4 of Maturity, an organization's ERM procedures, norms, and maintenance processes should be completed with other organizational systems and procedures. (Hopkinson 2011: 16) states that handling all risks and their association with quantitative analysis is a core idea the requirements of an organization to attain Risk Maturity Level 4.

(Crawford 2015: 16) adds that organizations that attain Level 5 of Maturity are basically in an optimum stage and can define the standard for the ERM into their relative business factors. To attain Level 5, people that laboring into these organizations must be highly organized and manage and optimize Enterprise Risk Management usage thru consecutive amelioration practices.

2.1.2 At Which Level of Maturity are most of companies nowadays?

According to (Spalek 2014: 164), the rise in ERM Maturity is related to the operations and procedures of a company that are responsible to increase the level of the overall consecutive improvement. Nowadays, the companies handle a rising quantity of projects. The increasing number of projects obligates a company to challenge, utilize and make profits and finally to acquire a competitive advantage.

Around 90% of all companies today, as (Crawford 2015: 14) mentions, independently of their size or the type of the business, are at Ad-Hoc Level (Level 1) or Basic Level (Level 2) of ERM Maturity. Many companies are easily succeeds in a Level 2 assessment. However, a lot of the larger companies acknowledge that to gain a Defined Level (Level 3) of Maturity assessment may procure to their business a considerably larger Return on Investment. Sometimes, the procedures of prevention and support and the training programs that are needful for the highest Levels of Maturity have not been done timely and correctly or they have not combined suitably.

2.1.3 Elements of Control

Elements of control are the components that will be the subject of evaluation of the Risk Management Maturity, as noted to (Elmaallam and Kriouile 2011: 181). The elements of control are determined through a research of risk components. The main components are environment, strategies, infrastructure, participants, information, technologies, work practices, products and services, and customers.

Figure 1 that follows illustrates the Work System Framework that is constituted the main components of Risk Management Maturity.

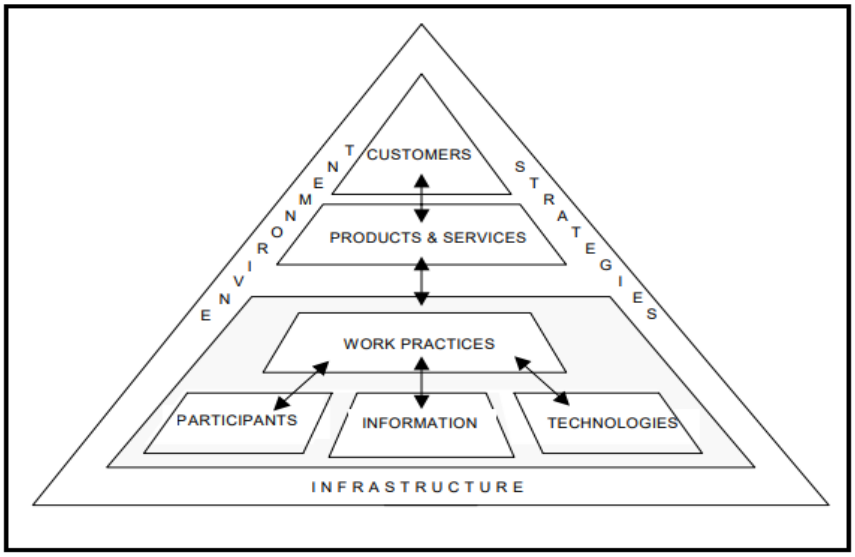

Figure 1. The Work System Framework. Retrieved from (Sherer and Alter 2004: 36).

According to (Sherer and Alter 2004: 37), the basic elements that must be controlled related to environment are the relationship with the stakeholders and steadiness of the market which may be impacted by the profits, the costs and the available resources within an organization. (Elmaallam and Kriouile 2011: 182) argue that strategies must be aligned on its objectives and the resources must be strategic. Corresponding to the infrastructure, the authors adds that the elements of control are related to the telecom infrastructure, help desk and software and hardware equipment. The participants must be skilled and expertise. In addition, the degree of communication and cooperation between the participants must be high.

The information security, corresponding to (Sherer and Alter 2004: 37), must be available, integrated and confidential. Likewise, requirements of networks and the adequacy of software must be controlled.

According to (Elmaallam and Kriouile 2011: 182), the procedures must be formalized, updated, interdepended and continual updated. Respecting to products and services, quality and exploitation are controlled. Finally, the organization must control and work on the cooperation, the culture and the satisfaction of customers. The organization

through its scope must define the level of precision of the needs and requirements of its customers.

2.2. Risk Maturity Assessment

Risk Maturity Assessment, as characterized by (Ciorciari and Blattner 2008: 7), is momentous for an organization because it gives the opportunity to the organization to identify its forces and inabilities. This helps the organization to collect measures in order to face the current problems and meliorate its ERM appetite and governance. In addition, (Bruin, Rosemann, Freeze, Kulkarni 2005: 2) mention that the momentousness of a development framework is accentuated when regarding the objective for which a model can be practiced comprising if the Maturity Assessment is prescriptive, comparative in nature or descriptive. Finally, we can characterize Risk Maturity Assessment as an oriented procedure.

(Seggern and Wilcox 2017: 4) refer that Risk Maturity Assessment items and Maturity Levels may be deployed with a usage of reference to organizational policies and processes and a superior learning and consulting.

2.2.1 Types of Assessment

Risk Maturity Assessment is part of inner control operations. Not all risk assessment approximations and techniques may be administered and ruled by the inner control management (Borghesi and Gaudenzi 2013: 16).

There are two types of assessments, according to (Crawford 2015: 12).

The first type is referred to, as “independent”. As noted in (Crawford 2015: 12), ERM executives owning a powerful mixture of organizational deployment and structure,

management abilities and a clear comprehension of the Maturity and its elements manage the assessment. They use a determined number of systems, tools and procedures to define the real Level of Maturity within the organization in the variety of awareness areas and illustrate the related outcomes to their management teams. After that, these teams and the estimators operate together to unfold the organization's melioration plan and objectives. This type of assessment is the best process when an external factor is required to inform and communicate to the executives.

The next type is referred to, as "self-assessment". As noted in (Hopkinson 2011:88), a short team of skilled estimators cooperate to direct this type of assessment. This group defines the level of Maturity Level within the organization in the variety of awareness areas and operates with the management staff to evolve a melioration plan and goals to gain an advanced Maturity Level that is needed. The main provocation in this type of assessment is to keep and patronize the validity and trustiness of their results. The frequent purpose for self-assessment is to gain self-assurance about procedure efficacy and acknowledge antecedences for amelioration.

2.2.2 What takes place during a Maturity Assessment?

Every integrated assessment consists of some basic components, as noted by (Crawford 2015: 11,12) . The components that play role in defining the Organizational Risk Maturity Level are individual or group interviews, the gathering and evaluation of artifacts, procedures, systems, standards, awareness, and organizational governance. It is essential to work with an Assessment tool that has already been used and confirmed to benefit fixed and advisable outcomes.

The organization must check and confirm that the collection of proofs (artifacts) maintaining the performance of ERM is definite. All the records demanded by organizational policy must be integrated and of high quality. The notions of ERM must be comprehended and used by the necessary parties that must know all about the processes, tactics and policies and define the generic view of the ERM demands. The

collected data must be composed and collated. (Bruin, Rosemann, Freeze, Kulkarni 2005: 6,9) Interviews are done to validate and to raise the present standard, reciprocal and collectively grueling number of crucial coefficients of success. The assessments that do not contain these elements construct an organization that cannot benefit from the advantages of Risk Management Maturity.

2.2.3 Benefits of a Structured Assessment

There are a lot of benefits of a Structured Assessment that are important to mention, as noted by (Crawford 2015: 16). These benefits are related to the direction of the organization, the right alignment and prioritization of its actions and the changes and transformations of the ERM culture and governance. It is essential that the Assessment should be restated and repetitious, procure stable outcomes and measurements, and increase the level of benchmarking with the competitive entities. Essentially, the structure procures the fundamental elements for every Assessment to be used as a tool of control to improvement observation and acknowledge the forthcoming stages.

In general (Bruin, Rosemann, Freeze, Kulkarni 2005: 10) state that, a structured Assessment procures an organization with a better comprehension and knowledge of the present capacities, allows benchmarking with the competitive entities, allows better productiveness in the usage of the available resources in meliorating capacities and illustrates ability for better results.

Chapter 3

Project Risk Management

3.1 Risk Maturity Models

A Risk Maturity Model (RMM) is a tool that is created to estimate the competence of ERM. Acquiring trustworthy outcomes requests an estimator that has awareness to choose the best action for every kind of Project Risk Management. This happens because an appropriate approach for one project could be unsuitable for other project, as mentioned in (Hopkinson 2011: 3). (Pöppelbuß and Röglinger 2011: 3) add that maturity models relate to multiple categories of organizations. (Brookes and Clark 2009: 2) note that a Maturity model has its origin in the field of the overall quality management. It guides the consecutive amelioration and thus it claims a completed comprehension of the present status and where an organization purposes to be. In this stage it is substantial the maintenance and complication of senior management.

According to (Pöppelbuß and Röglinger 2011: 3), Maturity models have been subjacent to criticism since their origin. For example, maturity models have been characterized as "step-by-step recipes" that simplify actuality and failing to empirical bases. Another approach states that Maturity models contribute to ignore the eventual being of manifold of evenly profitable trails.

3.1.1 Main Phases of Developing a Maturity Assessment Model

While many maturity models exist and can be applied in various ways, there is a shortage in documentation on the way of the deployment of a model that can be characterized as easily applicable and acceptable (Bruin, Rosemann, Freeze, Kulkarni 2005: 2).

According to (Bruin, Rosemann, Freeze, Kulkarni 2005: 3), the momentousness of an established deployment framework is accentuated while regarding the objective for that a model can be practiced comprising if the concluding assessment of maturity is prescriptive, descriptive or comparative. Deployment phases of a maturity assessment model comprise scope, design, populate, test, deploy and maintain. The coupling of scoping resolutions may affect all phases in the recommended general model deployment framework.

Defining the scope of the proposed model may determine the external borders for model performance. The second phase is to define a schedule and construction for the model which shapes the necessary resources for ulterior deployment and practice. Above all, the design of the model embodies the requirements of the purposed audience and the way that these requirements can be met. Since the scope and design are compatible the substance of the model should be resolved (Burnstein, Suwannasart and Carlson 1996: 2).

In the third phase it is indispensable to recognize the requirements to be counted in the assessment and the way that will be measured. If a model is populated, it should be tested for coherence and severity. It is essential to test the manufacture of the model and the model appliances for authority, credibility and universality. After population and testing, the model should be expendable for practice and to corroborate the area of the universality (Bruin, Rosemann, Freeze, Kulkarni 2005: 9,10).

As noted to (Garcia, Lucredio, Alvaro, Almeida, Fortes, Meira 2007: 68), the objective of the model affects a lot the resources indispensable to maintain the development and practice of the model. Successfulness in canonizing the universality demands that forecasts be created to manage a great mass of applications. This may impose many types of storage to detect the appearance and progress of the model.

3.1.2 Maturity Models Criteria

Different Maturity Models may follow different approaches but they aim to the same goal: Maturity. In order to choose a maturity model to try the framework to be deployed, we will mention some of the criteria that constitute the basis to be able to rate a maturity model.

A maturity model, as cited by (Man 2007: 12), is valued based on its publication, method, industry and toolset independency, transparency, public domain, ease of use and duration of its existence.

Respecting to publication it should be checked the degree to that a maturity model is issued in promulgations. Method independency examines the degree to that a maturity model is narrowly collimated to the procedures of project management. In addition, industry independency measures if the practice of the model is limited to specific manufacture sectors and so that toolset independency measures if the use of a model is limited to a toolset. In transparency sector, an organization must trace the calculations and measurements of the maturity outcomes. Public domain estimates the degree to that a model and its evaluation can be practiced and handled by everyone, except its proprietor. Finally, it must be measured if a model is simple to practice and the duration it has incurred.

A postulant maturity model must be publicly expendable thru online or printed book promulgation. The reason for this is to guarantee that the necessary information about a

maturity model is approachable and obtainable when it is assessed utilizing the framework. Therefore, an organization, as noted to (Souza and Gomes 2015: 93), is purposed to achieve a definite goal and conducted within foregone factors and parameters.

3.1.3 Design Principles for Maturity Models

Design principles (DPs) for Maturity Models are broadly practicable biases, laws, guidelines and schedule researches that designers practice with prudence.

(Pöppelbuß and Röglinger 2011: 6) categorize DPs into three kinds: basic principles, principles for a descriptive aim of utility, and principles for a prescriptive aim of utility. DPs widely count on exterior factors such as stabilized and broadly expendable determinations, elements for benchmarks and irrespective estimator. Albeit DPs can be helpful and advantageous for assessing the Models of Maturity, they may solely separately be affected during the design of the maturity model.

The first type of DPs, the basic DPs must be directed irrespectively of a particular aim of practice, as (Becker, Knackstedt and Pöppelbuß 2009: 2018) mention. The second type, descriptive maturity models must conform to the basic DPs. Maturity models pursuing a descriptive aim of practice require to recommend evaluation criteria for every Level of Maturity and expendable level of granularity. Finally, Prescriptive maturity models must accomplish the DPs for descriptive maturity models and the basic DPs. According to (Pöppelbuß and Röglinger 2011: 8, 9), Maturity Models pursuing a prescriptive aim of practice require to comprise amelioration measures for every Level of Maturity and expendable level of the optimum or worst operations.

3.1.4 Organizational Project Management Maturity Model (OPM3)

Organizational Project Management Maturity Model (OPM3) is a model deployed by the Project Management Institute (PMI) and presented in December 2003. It is established by Project Management Body of Knowledge (PMBOK) and it is divided into three domains, as mentioned to (Elmaallam and Kriouile 2011: 178). These domains are program, project and portfolio that relegate into four levels of maturity which are standardization, measure, control and continual progress.

OPM3 aims to give the opportunity to organizations to succeed in their projects and strategy, as noted in (Man 2007: 14) .The model, by procuring an important collection of Organizational Project Management (OPM) optimal practices, permits an organization to utilize it as a principle for research, examine and control itself and commit its familiarized decision concerning contingent resolutions for any differences into its schedule.

(Yazici 2009: 14) notes that OPM3 also aims to complete, evaluate and meliorate Project Management practices. It contends deployment of the competencies that reinforce the procedures used to handle all projects inside the organization and to affiliate the projects narrowly to the organizational strategy. It procures a hierarchical manufacture with a variety of best practices. Every practice includes manifold competence. Every competence brings results that can be evaluated by core implementation indicators and metrics.

The model, as we have mentioned before, according to (Elmaallam and Kriouile 2011: 178), comprises three interrelated axioms, which are related to awareness, evaluation and progress. In the first principle the user is able to be expert with the model, and can easily handle all of its components and with the notions, theory and practice of OPM3. In the second element, the organization is correlated to the model to define its present situation on a consecutive of Organizational Project Management Maturity. In the last element, the organization may resolve to proceed with initiative changes aiming to raise maturity utilizing the outcomes of the assessment as a core element. In this element,

according to (Souza and Gomes 2015: 94), the model provides that the organization must meditate all of the best practices and implement a expediency and analysis of priorities, canonize a plan which is comprised of optimal amelioration actions suitable for its status to succeed in higher Maturity Levels.

3.1.5 Project Management Maturity Model (PMMM)

The Project Management Maturity Model (PMMM) was presented by H. Kerzner in 1998. The first and the second edition of his book depicting this model were promulgated in 2001 and 2005, respectively. As noted by (Souza and Gomes 2015: 95), the model is actually a formal tool deployed by Project Management Solutions that aims to admeasure the Project Management Maturity within an organization.

PMMM aims to identify the Maturity of the Project Management procedures within an organization. The focalized aspect on the procedures composes the essential discrepancy of this model from the other models. PMMM also aims to procure a focalization on organization and its capability to perform strategy thru its projects (Brookes and Clark 2009: 9).

As mentioned to (Man 2007: 17), the model is a workable Project Management Body of Knowledge (PMBoK)-collimated measure. PMMM defines miscellaneous stages of growth about Project Management Maturity. The unconventional purpose of the model is to procure organizations with a framework that permit them to develop a particular Model of Maturity. The materials of PMMM are composed of a book and an online evaluation tool. These tools are able to procure to personal estimation partners and their organizations with an analysis way the way they act in alterative kinds in every Level of Maturity, a correlation on total outcomes in contrast the outcomes of other organizations and an upper level possessory action map to pursue for the overall amelioration.

(Man 2007: 41) notes that PMMM comprises operations concerning the requirements analysis, the choosing of participators and the deployment of an evaluation plan. There is no self-assessment comprised in the evaluation process. The evaluation process of the model only demands organizations to interact with an online tool.

The cognition areas of the model, as noted in (Begüm Öngel 2009: 30), are Time Management, Cost Management, Project Integration Management, Scope Management, Quality Management, Project Human Resource Management, Communications Management, Risk Management and Procurement/Vendor Management. Five levels of maturity are Initial Process, Ad-Hoc (Level 1), Structured Process and Standards, Basic (Level 2), Organizational Standards and Institutionalized Process, Defined (Level 3), Managed Process, Improving (Level 4) and Optimizing Process, Optimized (Level 5). Every cognition area is determined at every Level of Maturity. The cognition areas are distributed into their special components to procure the best integrated definition. PMMM determines five components for Risk Management: Identification, Quantification, Response Development, Control and Risk Documentation.

Once the Initial Level (Ad-Hoc Level) of maturity and the areas for amelioration have been recognized, the model helps the organization to determine the needful actions to be done about Project Management Maturity. The goal of this model is to permit any type of organization to evolve its Project Management capacities methodically and productive.

This model is characterized by its austerity and availability.

3.1.6 Project, Program, Portfolio Management Maturity Model (P3M3)

The Portfolio, Programme and Project Management Maturity Model (P3M3) was evolved by the Office of Government Commerce (OGC) in United Kingdom and published in February 2006, as referred to (Backlund, Chronéer and Sundqvist 2014:

842). The model features the portfolio, program and project operations into the procedures that conduce to be succeed in covetable project results. It is a sequence of structured descriptions of almost 32 procedures for portfolios, programs and projects.

Portfolio, Program and Project Management are embodied within the P3M3, constructed on PRINCE2 and Managing Successful Programs (MSP). The model donates reports by stages over the three domains. It also donates a staged approximation which maintenances an organization‘s journey thru gradual Maturity in the domains.

The framework of P3M3 is supported into the five Levels of Project Management Maturity awareness, repeatable, defined, managed, and the highest optimized level. The Maturity levels are able to estimate the Project Management procedures that are the management of benefits, resources, control, risk financial, governance and the stakeholder engagement. Likewise, as (Man 2007: 18) notes, admission to information about the P3M3 model was only provided to people of accredited organizations.

3.1.7 Maturity Increments IN Controlled Environments (MINCE2)

Maturity INcrements IN Controlled Environments 2 (MINCE2) owned by the MINCE2 Foundation and it was founded in May 2007, as mentioned in (Man 2007: 18). MINCE2 Foundation deployed the model to define the level of Project Maturity within an organization, reference in a steady way concerning the findings and finally to nominate ways and operations to raise the Level of Maturity.

According to (Mateen 2015:27), the framework of MINCE practices six towers to measure the Maturity within an organization. The six towers are people, customers, knowledge, techniques and methods, realization and supporting services. The model focuses on people and the ways that people try to fill the gaps that are created within an organization. It is also comprises focalize of customers on organizational implementation and progress. It measures the real cognition that is expendable to the

personnel. Regarding to techniques and methods, the model procures the appropriate and necessary structure to gain the organizational objectives for better outcomes and reach above and beyond of its targets. In the area of realization within an organization, MINCE2 measures how efficiently the outcomes are reached and the ways that hazards are handled to succeed in its goals. Finally, thru supporting services, the model controls the way an organization maintain its personnel and how an organization achieves superiority in its projects.

Every tower has five Maturity Levels as Activities (Level 1), Procedures (Level 2), Systems (Level 3), Supply Chain (Level 4) and Quality (Level 5).

3.1.8 Hillson's Risk Maturity Model (RMM)

The Risk Maturity Model (RMM) was constructed by Hillson in 1997 and it is assumed as the first maturity model, as noted in (Elmaallam and Kriouile 2011: 177). It is supposed as the keystone for a lot of Maturity Models. Risk Maturity Model admeasures the risk maturity in four domains as Culture, Process, Experience and Application. Firstly, culture is actually the way that an organization contacts Risk and performs Risk Management processes. The Process domain is the way that the Risk Management principles are practiced within the organization. Finally, experience is the cognition of the personnel within the organization about risk.

According to (Hopkinson 2016: 4, 5), RMM is a tool that is created to evaluate risk management capability. The model is categorized into four levels, naïve, novice, normalized and natural.

In the first level, while a project risk management procedure may have been in practice, its concept and its performance it basically appears errors. It is probably that the procedure does not subjoin value. At this level fit the organizations that are not aware

about the necessity of Risk Management and they do not perform Risk Management principles in the processes of the organization.

In the second level, the Project Risk Management procedure affects resolutions in a mode that is probably to lead to amelioration in project implementation in contrast of its goals. While the procedure can subjoin value, inabilities with either the procedure creation or its performance outcome in considerable advantages being unfulfilled. The organizations are aware about the way that Risk Management could assist them; Risk Management frameworks are not performed and so that organizations are not entirely protected from the hazards.

In addition, in the normalized level, the Project Risk Management procedure is starched and performed steady and continually. Value is subjoined by operating efficient management responses to notable origins of precariousness that may influence the benefit of its goals. Risk Management routine is performed on most or all the organization perspectives and processes. All the levels have cognition about the advantages that the organization may gain from the performance.

In the last level the procedure aims to the choice of effective strategies and project settlements or allocation. Origins of precariousness that may influence the gaining of project goals are administered continually into the framework of an organizational ethics contributory to bring the best project results. The organization has a risk aware culture. The personnel operate before the potential hazard that can “hurt” the organization and they also practice Risk to benefit of each contingent event.

3.1.9 Capability Maturity Model Integration (CMMI)

(Man 2007: 15) refers that the initial version of Capability Maturity Model Integration (CMMI) was presented by the Software Engineering Institute (SEI) in 2002 after the Capability Maturity Model (CMM) that was deployed between 1987 and 1997. The last version of CMMI, was presented in 2006, includes a framework which permits the

generation of manifold Models of Maturity, practice courses and evaluation procedures backing particular areas of interest.

According to (Elmaallam and Kriouile 2011: 178), the model helps the amelioration of procedures and their ability to handle, to deploy and to retain the organization's products. CMMI is divided into two representations, staged and continue. The representation stage comprises the five Levels of Maturity: initial, managed, determined, quantitatively managed and optimizing.

The model actually circumscribes the dependencies and differences between couple of contiguous Maturity Levels, as stated in (Man 2007: 38). Every Maturity Level is produced by a variety of procedure areas. CMMI depicts general objectives and specific objectives that canalize the procedure of achieving a higher Maturity Level. General objectives are those that bring a group of procedure areas to a confident Level of Maturity. Specific objectives are those that are monadic to a particular procedure area that has to be managed before the procedure area can be regarded as satisfied.

As noted in (Souza and Gomes 2015: 94), CMMI was deployed to contrast the subsisted procedures with the confirmed procedures deployed by the people within the organization, academia and government. It procures modes to evaluate improvement and to disclose contingent areas for melioration. The model was not only deployed for software evolving, but to help software and services organizations in the distribution of procedure progress with clear goals, engineering expenses, program, productiveness, quality and client gratification.

In generally, the CMMI is determined as a procedure progress approximation that assists the consummation of operations, define procedure progress objectives and priorities, procure instructions for quality procedures, and procure a point of reference for evaluating the existing procedures (Man 2007: 15).

3.1.10 Differences and Common Features between the Maturity Models

The objective of using a Maturity Model is to find ameliorations by evaluating practices of Project Management. A Maturity Model varies with other model in terms of their characteristics, factors and structure to gain wished scope. The basic mutual feature of the models is that all of them are practiced to characterize the Project Management and the Risk Management performance within an organizational level. OPM3, CMMI, PMMM, P3M3, MINCE2 and RMM based on a consecutive improvement to higher Maturity Levels and the way an organization could upgrade its level.

OPM3 does not follow stage model representation for amelioration objectives. Best practice standard are measured and evaluated using Standardize, Measure, Control and Continuously Improve levels for amelioration purpose. This model gives the opportunity to an organization to get over the gaps between its strategic goals and projects. It expedites performance and sustainability. Its purpose is to procure Portfolio, Program, and Project Management for IT or other (Souza and Gomes 2015: 94).

CMMI procures best practice model for system and software engineering. CMMI mainly deals with the type of procedures should be performed and the way that they can be performed. The stage model of CMMI follows that an upgraded level can be gained if demands for lower levels are accomplished. It practices five levels of gradual maturity. Most organizations start in this model at level 1 or 2. CMMI recognizes strengths and weaknesses. The assessment leads to total maturity ranking of 1,2,3,4 and 5 and the plan procedure transforms to manage inabilities. Its scope is deployment, service and acquisition procedures (Man 2007: 16). The model was not evolved only for software deployment but to manage this type of organizations in the collimation of procedure amelioration with business goals, expenses, schedules, productiveness and client gratification (Souza and Gomes 2015: 94).

Whilst CMMIs evaluation procedure ends after the assessors consign the last report to the evaluated organization, the OPM3 evaluation keeps on until a progress plan is deployed including antecedence progress initiatives. OPM3 evaluations are meant to

assist organizations perceive progresses. CMMI evaluations do not comprise this type of practices because a CMMI evaluation is not perforce conducted with the objective to perceive progresses (Man 2007: 41).

PMMM measures only the maturity of Project Management procedures. In addition it follows the stage representation for five Maturity Levels. K-PMMM derived its Maturity Levels from CMMI stage-model Maturity Levels. Its purpose is Project Management and PMBOK. The model is included of structured factors for adjustment and performance within an organization (Mateen 2015: 9). As noted to (Brookes and Clark 2009: 9), the model comprises only practices concerning the requirements analysis, the choice of participators and the deployment of an evaluation plan. Moreover, there is not a self-assessment comprised in the evaluation process.

According to (Backlund, Chronéer and Sundqvist 2014: 842), P3M3 gives the opportunity to an organization to assess its existing competencies and acknowledge special areas for progress. It also enables organization to implement Maturity evaluation of Project, Program and Portfolio Management via seven alterative domains. It measures Maturity of Projects practicing the five Maturity Levels. Its Maturity Levels are generated from CMMI stage-model and pursue stage representation. The model is not an evaluation tool for atomically projects or programs (Mateen 2015: 17).

MINCE2 does not procure a framework to measure maturity of Program and Portfolio Management. It practices an alterative notion of measuring six pillars in every type of organization for Maturity. Every pillar is measured for Maturity utilizing the five Levels. The purpose of MINCE2 is towards organization's capacity to adjust to environmental and market alterations (Mateen 2015: 19).

During an OPM3 evaluation, organizations commonly acquaint with themselves with the model and transact a self-assessment to define the necessity for an OPM3 stringent

evaluation comprising certified estimators. In contrast, the evaluation process of CMMI and PMMM does not comprise this type of practices (Man 2007: 41).

Finally, RMM is utilizing four attributes as a mean to describe the Level of Maturity and practices the five Levels of Maturity. This model is easy and does not procure an established plan to investigate the Levels of Maturity. RMMs characteristics are practiced in various Maturity Models. It has procured information that the majority of the Maturity Models utilized as guidance or a reference by alterative authors. Its purpose is to help an organization to determine its Level of Maturity and acknowledge the domain that require progress and develop tactics to deploy or meliorate its Maturity Level. It is designed to evaluate if the Risk Management procedure is efficient as used rather than contingently efficient in principle (Hopkinson 2011: 15).

Chapter 4

Risk Management in Banking

4.1 Bank Risk Taking

Inordinate bank risk-taking is broadly reproached as a primordial factor behind the financial crisis of the previous years. The bank risk-taking manner procured unsustainable deployment in asset costs and expedited a centralization in prying that eventually snarled in an irregularly way.

According to (Gehrig 1995: 748, 749), we may suppose that bank failures have growth as antagonism between banks and between banks and nonbanks has increased. Antagonism limits intermediation margins and conglomerated reserves with unfortunate draws in the asset portfolio. It also immediately raises the likelihood of bank injuries because it evacuates the profits as buffers in contrast of insolvency risk. However the reduction in the merit of bank charters also unfolds an ethical danger problem of banks' risk-taking.

The author adds that risk-taking is not confined only to the small banks. Large financial institutions can have addable incentives to participate in hazardous operations when they are safeguarded by implicit guarantees from government.

Additionally, low levels of interest rates influence risk-taking, as mentioned to (Maddaloni and Peydró 2010: 5, 8). Crisis was caused by an inordinate risk-taking suspending from low levels of long-term interest rates. Inasmuch banks mainly depend on short term funding; low short-term rates can boost risk-taking over low long-term rates. Finally, low levels of numismatic policy rates raise loan risk-taking specifically when banking proctorship is unsteady.

The bank's problem, as (Stulz 2014: 2) notes, is not easy because risk-taking decisions are done always at high bank level and every decision reacts on its likelihood of economic inertia to some level. Therefore, risk-taking decisions may not be assessed in seclusion. They must be evaluated respecting to their impact on the comprehensive bank's risk.

4.1.1 Why has risk in banking increased?

Throughout the era of the international crisis in 2008, government, firms, and organizations conglomerate inordinate indebtedness. Competition in Cyprus dissolves but considerable imbalances are over casted by an evolved banking sector. The economic crisis in the island was at its zenith with the ruling to bail-in uninsured depositions in 2013 to obviate ascendant indebtedness bankruptcy, as mentioned to (Michaelides and Orphanides 2016: 9).

In Cyprus, the issue was principally in the private sector with the eruption of the private indebtedness and the huge outspread of the banking sector. According to (Hardouvelis and Gkionis 2016: 12), throughout the years before the crisis, the island's banking sector included of four types, the internal commercial banks that owned the most of overall assets, the subsidiaries of Greek banks, the co-operatives and the international banks.

We notice that a bank's commitments to its depositors are mainly irrespective of the returns that the bank gains. Low actualizations of returns do not restrict the bank's

commitments towards its depositors. Hazards are originated by shareholders; to the expanse that equity is inadequate, bankruptcy is an eventuality (Hellwig 1995: 724).

The absence of risk matching between commitments and assets implies the bank miscarriages of the previous years. Whether a bank is less than 10% equity-financed, it does not take much of an adaptation in asset worthiness to eliminate the equity. Whether stable-interest loans and collaterals were valued at discounted current values utilizing market prices of usance for discounting, it might not take a lot of an interest price changes to affect an indicatory failure (Hellwig 1995: 725).

Finally, the magnification of antagonism in the bank sector has increased risk because it has limited or expunged the regulators procured by intermediation margins and has raised completely stimulus for bank risk taking.

4.1.2 Types of Risks in Banking

Because of the intricateness of the bank sector, Risk Management is considerable. Risk at the vertex level can be considered as the likelihood of a bank's financial health being destroyed from one or more potential reasons. In the Figure 2 bellow, the types of risks in Banking are illustrated.

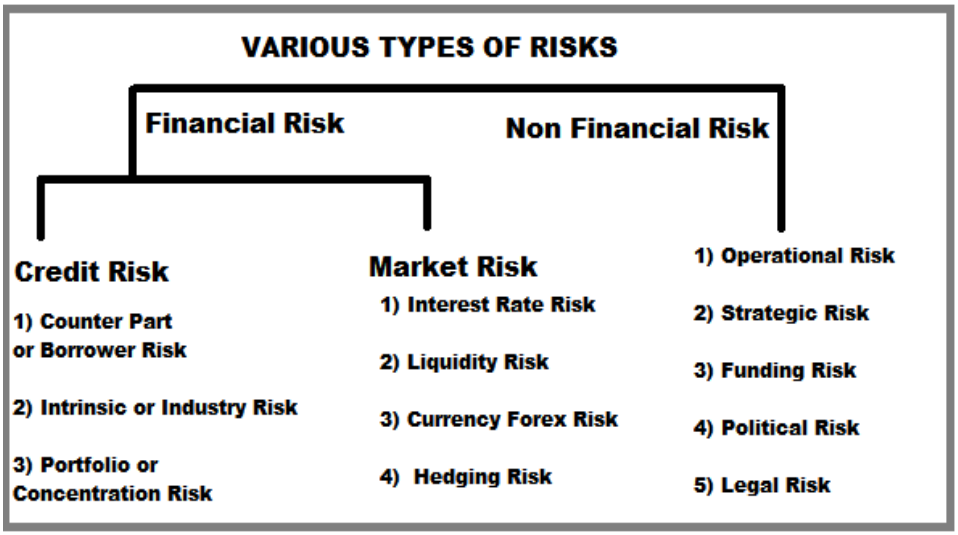

Figure 2. Various types of Risks. Based on (Kanchu and Kumar 2013: 147)

First of all, Financial Risk results from every transaction attempted that is unsheltered to eventual wastage. Financial Risk is divided into Credit Risk and Market Risk.

According to (Bessis 2010), Credit Risk is the most significant risk in bank sector. It is the risk in which a loaner cannot take the owed capital and interest that drives in a discontinuance of cash flows and raised costs for collection. Sometimes these cash flow risks are caused by the counterpart/borrower becoming defaulter. Therefore counter part or borrower risk is the contingent that a debtor /counter party embosses to meet the commitments on terms of the contract. In addition, credit risk appears by introducing into derivative transactions, securities lending, repurchase transactions and negotiation. It is broadly composed of transaction risk or default risk and portfolio risk.

Portfolio risk is a likelihood that the combination of assets, into the bank's investments, emboss to encounter financial goals. It is constituted by intrinsic and concentration risk (Spuchľáková, Valašková, Adamko 2015: 675). The losses that arise from Credit Risk may transform the portfolio value and affect the business of borrowing funds to the functions combined narrowly to variables of Market Risk (Bessis 2010).

Market Risk is determined as the likelihood of loss happened by the alterations of market variables (Kanchu and Kumar 2013: 148). Interest Rate Risk is the contingent denial impact on the Net Interest Income and it is related to the vulnerability of the bank's financial situation to the motion in interest rates. Alterations in interest rate influence profit values cost of assets, and cash flow. Depositions have lower contractual maturity than loans and liquidity management must protect expected deposition withdrawals. Generally, liquidity is defined as the capability to effectively accommodate deposition as well as decrement in accountabilities and to fund the loan deployment and potential funding of the off-balance sheet demands. In addition, foreign exchange risk is determined as the risk that a bank can endure loss resulted of unfavorable exchange rate movement in a period in that it has an open position or spot in similar foreign currency (Bessis 2010). Currency risk that is also known as Foreign Exchange Risk hedging is utilized by financial investors to divert the risks they envisage when investing widely and by non-financial factors in the worldwide economy for whom multi-currency operations are an indispensable error than a desired condition of exposure (Kanchu and

Kumar 2013: 148). These kinds of risks may happen because of cross border transactions that are increasing continually the last years due to globalization.

As (Kanchu and Kumar 2013: 149) note, Non- financial risk relates to the risks that can harm the business development, marketability of its goods or services, probably damage of its strategies. This type of risks can arise on account of management damages, antagonism, and unobtainability of appropriate goods or services. Operational risk is determined as every risk that is not classified as Market or Credit Risk. It is also the risk of loss originating from insufficient or wasted inner procedures, people and methods or from outer events. To moderate this, inner regulation and control methods are utilized as the initial processes. According to (Bessis 2010), strategic risk is defined as the risk that failed bank's rulings. It is usually a core factor in defining a bank's merit, notably sensate if the organization's utilizes an acute reduction in short time duration. The risk that is connected with the impact on a cash flow of a project from higher funding costs or deprivation of availability of funds is known as funding risk. In banking, funding liquidity is the capability to settle obligations with proximity (Adusei 2015: 5). Political risk defines the expectancies and rulings of financial units. It is happened when political environment or legislative procedure of a country drives to government undertaking the assets of a financial entity and anticipating absolution of liabilities in a way that had been agreed (Şanlısoy, Aydın, Yalçınkaya 2017: 998) . Finally, legal risk is determined as a financial or reputational loss that may result from deficiency of consciousness, misconception, and ambiguity to the manner regulation and law are practiced in a bank (Bessis 2010). There are also risks happening of human error and natural disasters. The development in the utilization of technology and growth in catholic financial inter-linkages are the initial alterations that redounded to such risks.

4.1.3 Tools to Hedge the Risks

To vanquish the risk and to make banking operate healthy, it should be done a good management of all types of risks. Risk management is an essential operation of the bank sector that leads to recognizing and adjusting the risks. There is a variety of tools that contribute to a sufficient management of the potential hazards. Some of them are described below.

GAP Analysis

GAP Analysis is a Risk Management tool that focalizes on the contingent alterability of net-interest income in determinate times (Kanchu and Kumar 2013: 151).

This tool gives information about the outcome of net-income from the alterations of interest rate. The assets and liabilities that may be re-priced are defined as rate sensitive assets (RSAs) and rate sensitive liabilities (RSLs). More especially RSAs are bank bonds, leases and loans. RSLs are basically interest-bearing depositions and other liabilities. The value of these liabilities and assets is sensitive to alterations in interest rates and they are re-priced or revalued as interest rates transform. Interest sensitive gap (DGAP) is determined as follow:

$$DGAP = RSAs - RSLs$$

If the value of DGAP is positive, it means that a growth in interest rate will raise the net interest income. A positive DGAP shows that there is a higher level of assets than liabilities. If DGAPs is increasing, this may increase higher income. If the value of GAP is negative, it is shown that a growth in interest rate in the future will decrease the net interest income (Kanchu and Kumar 2013: 151). Therefore the gap is filled when the re-pricing of RSAs and RSLs is sufficiently the same.

It is significant to mention that GAP analysis focalizes is on re-pricing at which interest rates can be transformed and not on the notion of liquidity. One of the advantages of a re-pricing GAP model is the single numerical outcome that procures a sincere target for hedging objectives. GAP analysis is a static tool of measurement and does not provide a thoroughgoing picture (Greuning and Bratanovic 2009: 285).

Value at Risk (VaR)

The Value at Risk (VaR) is a modeling tool that shows the quantity a bank may mislay if it were to hold determinate assets for a pronounced period of time with given likelihood level. It is utilized to measure Market Risk and other risks that are related to Exchange, Commodities, and Equities (Greuning and Bratanovic 2009: 238).

The model measures the prognosticated worst loss over a target horizon within a defined confidence level. The inputs comprise data on the positions, prices, volatility and risk factors of a bank. The data must be considerably inclusive to collect all risks coalescent in all bank's positions. The risks included by the model must comprise all interest, currency, equity, fund and option positions coalescent in its portfolio. Finally, VaR tool merges the eventual alteration in the value of every position that may result from particular movements in fundamental risk factors with the likelihood of such movements happening (Greuning and Bratanovic 2009: 243).

Risk Adjusted Rate of Return on Capital (RAROC)

Risk Adjusted Rate of Return on Capital (RAROC) is a tool that illustrates an economic basis to count the risks and gives to the bank the opportunity of making effective rulings concerning risk and return tradeoff in unlike assets. RAROC may be utilized as a completed Risk Management tool, to assess the capital demands for market, Credit Risk and Operational Risk (Kanchu and Kumar 2013: 151). The Model for RAROC is defined as follows:

$$\text{RAROC} = \frac{revenue - expenses - expected\ loss + income\ from\ capital}{capital}$$

Where expected loss is the average of loss expected over a determine period of time and income from capital is equal with the product of capital charges and risk-free rate. The risk-free rate of return is a rate of return of an investment with zero risk.

If the value RAROC is higher than cost of capital, the result is positive and the bank will take value addition. If the value of RAROC is lower than cost of capital, the result is negative and the organization's procedure has destroyed value. Finally if the two quantities are equal, the result is neutral as the organization's procedure has only maintained value (Risk-Adjusted Return on Capital (RAROC), 2017).

Securitization

Securitization of the assets and loans is a system for increasing new funds and confining the potential risks. The bank collects income-earning assets and vends securities against

these in the open market, thereon modifying non liquid assets to tradable asset maintained securities. Given that the returns from these securities based on the cash flows of the fundamental assets, the weight of repayment is transmitted from the originator to these collected assets (Greuning and Bratanovic 2009: 365).

Sensitivity Analysis

It is essential for a bank to define the real result of a specific variable will have if it varies from the initial assumptions. Sensitivity Analysis helps a bank by creating a defined sequence of scenarios. In this way, an analyst may define the way that alterations in the variables can affect the target variable (Kanchu and Kumar 2013: 152).

4.2 Risk Management Maturity in Banking

Since Risk Management is requiring a conceptual and technical point of view, the dimension and Maturity of Risk Management operations rely widely on the capability of a bank.

As (Chamoun, Denewet, Manzanera and Matai 2019: 9,10) note, a desired Level of Maturity is based on the Risk Profile of a bank, culture, internal environment, investments required to upgrade the financial institution to highest Levels of Maturity, and contingent profits. The Maturity Level of a bank's Risk Management functions is defined based on the superiority of attributes under every level and takes into consideration all relative attributes noticed in the bank. In the highest Level of Maturity, bank's Risk Management is mature and has been applied in its functions.

Moreover to the cost and benefit considerations, the development along the continual maturity is a way affected by capability considerations and the expendability of sufficient resources.

4.2.1 Factors that Affect the Level of Maturity in Banking

The factors that affect the Level of Maturity in Banking are risk culture, risk profile, internal environment, investments and potential benefits.

Risk Culture is determined as the norms attitudes and manners that are relative with Risk management, Risk awareness and Risk taking. It is efficient when it forwards sound risk-taking, applies in growing risks, and offers guarantee to bank's personnel manage practices in an ethical and legal behavior (Dallas 2006: 112).

Risk Profile relates to the threats that a bank is exposed. It is significant for defining a suitable investment asset distribution for a portfolio. Banks utilize the Risk Profile to minimize and limit contingent hazards and threats. Risk management is utilized by a standard structure, consists of a framework and procedures, that is adjusted to Risk Profile and operational environment, and maturing along with other bank's procedures. Finally, financial risks can considerably raise the total risk profile of a bank (Greuning and Bratanovic 2009: 3, 14).

Internal environment characterizes the work environment and risk preferences of a bank. It defines the framework for the way a risk is considered and directed by the Board, management and employees. It also comprises Risk Management philosophy, Risk Appetite, moral manners, and the environment where they are implemented (Greuning and Bratanovic 2009: 75).

According to (Kanchu and Kumar 2013: 148), the necessity for credit portfolio management originates from the requirement to make the most of the benefits connected with diversification and to limit the contingent unfavorable impact of centralization of exposures to a specific sector, business or borrower. Also, the specific frameworks (COSO ERM, ISO 31000), owing to their maturity, their approximation and their likenesses in theory and practice, may assist banks to perceive the potential

benefits associated with the adjustment of a general risk management standard (Chamoun, Denewet, Manzanera and Matai 2019: 26).

The need of the defined investment based on the range to which its non-tradable risk is connected with the non-tradable risks of the variety of bank's portfolio functions. The great investments that a lot of banks are committing are paradigms of strategic risk that are relative to canonizing the antagonistic position of a bank in a fast growing and changing market. When capital is costly, banks save on the total of capital and consequently take Risk Management issues in their investment policies (Cumming and Hirtle 2001: 7, 15).

4.2.2 Effective Risk Management Maturity in Banking

Risk management keeps unfolding as a significant operation in reinforcing the process of bank's inner controls. Banks have started with execution of these operations, but the discrepancies noticed in the Level of Maturity are extensive (Chamoun, Denewet, Manzanera and Matai 2019: 14).

(Mian and Santos 2011: 1) cite that banks attempt to limit exposure to Liquidity Risk thru effective Maturity Management. More specific, banks refinance untimely in standard times to maintain their efficient maturity and limit the requirement to refinance in strictly credit situations.

According to (Chamoun, Denewet, Manzanera and Matai 2019: 6), efficient Risk Management Maturity at banks is best utilized by a proper framework that maintain the structure and implementation of Risk Management functions. The framework is an efficient way to describe the principles and cultural perspectives.

Effective Risk Management Maturity in Banking functions is conducted by Proportionality, Accountability, Robust Governance, adequate resources, Transparency and efficient communication and Assurance and continual amelioration (Chamoun, Denewet, Manzanera and Matai 2019: 6). These principles define a Risk Management expedited thru a definite instruction and an inclusive approximation as an undivided

part of all functions. The roles and accountabilities must be well determined with definite reporting lines, procuring for independency from functions. In addition, Risk Management must be utilized by a clear structure of a framework and procedures that is aligned to a bank's Risk Profile and functional environment, and maturing with other bank's procedures. The Risk Management operation must have suitable abilities comprising the proper dexterities, prompts, tools, methods and procedures. Finally, it must retain a methodic process of monitoring and reporting and must be energetic and steadily meliorated with periodical reviews.

4.3 Risk Management Mathematical Models

Apart of theory among bank sector, there is also a typological approach around its domains. After an extensive review of our bibliography, we will present some short and interesting formulas related to Maturity and some banking terms in generally.

4.3.1 Multiple Regression Analysis Model of Maturity

The model aims to define the maturity level of Enterprise Risk Management execution in organizations. Previous studies in the field of ERM commonly categorized into four groups, determinants of ERM execution in the organization, the impact of ERM on the value and implementation of the organization, practical utilization of the ERM in the organization and role of operations in the ERM.

The model that follows is a combination of quantitative and qualitative data. Quantitative data is the amount of assets, leverage, employees and public ownership. Qualitative data is the level of ERM execution.

The model (Tjahjono 2017: 4), executes regression analysis overall score of Enterprise Risk Management Maturity of every financial institution by a transformation to interval data. The independent variables are defined as the amount of assets, employees,

leverage and public ownership. The dependent variable is the overall Maturity in Risk Management.

$$M= \alpha+\beta_1 A+ \beta_2 E+ \beta_3 L+ \beta_4 PO+ e$$

Where:

M: ERM Maturity, α: constant term, A: Assets, E: employees, L: Leverage, PO: Public Ownership, e: error term and β_1: Assets' coefficient, β_2: Employees' coefficient, β_4: Public Ownership coefficient.

For $\alpha<0$ and $A=E=L=PO=0$:

If the financial institution does not have any asset, employee, leverage and public ownership, the ERM Maturity will not procure any value.

For $\alpha>0$ and $A=E=L=PO=0$:

If the financial institution does not have any asset, employee, leverage and public ownership, the ERM Maturity will procure value. This is impossible scenario because Maturity is malfunctioned without the assistance of some or all of the independent variables.

For $\beta_1, \beta_2, \beta_3, \beta_4 > 0$ and $\beta_1, \beta_2, \beta_3, \beta_4 < 0$:

- $\beta_1>0$: This means that an increment of Total number of Assets will increase ERM maturity value, if the other variables still constant.

  $\beta_1<0$: One unit increase of Total Assets will decrease ERM maturity value, if other variables still constant.
- $\beta_2 >0$: This means that an increment of Total number of personnel will increase ERM maturity value, if the other variables still constant.

  $\beta_2 <0$: One unit increase of the number of personnel will decrease ERM maturity value, if other variables still constant.
- $\beta_3 >0$: This means that an increment of leverage will increase ERM value, if the other variables still constant. Generally, we have an increment of leverage when we increase the total debt or we decrease the Total Assets.

β_3 <0: One unit increase of the leverage will decrease ERM maturity value, if other variables still constant.

- β_4>0: This means that an increment of Total number of shareholders will increase ERM maturity value, if the other variables still constant.

  β_4<0: One unit increase of the number of shareholders will decrease ERM maturity value, if other variables still constant.

Example of β_1, β_3, β_4 >0 and β_2<0:
The organization will attempt to limit financial risks because of the high leverage value by administering its cash flows. The increment of public ownership will drive to better Risk Management and Governance. Increase of employee value will decrease ERM Maturity because human resources may bring significant risks, notably in the deficiency of human resources management.

4.3.2 Risk Measurement Integration Formula

According to (Eberlein, Frey, Kalkbrener, Overbeck 2007: 3), risk measures describes the risk of a portfolio on a quantitative scale are required for various objectives. We set some risk management horizon T and indicate by the variable L the loss of the portfolio over that horizon. We define confidence level $\alpha \in (0, 1)$. We choose $\alpha = 0.99$ as the higher value of coefficient to be more certain that the results will be accurate. The model measures the prognosticated worst loss over a target horizon within a defined confidence level. In theoretical view, the Value at Risk is a law-invariant risk measure that in statistical view $VaR_\alpha(L)$ is the α-quantile of the variable L (Greuning and Bratanovic 2009: 243). Therefore, the VaR of the portfolio at the confidence level α is determined by

$$VaR_\alpha(L) := \inf\{l \in R: P(L \leq l) \geq \alpha\},$$

where inf (infimum) is the largest quantity that is less or equal to every given set or subset of quantities. More specific it is the greater lower bound of the set. In the current

model inf{l ∈ R: P(L ≤ l) ≥ α} is defined as the highest real number that is lower or equal with every number that is contained in the set {l ∈ R: P(L ≤ l) ≥ α}.

If L is integrable, we can determine a law-invariant risk measure that is called Expected Shortfall or Average Value at Risk and is defined by

$$ES_\alpha = \frac{1}{1-\alpha} \int_\alpha^1 VaR_u(L)\, du$$

Instead of setting a specific α, one averages VaR above all u ≥ α and therefore it seems further within the tail of the loss distribution, in specific $ES_\alpha \geq VaR_\alpha$. In other words, it is not very compensatory to present risk measures like VaR or ES in a more or less ad hoc way.

4.3.3 Linear Model for Net Interest Margin and Maturity Transformation

As noted to (Bologna 2018), the net interest income is a core factor of profitability. It illustrates that bigger maturity transformation raises banks' net interest margin, notably in the case with bigger short-term interest rates that may bring a positive result. Interest rate risk exposure based on bank duration gap and maturity structure. A bigger maturity mismatch makes more space to take on interest rate risk that requires to be indemnified by bigger fees. The bigger term spread earned can be divisionally gone through the clients, divisionally counterbalancing the bigger fees. The factors of net interest margin and the maturity mismatch are illustrated to the model of the linear form bellow:

$$\Pi_{it} = c + \sum_{j=1}^{J} \beta_j X_{it}^j + \sum_{m=1}^{M} \beta_m X_t^m + \varepsilon_{it},$$

$$\varepsilon_{it} = v_i + u_{it}.$$

Where:

Π_{it}: is the net interest margin of bank i (i= 1,.., N) at time t (t= 1,.., T) semester, c: constant term, X_{it}: bank-specific illustrative variables such as depositions, asset quality, liquidity and capital adequancy, X_t^m: Controls for time varying ordinary factors (like bank particular controls, macroeconomic controls or time dummies), ε_{it} : error, v_i: Bank particular component, u_{it}: idiosyncratic factor.

Chapter 5

Literature Review

The Financial Crisis of the recent years has culminated the need for all participators in the banking and generally the entrepreneurship sector to comprehend and practice Risk Management and for researchers and academics to deepen in this subject. This crisis seems as the most significant one in the contemporary period. It is characterized as systematical in that it comprises the whole financial system. Therefore it affects all financial organizations such as the capital markets, bank sector, stock exchange and insurance organizations (Bessis 2010).

The Financial Crisis was also brought a rigorous economic decline in most countries inside and outside of European Zone. The economic crisis in Cyprus was at its zenith in the ruling to bail-in uninsured depositions in March 2013 as a way to impede ascendant debt bankruptcy (Michaelides and Orphanides 2016: 9).

Nowadays, Risk Management is very momentous for entrepreneurship and bank sector to prevent them minimizing their strength and becoming inefficient. (Hopkinson 2011: 12) argues that the organizations should evaluate and monitor their Risk Management capability, correlate themselves with best practices, acknowledge areas of scarcity that need progress, and keep deploying.

5.1. Exploring the Concept of Risk and Risk Management

(Kanchu and Kumar 2013: 145) in their empirical research where examined the risks in banking industry and the techniques adopted for risk management, determine Risk as something that may create obstacles in the way of achievement of assured goals. The best way to deal with these situations is to take determinate proactive measures to acknowledge every type of risk that may conclude in undesired results. Managing a risk in the initial phase is better than waiting for its occurrence.

The authors define Risk Management as the application of proactive tactic to schedule, guide, organize, and audit the risks that are becoming barriers of bank's short-term and long-term operations (Kanchu and Kumar 2013: 145).

5.1.1 The Complexity and the Route of Risks

The large varieties of risks constrain organizations to acknowledge their momentousness in order to manage their goals. The recent years, financial risks were the focus of bank's risks (Ciorciari and Blattner 2008: 4). Given the velocity of alteration in the worldwide business and banking environment, the volume and complexity of risks influences an organization are raising with speedy way. Simultaneously, prospects for more efficient risk oversight by boards of directors and senior executives are increasing (Beasley 2016: 6).

In a complex environment of risks and the consequential recovery of bank sector after the Crisis of 2013 it is very essential to research of how much the bank industry is affected and which factors drove it in today's position.

Figure 3 below illustrates the risk scores in Cyprus in the regions of sovereign, currency and banking sector between the years 2014 and 2017, after the period of Crisis in Cyprus that a variety of risks unsettle these regions.

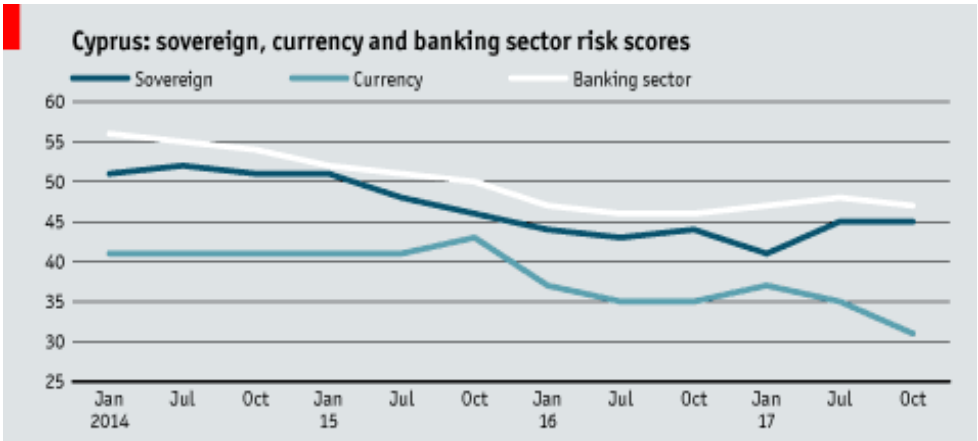

Figure 3. Sovereign, Currency and Banking Sector Risk Scores in Cyprus. (Source: The Economic Intelligence Unit www.country.eiu.com)

In the period after the Cyprus Crisis in 2013 the bank sector faced the most severe risks in contrast of sovereign and currency. Year by year the risks are decreasing because the research and practice around a formal and structured Risk Management plan starts making a healthier bank system. The health of the banking sector has persisted to meliorate since capital controls were completely lifted in April 2015. Unfortunately, the non-performing loans are almost 50% of total credits and therefore the recovery stays breakable. Figure 4 below illustrates the Non-Performing Loans (NPL) Ratio in Cyprus between 2015 and 2019.

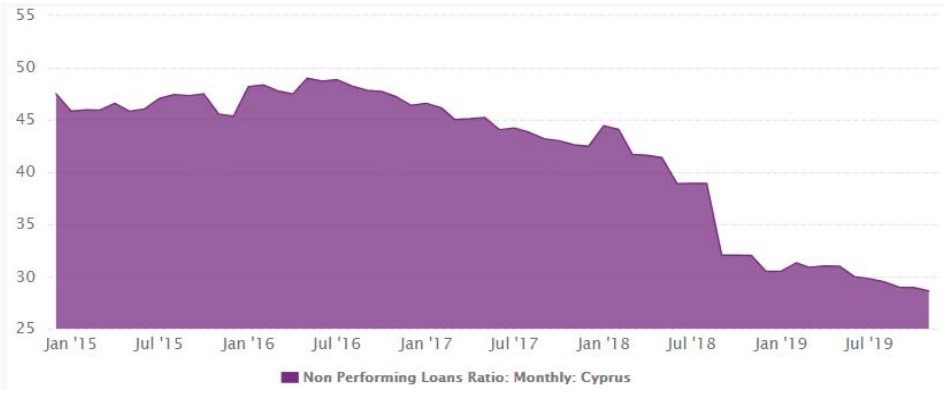

Figure 4. Non- Performing Loans Ratio. Source: www.ceicdata.com

The data that illustrated in Figure 4, reached an all-time high of 49% in 2016 and a record low of 29 % in 2019. Until 2017 that examined in the Figure 3, the Non-Performing loans rations are the highest of all time. This results to an increasing risk score and therefore to a fragile bank system.

5.1.2 Managing Risks

The raising alteration after the financial crisis, client's demands and market globalization, place Risk Management high on the agenda for organizations (Merna and Al-Thani 2005: 1).

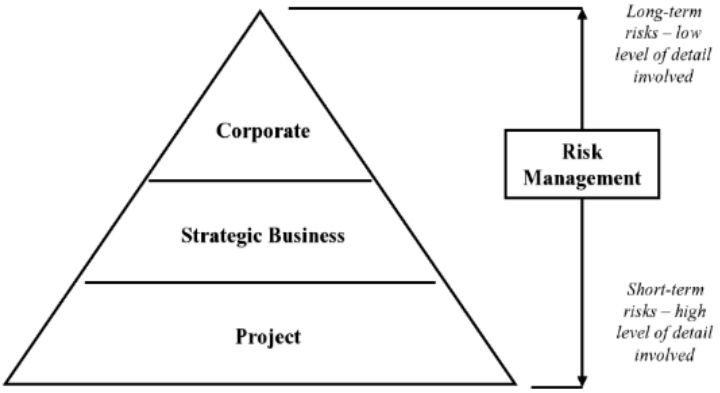

Figure 5. Organizational Levels need to be included in Risk Management. Source: (Merna and Al-Thani 2005: 3)

According to Figure 5, the authors classify the levels of an organization need to be comprised in an efficient Risk Management. The levels are, corporate that comprise policy setting, strategic business that comprise the lines of business and project. An effective Risk Management must take into account the interplay of the levels and reflect the procedures that allow them to commune and learn from each other.

(Hopkinson 2011: 11) argues that there are many factors that conduce to sufficiency in managing risk such as its risk procedures, structure, and the cognition and abilities of its personnel. The key is to have a fundamental comprehending of the procedure and to move for its execution.

Figure 6. Risk Management Procedure. Retrieved from (Audit Scotland 2018: 4).

5.2. Exploring the Concept of Maturity

There are many definitions of Risk Management Maturity in literature that conduced to the same temperament.

(Heumann 2003) mentions, that being mature denotes, being capable to see the big picture and make good selections. In the business sector, this denotes supports decisions on an explicit comprehending of the full area of costs and benefits of utilizing one thing over the other. (Estevens 2017: 4) determined maturity as "an evolutionary improvement in the ostentation of a determinate skill or in the achievement of a goal from a primary state to a craved ultimate state".

The opinion of (Backlund, Chronéer and Sundqvist 2014: 838) is that organizations with higher maturity levels are anticipated to succeed in project efficacy and productiveness and have a competitive advantage in the marketplace.

5.2.1 Effectiveness of Maturity Models

Practitioners and academics have deployed various maturity models for many sectors in order to measure adequacy. (Estevens 2017: 4) mentions that all the kinds of models were developed to depict the deployment of an entity over time. According to (Garcia, Lucredio, Alvaro, Almeida, Fortes, Meira 2007: 61), an espousal of a model assists an organization to comprehend the way the organization will change and the way to plan for this change. The research of maturity models procures an approximation to continual progress in many business domains (Brookes and Clark 2009: 1).

Even in the relatively specialized area of risk management, several specific maturity models exist, some of which have a considerable track record of use in different industries and organizations across the world (Hopkinson 2011: 11).

According to (Man 2007: 2), by correlating their own practices against best practices depicted by the models, organizations may detect their level of maturity and the level of professionalism. With a variety of maturity models available, they have to examine gingerly which one they may espouse. Therefore they must acknowledge the perspectives of the models and their importance and the way they must assess them.

(Backlund, Chronéer and Sundqvist 2014: 837) argues that most of the models infused by the Capability Maturity Model that initially proposed to measure capability in software deployment projects. The authors prove that organizations with higher project management maturity levels are anticipated to be winning in terms of project efficacy and productiveness, and hence have a competitive advantage in the marketplace.

5.2.2 Projects and Project Management

Projects are crucial to the successfulness of every organization. They are operations that conclude in new or revised products, services and procedures. They raise sales, restrict costs, meliorate quality and client gratification and improve the work environment (Kerzner 2019: 13).

Projects are incrementally becoming the basic components of business activity and Project Management has lately been the subject of much scrutiny. Additionally the last years more organizations are utilizing Project Management to deploy a competitive advantage, but projects do not always improve as scheduled. (Brookes and Clark 2009: 1). To gain the strategic goals, organizations utilize Project Management tools to measure outcomes and the level of maturity (Souza and Gomes 2015: 93).

(Backlund, Chronéer and Sundqvist 2014: 838) discover in their work that during the last years it is showed an increment interest for Project Management in organizations, due to raised project work in all kinds of businesses. They determined Project Management as the application of cognition, skills, tools and techniques to project operations to encounter project demands.

Respecting to the above, a theoretical description of the term of Maturity Project Management is made in literature. Therefore, there is a need to search for an organization's "complete" picture of Project Management efficacy and evaluation frameworks that have become incrementally dominant.

5.3. Exploring the Concept of Bank Risks and the Economic Crisis in Cyprus

(Eberlein, Frey, Kalkbrener, Overbeck 2007: 1) determine Risk as a discipline for "living with the likelihood that upcoming events can provoke unfavorable outcomes". In banks these unfavorable outcomes commonly correspond to high wastages on a portfolio of assets.

Nowadays banks are still transfer funds from agents in surplus demanding short-term depositions to agents in deficit with long-term financing requirements in spite of the considerable development of their efficiency through the years (Bologna 2018: 5). In spite of the coherence of maturity in banking, the empirical literature around bank profitability is still insufficient.

The Economic Crisis in Cyprus has affected negatively the quality of the financial institutions in the island.

A lot of financial crises have been foregone by low levels of short-term interest rates. In the current crisis, the outcome of low numismatic policy rates can have been greater given the conjunction of a powerful dependence of banks on short-term accountabilities to leverage up, a thin proctorship for bank capital and an extensive utilize of novelty (Maddaloni and Peydró 2010: 6). Low interest rates can prompt banks to placate their borrowing standards by meliorating their liquidity. Securitization of loans concludes in assets efficiency engaging attributions for investors and increases bank borrowing ability (Maddaloni and Peydró 2010: 7). However the authors (Maddaloni and Peydró 2010: 25) procure allusive proof that too low numismatic policy rates for too long duration were the core factor driving to the financial crisis. Although the elements denoting the banks' health can diversify from net interest margin to market value of equity, the elements that may bring unpleasant results are also various (Kanchu and Kumar 2013: 146). Figure 7 below illustrates the Quality of institutions in Cyprus and European Union (average) between the years 2007 and 2014.

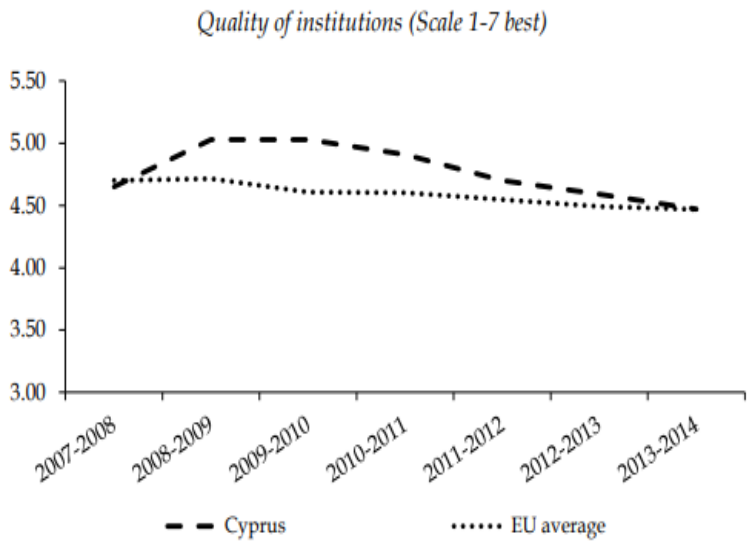

Figure 7. Quality of Institutions. Source: (Rapanos and Kaplanoglou 2014: 11).

According to the Figure 7, we observe that at the beginning of the crisis the indicator of quality in Cyprus was similar with the average of the European Union. After that, we notice a low reduction for the European Union, a primal amelioration for Cyprus and reduction after 2010. The indicator for public institutions measures data that are related to property rights, moralities, depravity, indecent influence, Government productiveness and Safety (Rapanos and Kaplanoglou 2014: 11).

The economic recovery in Cyprus has been powerful as government economics are in an enough stable and healthy state. Antagonism has been recovered to a high magnitude. A variety of risks are alive. The debt transformation needs more improvement, with leverage staying large, placing a risk to a breakable banking sector. Cyprus has alterative provocations such as the problem of Non- Performing Loans. The decrease of NPL brings good news but it is early to declare that the risk is decidedly decreasing (Hardouvelis and Gkionis 2016: 33).

The foremost among the challenges faced by the banking sector today is the challenge of understanding and managing the risk. Banks' main role is intermediation between those

having resources and those requiring resources. For management of risk at corporate level, various risks like credit risk, market risk or operational risk have to be converted into one composite measure. Therefore, it is necessary that measurement of operational risk should be in tandem with other measurements of credit and market risk so that the requisite composite estimate can be worked out. (Kanchu and Kumar 2013: 146).

5.4. Literature Gaps

Through the respective literature review, not many contiguous researchers have identified the Level of Maturity in Bank Sector after the Crisis.

Ciorciari and Blattner (2008) in their work illustrate an assessment tool that makes a description on the Maturity Level of every component of Enterprise Risk Management. It identifies the strengths and weaknesses in ERM at component, topic or element level and assists to ameliorate ERM by giving a prioritized list of measures whose performance allows filling the gaps existed. With results based on fictitious data, they conclude that ERM should not be seen as a static one-time procedure. It should be embedded in an organization and adjusted to the alterative internal and external environment.

Öngel (2009) in his work took a maturity model that was based on Hillson's model aimed to assess the strengths and weaknesses of five construction organizations in the area of Risk Management. It was used a questionnaire that examined four main components: Awareness/Culture, practices, resources and procedures. The findings of the statistical tests disclosed that the model is sufficient of distinguishing attributes of alterative maturity and therefore alterative levels of Maturity. The author concluded that an organization may have alterative maturity levels in terms of alterative project performance criteria. Hence, alterative project performance criteria must be investigated for an inclusive evaluation. The second finding was that organizations may perform different operations in their internal and external projects. Moreover, the reliability of the results may have been meliorated if documentation, resources and

procedures of every organization had been noticed in detail simultaneously with the questionnaire management and interviews.

Yazici (2009) purposed to define a relationship between Project Management Maturity and Organizational execution. The sample consisted of project managers or executives of information management projects, from 75 organizations in United States mainly from service organizations. The questionnaire composed of project management maturity and organizational execution questions. A considerable connection was obtained for organizational execution measured by inner and exterior factors. The study demonstrated that with higher project maturity, organizations, may gain essential savings, raise sales, indicate healthier antagonism and utilize best operations in their sector. The author concluded that organizations must keep investing in Project Management Maturity to meliorate their level of Maturity.

Concerning the banking sector, Kanchu and Kumar (2013) strived in their work to acknowledge the risks faced by the banking sector, find the procedure and method of risk management and investigate the strategies espoused by banks for risk management. The authors concluded that risk management underlines the fact that the survival of a bank based on its competencies to expect and be ready for any significant event. Bank's operations of risk management must be determinate imposed by the magnitude and quality of balance sheet, intricateness of operations and professional personnel. The banks may take risk more consciously, expects and limits unfavorable alterations and be an origin of competitive advantage. Finally, the efficacy of risk measurement based on effective Management Information System, computerization and net-working of the branch operations.

Rapanos and Kaplanoglou (2014) purposed to investigate the core features of the crisis in Greece and Cyprus, the quality of their governance and the perspectives for coming out of the crisis. They explored the causes of the crisis based on indexes for macroeconomic imbalances and the quality of governance of these countries. They found that the cause of the crisis in Cyprus came from the overextension of the banking

sector and the large debt of the private sector. They gave a demonstration that the low quality of institutions can slow up the financial reclamation. In Cyprus the detente is late and profound. However, the high quality of institutions in Cyprus is a coefficient that has a crucial role in the exertions to retrieve from the profound detente.

Some of the significant data that illustrated from the above and mentioned researches has been analyzed in this thesis. The authors investigated the Level of Maturity in different kinds of organizations by utilizing a model that is rooted from Hillson's Maturity Model, one of the primary and core models. In these works, data collection was done only through questionnaires. If there were some basic interviews, the research would be further and the results would be more accurate.

Concerning the bank sector, the authors investigated the bank risks and in a small part of the literature we found data that are connected with the economic Crisis in Cyprus. We did not find any work in literature that measures the Level of Maturity in the bank sector. This lack of literature is very important as banks play a key role in the economy of any country, let alone a country that has emerged from a major crisis. Finally, this thesis was conducted to fill the gap in literature that combines Risk Management Maturity and Cypriot bank industry.

Chapter 6

Organization of Research

6.1 Research Objectives

This thesis is resulted according to the needs of the researcher to examine a financial institution, in a period of recession for the bank sector, and provide solutions for deployment, if they are needed. We initially provide a spherical analysis about the importance of Enterprise Risk Management, Risk Management Maturity and its Maturity Models and procure an image of the bank's risks that should be hedged. The first objective of this work is to determine the Level of implementation of Risk Management frameworks and principles in one of the biggest banks in Cyprus. We will see how a maturity model can detect the Level of Maturity of an organization and how can help an organization to comprehend the outcome of its risk management use in practice. Depending on the organization's Level of Maturity we will provide characteristics to be adapted and regulated to make a more secured and more prepared organization.

6.1.1 Research Questions

According to our research objectives, the questions that we would like to be answered are the follows.

What is the Level of Maturity in a financial organization in Cyprus?

How important is for the bank sector to be mature?

Are there enough resources to become more mature and less risky?

How a Risk Maturity Model can help an organization to meliorate?

Is the Organization prepared to respond to extreme events?

Why has Risk in organization increased? Which factors contribute to the creation of Bank Risks?

6.2 Research Methodology

The method that was utilized for the research was questionnaires based on the Hillson's Maturity Model. The questionnaires are divided into six sections. The first section is comprised three general questions. According to the Hillson's Maturity model there are four sections named Culture, Processes, Experience and Application that comprise eight questions respectively. The last section named Resources has three questions. Based on the four levels of Maturity of Hillson model, the rating scale that is utilized is likert scale method. The available answers are, Strongly Disagree, Disagree, Agree and Strongly Agree. The questionnaire was the same for all participants and it is illustrated in Annex A. Finally, they were sent to the organization and were answered from the participants by hand. They were including a short presentation of the scope of the research, some details about the researcher and the confidentially of its contents.

While questionnaires may procure evidence of patterns amongst large populations, qualitative interview data usually collect more in-depth insights on participator's attitudes and thoughts. Questionnaires and interviews are usually utilized in mixed method studies to produce confirmatory outcomes in spite of the alterations in methods of data collection, analysis, and explanation.

In order to have more adequate results and complete picture we made three interviews of three managers in different departments inside the organization. The interviews are

included twenty questions in which around the fifty percent concern the risks that the organization are facing nowadays and the rest of them concern the Risk Management Maturity according to the Hillson's model. The interview that is illustrated in Annex B was sent and completed electronically from three managers of the bank in the areas of Risk Management, Recoveries and New Loans.

We started this thesis by providing a theory of ERM and Risk Management Maturity. Now, we are in the position that we are able to find a level of Maturity of a specific organization with our retrieved data. Therefore, the research is following a deductive approach that works from the more generic to the more specific.

The answers of the questionnaires are shown in Annex D. The tool that was utilized to import data, make pies and concluding charts is Microsoft Excel.

6.3 Instruments

Risk maturity models are tools in comprehending the degree of sophistication of a business risk management procedure, its credibility and efficacy in recognizing, evaluating and managing risks and opportunities. Hillson in 1997 introduced a risk maturity model and procures guidance to organizations to deploy their risk management areas, allowing them to evaluate their level of maturity, recognize targets for development and deploy strategy plans for incrementing their risk ability. The model is categorized in four levels, "naïve", "novice", "normalized" and "natural".

The reason of selecting this model for our research is that it was the basis for the Risk Management practitioners and for the next Maturity Models. Its maturity levels and its procedure were utilized in a numerous maturity models. The model provides a simple technique in contrast of some other models that utilize more specific tools and questionnaires. In addition, the model is timeless and can be implemented in every industry in every period of time.

The organization that Hillson's maturity model will be implemented is a Cypriot bank. Risk Maturity Model admeasures the risk maturity in four domains as Culture, Process, Experience and Application. In the questionnaire that was used we chose eight questions that are related to each of this domains. The participant has the opportunity to choose one of the available answers that are, Strongly Disagree, Disagree, Agree and Strongly Agree. Strongly Disagree is corresponding to the Level 1 of Maturity Model, Disagree in Level 2, Agree in Level 3 and Strongly Agree in Level 4, respectively. In this way, through the sample of answer we will estimate the Level of Maturity of this organization. In the last section of the questionnaires we chose three question that are related with the resources to find out if the organization has the dedicated resources to practice the Risk Management.

6.4 Data Collection

The data that are collected was done through sixty four questionnaires and three interviews. The questionnaires have been sent to the central offices of the bank that is located in the capital of Cyprus and were answered by hand. The interviews have been sent via email to three managers of the organization in the areas of Recoveries, Risk Management and New loans. The total number of the members of the office is almost a hundred. From those, sixty four of them have finally responded to the questionnaire that is considered as the final sample. We can say that the response rate of the sample collected from the questionnaires is almost 64% and from the interviews 100%.

The data collection from the questionnaires was not the ideal. The period that the questionnaires were available in the organization was a two months period in which a significant amount of personnel were working from home or was on compulsory leave. However, a sample with this dimension may bring significant and reliable outcomes.

Chapter 7

Research Results

7.1 General Information of the Sample

The first section of the questionnaire was about the general information of the organization. The diagrams that follow, in figure 8, provide the general information about the sample.

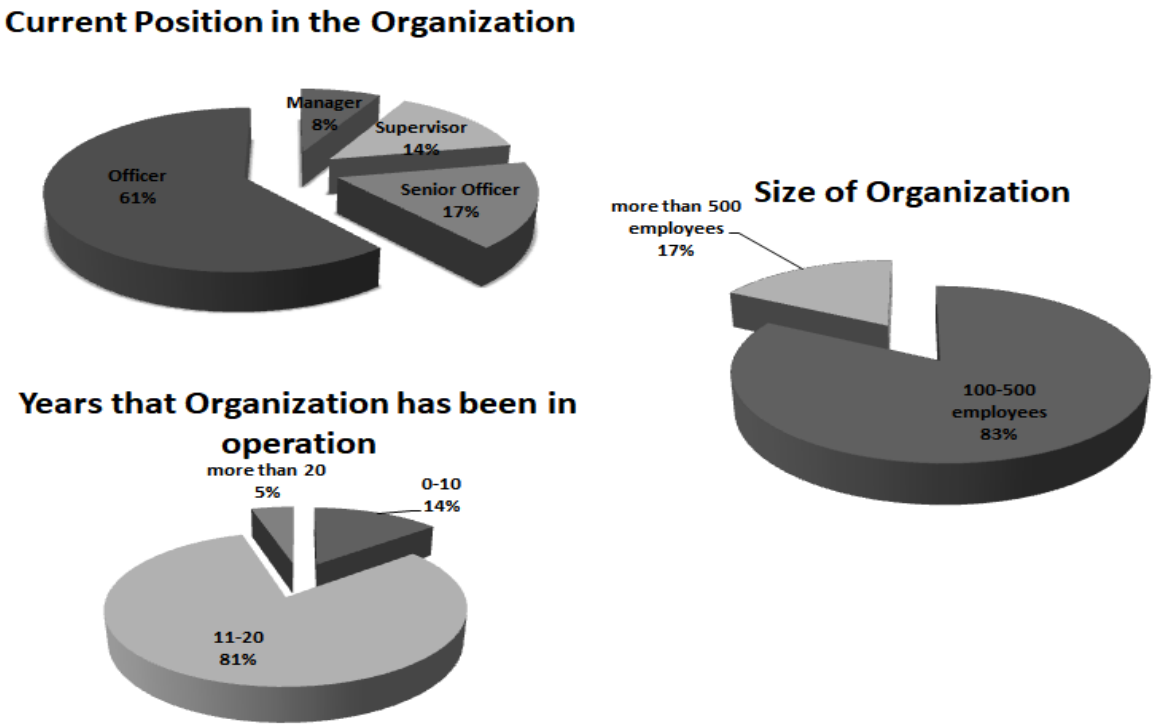

Figure 8. General Information.

In this questionnaire sixty four members of the bank's personnel participated, five of them are managers, nine are supervisors, eleven senior officers and thirty nine officers. The percentage that corresponds to each of the position is 8%, 14%, 17% and 61%, respectively.

The next two questions were about of how well the personnel know its organization. In the question "Numbers of years that Organization has been in operation" 14% answered 0-10 years, 81% answered 11-20 years and 5% answered more than 20 years. It is remarkable to be noticed that the bank incorporated in Cyprus in 2007. In the last question "Size of Organization", 83% answered 100-500 employees and 17% answered more than 500 employees. The real number of employees of the latest headcount is 414 employees around all island's branches. Generally, employees play a determining role in the strategy, tactics, and functions the organization carries out. Organizations take into account employee opinions and values in constructing the tactics, vision, and mission. Almost 4/5 of the participants are aware of the size of the organization and numbers of years that Organization has been in operation. Hence, the most of the members know about their company, which means that the organization is composed by motivated employees that comprehend the main vision, mission and needs of the business.

7.2 Culture

Culture was the second section of the questionnaire as one of the four attributes of Hillson's Risk Maturity Model. The following pies are illustrating the answers of each question.

Figure 9. Necessity of Risk Management.

We notice that no one inside the organization disagree with the statement that Risk Management is necessary for their organization. The biggest percentage, as we can see in Figure 9 answered "Strongly Agree" in this question and the rest of it "Agree". The bank's risks are various and complex, hence the risk management is more than necessary in an organization like this.

Figure 10. Plans for Risk Management are practiced in each project.

Around 9% of the sample that corresponds to six employees disagrees with this statement. The rest percentage is divided almost in the same way. Twenty eight

employees “Agree” with the statement and thirty answered “Strongly Agree”. Therefore the biggest percentage use risk management plans in every project. We think that in an organization in the bank industry it is sure that there are the available resources to implement risk management principles to each project.

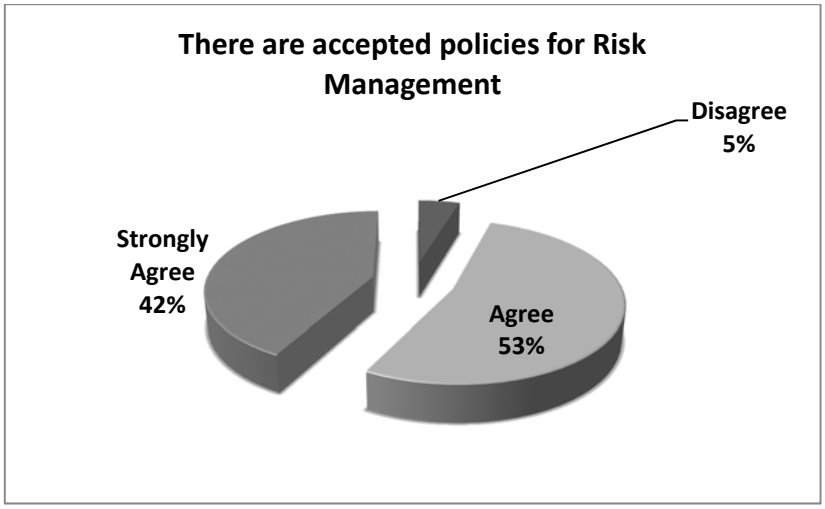

Figure 11. There are accepted policies for Risk Management.

The biggest part of the sample believes that accepted policies for Risk Management are existed. It is shown that the a small percentage of 5% does not know the policies of the organization.

Figure 12. Knowledge of Risk Management advantages.

The minority that corresponds to 11% does not acknowledge the Risk Management advantages.

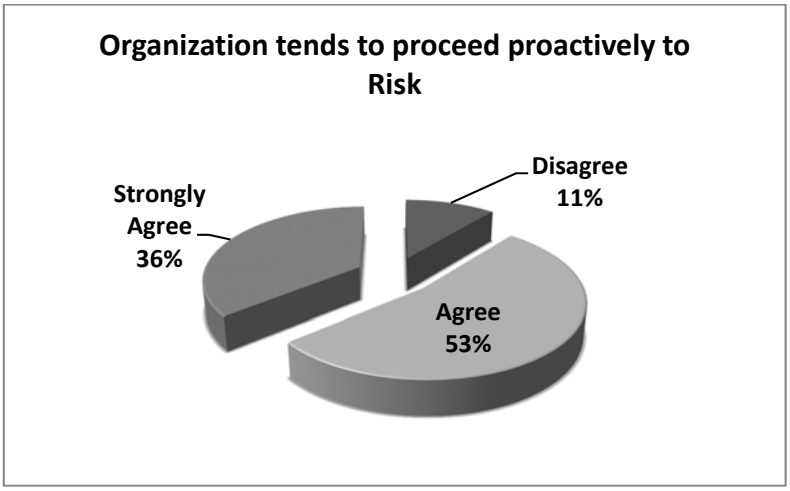

Figure 13. Proactively actions to Risk.

The major advantage for any kind of organization is to act proactively to potential events to keep the organization safe. Most of the participants are agreed with this statement. In this way, the organization seems that it has proactively plan to detect the risks.

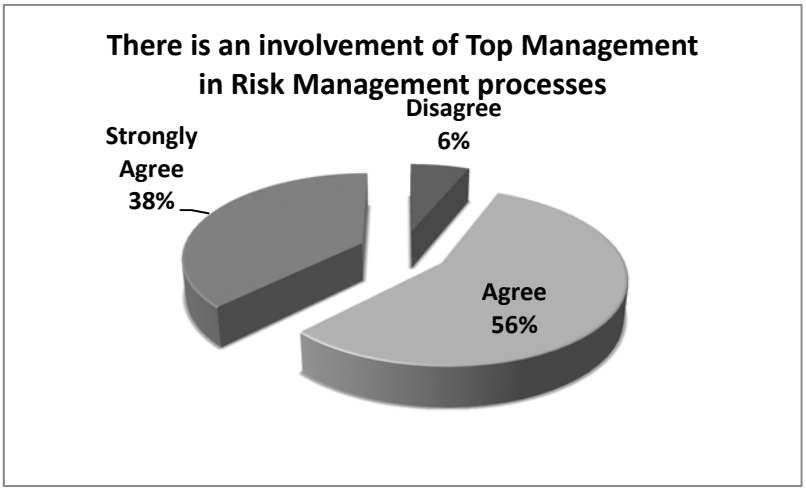

Figure 14. Involvement of Top Management in Risk Management processes.

94% of the members that took part in this research agreed that there is an involvement of Top Management in Risk Management processes. That means that the top

management is fully aware of risk management and involve in risk procedures. This is essential because top management translates the policy into objectives, tactics, and projects that create a clear vision for the organization.

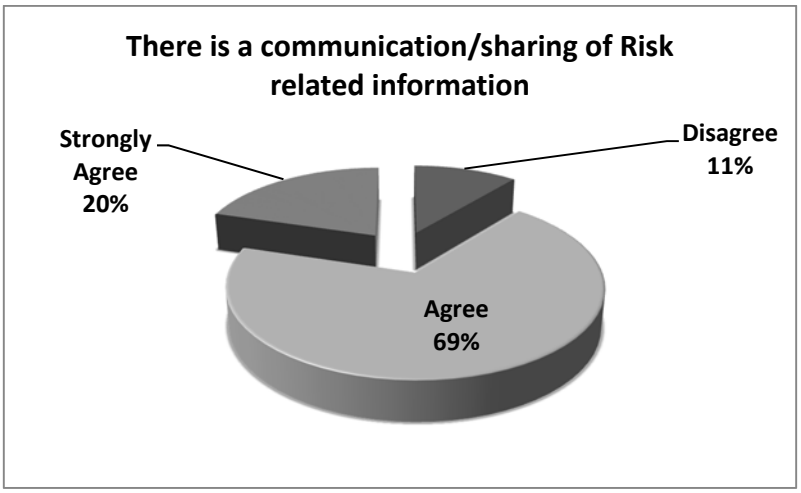

Figure 15. Communication/sharing of Risk related information.

The successful communication/sharing of Risk related information allow stakeholders to make an informed conclusion about how the decision may affect the interests and values. And in this question, the biggest part of the members is agreed with this statement. This is very important because the organization can deal with every long-term effect from the risk and risk management.

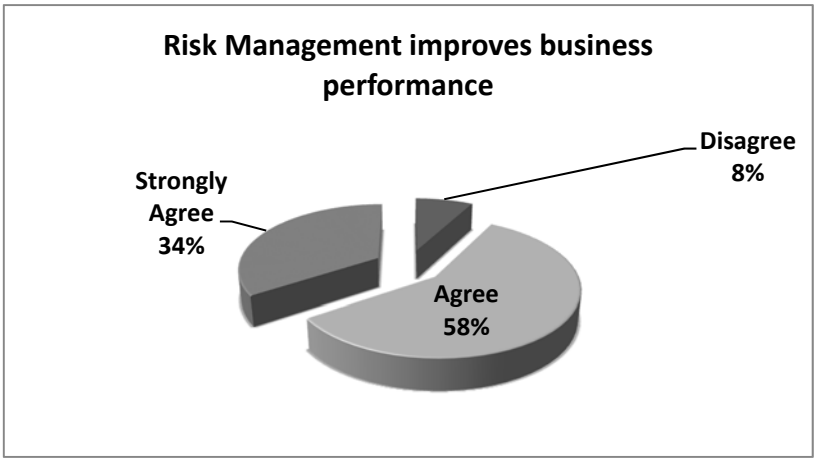

Figure 16. Risk Management improves business performance.

If risk management improves business performance, the organization will be able to describe risk appropriately, estimate and prioritize risks and take responsibility. The most of the members, as we can see to Figure 16, agree with this statement. Only five participants disagree with this statement.

7.3 Processes

Processes were the third section of the questionnaire as one of the four attributes of Hillson's Risk Maturity Model. The following pies are illustrating the answers of each question.

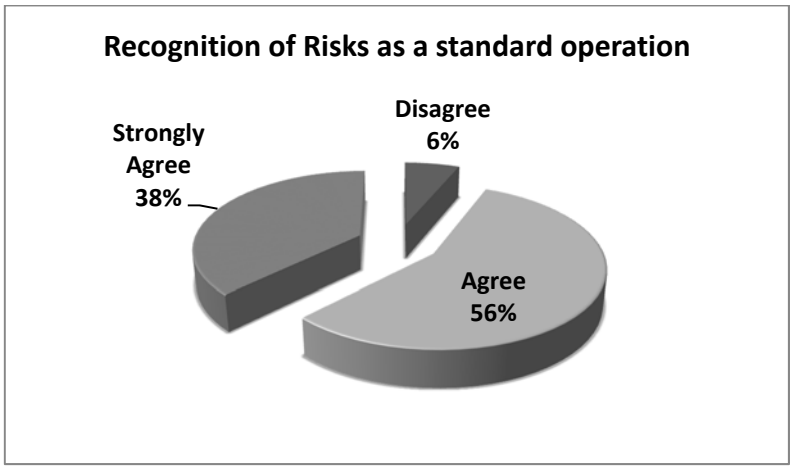

Figure 16. Recognition of Risks as a standard operation.

Only 6% of the participants disagree with this statement. This means that it is followed from the major of the personnel, step-by-step instructions on how to enact each Risk policy or implement alterative operations around Risk Management.

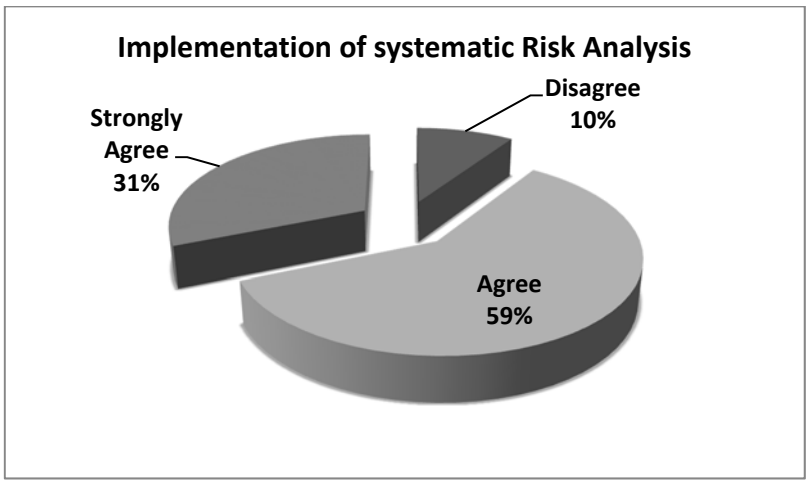

Figure 17. Implementation of Systematic Risk Analysis.

According to the diagram above, the bank can identify and analyze contingent issues that can impact its perspectives and its projects in order obviate or limit any kind of risks.

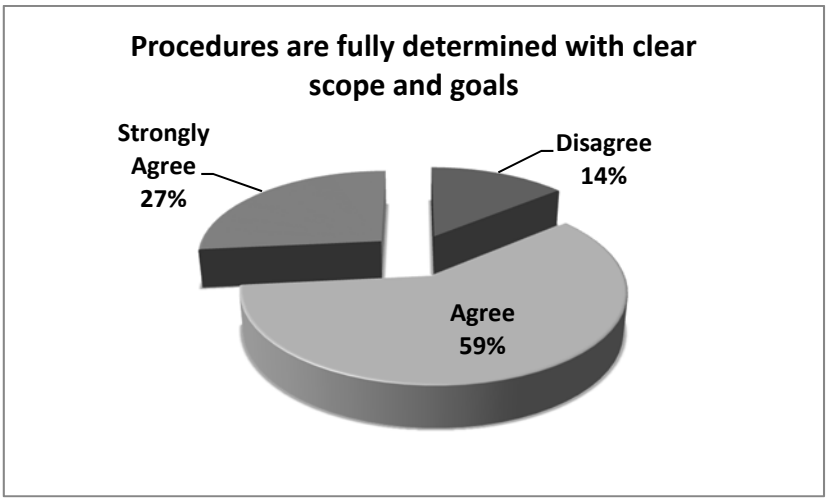

Figure 18. Procedures are fully determined with clear scope and goals.

The most of the participants agree that the processes are fully determined with clear scope and goals. This results, to an effective Risk Management process that can identify, analyze, evaluate, threat and monitor any risk that may harm the bank's stability.

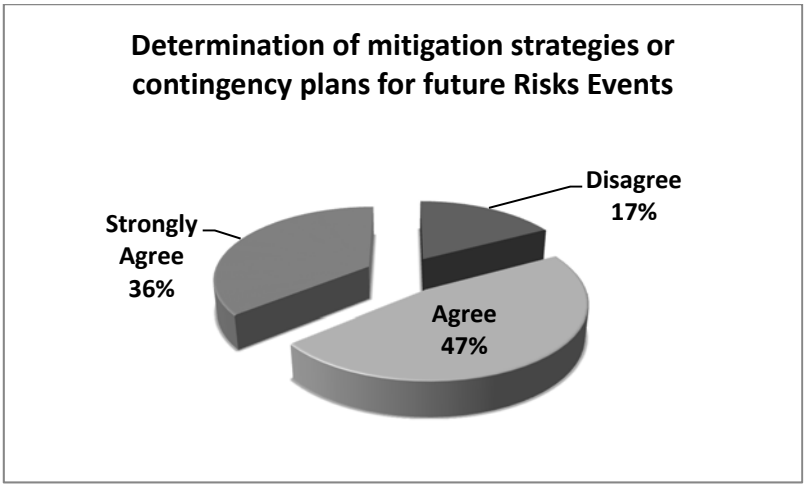

Figure 19. Determination of mitigation strategies or contingency plans for future Risks Events.

83% of the members stated that the organization is taking steps to limit the severity of the impact and examine the likelihood of incident of the bank's risks. In addition the organization can return to its daily operations as fast as possible after an unexpected event. These processes may defend resources, limit customer annoyance and recognize core staff, delegating determinate liabilities in recovery.

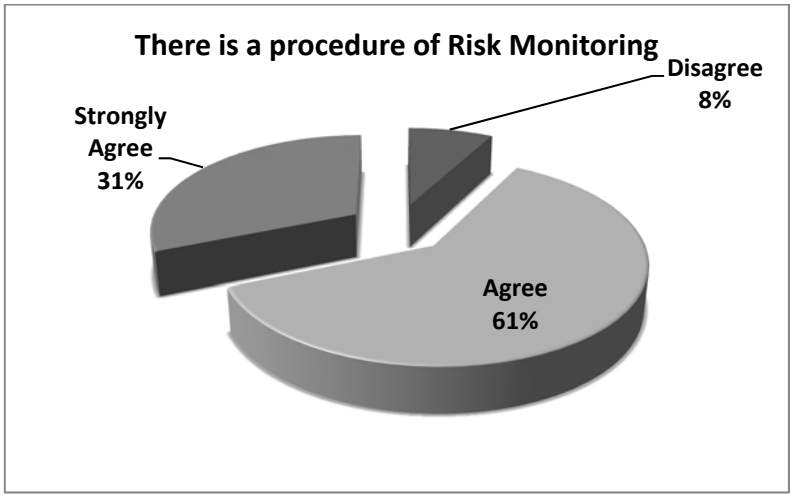

Figure 20. Existence of a Risk Monitoring process.

The largest percentage of the participants argues that the organization can identify risks, take fast mendable movements when a risk is implemented, plan precautionary

movements when it recognize a trend of a new risk, and measure efficacy of risk responses.

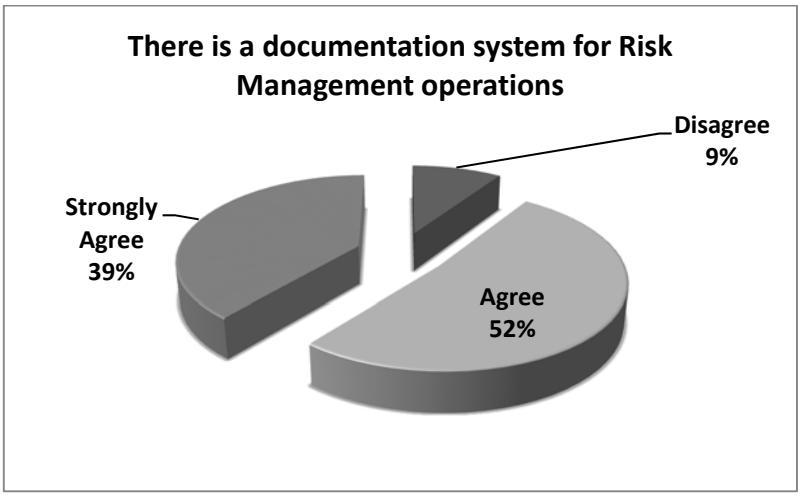

Figure 21. Existence of documentation system for Risk Management operations.

It seems that the documentation system and its records are vital to organization's risk management processes. The documentation system can be utilized to evince compliance, obviate contingent fees and penalties, and familiarize the organizational rulings.

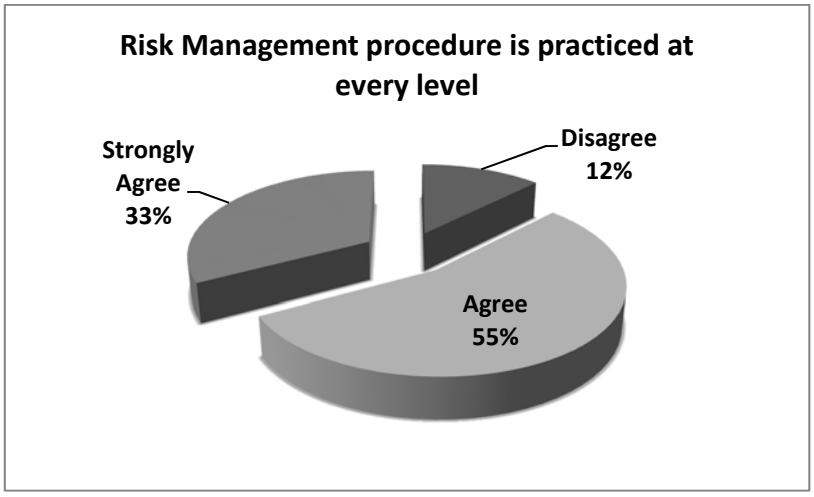

Figure 22. Risk Management procedure is practiced at every level.

Risk Management procedure is mainly practiced at every level. Therefore there is acknowledging at every level throughout the company, recognition of Risk Management principles and utilized them in every function.

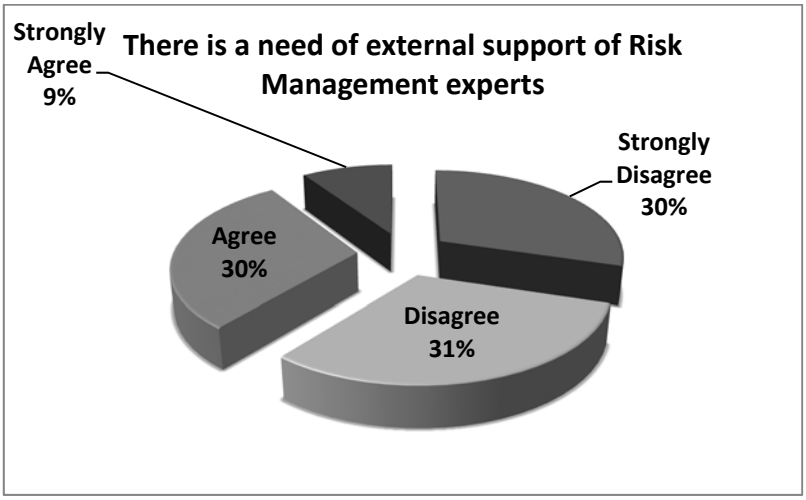

Figure 23. There is a need of external support of Risk Management experts.

According to the diagram, 61% of the sample argues that there is no need of external support of Risk Management experts. Therefore, there is a team of experts inside the company that handle every risk.

7.4 Experience

Experience was the fourth section of the questionnaire as one of the four attributes of Hillson's Risk Maturity Model. The following pies are illustrating the answers of each question.

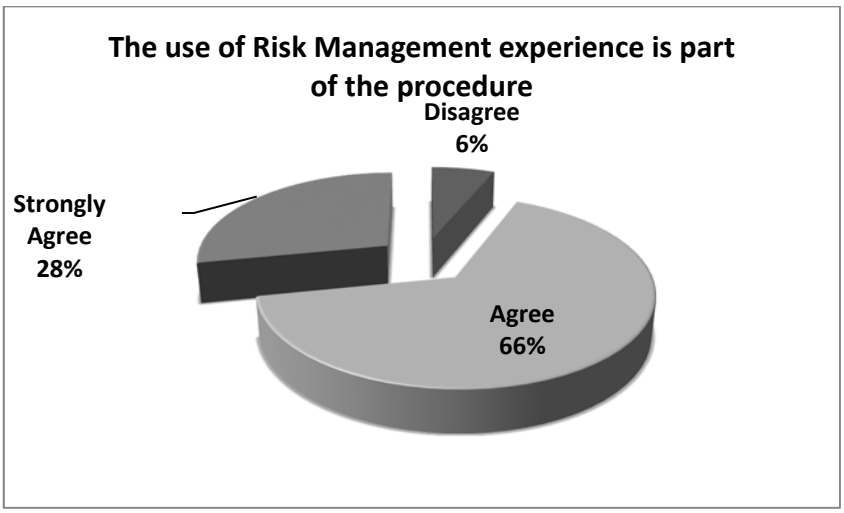

Figure 24. The use of Risk Management experience is part of the procedure.

The personnel of the organization base their decisions upon their experience concerning the possibility of occurrence, historical data, etc. With the retrospection of all contingent risk sources and the project team's experience and cognition, all eventual risks can be identified and minimized.

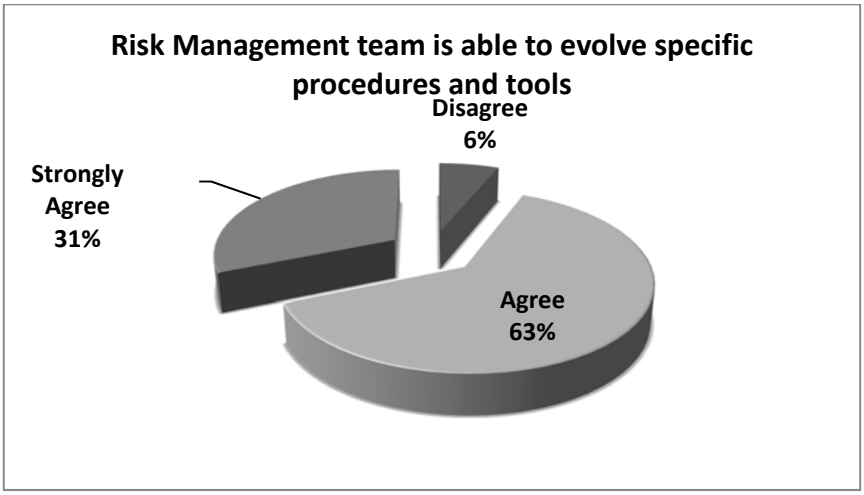

Figure 25. Risk Management team is able to evolve specific procedures and tools.

It seems that the organization may probably determine its goals for the future. Every experienced risk analysis and management area has deployed tools to maintain and

support its goals. Hence, Risk Management team evolves specific tools to support the processes.

Figure 26. Existence of a formal training of personnel about Risk Management.

The formal risk management training helps the members to increase fundamental consciousness of risk management concepts and mechanisms, to recognize and administer risks in their departments and to reinforce project management through sufficient forward planning of eventual risks.

Figure 27. Comprehension of the underlying principles by employees.

It is showed that 14% of the members disagree with the statement. The whole sample states that the organization executed a real risk assessment where the target areas are part of the risk management process. It is essential to note that the practice of Risk Management standards (ISO, COSO etc.) throughout an organization helps to determine a set of principles for an efficient Risk Management.

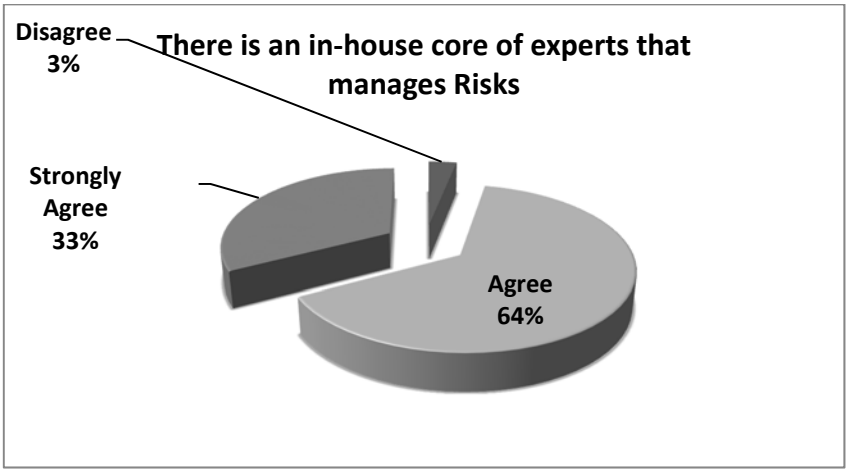

Figure 28. Existence of an in-house core of experts that manages Risks.

Almost all of the members agree with the statement. There is an in-house core of experts that deal with risks and therefore the processes are structured and determined.

Figure 29. Continual training of employees in basic skills in Risk Management.

The most of the employees are aware about the basic skills in Risk Management. With continual training, the organization is trying to achieve a greater level of Risk Management Maturity, meliorate team's competence to utilize risk management tools and respond to risk.

Figures 30. Employees are using basic skills in Risk Management in a regular basis.

Risk Management is part of everyday life in the organization. In any situation, the personnel moderate the negative risks with the positive ones and strive for a balance. We can tell that in this type of organization, risks are not static. It is needed everyday practice at every unit.

Figures 31. Risk Experts spend enough time for providing trainings/seminars to personnel.

Based on the diagram above, it seems that the organization invests time to train the personnel. Emphasizing in experience the Experts are trying to staff a powerful team that will be ready to face any type of hazard.

7.5 Application

Application was the fifth section of the questionnaire as one of the four attributes of Hillson's Risk Maturity Model. The following pies are illustrating the answers of each question.

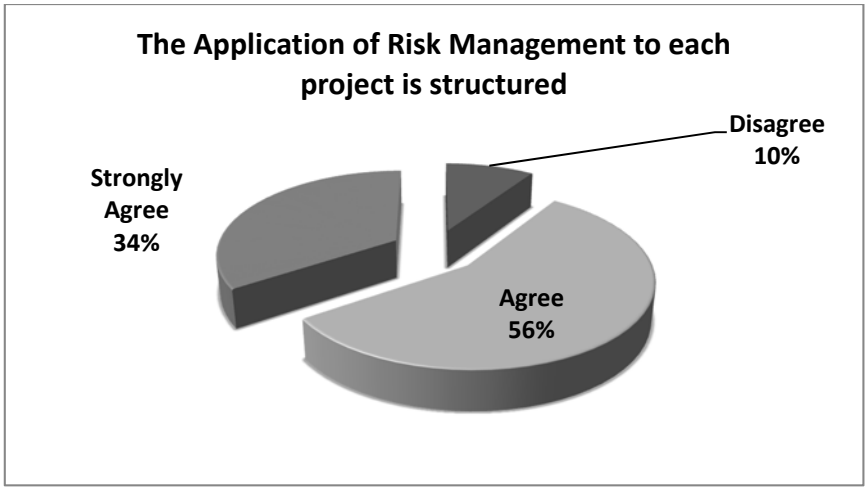

Figure 32. The Application of Risk Management to each project is structured.

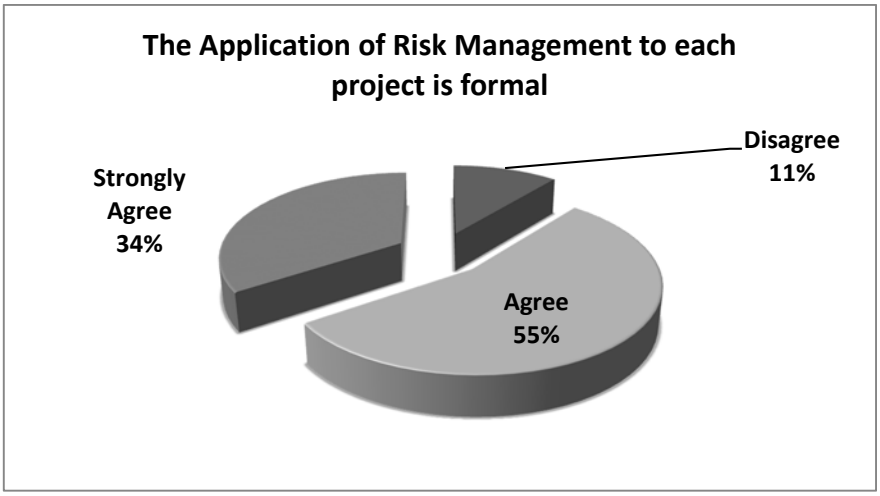

Figure 33. The Application of Risk Management to each project is formal.

According to Figure 32 and Figure 33 the most of the participants believe that the Application of Risk Management to each project is structured and formal. Therefore, there are structured and formal tools and processes that drive to efficient risk management tactics allow organization to acknowledge its project's strengths, weaknesses, opportunities and threats.

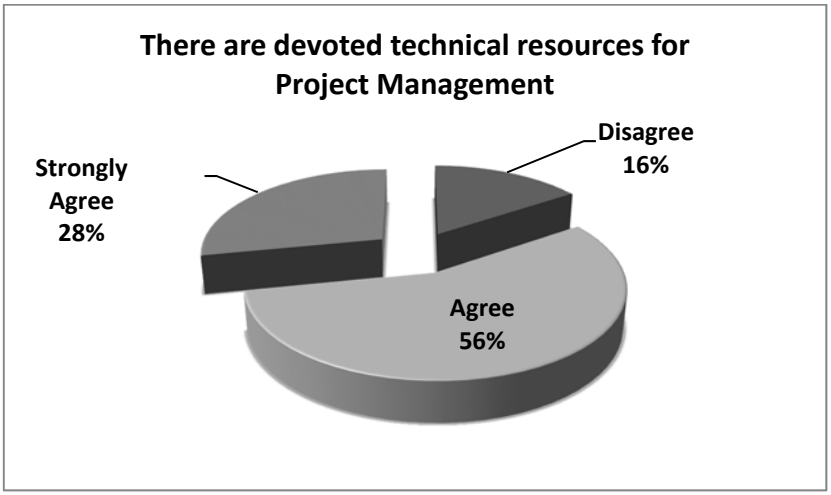

Figure 34. Existence of devoted technical resources for Project Management.

It is illustrated that there is adequacy of technical resources for Project Management. There is a satisfactory technical support for initiation, planning, execution, monitoring and control, and closure of all type of projects inside the organization.

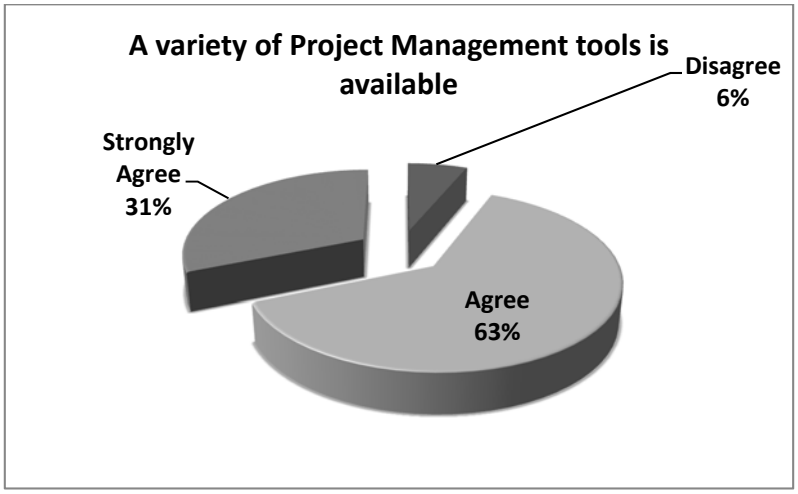

Figure 35.A variety of Project Management tools is available.

It seems that there are many tools of Project Management. The organization offers the appropriate tools to manage all stages of Project Management. Generally, any project management task is easier to be managed and implemented when a variety of right tools is existed.

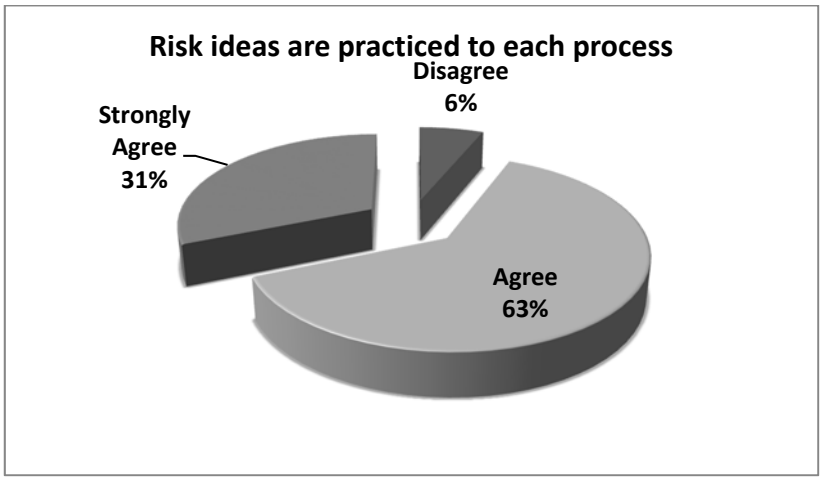

Figure 36. Risk ideas are practiced to each process.

The largest percentage of the participants argues that the risk ideas are practiced to each process. Risk ideas may be defined as the monitor development in the organization's regulatory, optimization of risk reporting and construction of a secure environment.

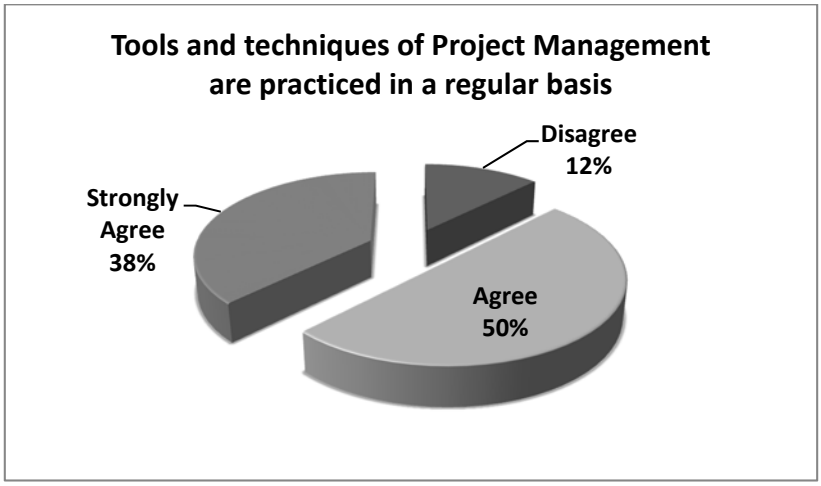

Figure 37. Tools and techniques of Project Management are practiced in a regular basis.

The organization seems that chose the right approach to handle a project that is essential for successful project delivery. The way it manages work is determined by techniques that it utilizes, and tools that it espouses.

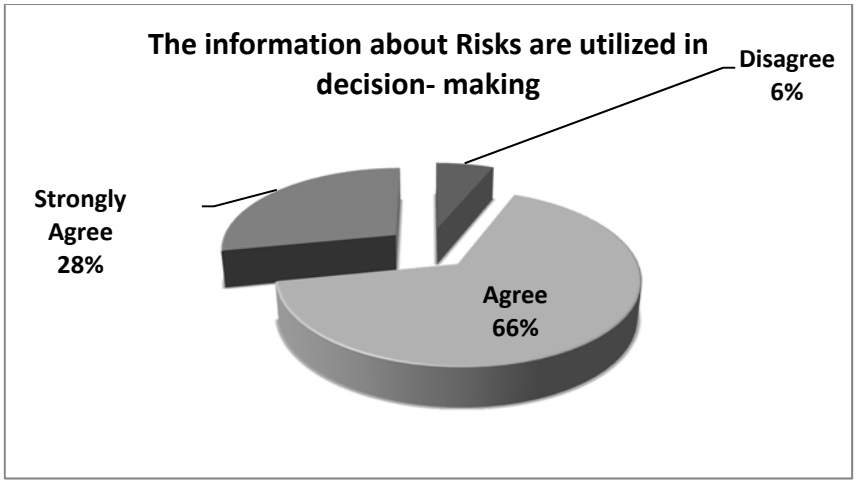

Figure 38. The information about Risks are utilized in decision-making.

In the organization we examine, we can recognize that risk and decision making are two inter-related factors, as they are both connected to uncertainties. A variety of methods is existed that can assess, evaluate, and measure risk to support and maintain better decision making.

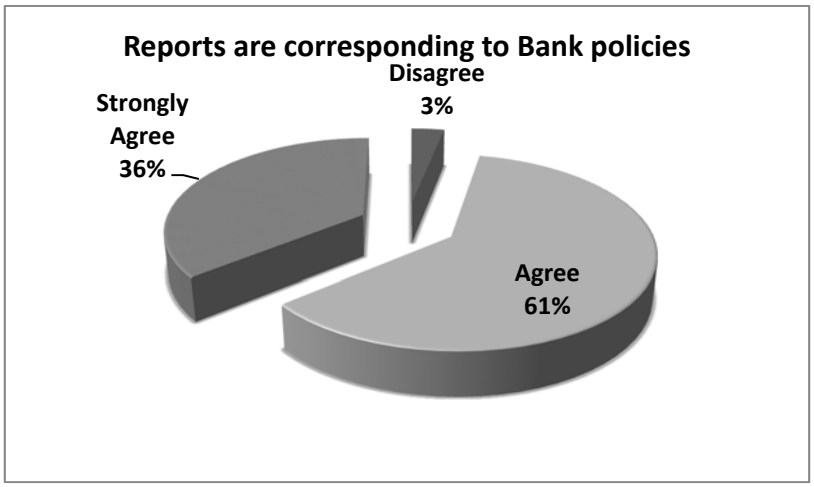

Figure 39. Reports are corresponding to Bank policies.

Finally, it is showed that the reports embrace the general objectives and directives of the bank. The reports must comprise the approval of senior management and the board of directors.

7.7 Resources

Resources were the last section of the questionnaire. The reason of choosing this section was to investigate if there are dedicated resources for the management and empowerment of Risk areas. The following pies are illustrating the answers of each question.

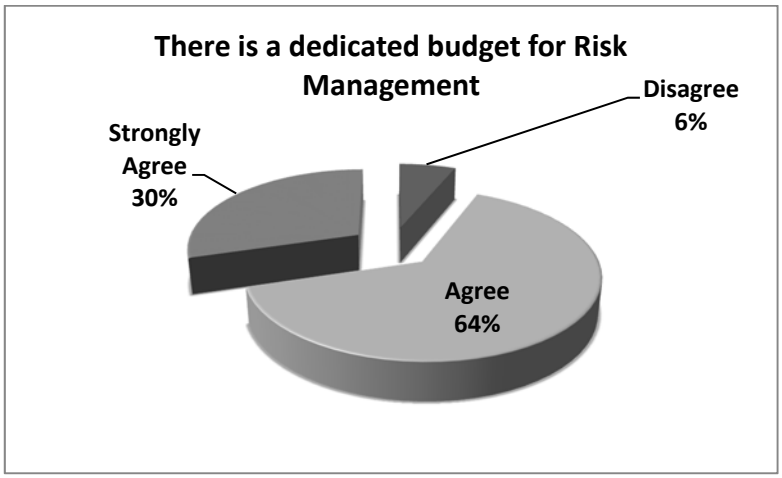

Figure 40. Existence of dedicated budget for Risk Management.

Figure 41. Existence of training/personal development in the area of Risk Management.

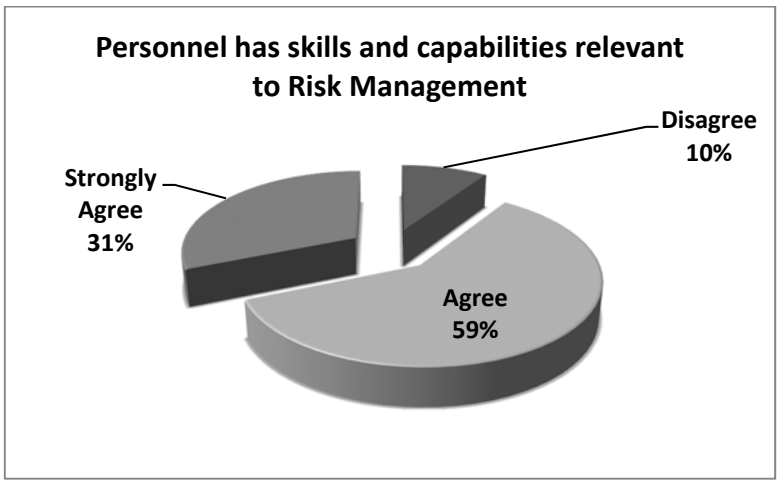

Figure 42. Personnel has skills and capabilities relevant to Risk Management.

We conclude that the bank offers a respectable budget for Risk Management with a continual training of its staff. In this way it is comprised from experienced and capable members than can manage any kind of the everyday risks. It seems that the personnel is developing skills such as analytical skills, communication skills, business understanding, numeracy and negotiations.

It is very difficult to define the amount of money to dedicate to Risk Management. It is needed suitably analysis of each unit, teamwork and communication, as the keys to comprehending the requirements and the risks of the organization that must be limited.

7.8 Analyzing the Level of Maturity

The examination of the four attributes of Hillson's Maturity Model will help us to identify and analyze the utilization Level of Risk Management principles and frameworks throughout the bank we investigate in our research. To achieve this, we replaced in each section the recommended answers with numbers 1, 2, 3 or 4 such as the four Levels of the Hillson's Model. In this way "Strongly Disagree" corresponds to 1, "Disagree"

corresponds to 2, “Agree” corresponds to 3 and “Strongly Agree” corresponds to 4, respectively. From these conversions, the results of each section are illustrated below.

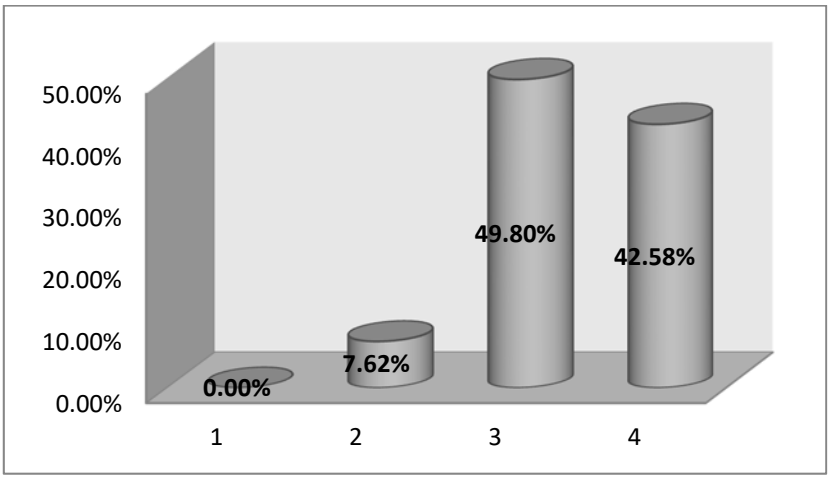

Figure 43. Culture results.

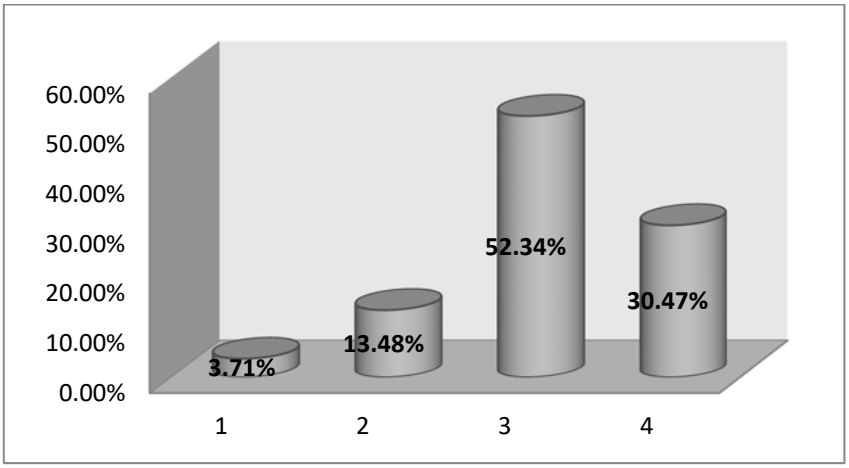

Figure 44. Processes results.

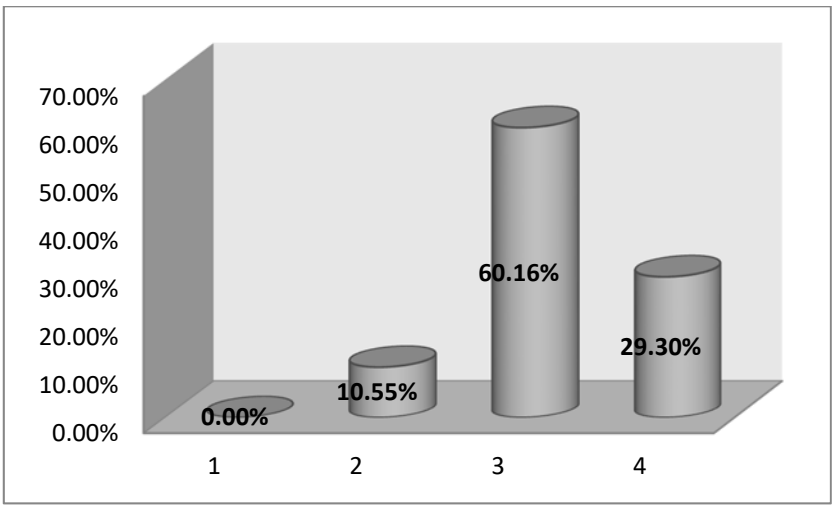

Figure 45. Experience results.

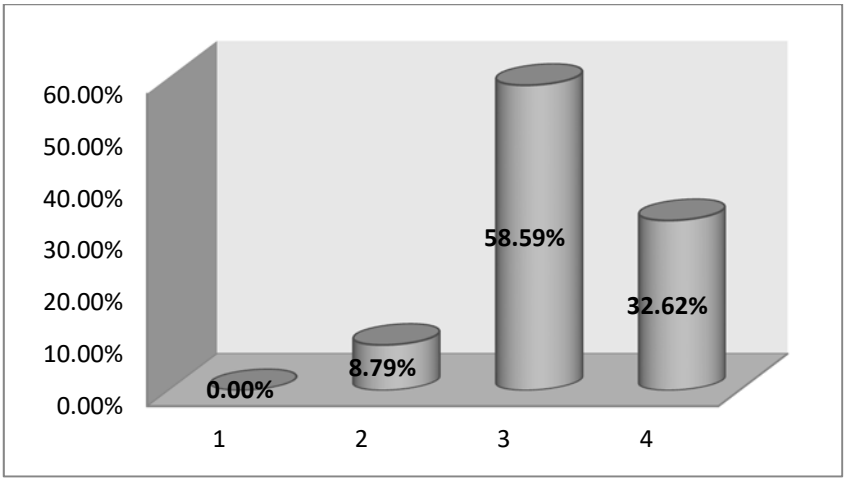

Figure 46. Application results.

Visually, we may realize that the third pylon is much taller in every diagram above. To be more accurate, the Table 3 that follows illustrates the average and the median of each attribute, respectively.

	Average	Median
Culture	3,35	3,00
Processes	3,09	3,00
Experience	3,19	3,00
Application	3,24	3,00

Table 3. Average and Median measurements of the attributes.

We can easily conclude that the bank is at Level 3 of Hillson's Model that is known as "Normalized". The "Normalized" Level determines a risk management process as formalized and executed systematically. Value is added by executing efficient management responses to considerable sources of uncertainty that may affect the achievement of business goals. The organization follows clear, simple and common practices and routine reviews. In addition, benefits are comprehended at every level of the organization and project management is executed across all of its aspects.

Culture is the attribute that achieved the best value in the research. The attribute includes the values, vision, ethics, beliefs and habits of the organization. When an organization has a strong culture, personnel recognize the way that Top Management desires to act in every situation and believe that the anticipated response is suitable. According to the questionnaire, risk management is necessary for the organization that tends to proceed proactively to Risk. There is an involvement of Top Management in the procedures with an effective communication about Risk. Furthermore, there are accepted policies for Risk Management that are practiced in each project and improves business performance.

Application is the attribute that achieved the second value in the research. The effective Application of Risk Management process requires sufficient time and resources, continual development of the practices and efficient solving, managing and limiting the complexity of the risks. In our case, Risk Management is applied in every project with a structured and formal way. There is a variety of tools, techniques and resources that assists organization to manage risks in a sufficient way.

Experience is the attribute that achieved the third value in the research. Despite of the third place, the attribute achieved very good results. More especially, it seems that the personnel continuously be trained in the areas of Risk Management. In this way, they can understand the underlying principles of Risk Management and utilize the basic skills in a regular basis. Finally, there is Risk Management team of experts that is able to evolve specific procedures and tools.

Processes, is the attribute that achieved the lowest value in the research. We can easily notice, again, that despite of the last place, the attribute achieved very good results. According to the answers of the questionnaires, the implementation of Risk Identification, Risk Analysis and Risk Monitoring are in place. Processes, mitigation strategies and contingency plans and documentation system are fully determined and practiced at a regular basis, and help the organization to face any potential event in the

future. There is no need for external support in Risk management because an experienced in house-team is existed that can successfully handle the bank's hazards.

The last section of the questionnaire purposed to examine if there is a need of resources throughout the organization.

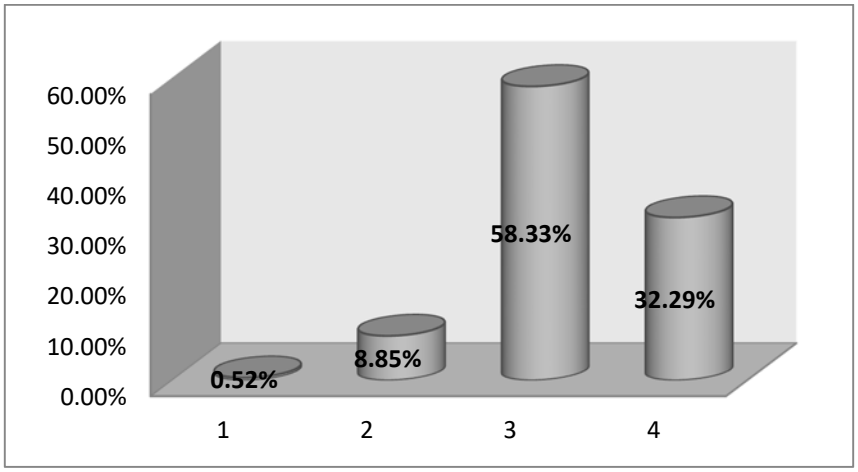

Figure 47. Resources results.

As we can notice, the organization has a considerable amount of resources. The personnel through seminars/ trainings are developing their skills and capabilities in the Risk Management areas. Finally, it is provided a dedicated budget for Risk Management.

7.9 The Manager's opinion: Interviews' Results

As we mentioned in the research methodology three interviews with Managers inside the organization under consideration took place. The Managers are working in the area of New Loans, Non-performing Loans and Risk Management.

The interview consists of twenty questions (see Annex B). The questions were divided into two parts. The first questions were about the bank's risks and the way that bank handle them, and the second part was about the Risk Management Maturity, according

to Hillson's Model and the questionnaires we have made. The answers of each interview are in Annex C.

The first candidate is a Manager in Large Corporate banking (New Loans area) with five years' experience in the bank sector. She argued that the organization's top Risks is Credit Risk and Operational Risk. According to the interviewee, the 2013 Cypriot economic crisis has definitely increased regulatory risk, so the organization has made significant changes to risk management over the years to cope with continuous demands. The adequacy of the risk policies, procedures and risk control environment are reviewed on a regular basis to identify, assess, monitor and control significant risks. Finally, During the past few months and the extraordinary circumstances of the COVID-19 pandemic outbreak, the Bank has shown that it is prepared to respond to extreme events (See C1 in Annex C).

The second candidate is Recovery and Asset workout Manager (Non-Performing Loans area) with almost 10 years' experience in the bank sector. He argued that everyday risks are an ongoing operating liability and distinguished the Reputational Risk as the major one because of its complexity. According to the candidate, as a result of the 2013 economic crisis in Cyprus, the risk management strategies utilized by banks have incurred a notable alteration. Today, there are common beliefs, ethics and values by a common group of people throughout the bank. In addition, there is an integrated procedure for managing and monitoring all kinds of risks that are crucial for the Organization (See C2 in Annex C).

The last candidate is a Manager in First Deputy CEO Office (Risk Management area) with almost 5 years' experience in the bank sector. She argued that Credit Risk is the top risk that the Organization is facing because of its high impact. The bank has undertaken as its primary responsibility to manage credit risk since after the events of 2013.Additionally, the pandemic situation has in fact shown that the Bank has responded very well to an extreme event. Finally, Risk Management practices in the Organization have improved in the last years and are being revised and upgraded so as to reach a desired level without compromising the business side (See C3 in Annex C).

According to Risk Maturity questions, it seems that the three candidates are basically in line. They argue that the ultimate responsibility for managing risks starts at the top, although all employees of the bank should contribute to it with a Board that have the requisite skill sets to provide effective risk oversight. They also mention that the organization has a dedicated budget for Risk Management. In addition, the members of the organization are continuously being trained in the area of Risk Management. This is very important to be done in order for each employee to raise basic awareness of risks faced by the bank and enable them to identify and manage risks in their own units. For every identified risk, a mitigation action plan/strategy is identified and acted upon. In the area of Project Management, all phases of Project Management procedures are being followed, monitored and reported on. Most departments welcome the need of a project manager, fully understand their role and actually find it useful. However, two out of three candidates argue that external support is needed to keep up with ongoing regulatory requirements, as well as for large project which require specialized expertise. The other candidate argues that there is not any need for external support because of the existence of the expertise in-house team. Finally, the bank seems that is has fully adjusted their reports according to risk management and bank policies.

If we compare the results of the interviews and questionnaires we will conclude that the outcomes are stilling in line. It seems that we have studied a very organized business. The Risk Management and Project Management processes are very structured, formal and continually being ameliorating. There is an important involvement of Top Management and the Board of Directors in every process. The organization does not follow a static method in the area of Risk Management. It continuously update its tactics and train its personnel to create a powerful defense about any uncertainties and risks. Finally, it is notable to mention that there was only one question that was common in interviews and questionnaires and answered in different ways. Most of the members of this research argue that there is no need for external support of Risk Management experts. If we give attention to the answers of the interviews we will release that there is a need for external support, but in low level. The need arises mainly from the large number of requirements, either from the regulator or the Bank, the many different risk

projects running concurrently and the many ad hoc requests which arise almost in a daily basis. This does not mean that the way the bank is managed lags behind. It seems that the bank is doing everything it can to offer a complete and compact strategy and method, with no gaps, which can be implemented on a daily basis.

Chapter 8

Conclusion

The core limitations that we faced in our research were the participations in the questionnaires and interviews, and the duration of the selecting data period. The duration of the period was almost two months. The pandemic situation of COVID-19 in a worldwide level brought many changes in everybody's' life. In the work sector, the most of the personnel was working from home, working in rotation, or took a compulsory leave. This situation delayed a lot the process of selecting data and were not collected as much answered questionnaires as we desired.

The current thesis presented an assessing of the Maturity Level in one financial institution in Cyprus. A review of important terms is done first and then through one of the most important Maturity Models, we measure the Maturity Level of a bank. The research could be completed through more interviews of Managers and more questionnaires to have one more accurate and clear image. In addition, it could be ideal if there will be a research of comparing the Maturity Level of different banks in Cyprus, nowadays. In a country that passed a crisis it will be very interesting to measure the Level of Maturity in a variety of bank industries and find differences and common features between them.

8.1. Conclusion

The results of our research showed that the organization we examined, is in Maturity Level 3 of Hillson's Model. In other words, the organizations is in a very good Level of Maturity, with structured and continual processes. However it did not achieve the top Level. In the last Level, called as "Natural", the organization follows a project-aware culture. It has a proactive approach to Project Management in all aspects of business. All staff is project-aware and utilizing basic skills with a continuous external training to enhance skills.

The organization, in order to achieve the top Level of Maturity must keep working hard and methodically. It must continually and steadily invests in new tools and risk strategies. On the other hand, no matter how good and modern the equipment is, no objective can be achieved without a skilled and trained personnel. The staff must be trained there must be a definite and clear communication about Risks in every unit throughout the organization. Therefore, all business will have common vision, mission and ethics. There is always a likelihood for further deployment because of the variety and complexity of uncertainties and hence risks.

In recent years, the concept of risk has become widely known. All organizations, and especially banks, face everyday a variety of known or unknown risks that unsettle their stability. The effective management of risk is vital to the continued development and success. We expect and hope that in the future all organizations, and especially the banks that have a vital role, will stay alive and face every risk successfully. Every risk and every crisis has far-reaching implications and always shows the really strong ones on the bank map.

Chapter 9

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Annex A

Questionnaire Sample

ORGANIZATIONAL MATURITY IN RISK

MANAGEMENT QUESTIONAIRE

Dear Sir/ Madam

This questionnaire was deployed with respect to the Master's Thesis "Organizational Risk Management Maturity in Banking", that is an on-going study at Postgraduate program in Enterprise Risk Management at Open University of Cyprus. It is aimed to provide a methodology to measure the Risk Management Maturity of Financial Institutions. By taking part in this study, you will conduce to the validation and refinement of the questionnaire and provide research data. Any information provided from participants on behalf of their organizations will be absolutely confidential and used for academic objectives. We would like to thank you for your time and your confluence to our study.

Kind Regards,

Elena Tsangari, MSc Student

General Information	Answers
1. State your current position in the organization	1.Officer 2.Senior Officer 3.Supervisor 4.Manager
2. Number of years that Organization has been in operation	1. 0-10 2. 11-20 3. more than 20

3. Size of Organization	1. less than 100 employees 2. 100-500 employees 3. more than 500 employees

Statement	Strongly Disagree	Disagree	Agree	Strongly Agree
Culture (Rate the statements, corresponding to the Risk Management **Culture of your Organization**)				
1. Risk Management is necessary for my organization				
2. Plans of Risk Management are practiced in each project				
3. There are accepted policies for Risk Management				
4. Risk Management advantages are acknowledged in Organizational Level				
5. Organization tends to proceed proactively to Risk				
6. There is an involvement of Top Management in Risk Management processes				
7. There is a communication/sharing of Risk related information				
8. Risk Management improves business performance				
Processes (Rate the statements, corresponding to the Risk Management **Processes of your Organization**)				
1. Recognition of Risks as a standard operation				
2. Implementation of systematic				

Risk Analysis				
3. Procedures are fully determined with clear scope and goals				
4. Determination of mitigation strategies or contingency plans for future Risks Events				
5. There is a procedure of Risk Monitoring				
6. There is a documentation system for Risk Management operations				
7. Risk Management procedure is practiced at every level				
8.There is a need of external support of Risk Management experts				
Experience (Rate the statements, corresponding to the Risk Management **Experience of your Organization**)				
1. The use of Risk Management experience is part of the procedure				
2. Risk Management team is able to evolve specific procedures and tools				
3.There is a formal training of personnel about Risk Management				
4. All employees understand the underlying principles of Risk Management				
5. There is an in-house core of experts that manages Risks				
6. Employees are continuously trained in basic skills in Risk Management				
7. Employees are using basic skills in Risk Management in a regular				

basis				
8. Risk experts spend enough time for providing trainings/seminars to personnel				
Application (Rate the statements, corresponding to the Risk Management **Application of your Organization**)				
1. The Application of Risk Management to each project is structured				
2. The Application of Risk Management to each project is formal				
3. There are devoted technical resources for Project Management				
4. A variety of Project Management tools is available				
5. Risk ideas are practiced to each process				
6.Tools and techniques of Project Management are practiced in a regular basis				
7. The information about Risks are utilized in decision-making				
8. Reports are corresponding to Bank policies				
Resources (Rate the statements, corresponding to the **Resources of your Organization)**				
1. There is a dedicated budget for Risk Management				
2. There is a training/personal development in the area of Risk Management				
3. Personnel has skills and capabilities relevant to Risk				

Management				
Additional Comments:				

Annex B

Interview Sample

Organizational Maturity in Risk Management

Personal Interview

1) What is your current job title?

2) How many years of experience do you have in this sector?

3) What are the Organization's top risks, how severe is their impact and how likely are they occur?

4) How efficient is the Organization in managing its top risks?

5) Is the Organization prepared to respond to extreme events?

6) Why has Risk in banking increased? Which factors contribute to the creation of Bank Risks?

7) Who is dealing with Risk Management in your Organization?

8) How do you consider Top Management's approach towards Risk Management?

9) Does the Board have the requisite skill sets to provide effective risk oversight?

10) Give your opinion about the Risk Management practices in your Organization.

11) What is the purpose of Risk Management practices in your Organization?

12) Does your Organization have a dedicated budget for Risk Management?

13) Is there training/personal development in the area of Risk Management in your Organization?

14) Does your Organization define mitigation strategies or contingency plans for future Risk events?

15) What is the purpose of the application of Risk Management procedures?

16) How formal are Project Management procedures? Are they fully determined, with clear purpose and objectives?

17) How well the personnel comprehend the underlying principles of Project Management?

18) Is there any need for external support of Risk Management experts on an everyday basis?

19) Are the reports being corresponding to Bank policies?

20) Is there anything relevant you would like to add that you did not have the chance to mention?

Annex C

Interview Answers

C.1. Interview 1

1) What is your current job title? **Manager, Large Corporate Banking.**

2) How many years of experience do you have in this sector? **Five years.**

3) What are the Organization's top risks, how severe is their impact and how likely are they occur?

The top risks of a banking institution are:

> **(1) Credit risk – This is the most significant risk for banks with severe impact, occurring when borrowers fail to meet their contractual obligations, i.e failing to repay their credit facilities.**
> **(2) Operational risk – this risk is associated with losses occurring due to internal errors made during transactions or due to fraud. This risk directly affects the reputational risk of the bank.**

4) How efficient is the Organization in managing its top risks?

The Organization really focuses on managing risks during the everyday operation of the bank. Risk management procedures are in place and are being monitored on a regular basis. Risk assessments are being performed, mainly on high-risk areas with the aim of mitigating these risks.

5) Is the Organization prepared to respond to extreme events?

During the past few months and the extraordinary circumstances of the COVID-19 pandemic outbreak, the Bank has shown that it is prepared to respond to extreme events. Immediate steps have been taken in order to protect our employees and our customers from the spread of COVID-19 while at the same time ensuring that we can continue operating safely and soundly. Especially here at the Corporate Department, all of our affected borrowers have applied for suspension of their loan instalments for the remaining year of 2020, following the Ministry of Finance decree for debt moratorium. All applications have been successfully implemented.

6) Why has Risk in banking increased? Which factors contribute to the creation of Bank Risks?

Risks change according to changes in internal and external factors which affect these risks. Factors such as the country's economy can affect our borrowers' financial ability to repay their obligations, increasing credit risk. Uprising digital technology can give rise to cybersecurity and reputational risks. The 2013 Cypriot economic crisis has definitely increased regulatory risk, so our bank has made significant changes to risk management over the years to cope with continuous demands.

7) Who is dealing with Risk Management in your Organization?

The Bank has a Risk Management Unit in place, consisting of credit risk officers, Senior officers and a Risk Executive who deal with all risks faced by the Bank.

8) How do you consider Top Management's approach towards Risk Management?

The ultimate responsibility for managing risks starts at the top, although all employees of the bank should contribute to it. The Board members and Senior Executives review risk management processes and results on a regular basis.

9) Does the Board have the requisite skill sets to provide effective risk oversight?

The Board has established a Risk Committee of 5 non-Executive members, who have the requisite skills to guide our Bank towards the right direction of risk management.

10) Give your opinion about the Risk Management practices in your Organization.

The Risk Management practices of our Bank are up to standard. All strategic risk management decisions are approved by the Risk Committee. The adequacy of the risk policies, procedures and risk control environment are reviewed on a regular basis to identify, assess, monitor and control significant risks. Credit and market risk stress test results are being monitored to ensure that are within acceptable levels.

11)What is the purpose of Risk Management practices in your Organization?

To establish risk management practices that focus on managing our exposure to losses and to protect our assets.

12) Does your Organization have a dedicated budget for Risk Management?

Yes, there is a dedicated budget for Risk Management.

13) Is there training/personal development in the area of Risk Management in your Organization?

Our staff is continuously being trained in the area of Risk Management, not only Risk officers but the organization as a whole. This is very important to be done in order for each employee to raise basic awareness of risks faced by the bank and enable them to identify and manage risks in their own units.

14) Does your Organization define mitigation strategies or contingency plans for future Risk events?

Yes it does. Each risk has its corresponding mitigation strategy that needs to be followed.

15)What is the purpose of the application of Risk Management procedures?

Risk is the uncertainty of something bad occurring, followed by a potential loss. Therefore, effective application of risk management procedures aims for the bank to evaluate potential future losses when negative issues occur and taking the right steps to deal with these problems when they occur.

16) How formal are Project Management procedures? Are they fully determined, with clear purpose and objectives?

As far as I know yes. All phases of Project Management procedures are being followed, monitored and reported on.

17) How well the personnel comprehend the underlying principles of Project Management?

Not all personnel comprehends the underlying principles of Project Management, however staff required to be involved are fully trained and guided.

18) Is there any need for external support of Risk Management experts on an everyday basis?

Not on an everyday basis, however external support is needed to keep up with ongoing regulatory requirements, as well as for large project which require specialized expertise.

19) Are the reports being corresponding to Bank policies?

Yes, the reports correspond to our Bank's policies.

20) Is there anything relevant you would like to add that you did not have the chance to mention? **No, thank you.**

C.2. Interview 2

1) What is your current job title? **Recovery and Asset workout Manager.**

2) How many years of experience do you have in this sector? **Nearby ten years.**

3) What are the Organization's top risks, how severe is their impact and how likely are they occur?

Managing risks at a strategic level requires focus. Everyday risks are an ongoing operating liability. If I have the opportunity to tell about one major risk, is reputational risk. It relates to the likelihood for negative publicity, public comprehension and unchecked events that have unfavorable outcomes on a bank's reputation and hence to its revenue. In contrast with credit, operational, liquidity risks that banks have to manage; reputational risk is unspecified and

difficult to measure. The biggest problem with this risk is that it can literally happen without any warning.

4) How efficient is the Organization in managing its top risks?

There is an integrated procedure for managing and monitoring all kinds of risks that are crucial for our Organization. Risk management competencies are being meliorated day by day as the speed and complexity of business change.

5) Is the Organization prepared to respond to extreme events?

The organization has categorized all the risks, according to their impacts and their possibility to happen. Bank constructed structured response plans for extreme events. Unfortunately, there is always a small probability for inevitability.

6) Why has Risk in banking increased? Which factors contribute to the creation of Bank Risks?

As a result of the 2013 economic crisis in Cyprus, the risk management strategies utilized by banks have incurred a notable alteration. While a lot of those alterations resulted from new financial regulations scheduled to obviate another crisis, technological advancements have increased client's expectancies and created new risks. Banking risk management expands far beyond the area of restricting and monitoring credit risks (minimize of liquidity, Non-performing loans etc.). Alterations in banking regulations and reliance on new technologies bring new challenges in managing bank risks.

7) Who is dealing with Risk Management in your Organization?

The responsibilities throughout the organization are plainly determined and comprehended. CEO, board of directors and senior management has ultimate responsibility of the risks and maintain an efficient framework. Except of the risk management and compliance departments, there are support functions such as legal department, IT, HR and internal audit that support and monitor the risk procedures and reports.

8) How do you consider Top Management's approach towards Risk Management?

The Top Management canonized and educated the organization on common terminology concerning risk and its approach. This expedited communication and cooperation across all units throughout the organization.

9) Does the Board have the requisite skill sets to provide effective risk oversight?

Yes, board members have requisite skills and put in efficient controls.

10) Give your opinion about the Risk Management practices in your Organization.

There is a clear and continuous monitoring procedure to ensure that the risk mitigation efforts are efficient. Also there is a communication of risks inside the organization that is another significant aspect of Risk Management practices. In order to have efficient risk management, there is involvement of the stakeholders in every step of the way.

11) What is the purpose of Risk Management practices in your Organization?

The objective of Risk Management practices is to develop powerful risk culture. In this way there will be common beliefs, ethics and values by a common group of people.

12) Does your Organization have a dedicated budget for Risk Management?

Yes, there is always a dedicated budget for Risk Management.

13) Is there training/personal development in the area of Risk Management in your Organization?

There is a continual development of the personnel around Risk management fields. When it is essential, there are seminars and training programs.

14) Does your Organization define mitigation strategies or contingency plans for future Risk events?

Yes it does. The organization identifies actions that it will take in advance independent of the occurrence of risk, plan actions and monitor certain warning signs.

15) What is the purpose of the application of Risk Management procedures?

The purpose of the application of Risk Management procedures is to identify the main risks, increase opportunities, reduce threats and establish healthy governance.

16) How formal are Project Management procedures? Are they fully determined, with clear purpose and objectives?

Of course, I can characterize Project Management procedures defined, clear and formal. Project Management procedures objectives are the successful deployment of initiation, planning, execution and regulation. A clear objective raises the chances of leading to a clear and specific outcome.

17) How well the personnel comprehend the underlying principles of Project Management?

I think that the personnel are well trained. The continuous updating of information upgrades the knowledge level of every part in this organization. We follow CPD (Continuing Professional Development) culture in the organization, so all the teams are update with the basic object, changes and new trends that arise in the market, especially in the European market.

18) Is there any need for external support of Risk Management experts on an everyday basis?

We have an in-house team of experts that they are experienced. I think that the need of the external support is very low.

19) Are the reports being corresponding to Bank policies?

The bank has fully adjusted their reports according to risk management and bank policies.

20) Is there anything relevant you would like to add that you did not have the chance to mention? **I hope all the best and good luck!**

C.3. Interview 3

1) What is your current job title? **Manager, First Deputy CEO Office.**

2) How many years of experience do you have in this sector? **4.5 years.**

3) What are the Organization's top risks, how severe is their impact and how likely are they occur?

Credit Risk is the top risk that the Organization is facing. It has a high impact to the Bank's survival as it is the largest component of the capital adequacy and the regulatory capital adequacy ratios.

4) How efficient is the Organization in managing its top risks?

The Banking has undertaken as its primary responsibility to manage credit risk since after the events of 2013, it was a matter of survival. Efficiency in numbers is shown by the 74% reduction in NPEs (Non-performing exposures) since its peak in 2014 to December 2019 (>11bn).

5) Is the Organization prepared to respond to extreme events?

The pandemic situation has in fact shown that the Bank has responded very well to an extreme event. The Business Continuity Plan was initiated immediately and the Bank has been operating in such mode in the last two month (March – May 2020) with the end date still unknown. The health of employees and customers was safeguarded, liquidity is available to businesses and households which have suffered cash flow problems and the Bank is prepared to support customers further through loan payment referrals, government guaranteed loans, digital channels services and products etc.

6) Why has Risk in banking increased? Which factors contribute to the creation of Bank Risks?

Risk is banking is affected to a large extend by the state of the economy in the country. Customer behavior and mainly strategic defaults have contributed to a percentage to the creation of bank risks. It was therefore natural and has happened in all economies that the two are highly correlated. This was the case in 2013 where the crisis started as a Bank problem (mainly liquidity) and also in 2020 where an external event has created a deterioration of the economy and increased risks for the Bank. Another factor which contributes to the risks faced

by Banks is the management style and decisions taken. This was evident in the 2013 crisis where bad management led the Banks to a state of emergency.

7) Who is dealing with Risk Management in your Organization?

The Bank has a dedicated Risk Management Function which is responsible for all risks faced; credit, operational, market, capital etc.

8) How do you consider Top Management's approach towards Risk Management?

The top management's approach to risk is considered conservative in the last years as the main concern is to mitigate all critical and high risks and reduce them to an acceptable level so as to obtain the best combination of risk and return.

9) Does the Board have the requisite skill sets to provide effective risk oversight?

The Board has a dedicated Risk Committee which is responsible for the Bank's risk oversight. The Risk Committee is comprised of four independent Board members, all of which have extensive knowledge and experience in the Banking sector and in managing risks. Also, the Chief Risk Officer has a direct reporting line to the Board Risk Committee.

10) Give your opinion about the Risk Management practices in your Organization.

Risk Management practices in the Organization have improved in the last years and are being revised and upgraded so as to reach a desired level without compromising the business side. Given that the regulator is also pushing for a high quality of risk management practices constantly, a lot of effort has been put into this.

11) What is the purpose of Risk Management practices in your Organization?

To identify and safeguard the Bank from any potential risks to the largest extend possible. Also, to establish mitigating actions, to be able to reduce the risks to the minimum, and be able to accept them without compromising the Organization.

12) Does your Organization have a dedicated budget for Risk Management?

Yes, the Risk Management department has a dedicated budget. In addition to this, each department is allocated a budget if a project is needed which will mitigate its risks.

13) Is there training/personal development in the area of Risk Management in your Organization?

All employees are required to take compulsory e-learning courses in all areas of Risk Management. In addition to this, specialized risk management courses are offered to specific departments such as front-line personnel, credit sanctioning etc.

14) Does your Organization define mitigation strategies or contingency plans for future Risk events?

Yes, for every identified risk, a mitigation action plan/strategy is identified and acted upon.

15) What is the purpose of the application of Risk Management procedures?

Procedures are set to make sure that when followed, the organization is safeguarded from potential risks; known or unknown.

16) How formal are Project Management procedures? Are they fully determined, with clear purpose and objectives?

The Bank has a separate Project Management Department which is comprised of specialized Project Managers, many of them are also certified PMIs. There are set procedures with clear purpose and objectives and every approved project is assigned a Project manager.

17) How well the personnel comprehend the underlying principles of Project Management?

Being such a large organization, project management is perceived in many different ways from personnel. Most departments welcome the need of a project manager, fully understand their role and actually find it useful.

18) Is there any need for external support of Risk Management experts on an everyday basis?

The need does not have to do with expertise or routine work (i.e. to be necessary on an everyday basis). The need arises mainly from the large number of requirements, either from the regulator or the Bank, the many different risk projects running concurrently and the many ad hoc requests which arise almost in a daily basis.

19) Are the reports being corresponding to Bank policies?

Yes, of course!

20) Is there anything relevant you would like to add that you did not have the chance to mention? **No, thank you.**

Annex D

Questionnaire Answers

General Information:

State your current position in the organization	Number of years that Organization has been in operation	Size of Organization
Manager	11-20	100-500 employees
Manager	11-20	100-500 employees
Manager	11-20	100-500 employees
Manager	11-20	100-500 employees
Manager	11-20	100-500 employees
Officer	11-20	100-500 employees
Officer	11-20	100-500 employees
Officer	11-20	100-500 employees
Officer	11-20	100-500 employees
Officer	0-10	100-500 employees
Officer	0-10	100-500 employees
Officer	more than 20	more than 500 employees
Officer	11-20	more than 500 employees
Officer	11-20	more than 500 employees
Officer	11-20	100-500 employees
Officer	more than 20	more than 500 employees
Officer	more than 20	more than 500 employees
Officer	0-10	100-500 employees

Officer	**0-10**	**100-500 employees**
Officer	**11-20**	**100-500 employees**
Officer	**11-20**	**100-500 employees**
Officer	**11-20**	**100-500 employees**
Officer	**11-20**	**100-500 employees**
Officer	**11-20**	**100-500 employees**
Officer	**11-20**	**more than 500 employees**
Officer	**11-20**	**more than 500 employees**
Officer	**11-20**	**100-500 employees**
Officer	**11-20**	**100-500 employees**
Officer	**0-10**	**100-500 employees**
Officer	**0-10**	**100-500 employees**
Officer	**0-10**	**more than 500 employees**
Officer	**11-20**	**more than 500 employees**
Officer	**11-20**	**100-500 employees**
Officer	**11-20**	**100-500 employees**
Officer	**11-20**	**100-500 employees**
Officer	**11-20**	**100-500 employees**
Officer	**11-20**	**100-500 employees**
Officer	**0-10**	**100-500 employees**
Officer	**11-20**	**100-500 employees**
Officer	**11-20**	**100-500 employees**
Officer	**11-20**	**100-500 employees**
Officer	**11-20**	**100-500 employees**
Officer	**11-20**	**100-500 employees**
Officer	**11-20**	**100-500 employees**
Senior Officer	**11-20**	**100-500 employees**
Senior Officer	**11-20**	**100-500 employees**
Senior Officer	**11-20**	**100-500 employees**
Senior Officer	**11-20**	**100-500 employees**
Senior Officer	**11-20**	**100-500 employees**
Senior Officer	**11-20**	**more than 500 employees**
Senior Officer	**11-20**	**100-500 employees**

Senior Officer	**11-20**	**100-500 employees**
Senior Officer	**0-10**	**100-500 employees**
Senior Officer	**11-20**	**100-500 employees**
Supervisor	**11-20**	**100-500 employees**
Supervisor	**11-20**	**100-500 employees**
Supervisor	**11-20**	**100-500 employees**
Supervisor	**11-20**	**100-500 employees**
Supervisor	**11-20**	**more than 500 employees**
Supervisor	**11-20**	**100-500 employees**
Supervisor	**11-20**	**100-500 employees**
Supervisor	**11-20**	**100-500 employees**
Supervisor	**11-20**	**100-500 employees**

Culture:

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Strongly Agree	Strongly Agree	Strongly Agree	Agree	Agree	Strongly agree	Agree	Strongly Agree
Strongly Agree	Agree	Agree	Agree	Strongly Agree	Strongly agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Agree	Strongly Agree
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Strongly Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree
Strongly Agree	Agree	Agree	Disagree	Agree	Agree	Disagree	Agree
Agree	Agree	Agree	Agree	Disagree	Agree	Agree	Disagree
Strongly Agree	Disagree	Agree	Agree	Disagree	Agree	Agree	Agree
Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly agree	Strongly Agree	Strongly Agree
Strongly Agree	Disagree	Strongly Agree	Agree	Agree	Disagree	Disagree	Agree

Agree	Agree	Strongly Agree	Agree	Agree	Disagree	Agree	Strongly Agree
Strongly Agree	Strongly Agree	Agree	Strongly Agree	Strongly Agree	Agree	Agree	Agree
Strongly Agree	Disagree	Disagree	Disagree	Disagree	Agree	Disagree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly agree	Strongly Agree	Strongly Agree
Strongly Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
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Strongly Agree	Disagree	Agree	Disagree	Disagree	Agree	Agree	Disagree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly agree	Strongly Agree	Strongly Agree
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Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly agree	Agree	Strongly Agree
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Strongly Agree	**Agree**	**Agree**	**Disagree**	**Agree**	**Agree**	**Strongly Agree**	**Disagree**
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Strongly Agree	**Disagree**	**Agree**	**Disagree**	**Disagree**	**Agree**	**Disagree**	**Agree**
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Strongly Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
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Processes:

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
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Agree	Disagree	Disagree	Disagree	Agree	Agree	Disagree	Strongly Disagree
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Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Disagree
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Agree	Agree	Disagree	Disagree	Agree	Agree	Agree	Agree
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Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Strongly Disagree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Disagree
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Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Agree
Agree	Agree	Disagree	Disagree	Agree	Agree	Agree	Agree
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Strongly Agree	Agree	Agree	Disagree	Disagree	Disagree	Disagree	Disagree
Agree	Agree	Disagree	Agree	Agree	Agree	Agree	Strongly Disagree
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Strongly Agree	Strongly Agree	Agree	Agree	Agree	Agree	Agree	Disagree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Strongly Disagree

Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Disagree
Disagree	Disagree	Agree	Agree	Disagree	Disagree	Agree	Disagree
Agree	Strongly Agree	Agree	Agree	Agree	Strongly Agree	Agree	Strongly Disagree
Strongly Agree	Agree	Strongly Agree	Agree	Strongly Agree	Agree	Strongly Agree	Disagree
Agree	Disagree	Agree	Agree	Agree	Agree	Disagree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Disagree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree
Agree	Agree	Disagree	Disagree	Agree	Agree	Agree	Agree
Strongly Agree	Agree	Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Agree
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Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Agree
Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree
Agree	Agree	Agree	Strongly Agree	Agree	Strongly Agree	Agree	Strongly Disagree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree
Strongly Agree	Strongly Agree	Agree	Agree	Agree	Agree	Agree	Strongly Disagree
Disagree	Agree	Agree	Agree	Disagree	Agree	Agree	Strongly Disagree
Agree	Agree	Strongly Agree	Disagree	Agree	Agree	Strongly Agree	Disagree
Agree	Agree	Agree	Agree	Agree	Disagree	Agree	Disagree

Experience:

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Agree	Agree	Disagree	Disagree	Agree	Disagree	Disagree	Disagree
Strongly Agree	Strongly Agree	Strongly Agree	Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Agree	Agree	Agree	Disagree	Agree	Agree	Disagree	Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree

Agree	Strongly Agree	Disagree	Disagree	Strongly Agree	Strongly Agree	Agree	Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Agree	Strongly Agree	Agree	Agree	Agree	Strongly Agree	Strongly Agree	Agree
Agree	Strongly Agree	Agree	Agree	Strongly Agree	Strongly Agree	Agree	Agree
Strongly Agree	Agree	Strongly Agree	Agree	Strongly Agree	Agree	Agree	Agree
Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Agree	Strongly Agree	Agree	Strongly Agree	Agree	Strongly Agree	Agree	Strongly Agree
Agree	Strongly Agree	Strongly Agree	Agree	Agree	Agree	Agree	Disagree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Agree	Agree	Agree	Agree	Agree
Agree	Agree	Disagree	Disagree	Agree	Disagree	Disagree	Disagree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Disagree	Disagree	Agree	Agree	Strongly Agree	Agree	Agree	Strongly Agree
Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Agree	Agree	Agree	Strongly Agree	Strongly Agree	Strongly Agree	Agree	Agree
Agree	Agree	Agree	Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Agree	Agree	Agree	Strongly Agree	Strongly Agree	Agree	Agree	Strongly Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Disagree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Agree	Agree	Disagree	Disagree	Agree	Disagree	Disagree	Disagree

Strongly Agree	**Strongly Agree**	**Strongly Agree**	**Agree**	**Agree**	**Agree**	**Agree**	**Agree**
Strongly Agree	**Strongly Agree**	**Strongly Agree**	**Strongly Agree**	**Strongly Agree**	**Strongly Agree**	**Strongly Agree**	**Strongly Agree**
Agree	**Agree**	**Agree**	**Strongly Agree**	**Agree**	**Agree**	**Strongly Agree**	**Agree**
Agree	**Agree**	**Agree**	**Agree**	**Agree**	**Agree**	**Agree**	**Agree**
Agree	**Agree**	**Agree**	**Agree**	**Agree**	**Agree**	**Agree**	**Agree**
Agree	**Agree**	**Strongly Agree**	**Strongly Agree**	**Agree**	**Agree**	**Strongly Agree**	**Strongly Agree**
Strongly Agree	**Agree**	**Agree**	**Agree**	**Agree**	**Agree**	**Agree**	**Agree**
Strongly Agree	**Strongly Agree**	**Strongly Agree**	**Strongly Agree**	**Strongly Agree**	**Strongly Agree**	**Strongly Agree**	**Strongly Agree**
Disagree	**Agree**	**Agree**	**Strongly Agree**	**Agree**	**Disagree**	**Agree**	**Agree**
Agree	**Agree**	**Strongly Agree**	**Strongly Agree**	**Agree**	**Agree**	**Strongly Agree**	**Strongly Agree**
Strongly Agree	**Agree**	**Strongly Agree**	**Agree**	**Strongly Agree**	**Agree**	**Strongly Agree**	**Agree**
Agree	**Disagree**	**Agree**	**Disagree**	**Agree**	**Agree**	**Disagree**	**Agree**
Agree	**Agree**	**Strongly Agree**	**Strongly Agree**	**Strongly Agree**	**Agree**	**Strongly Agree**	**Strongly Agree**
Agree	**Agree**	**Agree**	**Agree**	**Agree**	**Agree**	**Agree**	**Agree**
Agree	**Agree**	**Disagree**	**Disagree**	**Agree**	**Disagree**	**Disagree**	**Disagree**
Strongly Agree	**Strongly Agree**	**Strongly Agree**	**Agree**	**Agree**	**Agree**	**Agree**	**Agree**
Strongly Agree	**Strongly Agree**	**Strongly Agree**	**Strongly Agree**	**Strongly Agree**	**Strongly Agree**	**Strongly Agree**	**Strongly Agree**
Agree	**Agree**	**Agree**	**Agree**	**Agree**	**Agree**	**Agree**	**Agree**
Agree	**Agree**	**Agree**	**Agree**	**Agree**	**Agree**	**Agree**	**Disagree**
Agree	**Agree**	**Agree**	**Agree**	**Agree**	**Agree**	**Agree**	**Agree**
Agree	**Strongly Agree**	**Strongly Agree**	**Agree**	**Strongly Agree**	**Strongly Agree**	**Agree**	**Strongly Agree**
Strongly Agree	**Strongly Agree**	**Agree**	**Agree**	**Agree**	**Strongly Agree**	**Agree**	**Agree**
Agree	**Agree**	**Agree**	**Agree**	**Agree**	**Agree**	**Agree**	**Agree**
Agree	**Agree**	**Strongly Agree**	**Agree**	**Agree**	**Strongly Agree**	**Agree**	**Agree**
Strongly Agree	**Agree**	**Agree**	**Strongly Agree**	**Strongly Agree**	**Agree**	**Disagree**	**Disagree**
Agree	**Agree**	**Agree**	**Strongly Agree**	**Strongly Agree**	**Agree**	**Agree**	**Agree**

Application:

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Disagree	Disagree	Agree	Agree	Agree	Agree	Agree	Agree
Agree	Agree	Disagree	Agree	Agree	Disagree	Agree	Agree
Agree	Agree	Disagree	Agree	Agree	Disagree	Agree	Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Strongly Agree	Agree	Agree	Disagree	Disagree	Strongly Agree	Agree	Strongly Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Agree	Strongly Agree	Agree	Agree	Strongly Agree	Agree	Agree	Strongly Agree
Agree	Agree	Strongly Agree	Agree	Agree	Strongly Agree	Agree	Agree
Strongly Agree	Agree	Agree	Strongly Agree	Strongly Agree	Agree	Agree	Agree
Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Agree	Strongly Agree	Agree	Strongly Agree	Agree	Strongly Agree	Agree	Strongly Agree
Strongly Agree	Agree	Strongly Agree	Agree	Agree	Agree	Strongly Agree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Disagree	Disagree	Agree	Agree	Agree	Agree	Agree	Agree
Agree	Agree	Disagree	Agree	Agree	Disagree	Agree	Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree

Agree	Agree	Disagree	Agree	Agree	Strongly Agree	Disagree	Agree
Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree	Disagree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Agree	Strongly Agree	Agree	Strongly Agree	Agree	Strongly Agree	Agree	Strongly Agree
Agree	Agree	Agree	Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Agree	Strongly Agree	Agree	Strongly Agree	Agree	Strongly Agree	Agree	Agree
Agree	Agree	Disagree	Agree	Agree	Disagree	Agree	Agree
Disagree	Disagree	Agree	Agree	Agree	Agree	Agree	Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Agree	Disagree	Disagree	Agree	Agree	Disagree	Agree	Strongly Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Agree	Agree	Agree	Agree	Agree	Agree	Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Agree	Agree	Agree	Agree	Agree	Agree	Disagree	Agree
Strongly Agree	Strongly Agree	Agree	Agree	Agree	Strongly Agree	Agree	Strongly Agree
Agree	Strongly Agree	Strongly Agree	Agree	Strongly Agree	Agree	Strongly Agree	Agree
Agree	Agree	Disagree	Disagree	Agree	Strongly Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Agree	Agree	Strongly Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Disagree	Disagree	Agree	Agree	Agree	Agree	Agree	Agree
Agree	Agree	Disagree	Agree	Agree	Disagree	Agree	Agree
Strongly Agree	Agree	Agree	Strongly Agree	Strongly Agree	Agree	Strongly Agree	Agree
Agree	Agree	Agree	Agree	Disagree	Agree	Agree	Agree
Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree

Agree	Agree	Agree	Agree	Agree	Agree	Agree	Agree
Strongly Agree	Agree	Strongly Agree	Agree	Strongly Agree	Strongly Agree	Agree	Agree
Strongly Agree	Strongly Agree	Agree	Strongly Agree	Agree	Strongly Agree	Strongly Agree	Strongly Agree

Resources:

Q1	Q2	Q3
Agree	Agree	Agree
Agree	Agree	Agree
Agree	Agree	Agree
Agree	Disagree	Agree
Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree
Agree	Agree	Agree
Agree	Agree	Agree
Strongly Agree	Strongly Disagree	Disagree
Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree
Agree	Agree	Agree
Disagree	Disagree	Disagree
Strongly Agree	Strongly Agree	Agree
Disagree	Disagree	Disagree
Strongly Agree	Strongly Agree	Strongly Agree
Agree	Agree	Agree
Agree	Strongly Agree	Agree
Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree
Strongly Agree	Strongly Agree	Strongly Agree
Agree	Agree	Agree
Agree	Disagree	Agree
Agree	Agree	Agree
Agree	Agree	Agree
Agree	Agree	Agree
Agree	Agree	Agree
Strongly Agree	Strongly Agree	Strongly Agree
Agree	Strongly Agree	Strongly Agree
Disagree	Disagree	Disagree
Agree	Agree	Agree

Agree	**Strongly Agree**	**Agree**
Agree	**Strongly Agree**	**Agree**
Strongly Agree	**Strongly Agree**	**Agree**
Agree	**Agree**	**Agree**
Agree	**Agree**	**Agree**
Agree	**Agree**	**Agree**
Agree	**Disagree**	**Agree**
Agree	**Agree**	**Agree**
Strongly Agree	**Strongly Agree**	**Strongly Agree**
Strongly Agree	**Strongly Agree**	**Strongly Agree**
Agree	**Strongly Agree**	**Agree**
Agree	**Agree**	**Agree**
Agree	**Agree**	**Strongly Agree**
Agree	**Agree**	**Agree**
Strongly Agree	**Strongly Agree**	**Strongly Agree**
Disagree	**Agree**	**Disagree**
Strongly Agree	**Strongly Agree**	**Strongly Agree**
Agree	**Agree**	**Strongly Agree**
Agree	**Strongly Agree**	**Strongly Agree**
Strongly Agree	**Agree**	**Strongly Agree**
Strongly Agree	**Strongly Agree**	**Strongly Agree**
Agree	**Disagree**	**Agree**
Agree	**Agree**	**Agree**
Strongly Agree	**Strongly Agree**	**Strongly Agree**
Agree	**Agree**	**Agree**
Agree	**Agree**	**Agree**
Agree	**Agree**	**Agree**
Strongly Agree	**Strongly Agree**	**Strongly Agree**
Agree	**Strongly Agree**	**Disagree**
Agree	**Agree**	**Agree**
Agree	**Agree**	**Strongly Agree**
Strongly Agree	**Strongly Agree**	**Strongly Agree**
Strongly Agree	**Agree**	**Agree**