



UNIVERSITÀ DEGLI STUDI DI SALERNO
DIPARTIMENTO DI SCIENZE ECONOMICHE E STATISTICHE

DOTTORATO DI RICERCA IN
INGEGNERIA ED ECONOMIA DELL'INNOVAZIONE
XIV CICLO

ABSTRACT:

**RISK MANAGEMENT AND VALUE AT RISK : THE INFLUENCE OF THE PROFILE OF THE
INVESTOR IN THE OPERATION OF ADVICE**

COORDINATORE:
CH.MA PROF.SSA ALESSANDRA AMENDOLA

TUTOR :
CH.MA PROF.SSA ALESSANDRA AMENDOLA

CANDIDATO:
NICOLA SICA

ANNO ACCADEMICO 2016/2017

Basel accords define the capital requirements for banks. There are three types of risk on which is based the calculation of this requirement: operational risk, i.e. the risk of losses related to potential inefficiencies of the system of control of the bank, the market risk, i.e. the risk related to any eventual leakage of the securities portfolio (of the institute or belonging to a single customer) determined by the market and credit risk, i.e. the risk incurred by the banks for any inability partial or total of the counterparty to fulfill the obligation assumed.

The three risks defined within the Basel Agreement, define the three cornerstones of the activity of banking advice. The main responsibility of each operator banking, resides in the ability to perceive and anticipate the risks of positions in acquisition and on which the Institute will expose, evaluating the acceptability by defining appropriate actions to be taken.

The need to measure and adequately control the risks taken by a bank is felt particularly in investment activity and trading of securities, which is exposed to the volatility of prices of assets exchanged. For institutions which take speculative positions in currencies, bonds or shares, there is in fact a real possibility that the losses associated with a single position broke, within a short time interval, the profits made in the course of months.

In the first part of the work is analyzed the typology of risk indicated with the term "market risk". More precisely, with the term market risk is the risk of changes in the market value of an instrument or of a portfolio of financial instruments linked to unexpected changes in market conditions. One of the indicators is widely used to measure the market risk of active and follow him in his temporal evolution is the VaR (Value at Risk) that can be defined as the "*...maximum loss in which an investor may incur, with a predetermined level of probability α , for a time horizon future $N+H$* ".

If $\zeta_N = (r1...Rn)$ are available information at the time n, the VaR will be a function of ζ_N , α , h by synthesizing $VaR_N(h; \alpha)$ with $h=1,2,...$ and $0 < \alpha < 1$. The VaR is essentially a synthetic index that measure the market risk of the

active or portfolio analysis. The financial risks relate to unexpected changes and unfavorable market value of certain financial positions because it is not certain whether the issuer will be able or not to fulfill its obligations (coupon or capital). On the same conceptual basis defines the credit risk, understood as the risk of default of the counterparty in a financial contract for medium-long term.

The second chapter is dedicated to the analysis of models for the assessment of credit risk appeared in recent years and mainly used so far by the banks. In the literature were developed three different approaches to describe the credit risk: structural approach, a reduced form and to incomplete information.

The third chapter echoing what indicated in the first part of the work is based on the examination of the fundamental principles of the protection of the customer in the provision of advice to the investment. Studies of behavioral finance that investigate the choices of asset allocation financial show that these are affected particularly by two elements: the capacity to take risks and the attitude to risk to investors. Investment firms, thanks to the MiFID Directive, have the obligation of profiling customers through a questionnaire to ensure their protection and protection against risks arising from financial investments. Aspects investigated by the MiFID questionnaires are compared with the elements that, according to the literature, influences the choices of individual investment.

In confirmation of what is required by the MiFID Directive, are extracted from a sample of customers made available by a Banca di Credito Cooperativo Bell, a representative for each category of risk on which the securities portfolio is applied a model VaR aimed to verify the degree of risk related to Portfolio proposed as a result of the consultancy activities carried out. The choices of asset allocation undertaken by individuals are often addressed by investment firms which, through a questionnaire, collect personal information from the subjects to recommend investments in line with their needs and characteristics. For portfolio management services or consultancy service, investment firms shall submit the subject to the test of adequacy and, in the case in which I do not answer to certain requirements,

they will be precluded the investment in financial instruments risky. Consequently, the decisions of asset allocation financial does not always arise from an individual choice made by the investor but are often addressed by a person competent to allow the customer the attainment of its objectives. However, many studies demonstrate the impact of certain aspects of the profile of the investors in their propensity to risk and consequently in the choices of allocation of assets. The analysis has allowed us to compare the aspects that according to the literature influence the risk propensity of investors with what is required in the phase of practical placement of the product. In the daily advice, tools made available are mainly focused on the aspects linked to the capacity of taking risks, then on the study of the investment objectives and the elucidation of the *holding period*. As regards the risk tolerance literature amply investigates the influence of socio-demographic and personal, that are not always considered to be at the basis of the risk assessment in the questionnaires MiFID. The fundamental variables, confirmed in literature at the end of the definition of a proper risk profile of the counterparty, are the consistency of the income and wealth of the respondent. Are collected information with regard to the profession and the *background risk* borne by investors, elements considered capable of influencing choices of asset allocation. The study title knowledge in the field of investments and the experience gained in the financial aspects are considered influential at a theoretical level that are reflected in the questions asked to customers through the questionnaire. To support what is proposed, and signed by the customer, is estimated for the set data obtained, a model VaR applied to each single portfolio for the three customers identified. The period considered runs from 01/01/2016 to 16/09/2016. On the basis of the frequency of transactions are identified three representative positions of the three risk profiles defined in the process of profiling of the customer previously argued.

Specifically:

- Low risk : Position historically entered in the registers of the institute for a period exceeding 10 years. Employee private company.

Preparation of Upper Medium in financial activities. The total capital invested € 30,000 managed in n. 15 portfolio transactions thus distributed : 9 purchase transactions and 4 sales operations. The number of securities in the portfolio : n.2 _ Unicredit and Mediolanum.

- Medium risk : Position entered by more than 5 years in the demographics of the isitituto.Public employee, profile financially diversified, are not present phenomena of concentration of capital in savings products inside of the institute or of third parties. Preparation Upper Medium in financial activities. The total capital invesstito 25,000 € managed in n. 36 portfolio transactions thus distributed : 16 purchase transactions and 20 sales operations. The number of securities in the portfolio: n.2 _, UNICREDIT and ENEL
- High risk: Position entered from less than 5 years in the demographics of the Institute.Free professional expert in the financial sector, diversified profile, are not present phenomena of concentration of capital in savings products inside of the institute or of third parties. The total capital invested 80.000 € managed in n. 196 portfolio transactions thus distributed : 110 operations of purchase and 86 sales operations. Nuemro of securities in the portfolio : n.5 _ Mps, Saipem, Unicredit,Fincantieri,Ubi.

In all three cases the pattern formulated with $\alpha = 5\%$ is not infringed, in fact, on the basis of risk criteria and prudence defined by the Institute during placement and management of savings and the ratio between the actual violations of the model and the number of observations is maintained below the 5 % target. The same result is obtained as a result of an arbitrary remodulation of three portfolios considered, in fact, while modifying the compositions by reversing the titles between the same customers, the model retains its effectiveness while remaining in the margins of the 5% defined. A first reason can be found in the increasing diversification of the sector, namely a merch diversification of the portfolio on the basis of the nature of the title

(banking, energy, etc.) . In the case of low risk, in fact, with respect to the initial establishment of the portfolio is introduced the principle of diversification of the sector that allows the subject to reduce the concentration of capital in a same sector (see the banking systems in the specific case) and improve the values of risk. In the other two cases, on the contrary, is violated the component of sectoral diversification by increasing the concentration of the portfolio in bank shares thus obtaining a worsening of the riskiness of the model and an increase in violations of VaR. The estimation of the model has allowed us to validate the proposed and accepted by the customer, by dropping a tool typically used within the scope of *financial corporate governance on private portfolios* in order to confirm statistically as proposed within the consulting business.