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**ACCOUNTING
IN UNCERTAINTY
AND RISK CONDITIONS**

1. The nature of uncertainty and risk

Economic subjects are forced to conduct business activity in conditions of uncertainty which means the lack of full information (lack of certainty) about reasons and potential course of processes which occur.

There are two major sources of uncertainty:

- variability, also called objective or random uncertainty, this is ontological dimension of uncertainty,
- lack of knowledge, also called subjective or informative uncertainty, this is epistemological dimension of uncertainty.

Sources of variability can be distinguished, i.e.:

- value diversity,
- inherent randomness of nature,
- human behaviour,
- social, economics and cultural dynamics,
- technological surprises.

There are different degrees and sources of lack of knowledge:

- inexactness, metrical uncertainty, presented by words: “We roughly know”,
- lack of observations or measurements, “we could have known”,
- practically immeasurable, “we know what we do not know”,
- conflicting evidence, presented by words: “We do not know what we know”,
- reducible ignorance, “we do not know what we do not know”,
- indeterminacy, “we will never know”,
- irreducible ignorance, “we cannot know”¹.

The uncertainty must be distinguished from risk. The important moment for the theory of risk was the concept of F.H. Knight, according to which the risk may be predicted and calculated by means of the probability theory, whereas the uncertainty may not be precisely evaluated (the probability theory may not be applied). Since the time when Knight’s idea was announced, many various definitions of risk have been created (also definitions of uncertainty), however theoreticians of various scientific disciplines have not yet agreed on a universal definition. In all present theories of risk two common elements can be recognized: indetermination and loss. The existence of risk depends on the existence of circumstances in which the possibility of loss occurs (at least two possible results, and at least one of them undesirable). The risk occurs only in conditions of un-

¹ M.B.A. van Asselt: *Perspectives on Uncertainty and Risk*. Kluwer Academic Publishers, London 2000.

certainty. If it is certain that the loss (also profit) will occur, then there is no risk. Therefore the factor which makes decisions and activities risky may be, among others, the amount of information and limitations in access to the information.

2. Risk in accounting information system – general view on the problem

In the world without risk, an economic subject would be able to define in advance consequences of potential actions, which would also include financial condition, ability to generate profit and future cash flows. Decisions concerning kinds, sizes and structure of actions could be predictable and taken rationally. If the risk did not exist, states and consequences of actions would be known to all interested people and there would be no need to obtain information. It may be said that information systems, including accounting, are useful because uncertainty and risk occur. It would be difficult to manage the risk without accounting. Z. Messner writes: “This is what proves the active role of accounting in management since, by supplying figurative material [...] accounting not only makes it easier for us, but it is also supposed to, or at least it should, influence the realization of almost all functions of management”².

However, accounting is also connected with limitations in access to information which make it possible for the information system to turn out to be unreliable. Unreliability of the accounting system results from the fact that at the time of presenting data it may not have full information, the information it has may be not correct, or – in extreme case – it may not have any information at all. Thus, the consequence of uncertainty are three situations:

- contents included in the report may turn out to be false,
- information omitted in the report may turn out to be true after some time,
- information omitted in the report may turn out to be important after some time.

The uncertainty concerning information presented by the accounting system results derives at least, from the following sources:

- no moneyed determination of assets will be known with full certainty,
- assumptions and expectations connected with allocation of resources may not be fully verified,

² Z. Messner: *Informacja ekonomiczna a zarządzanie przedsiębiorstwem ze szczegółowym uwzględnieniem rachunkowości*. PWN, Warszawa 1971, p. 94.

- significance of the presented data may not be fully objectively determined.

Aiming at specification of risk in accounting, one should bear in mind:

- informing outer (also supervising) and inner users about the risk on time, which makes it much easier to take economic decisions,
- care for transparent, true and fair view, liquidity, ability to play, profitability, creating values,
- applying instruments specific for the accounting which are meant to protect from the effects of risk,
- elaborating specific system of measurements and comparisons concerning the risk taken, results and effectiveness of the applied protection, degree of reliability of action reflecting the ability to last and develop in conditions of risk,
- identification of ranges of liability for risk, related to macro scale (social, economic effects, etc.) as well as micro scale (proper organizational structure and division of competences),
- legal and professional regulations and inner regulations concerning requirements related to information about risk, its control and financing.

The problem and necessity to manage risk is a real challenge for the accounting system and the following questions arise:

- How does the accounting information system reflect the existing risk?
- Is the information supplied by the accounting proper and sufficient from the point of view of managing risk in a bank and taking economic decisions by the users of financial reports?
- Are legal and professional regulations conducive to reliable reflection of risk in financial reports?
- Is complete perception of information reporting on risk and its effects possible?
- How to analyse, evaluate and use the obtained information on the risk taken?
- What kind of instruments protecting from the given risk should be applied and what should be the range of these actions?

It is commonly accepted, that the risk occurs only in conditions of uncertainty. We should once again distinguish between uncertainty resulting from the lack of knowledge from the uncertainty resulting from the variability of events, which finally also affects the condition of knowledge. The subject of further consideration will be the kind of risk which occurs in ontological uncertainty conditions.

3. Groups of information about risk in accounting system

The accounting system should, in fact, inform about the risk. There are three basic kinds of information concerning the risk which are reflected by the accounting. They are:

- information on undertaken or potential actions (they characterize the risk indirectly, by description of actions, because every action involves risk),
- information on protective instruments against the risk which were applied,
- information on effects of the risk reflected directly in financial statements (unfavourable effects on assets, equities and liabilities valuation, for example valuation of obligations expressed in foreign currency and also the consequences of such valuation shown by diminution of owner's equity, particularly financial result, and also effects connected with the change of effectiveness of a bank's activity – its accepted measurement is considered to be profitability).

Norms contained in International Accounting Standards and International Financial Reporting Standards, connected with presentation of explanations concerning the risk, concern the following groups of information:

- 1) comments explaining the policy of risk management,
- 2) additional information, the revelation of which is necessary for identification and evaluation of the exposition of specific report items to risk, and especially:
 - principle of evaluation of assets and liabilities of a bank,
 - information about reserves,
 - information about transactions protecting against the risk undertaken by a bank,
 - information about accepted securities on property,
 - information about concentration of risk,
 - information about significant items outside the balance,
 - detailed information constituting a base for the identification of specific kinds of risk.

Specifications of information, including financial statements, are produced assuming complete knowledge of a subject, or – in other words – financial statement is free from uncertainty. This assumption is purely theoretical, since the uncertainty may be limited but not eliminated. It is the presentation of the information which is the closest to the reality based on full knowledge that the subject possesses. And since providing the information decreases the uncertainty,

it may be assumed that, if quasi-full information is provided (within the accepted limitations), the uncertainty will be close to none. In order to eliminate the asymmetry of information on the market and protect outer users of financial statements, the subjects are obliged to obey the concept of true and fair view. This concept obliges economic entities to reflect, in their accounting, the real property and financial situation taking into consideration different outer conditions such as changes of prices of financial assets, foreign currencies, inflation rate and others. The information generated by the accounting system should be in compliance with the basic principles of accounting, which include: going – concern convention, accrual convention, matching convention, conservative convention, consistency convention and relevance convention. The necessity to strengthen the transparency is also noted³.

What has recently been emphasized is, besides informing well, the necessity to create the information properly, or in other words, often misunderstood the so-called creative accounting. The proper creation of information is, first of all, to present the achievements of the company in the best possible way, but neither denying the facts nor omitting the unreliable information. Secondly, it is the creation of such specifications which actively help to manage the company, providing the answer on potential effects of an undertaking or ceasing activities, and proper choice of formulation of records and reports of the processes, in case of which such choice is legally provided for.

The risk should be also taken into account at final disposition of the financial net result, balancing the expectations of owners as for its pay out and security of further functioning of the subject. Directions of distribution of profit of an economic entity must take into account the basic principle of economic activity. In this case, it is the so-defined careful disposition of profits. This carefulness results from the fact that the entities act in difficult market conditions, where the economic risk is particularly well visible.

4. Instruments protecting from the risk

³ Among others, Basel Committee on Banking Supervision (BCoBS) published in 1998 document concerning strengthening transparency in a bank. It particularly emphasizes that it is the publication of financial statements and other information that enables participants of markets to evaluate the position and achievements of banks. The following six information categories which are considered to be basic for the satisfactory level of transparency of a bank are pointed out: financial achievements, financial position, strategies and practices of risk management, exposition to risk, accounting policies, basic information concerning business activity, corporate governance. The key information for the transparency of a bank should be, moreover, of a proper quality, which means they should have such attributes as versatility, adequacy for economic decisions and punctuality, reliability, comparability and materiality.

Care for adequate property and financial image of a subject requires the creation of various kinds of protection against the effects of the risk. The protection against the results of risk created by the accounting system concerns:

- risk control – accepted limits, control of realization of processes with the plan, control of effectiveness of activities by organizational entities,
- reduction of risk – instruments such as, among others, reserves, derivative protection instruments,
- financing the risk – insurance against results of the risk, owner’s equity.

Some information on the risk provided by the accounting system, and also protective instruments applied are shown in table 1.

Table 1

Information concerning the risk and instruments protecting against the risk

| INFORMATION FROM ACCOUNTING SYSTEM CONCERNING THE RISK | INSTRUMENTS PROTECTING AGAINST THE RISK |
|---|--|
| Information on dues not paid by the contracting parties and some out of balance obligations which were granted, and also depreciation of other assets | Provision for bad debt, allowance for bad debt, contingency reserve, provision for depreciation assets |
| Information on debtors and out of balance obligations which were granted not included in targeted reserves or allowance | Contingency fund for risk |
| Predicted obligations as for which the term and sum is uncertain | Literal reserve |
| Information on demand for liquid means (excluding extraordinary items) | Cash reserves, including obligatory reserve (bank’s accounting) |
| Financial lever | Owner’s equity |
| Information on not matching financial incomes and outcomes in foreign currency | Derivational instruments, mainly currency futures, currency swaps, currency options |
| Information on not matching interest rates of assets and liabilities | Derivational instruments, among others: Forward Rate Agreement, Interest Rate Futures, interest swaps, interest options, floor, collar |
| Information on predicted incomes and costs | Insurance against the results of the risk |
| Information on credit, currency engagement | Examining credit ability, limits of credit concentration, standards of permissible currency risk |

Source: Author’s own elaboration.

5. Achievements measurements taking risk into account

Profitability is considered to be a good achievements measurement and it reflects the rationality of activity. Profitability is understood as a general phenomenon of achieving surplus in incomes from activity over the costs, in other words a phenomena of gaining profit.

Speaking of the profitability of the capital two basic methods of measuring it must be pointed out:

- gros method, which does not take into account the costs incurred in order to obtain the capital,
- net method, which takes into account the costs incurred for gaining the capital, thus it is most often the achieved profitability over the rate free from risk, which is for example an average market refunding rate or interests on government bonds.

An economic subject is considered to conduct business in such a way as to aim at concluding such transactions, the profitability of which exceeds the specified cost of the capital. Therefore, it should look for “the golden mean” between the potential value of the generated financial result and the value of the possessed capitals. This circumstance is complicated by the following thing. Extending the financial result may require involvement in more risky undertakings, and this in turn requires widening of the capital base.

Measurements of the profitability valuation may be divided into three groups:

- classical indicators (ratios),
- measurements taking into account the cost of own capital,
- indicators taking into account the risk.

The profitability indicators for the financial means invested by shareholders which are most often used are: Return on Equity (ROE) and Return on Assets (ROA).

The ROE indicator measures the ability to generate profit from the invested own capital. It is calculated by dividing the amount of the profit nett by the amount of the equity capital, which includes the value of equities of the bank according to the nominal prices, change of their value, undivided profit from previous years and the capital reserve. It is shown by the following formula:

$$ROE = \text{net profit/owner's equity}$$

By means of the ROA indicator the effectiveness in generated profit is valuated, first of all based on comparison of operational efficiency of various subjects. This indicator reflects the effectiveness of financial management and ability to create the nett profit. ROA indicator is calculated from the formula:

$$ROA = \text{net profit} / \text{total assets}$$

The measurements taking into account the cost of own capital are first of all:

- Shareholder Value Added (SVA),
- Economic Value Added (EVA).

Generally speaking the concept of SVA, also called measurement of economic profit, is the subtraction between return rate of the invested capital and the cost of capital multiplied by the total value of the invested capital (own, outside capital and the so-called additional capital). It is shown by the below formula:

$$SVA = \text{Capital} * (\text{return rate of the capital} - \text{weighted average cost of the capital})$$

The classical SVA started by Rappaport, also called the economic value, is based on future cash flows. It discounts the so-called free future money flows according to average weighted cost of the capital. In order to determine the market value of an enterprise which remained after the termination of the forecast period based on the SVA conception to the discounted stream SVA residual value is added (determined by the method of eternal annuity – assuming the lack of value creation effects in the future)⁴.

Besides the classical approach of SVA valuation, two other approaches may be distinguished. The first one is based on the valuation of stock exchange companies by the market examining to what extent the market price of their shares changed, and whether it added to the owner's property. However, this approach is based on the assumption that the profitability of the company determines the price of its shares, therefore this approach has not been considered adequate. The second approach is based on the valuation of how much profit the

⁴ A. Rappaport: *Wartość dla akcjonariuszy. Poradnik menedżera i inwestora*. WIG PRESS, Warszawa 1999; T. Copeland, T. Koller, J. Murrin: *Wycena: mierzenie i kształtowanie wartości firm*. WIG PRESS, Warszawa 1997, p. 135-138.

given company has generated beyond the capital cost. This approach is methodologically concurrent with the so-called EVA conception⁵.

Measurement EVA – called one of the SVA variations – may be simply presented as an operational nett profit minus surcharge of the capital costs (with certain corrections), thanks to which we obtain the amount informing on whether a subject creates value or destroys it. Obtaining the corrected financial result is aimed at leaving only its chosen ingredients considered to be stable. The corrections concern first of all:

- corrections of reserves (updating deductions) created on assets except for the costs connected with the lost or unrecoverable dues,
- inclusion tax paid without a created tax reserve,
- individual approach to unique phenomena.

EVA measurement is presented by the following relations:

$$EVA = \text{Net profit on operational activity} - \\ - (\text{Average weighted cost of the capital} * \text{Total net assets})$$

and

$$EVA = (\text{Return on the capital} - \text{Average weighted cost of the capital}) * \\ * \text{Total equities}$$

The transactions that the bank concludes should not lessen EVA, so their effectiveness should exceed the determined capital cost.

Indicators taking into account the risk in a bank's activity are based on the conception of Risk Adjustment Performance Measurement (RAPM) where various value, income or effectiveness measurements are corrected by the risk taken. We can distinguish⁶:

- approach of type Risk Adjusted Profitability Management,
- approach Return on Value at Risk, made popular by foreign banks, especially after approving Value at Risk Method⁷ by BCoBS.

Model RAPM measures the profitability corrected by the risk taken. We may present two general measurements of the profitability valuation, namely:

⁵ Bankowość. Podręcznik akademicki. Eds. Wł.L. Jaworski, Z. Zawadzka. Poltext, Warszawa 2001, p. 586-587.

⁶ K. Jajuga: Analiza i zarządzanie ryzykiem – podejścia teoretyczne i wyzwania praktyczne. „Rynek terminowy” 2001, No. 4, p. 49; M. Marcinkowska: Wielopłaszczyznowa analiza rentowności banku. „ZTRN” 2000, No. 56, p. 129-138.

⁷ Value at Risk (VaR) understood as a random variable: financial result quantile. J. Bessis: Risk management in banking. Wiley. Chichester 1998, p. 63.

- Return on Risk Adjusted Capital – RORAC, where the correction of the capital by potential loss is taken into account in accordance with the formula:

$$RORAC = \text{nett profit/capital put at risk}$$

Risk Adjusted Return on Risk Adjusted Capital – RARORAC, which takes into account the correction of the profit by bonus for risk included in it, calculated according to the formulas:

$$RARORAC = \text{profit corrected by the risk/the capital put at risk; and}$$

$$RARORAC = (\text{profit} - \text{bonus for the risk})/\text{the capital put at risk}$$

In the RAPM model the following relation is true:

$$RARORAC = RORAC - (\text{bonus for the risk/capital put at risk})$$

In the RoVaR approach the basic measurement is the income per risk entity determined on the basis of the model based on Value at Risk Method.

Summary

Generating and valuating the information about the risk, applying protective instruments and generally speaking administration of the risk require a coherent approach to its management. It is good if there is a separate organizational entity dealing with the risk management. The risk management should be based on an individualized model with a properly selected relevancy level and other parameters of forecast. The adaptation of the inner risk measurement model requires adequate organization of the accounting system concerning the information about the risk. This assignment is connected with establishing a plan of accounts with adequate details and proper association of the information, which will guarantee fast and precise creation of data sets. It is necessary to elaborate proper main lines and procedures of behaviour related to formulation, valuation and management of assets and liabilities. Since the risk management is a difficult process, the accounting system should support the managers in this assignment, providing adequate information about the risk on time. At the same time, publicness of information and obeying the principle of true and fair view are

related with revealing the information about the risk, which is being taken, so that the outer users may also take this factor into consideration while taking economic decisions.

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