Analytic Hierarchy Process in Service of Customized Offer in Banking: Savings and Investment*  

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Today’s banking institutions spread their product and service line on a daily basis. This effort to increase competitiveness is also creating an overstocked supply for existing and new clients. Not every product is meant for every client and aggressive sales strategies tend to repel clients which can cause serious problems in long-term client-bank relations. This paper will analyze savings and investments products along with their adaptation and modulation regarding client needs. Accordingly, banks will be able to offer particular products to clients with specific needs and wishes. The analytic hierarchy process, or simply AHP method, represents a process which will be able to transform client’s demands and affinities into a customized offer. It is an easy-to-implement method used in any step of the decision-making process; the process must have multiple alternatives and each of them carries specific characteristics. The decision maker ranks all the characteristics and simultaneously all the alternatives, according to his affinities forming a final decision. This paper will explain how banks will be able to adapt to client needs and wishes in the future using the AHP method.

Keywords: analytic hierarchy process (AHP), banking, customized offer, decision making, savings and investment

Introduction

A large number of various financial institutions are active on present financial markets. Banks represent ones of the most important profit organizations on the market. Their purpose is to collect deposits and create credits and financial intermediation (Klačmer-Čalopa & Cingula, 2009). The most important financial institution in every country is the Central Bank, which represents the monetary authority. The HNB (Croatian national bank) is the central bank in Croatia. The European Central Bank with its headquarters in Frankfurt is the central bank of the European Union, Fed (Federal Reserves) is responsible for the monetary system of the USA, and the International Monetary Fund operates on a global level. In addition to central banks, commercial

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banks play a big role in the financial sector by collecting deposits and creating credits. Commercial banks pay a passive interest rate on collected deposits and charge an active interest rate on floated loans (Ferizović, 2004). Banking business operations have undergone a lot of changes over the time. These changes affected the deposit operations in a way where banks, beside of savings, offer more savings and investments products for their clients (Edwards, 2013). Furthermore, banks form big affiliations with other monetary institutions, like insurance companies, investment funds, brokerage firms, etc. Following this, offer of product and services in banks consists now of a wide range of savings and investments models. The decision about product however, can be long and difficult. The growing number of savings and investments alternatives increases product quality on one side, but on the other, it makes the decision process very difficult. Furthermore, an expansion like this attracts more clients and creates competitive advantage. Due to future business development plans and market competition, employees are motivated to offer future and existing clients all sorts of new products to keep them satisfied. This shift from service to sales model (Linton, 2013) creates pressure for employees and clients. In conclusion, the way to increase sales, which will impact not only short-term revenue increase but long-term client satisfaction, is to use the analytic hierarchy process (AHP).

**Characteristics of Savings and Investments Products**

Every form of saving or investing is characterized by specific features. Although all of savings and investments products have a common purpose of enhancing money volume, various instruments and mechanism are being used to achieve that goal. Regarding characteristics, savings and investments product can be divided by:

- duration (long- and short-term);
- risk (high- and low-risk);
- expected return (high and low returns);
- liquidity (liquid and non-liquid);
- transparency (transparent and non-transparent).

Various clients tend to have different characteristics and products. Sometimes a periodic change of client’s interests can be witnessed, for example, high- and low-risk investments. Thus, during times of trend growth, there will be more high-risk investment demands then in recession. During recession, it will witness clients changing their consumption habits and putting their money into savings. In order to find the matching savings and investments product for a specific client, it will be necessary to describe and range products by their characteristics.

**Safety of Investments and Risk**

One of the most important characteristics of savings and investments and in the same time one of the most important factor of an “ideal investment” is safety (Kirshman, 2003). Today there are a large number of savings and investments products which defined level of risk and jeopardized such safety. Risk is a potential danger which people try to avoid, although in some cases, this is not possible (Arnoldi, 2009). It is not a rule that potential or existing risk must bring negative or undesired consequences, but individuals want to avoid them. If the risk is not completely avoidable, then it should be diminished in maximal possible way. Especially that is true for a person who has gained his savings on the hard way or has very limited cash surplus. There are also such investors who are risk prone and are gladly to risk if they have some cash surplus. One negative extreme is the individuals who are prone to greater risk, although they do not have enough financial power, but such
persons are less perceived as savers or investors but hazarders. The term “safety” is directly connected with risk existence, i.e., more safe or less risky and safer or riskier products can be talked about. The term “risk” is in connection with time component, i.e., the investments on long periods follow longer period of risk, but by short-time investments, risk has short life-time and it can in this short time be very high.

**The Possibility of Return**

Generated return, after investing or saving, represents revenue, while negative return leads to initial value loss. This characteristic is bonded with risk and security. The lower the risk on savings and investments products is, the lower the return will be and vice versa. For investing in a high risk product, one will be awarded with a high return rate. However, one has to keep in mind that high risk products do not guarantee a high return rate, they only show big return potential. In addition, every low risk product does not necessarily come with a low return rate. Negative return is possible, due to high interest rates. This characteristic is very important, because it shows in which direction the investor wants to go, and sometimes it shows the final goal the investor wants to accomplish. It is sometimes possible to calculate the exact return on an investment before even taking a chance. In this way, the investor can rethink his investment strategy and seek other options if necessary. If, however, the return rate is not definable, there will be more data collection needed for the decision-making process, after which comes a time of uncertainty.

**Duration of the Investment**

Duration of the investment, while setting up savings arrangements, is mostly strictly defined by rules and perimeters. Clients, although mostly following rules, tend to break up their arrangements. Therefore, banks offer short-, mid- and long-term investment opportunities to bring their product closer to the client. Individuals prefer, on one hand short-term investments and on the other hand long-term investments to gain profit over a long period of time. In contrary to short- and long-term investors, mid-term investors want to be able to access their savings or investments at any point of time. Most savings and investments products have the characteristic of cashing out at any time (except for the third pension fund1). Shares in investment funds can be sold at any time, same as stocks except non-liquid stocks which are not on the market. Although savings determination is possible, long-term savings, home loans, and life insurances represent types of investments that are followed with penalties after determination, such as:

- preterm investment determination fee;
- lowering the initial interest rate or yield;
- loss of partial or whole gained return;
- loss of governmental stimulation (for home loans);
- loss of initial investment, etc.

**Investment Access Capability**

If and when an investor decides to place an investment, the information of how and when he can get his return becomes very important, for example, active saving models allow clients to increase their initial deposit or cash out at any time. In contrary, pension funds cannot be cleared out until the client’s 50th year of life and even then it cannot be cashed out at once. Between these two explicit models, there is a range of new products, which allow customers to check, re-deposit, or cash out their investment at any time. Most of the times, preterm

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1 It is the characteristic of Croatian pension fund system that has three pillars/parts.
savings or investments process determination is possible, but it is followed with various penalties, such as fees, loss of gained return, etc. For that reason, investors tend not to determine their arrangements before time, but that is not always possible. The availability of invested assets is not always in correlation with the duration of the investment. Another problem is the liquidity of savings and investments products, which does not allow a client to cancel or cash out his investment, but simply there is not enough demand for the product. One of good examples is investment diamonds, which, although they represent a safe investment, are very hard to sell. Another example is non-liquid stocks with a fixed price, which are not often to be found in the market. Therefore, transforming these types of securities into money can firstly last a long time and secondly be very expensive, if the securities are sold under the price.

**Transparency**

Information availability, such as investment portfolio, financial instrument fees, assets, etc., makes this a very important characteristic (Levy & Post, 2005). Before investing, clients want to gather as much information about the product as possible. Even after placing their investment, clients want to keep track of their money at all times to see progress and growth. Clients can get more or fewer pieces of information depending on the transparency of the product. Low-transparency investments are mostly investments with higher risk of return, but this of course is not a rule. One of good examples for high-risk and high-transparency investments is stocks, whose value is subject to rapid change. Although it is a high-risk investment, clients can easily follow their investment, while getting all necessary information about the company and the market. It may seem that information is being kept secret, but every investor can get information about their investment, such as:

- financial report;
- efficiency indicator;
- media news;
- economic sector in which the company is active;
- supply and demand correlation;
- trade history (prices, trade volume, etc.).

Term deposit, where investors can track their investment at all times and even know the definite outcome at the end of the term, is a good example of high-transparency investments. Life insurance policies, where clients do not have the possibility to track their investment, represent low-transparency investments. Although investments in insurance policies are limited by the Law of Insurance (announced by Narodne Novine, 151/05) and are controlled by HANFA (Croatian Financial Services Supervisory Agency), it is very hard to track the future flow of paid premium. Investment funds, for which investment policy is regulated by statute, can at any time announce the information of their investment portfolio or fund assets. An example of a simplified investment structure organized by statute can be shown as:

- a minimum of 10% of assets deposited into bank accounts;
- 20%-30% of assets into Croatian bonds;
- up to 70% invested in stock of EU companies.

This simplified scheme does not give out information about company assets, but the fund can at any time make such information available (which company stocks, in which ratio, etc.). The trade with stocks represents a high-transparency model, because traders have a big number of information about each trader and each stock. Information relevant for this kind of investment shows history trade indicators, company financial situation,
trade volume, stock price, etc. On one hand, structured products often seem to be transparent at first, because they clearly define the outline and direction of the investment. On the other hand, because of security measures, it is not always possible to know the exact present investment situation. If, however, insurance policies guarantee allowance, it is safe to say that most assets are being further invested in the safest options. Potential high-return-rate investments are earned by investing smaller parts of assets into high-risk investments. Depending on the market situation, assets are then transferred back and forth to achieve the best outcome. Transfers like these make it hard for clients to know where exactly is their investment forwarded at some moment. It is possible that investors will not achieve the best high return rate, because there are simply not enough assets in a specific and potential high return rate option.

**Analytic Hierarchy Process—AHP Method**

In a situation where a decision is made, where there are several alternatives for its formation, and where each alternative is characterized by certain features, the method of AHP is a useful tool and helps in decision-making process, regardless of whether the decision is made in the business, social, or private life. The features that characterize any of the available alternatives for reaching a final decision, determine the criteria for the acceptance of the decision, and these criteria have different importance for each individual who participates in the decision-making process. By adopting the criteria and determining their significance, conditions for a neutral evaluation of various alternatives are being created. The method was developed by American mathematician Dr. Thomas L. Saaty and is based on comparisons of pairs of criteria, so the decision-maker expresses his indifference between the two criteria that adds to moderate, severe, very severe, or extreme importance of one criterion versus another (Lootsma, 1999). This subjective opinion of an individual gains in importance and the obtained result depends on his preferences. The alternative was obtained, as the final result may not be the final selection of the decision maker, but it is a quality guideline, because it is an easy way which ranks all the offered alternatives. Such a ranking separates those alternatives that are better suited to the decision-maker of those that suit him less or not at all. When choosing the most appropriate alternatives for savings or investments, one encounters a wider range of different banking products. Each of the products has certain characteristics and each of these characteristics in the various products varies in intensity. There are, for example, more or less risky products, long- or short-term products, etc. The investor, or in this particular case the banks client, determines the importance of the characteristics. The AHP method uses descriptive answers to a simple test by which it comes to information about whether the client prefers riskier products, which offer the possibility to achieve higher yields, or other more important characteristics.

**Alternatives, Establishing Criteria, and AHP Model**

Savings and investments products that are part of the offer in a particular banking institution represent a possible alternative and the AHP method is just as easy to apply, regardless of their number. The client’s decision process will last just as long in banks that offer few savings and investments products as well as banks that offer a whole range of such products. The only difference is in the complexity of the initial evaluation of alternatives and determining the intensity of each criterion. A smaller range of simple products will be easier and faster valued than a wide range of complex products, if the evaluation process is successfully a simple questionnaire and results analyze follow. In this case, for simplicity of the presentation, following alternatives are being used:
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- deposit;
- open savings;
- housing savings;
- third pillar retirement fund (Croatia);
- money market fund;
- bond fund;
- balanced fund;
- equity fund;
- shares and stocks;
- insurance policies.

The criteria, to which the client will attach importance, according to personal and subjective preferences, are the previously mentioned characteristics of savings and investments products, such as:
- safety of principal;
- expected return;
- duration of the investment;
- availability of invested funds;
- transparency.

It will be possible to evaluate each of the above mentioned characteristics with four different levels of intensity. The security of the investment, from investors point of view, is the belief in the return of the principal and the expected yield. The four intensity levels are:
- high-risk products (0.25);
- risky products (0.50);
- rather safe principal (0.75);
- completely safe principal (1.00).

Yields of individual savings and investments products are closely correlated with the risk and expectations about the possibilities for their realization, also to scale at four levels of intensity:
- low yield (0.25);
- moderate yield (0.50);
- possibility of significant yield (0.75);
- possibility of high yield (1.00).

Maturity of investments in certain products is brief, in some medium or long. In some cases, it is not necessary to define it, given the fact that some products allow customers to stop investing at any time. Maturity will be possible to evaluate through four levels of intensity:
- long-term product for three years or more (0.25);
- mid-term product for one to two years (0.50);
- short-term product for one year (0.75);
- no investment deadline (1.00).

There are products that do not allow cash out before the expiration deadline or additional charges might occur. The characteristics are of different importance to clients and can be evaluated as follows:
- unavailable funds until the expiration deadline (0.25);
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- possible availability before the expiry under certain conditions (0.50);
- availability of funds over a longer period of several days of submission of the application for withdrawal (0.75);
- availability of funds immediately upon submission of an application to withdraw or within a few days (1.00).

When investing in certain types of savings or investments, transparency also plays an important role. It is important for investors to know where their investments have been forwarded. It should be accessible information about the results of bank’s further activities. There is information on those investments that are readily available, but there are those that are poorly accessible or even completely unavailable. The investment characteristic can also be evaluated through four levels of intensity, in one of the following ways:

- non-transparent (0.25);
- partly-transparent (0.50);
- mostly-transparent (0.75);
- transparent (1.00).

The model shows the structure of the criteria for the decision, determined on the basis of defined criteria, which are important for investors, as well on the intensity of their expectations that certain criteria will be fulfilled. The criteria, which are expected to be of significant importance to investors and which are included in the model, are: safety of principal, the potential yield, maturity investments, the availability of funds invested, and transparency. Each of these criteria is assessed at four levels of intensity and individual investor will evaluate how each criterion corresponds to his expectations. Based on the intensity of specific criteria, final tables will be constructed to rank the importance of products for the client. Structure criteria and AHP model, which contain all the offered alternatives in the decision-making process, are shown in Figure 1. The presented AHP model contains limited choice of alternatives for clarity.

![Figure 1. The AHP model.](image-url)
The Saaty Scale

Using the mentioned criteria and intensity of each of them, one can evaluate the alternatives. In this case, it means that every savings and investments product is characterized by a certain level of security, ability to execute on yield, maturity investments, the availability of funds invested, and transparency. Depending on the severity of the preferences, personalized offers are being focused on client’s needs and wishes (Pastuović, 1999). The Saaty scale is being used to determine the importance of a criterion with respect to another (Saaty & Vargas, 2012) as shown in Table 1.

Table 1

<table>
<thead>
<tr>
<th>The Saaty Scale*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intensity of importance</td>
</tr>
<tr>
<td>------------------------</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>5</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>9</td>
</tr>
<tr>
<td>Intermediate value</td>
</tr>
</tbody>
</table>

Notes. * Definitions and explanations: Domination of one against the other criteria is expressed with values of 3, 5, 7, and 9; in the case of subordination criteria, reciprocal values are being used 1/3, 1/5, 1/7, and 1/9. Source: Saaty and Vargas (2012).

The scale above definition of importance, is used in a way that each criterion compares with others, thus obtaining the ratio of their importance, which serves as the basis for calculating the order of all criteria and to compile ranking lists of criteria. In order to make the Saaty scale determine dominance or subordination, one criterion versus another, descriptive expressions are used, which make the process of determining the ranking list of criteria simple.

Severity of the Criteria and Results

In order to determine the importance of criteria in this case, the first criterion—safety is firstly compared to the potential yield, to the maturity of the investment, to the availability of funds invested, and finally to transparency. The possibility of return is compared with the security and maturity, availability and transparency, and the process is repeated until each criterion is not paired with each. Values obtained by comparing the criteria with each other, which an individual determines, are entered into the matrix in such a way that in case of the domination by one against the other paired criteria, an integer is entered, and the reciprocal value in the case of subordination criteria. Example matrix, prepared for a comparison of each criterion with each, is presented in Table 2.

This matrix is filled in a way that the criteria are matched with each other, and for each of the added values, the level of dominance or subordination (2, 3, 4, 5, 6, 7, 8, or 9) a reciprocal value is entered inversely regarding pair’s criterion (1/2, 1/3, 1/4, 1/5, 1/6, 1/7, 1/8, or 1/9). This means that if the criterion X is moderately

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2 Although needs and wishes are often perceived as synonyms, strongly taken they are not, needs are deficits or sufficits in organism or his environment, wishes are perceived needs (feeling of needs). This difference is important in ethics matter, namely to fulfil the need is almost in every case ethical, but to fulfil the wishes may not be.
more important than \( Y \) (value 3 to Saaty’s scale), it is also true that \( Y \) is moderately less important than \( X \). When thus each criterion is compared with each, the following steps are performed:

- All fractions are entered as a decimal number (i.e. \( 1/5 \) will be replaced with 0.2);
- The sum of every column of the matrix is being calculated;
- Matrix is normalized so that each of its elements is divided by the calculated sum of the column to which it belongs;
- The average value for every normalized row is being calculated.

Table 2

<table>
<thead>
<tr>
<th>Safety</th>
<th>Expected yield</th>
<th>Duration</th>
<th>Availability of funds</th>
<th>Transparency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expected yield</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duration</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability of funds</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Transparency</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

Average values of normalized rows of the matrix obtained after the implementation of these steps represent the weight of the criteria. The final ranking list of savings and investments products, which is in line with the preferences of the investor tested, is obtained in a way such that the level of each individual product characteristic is weighted with derived criteria. The process of comparing the savings and investments products in practice is not easy. Banks create new products and offer them to the market by the criteria of their business policies, and clients are selected based on a large number of subjective and objective evaluation. Comparison of savings and investments products, from the perspective of a customer who accepts a variety of criteria, while subjectively evaluating their significance or confidence level of achieving individual criterion, may seem too complicated. The seemingly complicated task for a business conversation with a client, readily is accomplished by the AHP method. If the product offer is properly evaluated according to their characteristics and if for each characteristic is a realistic level assigned, the result obtained in practice is precisely matching the client and his ideal product. This does not mean that such savings and investments products will achieve the greatest success, but will be adapted to the habits, desires, and goals of investors. A well-informed client in case of loss will have no ground to blame the seller for fraud or intentional damages. All other methods of sales that encourage or force the sale of risky products by attempting to cover up the negative sides of an investment leave plenty of room for customer dissatisfaction or conflict situations in business. Good quality information and tools that adapt to the client, not the institution or the seller, represent a breakthrough in the business of banking institutions. Although all large institutions like the fact that doing business with the principal objective of putting the customer first, practices and techniques used in sales suggest otherwise.

**Application of AHP Method for Creating Offers**

In order to make the described method to be applied in the case of making an offer when making decisions about directing funds into savings and investments products in the banking industry, it is important to cover all products. Then they need to be described by selected relevant characteristics which will be used as criteria.
when assigning importance to each of them. Such a classification is carried out thoroughly, keeping in mind to carry out as precisely as possible.

**Classification of Products by Key Characteristics**

In section mentioned, it is determined that the intensity of each relevant characteristics (security principal, the potential yield, maturity investments, the availability of funds invested, and transparency), for simplicity, will be evaluated through four levels (0.25, 0.50, 0.75, and 1.00). A description of each saving and investment product using a certain level of individual characteristics is the foundation for later processing, precisely the first step for functional use of the AHP method to find the ideal product. One example of evaluation is shown in Table 3.

Table 3

*The Classification of Products According to the Intensity of the Individual Characteristics*

<table>
<thead>
<tr>
<th>Safety</th>
<th>Possible yield</th>
<th>Duration</th>
<th>Availability</th>
<th>Transparency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deposit</td>
<td>1.00</td>
<td>0.25</td>
<td>0.75</td>
<td>0.50</td>
</tr>
<tr>
<td>Open savings</td>
<td>1.00</td>
<td>0.25</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Housing savings</td>
<td>1.00</td>
<td>0.50</td>
<td>0.25</td>
<td>0.50</td>
</tr>
<tr>
<td>III retirement fund</td>
<td>1.00</td>
<td>0.50</td>
<td>0.25</td>
<td>0.25</td>
</tr>
<tr>
<td>Money market fund</td>
<td>0.75</td>
<td>0.25</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Bond fund</td>
<td>0.50</td>
<td>0.75</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Balanced fund</td>
<td>0.25</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Equity fund</td>
<td>0.25</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Shares</td>
<td>0.25</td>
<td>1.00</td>
<td>1.00</td>
<td>0.75</td>
</tr>
<tr>
<td>Structured products</td>
<td>1.00</td>
<td>0.50</td>
<td>0.25</td>
<td>0.50</td>
</tr>
</tbody>
</table>

Source: Author.

**Questionnaire for the Client**

Well classified and characterized products form the basis for further selection process of that product that suits individual preferences. In order to investigate the affinity or preference of the individual, it is necessary to do a sales talk or cross-compare the importance of each characteristic of savings and investment products. In this way, the client determines the importance attached to each of the relevant criteria. Collection of necessary information is possible through a conversation or a short questionnaire, emphasizing that clients must be familiar with the values of the Saaty scale. It is necessary to put in relation every criterion that is seen as relevant and used for the evaluation of the savings and investments product with all the other criteria or characteristics. With simple descriptive notes from the Saaty scale, clients help to connect characteristics with meaning. A brief questionnaire is an easy way to collect the data needed to rank the importance of each criterion, and later ranking offered solutions. When comparing the criteria, it is possible to come to certain inconsistencies, for example, if criterion A is more important than criterion B and criterion C is more important than criterion A, then it would be logical to expect that the criterion C has greater significance over criterion B. The respondent may disrupt such consistency when comparing, but will continue to process using AHP methods, thus they show results that suit him best. The respondent can point to such “illogical” things, but it can also be taken into consideration that when comparing and matching, the respondent really evaluates the individual criteria in a manner that is inconsistent. An easy way to get all of the criteria mutually compared in
order to determine the significance is a short questionnaire (Bahtijarević-Šiber, 1999). This is practical, because it may contain a reference to the use of values from the Saaty scale. Since the evaluation of each of these possible alternatives is the first step for creating a personalized offer, this questionnaire is the second step. All the savings and investments products have been evaluated according to the offered features. After completing the questionnaire, one will get the importance of each characteristic. These two steps are sufficient for processing, which will result in solid guidance for reaching a final decision, or an offer that will be fully focused on the needs and desires of the individual.

**Entry, Processing and Data Analysis**

Once the client completed the questionnaire, an employee of the bank enters the information into the prepared tool, which is used to process results into a personalized and customized offer. Example table prepared to enter the completed questionnaire, shown in Table 4, is partially completed, because the same criteria are not mutually compared thus in that place there is equality (1: same importance). It is also not necessary to fill in both directions, because a certain degree of dominance of A criterion versus B, equals to the same level of subordination criteria B versus A criteria—in this purpose, simply enter the reciprocal value.

**Table 4**

*Table (Matrix) Prepared for Entering the Completed Questionnaire With the Sum of Columns*

<table>
<thead>
<tr>
<th></th>
<th>Safety</th>
<th>Expected yield (return)</th>
<th>Duration</th>
<th>Availability of funds</th>
<th>Transparency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expected yield (return)</td>
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<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Duration</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability of funds</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Transparency</td>
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<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>1</td>
</tr>
<tr>
<td>∑</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>#DIV/0!</td>
<td>1.00000</td>
</tr>
</tbody>
</table>

*Note.* MS Excel as a result enters “# DIV/0!” in case of division by zero (reporting errors due to unfilled boxes). Source: Author.

It is sufficient to fill in the fields marked with blue, because the rest of the fields are automatically filled by the reciprocal of those obtained by the questionnaire. Here is an example of the completed questionnaires and processed information (Tables 5 and 6).

**Table 5**

*Basis of the Questionnaire From Example 1*

<table>
<thead>
<tr>
<th></th>
<th>Safety</th>
<th>Expected yield (return)</th>
<th>Duration</th>
<th>Availability of funds</th>
<th>Transparency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>1</td>
<td>1/5</td>
<td>5</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Expected yield (return)</td>
<td>5</td>
<td>1</td>
<td>9</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Duration</td>
<td>1/5</td>
<td>1/9</td>
<td>1</td>
<td>3</td>
<td>1/3</td>
</tr>
<tr>
<td>Availability of funds</td>
<td>1/7</td>
<td>1/9</td>
<td>1/3</td>
<td>1</td>
<td>1/5</td>
</tr>
<tr>
<td>Transparency</td>
<td>1/3</td>
<td>1/7</td>
<td>3</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>∑</td>
<td>6.67619</td>
<td>1.56508</td>
<td>18.33333</td>
<td>25.00000</td>
<td>11.53333</td>
</tr>
</tbody>
</table>

Source: Author.

3 For the purpose of criterion, ranking pair wise comparison is used (each criterion over another, in pairs). The criterion who gains more “is better” evaluations has a higher rank. Number of such comparisons is calculated by the formula \([n(n - 1)/2]\), so method is not appropriate for a huge \(n\)-value, but in this case where there is relative small \(n\)-value, it is.
Table 6

Calculation of the Importance of Each Criterion

<table>
<thead>
<tr>
<th></th>
<th>Safety</th>
<th>Expected yield (return)</th>
<th>Duration</th>
<th>Availability of funds</th>
<th>Transparency</th>
<th>X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>0.1498</td>
<td>0.1278</td>
<td>0.2727</td>
<td>0.2800</td>
<td>0.2601</td>
<td>21.81%</td>
</tr>
<tr>
<td>Expected yield (return)</td>
<td>0.7489</td>
<td>0.6389</td>
<td>0.4909</td>
<td>0.3600</td>
<td>0.6069</td>
<td>56.91%</td>
</tr>
<tr>
<td>Duration</td>
<td>0.0300</td>
<td>0.0710</td>
<td>0.0545</td>
<td>0.1200</td>
<td>0.0289</td>
<td>6.09%</td>
</tr>
<tr>
<td>Availability of funds</td>
<td>0.0214</td>
<td>0.0710</td>
<td>0.0182</td>
<td>0.0400</td>
<td>0.0173</td>
<td>3.36%</td>
</tr>
<tr>
<td>Transparency</td>
<td>0.0499</td>
<td>0.0913</td>
<td>0.1636</td>
<td>0.2000</td>
<td>0.0867</td>
<td>11.83%</td>
</tr>
</tbody>
</table>

Table 7

Ranking of Savings and Investments Products According to the Data Obtained From Questionnaires in Example 1

<table>
<thead>
<tr>
<th></th>
<th>Safety</th>
<th>Expected yield (return)</th>
<th>Duration</th>
<th>Availability of funds</th>
<th>Transparency</th>
<th>X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deposit</td>
<td>1.00</td>
<td>0.25</td>
<td>0.75</td>
<td>0.50</td>
<td>1.00</td>
<td>0.541130</td>
</tr>
<tr>
<td>Open savings</td>
<td>1.00</td>
<td>0.25</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>0.573142</td>
</tr>
<tr>
<td>Housing savings</td>
<td>1.00</td>
<td>0.50</td>
<td>0.25</td>
<td>0.50</td>
<td>1.00</td>
<td>0.652977</td>
</tr>
<tr>
<td>Retirement fund</td>
<td>1.00</td>
<td>0.50</td>
<td>0.25</td>
<td>0.25</td>
<td>1.00</td>
<td>0.644581</td>
</tr>
<tr>
<td>Cash fund</td>
<td>0.75</td>
<td>0.25</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>0.518621</td>
</tr>
<tr>
<td>Bonds fund</td>
<td>0.50</td>
<td>0.75</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>0.748672</td>
</tr>
<tr>
<td>Balanced fund</td>
<td>0.25</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>0.836437</td>
</tr>
<tr>
<td>Equity fund</td>
<td>0.25</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>0.836437</td>
</tr>
<tr>
<td>Shares/stocks</td>
<td>0.25</td>
<td>1.00</td>
<td>1.00</td>
<td>0.75</td>
<td>1.00</td>
<td>0.828042</td>
</tr>
<tr>
<td>Hybrids</td>
<td>1.00</td>
<td>0.50</td>
<td>0.25</td>
<td>0.50</td>
<td>0.50</td>
<td>0.593822</td>
</tr>
</tbody>
</table>

The respondent in Tables 5, 6, and 7 is mostly interested in possibilities for achieving high yields. Although security is on a high second place, this criterion mentioned is much less important, while some are almost completely irrelevant. This client is willing to accept the risk, therefore three products emerge as results. These are balanced and equity funds and investment in shares.

Conclusions

The introduction of this method in the decision-making process shortens the sales talk, asks only relevant questions, and collects only relevant information. Although perhaps such a conversation lacks creativity and beauty, it is more functional, more precise, and takes less time to finalize. That is the major feature of the AHP method, defining the importance of the criteria that are critical for the decision-making process (Pomerol & Barba-Romero, 2000). If this deficiency is emphasized, it can be reversed in a big advantage. It is important to introduce the client to a strict form, and then he will not expect a broad dialogue and will be satisfied that the dealer has focused on the problem and the client’s real needs. This way can avoid deficiencies of forced sales techniques, such as:

• The client is not forced into anything;
• There is a wider offer;
• The result contains all the products a bank offers;
• Sales staff is forced to know everything about specific products;
• Less time is needed to finalize the procedure;
• Sales staff has no influence on the client’s decision;
• It is not possible for the client to have a large number of unwanted products in his portfolio because the system eliminates products that do not match client’s affinities;
• Explanation of the process is possible, it is precisely stated that results are based on client’s needs and affinities, and the results can be declined.

The advantage for the bank is that in this way, without the pressure of sales, banks will have a good long-term relation with the client.

Also this paper shows an important paradigmatic change from doing banking sale by improvisation (without model) to do the same by means of a model (AHP). Namely in science and professional work, doing something by a model should have advantage over doing something by improvisation, because of his numerous benefits (Grković, 2008).4

References

4 Improvisation has not controlled use of resources (problem of measuring); when people improvise the action which is always different, they act on subjective manner. Every situation is extraordinary. In improvisation, there is no need to learn. It is impossible to transfer all the experience of improvisation. The results of improvisation are uncertain and under optimal possibility. Improvisation regulary brings the unsatisfaction. The opposite characterize action under good model (control of resource use, totally defined action) should be learned. Using the model, the new things and this use in other actions can be learnt. The model knowledge can be standardised transfer to others. The results are expected and accurate.