



**Szent István University  
Doctoral School of Economics and Organisational Sciences**

Theses of doctoral (PhD) study

***Analysis of crimes against property affecting the  
attributes and operational risks of domestic savings  
cooperatives***

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# 1. INTRODUCTION

## 1.1. Topic actuality

If we take a look at the development of European economics, there were significant differences that were happening in the latter part of the 19th Century. The earlier balanced market positions of the various market actors, and their appropriate social status and cooperative links were disintegrated by the Industrial Revolution, and the Laissez Faire capitalism. Therefore, market actors, especially those that have small to mid-sized capital had to make cooperative relations with each other. Cooperatives appeared among the European joint enterprises as both a homo economicus<sup>1</sup>, and a homo<sup>2</sup> socialis<sup>3</sup>. During the last century and a half, cooperatives became a definitive institution within the most notable areas of both European, and non-European economies and societies, in all main economic sectors. As such, the financial and banking sector, more specifically, loan cooperatives, bank cooperative systems, and savings cooperatives as well. The savings cooperatives sector was always important for me. I've seen their operations from the time when I was just a child. my mother was an employee of a savings cooperatives for 47 years, from 1972, and became a lead manager in 1983. Therefore I was a participant in representative meeting reports, and became a representative myself later as well. Later, I started work as regional head of operations, and sales manager. my first diploma work in 2001 was my thesis on „*The overall analysis of the Boldva és Vidéke savings cooperative's economic activities*”. In 2002, I finished my second diploma work named „*The role of savings cooperatives integration in in the lives of the Borsod County savings cooperatives*” and once again chose to analyse savings cooperatives and their systems. Since I was born in the rural areas, and am living in the rural areas even today, I always found the role of savings cooperatives, their operations and their importance in the life of the local populace. On a national level, they also have the largest net of offices, they have financial services in close to 1500 settlements. In 2013, I once again chose to analyse savings cooperatives, and my research topic was „*Analysis of the internal/external environments of the Boldva és Vidéke savings cooperatives*”. In order to compare medians of multiple samples, I chose the method of variance analysis, and tried to validate my hypotheses. For currently active bounds and loans, I determined if there was any outsourcing in the current economic period, which was significantly different to the others in size.

I was interested in the cooperatives loan institution sector abbreviated the "rural bank".

During my current research, I analyse the various disciplinary processes related to the savings cooperatives sector, in the shape of case studies. The research includes cases from the Regime Change, all the way to today. In my dissertation, I analyse cases announced in legal decrees, in which a savings cooperative appeared as a legal victim.

The various crimes against financial institutions can also be violent crimes against private property, the most typical of which, also the most notorious is the crime of robbery, detailed in the §365 of the Criminal Code (abbreviated CC). Another typical crime against private property was embezzlement (CC §372), fraud (CC §373), and misappropriation / malfeasance (CC §376). These crimes are part of the operational risks from the perspective of the savings cooperatives. Operational risks are the risks of losses which appear due to the inappropriate operations of bank processes due to its operation not appropriate for a human or system considerations, or erroneous operations, including losses caused by external factors.

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<sup>1</sup> „homo economicus”: human acting for economic reasons (Bakos, 1989, p. 343.)

<sup>2</sup> „homo”: human (<https://meszotar.hu/keres-homo>)

<sup>3</sup> „socialis”: social, societal, community, et cetera (<https://meszotar.hu/keres-socialis>)

Therefore, each and every risk which causes the normal operations of the financial institution to err, thereby resulting in a loss for the bank can be categorised into operational risks. When we identify the operational risk, we try to type happenings which may cause a loss to the bank. I use the balance sheet size and financial results of savings cooperatives active between 2011 and 2015 in Hungary for my analysis. I analyse the relations between factors. Furthermore, I also analyse any data from the period between 2003 and 2016 which I was able to procure.

The most important condition for properly managing these risks – though it is not the only one – is to have a proper regulatory system. This is due to how regulation doesn't affect the breathing room of the act in question, or the possibilities of them reaching their own goals. Banks are profit oriented institutions, which have their own interests to balance with reliable, and prudent operations. This balance has to be created by regulation. If regulations don't include all the factors of initiative, which would aid reliability on a high level, we have to take its self- propelling negative effects into consideration, and the social costs of the losses incurred. Therefore, it's important to analyse regulations in their current form, and the documents that even its use (principles, guidelines, guidebooks, et cetera), to see how much they aid efficient risk management.

As for the actuality of the topic, the rearrangement of the savings cooperatives sector has been happening since 2013. Act CXXXV of 2013 on the changes in decrees of economic interest on the integration of cooperative financial institutions (integration act for short) states that it's „important to redesign the entirety of the savings cooperatives sector because the density of capital in the sector is low, its level of organisation and level of services are inadequate, and there is a risk that in its current form, it wouldn't be capable of keeping up its operations on the long-term”. The cooperative financial institution integration is necessary because the prior forms of cooperation were not strong enough, and because the sector was incapable of renewing itself using its own power.

During the last 20 years, the number of savings cooperatives and other loan institutions reduced to close to have, the membership also shrunk from more than 1 million to a mere hundred thousand, and the market share of the sector became a measly 5%. Apart from this, there were many cases brought to light, where the inadequacies of the system made it possible for people to commit crimes against savings cooperatives that measured to billions, or in other words, people handled the money of bondholders, their own members, and joint foundations.

using the experiences I gather during the research, I wish to aid the work of savings cooperatives, and define the proper regulation framework used for prevention<sup>4</sup>.

## **1.2. Research questions**

Why did savings cooperatives become weak? What are the signs of weakness?

One of the main reasons for the weakening position is exactly the lacking points of integration, and the cooperative system being divided and unregulated. In the system before this, cooperative financial institutions weren't able to preserve their competitiveness against larger amounts of capital, loan potential, or the fact that commercial banks are able to offer unified and modern services, in a more efficient manner across the country.

Another important set of questions are the ones related to the effect of changes introduced before and after 2013. Are proper regulations sufficient in creating conditions necessary for the prudent operations of savings cooperatives?

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<sup>4</sup> „prevention”: to prevent, to take steps in order to avoid (Bakos, 1989, p. 680)

### 1.3. Goals

I aim to reach the following goals in my dissertation:

- Based on domestic and international literature sources, I wish to introduce the history of development of the cooperatives sector went through from the perspectives of economics and society, using the cooperatives regulation's analysis;
- I wish to introduce the role and position of savings cooperatives sector within the domestic financial institution system;
- I wish to analyse the following : domestic savings cooperatives' regulation, organisational structure, management – decision-making departments, and their internal regulations, using empirical methods, and specifically focusing on operational risks;
- I wish to analyse the various codices and guidelines related to operational risks of banks, including : fraud prevention and management-, loan risk management-, client and partner rating-, organisational and operational-, and financial regulations, furthermore, the risk strategy-, accounting policy-, basic regulation,- and behavioural codices;
- I wish to use the Kruskal-Wallis test to analyse relations for a set period of time (between 2011 and 2015) between the ROA (return on assets) indicators of savings cooperatives active in Hungary;
- I aim to analyse both a violent and non-violent crimes against personal assets of the savings cooperatives, and using this to draw conclusions in the form of case studies. I wish to analyse cases publicised in legal documents, where savings cooperative was the victim of a crime. I analyse cases which happened between today and the Regime Change;
- I wish to obtain the opinion of clients, employees, leaders and managers about the savings cooperative integration, and about crimes related to them using qualitative research methods.

### My hypotheses:

- H<sub>1</sub>: The loss suffered by the savings cooperative that comes from robbery is smaller, in other words, this kind of operational risk has lower relevance, when compared to other crimes against private property.
- H<sub>2</sub>: The control and operation of the savings cooperative sector is to divided, inefficient. at the same time, it also has a high amount of risks. the relationship between clients and savings cooperative employees is to personal. this act as an edge in competition against the other financial institutions, but it is also a high-end risk.
- H<sub>3</sub>: Based on the analysis of Hungary's savings cooperatives' ROA indicators between 2011 and 2015, we can see positive economic effects of the integration conducted in 2013.
- H<sub>4</sub>: the current operations of the savings cooperative sector is more unified than that of the sector in 2013 and prior, when there were no unified operational, risk management, covering evaluation, and prudence regulations, and the authorities didn't demand them to operate in a unified manner.

## 2. MATERIAL AND METHOD

*„Scientific research means we see what everyone else sees,  
however, we interpret it in a different way.”*

*(Albert Szent-Györgyi)*

In the next chapter I will introduce the methods that I used during my analysis, and the databases that I used in my thesis. My research was based on four pillars, first of which will document analysis conducted on the internal documents of the savings cooperative, which are relevant for the research. Another one was the statistical analyses, descriptive statistics, and the analysis conducted with the Kruskal - Wallis test. The third pillar was the analysis of the crimes committed against savings cooperatives, in the form of case studies, typed. The last pillar was applying the method of the qualitative research in the form of a focus group and a deep interview.

### 2.1. Material

During my research, I primarily employed domestic literature sources for my secondary data collection, and tried to limit myself to professional and scientific journals, conferences, statistical databases. Naturally, I also took the material from foreign authors into consideration, and processed what I could in terms of relevance to my topic. Furthermore, I also employed the Internet as a source for my data collection. I collected secondary data for my research from both internal and external sources, and used all of them. When I say internal secondary sources, I mean the internal materials of savings cooperative, for example its reports.

#### **My secondary sources:**

- National Bank of Hungary, Golden Book database;
- Balance sheet and performance report data from savings cooperative websites;
- HCSO database;
- National Tax and Customs Administration (annual money-laundering report, half-year guidelines);
- data of the Bureau against Money-laundering and Terrorism Financing;
- the Bank Association;
- data and reports of the Takarékbank;
- World Bank;
- professional magazines and books;
- published materials and studies.

#### **My secondary sources from the savings cooperative's internal materials:**

I use the documentation regarding the operations and regulation of the savings cooperative as my secondary internal source. This data can only be collected from within the data of the savings cooperative. I processed and analysed this data.

during my research, my goal was to take a closer look at the following documentation of the savings cooperative, and to identify the regulations related to my topic, as follows:

- directly affecting regulations, which included 50 documents during the analysis timeframe (for example: risk strategy, accounting policy, risk evaluation and analysis

- results' internal validation methodology, wage policy, or fraud prevention and management regulations);
- indirectly affecting regulations, which included 17 documents during the analysis timeframe (for example: loan risk management regulations, client and partner evaluation regulations);
- product -related regulations, which included 24 documents;
- the private regulations of the savings cooperative, which included more than a hundred documents (for example: organisational and operational regulations, base regulation, behaviour codex, finance management regulations);
- the management orders of Takarékbank;
- managers' decisions.

### **My primary sources:**

- The various legal cases which have to do with savings cooperatives from the Debrecen Court of Appeal

The Debrecen Court of Appeal allowed me to look into their data, in order to offer me a perspective to scientifically analyse various legal cases related to savings cooperatives. I follow these cases from the Regime Change, all the way to today.

Based on the research approval of the head of the Debrecen Court of Appeal, I was allowed to take a look into 143 legal cases, which, in some form had to do with savings cooperatives. This research served as my main database.

- The opinions of my focus group participants
- The opinions of my deep interview participants.

### **Qualitative data from the primary research:**

I talk to a lot of entrepreneurs about the topic, however, it was never an open discussion. 5 of these people were chosen to represent the entrepreneurship sector. In this research, unique interviews were conducted with the five participants, furthermore, I also managed to ask the opinion of a general manager who was active for multiple decades (34 years).

The five chosen participants of the deep interviews were found using a probability-based random sampling method. They were chosen using a simplified sampling process. In the case of entrepreneurships that have an account at savings cooperative „B”, I allocated one number, followed by choosing the elements that will end up in my sample using a random number generator.

Using this method, I concluded the private deep interviews.

- A1 - 40-year-old entrepreneur
- A2 - 41-year-old entrepreneur
- A3 - 66-year-old entrepreneur working in agriculture
- A4 - 37-year-old primary producer
- A5 - 45-year-old accountant, representative of an agricultural limited corporation
- A6 - the chief executive officer of the savings cooperative in question

Sampling technique refers to the method with which we choose the elements of our sample from the sampling framework. This has two main types, which are probability-based (random), and non-probability-based (not random) sampling techniques. During my qualitative research, I chose to use the latter. The sample is properly representative towards those who served as the basis of my sample, since the members of the group of "decision-makers" has the same decision-making rights as the savings cooperative itself. Furthermore, "loan clerks" also do similar tasks at various savings cooperatives, as such, in this group, I also chose a controlling factor, which is the "risk manager". In the case of the two focus groups, I used a sampling technique later finalised with a researcher decision. This sampling technique is often used when some sort of professional reasons have to be taken into consideration. When choosing the participants of the two focus groups, the main concern was to be the representatives of different savings cooperatives.

1. Focus group members

„A” savings cooperative: president and chief executive officer (two people)

„B” savings cooperative: president and chief executive officer (two people)

„C” savings cooperative: regional executive officers (two people)

2. Focus group members

„A” savings cooperative: head of active division, loan clerk (two people)

„B” savings cooperative: head of loan clerk division and risk manager (two people)

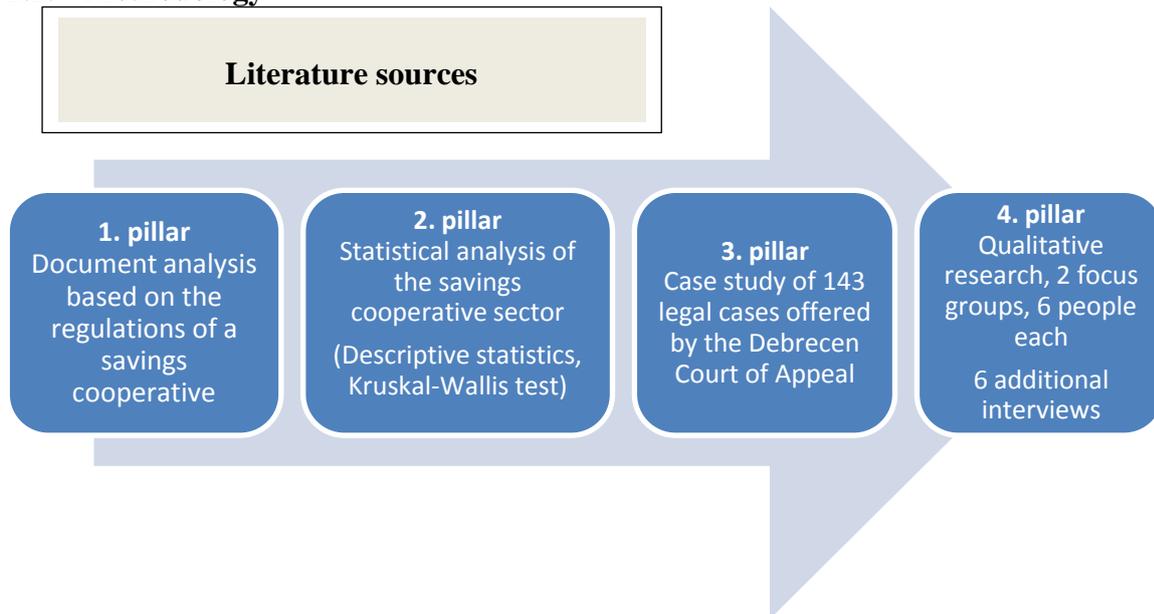
„C” savings cooperative: loan clerks (two people)

Savings cooperative "A" offers bank services in 29 offices of six small regions in the northern area of Borsod-Abaúj-Zemplén county. The cooperative conducts its financial activities with 127 employees. the membership reaches 1009 people. As for its size, it has a balance sheet total of 16 billion HUF.

Savings cooperative "B" is located in the same county, and has 12 offices, five of which can be found in the county seat, while seven others are in the small region of Edelény. It offers its services with the aid of 50 employees to 385 members. regarding its size, its balance sheet total is 8 billion HUF.

Savings cooperative "C" has a network which encompasses three counties, and currently have 34 offices in total. They manage the accounts of 63 municipalities. The balance sheet total of the savings cooperative is more than 15 billion HUF.

## 2.2. Methodology



### 1. figure Research process

Source: self-made

**Document analysis** is one of the most basic research methods of qualitative research, which can be used at a wide variety of occasions. The fundamentals of document analysis is to identify the connections and specific, interesting points within documents. If we were to say this in the language of profession, we would say that we "unearth" the information relevant for our research from the non-structured text, and place it in a structured format. I processed and analysed a certain savings cooperative's operational, regulation- related documents.

After this, the next part of my dissertation was to analyse the savings cooperative sector statistically. For this, I employed **descriptive statistics** and its most important indicators, which were average, median, modus, percentiles, quartiles. Furthermore, I employed the aid of relational numbers, and timeline analyses to analyse the balance sheet total, balance sheet profit, bond and loan changes.

Types of middle values based on location:

- Quartiles
  - o median
  - o quartiles
- Modus

Quartiles are the set values in the respective highest positions after dividing quantities ordered by size into  $k$  number of equal parts.

Median shows the position of the unit of data within a data set ordered by size, that has the same number of units lower than it is those higher. In the case of a dataset which has even numbers, after ordering them by size, the median is the average of the two middle positions. (Töröcsvári, 2009)

Median's number:

$$n_{Me} = \frac{n+1}{2}$$

Estimating the median in a frequency row:

$$Me = me_{x0} + \frac{\frac{n+1}{2} - \sum_{i=1}^{me-1} f_i}{f_{me}} \cdot h, \text{ Where}$$

Quartiles (Q<sub>1</sub>, Q<sub>2</sub>, Q<sub>3</sub>) divide the row by four. (Q<sub>2</sub>=Me)

The numbers of Q<sub>1</sub> and Q<sub>3</sub>:

$$n_{Q1} = \frac{n+1}{4} \quad n_{Q3} = 3 \cdot \frac{n+1}{4}$$

By grouping the sample into various groups, ordering it into statistical rows and tabs, or by illustrating them, we make the specifications of the sample easy to view, and also offer opportunities for comparison. Beyond this, we also need indicators which further reduce the size of any common specification of the sample, in other words, makes it possible to follow a higher level of generalisation. Such indicators are middle values, which in and of themselves are important comparison indicators. Middle values not only have individual economic content, but are also bases for comparison in statistical analyses (Szűcs, 2004)

In the next part, I analyse the ROA indicators of savings cooperatives which were operating in Hungary between 2011 and 2015 using a statistical analysis method. I determined the timeframe of analysis by analysing the happenings before and after the Integration Act of 2013. using the balance sheet and result report of savings cooperatives, in other words, their annual report data, I calculate indicators for profitability, for the timeframe between 2011 and 2015. furthermore, in case I have additional data for the 2003 – 2017 timeframe, I also conducted extended analyses.

I conducted the necessary calculations using the statistical programme package of SPSS, and also used Microsoft Excel.

$$\text{Return on Assets} = \frac{\text{Taxed result}}{\text{Total assets}}$$

The indicator measures the profitability of the entirety of the enterprise. It shows the average income the total assets of the enterprise generated, the size of the return rate the enterprise operated with. The indicator might prove useful for both the owners and the loan providers, not to mention the leadership of the enterprise. In order to calculate it, we need to know the results of the enterprise for the given timeframe, and the entirety of the assets at the disposal of the enterprise.

Interpreting the value of the indicator is a rather simple task. The higher the value seen on the indicator, the higher the return the enterprise reaches by operating its assets. The value of the indicator has to show the business risk of the activity, meaning the more risky the activity performed by the enterprise, the higher the ROA value has to be in the long term. Since the operational risks of the bank also have an effect on profitability, it's important to choose an indicator that reflects this fact.

It's often hard to choose between the usage of parametric and nonparametric test methods. I wished to use variance analysis to evaluate the ROA indicators that I chose. A smaller deviation from the condition doesn't cause that much of a problem with the results of the variance analysis, as though variance analysis is a robust method, during my analyses, I was capable of proving that the conditions of variance analysis do not hold true, therefore, it's not possible to conduct the analysis.

if we cannot assume normality for the various groups, then we are able to use a nonparametric method. even in this case, conducting the same tests again and again by pairs for the two groups is not advised, as this method increases the probability of an error for the entirety of the analysis. such an example is the self-controlled test, in our case, the Friedman test, while for independent

groups, we use the Kruskal-Wallis test. during my analysis, I wished to prove that the ROA indicators of savings cooperatives for the timeframe of the analysis (2011 – 2015) deviate from each other. during the choice of method, I made my decision to use the **Kruskal-Wallis test** for the following reasons: there are different savings cooperatives in the analysed groups due to the mergers – during the years, some savings cooperatives began their operations with a different name, or continued them with the same name, but merged with another, which makes the samples of analysis independent; in similar cases, there is a condition for the normality of the dependent in the general use the variance analysis (Sajtos - Mitev, 2007), which doesn't hold true for the groups analysed (years).

The analyses in the dissertation were conducted using Microsoft Excel, and the IBM SPSS 25 programme pack, since the post hoc test, which shows us the years' differences is only included in the new version. When choosing the analyses and the methodology, I made sure to correctly clean the data, and organise it into a coherent structure. In relation to the systematically organised databases introduced earlier, I chose the method I wished to employ.

Usage of the Kruskal-Wallis test:

- The number of elements shall be  $p$ , of which we take samples numbering  $n_1, n_2, \dots, n_p$ ,  $n$  shall be the total of the samples' number of elements.
- Where:

$H_0$  : there's no difference between the data sets, in terms of deviation,

$H_1$  : of the  $p$  number of datasets, at least two differ in terms of deviation,

- We order all the data without exception (for identical values, average ranks are organised),
- We determine rank sums for the samples taken from the different data sets.

$T_1, T_2, \dots, T_p$

- As such, the Kruskal-Wallis H test looks like the following:

$$H = \frac{12}{n(n+1)} \sum_{i=1}^p \frac{T_i^2}{n_i} - 3(n+1)$$

In my research, the third pillar I named was the case study, which is one of the basic research methods of social studies.

The goal of the case study is to introduce happenings and actions which are, from some perspective, unique, complex, all-encompassing, in a way that they show relations. From this perspective, it's exactly the opposite of quantitative methods, since the analyses' targets are attributes of multiple cases pre-chosen (hence, already known). In other words, we can say that in this method, representativeness is almost entirely sacrificed for complexity. This "case", or "cases" in my dissertation are actual legal cases, which were conducted for criminal activity against savings cooperatives, or their assets. Savings cooperatives can be exceptionally sensitive to economic foul plays, which means that I consider it advantageous to draw conclusions from the legal cases related to them. I followed tendencies until today, right from the so-called Regime Change.

In a certain sense, we can also say that case studies are more than simply a method - they are a new perspective as well. The point is that in spite of all its differences at face value, and unique quirks, human behaviour always has specific attributes which can be generalised easily. Therefore, the observation of a unit also offers a significant introduction to a sort of behaviour, or organisational operation.

The main focus of case studies is complexity<sup>5</sup> and contextuity<sup>6</sup>.

- Complexity means that the case in question is introduced in its entirety. We spare some time to show all aspects of its life and operation, and inter-connections as well. Therefore, the case study - though naturally, can also focus on different specific questions - introduces the case in question while it is "in operation". A fundamental part of this is that we also have to introduce the cause-effect relations between aspects of the case.
- In terms of contextuity, the case isn't only analysed and introduced on its own, focusing on its specific attributes, but in relation to the context, environment in which it's operating, acting. The goal is once again to identify the environmental factors that have an effect on processes and specifics, and introduce the effects.

As such, case studies always have a timeframe dimension as well, since they don't show a static state, but an actual case.

One of the most important questions of making a case study is related to selection: how can we decide which one of the many possible cases we should analyse in more depth? Since the goal is obviously not representativeness here (meaning the sample does not have to mirror the structure of the entire basis), nor the translation to numbers, and generalisation of results (meaning we don't want to say that the entirety of the basis is like the sample chosen), we do not need a probability sample. I typed and chose legal cases of all the legal cases at hand, and draw conclusions on how the future possibility of similar cases can be reduced, or averted entirely. In the case of the case studies I prepared, the reliability and validity are obvious, since the database was offered by the Debrecen Court of Appeal. I had to prove if the attributes (opinion) of the case in question are relevant or not to the phenomenon in question. Therefore, the goal is to avoid mass (until at least acceptable numbers) data collection, and replace it with gathering the most appropriate data. Therefore, generally choosing the case is done by an estimation method, meaning the researcher uses his/her prior knowledge, and perhaps a preceding analysis' results to choose the case to be analysed himself/herself.

As such, there are usually choices concerning the following:

- Generic cases: these are cases which have main attributes that, according to the researcher, describe the other units of the data set sufficiently as well;
- Extreme cases: the cases introduced under this banner are special from some kind of perspective, and are often considered "extremities".

The process of creating a case study:

#### 1. Topics

During the creation of case studies, I first mapped all the aspects of the case in question. This usually builds upon the overview of theoretic definitions and models, meaning a good case study always has a strong root in theoretic background. However, theoretic models in this method aren't aimed at identifying cause-effect relations, but to determine the topics that should be analysed later. In other words, research - if successful - won't validate the model by measuring the strength of correlation, but by highlighting the importance of topics for the case in question.

#### 2. Material collection:

In this phase, as a first step, we must collect information about the case chosen, from pre-determined topics. Though I worked with multiple cases, and I had to work with multiple data sources for an objective final result. Unlike a questionnaire, interview or observation, creating a case study is often done by simultaneously using multiple methods. From this perspective, case studies can be seen as an analysis and presentation method, instead of a data generation method.

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<sup>5</sup> „complexity”: something having many aspects (<https://idegen-szavak.hu/komplexitás>)

<sup>6</sup> „contextuity”: being coherent from many perspectives (<https://idegen-szavak.hu/keres/kontextuális>)

Sources used for the case study include:

- 1) Statistical data: information in numbers related to the cases in question and their types, or their environments.
- 2) Public documents: newspaper articles, declarations, legal documents, laws, decrees, regulations are in this category.
- 3) Personal documents: reports introducing the actual business processes of the enterprise. These are often found easily on the Internet as well.
- 4) Interviews: the opinions of people related to the case in question (clients, clerks, decision-makers, leaders, etc.) often give the highest amount of relevant information not recorded in official documents.

Not only did I use multiple sources, I also analysed a number of actual data sources for the categories. I reviewed a wide berth of different documents related to the cases in question, and also used data related to the case in question, collected from a multitude of sources in the analyses as well.

### 3. Organising:

In this step, the task is to organise the data gathered, and to identify the relations between the obtained information. The objective, factual information has to be gathered from the text, and information verified by multiple data sources highlighted. The goal is to introduce the aspects, either obtained during or before the data collection, in a way that they are organised into a coherent framework.

### 4. Introduction:

The final step is to word the case study. However, this is more than simply coding the already present information into words and sentences: a good case study also interprets and explains the attributes of the case.

When choosing the case, we often take samples into consideration as priority that are concentrated on the information we can obtain from them. The opposite of this is random sampling. Typical and general doesn't necessarily prove to be the worthiest, as far as information goes. Special, and unusual cases may also offer more information, since these need more mechanisms, and more cooperating partners as well.

Of the 143 cases, I chose using the layered sampling based not on simply random sampling processes, which means that the entire data set, in our case, the 143 cases, is first divided into different layers based on their attributes analysed. These are robbery, fraud, embezzlement, misappropriation and money laundering. I procured my sample in a way that kept the ratios of homogeneous layers constant in the sample and the entire data set.

The fourth pillar of my research, the **qualitative method** wasn't offering numerical results, but the thought processes of the target group, and their assumed reactions, actions, which are understood in a deeper sense. The point is a quality approach to description, the data are deep, their validity is solid. The researcher can create a closer connection with the researched, therefore gaining a peek into areas where they can't otherwise, due to the nature of quantitative research. This method doesn't rigidly limit itself to a set list of questions, its strategy isn't structured, or consecutive. (Siklaci I., 2006)

We can justify the usage of qualitative research in many ways. It's not always possible, or advised to gain answers from participants in a clearly structured or formal method's framework. There may be cases where people refuse, or are not capable of answering certain questions, because those have an impact on their privacy, may cause them to be embarrassed, or have a negative impact on their self-perception or state of affairs. Also, people may not be able to answer questions aimed at their subconscious. Values, emotional driving forces and motivational

factors are parts of the subconscious, which are protected from the prying eyes of the outside World by rational thinking, and self-preservative instincts (f. e.: financial straits). (Veres Z., 2014)

During the interviews, I wished to find answers to what they think of savings cooperatives, how they differ from banks. Also, I managed to conclude the interview with a savings cooperative's president in a very open tone, important because he has decades of experience.

The topic I chose to research is a very sensitive one. Naturally, if directly asked about fraud or embezzlement, not many are open enough to talk honestly. Therefore, what interested me was how the three different target groups view savings cooperatives, loaning, and clients. Why is it that there are illegal economic activities, and violent crimes against assets? In order to understand this, we need to know the weak points of savings cooperatives, and the opinions of the clients as well.

We can group qualitative processes by them being direct or indirect in light of the knowledge the participant has about the actual goal of the research - if they're privy to the details. The direct approach is open. The goal of the research is shown to the participants, or is simply to deduce from the questions. The most important direct techniques are focus groups and deep interviews. Contrary to this, research where indirect approach is chosen as the basis hides the real target of the research from participants. Projective-, association-, supplementary-, and construction and expression techniques are the most notable indirect methods.

A focus group can be defined as a pre-planned talk which aims to collect information about the perception of a certain, pre-determined area of interest which is supported by a forgiving, non-threatening mood.

## 2.3. Results

### 1. Chart Verification of research hypotheses

Hypotheses	Research results deemed this hypothesis
<ul style="list-style-type: none"> <li><b>H<sub>1</sub>: The loss suffered by the savings cooperative that comes from robbery is smaller, in other words, this kind of operational risk has lower relevance, when compared to other crimes against private property.</b></li> </ul>	Valid ✓
<ul style="list-style-type: none"> <li><b>H<sub>2</sub>: The control and operation of the savings cooperative sector is to divided, inefficient. at the same time, it also has a high amount of risks. the relationship between clients and savings cooperative employees is to personal. this act as an edge in competition against the other financial institutions, but it is also a high-end risk.</b></li> </ul>	Valid ✓
<ul style="list-style-type: none"> <li><b>H<sub>3</sub>: Based on the analysis of Hungary's savings cooperatives' ROA indicators between 2011 and 2015, we can see positive economic effects of the integration conducted in 2013.</b></li> </ul>	Invalid ✗
<ul style="list-style-type: none"> <li><b>H<sub>4</sub>: The current operations of the savings cooperative sector is more unified than that of the sector in 2013 and prior, when there were no unified operational, risk management, covering evaluation, and prudence regulations, and the authorities didn't demand them to operate in a unified manner.</b></li> </ul>	Valid ✓

Source: self-made

#### 2.3.1. *New and novel scientific results*

In light of my hypotheses, I summarised my new and novel scientific results below:

During my research, I used the **case study** method, one of the most-used social study method in order to analyse the legal cases.

I analysed legal cases in which a savings cooperative was the side that suffered the consequences of crime. The facts within the decrees of the Court of Appeal (now officially called "Curia") were shortened somewhat, but in order to remain as precise as possible, I tried to keep the original wording as much as possible. Based on the research permit of the head of the Debrecen Court of Appeal, I was allowed to look into 143 legal cases, in which savings cooperatives had some part.

Savings cooperatives can be especially sensitive to economic activity-related crime.

During my research, I proved that the robberies committed in savings cooperatives mainly cause panic, but less of a damage when compared to other criminal activities. The hazardous nature of intellectual criminal activity against financial assets displayed in monetary terms is much higher, as such, these are the ones that should be averted with internal control, and proper selection of employees, most notably leaders.

The largest damages may be caused by activities where the ones committing the crime are doing their criminal activity in cahoots with an employee of the financial institution.

For the next assumption of my dissertation, I was able to use **qualitative research** to prove the hypothesis I constructed. The qualitative research was done via two 6-person focus groups, and supported by 6 deep interviews. During the interviews, I wished to understand what my participants think about savings cooperatives, what difference they see between them and banks. Economic criminal activity is a very sensitive topic, as such, I interviewed my participants without telling them my aim. I wished to know the reasons - what makes savings cooperatives weak? The errors coming from the subsidy system, and the inaccurate operations of the system - these were what I wished to know. However, with my last interview participant, I could openly talk about criminal activity. This was important, since this person had decades of experience in savings cooperatives' operation.

The social importance of savings cooperatives is on the decline, the profit-oriented perspective is gradually destroying the centuries-old advantage of cooperatives. The close connection between clients and clerks also carries a risk within it. The familiar relations within the savings cooperative suggest that the institute doesn't operate like a bank. The control of the savings cooperative system and its operation is too divided, inefficient, but at the same time, also carries a number of risks. The connection between clients and clerks is too close, too personal. This is an edge in competition, however, it is also a huge risk for the cooperatives sector.

I analysed the ROA indicators of savings cooperatives operating in Hungary between 2011 and 2015, as relations between comparison attributes. During the choice of method, I decided to use the **Kruskal-Wallis test**. And in case I also had other relevant data, I concluded the analyses using descriptive statistics for 2003 and 2017 as well, which ultimately proved my hypothesis invalid. Among the analysed groups, in other words, the savings cooperatives operating in Hungary between 2011 and 2015, the average values' rank numbers gotten from ROA indicators of different cooperatives show differences.

During the timeframe I analysed, the year 2012 was the most profitable one, whereas the largest losses were realised in 2014. The effects of the integration are easy to prove. The excess costs of the integration also had a direct effect on the results. The descriptive statistics also validated the results, which state that 2013 was a huge break in the lives of savings cooperatives.

The regulations on domestic savings cooperatives, their organisational structure, management and decision making faculties, and their rulebooks' empirical analysis was my goal, especially operational risks they have to face. I used **document analysis** on the internal documents of the savings cooperative in question, to validate the hypothesis. This clearly showed that the current operations of the savings cooperatives sector is more unified than that of pre-2013, when there were no generic operational, risk management, covering evaluation, and prudential regulations, and there was no unified operation demanded by the management organisation from the participating member organisations.

## 2. Chart New and novel scientific results

Goals	Hypotheses	Research tool	New and novel results
<ul style="list-style-type: none"> <li>• <b>Analysis of criminal activity hampering savings cooperatives, and using them to draw conclusions.</b></li> </ul>	<p>H<sub>1</sub>: The loss suffered by the savings cooperative that comes from robbery is smaller, in other words, this kind of operational risk has lower relevance, when compared to other crimes against private property.</p>	<p><b>Case study</b> with the permission of the Debrecen Court of Appeal, processing 143 legal cases. <b>Qualitative research.</b> Focus groups and deep interviews. <b>Document analysis.</b></p>	<p>During my research, I proved that the robberies committed in savings cooperatives mainly cause panic, but less of a damage when compared to other criminal activities. The hazardous nature of intellectual criminal activity against financial assets displayed in monetary terms is much higher, as such, these are the ones that should be averted with internal control, and proper selection of employees, most notably leaders.</p>
<ul style="list-style-type: none"> <li>• <b>Using international and domestic literature to introduce the economic and social development of the cooperatives sector via the cooperatives regulation.</b></li> <li>• <b>Introducing the role and position of the cooperatives sector in Hungary's financial institute system.</b></li> </ul>	<p>H<sub>2</sub>: The control and operation of the savings cooperative sector is to divided, inefficient. at the same time, it also has a high amount of risks. the relationship between clients and savings cooperative employees is to personal. this act as an edge in competition against the other financial institutions, but it is also a high-end risk.</p>	<p><b>Qualitative research.</b> Focus groups and deep interviews. <b>Document analysis.</b></p>	<p>During my research, I proved that the social importance of savings cooperatives is on the decline, the profit-oriented perspective is gradually destroying the centuries-old advantage of cooperatives. The close connection between clients and clerks also carries a risk within it. The familiar relations within the savings cooperative suggest that the institute doesn't operate like a bank.</p>

<ul style="list-style-type: none"> <li>Analysing the ROA indicators of Hungarian savings cooperatives, for the given timeframe (between 2011 and 2015).</li> </ul>	<p>H<sub>3</sub>: Based on the analysis of Hungary's savings cooperatives' ROA indicators between 2011 and 2015, we can see positive economic effects of the integration conducted in 2013.</p>	<p>Statistical analysis of the cooperatives sector. Descriptive statistics. Kruskal-Wallis test.</p>	<p>During my research, I proved that the savings cooperatives operating in Hungary between 2011 and 2015, the average values' rank numbers gotten from ROA indicators of different cooperatives show differences. During the timeframe I analysed, the year 2012 was the most profitable one, whereas the largest losses were realised in 2014. The effects of integration were easy to prove. The excess costs of the integration also had a direct effect on the results.</p>
<ul style="list-style-type: none"> <li>Empirical analysis of domestic savings cooperatives' regulation, organisational structure, management and decision-making faculties, and rules, especially operational costs.</li> </ul>	<p>H<sub>4</sub>: The current operations of the savings cooperative sector is more unified than that of the sector in 2013 and prior, when there were no unified operational, risk management, covering evaluation, and prudence regulations, and the authorities didn't demand them to operate in a unified manner.</p>	<p>Qualitative research. Focus groups and deep interviews. Document analysis.</p>	<p>During my research, I was able to prove that initiatives related to the earlier integration were failures, which caused legislation to decide on a sector unification for better competitiveness in 2013, which caused a stricter mandatory membership for cooperatives, and joint risk management, opposing the earlier unique rules of the various cooperatives.</p>

Source: self-made

### 3. CONCLUSIONS AND SUGGESTIONS

After researching the legal cases impairing savings cooperatives, I believe it is safe to say that the prior assumption of savings cooperatives needing to prepare against criminal activity against their assets, and violent crimes against themselves is valid. Violent crimes against assets committed in savings cooperatives mainly cause panic, but less of a damage compared to other criminal activities. The armed security keeping clients on edge, the security systems are overstated, which may even keep proper clientele away. However, it's unnecessary to give too much for protection against violent criminal activity, since the legal cases I analysed offered the conclusion that the actual damages they cause are usually the same as the money kept in the office at the time.

The hazardous nature of intellectual criminal activity against financial assets displayed in monetary terms is much higher, as such, these are the ones that should be averted with internal control, and proper selection of employees, most notably leaders.

The largest damages may be caused by activities where the ones committing the crime are doing their criminal activity in cahoots with an employee of the financial institution. These can be prevented with proper internal regulations, and proper internal checks.

After an overview of various legal cases featuring savings cooperatives, I can safely say that not even these financial institutions can avoid being hampered by economic, corruption and violent criminal activity against assets. However, the chance of a crime happening is significantly decreased if the employees of the savings cooperative exhaustively abide by what's in their job description, the loan regulations, and the executives' orders. We can see that criminal activity against savings cooperatives is often made possible by the employee being in cahoots with the criminal in the first place.

Conclusions and suggestions:

- Instead of improper choice of employees, it's advised to base employee selection on proper professional bases.
- The chief executive of the office may decide until a certain limit to put out funding, which can usually vary between 200.000 and 2.000.000 HUF. This may differ from savings cooperative to savings cooperative, based on local regulations. This makes it possible for foul play to happen. Thus, the loan regulation decision systems should be renewed, and more decision-making committees should be formed.
- Offices with less than 3 employees should be discontinued as soon as possible. This is especially the case for individual loan clerks. Instead, larger offices need to be made, and something has to be done to make replacement possible.
- Task management problems need to be dealt with, and more control points need to be introduced.
- Instead of planning and regulating holidays, every employee should take at least two weeks of holidays (since it may be exceptionally suspicious if someone only takes 1-2 days of holiday, since during their replacement, regulation breaches may be found out).
- The internal affairs overseer's personal involvement is questionable, since we can see in the organisational structure that he works under the Overseers' Committee, meaning that in a wider meaning, he must protect the interests of the representatives, or the members. However, in practice, employer rights are wielded by the chief executive of the institution, which is a discrepancy. Therefore, an unrelated internal overseer should be chosen, and put into office, similarly to the chief accountant.
- Savings cooperatives have no efficient operational risk management system, hence, one has to be made.

- The reasoning behind the creation of Act CXXXV of 2013 on the Integration of cooperative loan institutions, and other economic regulations' modifications specifically mentions that the current cooperatives' operations have no unified operational risk management, covering evaluation, prudential etc. Regulations, and there's no mandatory unified operations for cooperating member organisations. By this logic, unified operational regulations need to be made for member organisations taking part in the integration, and these have to be enforced properly.
- The Overseers' Committee has to make sure that the SZH has an overall, sufficient overseeing system in place. They have the right to ask an unrelated professional, should the need arise, to help the work of internal affairs. Thus, this option has to be exploited, as often the lack of professional touch is what leads to risks related to activities becoming a reality, and experts can also identify operational risk events.
- The all-encompassing nature of control factors should include related internal control elements, and if need be, other interventions should be advised, and further controls made, or present ones improved.
- The necessity of overall evaluation, meaning any and all events related to fraud must be inspected right away, and in its entirety, while the facts, the conspirators, and those carrying the responsibility must be determined.
- Risk awareness can be created if the employees get proper fraud prevention training, and the training materials are kept up to date.
- Even non-measurable things can be influenced, hence, fraud prevention potential should be developed even further, and objective indicators need to be introduced, with feedback to the business processes.
- Qualitative research clearly proves that there's a very strict connection between the chief executive, the clerk and the clients, which is a competitive edge against competitors, however, it's also very risky. Therefore, I advise that clerks be replaced in a "rotation". For example: having the clerks working in five offices close to each other rotate between said offices.
- I proved that among groups analysed, there is a difference of ROA indicator values for the savings cooperatives operating in Hungary during the timeframe of the analysis.
- During my research, I proved that the savings cooperatives operating in Hungary between 2011 and 2015, the average values' rank numbers gotten from ROA indicators of different cooperatives show differences. The effects of integration were easy to prove. The excess costs of the integration also had a direct effect on the results.
- I do not contest that inspectors, prosecutors, and judges have the necessary professional background before they begin to identify a crime of money laundering in the framework of legal statements. My personal perspective, however, states that the more economists are asked to help with their expertise, and to offer their wide array of economic knowledge, the war against money laundering would see a new, extremely effective weapon in the hands of the judges in question.

#### 4. SUMMARY

The topic my Ph.D thesis deals with is the operational risks of savings cooperatives, more precisely, the actual frequency of crime against property that affects savings cooperatives. I collected and synthesised the domestic and foreign sources of literature related to my topic, that I myself deemed relevant. I used said literature sources to determine my research goals. In the first part of my Ph.D thesis, I introduced the history of savings cooperatives. If we take a look at the main cornerstones of savings cooperatives, we can see that they had to go through a harsh time before arriving at their current form, and that they went through a lot of change to weather the storms.

After concluding the history of savings cooperatives, I introduced the main topics of financial decisions, in order to make the general outline of a loan process apparent, the tasks of the administrator understandable, and his/her rights for decision at certain points in time, all in light of the legal cases I analysed. Furthermore, I wished to show how and where decision-makers join the process. After this, I defined the operational risks, and introduced risks to be handled from the perspective of banking.

I found it important to clearly process the importance of the Ethics Codex from the perspective of law, morals, and ethics, and its influence on the operations of savings cooperatives. Furthermore, if for one reason or another, these key behaviour norms are disregarded, I wanted to explore how law and economics connect to each other. I introduced the economic theory on criminal activity, and legal punishment.

Society has few parts sparking a huge argument since its inception that could be compared to savings cooperatives. The theory of cooperatives itself also often submerges into the context of arguments. Cooperatives, as a form of economic activity, gained an advantage of more than a hundred years compared to other economic formations. Let us think about it in detail - how popular cooperatives were in Hungary a few decades ago? Their cessation, assets dispersion and transformation is over already, and they often changed to a more modern form to continue activities. All this changes - even forms of economic activity have to keep up with the times, similarly to how they must follow the changes of society, the economy, law, and political contexts.

Similarly to organisations and entrepreneurships operating in the economic environment, banks and savings cooperatives also suffer the effects of minor - major environmental factors. We must take note that those that have smaller savings consider the cooperative form safer, as all members only have a single vote during the general assembly, regardless of the number of shares they personally own. As such, it's much harder to use resources to their own advantage, as we more often observe in the case of corporations.

While researching the legal cases dealing with losses of savings cooperatives, I concluded that the prior assumption that savings cooperatives have to prepare for both criminal activity against their funds, and violent crimes against their organisation at the same time is a valid one. Violent crimes against their funds cause larger panic, but smaller damages than other criminal activity. However, it's unnecessary to invest an unrealistic amount of funds into protection against violent crimes, as seeing the cases in question, one can assume that the damages they cause usually aligns with the cost savings cooperatives have in their management at the office in question at the time.

The hazard of crimes of intellect against wealth managed by savings cooperatives, when translated to monetary terms, is much more substantial, therefore, protection against them has to be structured with much more vigilance, starting with internal checks, and proper choice of employees, most notably those in leading positions.

The largest damages may be caused by criminal activities, in which an employee of the institution in question is an accomplice. Opportunities for such criminal activity can only be reduced via the proper internal regulations, and frequent internal checks.

The social importance of savings cooperatives is becoming smaller and smaller, as the economic perspective of being profit-oriented destroys the centuries-old foothold of the cooperative form. The intimate connection between employee and client has risks in and of itself. A homely atmosphere doesn't suggest a bank-like philosophy. Clients still delude themselves into the stereotype that savings cooperatives are not banks. It would be more advantageous if society clearly understood savings cooperatives as financial institutions operating in a fashion similar to banks, and realised they're behind both in technique and process organising compared to other actors of the bank sector. A change is needed. The savings cooperative system currently in operation in Hungary, and its network do not offer sufficient protection to their clients and owners. The operation of the savings cooperative system is too fragmented, inefficient, and also causes risks to investors and partners. Within the framework of the current savings cooperative operation, there are no unified operational, risk management, guarantee evaluation, and prudence-related regulations. Furthermore, cooperating member organisations are not required to join a unified management philosophy. This was most notably the case for the timeframe before 2013.

Act CXXXV of 2013 rules that "redesigning the sectors of the savings cooperative field is necessary as the capital supply of the sector is thin, its organisational and service quality is insufficient, and there are concerns that in its current form, it won't be able to sustain continued operation." Therefore, the sector realised that savings cooperatives have to be reformed.

My qualitative research clearly indicates that there's a strong connection between the leader, the administrators, and the clients, which may be an edge in competition against others, but I personally believe it's also a high risk factor, thus, I'd recommend some form of rotation or change in administrators. This is due to how the highest losses were caused by criminal acts where an employee of the savings cooperatives chose to take part in the act, and cooperated with the suspect.

The head of the office may choose about giving out loans to a certain monetary limit as part of his / her own right of management, which usually goes between 500.000 and 2.000.000 HUF. This changes from office to office, usually based on house regulations. This also offers opportunity to exploit, which is why I think loan evaluation systems should be reworked, or re-ordered, and multiple boards of decision-makers should be formed.

I believe that offices and local franchises with less than 3 employees should be discontinued. This is especially the case for a single person collecting savings. There's a need to create offices with more personnel, and organise a system for replacement employees, in order to make the sector free of unauthorised action, as it causes high degrees of damage, and even comes with related costs. There are lawyer costs, administrative costs, miscellaneous costs which are almost impossible to recover through legal action.

The labour organisation problems have to be solved, and new processes need to be worked out. More control points have to be introduced.

The involvement of the official responsible for internal investigation is questionable, as in the organisational structure, we can see that he / she belongs under the control of the Supervision Committee, meaning that he / she has to protect the interests of the representative council, in other words, the members, and the general assembly. However, in practice, the employer rights are held by the office's general manager, which is a conflict of interest. In order to solve this, my suggestion is to elect the official, similarly to the financial auditor.

Based on the conclusions I drew from my research, I can state that correct regulation is necessary - however, not the only thing needed - for efficient handling of risks. As regulation has an effect on the breathing room of the stakeholder in question. Savings cooperatives are profit-oriented organisations, which has to be balanced in a sustainable manner by controlling interests and proper, trustworthy and prudent operations via regulation. If regulation doesn't contain motivational factors which assist operation on a high quality, we have to take further effects into consideration, and the financial and reputational consequences of the resulting losses as well.

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