

# Finanční matematika v českých učebnicích

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## Summary

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# Summary

## 1 Introduction

The monograph is devoted to a range and a level of financial mathematics in textbooks at schools in our region from 1908 to the present. The topic was chosen because of its up-to-dateness when a lot of people have financial problems and I can use my experience with teaching of that for more than ten years. The financial mathematics is the part of mathematics which depends more on a political situation than the other parts. The 20th century was full of changes and a political atmosphere influenced school curriculums in an important way.

The monograph consists of six parts. The first of them contains main topics of financial mathematics which should be necessary for people. It is mentioned for better understanding of the following chapters. In the other chapters, there are analysed mathematical textbooks and collections of problems appropriate for an explored period. The second chapter deals with a period from 1908 till 1918 and at that time our republic was the part of the Austria-Hungary Empire. The third chapter describes a period from 1918 till 1939 when our independent republic is called a first republic. The fourth chapter follows a period from 1939 till 1945 when our republic was occupied by Nazi Germany and was called Protectorate of Bohemia and Moravia. The fifth chapter considers a period from 1945 till 1989 when at the beginning of this period our republic recuperated from the World War II and it was led by communists from 1948. The last chapter, number six, is engaged in a democratic period from 1989 till the present.

Every chapter which is devoted to one of the above mentioned periods contains at first a description of an atmosphere in our society, a list of the most important mathematical textbooks and collections of problems used at secondary schools (grammar schools, technical schools, business schools, medical schools, agriculture schools, vocational schools etc. – schools which prepare for next studies and schools which prepare for definite jobs) and their particular analyses.

Nowadays we are surrounded by offers and tenders of financial products. We should be able to find out which are good and which are dangerous for us. The main aim of the thesis is to show why the financial literacy is not good, how to solve this precarious situation and how we can improve steps for a solution.

## 2 Basic Financial Mathematics

Financial operations work mainly with an interest, or rather an interest rate, which is shown in percentage. One percent determines one hundredth of a unit and a basic task is to calculate, which part of a principal is equivalent of a given percentage. It can be found by the following formula:

$$U = K \cdot \frac{p}{100} = K \cdot i ,$$

where  $U$  is wanted part (interest),  $K$  is unit (deposited principal) and  $p$  is interest rate in percent, or rather  $i$  is interest rate in a form of decimal number.

An interest is an amount which a creditor (who lends or deposits) receives from a debtor (who borrows or uses above his own money) like a bonus on lending money. For every transaction, there are a few another important terms:

- redemption date = time of a deposition or a lending / borrowing of a principal;
- period of calculating interest = time after which an interest is paid from a principal.

According to the kind of an interest paying, two fundamental types are distinguished – simple and compound. With the simple interest, the paid out interest is not added to an initial principal and there is not *interest from interest*, i.e. the interest is calculated only from the initial principal. The significant difference on the compound interest is that interests are added to the former principal at the end of every period of calculating interest and in the following period new interest is calculated from new amount (= former principal + the last interest). The fundamental question is the final amount of principal  $K_n$ , which is made by accrual of interests to deposited principal  $K_0$  after  $n$  periods.

The formula for simple interest:

$$K_n = K_0 \cdot (1 + i \cdot n) .$$

The formula for compound interest:

$$K_n = K_0 \cdot (1 + i)^n .$$

The usage of the previous formulae depends on given conditions of situations – total time of deposit, frequency of paying interest, frequency of saving, frequency of repayments, moments of the first repayment, interest taxes, changes of interest rate, ... The ability of our reaction on new

conditions shows the level of the financial literacy which cannot be underestimated.

The list of the most important formulae of financial mathematics:

Simple interest

- Principal and interest:

$$K_n = K_0 \cdot (1 + n \cdot k \cdot i);$$

$$U_n = n \cdot k \cdot i \cdot K_0.$$

- Principal and interest after  $t$  days:

$$K = K_0 \cdot \left(1 + \frac{t}{360} \cdot k \cdot i\right);$$

$$U = \frac{t}{360} \cdot k \cdot i \cdot K_0.$$

Compound interest

- Period of interest 1 year (principal and interest after  $n$  years):

$$K_n = K_0 \cdot (1 + k \cdot i)^n;$$

$$U_n = K_0 \cdot \left((1 + k \cdot i)^n - 1\right).$$

- Period of interest  $t$  days (principal and interest after  $m$  periods):

$$K_m = K_0 \cdot \left(1 + \frac{t}{360} \cdot k \cdot i\right)^m;$$

$$U_m = K_0 \cdot \left(\left(1 + \frac{t}{360} \cdot k \cdot i\right)^m - 1\right).$$

Regular saving with compound interest (period of interest  $t$  days)

- Saved principal  $S_m$  by a regular saving of an amount  $a$  at the beginning of each period with duration of  $m$  periods with annual interest rate  $i$  and tax coefficient  $k$ :

$$S_m = a \cdot \left(1 + \frac{t}{360} \cdot k \cdot i\right) \cdot \frac{\left(1 + \frac{t}{360} \cdot k \cdot i\right)^m - 1}{\frac{t}{360} \cdot k \cdot i}.$$

- Saved principal  $S_m$  a regular saving of an amount  $a$  at the end of each period with duration of  $m$  periods with annual interest rate  $i$  and tax coefficient  $k$ :

$$S_m = a \cdot \frac{\left(1 + \frac{t}{360} \cdot k \cdot i\right)^m - 1}{\frac{t}{360} \cdot k \cdot i}.$$

Regular repayment of a debt  $D$  by annuity  $s$  (or rather paying out of unearned income  $s$  of rent  $D$ ) once in every period with duration of  $m$  periods with annual interest rate  $i$  (period of interest  $t$  days):

$$s = D \cdot \left(1 + \frac{t}{360} \cdot i\right)^m \cdot \frac{\frac{t}{360} \cdot i}{\left(1 + \frac{t}{360} \cdot i\right)^m - 1}.$$

Used symbols:

$K_0$  – initial principal (deposit, credit);

$K$  – saved principal with added interest after first period;

$n$  – number of years;

$m$  – number of periods (number of repayments);

$t$  – number of days;

$K_n, K_m$  – principal after  $n$  years ( $m$  periods) (with added interest after  $n$ -th year, or rather after  $m$ -th period);

$U_n, U_m$  – interest after  $n$  years ( $m$  periods);

$i$  – interest rate (usually annual) expressed by decimal number

(if interest rate is  $p$  %, then  $i = \frac{P}{100}$ );

$k$  – tax coefficient (interest imposes a tax, with tax  $d$  % it is

$$k = 1 - \frac{d}{100};$$

$S_m$  – saved principal after  $m$  periods (with added interest after  $m$ -th period);

$S'$  (or rather  $S$ ) – interest saved by anticipative saving, or rather by decursive saving;

$D$  – initial amount of debt (pension);

$s$  – amount of repayment (rent) paid always at the end of period;

$a$  – regular saving amount, annuity.

### 3 Czech Textbooks of Mathematics

In the period from 1908 to the present there were a lot of important political changes in our region. These changes had very often a big influence on parts of inhabitants' lives. Education is a relevant component of people's lives. Our stress is put on a financial mathematics which is the part of mathematics with the highest sensitivity on political conditions in our society. We will follow modifications of textbooks like necessary reactions to new needs of periods. The most important criterions of the analyses are range, difficulty, particularity of a theory, solved problems, supplementary problems for a revision, answers, instructions and practical usage of acquired knowledge. In each table of the analysed textbooks there are marked (by a symbol ♠ next to a textbook label) one or two of them which had or have the most important positive effect on the financial literacy.

#### 3.1 Period from 1908 till 1918

At the beginning of the 20th century the Czech Republic was part of the Austro-Hungarian Empire. The Empire paid big attention on its infrastructure and an education system was part of it. The main idea was put by empress Maria Theresa in the 18th century. She decided with her advisers about the compulsory school attendance. The union of the Empire started new steps of progress in 1867. In 1869 there was *the Law about General Education* which determined eight years of the compulsory school attendance and intensified natural scientific subjects together with mathematics. In 1905 *the Merano's Reform* created by F. Ch. Klein influenced methods of a mathematical education. And in 1908 *the Marchet's Reform* created by G. Marchet who was the education minister from 1906 till 1908. This reform put its stress on an equalization of leaving exams at

secondary schools of every type. Since this moment *the Union of Czech Mathematicians and Physicists* has been a supervisor for new textbooks of mathematics and its curriculum.

Analysed textbooks:

Textbooks for elementary schools and citizens' schools

year	label	range of financial mathematics
short characteristics of a level of financial mathematics		
1909	[RM]	13 pages
99 problems (15 solved, the others without answers), only simple interest, important terms, practical advices, law difficulty		
1910	[FR] ♠	20 pages
128 problems (8 solved), short explanations, collection of problems, simple and compound interest, real situations in problems		
1914	[KJ]	29 pages
main stress on a usage of financial tables, law difficulty, 18 problems for simple interest, more problems (also solved) for compound interest		
1916	[MA]	–
only a few problems with a financial topic		

Textbooks for secondary schools and grammar schools

year	label	range of financial mathematics
short characteristics of a level of financial mathematics		
1910	[CL1]	–
only a list of coins and banknotes and their relationships		
1910	[CL2]	8 pages
34 problems (8 solved), only simple interest, important terms, short commentary of solved problems, law difficulty		
1911	[CL3]	–
nothing		
1910	[BM1]	–
only conversions of currencies		
1910	[BM2] ♠	13 pages
93 problems (7 solved), only simple interest, short theory, important terms		
1911	[BM3]	–
nothing		
1911	[B67] ♠	16 pages
more than 60 problems, compound interest, definitions of terms, full explanations, shown relationship with geometric progressions		
1911	[B57]	16 pages
the same like [B67]		
1912	[BV]	–
mainly for revision		

1912	[BVS]	5 pages
55 problems without any explanation, collection, mainly compound interest		

#### Textbooks for teacher schools and upper commercial schools

year	label	range of financial mathematics
short characteristics of a level of financial mathematics		
1911	[UD]	17 pages
191 problems, collection, simple and compound interest, wide range of difficulties, usage of financial tables, no theory (seldom short explanations)		
1908	[UP]	14 pages
10 solved problems (in an attachment another 12 problems without solutions), simple and compound interest, full explanations connected to theory		
1905	[PA] ♠	131 pages + 50 pages of financial tables
more than 300 problems (95 solved), main stress on financial mathematics (simple and compound interest, debts, rents, obligations, ...), theory, definitions		

Financial mathematics was an important part of the mathematical education and people had to be able to solve financial situations during their lives. Bankruptcies would be a problem of the whole society. From the beginning of its existence the Empire put the responsibility for mathematical and scientific textbooks on *the Union of Czech Mathematicians and Physicists*. It led to a big progress there and improved a prestige of the Union.

### 3.2 Period from 1918 till 1939

A huge change as an establishment of a sovereign state interferes with all the life spheres. In 1918, i.e. the year of the end of the World War I., there were a lot of changes in Europe. One of them was the establishment of Czechoslovakia which originally was the strongest part of the Austro-Hungarian Empire. The new state wanted to have good educated citizens. The previous education system was very good so changes in this system were not colossal above all in mathematics. A stabilization and an improvement was fixed and promoted by *The Small Law of Education* in 1922 and a school reform in 1933 which uphold a democratic characteristic of education and a cooperation between a school and parents.

Major parts of mathematical textbooks published before 1918 were used only with small modifications primarily in word problems. The useful and sufficient level of financial mathematics was kept. It occupied its position in a curriculum of mathematics.

### Analysed textbooks:

#### Textbooks for elementary schools and citizens' schools

year	label	range of financial mathematics
short characteristics of a level of financial mathematics		
1926	[MP]	15 pages
77 problems, very short theory, simple and compound interest, important terms, law difficulty, stress on practical usage		
1923	[JM2]	16 pages
96 problems (8 solved), short explanations, only simple interest, real situations in problems		
1923	[JM3] ♠	33 pages
125 problems, compound interest, saving, usage of financial tables, stress on insurance mathematics		
1924	[JM4]	7 pages
only a few problems with a financial topic for a revision		

#### Textbooks for secondary schools and grammar schools

year	label	range of financial mathematics
short characteristics of a level of financial mathematics		
1931	[M1]	–
in comparison with [BM1] – lost a paragraph about currency		
1932	[M2]	16 pages
in comparison with [BM2] – the same, only graphical changes		
1933	[M3]	–
in comparison with [BM3] – the same, nothing		
1920	[B2D]	16 pages
the same like [B67]		
1933	[B4]	2 pages
new revision of [B1D], only short information about banking		
1935	[B58] ♠	30 pages
new revision of [B2D], compound interest, detailed explanations, 79 problems		
1936	[BS]	11 pages
new revision of [BVS], 107 problems + 40 problems in final revision part, compound interest, wide range of difficulties, collection		
1927	[M7]	38 pages
142 problems (12 solved), a lot of short paragraphs, theory, solved problems with explanations, shown answers, stress on compound interest and its usage		

#### Textbooks for teacher schools and upper commercial schools

year	label	range of financial mathematics
short characteristics of a level of financial mathematics		
1935	[R1]	–
tabular theory, solved problems, problems for practice, no financial mathematics		

1936	[R2]	14 pages
50 problems (3 solved), definitions of terms, explanations, only simple interests and its usage, shown answers		
1937	[R3] ♠	17 pages
83 problems (7 solved), compound interest (usage with debts, savings, rents), wide range of difficulties, derivations of formulae		
1936	[OZ]	31 pages
59 solved problems, simple and compound interest, stress on real conditions		

Financial mathematics stayed in its important position in education. *The Union of Czech Mathematicians and Physicists* (or rather *the Union of Czechoslovak Mathematicians and Physicists* from 1921 till 1939) had a supervision on textbooks and collections. By this leadership a quality of the education remained on the very high level.

### 3.3 Period from 1939 till 1945

In 1939 the Protectorate of Bohemia and Moravia was established by Nazi German intruders. For the Czech scientists the worst time started. The Czech universities were closed and the Protectorate government did not support education. A higher education was connected only with German language. New Czech textbooks were published only for elementary and lower secondary schools. However, there were bad effects too, e.g. in word problems.

Analysed textbooks:

year	label	range of financial mathematics
short characteristics of a level of financial mathematics		
1939	[PT]	11 pages
a few problems, without theory, usage of financial tables, instructions for more difficulty problems, chaotic paragraph order for study		
1940	[RP]	8 pages
28 problems (6 solved), short theory, plus 1 fully solved scheme "In Life of Farmer Jan Skála", compound interest but without a detailed explanation		
1943	[CE2] ♠	11 pages
65 problems (7 solved), full explanations and theory with definitions, simple interest		
1943	[PS2]	24 pages
a few solved problems without theory, law difficulty, only short explanation how to solve, simple interest, small group of problems, practical advice for future live		
1943	[PS3]	13 pages
more than 30 problems, revision of simple interest, compound interest, higher difficulty of problems, short instructions		

This period can be shortly described as a devastation of a Czech education system and it had a bad influence on post-war revitalisation which

was not so fast. A targeted devastation of financial mathematics is not visible because of a small number of the new textbooks.

### 3.4 Period from 1945 till 1989

In the whole Europe a comeback and a resumption to the pre-war level were immediately started in 1945 when Nazi Germany capitulated. The beginning was good in Czechoslovakia, too. Unfortunately on financial mathematics communists had bad influence which began in 1948. A vision of a communist society with an inutility of money led to a drastic intervention into a range of this topic. After one decade only a few problems stayed in textbooks at secondary schools as a part of a geometric progressions topic. The rest of the high-quality volume of financial mathematics was only as a part of a subject Economic Calculations at commercial secondary schools. The change of a level of this topic is visible especially at the end of the fifties. In the textbooks published before 1960 there were a short theory or groups of financial word problems. After 1960 there was hardly anything.

Analysed textbooks:

Textbooks published before 1960

year	label	range of financial mathematics
short characteristics of a level of financial mathematics		
1947	[JJ] ♠	66 pages
solved problems with commentaries, definitions, tables, lists of formulae, useful companion of financial mathematics		
1948	[VL]	2 pages
a few problems without answers		
1948	[SE] ♠	57 pages
294 problems (49 solved), no answers, only financial mathematics, definitions of terms, derivations of formulae		
1949	[EC]	10 pages
the same range like [CE2], only changes in word problems		
1951	[CP]	6 pages
12 problems (2 solved), financial mathematics as a part of a paragraph about a usage of geometric progressions		
1951	[CB]	6 pages
Slovak translation of [CP], without important changes		
1951	[OM]	5 pages
5 solved problems, summary of rules about interests, definitions of terms, simple and compound interest		
1951	[BC]	12 pages
14 easy problems (9 solved), only simple interest, smaller font differed additional theory		

1952	[RZ]	–
nothing		
1953	[HJS]	3 pages
14 very easy problems (1 solved), theory only on 14 lines		
1954	[RR]	4 pages
almost 20 problems (3 solved), theory only about percentage, solid interest in problems		
1954	[HH]	7 pages
6 problems (2 solved), part of a usage of geometric progressions, short theory		
1954	[KK]	8 pages
9 problems (3 solved), graphical support in a theory, explanation of a schedule for repayment, simple and compound interest		
1954	[HP]	7 pages
20 problems (7 solved), short theory, usage of parameters in problems, useful commentaries of debts, rents, savings, ...		
1956	[HH1]	6 pages
new edition of [HH], without important changes		
1957	[HHS]	6 pages
Slovak translation of [HH], without important changes		
1957	[JH]	–
theory of progressions but without financial mathematics		
1958	[HJU]	–
short theory of progressions but without financial mathematics		

#### Textbooks published after 1960

year	label	range of financial mathematics
short characteristics of a level of financial mathematics		
1962	[JH7]	–
new edition of [JH], without important changes		
1963	[GK]	1 pages
theory of progressions but without financial mathematics, only 2 problems with a financial topic		
1964	[MJ]	–
1 problem without an explanation or a note		
1964	[EM]	–
theory of progressions but without financial mathematics		
1965	[V2]	–
theory of progressions but without financial mathematics		
1965	[V3]	–
theory of progressions but without financial mathematics		
1965	[BK]	–
theory of progressions but without financial mathematics		
1965	[LI]	2 pages
1 solved problem with parameters (with a commentary)		

1966	[KRI]	2 pages
7 problems, collection, no theory, mistakes in answers		
1968	[BD]	–
exercises with progressions but without financial mathematics		
1969	[VT]	5 pages
18 problems (1 solved, a few with notes), large collection, no theory		
1970	[NI] ♠	9 pages
23 problems (9 very precisely solved), detailed fundamental theory, simple and compound interest connected with functions		
1970	[ZO]	4 pages
5 solved problems (only percentage), atypical textbook of a programme study		
1971	[JZ] ♠	30 pages
70 problems (29 solved with commentaries), simple and mainly compound interest, definitions, a detailed theory, derivations of formulae, economic sight of the textbook (savings, debts, rents, repayments and plans)		
1971	[PK]	5 pages
3 problems (2 solved), the first solved problem with three ways of its solution, part of a chapter about progressions		
1978	[MI]	8 pages
12 problems (3 solved), simple and compound interest, in a chapter about usage of progressions, without financial terms		
1978	[SN]	6 pages
34 problems, topics: regular savings, repayments of debts, rents, problems connected with real life, collection without solved problems		
1979	[MS]	1 page
1 problem in a chapter about progressions, no financial theory		
1979	[S6]	–
with progressions but without financial mathematics		
1980	[S8]	1 page
1 problem connected to geometric progressions		
1981	[EX2]	1 page
1 problem connected to geometric progressions		
1983	[EX3]	–
exercises with progressions but without financial mathematics		
1986	[EP]	3 pages
3 problems (2 solved), short financial theory as a part of a chapter about progressions		
1987	[OC]	1 page
1 problem connected to geometric progressions		
1989	[G3]	1 page
1 problem connected to financial mathematics		
1989	[VSE]	–
revision for entrance exams to University of Economics, but without financial mathematics		

Textbooks for lower secondary schools:

year	label	range of financial mathematics
short characteristics of a level of financial mathematics		
1962–80	[TV]	6 pages
9 problems (3 solved), simple interest, part of a chapter about percentage		
1958–88	[KI]	4 pages
27 problems (17 with answers), simple interest, in a percentage revision part		

In the period from 1945 till 1989 there was almost fully damage of financial mathematics at secondary schools except at business schools – their graduates would work in financial institutes. This topic of mathematics lapsed for common people. Reminders in textbooks from sixties vanished in eighties. Teachers of mathematics were not prepared to solve financial problems at faculties and they over-jumped last financial problems in textbooks and collections. At secondary schools progressions were the common parts of a mathematical curriculum but usage in financial questions was forgotten. Authors changed subject matters of problems which contained originally finance. The problems presented creations, shock-workers, observances of plans, growths of crops, growths of productions, ... Offers of financial institutes were very limited hence people had not any need to study it.

### 3.5 Period from 1989 till the present

The Velvet Revolution in 1989 – the fall of the communists led to a necessity of financial knowledge. The following situation was opened for businessmen and undertakers, establishments of new banks and insurance companies were a needfulness. Offers of banking services were immediately very wide and people without financial education were not able to find their bearing. In a few years there were observed groups of bankruptcy of people who did not know or did not accept financial rules.

Fortunately banks realized urgency of short well-arranged and understandable booklets and authors of mathematical textbooks reacted quickly, too. In a few years a good group of quality textbooks was published.

Analysed textbooks:

Textbooks for secondary schools

year	label	range of financial mathematics
short characteristics of a level of financial mathematics		
1993	[E1] ♠	80 pages
68 problems (38 solved), derivations of formulae, simple and compound interest, full definitions and descriptions, operation of accounts in banks, discounts, savings, rents, repayments of debts		

2001	[E2]	31 pages
55 problems (13 solved), derivations of formulae, simple and compound interest, operation of accounts in banks		
1992	[M5]	14 pages
31 problems (17 solved), simple and compound interest, decision-making of investments		
2002	[O3]	45 pages
91 problems (32 solved), derivations of formulae, full definitions and descriptions, simple and compound interest, savings, repayment of debts		
1995	[O2]	11 pages
15 problems (4 solved), derivations of formulae, simple and compound interest, lower difficulty, separated sub-chapter of progressions		

Textbooks with stress on financial mathematics (for secondary schools and public)

year	label	range of financial mathematics
short characteristics of a level of financial mathematics		
2005	[O1] ♠	200 pages
282 problems (48 solved), derivations of formulae, definitions of financial terms, products and services, simple and compound interest, savings, accounts, loans, leasing, amortizations, mortgages, annuity, commercial papers, decision-making and planning		
2005	[OR]	100 pages
70 problems (35 solved), definitions of terms, simple and compound interest, margin, effective interest rate, savings, loans, main stress on calculators usage		
2005	[R1]	160 pages
264 problems (123 solved), simple and compound interest, continuous interest, effective interest rate, inflation, savings, annuity, obligations, loans, stocks		
2005, 2007	[K5], [K6] ♠	288 pages (296 in [K6])
111 solved problems (115 in [K6]), derivations of formulae, for public, without exercises for revision, simple and compound interest, savings, discount, loans, amortizations, annuity, obligations, mortgages, stocks, leasing, forward transactions, (in [K6] added: measurement of a portfolio efficiency)		
1995, 2005	[C1], [C2]	220 pages
86 solved problems (with explanation plus usage of Excel), derivations of formulae, simple and compound interest, savings, loans, amortizations, annuity, obligations, stocks, forward transactions, financial tables, university text		

Textbooks for lower secondary schools

year	label	range of financial mathematics
short characteristics of a level of financial mathematics		
1992	[B6]	1 page
3 problems, in a chapter about percentage, simple interest, collection		
1992	[KR]	1 page
6 problems, simple and compound interest, low difficulty, collection		

The process of fundamental renaissance of financial mathematics was and is slow because there are big groups of teachers who do not like financial mathematics and are not forced to study and to teach it. However, more and more people found the financial knowledge hinge to be successful. On the list of the analysed textbooks there are good issues for self-study, too. Banking services help as well and on their websites they offer short handbooks to their customers. It is their duty but these products are not equipollent to textbooks with a fully described theory.

## 4 Conclusion

*Financial literacy is a file of knowledge, skills and worth postures of a citizen necessary for an ability to make financial fixed for himself as well as for his family in contemporary society and to stand actively out on the marketplace of financial products and service businesses.*

([http://wiki.rvp.cz/knihovna/1.pedagogicky\\_lexikon/g/gramotnost/financni\\_gramotnost](http://wiki.rvp.cz/knihovna/1.pedagogicky_lexikon/g/gramotnost/financni_gramotnost))

Underestimating of the financial literacy is very dangerous for individuals and for society too. Without planning it is very easy to reach a situation of inability of repayment and a personal bankruptcy is on the horizon. One of main tasks of every society should be to teach people to avoid it.

Contemporary level of this part of literacy is not favourable. A big number of clients comes to financial institutes with only a fundamental idea, but there is inconsiderable percentage of people who have a trend to entrap themselves by short or distort information.

Nowadays we are surrounded by loans, mortgages, profitable investments, etc. They are offered with big pressure because banks have profits on them. By every visit of a financial institute or by a financial operation, do not forget the basic ideas of financial mathematics. Our ignorance of them is not excused and could be fatal. Read even the smallest letters in contracts, advertisements, insertions, and leaflets. Every detail is necessary to think about and to calculate with.

Fortunately, our society, schools, and institutes are aware of the poor financial literacy. And they have power to change it. The main tendency of financial mathematics renaissance is to be a common part of everyday life, for financial offers to be understandable like other categories of goods. There is a lot to make. The main fundamental steps were made – school reform, new textbooks, training courses, competitions, ... – it is especially for students. The biggest problem for working public is that courses and

instructions reading are not obliged and people often underestimate submitted conditions of a transaction.

In the monograph there is shown a situation of financial mathematics through more than one hundred years. In a government there were different views on this topic in the separated periods. These attitudes had a big effect on a following time segment. At present, the last scanned period, we have to solve the bad influence of the previous interval. Financial mathematics should be a common part of every secondary school curriculum of mathematics.