

## IDEAS ON TEACHING FINANCE AND ACCOUNTING IN TERTIARY EDUCATION

### *What should future bankers and accountants learn?*

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#### ABSTRACT

Designing financial education at the post-secondary level is a key component of financial culture. We are investigating in this paper what future bankers, accountants, or auditors should learn to boost the prestige of their professions, to have great value for money with their degrees, and maintain their favourable positions on the job market. All institutions must prepare for fierce competition in this country as demographic indicators are worsening and competition from abroad is intensifying. The global picture is true for our field too; institutions of tertiary financial education must find their places and select their strategy. Recalling historical examples, we present views and perspectives we believe should be considered when making decisions affecting the future.

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#### 1 RECALLING THE PAST

To give a sensible answer, one should know what banking, insurance markets..., and business life in general..., would be like twenty to thirty years from now. What will be the impact of international regulations, IT, or what new finance products the financial sector will offer? Naturally, it is impossible to predict all that right now. On the other hand, current college, and university curricula – willingly or unwillingly – do include an implicit answer to the question.

Even if one cannot provide an exact answer, the problem is worth consideration. Firstly, some trends are highly probable (for instance, digitisation is gaining mo-

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mentum, risks are not going to be reduced, risk management instruments are going to be more diversified, green finance is coming, ESG, big data, blockchain, AI are already with us just as thousands of enterprises built on them, etc.). On the other hand, the future could not be foreseen in the old times, either, but there were well-articulated expectations and goals set for the tertiary education of economics. **For this reason, we start our reflections on the future by recalling the past.**

The Hungarian educational system has gained its present form over centuries, and it has given the world many outstanding scientists/scholars and inventions. Built on the traditions of continental Europe, our predecessors established and operated a high-standard system of public education in the first half of the 20th century, which met the needs of all social strata. Although it lacked freedom, it did teach the upcoming generations a healthy view of life (aka: it trained them for work). The same spirit had survived until the years of 'mature' socialism in the 1970s and 1980s, so quality élite education had continued in some secondary grammar schools and universities.

On the other hand, the proportion of students admitted to colleges and universities was low, appr. 10% every year. At that time, colleges and universities were strictly separated institutionally. However, the low number of degree holders was not sufficient in the post-industrial world of the 1980s, so when Communism fell, a clear decision was made, i.e., we must catch up with the developed world (also in this regard). At least 30% of students should be admitted to institutions of tertiary education every year. Such voluntarist socio-political expectation was met by reducing the standard of élite education gradually and continually. Colleges were renamed universities, so former director generals became rectors. Unfortunately, school standards have failed to become higher with a few honourable exceptions. The system of normative quotes encouraged all universities to enrol as many students as possible (with no regard to what their degrees could be used for later). In the spirit of democracy misinterpreted, the requirements of admission were lowered, and some students adapted to the system. Students' organisations were given political weight, which did not support the enforcement of high standard academic requirements. The conservative bureaucracy of the accreditation system slowed down adaptation, i.e., the ability to adapt quickly to the shifting requirements.

As élite universities ceased to exist, an 'equalisation' occurred; universities were sliding downwards, while colleges, which used to provide good practical training, were trying to climb upwards. At present, everything is termed 'university', irrespective of its standard or the real value of the degree it offers. Most new universities no longer have the word 'scientific' in their names. Is it modesty or a coincidence, we wonder?

At the same time, the world has opened for high-school graduates. Masses of them can study at universities abroad. Many use the opportunity, as appr. 6% of students in tertiary education study outside the borders of the country. Naturally, the distribution of youth admitted to universities abroad is not equal in any year. It is partly a question of money; what financial burden families can accept. (Taking out student loans, which is widespread in western countries, increases the number for whom it is a realistic option, still, we believe a young person must have at least a middle-class background to use the opportunity.) Unfortunately, demography is against us. The population of this country is expected to be further reduced in the coming decades. There are 2.2 million women of child-bearing age in Hungary today, which is expected to fall to 1.6 million by 2050 according to demographic forecasts. Although the trends in fertility rate have been turned around over the past ten years from 1.27 to 1.55, which is a significant achievement, but the indicator should be 2.1 to stabilise population numbers. Therefore, one can expect lower and lower numbers of classes. We must either increase the number of foreign students, or we will have to cut corners here. At present, 290 thousand students are in tertiary education (in training forms of different curricula). Of that, 38 thousand are foreign students, i.e., 13% of the total number.

Looking back at the past 30 to 40 years, there is nothing to be ashamed of in terms of financial education. The translation of the works by Nobel prize holders in economics already started in the 1970s and 1980s in a famous series of the Economic and Legal Publishing House (KJK). Standard textbooks of international finance (*Brealey–Myers*, *Bodie–Kane–Marcus*, *Hull*, *Damodaran*, etc.) were integrated into the educational materials of the University of Economics and other universities in the 1990s. Our exchange students perform well abroad. The best among our students completed their PhD studies with excellence at the best universities of the world (Princeton, Harvard, Berkeley, etc.). Few people are aware that the former top executive of the European Banking Supervision had been a student at the Budapest University of Economics. The bond portfolio manager at Apple had also learnt about the world of bonds at the same university. Fortunately, the list could go on.

Hungary was the first country of the former East European bloc where international degrees of banking and investment analysis (CFA, EFFAS, CIIA, etc.) were introduced. The first Stock Exchange and the first Institute for Training and Consulting in Banking (ITCB) with the related educational and exam schemes were set up here too.

It is not a disadvantage that most lessons have been in Hungarian, since the bulk of the articles and papers are in English, which is not a problem for most students. In terms of linguistic problems, they are not with English, but with programming

languages or **with mathematics, which, according to Galilei, is the language of Nature.**

Meanwhile, the world we are trying to keep up with is changing fast. Thanks to information technology, the function of money in making a payment has changed a lot compared to the world of bills of exchange and cheques. It is not only bankcards I have in mind, but the technology of cryptocurrencies as a new development, or the acceleration of stock exchange settlements.

## 2 CHANGES IN RISK MANAGEMENT AND ACCOUNTING

What are future finance and accounting analysts going to need? A lot of things, for sure, but - if you can believe the statement that processes have become more sophisticated and uncertain by now - the following things are definitely on the list:

- a) methodologies to describe the relationship of several factors, and their joint evolution.
- b) proficiency in risk management, in particular, the assessment of the joint impact of uncertain changes.
- c) proper experience in assessing the spill-over effects in space and time if something changes (for instance, the quantity of a production factor).

**Matrix calculation**, which has all but disappeared from education, would be needed for the group of problems a), **probability calculation** (it is also much limited compared to 20 to 30 years ago) would be needed for problems b), and **mathematical analysis** including, particularly, difference and differential equations for c). If you believe that everything moves, changes, you should know the tools to describe them and be aware of their quantitative management.

And one more thing: something that was lost in tertiary education of economics quite some time ago, an awareness of the **importance of demonstrations.**

That is why geometry might have been part of the curriculum of students of accounting 70 years ago. Certainly not because similar triangles can help decide where to book an item. It was needed for the same reason as at high school today: how to make sure if an idea is true or false. There is a difference between persuasion (negotiation strategy) and conviction. Naturally, the use of formulas will not guarantee the correctness of a line of thought. Quite often, unfortunately, it is simply trying to hide the shallowness of it.

*Luca Pacioli* (1445–1517) published his book „*Summa de arithmetica, geometria, proportioni et proportionalita*” in 1494, in which he presented the following problem:

*Two people are playing a game of heads or tails. The one who first throws heads six times in a row will be the winner of the money the two of them put together at the start. The game is interrupted at 5:3. How should the amount be fairly split?*

- Pacioli's answer is as follows: 5:3. Here, past facts are considered, which is characteristic of the traditional approach to accounting and law.
- The solution given by *Pascal* (1623–1662) and *Fermat* (1607–1665) in 1654 is 7:1. In this answer, the chances of the future are considered, just as in the everyday work of financial risk managers all over the world today. It is the right ratio because the disadvantaged player must win 3 times in a row to get the money. The chance for that is  $(1/2)^3 = 1/8$ .

One could not find a better example to illustrate the dilemma of whether accounting is finished by recording and analysing past facts. The answer in our days is: not at all. Then why is it that the probability studies of future economists have dwindled to a mere couple of weeks. Analysis, linear algebra, and probability jointly make up two short terms. Those subjects had been mandatory for all students for fifty years.

Important traditions are going to be lost in that field. In 1920 *Károly Jordán* started teaching probability at Királyi József Műegyetem [technical university] (which became Magyar királyi József nádor Műszaki és Gazdaságtudományi Egyetem [technical and economics university]) in 1934. It was unique to have it as a specific subject of economics at the time in Europe.

Accounting, finance, statistics (econometrics, data analysis), and mathematics tend to be combined in revealing and analysing financial risk. Let us return to that in more detail later.

Trying to find out who the first person we know the name of was in history, most of you would think of a great ruler, general, or high priest. You would be wrong! It was a low-standing “bookkeeper” who was in charge of the growing and storage of barley in the ancient Sumerian city of Uruk in about 4000 B.C. and whose rebus signature (“*Kushim*”) can be seen on a clay tablet recording a commercial transaction.

It is proof that the origin of book-keeping goes back to several thousand years. King *Solomon* and Roman emperors obligated merchants to keep records of their transactions. You can read in *Aristotle* that failing to present accounts was punished by death.

*Goethe* remarked book-keeping was the most wonderful invention of the human spirit. The profession was made popular among young people by the 2016 American action thriller “*The Accountant*” starring *Ben Affleck*. In the film, he keeps the books of gangsters and discovers an embezzlement of 61 million dollars.

Luca Pacioli, Italian mathematician and Franciscan monk, who described the system of book-keeping of Venetian traders, was the first to publish the rules of double-entry book-keeping 528 years ago. All economies in the world have been keeping their books like that, and accounting has become indispensable for management, control, and business communication. It is not a necessary evil or an end in itself, but the language of business. It is responsible for the complete, ongoing, and organised monitoring, evaluation, and recording of the operation of an economic organisation, for processing its documents, for the publication and analysis of new, systematised information and financial records. It is a beautiful and logical system all students of economics whose main subjects are finance and accounting must learn to have a competitive advantage on the market because it allows them to assess what impact a transaction might have on the assets, the financial and income position of an economic organisation including its balance sheet, profit-and-loss statement as well as its cash-flow and tax implications.

Thanks to technological development, the traditional, typically monotonous, and most time-consuming book-keeping tasks (filing of supporting documents, allocation and recording of incoming and outgoing invoices, cash register and bank statements, reconciliation of analytics and synthetics, managing payroll, labour, and contributions issues) have been pushed into the background. All that incredible drudgery has been transferred to automation. Not people but algorithms, robots, and digital technology perform it paperless, more accurately, more effectively, faster, and cheaper.

Still, you will need good accountants, who are responsible for quality tasks requiring independent decisions and considerations. They will oversee tasks where human intelligence is needed to solve complex problems, such as the preparation and upgrading of accounting policies and regulations, booking valuations, accruals, reclassifications, self-correction procedures, the interpretation of laws, the analysis of investments, securities, derivative and atypical transactions, the preparation of reports and statements. We are no longer talking about pencil pushers with elbow pads, bureaucrats, but business computer scientists disclosing data and communicating on electronic platforms, who are key to success if you want to understand the challenges of the market. They are the bastions of trust who provide financial support, advisory services increasing added value. They are aware of the changes in the regulatory environment, they do due diligence, they monitor operations, they do and optimise tax budgeting, they look out for opportunities of tendering, subsidies, and financing, they write tenders, review, and give opinion on business contracts, they deal with coaching and networking. Every company must have a good accounting person who the management and the shareholders fully trust. The smaller the company, the more it expects to have a 'jack-of-all-trades' accountant to help everyday work. A large corporation is

more likely to employ dedicated people for different tasks reducing in that way the scope of the accountant.

Large consulting companies are not successful because a person there knows everything, but because they work in teams and communicate with each other. They ask for each other's opinion and improve their staff's skills and knowledge at ongoing training courses. They set up separate units for different special tasks. Auditors also must live up to greater expectations. They are not simply required to offer diagnosis providing the necessary reasonable explanation of past events, but to call attention to things the company may not be aware of yet. They should identify and assess future risks and comment on how the management controls them. So, investors expect auditors to offer valuable forward-looking cooperation. They should provide long-term viability analysis, analyse major future business and financial risks, and reveal operational problems. The customers do not only want to see the reflection from the rear-view mirror (expectation gap), but they also want to have an outlook through the windshield. They want to make sure if the company is heading the right way. An auditor must help management to find their way in the labyrinth of risks, opportunities, changes of regulations, competition, and globalisation. The launch of new, more expensive audit technologies (RPA, MI) may radically transform the nature and procedure of audits, it may increase efficiency (real-time samples replaced by total population), it may change the operating process and the service provided.

To carry out complex, sophisticated accounting and audit tasks:

- a) You will need a general economic literacy based on mathematical-statistical methodology, solid knowledge of the theory and practice of finance and accounting and on the other hand, highly skilled use of IT so that you could manage, interpret, and analyse databases.
- b) Side by side with improving professional skills, the issue of competence must be in focus. The main goal here is to teach critical thinking and open-mindedness, the recognition and solution of problems, thinking in perspective, the development of a business sense, creativity, and innovation. Education must be centred on quality work, the will to improve, value creation, flexibility, communication, collaboration, trust, and mutual understanding.
- c) The third dimension of education is to improve personal skills students can use to face future challenges and meet expectations at their jobs. Their sense of responsibility, commitment, dedication to and satisfaction with their profession must be raised.

### 3 CHANGES IN STUDENTS' MENTALITY AND ON THE JOB MARKET

*"Members of this new generation [generation Z] have become accustomed to receiving information quickly, favouring a multifunctional way of thinking and seeing things. They prefer to access information randomly and to think in groups, favouring rapid results and frequent rewards, and they would rather play than study."*<sup>2</sup>

The latter statement would have been true for earlier generations too if their parents, teachers, and compelling living conditions had let them.

Let us see the categories of generations by their dates of birth<sup>3</sup>:

1. Veterans (before 1945) – Traditionalists/Silent generation
2. Baby boomers (1946–1964)
3. X generation (1965–1979) – Digital immigrants
4. Y generation (1980–1994) – Millenia/YouTube/I generation
5. Z generation (1995–2009) – FB/Connections/Digital generation
6. Alpha generation (from 2010)

The "veteran" generation born 90-100 years ago were not only denied laptops or the Internet. Many of them could not even rely on a decent dinner every day. If you wanted to break out of rural deprivation, and you learnt double-entry book-keeping well, you had a good chance to make a decent living for yourself and your family for the rest of your life. The question then was, if I learn the trade of fitter, can I bring up my children using that knowledge? Any knowledge ensuring it was respected in the past. It could be a printer, an engine driver, or an accountant.

Not long ago in the 1990s, knowledge related to securities and the stock exchange was quite popular among students and they were highly motivated. They are useful skills today too, but the new "in" topics are, among others, cryptocurrencies, big data, and green finance.

You cannot expect lifelong employment in most trades today. There is a lot of discussion about career models since careers are more and more fragmented. Students will learn something, then they will get on the "global map", let others know they exist and are smart, then they may be noticed and will be surfing continents or jobs "trying to meet new challenges".

2 MÁRTA ARANYOSSY–ESZTER KULCSÁR (2020): Blended learning in practice: the impact of an economic simulation game on perceived learning. *Economy and Finance*, 7(2), 233–251, <https://www.bankszovetseg.hu/Public/gep/2020/junius/AranyosiKulcsarE.pdf>.

3 ZSÓFIA FRÁNYÓ (2021): Z generáció – az oktatás új kihívásai [Generation Z – New challenges for education]. Conference, University Corvinus of Budapest..



It is quite difficult under such circumstances to say about any knowledge, “well, this will keep you until the end of your life”. The most surprising thing in that regard is that teachers are expected nowadays to be “practically oriented”. However, remember the saying, “*Nothing is more practical than a good theory. It is the only thing to help you in an unexpected new situation*” (László Mérő).<sup>4</sup>

It is no accident that fifty years ago future accountants had to study maths for ten terms from commercial arithmetic to two terms of probability. The goal was to teach students to study. (As an old German saying goes, “*idle learning means learning to be idle*”). And to learn how to think, argue, and demonstrate. Mathematics, if taught well, is a good instrument for all that. But, unfortunately, it is disappearing from the curricula of business schools at the speed of light.

Let us look at the problem from another aspect: why is it more difficult today to be admitted into a good high school than to a highly publicised master course? Most master course students already have a job (i.e., they attend “evening classes”), which excludes in-depth study in many cases.

It is fashionable today to rank universities. It would be useful to survey what percentage of the students of different institutions obtain international professional certifications (e.g., Chartered Financial Analyst CFA, a certification from the European Federation of Financial Analysts EFFAS, Certified International Investment Analyst CIIA, actuarial certification from the Association of Chartered Certified Accountants ACCA, etc.) They are objective, truly international, and apply uniform professional criteria.

Side by side with the structural transformation in progress, nowadays the funding system has also changed. Earlier, when traditional state universities were funded on a “quota” basis they did not have a vested interest in providing their students with qualifications they could use in real life. You could say the quantity of state funding to be drawn was a barrier to quality education.

Structural changes go together with performance-based funding, in other words, universities must be made interested in meeting quality criteria. Funding is based on several pillars, but true quality performance proved by predefined indicators must be the prerequisite of financing. That is an opportunity for Hungarian tertiary education to remain competitive.

At the same time, the question arises **how future bankers and accountants should study or how they should be taught.**

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4 LÁSZLÓ MÉRŐ (2019): *Az ész segédigéi – A tudás és a nemtudás pszichológiája* [The auxiliaries of reason – The psychology of knowledge and non-knowledge]. Budapest: Tercium.

The Z and Alfa generations who have grown up on the internet and have a digital view of the world are impatient, shallow, they “burn out” quickly and regard it a waste of time to be immersed in a subject, learn the details, and reveal the connections.

They prefer problem-free, unambiguous situations where they can give fast and simple answers using the least possible energy. They trust the power of artificial intelligence, although it can only perform pattern-built tasks. Thus, it is a great challenge to make them attracted to finance and accounting, so that they would not think it outdated, monotonous, something losing topicality, or being simple “transactional book-keeping” with data recording in its focus. Their interest must be awakened for a profession centred on advisory functions, they must be motivated and encouraged to face the challenges of new areas where they can use their imagination, can assert themselves, and build their careers.

#### 4 IN PLACE OF A SUMMARY

The core question of this paper was what future bankers, accountants, or auditors should learn to boost the prestige of their professions, to have great value for money with their degrees, good chances of employment, and higher than usual starting salaries.

In an ideal world, we would teach management with lots of maths enjoying a high degree of freedom of education so that our students could meet a range of the important intellectual trends. No one should force anybody to do anything. Nobody should be deceived. Our training should not be subject to any “ism”, our teachers should not be followers of any ideology.

There are many disturbing, open questions to be answered.

- a) Can we keep our best students at our master courses, or can we persuade them to participate in our doctoral programmes?
- b) Should we not teach in English only at our master courses given the international nature of the profession? You need both legs for walking. Obviously, Hungarian is necessary to know Hungarian law, accounting, taxation, financial and other regulations. Not to mention that “a nation lives in its language”.
- c) How much should education be academic, theoretical, and how much practice-oriented, dual? Mixtures are, as a rule, quite strong.
- d) Will there be a supply of excellent and committed teachers, who are devoted to talent management, mentoring, who inspire and motivate their students both in their professional and personal development, who still believe in the

importance of writing textbooks and exercise books, who want to improve educational methodologies and adjust teaching aids to match students' goals?

- e) Can we attract enough “aces” with recognised in-depth professional knowledge and experience to tertiary education, persons whose professional achievement and moral integrity can be a role model for the new generation?

All institutions must prepare for fierce competition in this country as demographic indicators are worsening and competition from abroad is intensifying. The “global” picture holds for our field too; institutions of tertiary financial education must find their places and select their strategy.