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# ACTA VŠFS

Economic Studies and Analyses  
Ekonomické studie a analýzy

## SCIENTIFIC ARTICLES VĚDECKÉ STATĚ

- **Naděžda PETRŮ, Monika NAĐOVÁ KROŠLÁKOVÁ:**  
Insights on Trends of Academic Research  
into Family Business  
Vhled do vývoje vědeckého poznání  
rodinného podnikání
- **Wolfgang KLOPPENBURG:**  
Are Real Estate Prices Evolving into an Asset Price Bubble?  
Přerůstají ceny nemovitostí v bublinu cen aktiv?
- **Bastian SCHULZ:**  
The Cum-ex Case: A Look at Germany  
Případ Cum-ex: pohled na Německo



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# *Editorial*

## *Editorial*

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JAN MERTL

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Dear readers,

this new issue of ACTA VŠFS comes after significant changes within editorial staff. Yet, we have been carefully preserving what is valuable and useful about our journal. We have refined its scope while continuing focus on traditional socio-economic topics that the members of executive board have always been experienced in and the journal famous for.

It all started with the decision of previous editor, doc. Radim Valenčík, to pass the editor's sceptre further. I, after careful decision-making, decided to observe his work on the last issue and from the beginning of this year, I took the position of the executive editor. I would like to emphasize Radim Valenčík's contribution to the journal's development and hereby thank him for all his effort and work, as well as for remaining the member of the executive board.

I was then delighted with the fact that our highly experienced colleague, prof. Mojmír Helísek, agreed to take the position of editor-in-chief, supervising the editor's work of mine and offering his long-time knowledge of academic publishing to the journal. So, the work on the first issue has started extensively and I firmly believed that this new team will perform well for the foreseeable future.

However, four months later, we were hit by bad news, as unfortunately prof. Helísek suddenly passed away. It was a shock for everyone around the journal, and we shall miss his profound experience and good attitude very much. We would like to dedicate a short obituary for him in this issue.

Thus, it was inevitable to find a new editor-in-chief, again. After discussion amongst executive board members, we decided to ask doc. Petr Wawrosz, whose research focus and academic profile is fully compatible with the journal's focus, to take this duty. While the executive editor remains the most important role for the management of review process, shaping the issues' content and interaction with executive boards members, we highly appreciate Petr Wawrosz's experience in economic theory, institutional economics and economics and law.

So, let's focus on research and this issue's content now!

We have prepared five carefully reviewed articles for you, two of them coming from German authors, one having co-author from Slovakia and one from Russia. So, we have got quite a diversity of authors for this issue, and also the topics, while fully in focus of our journal, are pretty different.

The first article "Insights on trends of academic research into family business" is focused on notable phenomenon of business structures – the family business. It contains

systematic literature review and the authors state that qualitative research seems logical for research in the areas of identity, culture, values, and relationships, which is the primary socioemotional wealth of family businesses. The co-author of this article Naděžda Petrů is an expert in this area and known for supporting this concept in practice.

The second article “Are real estate prices evolving into an asset price bubble?” tackles important macroeconomic issues of real estate prices, that is known for causing the subprime mortgage crisis in 2007–2009. So, it is surely worth looking at how the situation evolved and if we are not getting into similar scenario now, as the world is recovering from Covid pandemics and monetary policy has been expansive again.

The third article “The Cum-ex case: A look at Germany” is focused on a particular form of stock-market trades around ex-dividend days, so-called “cum-ex” transactions, which have resulted in major revenue losses due to illegitimate tax refunds in Germany. This has consequences also for tax systems and tax revenues and surely is worth to include this special topic in our research journal.

The fourth article “Transfer of social competencies to the intercultural environment. The relationship between social and cultural intelligence” aims to examine the relationship between social and cultural intelligence. Authors used online questionnaire and data were analysed using the PLS-SEM method. It offers interesting results about relationship between those forms of intelligence and transferability of social skills.

The fifth article “The influence of the quality of education on the knowledge economy: the Czech Republic in international comparison” had very good reviewers’ opinions and comes from University of Pardubice. It aims to perform a comparative analysis of education quality indicators in the Czech Republic and an international comparison. Based on selected statistical results of comparative analysis it determines the order of states in the evaluation of the quality of education. It results in SWOT analysis of the quality of education in the Czech Republic. This article’s scope is highly relevant for current socio-economic development.

In the section “From scientific life”, we have got the information about two notable events that occurred on the University of Finance and Administration during the first half of year 2021, a conference “Financial Markets 2021 – Innovations and Sustainability” and special intensive programme “The Future of Banking and Finance” where the students and teachers from multiple European countries participate, this year in online form because of pandemic restriction.

Despite the changes made we therefore dare say that we keep on providing valuable scientific output and information about relevant socio-economic issues that our journal has been focused on. I wish you pleasant reading and hope that you will find the new issue interesting to study and think about.

**Ing. Jan Mertl, Ph.D.**  
Executive Editor

Vážení čtenáři,

toto nové číslo ACTA VŠFS vychází po významných změnách v redakci. Přesto jsme pečlivě zachovali to, co je na našem časopise cenné a užitečné. Zpřesnili jsme jeho zaměření a zároveň jsme se nadále soustředili na tradiční socioekonomická témata, s nimiž měli členové výkonné rady vždy zkušenosti a kterými je časopis proslulý.

Vše začalo rozhodnutím předchozího editora, doc. Radima Valenčíka, předat své editorské žezlo dál. Já jsem se po pečlivém rozhodování rozhodl sledovat jeho práci na posledním čísle a od začátku letošního roku jsem se ujal funkce editora (výkonného redaktora). Chtěl bych vyzdvihnout přínos Radima Valenčíka pro rozvoj časopisu a tímto mu poděkovat za veškeré úsilí a práci, stejně jako za to, že zůstává členem výkonné rady.

Potěšila mě pak skutečnost, že do čela časopisu byl uveden náš zkušený kolega prof. Mojmír Helísek, který souhlasil s tím, že se ujme funkce šéfredaktora, bude dohlížet na mou práci redaktora a poskytne časopisu své dlouholeté znalosti z oblasti akademického publikování. Práce na prvním čísle se tedy rozběhla ve velkém a já pevně věřil, že tento nový tým bude do budoucna dobře fungovat.

Po čtyřech měsících nás však zasáhla špatná zpráva, neboť prof. Helísek bohužel náhle zemřel. Pro všechny kolem časopisu to byl šok a jeho hluboké zkušenosti a dobrý přístup nám budou velmi chybět. Rádi bychom mu v tomto čísle věnovali krátký nekrolog.

Bylo tedy nevyhnutelné najít opět nového šéfredaktora. Po diskusi mezi členy výkonné rady jsme se rozhodli požádat doc. Petra Wawrosze, jehož výzkumné zaměření a akademický profil plně odpovídají zaměření časopisu, aby se této povinnosti ujal. Přestože role výkonného redaktora zůstává nejdůležitější ohledně práce s články a provádění recenzního řízení, utváření obsahu jednotlivých čísel a interakce se členy výkonné rady, velmi oceňujeme zkušenosti Petra Wawrosze v oblasti ekonomické teorie, institucionální ekonomie a ekonomie a práva.

Soustředme se tedy nyní na vědu a obsah tohoto čísla!

Připravili jsme pro vás pět pečlivě recenzovaných článků, z nichž dva pocházejí od německých autorů, jeden má spoluautora ze Slovenska a jeden z Ruska. Pro toto číslo jsme tedy získali poměrně rozmanité autory. Také témata, ačkoli jsou plně v souladu se zaměřením našeho časopisu, jsou dosti odlišná.

První článek „Vhled do vývoje vědeckého poznání rodinného podnikání“ je zaměřen na pozoruhodný fenomén podnikatelských struktur – rodinný podnik. Obsahuje systematický přehled literatury a autoři konstatují, že kvalitativní výzkum se jeví jako logický pro výzkum v oblasti identity, kultury, hodnot a vztahů, což je primární sociální a emoční bohatství rodinných podniků. Spoluautorka článku Naděžda Petřů je odbornicí v této oblasti a je známá podporou tohoto konceptu v praxi.

Druhý článek „Přerůstají ceny nemovitostí v bublinu cen aktiv?“ se zabývá důležitými makroekonomickými otázkami cen nemovitostí, které jsou známé tím, že způsobily

hypoteční a finanční krizi v letech 2007–2009. Určitě tedy stojí za to podívat se na to, jak se situace vyvinula a zda se do podobného scénáře nedostáváme i nyní, kdy se svět vzpamatovává z covidové pandemie a měnová politika je opět expanzivní.

Třetí článek „Případ Cum-ex: pohled na Německo“ je zaměřen na zvláštní formu obchodů na akciovém trhu v období ex-dividendových dnů, takzvané „cum-ex“ transakce, které v Německu vedly k velkým ztrátám rozpočtových příjmů v důsledku neoprávněného vracení daní. To má důsledky i pro daňové systémy a inkaso daní a jistě stojí za to zařadit toto speciální téma do našeho vědeckého časopisu.

Čtvrtý článek „Přenos sociálních kompetencí do interkulturního prostředí. Vztah sociální a kulturní inteligence“ si klade za cíl prozkoumat vztah mezi sociální a kulturní inteligencí. Autoři použili online dotazník a data analyzovali metodou PLS-SEM. Článek nabízí zajímavé výsledky o vztahu mezi těmito formami inteligence a přenositelností sociálních dovedností.

Pátý článek „Vliv kvality vzdělání na znalostní ekonomiku: Česká republika v mezinárodním srovnání“ měl velmi dobré recenzní posudky a pochází z Univerzity Pardubice. Jeho cílem je provést srovnávací analýzu ukazatelů kvality vzdělávání v České republice a mezinárodní srovnání. Na základě vybraných statistických výsledků komparativní analýzy určuje pořadí států v hodnocení kvality vzdělávání. Výsledkem je SWOT analýza kvality vzdělávání v České republice. Téma článku je vysoce relevantní pro současný sociálně-ekonomický rozvoj.

V rubrice „Z vědeckého života“ informujeme o dvou významných akcích, které se na Vysoké škole finanční a správní uskutečnily v první polovině roku 2021, a to o konferenci „Finanční trhy 2021 – inovace a udržitelnost“ a o speciálním intenzivním programu „Budoucnost udržitelného bankovníctví a financí“, kterého se účastní studenti a pedagogové z několika evropských zemí, letos z důvodu pandemických omezení v online podobě.

I přes provedené změny si tedy tróufáme tvrdit, že i nadále publikujeme hodnotné vědecké výstupy a informace o relevantních sociálně-ekonomických otázkách, na které se náš časopis zaměřuje. Přeji vám příjemné čtení a doufám, že pro vás bude nové číslo zajímavé k pročítání a zamyšlení.

**Ing. Jan Mertl, Ph.D.**

Výkonný redaktor



# *Insights on Trends of Academic Research into Family Business*

## *Vhled do vývoje vědeckého poznání rodinného podnikání*

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NADĚŽDA PETRŮ  
MONIKA NAĐOVÁ KROŠLÁKOVÁ

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### **Abstract**

The question of family business ranks among the most intensively followed areas of research. At the same time, it is a question with a palpable impact on the economic and social environment; in other words, it is a question with a high degree of social relevance. It is a topic both appropriate and necessary, yet very challenging in terms of its interdisciplinarity and scope. The goal of this article is to summarize the research question of family business via a systematic review of literature primarily in terms of topical areas, scientific methods, and study sample size. To evaluate which methods are suitable for examining the issues of family business. The authors drew methodological inspiration from the bibliography of De Massis et al. (2012), in which the authors gathered and organized information related to the topics of empirical articles, including a short description of the sample, a description of the data collections methods used, and a list of secondary data sources used. They reached the conclusion that the use of qualitative research seems logical for research in the areas of identity, culture, values, and relationships, which is the primary socioemotional wealth of family businesses.

### **Keywords**

family business, research methods, strategy, management, succession, relations, asset management

### **JEL Codes**

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### **Abstrakt**

Problematika rodinného podnikání patří mezi intenzivně sledované oblasti výzkumu. Zároveň se jedná o problematiku s nezanedbatelným dopadem na ekonomické a sociální prostředí, tedy o téma s vysokou společenskou relevancí. Téma je vhodné a potřebné, ale je velmi náročné vzhledem ke své interdisciplinaritě a šíři. Cílem příspěvku je přiblížit výzkumnou problematiku RP prostřednictvím systematického přezkumu literatury především z pohledu tematických okruhů, vědeckých metod, velikosti výzkumného vzorku. Vyhodnotit, které metody jsou vhodné pro zkoumání problematiky rodinného podnikání. Autorky se metodologicky inspirovaly bibliografií De Massis et al. (2012), ve které autoři shromáždili a uspořádali informace týkající se témat empirických článků, včetně krátkého

popisu vzorku, popisu metod použitých ke sběru dat a seznamu sekundárních zdrojů dat, které byly použity. Mimo jiné došli k závěru, že využití kvalitativního výzkumu se zdá být logické pro výzkum v oblasti identity, kultury, hodnot a vztahů, což je hlavním socioemocionálním bohatstvím rodinných podniků.

### **Klíčová slova**

rodinné podnikání, vědecké metody, strategie, řízení, nástupnictví, vztahy, správa majetku

## **Introduction**

The issues of family business appeared in the academic field at the beginning of the 1980s. 80 years prior, the term “family business” only appeared occasionally, consisting of meager empirical research and articles of a purely theoretical character. In 1988 the first issue was published of an academic journal *Family Business Review* (FBR). It combines academic research and practical experience in a journal devoted exclusively to analyzing the dynamics of family businesses. Its interdisciplinary forum captured learning from a variety of academic fields – management, marketing, financial management, human resources management, etc.

In the 1990s, research into family businesses became an independent multidisciplinary field. Studies focused on a range of paradoxes at the intersection of various academic disciplines, combining economic, managerial, sociological, and psychological issues, as well as many others. One of the first compilation studies of topics and research methods for family business was the work by Sharma et al., 1996. They reached the conclusion that no dominant theory of the family business existed at the time that could provide a sufficiently robust and unambiguous explanation of the behavior and performance of the family and the business, the positive and negative connection of two entirely different entities. The development of a theory associated with family business was at its very beginnings. We describe how this area of knowledge developed further in the following text.

## **1 Theoretical concepts of family business analysis**

Family businesses are entrepreneurial entities in which a family owns capital sufficient to exercise control over the business, where family members occupy top management positions, where the objective is to pass the company to subsequent generations (Colli, Rose, 2016; Poza, Daugherty, 2014; Krošlákova, 2013a). Expert estimates indicate that 80–85% of all European businesses are family businesses (Záborská, 2015), generating over 60 million jobs, i.e. on average 40–50% of all jobs in the private sector (EFB, 2019). 85% of startups throughout the world are based on contributions from family financing (FFI, 2012). Family businesses play an important role in employment, creation of income, and accumulation of wealth (Colli, Rose, 2016; Sanguino, 2017) and significantly participate in the creation of GDP (Osunde, 2017). For this reason it is important to focus on researching

family business and creating a theory associated with its success or failure. The unique character of family businesses creates an opportunity to pose numerous interesting research questions (Bird et al., 2002). Publications on the topic of family business appear in numerous journals, e.g. *Journal of Family Business Strategy*, *Journal of Business Venturing*, *Small Business Economics*, and others.

The bibliography of De Massis et al. (2012) entitled *Family Business Studies* built on the publication by Sharma et al., 1996 and cataloged 215 of the most cited empirical, theoretical, and practical articles about family business published from 1996 to 2010 in 33 journals. The goal of the authors of this essay is to follow the trends and directions of family business research, discuss emerging trends in empirical studies, and provide detailed information on the data and methods used in empirical studies on family business.

Flores, Bringas (2018) determined that if we wish to assess the competitiveness, performance, or resilience of family businesses, it is necessary that we take into consideration two dimensions: the size of the business and the size of the family. Academic publications should aid a deeper understanding and comprehension of the atmosphere of family businesses and the identification of factors that lead to their success. By way of example, Suess-Reyes (2017) considers the development of a transgenerational orientation to be one of the most significant challenges that family businesses face. Sadkowska (2018) examines the outlook of family businesses from a perspective of building internal relationships and relationships with external affected parties.

However, the research of family firms matters in different ways depending on the context because family firms can exhibit best and worst practices (Morck & Steier, 2005). Therefore, Sharma (2004) investigated qualitatively family firm performance and family firm definitions to understand the domain and the scope of the research field. Yet up until now, it has not been clarified conclusively in an empirical way whether family firms have a better performance than nonfamily firms. Guan et al. (2019) identifies six main categories that influence the competitiveness of family businesses. These include entrepreneur innovation ability, entrepreneur innovation spirit, social capital, institutional environment, business innovation behavior, and innovation performance of family businesses. Kleve et al. (2020) covered a combination of research into family business, organizational studies, and theories of systems. They sought out a correlation between typical family relationships and formal decision-making processes for commercial and family strategy. Evert et al. (2015) to identify and evaluate empirical trends, and make suggestions for future research, we examine 319 empirical articles published in *Family Business Review* since 1988. These studies are compared with 146 family business research articles published in top-tier journals not dedicated to family business research over the same timeframe. While we substantiate growth in rigor and sophistication, we address specific family business research challenges regarding construct validity, generalizability, causality, temporality, and multilevel issues. Suggestions are provided for future empirical research across six major topical areas. According to them, six main topical areas of academic research can be identified: These are:

- 1. Characteristics and attributes (hereinafter CHA) – this area includes analyses,** statistical tests, whether specific or unique characteristics of family businesses influence their performance, generalization of the strong and weak sides of family

businesses, examining the variance between attributes of family and non-family businesses, e.g. during the course of the life cycle of the business, in the process of intergenerational transfer, in access to human resources management, etc.

2. **Strategy and management of family businesses (hereinafter SM) – this area includes causal** mechanisms, strategic selection, motives, preferences and values involved in strategic decisions that influence either the family or the business. Their goal is to assess the differences in the behavior of individual, of family and non-family businesses, to evaluate strategic decision making, processes, selection of strategies for success, competitiveness and resiliency of the family business, etc.
3. **Business performance and growth (hereinafter BPG) –** the goal is to understand whether and how non-financial values (e.g. socioemotional wealth) growing (over time) among individual family members, influence performance and the business/ financial results, and growth, of the family business. It evaluates development, verifies factors of financial and non-financial impact on sustainability, social corporate responsibility, entrepreneurial ethics, and commercial success. It examines the influence of changes in management or ownership over time, analyzes the history and trends in relation to growth/bankruptcy, liquidation of the family business, influences of organizational crisis (economic decline, death of a CEO, scandal, etc.) on the competitiveness of the company, etc.
4. **Interpersonal family dynamics (hereinafter IFD) – this area includes socioemotional wealth**, combinations of family systems and organizational structures in relation to the character, causes, reasons, and consequences of various types of conflicts. Identification and assessment of the motivations of the family for achieving business objectives. Examining the correlation between relationships of family and non-family managers, differences in dynamic growth trends between generations, etc.
5. **Succession (hereinafter SN) – this area includes** examining the progress of succession strategies, generalization of processes of managing succession strategies. Methods of handover and administration of the business (to family and non-family members), asset management and transfer of ownership (trust funds), evaluation of the impact of transfer of the business on employees, customers, vendors, the wider public, innovation, internationalization, competitiveness, investment, etc.
6. **Governance (hereinafter GV) – this area evaluates** relationships between family and non-family members in relation to the system of administration (CEO duality, CEO approaches, company culture, exercise of power, family counsel, family meetings, family constitution, etc.) (Evert et al., 2015).

Articles published after 2015 can also be categorized in the above thematic areas. For example, **SM** – prospective strategic management of family businesses: past, new perspectives, future directions (Daspit et al., 2017, Kupec et al., 2020, **IFD, BPG** – ethics and social responsibility of family business (Michalski, 2014, Varquez, 2018, Minth, 2018), **IFD, SM, BPG** – pressure of SEW on the transition to sustainable production and the system of circulation economics (Núñez-Cacho et al., 2018), **SM, BPG** – influence of strategic activities and market orientation on the performance of family business (Zainal et al., 2018), **BPG, SM** – internationalization and forms of entry of family businesses on foreign markets (Kontinen, Ojala, 2010, Lehrer, Celso, 2017, Sanchez-Famoso et al., 2019), **IFD** – influence of SEW on

entrepreneurial orientation of family businesses (Hernández-Perlines et al., 2019), **CHA**, **IFD**, **SN**, **BPG** – concepts of resilience taking into account how the family, the progress of succession, and the nature of non-economic factors influence their performance (Beech et al., 2020, Nađová Krošláková, 2020), **GV** – theory and practice, agency, contractual relationships, conflict of interest (Panda, Leepsa, 2017, Hastori et al., 2015), etc.

While other topics, or areas of interest, appear in the technical literature, the above six rank among the most commonly discussed. For this reason the authors decided to exclude the less frequent areas and to focus on the six basic ones, specified in the above text. They acknowledge that the undiscussed topics also may influence success, independent functioning, and competitiveness of family businesses.

## 2 Research methods

The authors examined the research question of family business via a systematic review of literature primarily in terms of topical areas, scientific methods, and study sample size. (2012). The authors assumed that the classification of topical areas according to Evert et al. (2015) is generally applicable, nonetheless they considered it appropriate to verify whether the articles published in the text below can be assigned to the specified areas. They have formulated the following research questions:

- **RQ1** – Can the same or similar six main topical areas of academic study as formulated by Evert et al., 2015 be observed in selected countries of the former socialist bloc?
- **RQ2** – Which research methods are used by authors in the selected countries of the former socialist bloc for the identification of issues associated with family businesses?
- **RQ3** – What is the size of the study sample of respondents used by authors in the selected countries of the former socialist block as a basis for family business research?

When evaluating topics and suitable methods for analyzing the specifics of family businesses, the authors focused on the following countries of the former socialist bloc<sup>1</sup> (Poland, Slovakia, Hungary, Bulgaria, Czech Republic). The selected countries have similar histories, academic interest in family business is similarly dated from the 1990s, and potential collaboration may be assumed in joint studies. The following parameters were selected for systematic literature review:

- The authors searched the ProQuest and Google Scholar databases for the term “family business in Poland”, “family business in Slovakia”, “family business in Hungary”, “family business in Bulgaria”, “family business in the Czech Republic”.<sup>2</sup>

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1 The socialist bloc consisted of the countries in Comecon, primarily the USSR, Bulgaria, Czechoslovakia, Hungary, Poland, Romania, Albania, East Germany, Mongolia, Cuba, Vietnam etc.

2 As of 12 June 2020, the search term “family business” entered into the ProQuest database of academic journals yields 646,743 search results. As of 12 June 2020, the search term “family business” entered into the Google Scholar database for the time period from 1998-2020 yields 1,310,000 results.

- The articles searched were primarily those published in technical journals in the English language.
- Articles from a random selection for which it was possible unambiguously to identify the topical areas or the relationships between them, the research method and number of respondents, were included in tables and subsequently evaluated using descriptive statistics.
- In subsections 4.1–4.5 a total of 62 citation references are given, with 39 articles included in descriptive statistics.

## 3 Outputs and discussion

### 3.1 Progress, status of understanding issues and research methods in Poland

Entering the search term “family business in Poland” into the ProQuest database (academic journals) yielded a total of 7 results, the Google Scholar database yielded 297,000. For the purposes of this essay, the following studies were selected:

In Poland the interest in family business issues dates back to the 1990s. In the 1990s, the transformation of the market was linked to rapid founding and subsequent development of small family business. These became the dominant type of business over the last 30 years. Paradoxically, we still know relatively little about the characteristics of these commercial entities (Sułkowski et al., 2017). The leading researches in this field include Trembaczowski, who presented the results of a qualitative study of 12 companies in relation to the issue of succession in a broader prospective strategy of social reproduction (2018). Koladkiewicz (2013) identified the role of 1st and 2nd generations in the process of the internationalization of a business operating in the MSE sector. She selected a research method of a qualitative character – she produced six case studies, the primary research tool was the unstructured conversation. The conversations were conducted in the years 2008–2009. The author was one of the first to reference the role of the second generation in the process of internationalization of family businesses. According to Leśniewski (2016), 36% of Polish business subjects represent family businesses, 10% of whom contribute 10% to creation of GDP, 60% of which practice succession planning. The goal of this essay was also to prove how family businesses may effectively use strategic analysis when planning strategic goals. Socha, Majda-Kariozen (2017) published a study presenting a view of administration and management of family businesses via assessment of financial performance. The empirical analysis prepared on a sample of 24,000 Polish family businesses in the period from 2008–2013 used the method of linear regression. Domanowska (2017) introduced the issue of hostile takeover in a case study of the family jeweler W. Kruk, established in 1840. Glod, Flak (2017) analyzed factors of competitiveness in Polish family businesses. The authors consider as a competitive advantage the prioritization of long-term profits over short-term profits, and flexible decision-making. Marjański, Sułkowski (2019) analyzed articles published in Poland in the years 2009–2018. They reached the conclusion that the quantitative analysis was applied in the years 2009–2010, whereas the qualitative approach (interview, case study, etc.) was applied in research projects in 2014–2018. The methodology of quantitative research, while it

can be representative and lead to a more certain generalization, always prevents deeper understanding of the complicated social processes taking place in family businesses. In contrast, they state that qualitative methods are particularly useful for examining family business issues and the connection of specific commercial (economic) relationships with family (with an emotional, personal, and private environment).

**Table 1:** Topical areas, methods, and scope of analysis of family business issues in Poland

Year	Authors	Topic and its classification into categories according to Evert et al.	Qualitative research	Quantitative research	Number of respondents
2007	SAFIN	Strategic behavior of family business and the factors that influence it. <b>SM, CHA, BPG, IFD, SN</b>		Questionnaire	600
2010	SURDEJ, WACH	Succession strategy. <b>SN, CHA, IFD</b>	61 in-depth interviews	Questionnaire	496
2014	PAWLAK	Progress of the process. <b>SN, CHA, IFD</b>	Direct semi-structured interviews lasting 1 hour		6 randomly selected family businesses
2016	LEŚNIEWSKI	Effectiveness of use of strategic analysis when planning strategic goals. <b>SM, CHA</b>		Questionnaire	23 respondents
2017	DOMANOWSKA	Process of hostile takeover. <b>GV, SN, CHA, SM</b>	Case study of a family jeweler		1
2017	SOCHA, MAJDA-KARIOZEN	Evaluation of financial performance. <b>GV, CHA, BPG, IFD</b>		Linear regression, data from public sources	24,000
2018	TREMBACZOWSKI	Prerequisites for successful succession, capital structure. <b>SN, GV, CHA,</b>	Qualitative study		12 randomly selected family businesses

Year	Authors	Topic and its classification into categories according to Evert et al.	Qualitative research	Quantitative research	Number of respondents
2019	MARJAŇSKI A SUŁKOWSKI	Systematic literature review of the issues of family businesses. <b>CHA, SM, BPG, IFD, SN, GV</b>		58 articles	The articles were based from 1,310 respondents

Source: author analysis

### 3.2 Progress, status of understanding issues and research methods in Slovakia

Entering the search term “family business in Slovakia” into the ProQuest database (academic journals) yielded a total of 4 results, the Google Scholar database yielded 26,000. For the purposes of *this* essay, the following studies were selected:

In Slovakia, issues of family business have been examined for some time by Helena Strážovská and Ľubomíra Strážovská (Strážovská, Strážovská, 2002, Strážovská 2004, Strážovská et al., 2008). In 2010, for example, they studied 128 family businesses and determined, that only the first generation is employed in 31% of those questioned, in 63% the first and second generations work together, in 6% the second and third generations are both employed at the same time (Strážovská, Strážovská, 2010). Krošlákova builds on their work. In 2013 lecture notes were published (Krošlákova, 2013, Krošlákova, Strážovská, 2013). The subject of Family Business was included in the curriculum of the Business School of the University of Economics in Bratislava. Family businesses were believed to contribute to the increased stability and economic independence of families and increased appeal of entrepreneurialism (Kočišová, Stoličná, 2017). In 2011 a study was produced using qualitative research entitled Family Business in Slovakia. 11 interviews were conducted with representatives of family businesses. Research questions focused on issues associated with business, the person of the founder, and his or her willingness to transfer the family business, as well as the area of relationships between the family and the business (Serina, 2011). Marosi, Katona (2015) analyzed a sample of 143 students ranging in age from 18–33 years using quantitative research to determine their attitudes toward involvement in the management of a family business. The goal of the study by the authors Peracek et al. (2017) was to analyze selected problems of family businesses in the conditions of the Slovak Republic using comparison of technical texts. Naďová Krošlákova (2020) followed on this work. She proposed a recommendation for the development of family businesses in Slovakia in the area of legislation and administration, approach to capital and support programs, education, consultation, and informedness, employment. The goal of a study by Mura, Mazák (2018) was to reveal trends associated with the innovation activity of family



businesses. The evaluation of study of 320 respondents used the chi-squared test ( $\chi^2$  test) – Pearson test of goodness of fit, statistics of average values. The authors assume that the frequency of innovation activities is influenced by factors such as quality, technical development, organization of work, marketing, and sales. Lušňáková et al. (2019) assessed the preparedness of Slovakian family businesses on generation change of owners, on ensuring fluid transfer of management and ownership of the family business to the younger generation. The research method was a questionnaire based on a 5-degree Likert scale. Assessment of the influence of various factors on entrepreneurial initiatives in the Czech Republic, Poland, and Slovakia was addressed by Bilan et al. (2019). They stated that in addition to the quality of higher education of the succeeding generation, the business initiatives of young people in relation to involvement in management of a family business are dependent on other important factors: macro and microeconomic, social, business environment, state support of business, access to grants and funds, etc.

**Table 2:** Topical areas, methods, and scope of analysis of family business issues in Slovakia

Year	Authors	Topic and its classification into categories according to Evert et al.	Qualitative research	Quantitative research	Number of respondents
2011	SERINA	Entrepreneurialism, relationships, founder personality. <b>BPG, IFD, CHA</b>	Personal interview		11
2015	MAROSI, KATONA	Attitude of younger generation to succession. <b>SN, IFD, CHA, GV</b>		Questionnaire	143
2017	PERACEK	Systematic literature review of the issues of family businesses. <b>CHA, SM, BPG, IFD, SN, GV</b>		21 articles	
2018	MURA, MAZÁK	Family business innovation activity. <b>SM, BPG, IFD, CHA</b>		Questionnaire	320
2019	LUŠŇÁKOVÁ et al.	Preparedness for succession. <b>SN, GV, IFD, CHA, SM, BPG</b>		Questionnaire	412

Source: author analysis

### 3.3 Progress, status of understanding issues and research methods in Hungary

Entering the search term “family business in Hungary” into the ProQuest database (academic journals) yielded a total of 7 results, the Google Scholar database yielded 220,000. For the purposes of this essay, the following studies were selected:

Family business issues in Hungary have been studied by academic personnel since the year 1992. Innovation and growth potential of new beginning family businesses was evaluated by studies between the years 1992–1999. Scharle followed on the research of Fóti (1997), Czakó (1997), Gábor (1985, 1990, 1994), Laky (1998). In a study focused on the influence of involvement of family members and other factors on the economic effectiveness of the company, the author used a method of comparing simple statistics, estimates using multinomial models of probability (Scharle, 2002). The author Bogáth (2015) sought an answer to the question of how business and family goals can be linked, analyzed the situation of family businesses in Hungary using a review of Hungarian and international literature. She identified three family philosophies, long-term success is achieved only once the proper balance between the family and the business can be established. Kása et al. (2017) analyzed the % share of family businesses in the SME segment, to identify the specifics of business issues. Csákné (2012), Németh (2018) emphasize the importance of Hungarian family businesses for the national and regional economy. Németh, Németh (2017) used quantitative research to analyze popularity of tools for administration and management of a family business, visualizing it in the form of a “Pyramid” of family administration. The topic of the individual conduct of the owner in relation to succession was the subject of a two-year qualitative study by Darabos, Baracska (2018). The work method used by the group The Solutionist Group was the best practice model. It allowed for the characteristics of family businesses to be presented, showing how the process of sustainable business differs in the environment of family and non-family businesses (Tobak et al., 2018). Tobak, Nábradi (2020) subsequently presented a new methodology for evaluating the trends, maturity, and life cycles of family businesses, calling it the TONA model. It includes a dimension of family-business-ownership in relation to the 1st to nth generation. Factors of international competitiveness of family businesses were studied by Ružeková, Kaštaláková (2018). Szirmai, Németh (2019) submitted a literature review on the position of family businesses and compared the outputs of research focused on the importance and possibilities of succession planning.

**Table 3:** Topical areas, methods, and scope of analysis of family business issues in Hungary

Year	Authors	Topic and its classification into categories according to Evert et al.	Qualitative research	Quantitative research	Number of respondents
2002	SCHARLE	Innovation and growth potential, <b>SM, BPG, IFD, SN, CHA</b>		Analysis of data from publicly accessible sources	876

Year	Authors	Topic and its classification into categories according to Evert et al.	Qualitative research	Quantitative research	Number of respondents
2015	BOGÁTH	Systematic literature review of the issues of family businesses. <b>CHA, SM, BPG, IFD, SN, GV</b>		15 articles	
2017	KÁSA et al.	% of family business representation in the SME segment, specifics of business issues of family businesses. <b>BPG, CHA</b>		Questionnaire	382
2017	NÉMETH, NÉMETH	Tools for administration and management of family businesses. <b>GV, CHA, IFD</b>	In-depth interviews	Quantitative analysis and online research	9/177
2018	DARABOS A BARACSKAI	Behavior and decision-making of owners of family businesses. <b>IFD, CHA, GV</b>	Comparison, interview		140
2018	TOBAK et al.,	Evaluation of factors of successful succession. <b>SN, CHA</b>	Model of best practice of companies with tradition of over 100 years/fourth generation of owners		1
2019	TOBAK, NÁBRADI	Proposal of the TONA model. <b>SN, GV, IFD, CHA, SM, BPG</b>			Only created model, hypothetically outlining 6 variants of achieved results

Year	Authors	Topic and its classification into categories according to Evert et al.	Qualitative research	Quantitative research	Number of respondents
2019	SZIRMAI, NÉMETH	Systematic literature review of the issues of family businesses, primarily succession. <b>CHA, SM, BPG, IFD, SN, GV</b>		64 articles	

Source: author analysis

### 3.4 Progress, status of understanding issues and research methods in Bulgaria

Entering the search term “family business in Bulgaria” into the ProQuest database (academic journals) yielded a total of 11 results, Google Scholar database yielded 64,300 Results. For the purposes of this essay, the following studies were selected:

Dadak (1995) focused on an analysis of macro and microeconomic factors influencing competitiveness and entrepreneurialism of Bulgarian family businesses in the years 1988–1993. Small (2005) presents a study of the influence of family on structural changes in agriculture in middle and eastern Europe. In a study from 2008, Mandl presumes that in predominantly agricultural areas, family businesses are represented in primary traditional branches of agriculture and forestry by 30% employment (Mandl, 2008). Flether et al. (2009) focused on relationships within small family businesses. Yordanova (2016) studied and compared models and their overall predictive capability, which would enable the proper classification of differences between family and non-family businesses. It was based on comparison of the texts of 110 technical articles. She created her own model, which compared and evaluated 14 factors of 235 analyzed businesses. Marinova, Marinov (2017) opened the topic of internationalization and factors influencing the success of Bulgarian family businesses during entry and expansion on the international market. Castellano, Ivanova (2017) explain the progress of fundamental institutional changes during the sociopolitical transition from a centrally planned to open market economy in Bulgaria. The authors appeal to the size of the company, technical knowledge, modern style of management, and fulfillment of changing needs, requirements, and expectations of customers in the regional and international market environment.

**Table 4:** Topical areas, methods, and scope of analysis of family business issues in Bulgaria

Year	Authors	Topic and its classification into categories according to Evert et al.	Qualitative research	Quantitative research	Number of respondents
1995	DADAK	Factors limiting family business growth. <b>CHA, SM, BPG, IFD, SN, GV</b>	Interview		45
2009	FLEATHER et al	Family relationships and their impact on success <b>IFD, CHA, SN</b>	Interview		69
2016	YORDANOVA	Differences between family and non-family businesses. <b>CHA, SM, BPG, IFD, SN, GV</b>	Structured interview		235
2017	MARINOVA, MARINOV	Internationalization and proactive behavior on the international market. <b>BPG, CHA, IFD, SM</b>	Semi-structured interview		9
2017	CASTELLANO, IVANOVA	Creation of the identity of a family business in the course of transformation of the economy to an open market economy. <b>CHA, SM, BPG, IFD, SN, GV</b>	Semi-structured repeated interviews in October 2007, October 2010, July 2015		8

Source: author analysis

### 3.5 Progress, status of understanding issues and research methods in the Czech Republic

Entering the search term “family business in Czech Republic” into the ProQuest database (academic journals) yielded a total of 28 results, Google Scholar database yielded 123,000 results. For the purposes of this essay, the following studies were selected, the author (Petrů) intentionally did not include the outputs of her own publishing activities:

One of the first publication activities was a dissertation by entitled *Re-Establishing Traditional Czech Family Businesses: A Multiple Case Study on the Present Challenges*. The main goal of the study was to observe, name, and understand the primary challenges (problems) faced by restituted Czech family businesses after 10 years of doing business. (Hanzelková, 2004). Since about 1997 this topic the team of Professor Koráb has studied family business issues. Kalouda et al. (1998), in addition to the individual characteristics, goals, priorities of each individual from the family and business, ascribe specific characteristics, goals, priorities,

to their own systems. Whereas the family system demonstrates a particularly emotional character with which its priorities are associated as well, in business the system functions on the basis of rational consideration, whereas the main priority would seem to be the achievement of results. Family business are and will continue to be an integral part of the Czech economy. In relation to the need to grow the business it is necessary to implement a system of education, consultation, and support (Koráb, 2008). Odehnalová (2011) built on the work of this team, referencing the differences in the development of family and non-family businesses in the Czech Republic in a monograph entitled *Advantages and Limitations of Family Business*. This trend was monitored within the framework of the first three phases of the Greiner Growth Model of organizational growth, specifically in its first three development phases of creative management, crisis leadership, and professional leadership. Petlina, Koráb (2015) focused on the characteristics of family business, identified its strengths and weaknesses, and compiled a SWOT analysis. Zapletalová (2016) empirically examined and assessed whether a difference existed between family and non-family businesses in providing the management of international business activities with human resources. Břečková (2016) examined samples of 505 family businesses and focused on the perceptions of advantageousness of a family business to its owners. Rydvalová et al. (2016) sought an answer to the question of whether family business can be considered a tool for municipal development. The purpose of a publication by the Author Collective (2017) was to define the process for evaluating economic subjects with specifics of a family business, and use them for creating as knowledge base. Murinova (2017) use the method of a case study to analyze relationships with 108 vintner<sup>3</sup> family businesses in the Czech Republic. Case studies and research interviews confirmed the influence of family relationships on the performance of the business. The study confirmed the influence of family relationships on the effective functioning of a family business. Koráb, Murinova (2018) set out to describe family businesses in the Czech Republic and to define the tendency for their specification, and to present a model of successful handover of management of the company to a subsequent generation, called “relay”, applied primarily in small family businesses. Zapletalová (2018) focused on defining and specifying the characteristics of the internationalization process of entrepreneurial activities of Czech family businesses. Horčíčková (2019) examined the philosophical reflection of the role of the family as a community subject in the business environment. Hnilica et al. (2020) evaluated whether and how the behavior of owners in private companies could influence the economic and non-economic results. According to Machek et al. (2019), family businesses are often associated with a notion of greater stability. The goal of the study was to use linear multiple regression analysis to examine the differences in various stabilities, including the stability of the number of employees, assets, income, and earnings. Kubíček, Machek (2020) through a systematic literature review evaluated the current state of research of conflicts in families and in family businesses, systematized their findings and outlined a path for future research.

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3 The wine business is a representative of the oldest and traditional economic activity in the Czech Republic.

**Table 5:** Topical areas, methods, and scope of analysis of family business issues in the Czech Republic

Year	Authors	Topic and its classification into categories according to Evert et al.	Qualitative research	Quantitative research	Number of respondents
2004	HANZELKOVÁ	Challenges for restituted Czech family businesses after 10 years of operation. <b>CHA, SM, BPG, IFD, SN, GV</b>	Case study		3
2011	ODEHNALOVÁ	Characteristics of family businesses in the area of administration and management in development phases of the life cycle of a company. <b>VM, CHA, SN, IFD, GV, SM</b>	Observation, in-depth interviews	Empirical analysis of the competitiveness of businesses (250 questions), data completed from publicly available sources on the webpages of the companies.	432 respondents, of which 91 family businesses
2015	PETLINA, KORÁB	Family business as an economic phenomenon, SWOT analysis. <b>CHA, SM, BPG, IFD, SN, GV</b>	Interviews	Analysis of secondary data TOP family business from the company Forbes.cz	65
2016	ZAPLETALOVÁ	Difference in securing the management of international business activities with human resources. <b>IFD, BPG, CHA</b>	Personal inquiry		600, of which 246 family businesses
2016	BŘEČKOVÁ	Perceptions of values of family businesses by owners of family businesses. <b>GV, CHA, IFD</b>	CATI – telephone inquiry lasting 12 minutes		50 5
2016	RYDVALOVÁ et al.	Family business as a tool for the development of a municipality. <b>CHA, SM, BPG, IFD, SN, GV</b>		Questionnaire in electronic and written format.	63/48 family businesses. 15 towns

Year	Authors	Topic and its classification into categories according to Evert et al.	Qualitative research	Quantitative research	Number of respondents
2017	MURINOVA	Impact of family relationships on the performance of the business. <b>IFD, BPG, CHA, SM, BPG, SN, GV</b>	Case studies, interviews		108
2018	KORÁB, MURINOVA	Model of a successful succession strategy... <b>SN, IFD, BPG, GV, CHA</b>	Case study		1
2018	ZAPLETALOVÁ	Typical features of the process of internationalization. <b>CHA, BPG</b>	Oral interview		297
2019	HORČIČKOVÁ	Identification of the attitudes of young people to their involvement in family business. <b>CHA, IFD, GV</b>		Questionnaire	1,951/ of which 602 from family businesses
2019	MACHEK et al.	Differences in various stabilities, including stability in number of employees, income, earnings, and assets <b>GV, BPG, IFD, CHA, SM</b>		Questionnaire	1,795 non-family/384 family businesses
2020	HNILICA et al.	Influence of the attitudes and behavior of owners on the economic and non-economic results of their companies. <b>GV, BPG, IFD, SM,</b>	2nd phase telephone interviews	1. phase in AMADEUS database 11,400 family businesses 3rd phase – online questionnaire (CAWI method)	48  323
2020	KUBÍČEK, MACHEK	Conflicts in families and in family businesses <b>IFD, SN, CHA, GV, SM</b>	Systematic literature review		88 articles

Source: author analysis



### 3.6 Evaluation of topical areas, methods, and scope of analysis of family business issues

Given the above research questions, an evaluation was conducted of the literary occurrence of the topical areas in question in countries that have economic development similar to that of the Czech Republic. The essay incorporates the frequency of occurrence of the given topical areas in relevant technical publications (see Tables 1–5) with a focus on family business. This frequency of occurrence is stated in Table 6.

**Table 6:** Frequency of occurrence of topical areas in categories according to Evert et al. (Absolute frequency of responses)

Topical area	frequency of occurrence in Poland	frequency of occurrence in Slovakia	frequency of occurrence in Hungary	frequency of occurrence in Bulgaria	frequency of occurrence in the Czech Republic	frequency overall
<b>characteristics, attributes, CHA</b>	8	5	8	5	13	39
<b>strategic management, SM</b>	4	3	4	4	8	23
<b>business performance, BPG</b>	3	4	5	4	10	26
<b>dynamics and interpersonal relations, IFD</b>	5	5	6	5	12	33
<b>succession, SN</b>	6	3	4	4	7	24
<b>governance, GV</b>	4	3	5	3	11	26

Source: author analysis

In subsections 4.1–4.5, 62 citation references were systematically analyzed, 39 of which were included in the statistical evaluation. The authors named in Tab. 1–5 worked with primary and secondary data. Literary research was based on analysis of secondary sources; in all of them the characteristics and attributes of the family business were stated, and the topics could be assigned to categories according to Evert et al. Given the subjective assignment of topical areas, their subsequent evaluation, and while concurrently taking into account both factual and mathematical limitations the authors used, RQ1 may be commented in the following manner:

- **RQ1** – Can the same or similar six main topical areas of academic study as formulated by Evert et al., 2015 be observed in selected countries of the former socialist bloc? According to tables 1–5, table 6–7 it can be assumed that the topic in question can be assigned to six main topical areas of scientific research. If, however, we wish to raise this claim, it would be necessary to supplement the parameters of a systematic literature review, focus on individual topics, conduct a review of a substantially larger sample of analyzed articles, and use more advanced statistical methods for evaluating the relationships and associations. From the above insights, however, it is possible to observe the fact that the individual topics intersect and build on each other.

- The topical areas per Evert et al. (2015) are also valid for family businesses in the Czech Republic.
- It can be assumed that factors drawn from topical areas have a substantial influence on the activity, competitiveness, and future success of the family business in the Czech Republic.

When evaluating methods and number of respondents, the total number of outputs was enumerated, the average was calculated, and the percent representation of the evaluated parameters was determined. For summary results see Table 7.

**Table 7:** Statistical evaluation of methods and number of respondents when examining the issues of family businesses

Number of articles	Only qualitative research	Average number of respondents	Only quantitative research	Average number of respondents	Mixed research	Average number of respondents	Literature review	Average number of articles	No respondents
39	17	103.72	10	2789, by extension 667	6	259.33	5	49.2	1
100%	43.58%		25.64%		15.38%		12.82%		2.56%

Source: author analysis

To understand the phenomenon of family business, historical information in secondary sources about the development of the concept of the family business in the 20th and 21st centuries was used, with chapters also prepared on the basis of a study of the most cited academic works. To compare the findings of the evaluation, the authors used general academic methods, in particular the methods of analysis, synthesis, analogy, comparison, generalization, deduction, expert estimate, etc. Secondary data was obtained from the websites of the companies studied, from statistical data, or from publicly available collections of documents. **For obtaining primary data:**

- **43.58%** authors used **only qualitative research**. The average number of respondents was 103.72, whereas the lowest number was 1 case study, the highest was 600 personal interviews. Researchers used the following methods: observation, in-depth interviews, semi-structured interviews, CATI telephone surveys, best practice model, case study.
- **25.64%** of authors used **only quantitative research**, the average number of respondents was 2,789, whereas the lowest number was 23 respondents, who completed a questionnaire, while the highest number was 24,000 companies, who the researchers evaluated as family businesses on the basis of review of statistical data. If we exclude this far-flung value from the average (the highest number of respondents), then the average number of respondents of the quantitative research would amount to 667.

- **15.38%** of the authors used **mixed research**, which took place in several phases. Data obtained via questionnaire were supplemented by information from in-depth or semi-structured interviews.
- Where researchers focused on systematic literature review, the average number of articles analyzed was 49.2.

On the basis of the above, RQ2 and RQ3 can be commented in the following manner:

- **RQ2** – Which research methods are used by authors in the selected countries of the former socialist bloc for the identification of issues associated with family businesses? To obtain primary data 43.58% of authors used only qualitative research, 25.64% of authors used only quantitative research, 15.38% of authors used mixed research; where the researchers focused on systematic literature review, the average number of articles analyzed was 49.2.
- **RQ3** – What is the size of the study sample of respondents used by authors in the selected countries of the former socialist bloc as a basis for family business research? The average number of respondents to the qualitative research was 103.72, whereas the lowest number was 1 case study, the highest was 600 personal interviews. The average number of respondents to the quantitative research was 2,789, whereas the lowest number was 23 respondents, the highest was 24,000 companies.

## 4 Recommendations for future research into trends of academic knowledge of family business issues in the Czech Republic

Family business in the Czech Republic is a relatively frequently represented economic category whose importance will continue to grow in relation to global economic processes. The given issues are reaching a state where it is not within the power of a small team of researchers to cover it completely. The family business environment is dynamically evolving, the results obtained must be continually updated, reviewed, supplemented, and other topics raised, such as succession. For this reason it seems appropriate that a team of research workers from various facilities in the Czech Republic as well as international facilities should work on the issues in question together, in order that the topics, data, and research methods may be shared, and the outputs compared and evaluated.

To seek partners not only from the academic sphere, but also from the ranks of consulting firms and application work, suitable providers of support (Technology Agency of the Czech Republic, V4, Norway Grants, etc.) for financing research activities, to collaborate in the creation of requests and projects focused on family business research.

In future it is necessary to thoroughly focus not only on setting parameters and research methods, but also on the use of suitable applications and analytical tools for evaluating or updating the data obtained. It seems appropriate for the further development of knowledge in the area of family business to perform an analysis of options for further

study. On the basis of the results of this analysis to propose what topical areas to focus on in relation to their relationships and associations, what methods to use to conduct the research, to set limits and critical parameters for how to process the results obtained in an objective mathematical manner, and how and to whom to subsequently present them.

Results obtained from research conducted thus far enable a much wider use of data than those stated in the individual essays. It is therefore worth considering further processing with more advanced statistical methods for possible extrapolation of deeper economic associations or dependencies.

It would be interesting to identify leading authors who have been attending to this question for some time in the individual countries. To evaluate their findings in the specific topics over time using a systematic literary review and to compare whether and how the chronology of the topics differs in countries with an uninterrupted continuity of family businesses, unlike the countries of the former socialist bloc.

## Conclusion

The goal of this article was to evaluate a research method suitable for studies of family business. The use of qualitative research seems to be logical for research in the areas of identity, culture, values, and relationships. As demonstrated by the experience of many scientists, qualitative methods compared to quantitative methods allow for effective acquisition of data on the “sensitive” topics with which family businesses are associated (emotion, relationships, etc.). According to Švaříčka, Šedové et al. (2014), the progress of the qualitative research primarily took on a circular form. This means that over the years it is possible to return to the individual phases of the research, to supplement and modify them retroactively – which has been used, for example, by Castellano, Ivanova (2017). In the question of family business, this method is also logical due to the fact that it allows the progress and success of a family business to be examined over the course of several generations. The suitability of FB's qualitative research is also proved by a new publication by an international multidisciplinary team of experts (De Massis, Kammerlander, 2020). Researchers using qualitative methods in other social sciences found the method of qualitative research in the field of emotions relevant and useful.

**Qualitative research** methods allowed for a view of the subject of the study, its contextual logic, and the explicit and implicit rules that function in the practice of the issues being studied. The types of data include transcription of field notes from observations, interviews, photos, audio and video, transcripts of texts of television programs, personal commentary, notes, official documents, excerpts from books or articles from publicly accessible sources, texts based on key studies, personal introspection, life stories, visual and interactive texts. The principle of everything that allows the reality of the observed group of people, events, and processes in their natural environment to be better approximated. The limit of this type of study, however, is the fact that for the most part it does not allow for findings to be generalized.

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# *Are Real Estate Prices Evolving into an Asset Price Bubble?*

## *Prerůstají ceny nemovitostí v bublinu cen aktiv?*

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WOLFGANG KLOPPENBURG

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### **Abstract**

The development of real estate prices is of extraordinary importance for the financial and economic system, as undesirable developments could endanger financial stability – as seen in the financial crisis of 2008 and 2009. This applies not only to speculators, but also to private households, which have to borrow to pay the purchase price. The market has been “fueled” in particular by the monetary policy of the central banks – expansion of the money supply and low interest rates. Investors are looking for investment opportunities due to the money glut, and the real estate market still promises a return. Furthermore, many people looking to build are willing to go into debt to buy a property. This demand ultimately has a driving effect on real estate prices. The aim of this paper is to compare and analyze the development of real estate prices in the most important OECD countries with those of Germany. A model of real estate prices is presented, which takes into account the most important indicators and provides information on when a price bubble exists. The model shows that asset price bubbles can be identified in some OECD countries. In Germany, on the other hand, there are only signs of a price bubble in a few major cities. Since private debt is low, it does not seem to be a problem across the board in Germany. A general problem remains with regard to the timely detectability of price bubbles.

### **Keywords**

asset price bubbles, monetary policy, price bubble index

### **JEL Codes**

E44, G12, E52

### **DOI**

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### **Abstrakt**

Vývoj cen nemovitostí má pro finanční a hospodářský systém mimořádný význam, neboť nežádoucí vývoj by mohl ohrozit finanční stabilitu – jak se ukázalo během finanční krize v letech 2008 a 2009. To platí nejen pro spekulanty, ale i pro soukromé domácnosti, které si musí na zaplacení kupní ceny půjčit. Trh „přiživuje“ zejména měnová politika centrálních bank – expanze peněžní zásoby a nízké úrokové sazby. Investoři kvůli přebytku peněz hledají investiční příležitosti a trh s nemovitostmi stále slibuje výnos. Mnoho lidí, kteří chtějí stavět, je navíc ochotno se kvůli koupi nemovitosti zadlužit. Tato poptávka má v konečném důsledku hnací vliv na ceny nemovitostí. Cílem tohoto článku je porovnat a analyzovat vývoj cen nemovitostí v nejvýznamnějších zemích OECD s cenami v Německu. Představen je model cen nemovitostí, který zohledňuje nejdůležitější ukazatele a poskytuje informace o tom, kdy existuje cenová bublina. Model ukazuje, že v některých zemích OECD lze

identifikovat bubliny v cenách nemovitostí. Naopak v Německu existují známky cenové bubliny pouze v několika velkých městech. Vzhledem k tomu, že soukromé zadlužení je nízké, nezdá se, že by se v Německu jednalo o plošný problém. Obecným problémem zůstává včasná zjistitelnost cenových bublin.

### **Klíčová slova**

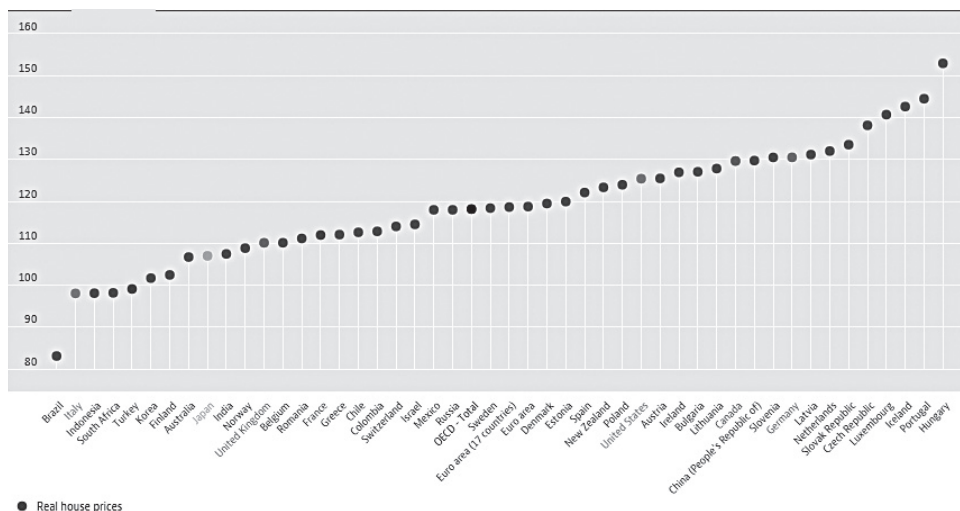
bubliny cen aktiv, měnová politika, index cenových bublin

## **Introduction**

In 2008, the bankruptcy of the U.S. investment bank Lehman Brothers triggered one of the biggest global economic crises (Mishkin, 2011; Shiller, 2014). The bank had been significantly involved in financing the housing price bubble in the U.S. and insuring credit default risks, and eventually had to declare bankruptcy. The U.S. government was no longer willing to prop up Lehman Brothers after support actions for the two government mortgage state agencies, Freddie Mac and Fannie Mae. This fateful step triggered a bursting of the real estate price bubble worldwide. This led to massive real economic problems on the financial markets, characterized by pessimism and uncertainty about future developments. In the United States, the unemployment rate rose to more than 10%. In Germany, for example, overall economic output fell by 5.6% in 2009. Banks stopped lending money to other banks because confidence in the solvency of commercial banks was severely damaged. This ultimately represented a failure of the money market. There was a concern that it would lead to a major credit crunch. Global support measures by governments and, in particular, central banks were therefore necessary. Governments and central banks around the world were forced to introduce support measures, backed in particular by monetary policy focusing on an expansion of liquidity to banks and a low interest rate policy. As a result, central banks pursued a very expansionary monetary policy and key interest rates, and thus financing costs, became significantly more favorable. Overall, the global economy recovered.

In the years that followed, real estate prices rose sharply (see the following Chart).

**Figure 1: Housing prices**



Source: OECD (2021)

*Housing prices include real house prices for the period 2016–2020 (2015 = 100) and prices based on analytical house price indicators. The real house price index is given by the ratio of the nominal house price index to the consumers' expenditure deflator in each country from the OECD national accounts database. Both indices are seasonally adjusted.*

Real estate price bubbles are a threat to financial and macroeconomic stability (Blot, 2017). The recent financial crisis has highlighted the importance of housing markets as both a source and a transmission mechanism of financial instability (Bauer, 2014). This view has been forcefully supported by the Bank for International Settlements (BIS). Several prominent BIS economists have argued that monetary policy should “lean against the wind”, i. e. try to prevent the build-up of financial imbalances by reacting early on to upward-trending asset prices (Cecchetti et al. 2000, Borio and Lowe, 2002, White, 2006, Brunnermeier and Schnabel, 2014). The empirical analysis of this paper shows that there is evidence of a significant multidirectional link between house prices, broad money, private credit and the macroeconomic.

The following section uses data from OECD countries to show whether and to what extent risks have built up again on the international real estate markets. A common answer is that the monetary policy of central banks has encouraged this development. This is followed by a comparison of selected OECD countries with real estate price developments in Germany. A brief review of the literature opinion as well as empirical tests for the identification of speculative price bubbles follow.

## Literature Review

In recent years, a large number of research papers have been published dealing with the causes and forecasting models of real estate price bubbles. In the following, some papers on this topic are briefly presented.

Kholodilin and Michelsen compare the experiences of different countries with speculative price bubbles and contrast this with Germany. They focus on the institutional framework and whether this can prevent such a real estate price bubble. Although the authors do not see any signs of a speculative price bubble in Germany, they believe that there is an increased risk in some larger metropolitan areas. The authors see one reason for this in lending to customers with a low equity ratio (Kholodilin and Michelsen, 2019a).

Engsted uses econometric methods to examine data from 18 OECD countries from 1970 to 2013 for explosive increases in real estate prices and were able to prove this in all countries – with the exception of Germany and Italy (Engsted, Hviid, and Pedersen, 2016).

Brunnermeier analyses the relationship between asset price bubbles and systemic risk using bank-level data in 17 OECD countries for the period 1987 to 2015. The systemic risk of banks increases already during the build-up phase of a bubble and even more during its bursting. The increase varies considerably across banks and bubbles and depends in particular on the size of the bank. The results show that higher credit growth, stronger maturity mismatch, and especially bank size make financial institutions, and thus the financial system, vulnerable to asset price bubbles. The increase in systemic risk is largest for housing price bubbles (Brunnermeier, 2019).

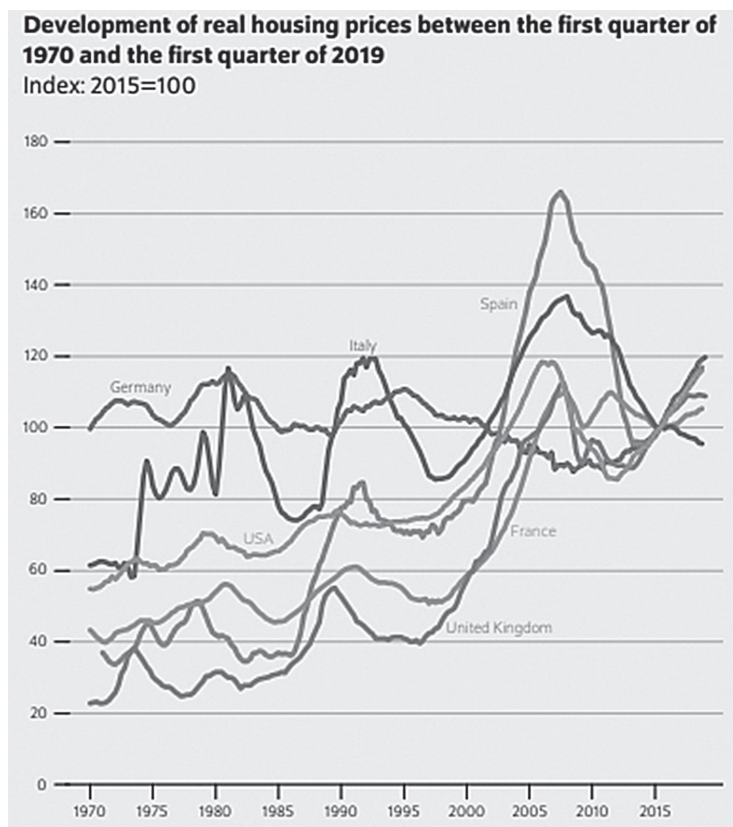
In their paper, Huber and Punzi (2016) propose a model with time-varying parameters for the housing market in the United States, the United Kingdom, Japan and the euro area. The results indicate that the monetary policy transmission mechanism to the housing market has not changed with the implementation of quantitative easing or forward guidance and that central banks can influence the composition of an investor portfolio by investing in the housing market. Furthermore, it is shown that the U.S. was able to influence the consequences of the financial crisis more successfully through unconventional monetary policy than the other countries considered.

In his paper, Wölfle (2017), for example, presented the purchase prices of residential real estate for the very disparate cities of Hamburg and Freiburg, noting that in both cities there was already an increase in bubble risk between 2009 and 2012.

## Development of the real estate prices in OECD countries

The risks in many OECD countries are high. In Germany, there has been an explosive price development, which has decoupled from the returns on real estate. (Kholodilin 2017, 2019a). Housing price bubbles have developed especially in the following OECD countries as France, Germany, Italy, Spain, UK and USA.

**Figure 2:** Development of real house prices Q1\_1970 / Q 1\_2019



*House prices are rising again in many countries after falling sharply from 2008 onwards as a result of the financial crisis.*

*Source: Kholodilin (2019a)*

It should be noted that price developments have been supported to a large extent by the very expansive global monetary policy. Almost all central banks lowered their key interest rates to historically low levels in response to the global financial and economic crisis. As a result, yields on government bonds fell significantly, which also made financing costs for real estate investments much more favorable.

In some countries the analyses show that the development of real estate prices points to speculative investment behavior on the part of investors. In particular, the continuing high level of household debt and the generally very low level of interest rates suggest a new bubble in many places. Corresponding patterns can be seen in the time series of the countries examined. For example, price exaggerations have been likely again in Sweden since 2012, in Australia and Belgium since 2014, in Germany, the UK and Italy since 2015, and in Portugal and the USA since 2016.



In view of the breadth and momentum of price increases, concerns are increasingly being voiced that overvaluations on the real estate markets could occur or are already a reality. In this context, two risks are viewed synonymously that should actually be separated from each other. A distinction must be made between the risks arising from the low-interest phase and those attributable to speculative investment behavior. The low interest rates increase demand for real estate, the price of which is rising sharply in view of the rigid supply in the short term.

If there are unexpectedly rapid increases in the key interest rate, demand for real estate could fall drastically, whereupon prices are likely to come under pressure. Households that have not taken sufficient account of such developments in their financing could be forced to sell their property. If the market price of the property is lower than the mortgage in the meantime, the household will be over-indebted. This can lead to macroeconomic problems for a country, so that politicians might be forced to support indebted households and mortgage banks. These risks are not as relevant for Germany, since mortgage borrowers enter into a relatively long-term interest rate commitment (Kholodilin, 2019a and 2018).

## Development of real estate prices in Germany

Starting from the 1st quarter of 2004 (index = 100), the so-called empirica real estate index in Germany was 165 points in the 4th quarter of 2020. The price index is based on a weighted average of purchase and rental prices (owner-occupied or rented apartments and single- and two-family houses of all construction years) and on over 100 sources of advertisements (empirica, 2020).

Steadily rising real estate prices have resulted from strong demand coupled with low supply. Despite the many new buildings, the supply of housing is not enough, as the population has also increased in recent years. This creates a shortage of living space, especially in metropolitan areas, which leads to rising rents or price increases for properties for sale. Another shortage is affordable building land. In 2019, a square meter of land ready for construction in Germany cost an average of around 190 euros. Fifteen years earlier, it was still around 100 euros for the square meter. Scarce building land is becoming more expensive and is therefore also causing property prices to rise overall. Another reason for the development of real estate prices is the current monetary policy of the European Central Bank. Low interest rates are making it cheaper to finance real estate and are crowding out other investment opportunities for lack of an alternative. As a result, more is being invested in real estate and prices on the real estate market are rising due to increased demand (Statista Research Department, 2021 and Statistisches Bundesamt, 2021).

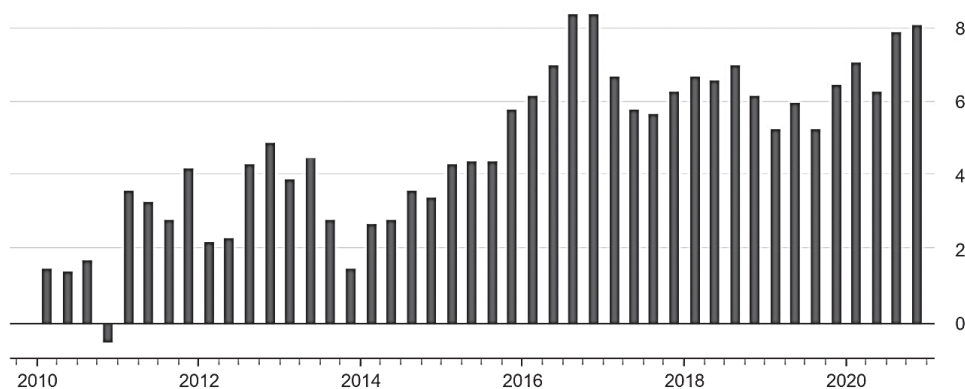
According to the Statistisches Bundesamt, the house price index in the third quarter of 2020 was 7.8% higher on average than in the prior-year quarter (Statistisches Bundesamt, 2020). Furthermore, prices for apartments as well as for detached and semi-detached houses rose by 2.9% compared with the previous quarter. In the seven largest metropolitan areas with the major cities of Berlin, Hamburg, Munich, Düsseldorf/Cologne, Frankfurt and

Stuttgart, the year-on-year increase was 8.9% for detached and semi-detached houses and 7.3% for condominiums. In the other major cities (from 100,000 inhabitants) house prices rose by 8.3% and condominium prices by 10.2% compared to the same quarter last year. However, rural counties (less populated counties) also saw price increases of 9.7% (8.4%) for houses and 7.1% (8.1%) for condominiums.

**Figure 3:** House price index 2020

**Häuserpreisindex (2015 = 100)**

Veränderungsrate zum entsprechenden Vorjahresquartal, in %



© Statistisches Bundesamt (Destatis), 2021

Source: Statistisches Bundesamt (2021)

In Germany, signs of speculative overvaluation are seen primarily in the major cities. The macroeconomic risks are considered to be low, not least because of the significantly lower level of private household debt (Kholodilin, 2017 and 2018). According to a UBS study, however, there are warnings of price bubbles on the real estate markets in Europe and Germany, as price growth has accelerated considerably (UBS Study, 2020).

## Data Description and Methodology

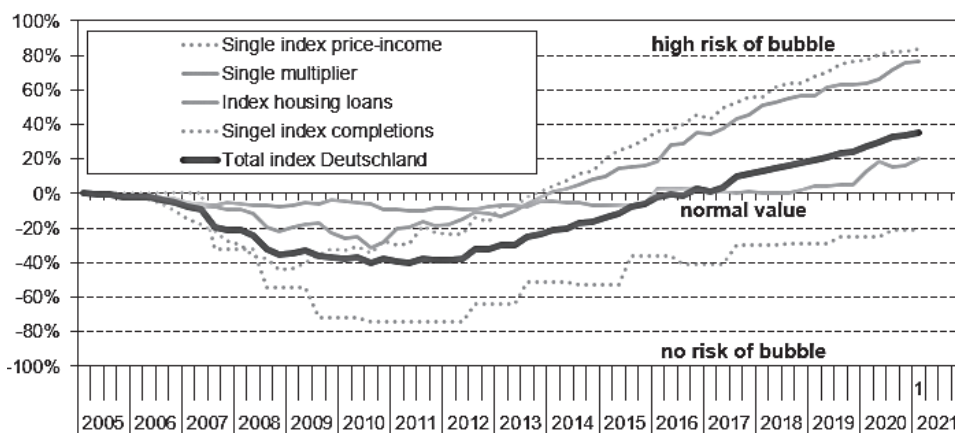
It is important for regulators to identify the emergence of price bubbles at an early stage which developed an early warning system to signal speculative price bubbles (Hagemann and Wohlmann, 2019). Evaluations of price-rent ratios are valuable for this purpose – but it is better if the “ingredients” for speculative bubbles are known. There are already assessments of this, according to which loose monetary policy in particular harbors major risks.

Following Gilles and LeRoy (1992) and Gürkaynak (2008), every price system can be decomposed into two parts, namely a fundamental component and a bubble component. In the given context, the fundamental house price equals the sum of the present values of

expected future rents. The bubble component equals the difference between the market value and the fundamental value. Two statistical methods are used for the investigation of the price development in the German housing market: tests for stationarity and for explosive behaviour. The terms stationarity and difference stationarity are used simultaneously. In both tests, bubbles are assumed to be rational. The previously explained features of a price system and a rational bubble are modified respectively (Mayer and Gehrke, 2018).

In Germany, the empirical property price index is published regularly on the basis of the empirical price database – published for the first time in 2005 – and compiled using statistical methods. The index contains data from the Bundesbank, Statistisches Bundesamt and information on real estate advertisements. The empirica bubble index for Q4 2020 is shown in the table below. The bubble index is subdivided according to the indices multiplier (purchase price / annual rent), price-income (purchase price / annual income), completions (dwellings per 1,000 inhabitants) and housing loans and combined into an total index > bubble index (empirica, 2020).

**Figure 4:** Empirica bubble index: individual indices (2005q1 = 0%)



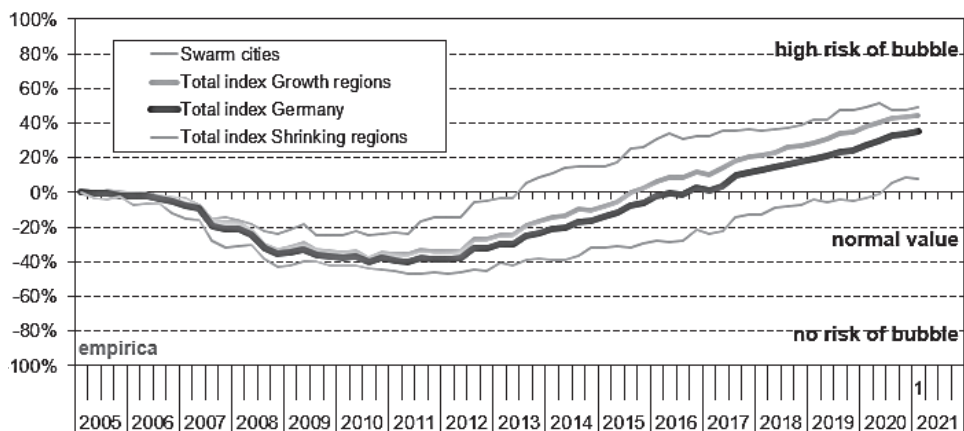
Source: empirica (2020)

The values for the 4th quarter of 2020 are compared with those of the base year 2005. Purchase prices have been rising faster than both rents and incomes for more than 10 years. New construction activity is growing, but cannot keep up with demand. The so-called normal value of the bubble index has been exceeded since 2017, so there is a danger of a bubble on the real estate market.

When subdivided according to region types, growth, so-called swarm cities (especially Leipzig, Regensburg, Heidelberg, Freiburg and Dresden) and shrinking regions, the shrinking regions are also above the normal value of the index for the first time since 2020. The index for the swarm cities is developing even more dynamically than that of the growth regions. The reasons for this may be that these cities have a great attraction

for those willing to build and for investors, or that the purchase of property in the metropolitan regions is no longer affordable. In 295 of 401 districts, purchase prices have decoupled from rents and in three-quarters of all districts purchase prices are no longer in line with income development.

**Figure 5:** Empirica-bubble index in different types of regions



Source: empirica (2020)

A bubble risk is seen, as purchase prices are rising faster than rents or incomes. The low interest rate level may justify this, but it is an unstable equilibrium. The risk of a bubble is also high because prices have moved away from median income or equity in many places. Thus, a “rather high” bubble risk is now indicated for 11 out of 12 major cities (previous quarter 10, three years ago 9). Accordingly, a bubble is imminent if the “normal earner” can no longer afford a property because purchase prices are rising faster than a) rents or b) incomes and c) more and more housing is being built (beyond demand) d) more and more loans are being taken out for this purpose. These four indicators (multiplier, price-income ratio, completions per inhabitant and housing loans in relation to GDP) can be observed (empirica, 2020).

Kholodolin (2018) determine the probability of a speculative bubble as a function of various external variables such as (gross value added, real interest rate, credit-to-GDP ratio, and population growth) using a so-called panel logit estimation. Logit models find wide application in determining and predicting economic recessions, currency crises and speculative excesses in asset markets, and allow to estimate the significance and sign of the relevant variables and thus to draw conclusions about the conditions under which a speculative bubble is likely to occur. They calculated logit models for a panel of 20 OECD countries in their model. According to Kholodolin's research, it shows that real estate prices in many countries have risen significantly in recent years and the forecast models see further risks from speculative exaggerations in many countries. In their study, Kholodolin (2019b) show that ten years after the financial crisis, price developments can again be observed in many countries, which are probably also characterized by speculative investment behavior. This applies to eight of the 20 countries studied

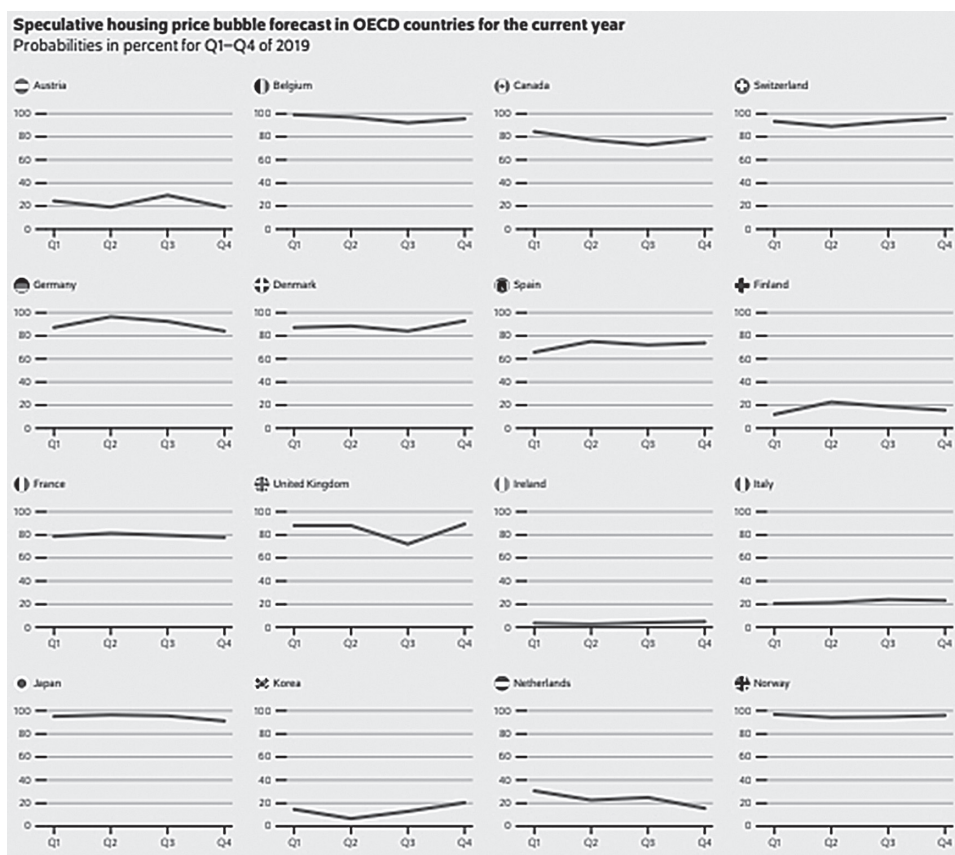
(in European countries, North America as well as Australia), where corresponding patterns can be identified in the time series.

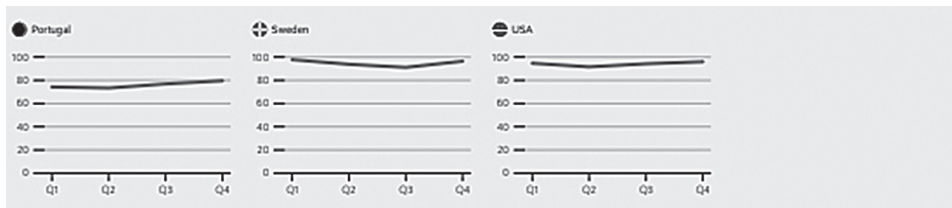
A high price development is also seen for Germany, which is detached from the returns on real estate. German mortgage borrowers have essentially secured their loan liabilities with long-term fixed interest rates, so that no immediate danger is seen from this side.

The forecast models show that the risks of speculative exaggerations are again very high in many countries. It can explosive price development can be observed, as rental income has decoupled from property prices. The development on the financing side is seen less critically compared to the real estate crisis in 2008, since as a rule debtors have entered into a long-term interest rate commitment.

In his forecast model for 2019, Kholodilin shows the likelihood of speculative rent bubbles in some OECD countries (see figure No. 6). The risk of price bubbles is particularly high in the USA, as well as in the Scandinavian countries, Japan and Germany.

**Figure 6:** Forecasting speculative rent bubbles in OECD countries for 2019, probabilities in percent, by quarters of 2019





*There is a high probability of speculative property price bubbles in most OECD countries*

*Source: Kholodilin (2019a)*

## Conclusion

The development in selected OECD countries shows that after the financial crisis in 2008 there have been high purchase prices for real estate again. Incomes cannot keep up with this price development, so that despite the favorable credit conditions – with relatively low interest rates for mortgages – it is becoming increasingly difficult to buy a property. Compared to other countries, an asset price bubble also seems to be developing in Germany, especially in the big cities. The cause of this development could be, among other things, the monetary policy of the central banks, which have led to the fact that although the interest rates on loans are favorable, many people who want to buy or build can no longer afford the high purchase prices of the properties. Furthermore, the negative interest rates introduced by the central banks lead many investors to invest their money in real estate, for example, in order to avoid the negative interest rates they have to pay on their capital assets. On the other hand, high purchase prices lead to an inadequate return on capital, as adequate rental income cannot always be realized.

In Germany, debtors have mostly secured their loans with long-term fixed interest rates, so that a possible dislocation on the real estate markets is seen less, in contrast to other countries (Kholodilin, 2019a). Whether the Corona pandemic will lead to major collapses in real estate prices due to, for example, the loss of jobs, cannot be estimated at present, as governments support their citizens and business companies with state programmes (unemployment benefits, economic aid etc.).

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# *The Cum-ex Case: A Look at Germany*

## *Případ Cum-ex: pohled na Německo*

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BASTIAN SCHULZ

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### **Abstract**

This paper focuses on a particular form of stock-market trades around ex-dividend days, so-called “cum-ex” transactions, which have resulted in major revenue losses due to illegitimate tax refunds in Germany and other European nations. Until 2012, the loophole in the German withholding tax scheme made it possible for cum-ex traders to receive withholding-tax certificates without prior withholding-tax payment. Because a certain category of investors might use the tax certificates to gain a tax exemption, this opened up the prospect of a particular form of tax arbitration. It was not until 2018 that a cross-border investigation team called the Cum-Ex Files revealed the scandal to its full extend.

This paper will mainly focus on the cum-ex scandal in Germany since the literature on the topic is very limited.

### **Keywords**

tax fraud, dividend taxes, cum-ex trading, tax evasion, withholding tax

### **JEL Codes**

H26, G12

### **DOI**

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### **Abstrakt**

Tento článek se zaměřuje na zvláštní formu obchodů na akciových trzích ve dnech ex-dividend, takzvané „cum-ex“ transakce, které vedly k velkým ztrátám příjmů v důsledku neoprávněného vracení daní v Německu a dalších evropských zemích. Až do roku 2012 umožňovala mezera v německém systému srážkové daně obchodníkům cum-ex získat potvrzení o srážkové dani bez předchozího zaplacení srážkové daně. Vzhledem k tomu, že určitá kategorie investorů mohla tyto certifikáty využít k získání osvobození od daně, otevřela se tím možnost zvláštní formy daňové arbitráže. Teprve v roce 2018 přeshraniční vyšetřovací tým nazvaný Cum-Ex Files odhalil skandál v plné šíři.

Tento článek se zaměří především na skandál Cum-Ex v Německu, protože literatura k tomuto tématu je velmi omezená.

### **Klíčová slova**

daňové podvody, daně z dividend, obchodování typu cum-ex, daňové úniky, srážková daň

## Introduction

A wide body of public economic literature has researched tax evasion and has recognized that restrictions such as withholding taxes and reporting by third parties will significantly mitigate tax evasion (e.g., Kleven et al., 2011; Slemrod and Gillitzer, 2014). Yet, as noted by Slemrod (2008), non-compliance under withholding taxes is seldom debated amid the 'paramount value of withholding'. A theoretical study that investigates determinants of tax avoidance under payroll taxes is given by Yaniv (1988). Yaniv (1992) reveals that tax avoidance will simply rise rather than decrease under tax withholding, allowing for collusion between employer and employee. Both parts might make some secret arrangement on how to avoid the tax and divide the tax evasion among themselves.

Madzharova (2013) claims that the tax on business benefit decreases the employer's ability to partake in such collusion. Kleven et al. (2016) offer an agency model where there is less possibility of collusion between boss and employee as the scale of the company increases. As a result, companies have a role as 'fiscal intermediaries' in promoting the recovery of revenue.

A feature of withholding taxes is that the remitter is not the statutory tax holder. This results in a decreased motive to escape taxation as it is not the remitter who does personally profit from avoidance. Notwithstanding, the use of withholding taxes transfers the burden of non-compliance to the sender (Slemrod, 2008) it may happen that taxes are neither deferred nor remitted to the tax authorities. Another issue exists when withholding taxes is normally combined with a refundable tax credit. Since no taxes have been deferred, the tax refund results in negative taxes. In addition, illegal tax refunds often exert major negative externalities such as distortions of competitiveness, inequity and transfers of money to organized crime. (de la Feria, 2018)

One situation, when withholding tax is connected with tax evasion is called cum-ex. In the case of cum-ex dealing, the seller fundamentally does not necessarily own the stocks. Instead, the seller sells the stocks briefly. If the seller has agreed to borrow the stocks or has entered into an arrangement with a third party confirming that the stocks are eligible for settlement when they are due, this type of short selling is permitted. However, because the short selling is not accepted as such by the depository bank of the purchaser (or the original owner), a tax certificate is also issued, resulting in double tax refunds. The buyer sells the stocks back to the initial owner in a final move. Then, the proceeds from the extra tax returns are split by the parties. (Wagner and Wei, 2020)

This discrepancy has created a lack of clarity in the withholding tax process that has rendered it susceptible to tax fraud. In order to offer withholding tax certificates without previous withholding tax payment, a new cum-ex trading method has been developed (to be explained in chapter 2). However, since they gave the owner the right to a tax refund, those tax certificates were in fact cash-equivalent. Therefore, for cum-ex trades, their worth opened up fresh lucrative arbitration possibilities. Although such tax certificates were given without a prior withholding tax payment, the value of the certified withholding tax was directly due to the public's income losses. (Holzmann et al. 2017)

The nature of cum-ex trade is disheartening, not only because it joins a lengthy list of controversies and wrongdoings in the finance market, but in particular because it has been well-known and neglected by regulators and government authorities for many years, causing taxpayers' funds to be plundered. Yet, it took a cross-border investigation team called the Cum-Ex Files in 2018 to blow the whistle on the scandal to start getting to the core of the problem and making it a public discussion that could not be ignored anymore. The cum-ex scandal in Germany started in 2001 and was shut down by Germany authorities in 2012. (European Parliament, 2018)

## 1 Cum-ex

Chapter one focuses on the cum-ex case in Germany. The cum-ex transactions in Europe are explained first, before moving to the main focus that lies on the cum-ex transactions in Germany.

### 1.1 Cum-ex transactions in Europe

In the form of so-called 'cum-ex trades', withholding tax non-compliance has recently gained media interest. A loophole in European countries' tax codes has allowed a wide network of banks, traders, hedge funds and law firms to receive numerous withholding tax refunds on dividends paid only once and costed European treasuries € 55bn. (Deutsche Welle, 2018) The cum-ex practise entails exchanging stocks rapidly around the ex-dividend date with (cum) and without (ex) dividend rights to hide who the real owner of the securities is. (Spilker, 2017; Spengel, 2017) Tax officials are unlikely to follow the transition of ownership as a function of the underlying business microstructure and settlement process in operation. Cum-ex trade typically entails a variety of actors. This involves the initial owner of the shares, banks or traders buying and short selling the shares and another person acquiring the shares right before the ex-dividend date (often using loan facilities provided by the banks to lever the trades). In most defense contracts, the termination time is two to three business days, referred to as T+2 or T+3. The payment must be collected and the stocks transferred to the customer on the settlement date. For instance, if a contract happens two days prior to the ex-dividend date, the settlement could coincide with the ex-dividend date resulting in the acquisition of stocks cum dividend yet ex-dividend delivery. (Wagner and Wei, 2020)

This includes short-trading during ex-dividend days, where the stock is traded 'cum-dividend' before the dividend record date, but delivered after, i.e. 'ex-dividend'. Even if the subsequent tax payment has not been remitted, cum-ex trades are expressly designed to obtain dividend withholding tax refunds. These transactions have been registered in numerous countries, among them Germany, Austria and Switzerland (Special Investigative Commission, 2017). Furthermore the European Parliament addressed the issue in 2018, where among other European countries the Czech Republic was also affected. (European Parliament, 2019)

The avoidance of tax evasion essentially requires European governments to create adequate tax and regulatory systems that eradicate the possibility of tax arbitrage. Since flaws linked with transnational transactions are very difficult to spot, policymakers should implement compulsory monitoring of cross-border tax planning agreements by taxpayer and intermediaries in order to enhance compliance (e.g., Baker, 2015). However, if the above theory would apply, despite also rigorously adjusting and supervising the capital markets, taxing officials will need to take more steps to make it harder to collude merchants. (Buettner et al. 2020)

The activity persisted and was so prevalent that some banks have set up subsidiaries expressly providing cum-ex trading to high net-worth or institutional customers, despite early warnings and testimony from informants as early as 1992. Eventually, a cross-border investigation team called the Cum-Ex Files, helped to put this practice to the fore in 2018. (Cum-Ex Files, 2018, Wagner and Wei, 2020)

The practice mentioned has largely emerged from the manner in which withholding tax is collected. Usually, a dividend-paying corporation withholds tax on dividends and remits it to the treasury, while the shareholder's depository bank issues a reimbursement tax certificate (if applicable). Intuitively, the tax scheme under which the remitter and the issuer of the tax varies should boost the tax enforcement, since the remitter would not personally benefit from the misconduct. Nonetheless, Slemrod (2008) highlights the issues with such a tax scheme and reveals that regulation and the expense of tax administration vary with the name of who actually pays the tax. (Wagner and Wei, 2020) More broadly, Slemrod (2008) claims that the normative economic perception of those who pay tax responsibility is unrelated to the success of a contemporary tax regime does not hold in the presence of tax avoidance or evasion. Buettner et al. (2020) draw on the same tax-remittance economy and analyze the rationality of non-compliance with withholding tax. Centered on a stylised model, they claim that, as compared to carrying out a form of arbitrage to hedge the normal price decline on the ex-dividend day, cum-ex trade is specifically aimed at leveraging current tax laws with collusive elements. Tax officials and policymakers have refused to respond too slowly on multiple notices or to take action.

After taking a short look at the situation for European countries the author will now focus on Germany, as it is the European country that is at the root of the scandal and stands out both because of the extent of the loss of income and because of the duration of the time during which such transactions were possible. (Buettner et al. 2020)

## 1.2 Cum-ex transactions in Germany

The shortfall of tax revenue from cum-ex trades in Germany accumulated to a whopping € 10bn just between 2001 and 2012. (European Parliament, 2018) The estimate was also claimed to be optimistic (Flood, 2018) and it is unclear if it is anywhere near justifying the actual severity of the crisis. Hundreds of entities reportedly engaged in various illegal transactions have since been found in criminal proceedings, while funds have been frozen around the world and multiple prosecutions have either begun or are underway

at the time of writing. (Jensen and Lassen, 2019) One reason for the vast volume of non-compliance with dividend withholding taxes is that traders searching for arbitrage opportunities simply exploited the tax loophole or, more precisely, the technical error in the way in which the withholding tax was levied and applied. In many media coverage, this perspective has been featured and is intuitive, as the search for arbitration opportunities by traders can be seen as a kind of exploration mechanism that senses all sorts of lucrative transactions. Alternatively, gains associated with illegal tax refunds enable traders to seek withholding tax non-compliance as a deliberate act of tax evasion. Buyers and sellers meet, set up arrangements to receive illegal tax refunds, and conceal their transactions from tax authorities. (Buettnner et al. 2020)

Germany, for example, who is at the root of the scandal, did not amend and reform its regulations until 2007. The new rules allowed depository banks to withhold and remit dividend taxes instead of dividend-paying businesses. However, this only applies to domestic depository banks. As a result, only investors with domestic bank accounts were prohibited from receiving illegal tax certificates. After that (at the latest), cum-ex trade went worldwide. The issuing of withholding-tax certificates by depository banks for dividend compensation payments without direct withholding-tax payments is a result of a serious loophole in the withholding tax regime at the period. The key issue is that the withholding tax scheme has established separate parties for the withholding tax (a dividend-paying corporation) and the issuing of a tax certificate (depository banks). Consequently, whether the underlying exchange was a cum-ex deal (without prior withholding tax payment) or an ordinary transaction was not clear for depository banks (with previous tax payment). The depository banks received withholding-tax certificates in both cases. This backdoor was used by cum-ex dealers. (Holzmann et al. 2017)

The German dividend withholding tax scheme was radically reformed in January 2012 in order to discourage cum-ex-trading. More than two decades after the authorities became aware of these trades, that new laws were enforced and the loophole was eventually locked. (Spengel, 2016) Most notably, the difference between 'the party withholding the dividend tax' and 'the party awarding the tax certificate' was removed. After 2012, German depository banks have been responsible both for levying the dividend withholding tax and for issuing a certificate of withholding tax. Germany's familiarity with cum-ex trades, though, did not lead them to alert other nations (Spengel & Schick, 2018). Since then, it has been the responsibility of all banks (domestic and foreign) to withhold and remit dividend taxes, as well as to issue relevant tax refund certificates. As we will see in the future, the consolidation of all roles under one agency seems to be successful in stopping this dishonest conduct. (Wagner and Wei, 2020)

## 2 Methodology

Based on the theoretical analysis, the empiric analysis examines trends in stock markets and the number of transactions around the date of the dividend. One or two days prior to the ex-dividend day, cum-ex trades are expected to turn up in high trading numbers. Notwithstanding, a significant body of literature indicates that tax-motivated selling and

dividend capture techniques may justify higher trading practices during ex-dividend dates. (Lakonishok and Vermaelen, 1986; Karpoff and Walkling, 1990; Michaely and Vila, 1995; Dhaliwal and Li, 2006; Akhmedov and Jakob, 2010; Haesner and Schanz, 2013; Hartzmark and Solomon, 2013; Henry and Koski, 2017). In order to differentiate these reasons from cum-ex effects, we are effectively dependent on difference-in-difference calculations. These leverage adjustments in the administration of withholding tax over time as well as variations in the tax treatment of dividends.

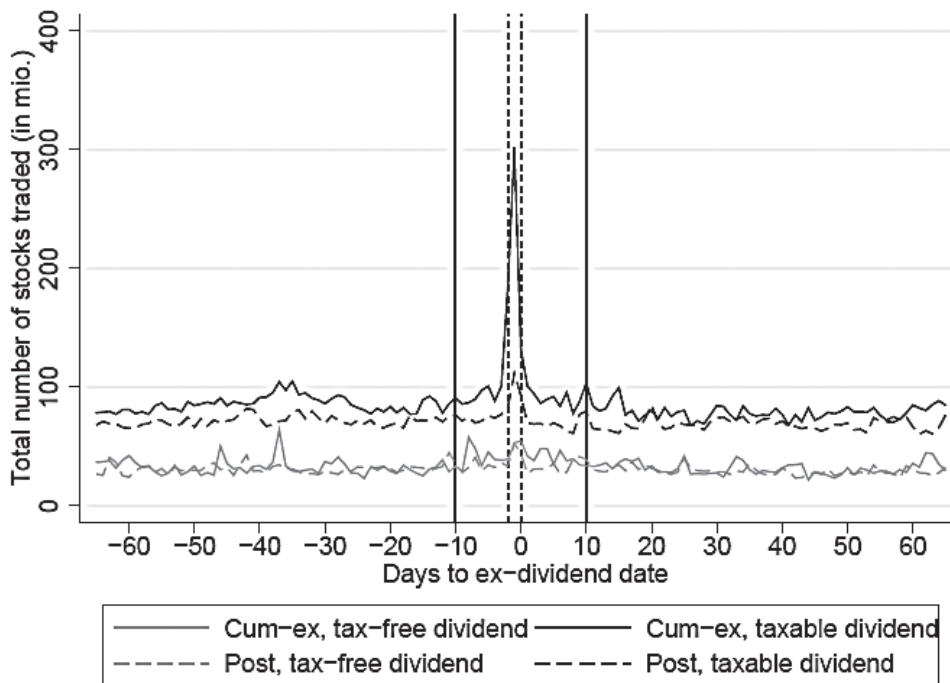
The variations over time are the product of a reform in the handling of the withholding tax in January 2012. Cum-ex transactions may have resulted in fraudulent tax credits and repayment of unpaid withholding taxes in the period up to 2011. In the period from 2012 to 2015 and 2015–2018, this is not the case because the tax administration was amended.

Under German tax law, dividends earned from the current income of companies are subject to a withholding tax of 26.4 percent. Dividends paid out of company capital funds are excluded from tax. These variations in the tax treatment of dividends enable one to test if there are no differences between the shares with taxable dividends in the cum-ex era relative to the shares with tax-exempt dividends in the post period.

### 3 Results

Descriptive data on the time trend of trades is given in figure 1. As stated in the XETRA statistics, this figure indicates the daily average total number of stocks exchanged. Dividends paid out of existing income are subject to withholding tax (taxable dividends) and are thus ideal for cum-ex trading. Dividends from capital savings are excluded from tax (tax-free dividends) and are thus not appropriate for cum-ex trading. Trading amounts are presented separately for taxable dividend shares (black lines) and tax-free dividend shares (gray lines), both for the cumulative period from 2009 to 2011 (solid lines) and for the postulated period from 2012 to 2015. (dashed lines). Prior to the ex-dividend day, the vertical dotted lines mark a two-day window. About the ex-dividend day, the vertical straight lines mark the 21-day trading window. It indicates, as reported in the XETRA data, the daily average total number of stocks traded over a 131-day period over the ex-dividend dates, which are normalized to zero. The trade volumes are seen separately for taxable dividends (black lines) and tax-free dividends (gray lines) stocks, both for the cum-ex era (solid lines) and for the post-period period (dashed lines). In the case of taxable dividends for the cum-ex cycle, the figure shows that, in the last two days prior to the ex-dividend date, the overall total amount of stocks exchanged rose significantly by nearly 200 per cent and subsequently dropped down to usual levels after the ex-dividend date. Interestingly, in the cum-ex period and not in the post period, this pattern occurs. For events with tax-exempt dividends, no significant rises are indicated (Buettner et al. 2020).

**Figure 1:** Daily average total number of stocks traded (all German stock exchanges, 2009–2015)

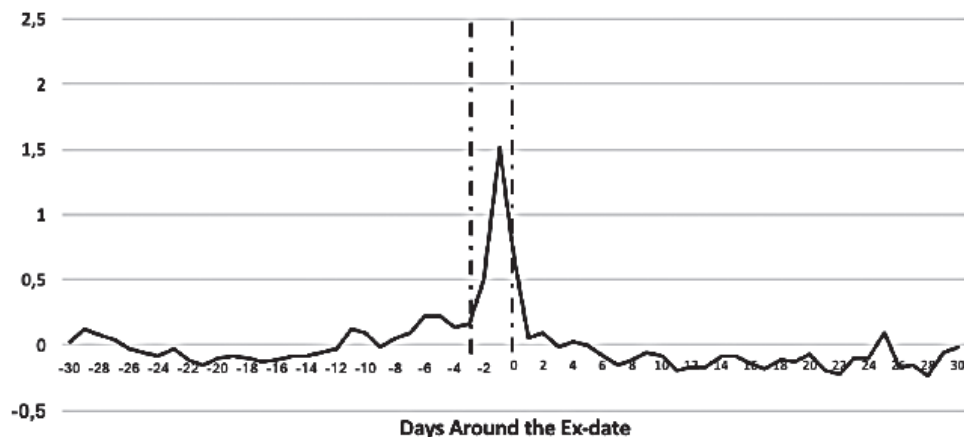


Source: Buettner et al. 2020

The following figures should help explain the first figure in more detail. The time period 2015–2018 is also added to give a better overview over the topic and to show if the regulations, introduced by the German government, did really help stop the cum-ex schemes.

It is not surprising, that in view of the cum-ex scandal, that Germany has the highest European coefficient for the entire century. The amount traded over the ten-year period on the two days before the ex-date is, on average, 1.0382 standard deviations above regular volume. For the rest of the European countries, the average coefficient is 0,33 standard deviations. The average trading trend in Germany is shown in figure 2 for dividend events between 2009 and 2018. For dividend events between 2009 and 2018, figure 2 shows the average trading pattern in Germany. As the figure reveals, abnormal trading volume on T-1 is primarily driving the cum-ex window coefficient. Whilst the average volume on T-1 is roughly 1.5 standard deviations above normal volume, the volume on T-2 is not substantially high (Jensen and Lassen, 2019).

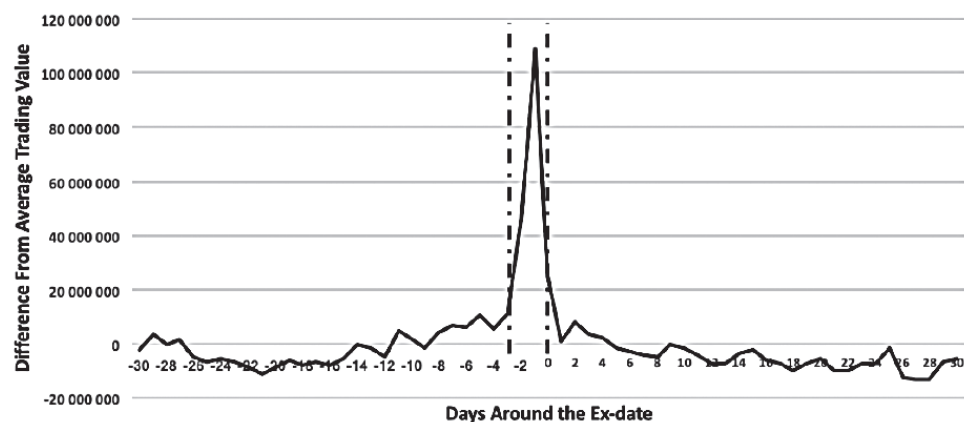
**Figure 2:** Average standardised trading volume in Germany on days around the ex-date for the whole ten-year period (2009–2018). The vertical dashed lines mark the normal cum-ex window (T-2 and T-1)



Source: Jensen and Lassen, 2019

Figure 3 indicates a deviation from the average trading value of the same duration in order to analyze this abnormality in terms of value. The tremendous increase in value of T-1 is striking, as estimated. On average, the disparity in the allocation of dividends between 2009 and 2018 from the average market value of T-1 alone corresponds to approximately EUR 110 million (Jensen and Lassen, 2019).

**Figure 3:** Average difference from average trading value in Germany on days around the ex-date for the whole ten-year period (2009–2018). Trading value is denominated in Euros. The vertical dashed lines mark the normal cum-ex window (T-2 and T-1)



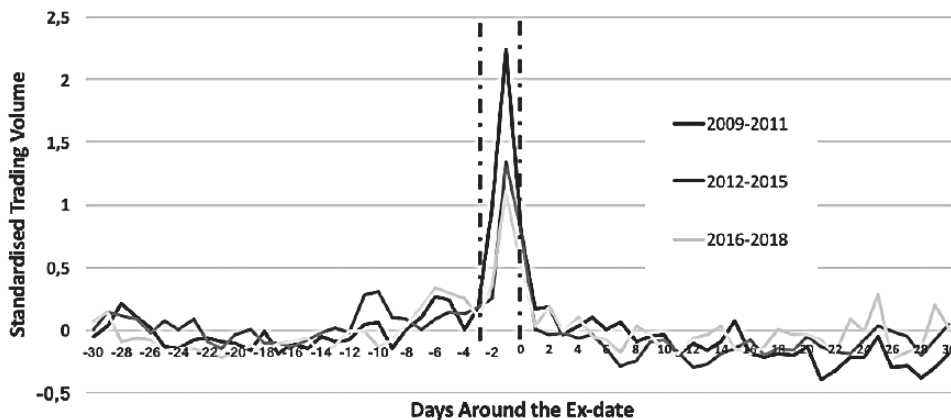
Source: Jensen and Lassen, 2019

It is essential to bear in mind that cum-ex transactions are only expected to occur in the three years from 2009 to 2011, as cum-ex was allegedly stopped in Germany in 2012. It is also not shocking because, when looking at the individual coefficients for and



subperiod, it is obvious that these exact years are the driving force behind much of the overall abnormal exchange. The coefficient for the first period (2009–2011) is 1,6763. The coefficient for the second period (2012–2015) is 0,8236. Lastly the coefficient for the third period (2016–2018) is 0,7621 (Jensen and Lassen, 2019). Figure 4 below shows the trend for different cycles with uniform trading volumes.

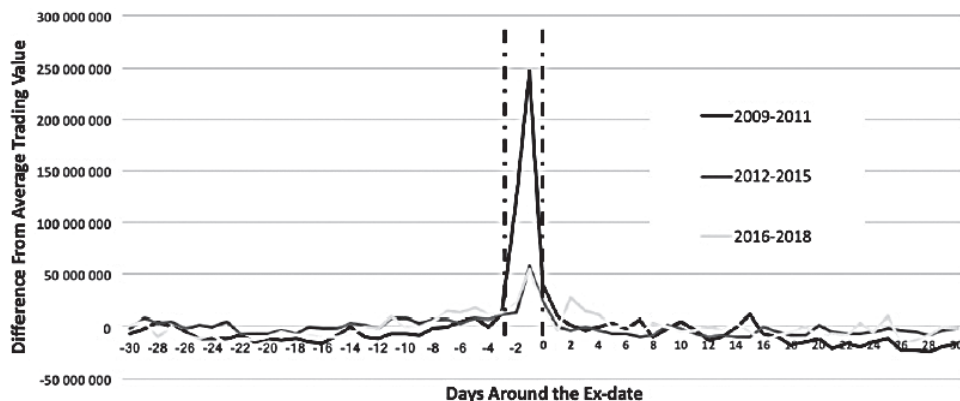
**Figure 4:** Average standardised trading volume in Germany on days around the ex-date for the separate subperiods. The vertical dashed lines mark the normal cum-ex window (T-2 and T-1)



Source: Jensen and Lassen, 2019

The coefficients and the figure clearly demonstrate a drop in the irregular trading rate between both cycles (first and second). This is in accordance with the results of Buettner et al. (2018) and indicates that the administrative reform introduced in 2012 had an impact. It is, however, important to bear in mind when looking at the variations above that figure 4 is showing differences in uniform volumes. Looking at standardized variables is helpful, since it makes for relative similarities between nations, but it may also provide a biased view of the absolute challenge, provided that both big and small businesses are similarly weighted. This is illustrated in figure 5, where the gap between the average trading value for the different times is shown. The graph shows that, in terms of economic benefit, the fall in tax-motivated trade is, in effect, far more important than what one would get from looking at uniform amounts.

**Figure 5:** Average difference from average trading value in Germany on days around the ex-date for the separate subperiods. The vertical dashed lines mark the normal cum-ex window (T-2 and T-1)



Source: Jensen and Lassen, 2019

It is surprising, though, that the erratic exchange patterns in the second and third periods are as high as they are. In particular, for the second and third subperiods, the coefficients, which are equal to 0.82 and 0.76, are the second highest coefficients for the European-wide nation in their period (Jensen and Lassen, 2019). This indicates that Germany has still remained one of the countries most influenced by tax-motivated trade, long though cum-ex was supposedly halted.

One potential explanation for this is that trade in cum-cum may trigger huge volumes. Since Spengel (2016) claims that cum-cum transactions are often carried out through share loans, it is possible that a substantial number of cum-cum transactions are also carried out through repurchase agreements. Purchase of T-1 agreements will also serve as a cause for spikes. The problem with this theory, though, is that very few, let alone any, difference between the second and third periods can be seen. This is not in accordance with the introduction of the latest German legislation to fight cum-cum in 2016. In reality, according to the CumEx-Files (CumEx-Files, 2018), cum-cum trade still takes place in Germany in a less violent manner.

The spikes only constitute a fraction of the real problem, if Spengel (2016) is right in saying that cum-cum is mainly carried out in Germany by share lending and if the spikes as shown in figure 5 are really triggered by cum-cum in 2012–2015 and 2016–2018. Still, even if the spikes are not quite as high in the second and third periods, the trends are worryingly identical to the cum-ex phase trend.

The likelihood, that the cum-ex criminals have invented a new cum-ex system that will make it easier to bypass the administrative reform made in 2012, cannot however be precluded. In any case, it is concerning that Germany, as a nation that has taken steps to tackle both cum-ex and cum-cum, is evidently so influenced by tax-driven trade.

## Conclusion

This paper analysed a major tax system loophole in the case of dividend withholding taxes, called cum-ex. The cum-ex transactions in Europe were explained first, before moving to the main focus that lied on the cum-ex transactions in Germany.

Cum-ex trades caused European treasuries a net loss of around €55bn and German treasuries a net loss of around €10bn between the year 2001 and 2012, using irregular trading activity around the ex-dividend date. This calculation is based on market statistics and a frequently used method of cum-ex trading involving short selling and rapidly repurchasing stock around the ex-dividend date, although the full scope of this activity will possibly never be understood. It was not until January 2012 that the German dividend withholding tax scheme was radically reformed in order to discourage cum-ex-trading. More than two decades after the authorities became aware of these trades that new laws were enforced and the loophole was eventually locked. Additionally did it take until 2018, that a European cross-border investigation team called the Cum-Ex Files to blow the whistle on the scandal to start getting to the core of the problem and making it a public discussion that could not be ignored anymore.

On a variety of levels, the cum-ex case is significant. First and foremost, the amounts extracted from German accounts are substantial. The allocation of these funds represents a subtraction from the funds allocated to the government for the procurement of public goods. Adequate and balanced public finances are required to accomplish this aim. Second, the transactions involved are relatively simple and trivial. Perpetrators have been able to take advantage of the long-established resources created by the law to carry out transactions. Contrary to existing stereotypes, large-scale tax evasion does not appear to rest, at least often, on arcane knowledge and the ability to orchestrate impenetrable sophistication. Third, and considering this, the regulatory loopholes that make it possible for the systems to be effectively introduced are equally clear and banal.

Remedies are easily accessible. Increased and timely knowledge exchange, convergence bridges between contiguous regulatory realms and sufficient regulatory capability would help to deter the recurrence of similar practices. Private networks of offenders have been able to pool resources from a wide variety of fields and collaborate across organisations. It is necessary to enable public networks of regulators to do the same. Apparently, the fact that Germany, which has adopted regulations aimed at countering cum-ex, is already one of the country's most highly impacted, may also mean that the European tax authorities are unable to deal with the ingenuity of lawyers and other tax specialists whose goal is to manipulate the system's loopholes.

From today's perspective, numerous other European countries have not escaped this type of tax fraud involving refunds of withholding tax that has not been paid. The aftermath of the cum-ex transactions keeps them busy and they need to come to terms with them. Among them e.g France, Austria, Switzerland, Poland and the Czech Republic. It remains to be seen when all affected European countries will seriously consider changing laws to finally put a stop to cum-ex transactions.

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*Transfer of Social Competencies  
to the Intercultural Environment.  
The Relationship between Social  
and Cultural Intelligence  
Přenos sociálních kompetencí  
do interkulturního prostředí.  
Vztah sociální a kulturní inteligence*

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**Abstract**

**Purpose of the article:** The purpose of this quantitative empirical study is to examine the relationship between social and cultural intelligence. The aim is to determine whether social skills are transferable and applicable anywhere, regardless of external conditions given by cultural differences.

**Methodology/methods:** Data were collected using an online questionnaire, which was completed by 92 students studying economics and management at universities in the Czech Republic. Data were analyzed using the PLS-SEM method.

**Scientific aim:** The aim is to determine the predictive power of the social intelligence construct (SQ) (and their individual components - processing, skills and awareness) on the target variable, cultural intelligence (CQ). The mediation influence of two traditional antecedents of cultural intelligence, language skills and intercultural, experience is compared. The stability (immutability) of the basic theoretical model, the relationship between social and cultural intelligence, depending on gender, is also examined.

**Findings:** It has been found, that there is a statistically significant positive relationship between social and cultural intelligence. Social skills have the greatest effect on cultural intelligence, but our data did not confirm the statistically significant effect of one dimension of SQ (awareness). The relationship between SQ and CQ is well explained by language skills; complementary mediation was confirmed. On the contrary, the second mediator examined, intercultural experience, does not explain the SQ-CQ relationship. Only a direct effect was identified. The found relationship applies equally to men and women. No statistically significant difference was found between the two groups.

**Conclusions:** The results of our study are important for HR management and personnel management, who select new employees. The knowledge can also be used to make decisions about sending employees abroad: individuals with a high SQ are likely to do well and be work-efficient, both at home and abroad. A limitation of our research to some extent distorting its results and findings is a relatively small sample, or certain

problems associated with the measurement of individual constructs. Suggestions for further research are discussed.

### **Keywords**

social intelligence, cultural intelligence, language skills, international experience, PLS-SEM

### **JEL Classification**

M50, M54

### **DOI**

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### **Abstrakt**

**Účel:** Smyslem této kvantitativní empirické studie je prozkoumat vztah mezi sociální a kulturní inteligencí. Snahou je určit, zda jsou sociální dovednosti přenositelné a uplatnitelné kdekoli bez ohledu na vnější podmínky dané kulturní jinakostí.

**Metodologie/metody:** Data byla sesbírána pomocí online dotazníku, který byl vyplněn 92 studenty studujících v oboru ekonomika a management na vysokých školách v České republice. Data byla analyzována pomocí metody PLS-SEM.

**Vědecký cíl:** Cílem je určit predikativní sílu konstruktů sociální inteligence (SQ) (a jejich jednotlivých složek – processing, skills and awareness) na cílovou proměnnou, kulturní inteligenci (CQ). Je porovnán mediační vliv dvou tradičních antecedentů kulturní inteligence, jazykové dovednosti a interkulturní zkušenosti. Je také zkoumána stabilita (neměnnost) základního teoretického modelu, vztahu mezi sociální a kulturní inteligencí, v závislosti na pohlaví.

**Výsledek:** Bylo zjištěno, že existuje statisticky významný pozitivní vztah mezi sociální a kulturní inteligencí. Největší účinek na kulturní inteligenci mají sociální dovednosti, statisticky významný vliv jedné dimenze SQ (awareness) naše data nepotvrdila. Vztah mezi SQ a CQ je dobře vysvělen jazykovými znalostmi; byla potvrzena komplementární mediace. Naopak druhý zkoumaný mediátor, interkulturní zkušenosti, vztah SQ-CQ nevysvětluje, byl identifikován pouze přímý efekt. Nalezený vztah platí stejně pro muže i ženy, statisticky významný rozdíl mezi oběma skupinami nalezen nebyl.

**Závěr:** Výsledky naší studie mají význam pro HR management a personalisty, kteří provádí výběr nových zaměstnanců. Poznatky jsou využitelné i pro rozhodování o vyslání zaměstnanců na práci do zahraničí: jedinci s vysokým SQ si nejspíš povedou dobře a budou pracovně efektivní jak doma, tak i v zahraničí. Omezením našeho výzkumu do jisté míry zkreslující jeho výsledky a zjištění je relativně malý výběrový soubor, popř. určité problémy spjaté s měřením jednotlivých konstruktů. Návrhy na další výzkum jsou dále diskutovány.

### **Klíčová slova**

sociální inteligence, kulturní inteligence, znalosti jazyka, mezinárodní zkušenosti, PLS-SEM



## Introduction

One of the most significant structures of skills used by HR specialists is high (and low) order thinking skills (HOT and LOT skills). High order thinking skills is the ability to “connect, manipulate, and change the knowledge and experience that is owned critically and creatively in determining decisions to solve problems in new situations” (Arif & Yuhdi, 2020). The Bloom’s taxonomy, and mainly the revised taxonomy, continues to be a source of inspiration for teachers and lecturers and for developing new HR strategies. The educational learning model that “used to be still conservative” (Arif & Yuhdi, 2020) because of sticking to LOTS with the teacher as the center of learning switched to the HOTS model. The business success (either at personal or organizational level) in the global era is not only restricted to the knowledge of English anymore; in this respect, other factors such as emotional, social and above all cultural intelligence start playing a crucial role as well.

Intelligence is commonly defined as the ability required to adapt in a contextual environment (Binet & Simon, 1916; Sternberg, 1997). Intelligence is one of the factors that influences the extent to which a person is effectively productive and efficient (Putranto et al., 2018). Such an individual is better employable. This concept began to be used in the early 20th century and was originally merged with the meaning of intellectual (cognitive) intelligence (IQ); it was not until the mid-1930s that Thorndike (1936) began to distinguish other layers of intelligence: mechanical, social, and abstract.

Social intelligence (SQ) attracted the attention of scientists to a large extent. Two aspects are distinguished: the interpersonal aspect (a person’s interaction with others is influenced by his moods, temperament, motivation and intentions) and the intrapersonal aspect, which focuses on how well a person understands his own feelings and how he can express them (Putranto et al. 2018). As a separate part of social intelligence, the concept of emotional intelligence (EI) was later divided, defined by Goleman (Goleman 1995) as the ability to control impulses, regulate one’s moods, empathy and experience of hope.

The construct of cultural intelligence (CQ) was developed by Ang and her colleagues (Earley & Ang, 2003a) and is based on the theory of intelligence. This construct consists of four components, which builds on the integration of different types of personality intelligence (Kerri A. Crowne, 2009; Kerri Anne Crowne, 2013). Although CQ is consistent with Gardner’s perspective of intelligence (Gardner, 2011), i.e the ability to adapt and adjust to the environment, it differs from other types of intelligence because it relates primarily to culturally diverse situations. The construct of cultural intelligence is a unique approach to understanding situations where intercultural interaction occurs; it is an expression of a different intellectual ability of an individual who is in a certain intercultural interaction (Starčević et al., 2017). Cultural intelligence is based on the growing interest in non-academic (really and truly) forms of intelligence; its conceptualization was motivated by the practical reality of globalization (Mahembe & Engelbrecht, 2014). Cultural intelligence is not (unlike IQ) unchangeable but it is constantly evolving throughout the life.

Until now, much attention has been paid to examining the relationship between CQ and EQ (Ang et al., 2007a; Earley & Peterson, 2004; Putranto et al., 2018), to a lesser extent the relationship between SQ and CQ. With this study, we try to fill this gap in knowledge. The

impact of social intelligence on cultural intelligence is examined. An earlier study showed a positive impact of CQ (in all dimensions) on all dimensions of social skills (emotional expressivity, emotional sensitivity, emotional control, social expressivity, social sensitivity and social control) (Koc & Turan, 2018). In our exploratory study, this causal relationship is reversed: the extent to which social intelligence affects (or predicts) cultural intelligence and how much weight can be attributed in this aspect to individual dimensions of social intelligence (processing, skills, and awareness). Findings on this issue may be relevant for HR and HR recruiters, because during an interview or selection process they may be primarily interested in (or measure, test) the social abilities of candidates for the advertised position. They will gain additional information: a candidate with a high SQ will probably be successful abroad (in negotiations with foreign partners, in their placement, sent to foreign branches of the company).

In addition, the basic theoretical model of SQ - CQ is extended by two mediators (language skills and international experience) and it is investigated which of them can better explain the indirect relationship between the two constructs. Findings of this kind are again important for personnel managers, as it determines what information (knowledge of foreign languages or the extent of foreign experience) they should observe when recruiting new employees in terms of their effective use for the needs of the company. Last but not least, the influence of gender on the examined relationship is determined.

## 1 Literature review

### 1.1 Culture and Identity

Culture is defined (Livermore, 2013) as “the organized set of beliefs, values, customs, and behaviors that separate one group from another. [...] It is the way we’ve been socialized to think and behave in the world”. Culture is something more than just a group of people; there must be some organizing values and assumptions that put all members of culture together. There are many types of culture: ethnic, professional, organizational, political, religious. However, what the most strongly shapes our thinking and behavior is our national culture, i. e., ‘where we are from?’.

Culture is often depicted as a metaphor of an iceberg because the most of our cultural experience is not obvious at first sight; the most significant aspects of cultural differences lie beneath the water. In this metaphor, the tip of the iceberg represents the shared (common) attributes of humanity (of all the humankind). The below sea level layer represents culture and the bottom of the iceberg represents individual personality.

As the individual opinions within a culture differ considerably, it is necessary to distinguish between micro and macro views on culture. The most famous proponent of the macroview is G. Hofstede who has been examining the cultural dimensions at the national level; the approach to culture on the micro level is represented by the concept of cultural intelligence (Frías-Jamilena et al., 2018). The former view on culture (that of Hofstede) holds that the existence of the cultural differences is a necessary condition for establishing

the intercultural relationships. The cultural differences should not be considered at the individual level and should be measured in the culturally different units (nations). On the contrary the proponents of the micro view state (Frias-Jamilena et al., 2018) that the cultural differences may vary depending on the individual's ability to adapt to the different cultural contexts.

Both views intertwine with one another. The cultural dimensions exist on the individual (micro) level. For example, the Hofstede's dimension of individualism/collectivism can be observed in the individual dimension as well. At the same time, however, there are big differences between individuals in the cultures that are characterized by the dimension of individualism. Regardless of an individual's affiliation to either individualistic or collectivist culture, it depends on one's experience and acquainted knowledge whether he/she is thinkin more in accordance with individualistic or collectivist culture.

Culture is linked to identity. In other words, identity is shaped and influenced by culture. This interrelation stems from the social psychological tradition in sociology called "social structure and personality perspective" (Côté, 1996). Cultural identity expresses the extent to which an individual perceives his/her own connection with members of his/her original culture in terms of shared values. It is a specific type the collective identity that puts together the individuals who belong to the same social group and at the same time are different from other social groups. People with a strong cultural identity are less flexible in adjusting to new cultures. They may even show certain ethnocentric responses to new cultures because they are not able to switch flexibly between different cultural symbols and behaviors. These individuals are less effective in a new intercultural setting (Peng et al., 2015).

## **1.2 Social Intelligence: a need for satisfactory economic and financial performance of an organization in the home market**

The modern concept of the term social intelligence has its origin in E. L. Thorndike's division of intelligence into three facets in dependence of the ability to understand and manage ideas (abstract intelligence), objects (mechanical intelligence) and people (social intelligence). Social intelligence (SQ) can be defined as an ability to get along with other people (Kihlstrom & Cantor, 2000). D. Handa specifies SQ as the knowledge and ability to perceive, understand, and remember the behavior of others and to adapt one's behavior to achieve social goals (Handa, 2018). It is wise action in human relationships, the ability to perceive one's own inner states, motives, and behaviors of others and to treat them appropriately based on this information (Marlowe, 1986; Salovey & Mayer, 1990). Emmerling and Boyatzis (Emmerling & Boyatzis, 2012) define social intelligence competency as "the ability to recognize, understand and use emotional information about others that leads to or causes effective or superior performance".

By definition, it is clear that social intelligence is an important disposition for overall success. E.g. a slightly positive relationship was found between social intelligence and

academic performance of university students (Baggiyam & Pankajam, 2017). Developed social intelligence also has a beneficial effect in other areas: it helps the individual to function in social groups, to achieve job satisfaction or to maintain intimate relationships and friendships; it is a predictor of psychological resilience, reduces suicidal thoughts and behavior (Baggiyam & Pankajam, 2017). In certain professions (high school teachers) social intelligence does not significantly affect, but predicts changes in mental health (Ghahfarokhi et al., n.d.).

SQ is very close to empathy (Björkqvist et al., 2000) and emotional intelligence (Bar-On, 2006). SQ is influenced by one's own mood, temperament, motivation or intentions (the so-called interpersonal dimension of SQ); the second (intrapersonal) dimension of SQ concerns the ability to understand oneself and express one's feelings. Social intelligence is about trust; the degree of trust is reflected in the quality of social interactions. Those who trust others more are more sensitive to various manifestations of social behavior and are able to recognize (and subsequently adapt) the manifestations of certain risky behavior in social contact. These abilities, are not so well developed by less trustful people. Social intelligence is important in terms of the ability to assess certain risks of various social contacts and not avoid them (Yamagishi, 2001). It has been found that college students are more satisfied with their lives, the higher their social intelligence (Rezaei & Bahadori Khosroshahi, 2018).

Both, teachers (Gkonou & Mercer, 2017), and leaders in organizational management need social competence. The importance of social intelligence for effective leadership increases with the shift up in the corporate hierarchy, as the complexity of social relationships is also likely to increase (Zaccaro, 2002). Socially intelligent people can deal better with their colleagues. Strengthening social skills increases work productivity and performance (Dippenaar & Schaap, 2017). In this regard, leaders should be characterized by social perception and flexible behavior (= adaptability) (Zaccaro et al., 1991).

Measuring social intelligence is not at all straightforward and simple, because there is no uniform definition of this indicator and it is a multidimensional construct. However, relatively accurate SQ measurements already exist today (Silvera et al., 2001). One model for measuring emotional and social intelligence has been developed by Bar-on (Bar-On, 2006). Habib et al. (Habib et al., 2013) created and validated measurements of social intelligence in the population of university students. Another measurement model was developed by Silver (Silvera et al., 2001). It's called The Tromsø Social Intelligence Scale (TSIS). In this study, we used an adapted version of this measurement.

### **1.3 Cultural Intelligence: a need for satisfactory economic and financial performance of an organization in the foreign market**

Cultural intelligence (CQ) is defined as the ability to function effectively in intercultural situations (Earley & Ang, 2003b). The CQ indicator does not focus only on recognizing and detecting cultural differences, but mainly on effective functioning in situations

characterized by these cultural differences. Ang and Van Dyne describe CQ as a “real world” image (Van Dyne et al., 2017).

The CQ construct consists of four factors: metacognitive, cognitive, motivational, and behavioral (Earley & Ang, 2003b). The first component of CQ includes the ability not only to acquire cultural knowledge, but above all, to process and understand it. The metacognitive component of CQ is crucial, whether one is aware of the experience gained and uses it in intercultural interaction or adapts it to an unknown culture. Cognitive CQ is a direct knowledge of a particular culture, its differences and similarities. It is a knowledge of the legal and economic system, grammatical (language) rules, cultural values and religious beliefs of a foreign culture. Motivational CQ involves the desire to learn about foreign cultures; people with a high CQ are convinced, that they will succeed in new and unknown cultural situations. They believe that they are able to adapt to the new environment, or to adjust to it. Possible failures won't discourage them. Not only do they not avoid communication and interaction with members of foreign cultures, they actively seek out these situations. The behavioral component of CQ, expresses the ability to adapt one's verbal (accent, tone, speed of speech) and nonverbal expressions (change of facial expression or attitude) to a foreign culture (Van Dyne et al., 2017).

The CQ indicator differs from traditional indicators of intelligence and other abilities: its unique telling ability (e.g. compared to emotional intelligence) relates to the international / intercultural environment; in addition, it also reflects typical personality traits (such as openness to experience or extraversion) and the individual's international experience. People with a high CQ are able to deal with complicated situations, think deeply about what is happening around them and respond adequately to the stimuli that come to them in the context of different cultural influences (Jyoti & Kour, 2015).

Cultural intelligence is of great importance for cross-border business activities. It is important in terms of efficiency in today's global world. Cultural intelligence is a key competence of managers who manage international activities (Rockstuhl et al., 2011). Cultural intelligence can be developed through classical education (university courses), direct contact with foreign culture (study, work abroad, travel, frequent interaction with foreigners), i.e. learning through one's own experience, or training in intercultural competences (Van Dyne et al., 2017).

High CQ plays an important role in successful business negotiations and adaptation in an intercultural environment. It is beneficial not only for an individual who comes into contact with members of a foreign, unknown culture in various situations (work, personal), but also for a company or work teams operating in an international environment.

## 2 Development of hypotheses: the relationship between individual variables

### 2.1 The relationship between social and cultural intelligence

The relationship between the two concepts can be indirectly inferred from their definitions. In both cases, it is the ability to understand the feelings, thoughts, and behaviors of others (without excluding oneself) and, accordingly, to arrange oneself in behaviors and actions so that this adaptation strategy leads to success (eg, avoiding conflicts). The only difference is in the nature of the cultural context, where different patterns of behavior apply. It is likely that a person with a high SQ will perceive the disparity of a foreign environment, but the question is whether he can orientate himself and transfer his social competencies from his home environment to another. What may work in one company may not work in another. It is true that behavior viewed and perceived as socially intelligent may have different manifestations in different cultures. Specific behaviors, that might contribute in one culture, can take away a part of one's perceived social intelligence in another culture. Although Habib et al. (Habib et al., 2013) admit that the general concept of social intelligence remains fairly stable across cultures, it is true only partly, as showed in another study (Frankovský et al., 2019): social intelligence attributes are trans-culturally fixed with the existence of certain cultural specifics of this issue observable in one culture, but not in the other.

In this regard, Crowne believes (Kerri Anne Crowne, 2009), that the two concepts are closely related. Both skills can be developed through training. According to Crowne (2009) CQ is a subset of SQ. He explains this assumption by saying that social awareness skills enable one to perceive cultural stimuli; in particular, the sensitive perception of difference or otherness and the adequate response to this state, combine both concepts. Based on this, Crowne concluded that people who are able to function effectively in an unfamiliar cultural environment and successfully deal with foreigners, will most likely be able to do so within their own cultural group. Therefore, cultural intelligence correlates with social intelligence.

This can be explained by the fact that people react kindly or openly to people similar to themselves and restrained, distrustful, perhaps with a certain amount of aggression and hostility to otherness (Blanchard & Thacker, 2007). These behaviors are largely influenced and regulated intraculturally by SQ and interculturally by CQ, as understanding and adapting to differences through a sensitive perception of otherness and openness to the new, is an important characteristic of both concepts (Handa, 2018). Today, companies are looking for people with high social skills and advanced intercultural skills, as they need employees who understand the needs of customers (often from other parts of the world in today's interconnected, globalized world) and try to meet them to the fullest. The high SQ and CQ ensures, that such employees will be more successful in this regard. Companies also need employees, who can deal with other colleagues within one organization, but also work with foreign partners. In both cases, SQ and CQ have a positive effect.

Based on similar beneficial effects on a number of variables such as performance (Dippenaar & Schaap, 2017; Rockstuhl & Van Dyne, 2018) life satisfaction, etc. (Le et al.,

2018; Rezaei & Bahadori Khosroshahi, 2018) Ascalon et al. (Ascalon et al., 2008) combined two approaches to measuring intracultural and intercultural competences into one concept and created the Cross-Cultural Social Intelligence (CCSI). This concept reflects knowledge of different cultures, communication and interpersonal skills and self-efficacy for dealing with people from different cultures.

Therefore, we assume that

**H1:** Social intelligence (incl. All their dimensions: processing, skills, awareness) positively correlates with cultural intelligence.

## 2.2 Mediation and moderation of the SQ-CQ relationship

In this study, the relationship between the two constructs is explained by two mediators: language competence (level of language skills) and experience in the international (intercultural) environment. The incremental predictive validity of CQ in relation to the experience gained from the international environment and the level of mastery of the host country's language has previously been demonstrated (Cao et al., 2016; Robledo-Ardila et al., 2016; Shannon & Begley, 2008). CQ is also related to world travelling and the intensity of social contacts with foreigners, i.e. people who profess other values (J. Lee et al., 2019). However, it is not possible to claim that all individuals will benefit from the international experience gained equally. It depends not only on the personal predispositions and characteristics of each individual separately, such as his social intelligence, i.e. how he can participate in events in a new environment and process (or absorb) cognitive signals coming to him in a culturally different society (Fischer, 2011; Sahin et al., 2014), but also on the nature of international experience: non-work stays (tourist, language) have a stronger impact on the development of CQ than work experience from abroad (Moon et al., 2012). The relationship of CQ to a very good knowledge of foreign languages, foreign practice associated with studying at foreign universities and long-term stays abroad was confirmed in a large sample of university teachers teaching accounting (Tharapos et al., 2019). In addition, the ability to speak another foreign language is a strong predictor of CQ (Miele & Nguyen, 2019).

Other studies have also shown that international travel, work placements, study tours (Kerri Anne Crowne, 2008; MacNab & Worthley, 2012), language skills, life in diverse cultural environments, work experience from other cultural backgrounds (Triandis, 2006), language and multicultural experience (Engle & Nehrt, 2012), international work experience (L.-Y. Lee & Sukoco, 2010; Shannon & Begley, 2008) and non-work (not business) trips abroad (Engle & Crowne, 2014) have a great influence on CQ.

Language knowledge and skills are also positively correlated with social intelligence (Ahmad & Mohammed, 2020). The relationship between social intelligence and language proficiency level was explored by Abbasian and Merati (Abbasian & Merati, 2014). Participants were asked to respond to the Tromsø Social Intelligence Scale questionnaire. The study found significant differences among participants of the advanced proficiency group with respect

to their social skills and social intelligence. Moreover, a statistically significant relationship between cultural and social intelligences (and their subscales), on the one hand, and student translator's ability in translating cultural and social texts, on the other hand, was found (Saffarian et al., 2015). Social intelligence is a prerequisite for a person to be a successful intercultural communicator (Wawra, 2009). To do this, however, it is necessary to know foreign languages (or one at a high level). In addition, he must be well acquainted with a foreign environment and have practical experience of life abroad. Therefore, we assume two variables that explain the relationship between social and cultural intelligence.

**H2:** Knowledge of foreign languages (mediates) explains (mediates) the relationship between social and cultural intelligence.

**H3:** Intercultural experience explains (mediates) the relationship between social and cultural intelligence.

This study also examines the impact of gender (= dichotomous moderator) on the SQ-CQ relationship. The relationship between gender and social intelligence is ambiguous. For example, it was found that gender does not predict social intelligence, but on the other hand gender moderates the relationship between parenting style (authoritative vs. liberal) and social intelligence (Terwase et al., 2016). Gender also plays a role in the relationship between social intelligence and adolescent relational aggression (i.e., gossip, rumors, manipulation targeting another's social status). This was only true for women (Loflin & Barry, 2016). CQ also depends on gender. Bücken et al. Stated this fact in their modified model of cultural intelligence (Bücken et al., 2015). However, it is not clear whether men or women have greater intercultural competences. The results are contradictory in this area (Mahasneh et al., 2019). No difference in CQ depending on gender was found in the sample of students in Saudi Arabia (AL-Dossary, 2016). To this inconsistency of results, there can be added another study (Khodadady & Ghahari, 2011), which found that Iranian university female students show higher scores in the metacognitive component of CQ than male students. Therefore, we assume

**H4:** There is a difference in the relationship between social and cultural intelligence depending on gender.

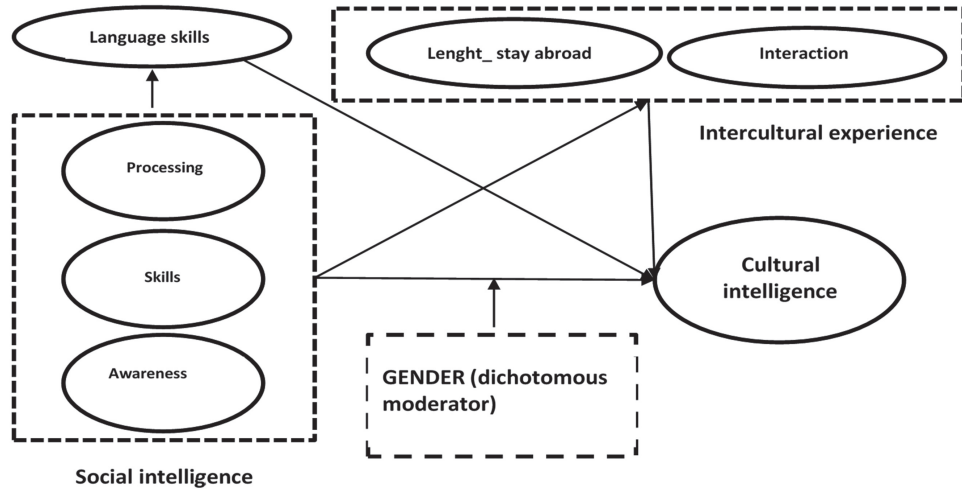
Fig. 1 shows a conceptual (theoretical) model of this study. The simple model of social intelligence (SQ) as an independent variable and cultural intelligence (CQ) as an output variable is extended by the two mediators: language skills and international experience. Moreover, the direct relationship between SQ and CQ is explored through the moderation effect of one dichotomous variable: gender. The latent variables SQ and CQ were modeled reflectively.

The conceptual framework (Fig. 1) represents a multiple (parallel) mediation model that has two mediators: M1 = Language Skills construct, M2 = Intercultural Experience construct. In this case, the model elements are extended to: direct effect between SQ and CQ, specific indirect effects, total indirect effect and total effect (Hair Jr et al., 2016). All hypothesized mediators were included into the model (they were not tested sequentially). Individual mediating effects (e.g., M1 only) were tested by comparing the total indirect



effect with the direct effect. Then, joint mediating effects (ie, M1 and M2) were tested by comparing the total indirect effect with the direct effect.

**Figure 1:** Conceptual framework



Source: own research

### 3 Research Strategy

#### 3.1 Data collection and participants

The online questionnaire was created in English and sent out by email; the link to the questionnaire was also distributed through social media. The target group was university students in economics and management. The questionnaire was filled out by 92 respondents (64% women, 36% men). In the age group 70% of respondents were in the age group 18-30, 25% of respondents were in the age 31-50 years. Most respondents (71%) come from the Czech Republic; other relatively large groups of respondents were Kazakhs (7%) and Russians (9%). The questionnaire was also completed by respondents from Ukraine, Slovakia, China, Belarus, Azerbaijan, Moldova, Germany and Slovakia. Respondents were also asked about their assessment of the frequency of international contacts and interactions. Only 16% of respondents stated that they are in contact with foreigners regularly, 58% of the respondents occasionally. When asked about the length of stay abroad (study, work) 52% of the respondents stated a period shorter than 3 years. In total, more than 37% of respondents stayed abroad for more than a year. Responses of respondents who did not complete more than 5% of the items of the monitored constructs (Hair Jr et al., 2016), were excluded from the analysis. Likewise, the answers of the so-called “non-participating” respondents, who answered all items of the questionnaire monotonously and stereotypically, were not analyzed. This phenomenon was determined using the standard deviations of individual constructs. Responses with a standard deviation of less than 0.1 were automatically discarded, and responses with a standard deviation of less than 0.4 were carefully examined and, at discretion, either

discarded or retained. The data were also examined for kurtosis and skewness. The values of the items of individual constructs ranged in the recommended range + 2, -2 and for this reason there was no need to exclude any item from the questionnaire. A total of 79 respondents were analyzed.

## 3.2 Measures

Cultural intelligence was measured using the CQS scale, which is often used in similar research (Ang et al., 2007b). This scale consists of four dimensions: metacognitive, cognitive, motivational and behavioral. On a scale of 1 - 7, respondents had to evaluate their agreement or disagreement with individual items. Examples of such statements are: "I am conscious of the cultural knowledge I use when interacting with people with different cultural backgrounds" or "I adjust my cultural knowledge as I interact with people from a culture that is unfamiliar to me". To increase the response, the measurements were shortened and adapted. From the original 20-item CQS measurement, 15 items measuring all four dimensions were used in our research. Nevertheless, Cronbach's alpha for this adapted construct was very high  $\alpha = 0.845$ .

Social intelligence was measured using the Social intelligence scale (Silvera et al., 2001). This scale measures the ability to process social information, social skills and awareness in three dimensions. Respondents, on a scale of 1 to 5 (1 - strongly disagree, 5 - strongly agree), expressed their agreement on individual measurement items. Examples of this measurement are: "I can predict other people's behavior" or "I am good at getting on good terms with new people". 5 negative items were recoded. Of the 21 items of the original measurement, 15 items were used. In the hope of increasing the response, the omission of some items from the measurement may be the reason for the lower Cronbach's alpha ( $\alpha = 0.639$ ). However, this reduced value for intrinsic consistency and reliability of measurements ( $\alpha < 0.7$ ) is acceptable for exploratory type studies (Hair Jr et al., 2016).

According to the recommendations (Netemeyer et al., 2011) the questionnaire checked "social desirability bias", i.e. the respondent's effort to make a "good impression" in self-assessment and to improve his image, e.g. when assessing undesirable characteristics (such as selfishness). Therefore, the phenomenon of social desirability response bias was controlled using the previously used 10-item impression management measurement (Alexandra, 2018). A questionnaire example is: "I never cover up my mistakes".

Gender was measured by a dichotomous variable (0 = women, 1 = male), knowledge of foreign languages was measured by 4 questions on a scale of 1 - 3 (1 = bad, 3 = very good): "How confident do you feel in a foreign language speaking (writing, reading, listening)?" The frequency of interactions with foreigners (1 = regularly, 2 = often, 3 = sometimes) was measured by one question: "How often do you interact internationally?" It was also asked, "How long have (the respondents) lived / worked / studied abroad?". The construct of intercultural experience was created from the frequency of interactions with foreigners and stay abroad depending on the length.

### 3.3 Procedure and statistical plan

Collected data were analyzed, using the PLS-SEM technique and the SmartPLS software (v.3.3.2). PLS-SEM results were reviewed and evaluated using a systematic process. The process of the systematic evaluation of the results involved separate assessments of the measurement model and the structural model.

The evaluation of the reflective measurement models concerns internal consistency (Cronbach's alpha, composite reliability), convergent validity (indicator reliability, average variance extracted), discriminant validity. The evaluation of the structural model deals with coefficients of determination ( $R^2$ ), predictive relevance ( $Q^2$ ), size and significance of path coefficients,  $f^2$  effect sizes and  $q^2$  effect sizes.

There are different measures of internal consistency reliability: Cronbach's alpha or a more conservative measure of composite reliability ( $\rho_A$ ,  $\rho_c$ ). Both of them apply the same rules of thumb. They range between 0 and 1; the higher the values, the higher the reliability. Values between 0.70 and 0.90 can be considered as satisfactory (Hair Jr et al., 2016). Cronbach's  $\alpha$  can be considered the lower bound and the composite reliability  $\rho_c$  the upper bound of the true internal consistency reliability.  $\rho_A$  aims at approximating the true reliability and usually lies between Cronbach's  $\alpha$  and  $\rho_c$ .  $\rho_A$  should be significantly higher than 0.7 and significantly lower than 0.9.

A common rule of thumb for the assessment of indicator reliability is that the standardized outer loadings should be 0.708 or higher (Hair Jr et al., 2016). Therefore, values of at least 0.70 are required (0.80 for established constructs). Values greater than 0.60 are acceptable for early stages in research. On the other side values higher than 0.90 (or 0.95) are not desirable. Cronbach's alpha increases with the number of indicators. In our study a lot of weaker loadings ( $<0.70$ ) were obtained; the elimination of these indicators (and item removed) was examined in the light of the composite reliability (or the average variance extracted; indicators with outer loadings between 0.40 and 0.70 were removed from the scale when its deleting led to an increase in the average variance extracted) above the suggested threshold value. The reflective indicators with very low outer loadings (below 0.40) should (and were in our study), however, always be eliminated from the construct because this construct is not able to explain much of the variance of the underlying indicator (Hair et al., 2011).

A common measure to establish convergent validity on the construct level (or construct communality) is the average variance extracted (AVE) which represents a grand mean value of the squared loadings of all indicators associated with the construct. Each construct should account for at least 50% of the assigned indicator's variance ( $AVE \geq 0.5$ ). Furthermore, the discriminant validity, one of the key building blocks of model validation, was assessed. Discriminant validity requires a test that a correlate too highly with constructs from which it is supposed to differ or in other words, constructs of distinct conceptual variables should also be empirically distinct. One of the oldest criteria to establish the discriminant validity is the Fornell-Larcker criterion, which is based on the idea that a construct should better explain the variance of its own indicators than the variance of other constructs. This means that the AVE of a construct should be higher than the squared correlations between the construct and all other constructs. The discriminant validity has also been assessed by

the other criterion: heterotrait-monotrait ratio (*HTMT*). *HTMT* equals the disattenuated correlation between two constructs. *HTMT* values of close to 1 indicate lack of discriminant validity. Having the result lower than 1 is desirable, but the question is how much lower it should be. For this purpose, two cut off values are defined, namely the value of 0.85 (Kline, 2011) or a more liberal value of 0.9 (Gold et al., 2001).

To assess collinearity, each set of predictor constructs needs to be assessed separately for each subpart of the structural model. For all examined regression models, it must be ensured that no critical level of collinearity has been reached, otherwise estimated coefficients would be negatively affected and the relationships could not be interpreted. For this purpose, the look was taken into the variance inflated factors (*VIF*) which should be less than 5 or 3 ( $AVE \leq 5$  or even better  $AVE \leq 3$ ) (Hair Jr et al., 2016).

Significance and relevance of path coefficients were assessed by means of bootstrapping technique. Path coefficients usually vary between -1 and +1. Higher values denote stronger (predictive) relationships between the constructs. Assessing the model's predictive relevance (explanatory power) requires analyzing in-sample prediction and out-of-sample prediction. For the former, the entire data are used to estimate the model and predict observations from this dataset through two indicators: coefficient of determination  $R^2$  and effect size  $f^2$ ; for the latter, the model estimates are used to predict new observations (future observations, holdout sample) through two indicators: blindfolding-based  $Q^2$  and PLSpredict.  $R^2$  is a measure of the model's predictive accuracy and represents the amount of variance in the endogenous constructs explained by all of the exogenous constructs linked to it. It usually ranges between 0 and 1 with higher values indicating higher levels of predictive accuracy. A rough guidelines for  $R^2$  values sets the following rules of thumb: weak ( $R^2 \approx 0.25$ ), moderate ( $R^2 \approx 0.50$ ), substantial ( $R^2 \approx 0.75$ ) (Hair Jr et al., 2016). Because  $R^2$  increases when additional predictor constructs are included, the adjusted  $R^2$ , which controls for model complexity when comparing different set-ups, was used. Effect size  $f^2$  assesses how strongly one exogenous construct contributes to explaining a certain endogenous construct in terms of  $R^2$ . The rules of thumbs are: weak effect ( $0.02 \leq f^2 \leq 0.15$ ), moderate effect ( $0.15 \leq f^2 \leq 0.35$ ), strong effect ( $f^2 \geq 0.35$ ) (Hair Jr et al., 2016). To determine the out-of-sample prediction, the blindfolding technique was used. It is an iterative procedure in which different parts of the data matrix are omitted (i.e, data points). Estimates based on the reduced datasets are used to predict the omitted data points. Prediction error was used as an indicator of predictive relevance. It was set an omission distance  $D$  (rule of thumb:  $5 \leq D \leq 10$ ). After running all  $1, \dots, D$  blindfolding rounds, each data point once has been omitted and predicted. SSE represents the sum of squared prediction errors when using the PLS-SEM predictions. A mean value prediction becomes the naïve benchmark and the SSO represents the sum of squared errors of the mean value predictions. The results of all blindfolding rounds determine, in sum, the predictive relevance of the PLS path model for a certain endogenous latent variable. The following rule of thumb allows to interpret the  $Q^2$  results (based on the cross-validated redundancy): weak predictive power ( $0.02 \leq Q^2 \leq 0.15$ ), moderate predictive power ( $0.15 \leq Q^2 \leq 0.35$ ) and strong predictive power ( $Q^2 \geq 0.35$ ) (Hair Jr et al., 2016). Effect size  $q^2$  allows assessing each exogenous construct's predictive relevance for a certain endogenous construct:

$$q^2 = (Q^2_{included} - Q^2_{excluded}) / (1 - Q^2_{included}) \quad (1)$$

The interpretation of effect size  $q^2$  is identical as the interpretation of  $f^2$ : weak predictive effect size ( $0.02 \leq q^2 \leq 0.15$ ), moderate predictive effect size ( $0.15 \leq q^2 \leq 0.35$ ), strong predictive effect size ( $q^2 \geq 0.35$ ) (Hair Jr et al., 2016). To assess  $Q^2$  of the endogenous latent variables through the blindfolding approach, the following setting was used in SmartPLS-SEM: omission distance (= 7), cross-validated redundancy.

Apart from the assessment of the measurement and structural model the mediation analysis was carried out. "A mediator is a variable that accounts for all or part of the relationship between a predictor and an outcome" (Baron & Kenny, 1986). In order to compare the difference between the two groups (male and female respondents) in terms of the relationship between social and cultural intelligence, multigroup analysis (MGA) was done (Conway & Lance, 2010). We enhance the theoretical precision of cultural intelligence (CQ: capability to function effectively in culturally diverse settings) by developing and testing a model that posits differential relationships between the four CQ dimensions (metacognitive, cognitive, motivational and behavioral) and three intercultural effectiveness outcomes (cultural judgment and decision making, cultural adaptation and task performance in culturally diverse settings). Before testing the model, we describe development and cross-validation ( $N = 1,360$ ) of the multidimensional cultural intelligence scale (CQS) across samples, time and country. We then describe three substantive studies ( $N = 794$ ) in field and educational development settings across two national contexts, the USA and Singapore. The results demonstrate a consistent pattern of relationships where metacognitive CQ and cognitive CQ predicted cultural judgment and decision making; motivational CQ and behavioral CQ predicted cultural adaptation; and metacognitive CQ and behavioral CQ predicted task performance. We discuss theoretical and practical implications of our model and findings (Ang et al., 2007).

Because common method variance (CMV) is often a problem in research that is based on data collection through questionnaires filled in by the same respondents, at the same time and often by self-assessment (Conway & Lance, 2010). As a result of CMV, there is an erroneous internal consistency, i.e. an obvious correlation between variables having essentially the same reason (Chang et al., 2010). Therefore, it is important to check that the individual variables (and questionnaire items) have been measured properly. In order to avoid CMV, an extra variable (additional marker variable) (Social Desirability Scale composed of 10 items: SD1-SD10) was measured, which is completely unrelated to the research variables; items of social desirability scale were systematically included in the questionnaire among other variables. This approach can be found in CMV data if this problem occurs. Using this method it is assumed that the point (measured) marker on independent and dependent variable hopefully does not change the beta coefficients too much. The  $\beta$ -coefficients ( $R^2$ ) for the CQ construct were: 0.519 (for the 'without marker variable') and 0.539 (for the 'with marker variable'). The values of  $\beta$ -coefficients ( $R^2$ ) for the self-efficacy construct were: 0.251 (for 'without marker variable') and 0.259 (for 'with marker variable'). Since the value of  $R^2$  did not increase by more than 10% (specifically it increased by 4.9%, resp. by 3.19%) CMV is not a problem in the target variables although it has to be noted that the CMV problem was found in other implemented variables (international experience and language skills), when the  $R^2$  values increased by more than 10% after the measured variable (social desirability scale) being added.

## 4 Results

### 4.1 Assessment of the measurement model

In our case, one value of  $\rho_A$  (although very slightly) is above the set threshold (for Language skills = 0.905) which is not desirable because it indicates that all the indicator variables are measuring the same phenomenon and are therefore not to be a valid measure of the construct. Moreover, there are some values below the recommended threshold (in the Table 1 greyed boxes) of 0.60 which indicates a lack of internal consistency reliability. Nevertheless, despite the fact that reliability does not meet a more conservative criteria (given by Cronbach's  $\alpha$ ), it does meet a more liberal one (given by composite reliability  $\rho_c$ ). Because  $\rho_A$  aims at approximating the exact reliability, Hair et al. (Hair Jr et al., 2016) recommend to focus on this criterion. If we look into the structure of the construct SQ (see the Table 1), the internal consistency reliability does not fit perfectly into the set cut-off values (the problematic values are greyed in the Table 1), the more liberal criteria given by  $\rho_c$  are met.

**Table 1:** Construct validity and reliability

	Cronbach's Alpha	$\rho_A$	Composite Reliability ( $\rho_c$ )	(AVE)
CQ	0.841	0.856	0.880	0.513
International experience	0.516	0.525	0.804	0.673
Language Skills	0.863	0.903	0.905	0.705
SQ	0.639	0.784	0.788	0.558
Awareness	0.569	0.579	0.822	0.698
Processing	0.671	0.692	0.817	0.599
Skills	0.629	0.866	0.784	0.550

Source: own research

Reliability indicator is shown by outer loadings (see Table 2). The indicators MC1, MC2, COG5, BEH1-BEH5, SOC1-6, SOC9-14 were removed from the scales and the rest of indicators (see Table 2) were retained. Outer loadings are above the threshold value of 0.70 except for the following indicators: COG1 (outer loading: 0.676), COG4 (outer loading: 0.658), MOT1 (outer loading: 0.658), SOC15\_R (outer loading: 0.635). The values of outer loadings suggest a relatively good indicator reliability.

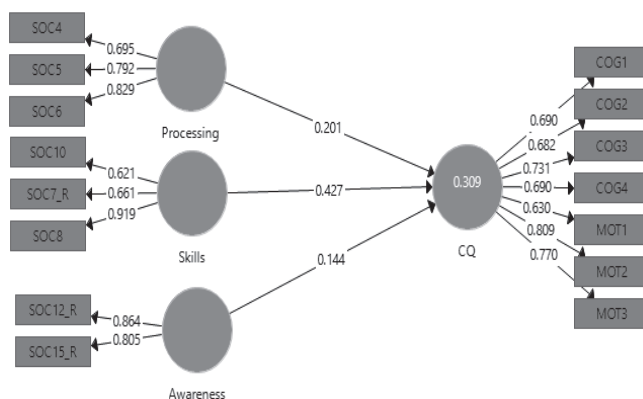
**Table 2:** Measurement model and multicollinearity (VIF)

Construct	Items	Outer loadings	VIF (inner)
CQ	COG1: I know the legal and economic systems of other cultures.	0.676	1.724
	COG2: I know the rules (e.g., vocabulary, grammar) of other languages.	0.726	1.546
	COG3: I know the cultural values and religious beliefs of other cultures.	0.702	1.790
	COG4: I know the marriage systems of other cultures.	0.658	1.691
	MOT1: I enjoy interacting with people from different cultures.	0.626	1.541
	MOT2: I am sure I can deal with the stresses of adjusting to a culture that is new to me.	0.831	3.082
	MOT3: I am confident that I can get accustomed to the shopping conditions in a different culture.	0.775	2.608
SQ	SOC7_R: I often feel uncertain around new people who I don't know.	0.703	1.326
	SOC8: I fit in easily in social situations.	0.880	1.212
	SOC15_R: I find people unpredictable.	0.635	1.252
Language Skills	Listening: How confident do you feel in a foreign language LISTENING?	0.857	2.406
	Speaking: How confident do you feel in a foreign language SPEAKING?	0.894	2.443
	Reading: How confident do you feel in a foreign language READING?	0.838	2.599
	Writing: How confident do you feel in a foreign language WRITING?	0.765	2.135
INTER. EXPER.	Interact: How often do you interact internationally?	0.788	1.138
	Stay_abroad: How long have you lived/worked/ studied abroad ?	0.852	1.138

Source: own research

The Figure 2 depicts the outer loading of CQ indicators and of the three SQ subdimensions (processing, skills and awareness) indicators that were retained (after deleting some of them with regard to improving AVE and composite reliability values). Instead the figure reports the path coefficients (0.201, 0.427, 0.144) between corresponding constructs and  $R^2_{adjusted}$

**Figure 2:** Dimensions of SQ and their relationship with CQ



Source: own research

The values of *AVE* are shown in the Table 3. Each construct should account for at least 50% of the assigned indicator's variance ( $AVE \geq 0.5$ ), which is, in our case, accomplished. The Fornell-Larcker criterion is reported in the Table 3. As can be seen, the squared root of *AVE* for each construct (the diagonal numbers in bold) is higher than the correlations of other constructs in the structural model. Therefore, based on this criterion, the discriminant validity has been established. In our study, all values of *HTMT* meet the Cline's threshold except for the value between the two variables, international experience and language skills, when the cut-off value is slightly exceeded ( $HTMT = 0.905$ ) which might indicate a lack of discriminant validity between the two constructs. This was confirmed by a bootstrapping method to test whether *HTMT* is significantly different from 1. It was examined whether the 90% bootstrap confidence interval of *HTMT* included the value 1 or not (if yes, then there is no discriminant validity). The results (in the Table 3 the boxes are greyed) show that there is a lack of discriminant validity in two pairs of constructs (CQ - International Experience and Language Skills - International experience). It can also be stated that the discriminant validity between CQ and SQ has not been established if we consider a more conservative Kline's cut-off value of 0.85 but it has been established when using the more liberal cut-off value of 0.90.

**Table 3:** Fornell-Larcker criterion and HTMT (in italics; lower and upper bound between parentheses)

	CQ	International experience	Language Skills	SQ
CQ	<b>0.716</b>			
International experience	0.485	<b>0.820</b>		
Language Skills	0.658 [0.500; 0.801]	0.905 [0.694; 1.381]	<b>0.840</b>	
SQ	0.645 [0.498; 0.857]	0.356 [0.212; 0.834]	0.330 [0.172; 0.626]	<b>0.747</b>

Source: own research



Overall, it can be stated that there is no lack of discriminant validity for the subconstructs of SQ.

## 4.2 Structural model evaluation

All values of *VIF* (see the Table 2) are below 5 (and even better below 3) and it was concluded that the results being below 5 (or even better below 3, except for the indicator MOT2) are not at the critical collinearity level. The same can be stated about the dimensions (processing, skills, awareness) of the social intelligence construct: all *VIF* values are below the cut-off values of 5.

In our model, three  $R^2$  values can be found. The highest value of the CQ variable ( $R^2$  adjusted = 0.500) is affected by the three variables (language skills, international experience and social intelligence). It means that 50% of variance is explained by these constructs and their effect on CQ can be classified as moderate. The effect size of international experience on CQ is weak (0.029), the variable of language skills and social intelligence have a moderate effect size ( $f^2 = 0.202$ , resp.  $f^2 = 0.243$ ) on the target construct CQ. The social intelligence construct influences CQ the most. The predictive relevance of our path model explaining CQ is moderate because the  $Q^2$  of the endogenous latent variable (CQ) equals to 0.244. No effect size  $q^2$  of international experience on CQ ( $Q^2_{included} = 0.244$ ,  $Q^2_{excluded} = 0.241$ ,  $q^2 = 0.004$ ) was found; the effect size  $q^2$  of both language skills and social intelligence on CQ is rather weak ( $Q^2_{included} = 0.244$ ,  $Q^2_{excluded} = 0.200$ ,  $q^2 = 0.058$ ), resp. ( $Q^2_{included} = 0.244$ ,  $Q^2_{excluded} = 0.176$ ,  $q^2 = 0.09$ ).

As far as the impact of the three SQ dimensions (processing, skills, awareness) on the target construct CQ concerns,  $R^2_{adjusted}$  equals to 0.309 ( $R^2 = 0.336$ ) which means that 36% of the CQ construct variance is explained by the three SQ subdimensions. On the whole, their influence on CQ can be described as rather weak. The effect size  $f^2$  of the processing and awareness subdimension on CQ is weak ( $f^2 = 0.051$ , resp.  $f^2 = 0.024$ ), the effect size of skills on CQ is moderate ( $f^2 = 0.208$ ). The predictive relevance of the three SQ subdimensions explaining CQ construct is of the moderate predictive power ( $Q^2 = 0.156$ ). The effect size  $q^2$  is weak (or almost none) for two out of three subdimensions, only for the subdimension of skill can be characterized as moderate ( $q^2 = 0,082$ ).

**Table 4:** Hypotheses testing (direct, indirect effect), MGA results

Hypotheses	Relationship	Std Beta	Std Error	[t-value] <sup>^</sup>	CI LL	CI UL	Decision
H1	SQ -> CQ	0.391	0.072	5.296***	0.212	0.507	<b>Supported</b>
H1a	Awareness -> CQ	0.159	0.100	1.446	-0.051	0.339	<b>NOT</b>
H1b	Processing -> CQ	0.208	0.099	2.044**	-0.044	0.357	<b>Supported</b>
H1c	Skills -> CQ	0.444	0.090	4.719***	0.196	0.567	<b>Supported</b>
Indirect effects (IE)	SQ -> Language Skills	0.307	0.098	2.894***	0.057	0.452	
	Language Skills -> CQ	0.402	0.098	4.057***	0.192	0.579	
H2 (specific IE)	SQ -> Language Skills -> CQ	0.118	0.042	2.698***	0.035	0.196	<b>Supported</b>
Indirect effects (IE)	SQ -> International experience	0.244	0.097	2.314**	0.005	0.384	
	International experience -> CQ	0.156	0.090	1.724*	-0.024	0.321	
H3 (specific IE)	SQ -> International experience -> CQ	0.035	0.027	1.285	-0.009	0.100	<b>NOT</b>
	SQ -> CQ (Total indirect effect)	0.153	0.047	3.113***	0.040	0.227	
	SQ -> CQ (Total effect)	0.547	0.080	6.632***	0.311	0.657	
H4	SQ -> CQ (MEN)	0.339	0.148	2.207**	-0.042	0.567	
	SQ -> CQ (WOMEN)	0.421	0.112	3.692***	0.092	0.581	
	Parametric test (MEN vs. WOMEN)			0.481			<b>NOT</b>

**Note:** \* (p < 0.1), \*\* (p < 0.05), \*\*\* (p < 0.01)

Source: own research

The table 4 shows the bootstrapping results. The direct, indirect effects and the results of multigroup analysis are reported. H1 predicted a positive relation between social intelligence (SQ) and cultural intelligence (CQ). The results supported a positive relationship, which was also statistically significant ( $\beta = 0.391$ ;  $p < 0.01$ ). Thus, H1 was supported. If we look at the specific dimensions of social intelligence, both dimensions (processing and skill) were found to be statistically significant, i.e. for processing ( $\beta = 0.208$ ;  $p < 0.05$ ) and for skills ( $\beta = 0.444$ ;  $p < 0.01$ ), and for one dimension (awareness) not ( $\beta = 0.159$ ;  $p > 0.05$ ). Skills have the strongest effect on CQ. Thus, H1a-c are only partially supported. Next, the explaining function was examined for the two mediators: language skills and intercultural experience.

Only language skills partially mediate the relationship between social intelligence and cultural intelligence ( $\beta = 0.118$ ;  $p < 0.01$ ). The mediation is complementary. The international experience construct was not supported as a mediator of the explored relationship by data. In this case, there is no mediation, only a direct effect. Thus, the hypothesis H2 is supported by data, H3 is not. The relationship between social and cultural intelligence was found to be moderately weakened within a group of male respondents ( $\beta = 0.339$ ;  $p < 0.05$ ) and mildly strengthened within a group of female respondents ( $\beta = 0.421$ ;  $p < 0.01$ ). Nevertheless, this group difference is not statistically significant. Thus, the hypothesis H4 is not supported by our data.

Figure 3 (see Appendix) depicts the path coefficients and t-values (in the parentheses) of our theoretical model. Because the bootstrapping process is a random process, the values in Figure 3 and the Result tables can be slightly different.

## 5 Discussion

The results of our study confirmed that there is a relationship between social and cultural intelligence, as suggested by the findings of previous studies. In particular, it can be stated that SQ predicts cultural intelligence to some extent (Thomas, 2006); Social skills (from simple to more complex) can be transferred from one cultural context to another, which refers to the concept of cultural intelligence (Brislin et al., 2006). Cultural intelligence as an ability to cooperate with people of other cultural and mental settings emphasizes the cultural elements of social contacts. An individual's CQ will have a major impact on his or her acceptance by the new social community abroad. While SQ allows you to collaborate and interact effectively with other people, CQ defines (narrows) these interactions into intercultural interactions. CQ is therefore referred to as a subset of SQ (Kerri Anne Crowne, 2009). CQ is a dynamic quantity that is constantly changing and evolving depending on interactions in intercultural social contexts (Thomas et al., 2008). This in itself suggests a connection between SQ and CQ. However, our data did not confirm what K. Crowne claims: good social awareness also applies to cultural stimuli and signals (Kerri Anne Crowne, 2009). A socially intelligent individual is likely to notice if he registers a certain phenomenon as socially inappropriate, unseemly and risky. However, it is not at all certain whether this culturally colored phenomenon will not be assessed in the perspective of one's own (domestic) social norms, and thus erroneously. The individual also does not have to perceive the "safety" of a certain behavior in the cultural context, because he assesses the situation from the perspective of his own social norms, with which he is firmly bound and does not have to know the social customs of the host country. Due to this ignorance, his social "sensors" can remain deactivated until he switches to the social mode of his hosts.

However, our data confirmed the predictive validity of CQ for the two remaining dimensions of SQ (processing and skills). Crowne (Kerri Anne Crowne, 2009) explains this fact quite clearly. CQ includes both interpersonal and intrapersonal aspects. The first of them are well visible, observable. Behavioral CQ leads to adaptation in certain behaviors and manner, and this is positively reflected in interactions with members of foreign cultures.

Crowne (2009) presented arguments (and confirmed by our data) why interpersonal skills are represented in both SQ and CQ. Therefore, a positive relationship of social skills to CQ could be found. The metacognitive, cognitive and motivational components of CQ include intrapersonal aspects, such as understanding one's own cultural knowledge and processing information, i.e. thinking about cultural aspects during intercultural interactions, and this can lead to thinking about one's own culture (the SQ aspect). CQ refers to the knowledge of my own roots (where I come from), cultural knowledge and information flow management. All of these belong to the intrapersonal aspects, because they are related to knowledge acquired either through education or one's own experience. An individual may also have the motivation to learn something about a foreign culture. In this way, Crowne (2009) explains why CQ is a subset of SQ and this is in line with our results, which have shown that SQ (specifically social skills) will very strongly predict CQ.

It is likely that individuals with high CQ will also have highly developed SQ, because an individual who can act effectively and move in other cultures, will be able to do the same in their own (Crowne, 2009). In our study, we have shown that this is most likely also true for the opposite situation: a person who is socially intelligent can quickly orient himself in a foreign culture, make quick contacts that will make it easier for him to adapt to other conditions, gain new information and be happier in general in a new environment (Le et al., 2018). And gender does not play a role in this respect, although the relationship between the two concepts is stronger in the group of women, the difference compared to the male group of respondents was not statistically significant.

High-level language skills help in this process. A socially intelligent individual will find it easier to learn a foreign language (Ahmad & Mohammed, 2020). His good language skills will help him to establish social contacts more easily in a foreign environment. On the contrary, ignorance of the language could demotivate him, discourage contact with local people and lead to the strengthening of social relations with members of one's own ethnic, national community living in a foreign environment. Thus, good language skills can explain (and our data confirm a statistically significant indirect effect of SQ on CQ through language skills) the relationship between SQ and CQ.

However, the mediation effect of intercultural experience on the relationship between SQ and CQ was not confirmed in our data. This can be explained by the fact that a person firmly anchored in his social bubble or community, here relatively successful and satisfied, may not feel motivated to leave it and establish contacts with foreigners or go abroad for a longer period of time. So social intelligence may not be related to the search for intercultural experiences.

The non-confirmation of the third hypothesis can also be caused by a small research sample (which can be viewed as a serious limitation of our findings) or a somewhat unreliable construct of intercultural experience, as shown by the results of the measurement model or *CMV*. Another limiting factor may be the method of questionnaire self-assessment or shortening of previously validated and reliable measurements (CQ, SQ) in order to increase the response. In future research, these shortcomings could be eliminated and, for example use a by other studies validated questionnaire to measure intercultural experience (Starčević et al., 2017). It is also possible to consider other mediators and

test the relationship between social and cultural intelligence, e.g by using the variables openness to experience or extraversion.

## Conclusion

This quantitative empirical study examines the relationship between social and cultural intelligence. It deals with the question of whether an individual can use his social skills abroad, in an environment where different customs, morals, different cultural values are applied and there are different social norms. The results of our study showed that an individual with high social intelligence has good preconditions to be successful even in a culturally different environment; social skills are to some extent transferable and usable in another cultural environment. This is true for both women and men, and it cannot be said that one sex is more predisposed in this respect. The relationship between the two constructs applies mainly to two dimensions of SQ: social skills and information processing, new stimuli. Based on our results, social awareness, the third dimension of the SQ construct, does not apply as much abroad. The relationship between SQ and CQ can be explained by mediated language skills that will help individuals with high SQ to develop the full potential of their social skills; ignorance of foreign languages is thus not an obstacle to establishing social contact with locals. On the contrary, another important antecedent of CQ, intercultural experience, does not explain the relationship between SQ and CQ.

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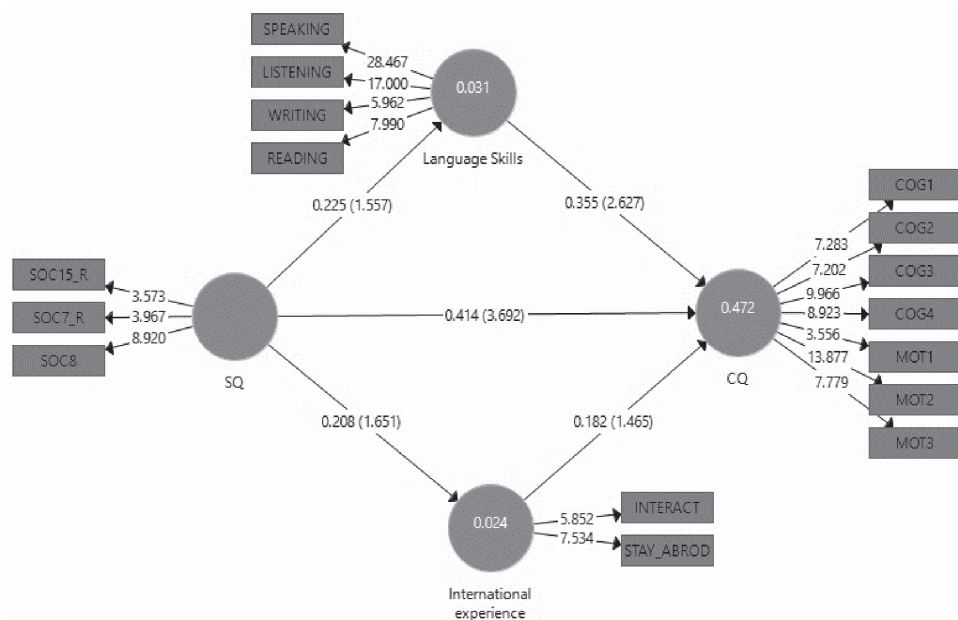
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## Appendix

### Theoretical model and bootstrapping results



Source: own research

# *The Influence of the Quality of Education on the Knowledge Economy: the Czech Republic in International Comparison*

## *Vliv kvality vzdělání na znalostní ekonomiku: Česká republika v mezinárodním srovnání*

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HANA KUČEROVÁ

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### **Abstract**

The knowledge economy consists in the creation of added value based on the use of knowledge not only due to manual production but especially due to the growing importance of education and the use of scientific knowledge in terms of the overall competitiveness of the country. The education of the population is thus a crucial factor determining the level of economic development and quality of life. The educational structure of the population affects the performance of the whole economy, as well as the performance of individual companies. Human development indicators, which are published in the UN Human Development Report, include education quality indicators. The paper aims to perform a comparative analysis of education quality indicators in the Czech Republic and an international comparison. Based on selected statistical results of comparative analysis, determine the order of states in the evaluation of the quality of education. Furthermore, using the results, compile a SWOT analysis of the quality of education in the Czech Republic, based on which the fundamental problems of Czech education will be defined and recommendations for improving the quality of education in the Czech Republic as one of the key determinants of the knowledge economy.

### **Keywords**

education, knowledge economy, human development, comparative analysis, Czech Republic, international comparison

### **JEL Classification**

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### **Abstrakt**

Znalostní ekonomika spočívá v tvorbě přidané hodnoty na základě zúročení znalostí nejen díky manuální výrobě, ale zejména kvůli růstu významu vzdělání a využití vědeckých poznatků z hlediska celkové konkurenceschopnosti země. Vzdělání obyvatelstva tak představuje zásadní faktor určující míru ekonomického rozvoje a kvalitu života. Vzdělanostní struktura obyvatelstva ovlivňuje výkonnost celé ekonomiky, jakožto i výkonnost jednotlivých podniků. Součástí indikátorů lidského rozvoje, které jsou zveřejňovány ve zprávě o lidském rozvoji vydávané organizací OSN, jsou indikátory kvality vzdělání. Cílem příspěvku je provést komparativní analýzu indikátorů kvality vzdělání v ČR

a v mezinárodním srovnání. Na základě vybraných statistických výsledků komparativní analýzy určit pořadí států v hodnocení kvality vzdělání. Dále s využitím výsledků provést sestavení SWOT analýzy kvality vzdělání v ČR, na základě které budou definovány zásadní problémy českého školství a formulována doporučení pro zvýšení kvality vzdělání v ČR jako jednoho z klíčových determinantů úrovně znalostní ekonomiky.

### **Klíčová slova**

vzdělání, znalostní ekonomika, lidský rozvoj, komparativní analýza, Česká republika, mezinárodní srovnání

## **Introduction**

The knowledge economy is a term that is currently used in all areas of life. For the first time, the term "knowledge economy" appears in works by Drucker (1998). The knowledge economy is a term for an economic system that is based on the use of knowledge (Hislop, 2013). The market environment is shaped by technological progress, especially ICT. Knowledge of all forms thus plays a decisive role in economic processes. The knowledge economy is therefore mainly associated with education, learning, and innovation.

Education is thus a key area for countries to move towards an economy based on an educated, motivated and creative workforce (Čechák, 2006). Countries, regions, and cities that develop and effectively manage their knowledge resources contribute to increasing their productivity. Firms with higher knowledge potential outperform those whose knowledge is weaker. At the same time, individuals who have more knowledge and a better education get better-value jobs. The strategic role of knowledge thus lies in the growth of investment in development and research, in the support of innovation, in the transfer of modern technologies, in education, science, and in the development of human resources (Popková, 2019).

The importance of human resources in the organization is thus constantly growing with the development of the knowledge economy. People are a key resource for a business to achieve long-term success. Human knowledge brings inexhaustible competitive advantages to the company. Today, the goal of organizations is not only to hire new employees and maintain existing ones but also to systematically create conditions for their work, satisfaction, further development, and education. The quality of human resources together with their education is therefore absolutely essential for the creation and transfer of knowledge and represents one of the factors influencing the quality of life in individual countries of the world and every organization doing business in it (Severová and Šrédl, 2010).

The mutual interconnection of education and the knowledge economy is thus completely unquestionable. The level of the knowledge economy in a given country is conditioned by the quality of its education. The level of quality of education is one of the key factors in economic development and the subsequent process of improving the country's competitiveness. The issue of the quality of human resources is therefore currently at the forefront of general interest and was chosen as the subject of this study. The contribution

of the work is to provide a comprehensive view of the quality of education in the Czech Republic, which is evaluated for the needs of the study on the basis of human development indicators with a focus on indicators of quality of education published by UNDP. Evaluation based on a range of indicators of the quality of education provides a broader insight into the current issues of quality of human resources, their education, and the impact on the future development of the knowledge economy of the Czech Republic.

The aim of this article is to perform a comparative analysis of education quality indicators in the Czech Republic. Compare these indicators in an international comparison and, based on statistical results, determine the ranking of countries in assessing the quality of education. Furthermore, using the results, compile a SWOT analysis of the quality of education in the Czech Republic, based on which the fundamental problems of Czech education will be defined and recommendations for improving the quality of education in the Czech Republic will be formulated. The starting point for defining the goal and setting research questions for comparative analysis is a search of professional literature, which summarizes the existing knowledge in the field of education. The methodology used focuses on a comparative analysis of the quality of education in the Czech Republic and in selected countries and the compilation of a SWOT analysis of the quality of education in the Czech Republic. The chapter devoted to the results presents the findings on the quality of education based on the evaluation of the total number of indicators determining the quality of education systems. Furthermore, the chapter devoted to the results presents the results of the SWOT and proposals for recommendations for improving the current situation. The conclusion then contains a summary of knowledge about the quality of education in the Czech Republic.

## 1 Theoretical background

The knowledge economy is the use of knowledge to generate tangible and intangible value. The country's involvement in the knowledge economy depends on the following pillars: information infrastructure, education, economic incentives, and the institutional framework and innovation system (Unger, 2019). The characteristic features of the knowledge economy and examples of changes are shown in Table 1.

**Table 1:** Characteristics of the knowledge economy

<b>Characteristics</b>	<b>Examples of specific changes</b>
<b>The growing importance of ICT</b>	⇒ Digitalization of communications ⇒ Connecting companies, cooperation, partnerships
<b>Reduced dependence on the physical concentration of resources</b>	⇒ Offshoring, a new division of labour ⇒ Growing share of GDP in intangible capital
<b>Integration of economic sectors</b>	⇒ Loss of the line between industry, organizations and technology

<b>Characteristics</b>	<b>Examples of specific changes</b>
<b>The growing role of the customer</b>	⇒ Customization of the product to the customer ⇒ Establishment of customer communities
<b>Growing dynamics of pricing</b>	⇒ Possibility of quick comparison of offers and prices ⇒ Adjusting prices to customers

Source: Soukup and Rathouský, 2013

The globalization of the knowledge economy and digital technologies has a significant impact on the state and dynamics of human capital development (Belly, 2017). On the one hand, companies can gain access to human capital around the world, on the other hand, employees gain access to the global labor market (Angelopoulos et al., 2017). Creating a new generation of employees equipped with modern executive competencies is possible not only in the process of formal education, training, and learning. Transnational digital technologies contribute to the globalization of the economy and thus accelerate the development of new qualities of human capital through the digitization of jobs, the provision of electronic services, or the use of the Internet of Things (Giorcelli, 2019).

Today, it is necessary to use a highly qualified workforce for the development of production, capable of performing a number of functions requiring a high level of professional training. Most employers are already aware of the need to attract highly qualified workers, but also to invest in improving human knowledge. On the other hand, employees must be prepared for the constant acquisition of new knowledge and rapid retraining. Thus, in the knowledge economy, there is a transition from the use of simple production work to highly qualified human resources equipped with special physical and mental abilities (Novikov et al., 2020).

Previous empirical research has shown that human capital and ICT have a positive impact on organizational efficiency, social development, and accelerating the growth of knowledge production (Chen, 2008; Oreopoulos, and Petronijevic, 2018). The entry of human capital into the digital age began through the organization of open digital portals that change the way human communication communicates with the fields of education, health, culture, leisure, and other social services. Education and professional development are priorities in the models of digital development of society (Filippone et al., 2012). To master skills, it is important to develop measures that express the state of readiness for the use of ICT (Good et al., 2015).

According to Castleman (2019), the basic framework for digitization consists of research and development activities aimed at increasing the production of public goods and gaining competitive advantages. Some empirical studies of economic growth have assessed the role of human capital and ICT as determinants of the effectiveness of long-term economic growth based on an indicator of human capital and ICT-based literacy (Bakry and Al-Ghamdi, 2008; Ehrlich et al., 2017). Research by Petrakis and Stamatakis (2002) has shown that the link between economic growth and education varies from country to country due to levels of economic development. Thus, research, science, and education are the main



drivers of economic progress. The task of educational policy is to contribute to sustainable human development, mutual understanding between people, and the development of democracy (Žítek et al., 2011). The role of education in tackling global trends, limiting the development of the knowledge economy, and promoting sustainable development is crucial. With the help of educational sectors, knowledge of the economies of individual countries and their targeted development become a basic prerequisite for equitable and sustainable development (Bureš and Hájek, 2007).

According to Kostrovská et al. (2017) are the problems of education in the Czech Republic and Slovakia, the migration of the productive population abroad, and the widening of the gap of the missing labor force in the productive age. According to Andrei et al., Another problem of education in the Czech Republic is. (2012) study failure rate. Another problem of the education sector in the Czech Republic and Slovakia is the low quality of vocational education (Soukalová and Gottlichová, 2015). According to Herbst and Wojciuk (2014), the Czech Republic, Slovakia, Hungary, and Poland have completely different national approaches to education reforms.

Human capital is considered an important factor in the economic development of countries at the theoretical and empirical level. The results of the above-mentioned empirical studies have shown the indirect positive impact of human capital on the economic development of countries in the form of the human factor contributing to the development and dissemination of modern technologies or contributing to the creation and transfer of knowledge in countries' knowledge economy. At the same time, the studies emphasize the importance of the quality of education for the development of the country's workforce. A large part of the authors of the mentioned studies agrees on the problem of capturing the quality of human capital (lack of data, their quality, differences in calculation methodology, etc.). The quality of human resources is therefore often defined through the quality of education. Based on a literature search, a difference was found in the authors' approaches to measuring the quality of education.

I consider the shortcomings of previous empirical studies (Romer, 1990; Jones and Romer, 2009; Isola and Alani, 2012; Teixeira and Fortuna, 2003; Abbas and Peck, 2008) to evaluate the quality of education based on the use of the vast majority of one selected indicator or a combination of two indicators of the quality of education (most often indicators of the highest achieved education, the average time of education and literacy rate). This study used an analysis of a wider range of education quality indicators (education index, average and expected length of study, government expenditure on education, the share of people with at least secondary education, evaluation in the international PISA survey), which would increase their value on a comprehensive scale to improve the quality of education in a country. The information obtained thus enables an objective and as reliable as a possible assessment of the overall state of the country's education system and the formulation of recommendations for improvement. Based on a search of professional literature, the absence of studies dealing with the influence of the quality of education on the knowledge economy in the conditions of the Czech Republic and in comparison with other countries was also proved. For this reason, too, I consider the subject of the study, which is the analysis of the quality of education in the Czech Republic and in an international comparison, to be current and suitable for study.

## 2 Methodology

In order to fulfil the set goals of this article, a mainly quantitative approach to data processing is chosen, supplemented by qualitative knowledge resulting from a search of the literature. Work with secondary data includes the study of publicly available data on the quality of education in the Czech Republic and in an international comparison. The main source of data is the Human Development Report (HDR) from 2019. The HDR report publishes the Human Development Index (HDI), which is the geometric average of the three indices. The calculation of the Human Development Index (HDI) is as follows:

$$HDI = \sqrt[3]{(LEI \times EI \times II)} \quad (1)$$

where LEI (Life Expectancy Index) is an indicator of life expectancy, EI (Education Index) is an education index and II (Income Index) is an index of gross national income per person. For the indicators of life expectancy and GNP per person, standardized values are determined at the same time as the values of partial indices. For the indicator of life expectancy (years), the minimum is 20 and max. 85. For the GNP indicator per person (in dollars), the minimum is 100 and max. 75 000.

However, there are two indicators for EI, and therefore it is necessary to calculate it from two indicators. The education index measures the combination of average adult years of schooling with expected years of schooling, with each attendee having a weight of 50% (UNDP, 2010). The calculation of the Education Index (EI) is as follows:

$$EI = \frac{MYSI + EYSI}{2} \quad (2)$$

where the MYSI (Means Years of Schooling Index) is a calculation of the average number of years of education that people aged 25 and over have obtained, based on the educational attainment of the population converted to years of schooling according to the theoretical duration of each level of education attended. The planned max. MYSI for the year 2025 is 15. The calculation of the MYSI indicator is as follows:

$$MYSI = \frac{MYS}{15} \quad (3)$$

where the Expected Years of Schooling Index (EYSI) is a calculation of the number of years a child is expected to attend school, including years of repetition. It is the sum of age-specified enrolment ratios for primary, secondary, post-secondary and tertiary education. The expected years of schooling are limited to 18 years. The calculation of the EYSI indicator is as follows:

$$EYSI = \frac{EYS}{18} \quad (4)$$

In addition to the comparison of the Czech Republic in the international comparison in terms of the EI indicator, a comparison is made of other selected indicators of the quality of education. This broadly affects the area of indicators determining the level of quality of education. Research questions for comparative analysis are:

1. What is the order of the Czech Republic in the evaluation of the quality of education of selected countries?
2. According to the monitored indicators of the quality of education, can the quality of education in the Czech Republic be described as above-average, average, or below-average in an international comparison?

Within statistical data processing using Microsoft Excel, the indicator average (usual value from a set of values), indicator min and max, variation range – VR (the difference between max and min), variance (characteristic of the variability of the probability distribution of a random variable), standard deviation – SD (quadratic mean of deviations of character values from their arithmetic mean), median (mean value) and mode (most common value).

The evaluation of the quality of education in selected countries is then determined as follows:

- in the case of a higher than average value of the monitored indicator of the quality of education, the given state is assigned a rating of 1;
- in the case of a lower than average value of the monitored indicator of the quality of education, the given state is assigned a rating of 0;
- in the case of the same value as the average value of the monitored indicator of the quality of education, the given rating is assigned a rating of 0,5.

The order of states is determined by the sum of all assigned evaluations of education quality indicators. For international comparison with the Czech Republic, its neighbouring countries (Germany, Slovakia, Poland, and Austria) are selected. Furthermore, a comparative analysis is used with the countries that achieve the best EI values in 2018 (New Zealand, Australia) and a comparison with the countries that achieve the worst EI values (UAE, Portugal, and Andorra, which was omitted due to missing data).

Based on a comparative analysis of indicators of the quality of education and a search of professional literature, a SWOT matrix is compiled. SWOT analysis is a universal tool aimed at mapping and analysing a given phenomenon (Grasse, 2006). Based on the SWOT analysis of the quality of education in the Czech Republic, five fundamental problems of Czech education are presented, within which draft recommendations for improving the current situation and the impact of these recommendations on the monitored indicators of quality of education are set.

### **3 Analysis of the quality of education in the Czech Republic and selected countries**

This chapter presents a key part in the form of the results of a comparative analysis of the quality of education in the Czech Republic and in selected countries. The evaluation of the quality of education is supplemented by knowledge about the evaluation of selected countries according to the HDI indicator. Based on the statistical results of the comparative analysis, the order of states in the evaluation of the quality of education is determined and a SWOT analysis of the quality of education in the Czech Republic is compiled.

### 3.1 Human Development Index

The Human Development Index (HDI) is one of the attempts to express the quality of human life. Of the 189 countries for which the HDI was calculated in 2018, 62 countries fell into the category of very high levels of human development, 54 countries into the category of high levels of human development, 37 countries into the category of intermediate levels of human development and 36 countries into the category of the low level of human development. According to the HDI, Norway (0,954), Switzerland (0,946) and Ireland (0,942) took the first three places. The last places ranked were the Republic of Chad, the Central African Republic, and Nigeria.

The Czech Republic was in 26th place (0,891). In a comparative analysis of the Czech Republic with neighbouring countries based on the HDI value in 2018, the best place was taken by Germany, which ranked 4th (0,939), followed by Austria with 20th place (0,914), followed by Poland to 32nd place (0,872), and Slovakia 36th place (0,857).

### 3.2 Education quality indicators

According to EI, Germany, Australia, and New Zealand took the first three places in 2018. The last places in the EI evaluation were occupied by Portugal, the UAE, and Andorra. The Czech Republic had an EI of 0,892 and thus took 16th place. Of the Czech Republic's neighbouring countries, only Germany achieved better EI values in 2018, while Austria, Poland, and Slovakia showed worse EI values. Table 2 below shows the EI values in the world in 2018, for simplification, out of 40 countries with a very high level of HDI, only selected countries are shown for comparative analysis.

The quality of Czech education is thus based on this European comparison as average. Cooperation between academia and the private sector is an important part of the quality of education. In this cooperation, i.e. the so-called dual education, the Czech Republic lags behind neighbouring countries. While in the Czech Republic only 25% of companies cooperate with schools, in Slovakia it is 33%, in Austria 44,5% and Germany as much as 63% of companies.

**Table 2:** World Education Index (EI) in 2018 (countries with very high HDI levels)

HDI Position	Country	Education Index (EI)
4	Germany	0,946
6	Australia	0,923
14	New Zealand	0,923
20	Austria	0,871
26	Czech Republic	0,892
32	Poland	0,866
35	United Arab Emirates	0,744

HDI Position	Country	Education Index (EI)
36	Andorra	0,708
36	Slovakia	0,824
40	Portugal	0,759

Source: author from data UNDP

Table 3 presents a summary of all monitored indicators of the quality of education in the comparative analysis of the analysed countries. For the simplification of names, abbreviations of their English names are created for individual indicators of education quality, i.e.: EI (Education index), EYS (Expected Years of Schooling – years), MYS (Mean Years of Schooling – years), GE (Government expenditure on Education – % of GDP), GER\_1 (Gross enrolment ratio, primary – % of primary-school-age), GER\_2 (Gross enrolment ratio, secondary – % of secondary school-age), GER\_3 (Gross enrolment ratio, tertiary – % of tertiary school-age), SE (Population with at least some secondary education), PISA score in maths, reading, science.

**Table 3:** Summary of indicators of education quality in states according to HDR 2019

Indicator	CZ	SK	PL	AT	DE	AU	NZ	UAE	PT
<b>EI</b>	0,892	0,824	0,866	0,871	0,946	0,923	0,923	0,744	0,759
<b>EYS</b>	16,8	14,5	16,4	16,3	17,1	22,1	18,8	13,6	16,3
<b>MYS</b>	12,7	12,6	12,3	12,6	14,1	12,7	12,7	11,0	9,2
<b>GE</b>	5,8	4,6	4,8	5,5	4,8	5,3	6,3	–	4,9
<b>GER_1</b>	100	98	110	104	103	101	100	111	105
<b>GER_2</b>	105	91	107	102	102	151	115	96	118
<b>GER_3</b>	64	48	67	86	68	114	82	–	63
<b>SE</b>	99,8	99,3	85,3	100	96,3	90,4	96,9	70,7	54,2
<b>PISA maths</b>	492	475	504	497	506	494	495	427	492
<b>PISA reading</b>	487	453	506	485	509	503	509	434	498
<b>PISA science</b>	493	461	501	495	509	510	513	437	501

Source: author from data UNDP

In the Czech Republic, the EYS indicator was 16,8 years, and the MYS indicator 12,7 years, which may be a consequence of a socially generous state. In the PISA measurement in 2018, the Czech Republic ranked ninth lowest among the then 28 EU countries. The data show that the Czech Republic spent 5,8% of GDP on education. Slovakia showed lower EI values than the Czech Republic. According to PISA, Poland can be described as a jumper who rose to the top. However, Poland had a lower EI than the Czech Republic, as well as lower education expenditures. Interesting is the smaller share of the population with at

least secondary education, which is 85% in Poland. In Austria, education is different in connection with practice. Here, students spend about 80% of their time practicing.

According to EI, Germany, Australia, and New Zealand took first place. Indicator EI was highest in Germany, although government spending on education was 4,8% of GDP. Germany achieves above-average results in PISA. EI Australia reached lower values than Germany but at the same time higher values than the Czech Republic. The expected duration of the study was the longest in Australia (22,1 years).

New Zealand achieved higher EI values compared to the Czech Republic. In New Zealand, the government has also invested more in education (6,3% of GDP). Interestingly, Germany, which had the best EI compared to the second best-rated Australia and New Zealand, had the lowest government spending on education. The last places according to EI were Portugal, the UAE, and Andorra. In addition to the Ministry of Education, Portugal also has a Ministry of Science, Technology, and Further Education (E15, 2018). Portugal achieved the third-lowest EI value in the category of countries with a very high level of human development. The proportion of people with at least a secondary education was 54,2% in Portugal (Table 3).

### 3.3 Statistical results of a comparative analysis of the quality of education

As part of the statistical processing of data on the quality of education in selected countries, basic statistical indicators were calculated for each of the monitored indicators (Table 4).

**Table 4:** Statistical calculations of monitored indicators of education quality

Indicator	Average	MIN	MAX	VR	Dispersion	SD	Median	Modus
EI	0,861	0,744	0,946	0,202	0,005	0,068	0,871	0,923
EYS	16,9	13,6	22,1	8,5	5,4	2,3	16,4	16,3
MYS	12,2	9,2	14,1	4,9	1,7	1,3	12,6	12,7
GE	5,3	4,6	6,3	1,7	0,3	0,6	5,1	4,8
GER_0	101,9	70	166	96	642,8	25,4	95	105
GER_1	103,6	98	111	13	18,0	4,2	103	100
GER_2	109,7	91	151	60	276,4	16,6	105	102
GER_3	74,0	48	114	66	348,8	18,7	67,5	-
SE	88,1	54,2	100	45,8	223,7	15,0	96,3	-
PISA maths	486,9	427	506	79	517,4	22,7	494	492
PISA reading	487,1	434	509	75	630,5	25,1	498	509
PISA science	491,1	437	513	76	578,3	24,0	501	501

Source: author

The order of states in the evaluation of the quality of education is determined as follows: in the case of higher than the average value of the indicator – 1 point is assigned; in case of lower than the average value of the indicator – assigned 0 points; in case of identical value – 0,5 points assigned. The order of the states is then determined by the sum of all the assigned ratings for each state. The Czech Republic achieved a higher value than the average of the given indicator for the indicators EI, MYS, GE, GER\_0, SE, PISA maths score, and PISA science).

The Czech Republic, therefore, received 7 points in the evaluation. Worse was Slovakia, which achieved higher average values only in the case of MYS and SE (2 points). Poland had higher than average values for 6 indicators. Austria was better than CZ, SK, PL, and DE and achieved higher than average values for 9 indicators. Australia had the highest number of points. New Zealand had the second-highest number of points. The worst values in the evaluation of the quality of education were achieved by the UAE, which received only 1 point in the evaluation. Portugal received 5 points in the evaluation (Table 5).

**Table 5:** Ranking of states in the evaluation of the quality of education according to the indicators of the quality of education

<b>Indicator</b>	<b>CZ</b>	<b>SK</b>	<b>PL</b>	<b>AT</b>	<b>DE</b>	<b>AU</b>	<b>NZ</b>	<b>UAE</b>	<b>PT</b>
<b>EI</b>	0,892	0,824	0,866	0,871	0,946	0,923	0,923	0,744	0,759
<b>EYS</b>	16,8	14,5	16,4	16,3	17,1	22,1	18,8	13,6	16,3
<b>MYS</b>	12,7	12,6	12,3	12,6	14,1	12,7	12,7	11,0	9,2
<b>GE</b>	5,8	4,6	4,8	5,5	4,8	5,3	6,3	–	4,9
<b>GER_0</b>	105	93	70	105	108	166	95	82	93
<b>GER_1</b>	100	98	110	104	103	101	100	111	105
<b>GER_2</b>	105	91	107	102	102	151	115	96	118
<b>GER_3</b>	64	48	67	86	68	114	82	–	63
<b>SE</b>	99,8	99,3	85,3	100	96,3	90,4	96,9	70,7	54,2
<b>PISA maths</b>	492	475	504	497	506	494	495	427	492
<b>PISA reading</b>	487	453	506	485	509	503	509	434	498
<b>PISA science</b>	493	461	501	495	509	510	513	437	501
<b>Number of points</b>	<b>7 p.</b>	<b>2 p.</b>	<b>6 p.</b>	<b>9 p.</b>	<b>8 p.</b>	<b>10,5 p.</b>	<b>10 p.</b>	<b>1 p.</b>	<b>5 p.</b>
<b>Order of states</b>	<b>5.</b>	<b>8.</b>	<b>6.</b>	<b>3.</b>	<b>4.</b>	<b>1.</b>	<b>2.</b>	<b>9.</b>	<b>7.</b>

Source: author from data UNDP

The ranking of states in the evaluation of the quality of education is AU (10,5 points), NZ (10 points), AT (9 points), DE (8 points), CZ (7 points), PL (6 points), PT (5 points), SK (2 points), and UAE (1 point). If we focus on the comparison of the ranking of states in terms of EI and the ranking of states according to the proposed evaluation in this study, we will find that Germany,

Australia, and New Zealand ranked first according to EI. According to the evaluation of the quality of education in this study, the ranking of the first countries that achieve higher than average values in the monitored indicators and thus received the most assigned evaluations is as follows: Australia in 1st place, New Zealand in 2nd place and Austria in 3rd place.

The last places according to EI were occupied by Portugal, the UAE, and Andorra. According to the evaluation of the quality of education in this study, the ranking of the last countries that achieve lower than average values in the monitored indicators and thus obtained the least assigned points is as follows: Portugal in 7th place, Slovakia in 8th place and UAE in 9th place. Compared to the Czech Republic, only Germany achieved better EI values, while Austria, Poland, and Slovakia showed worse values. According to the evaluation of the quality of education, Germany and Austria achieved a better position according to the assigned evaluations about the Czech Republic, while Slovakia and Poland achieved a worse position.

## 4 Results and discussion

According to EI, Germany, Australia, and New Zealand took the first three places. Portugal, the UAE, and Andorra took the last places according to EI. The Czech Republic ranked 16th out of 40 monitored countries. The evaluation of the level of education was also performed based on other indicators of the quality of education. The first indicator compared was the indicator of the expected length of study, which was at the level of 16,8 years in the Czech Republic, but the average length of the study was 12,7 years. When comparing this indicator, Australia reached the highest value (22,1 years). In terms of expenditure on education, the Czech Republic is above the EU average. Within our comparison, New Zealand (6,3% of GDP) invested the most in education, followed by the Czech Republic (5,8% of GDP), Austria (5,5% of GDP), Australia (5,3% of GDP), Portugal (4,9% of GDP), Poland and Germany (4,8% of GDP) and Slovakia spent the least on education (4,6% of GDP).

Another monitored indicator of the quality of education was the indicator population with at least secondary education. Austria, the Czech Republic, Slovakia, New Zealand, Germany, Australia, and Poland have the highest shares of people with secondary education. The lowest values of young people with secondary education were recorded in the UAE countries and Portugal. The Czech Republic ranked 9th lowest in the PISA measurement in 2018. The Czech Republic achieves a better score than Slovakia in all areas of measurement. According to PISA, Poland could be described as a jumper. The best values of the PISA score in the field of mathematics, reading, and science within the neighbouring states of the Czech Republic are achieved by Germany. Australia is one of the non-European countries with better PISA results. Despite the low value of EI, Portugal achieves a better score than the Czech Republic (CSICR, 2019).

Ranking of countries in the evaluation of the quality of education based on indicators of quality of education according to assigned evaluations as follows: 1st place – Australia, 2nd place – New Zealand, 3rd place – Austria, 4th place – Germany, 5th place – Czech Republic, 6. place – Poland, 7th place – Portugal, 8th place – Slovakia and 9th place – UAE. The Czech Republic thus ranked 5th out of 9 analysed countries.



If we focus on comparing the ranking of countries in terms of EI and the ranking of countries according to the evaluation of the quality of education in this study, which includes a wider range of indicators determining the quality of education, we find that the first three places according to EI were Germany, Australia, and New Zealand. According to the evaluation of the quality of education in this study, the order of the first three countries is as follows: Australia, New Zealand, and Austria. The last places in the EI ranking were occupied by Portugal, the UAE, and Andorra. According to the evaluation of the quality of education in this study, the order of the last countries is as follows: Portugal in 7th place, Slovakia in 8th place, and the UAE in 9th place.

Based on a comparative analysis of education quality indicators from the HDR report (2018) and a search of the literature, it is possible to identify strengths and weaknesses, opportunities and threats of the education system in the Czech Republic, which are the basis for compiling a SWOT matrix (Table 6).

**Table 6:** SWOT analysis of education in the Czech Republic

	<b>STRENGTHS</b>	<b>WEAKNESSES</b>
<b>INTERNAL FACTORS</b>	<ul style="list-style-type: none"> <li>+ a stable and developed system of public education</li> <li>+ high proportion of graduates with secondary education</li> <li>+ increasing trend of the Education Index indicator</li> <li>+ diversity of pedagogical approaches between individual schools</li> <li>+ average to above-average results in the evaluation of pupils literacy in international comparison (TIMSS, PIRLS, ICILS)</li> </ul>	<ul style="list-style-type: none"> <li>– below-average level of public education funding</li> <li>– insufficient cooperation between public education and private sector</li> <li>– disagreement over the objectives of education between political parties</li> <li>– low expenditure on science compared to OECD</li> <li>– lack of teachers and the aging generation of teachers</li> <li>– missing system concept of education development</li> <li>– low proportion of university graduates within the EU</li> </ul>
	<b>OPPORTUNITIES</b>	<b>THREATS</b>
<b>EXTERNAL FACTORS</b>	<ul style="list-style-type: none"> <li>+ increase state funding for education, science and research</li> <li>+ closer links between business, science, research and education and teaching</li> <li>+ change of goals, content of education and ways of learning connected with the preparation of the Strategy of educational policy until 2030+</li> <li>+ increasing teachers' salaries and their further education</li> </ul>	<ul style="list-style-type: none"> <li>– low interest in technical fields will increase dependence on labour imports</li> <li>– outflow of teachers from education due to low financial value</li> <li>– inconsistency between market needs and job offers of graduates</li> <li>– dependence on EU resources in the implementation of projects</li> <li>– underestimation of preparation for demographic aging of teachers</li> </ul>

Source: author

Based on the SWOT analysis of the quality of education in the Czech Republic and the resulting knowledge, I further define 5 key problems of Czech education, which are ranked in order of importance: the absence of a concept for the development of Czech education; insufficient funding for education, science, and research; the content and way of education do not meet the needs of the 21st century; insufficient interconnection of public education and the private sector; insufficient support for teachers, principals, and other education staff.

The first and fundamental problem of the education sector in the Czech Republic is the non-existence of the concept of development of Czech education, here I propose to focus on:

- the creation of a systemic state policy that is not subject to immediate effects and has a clear and long-term goal, the introduction of uniform entrance examinations;
- creation of a structure of tools for measuring the quality of the outputs of the education system;
- promoting unity in the management of regional education;
- amendment of the Act on Teachers to facilitate entry into education;
- setting up a system of political independence from the city and regional representatives,
- drawing on foreign experience from countries with successful educational reforms.

Another problem of the education sector in the Czech Republic is insufficient funding for education, science, and research, here I recommend concentrating on:

- increasing the financing of education in the Czech Republic to the level of the OECD average;
- introducing a change in the method of financing towards the promotion of strategic priorities and needs;
- ensuring transparency and stability for all levels of education system management;
- salary growth in education; motivation of young teachers; changes in the remuneration system;
- improving the funding system for basic and applied research; support for pedagogical research, support for financing regional RandD centres;
- reducing the administrative burden of RandD funding.

Another defined problem of Czech education is that the content and method of teaching and education do not meet the needs of the 21st century, in this area I propose to focus on:

- increasing the real level of key competencies (critical thinking, agility, and adaptability, entrepreneurship, ability to find and analyse information, curiosity) and digital literacy, thanks to which the individual can respond to a changing world;
- avoiding overloading students with information, discussing the curriculum with the aim of deeper understanding, in a broad context without several irrelevant knowledge;
- introduction of new and innovative methods in education in all types of schools and out-of-school facilities (podcasting, digital storytelling, lip oak, action research, school wiki, eTwinning, smartphone measurement, modelling, and simulation, etc.);
- expanding civic education, leading to mutual respect and tolerance, critical thinking, and an active interest in public affairs and life around them;

- creating a higher degree of the link between formal and non-formal education;
- attractiveness and support especially of those fields of education that the current labor market requires (technical education, IT fields).

Another significant problem of education in the Czech Republic is the insufficient interconnection of public education and the private sector, in this issue I recommend focusing on:

- extension of professional training and practice at secondary schools and vocational schools;
- excursions and visits of students in companies, the participation of people from practice in teaching;
- participation of schools and companies in research or other projects;
- participation of interns in students' final exams;
- introduction of a profile school-leaving examination and a master's examination;
- improvement of the regional information system for future employment, linking career counselling with the dynamically changing labour market.

The last defined fundamental problem of Czech education is the insufficient support of teachers, principals, and other workers in education, here I suggest:

- defining the professional competence standards of teachers and principals;
- creation of transparent systems of qualification paths to pedagogical activities;
- reducing the non-pedagogical burden of principals as guarantors of quality pedagogical work of the school;
- improvement of conditions for pedagogical work of the school (improvement of the support system, strengthening of support staff, improvement of the provided counselling system);
- adjustment of preparatory professional education (description of the graduate's key competencies);
- support for further education of pedagogical staff.

The above recommendations for individual areas of problems of Czech education represent only an outline of recommendations for improving the current situation. The implementation of the proposed recommendations for the improvement of the situation related to the problem of "content and way of education not meeting the needs of the 21st century" would subsequently primarily result in an improvement in the value of the education index. The implementation of the proposed recommendations to improve the current situation dealing with the problem of "insufficient interconnection of public education and the private sector" would subsequently be reflected in particular in improving the value of the indicator of the share of people with at least secondary education. The implementation of the recommendations related to the problem of "insufficient support for workers in education and insufficient funding for education, science, and research" would subsequently increase the value of the government expenditure on the education index. In the case of the implementation of recommendations that would solve the problem of "non-existence of the concept of development of Czech education", the value of the education index and the human development index, as well as the PISA evaluation, would subsequently be improved.

## Conclusion

The subject of this text was to present conclusions on the quality of education in the Czech Republic based on a comparative analysis of selected indicators of the quality of education. Compare these indicators in an international comparison and, based on statistical results, determine the ranking of countries in assessing the quality of education. Furthermore, using the results, compile a SWOT analysis of the quality of education in the Czech Republic, based on which the fundamental problems of Czech education were defined and recommendations for improvement were formulated. Two comparative questions were identified for comparative analysis.

According to EI, Germany, Australia, and New Zealand took the first places in the comparison. The latest EI rankings are in Portugal, the UAE, and Andorra. The Czech Republic ranked 16th out of 40 countries. Of the Czech Republic's neighbouring countries, only Germany achieved a better value for the EI indicator. The quality of Czech education is based on a comparison based on the EI indicator as average. Based on the evaluation of education quality indicators according to the assigned evaluations, the Czech Republic ranked 5th out of 9 countries, thus answering the first research question. Not only based on evaluation according to EI, but also other indicators, the second research question can be answered, and that is that the quality of education in the Czech Republic in comparison with selected countries can be described as average (UNDP, 2018).

Based on the SWOT analysis of the quality of education in the Czech Republic and a search of professional literature, 5 key problems of Czech education were defined, which were ranked according to importance: the absence of a concept for the development of Czech education; insufficient funding for education, science, and research; the content and way of education do not meet the needs of the 21st century; insufficient interconnection of public education and the private sector; insufficient support for teachers, principals, and other education staff. Recommendations for improving the quality of education in the Czech Republic were formulated for these problems in the "results and discussions" section of the article.

The Czech economy is currently an integral part of the global knowledge economy. In this competitive environment, it can succeed either by reducing the price of the labour force or by the quality of the labour force, which is mainly related to its qualifications, increasing the educational structure of the population and the quality of education. An economy based on the importance of education thus represents a knowledge economy in which its connection with education is essential. With its findings, this contribution contributes to the debate on the position of the Czech Republic in international comparison in terms of quality of life indicators in the field of education as one of the key determinants of the level of the knowledge economy.

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*Obituary for prof. Mojmír Helísek*  
*Vzpomínka na prof. Mojmíra Helíška*

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PETR WAWROSZ

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**DOI**

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Journal ACTA VŠFS suffered a big loss. On March 21<sup>st</sup> 2021, prof. Mojmír Helísek, Vice-Rector for Science and Research at the University of Finance and Administration died. He has been associated with our journal since 2010, when he became the vice-chairman of the Editorial Scientific Board. He held this position until the end of 2020. From 2013 to 2017, he was also the Executive Editor and in 2018 and 2019 the Chairperson of Executive Board. In 2021 he became Editor in chief of the journal. He was significantly involved in the preparation of the issue you are reading, but unfortunately, he could not finish the process of preparations.

Professor Helísek first worked for many years at the University of Economics, Prague. Even then he was a highly respected personality, the author of one of the first elaborate textbooks of Macroeconomics in our country and at the same time the creator of the standards of Macroeconomics at the then Department of Macroeconomics, University of Economics. He could perform those duties not only thanks to continuous study, but also thanks to a one-year internship at the University of Zurich. He also collaborated with the Faculty of Economics of the Technical University in Ostrava and the Faculty of Economics and Administration of Masaryk University in Brno. However, since 2004 his main employer has been the University of Finance and Administration when he worked amongst other positions as the head of the Department of Economic and International Relations, the director of the Institute of Economic Studies and the vice-rector for research. He also did a great deal of work at the Czech Economic Society, where as a member of the Board of Directors he was in charge of the agenda of collective members for several years and also by organizing a number of its seminars. Prof. Helísek was a typical university teacher and scientist, he lived mainly for his work. Only two days before his death from the hospital, he asked how the teaching of his students was provided and addressed the issues for which he was responsible. Although many blamed him for his lack of sense of humor, a certain bureaucracy, he was especially decent and honest man. He appreciated the efforts of others; he helped many people with the preparation of their doctoral or habilitation theses and in their other academic duties. Honor his memory.

# *The Conference “Financial markets” for the Tenth Time*

## *Konference „Finanční trhy“ podesáté*

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OTAKAR SCHLOSSBERGER

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### **DOI**

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On 27–28 May 2021, the University of Finance and Administration organised the tenth edition of the International Scientific Conference Financial Markets 2021, this time with the subtitle “Innovation and Sustainability”. The conference was held under the auspices of the Governor of the Czech National Bank, Mr. Ing. Jiří Rusnok.

The conference’s organization and course were marked by the fading Covid-19 pandemic, so the organisers decided to hold the conference online for the first time in its ten-year existence via a web application designed for universities.

The content of the conference focused mainly on presentations and discussion of financing the investment development of small and medium-sized enterprises, the development of the stock and bond market, including the basis for the development of the regulated financial instruments market within the framework of the Capital Market Development Concept 2019–2023, in the period affected by the Covid-19 pandemic. The conference included the following general topics:

- Current trends in financial market development in the EU and the Czech Republic.
- The current development of financial market regulation in the EU and its impact on the Czech Republic.
- Starting points and opportunities for small and medium-sized enterprises in terms of raising and strengthening investment resources from the Czech organised capital market in the covid era.
- Support for start-ups after one year in the current situation.
- The impact of Brexit on the financial markets of EU member states.
- Impact of digitalization and robotization on financial markets.
- Analyses of financial market infrastructures in EU countries including the Czech Republic, etc.

The specific structure of the conference was divided by the organizing committee into two days. The first day of the conference was a structured day with pre-addressed Keynote speakers and individual panellists within the conference sessions. The welcome of all participants, which numbered more than 50 including foreign participants, was made on behalf of the University by doc. RNDr. Petr Budinský, CSc. After this formal act, the two protagonists of the opening session, who were Mrs. JUDr. Ing. Lenka Dupáková, Ph.D, Deputy Minister of Finance of the Czech Republic and Ing. Aleš Michl, Ph.D., Member of the Bank Board and Chief Executive Officer of the Czech National Bank. Their speeches were a challenge for the next four blocks of the first day of the conference, as they focused on the

role and position of the regulator and the supervisory authority in the implementation of the capital market concept with its role in supporting small and medium-sized enterprises, respectively, the implementation of supervision and ensuring macroeconomic tasks creating space for the entrepreneurship of these entities.

The first panel, moderated again by doc. Budinský, focused on the perspectives of the development of the Czech financial and capital market in the stage of restarting the Czech economy after the pandemic situation caused by the coronavirus. The panel featured presentations and discussions by representatives of the Ministry of Finance and representatives of the Czech Capital Market Association (AKAT ČR) and the Association of Small and Medium-sized Enterprises (AMSP ČR).

This expert panel was followed by a thematic second panel, which presented representatives of the Czech financial and capital market in the stage of restoring economic prosperity and growth after 2020. The moderator of the panel was none other than the Executive Director of AKAT ČR, Ms. Mgr. Ing. Jana Brodani, MBA, LL. M. In her panel she invited representatives of entities active on the capital market to discuss the topic.

The following session was focused on fin-tech and its content included presentations focused on how fin-tech technology can be a tool to deepen and improve the provision of financial services on the financial market in the coming years. The moderator of this innovative session was Ms. Maria Stazskiewicz, Chairman of the Board and Executive Director of the FinTech Association. The keynote speech was delivered by the Deputy Minister of Industry and Trade of the Czech Republic, Mr. Ing. Petr Očko, Ph.D., who was followed by representatives of fin-tech companies and a representative of the academic sphere – Vice-Rector for Strategy and Development of the Czech Technical University in Prague Mrs. Ing. Veronika Kramaříková, MBA.

The last panel of the first day, moderated by Mrs. Ing. Jana Kotěšovcová, Ph.D. from the Department of Finance of the organizing university, was a panel focused on the characteristics of the conditions of the Czech capital market development from the perspective of financing innovative investment programmes of companies in the stage of restoring economic prosperity and growth after 2020. It was no coincidence that the keynote speaker was RNDr. Jan Lánský, Ph.D., also from the University of Finance and Law, who is a recognized expert in the field of cryptocurrencies. The other four speakers complemented his contribution with their views and approaches to help companies raise funds through the capital market, assuming an analysis of the company's financial health as a basis for, among other things, investor confidence.

The second day of the conference was already marked by presentations by representatives of the academic community, both researchers and students of bachelor's, master's or doctoral study programmes. In three blocks, moderated by doc. JUDr. Ing. Otakar Schlossberger, Ph.D., Vice Dean for Research and Publications of the Faculty of Economic Studies of the organizing university, who also serves as the Head of the Department of Finance, and his colleague – Ing. Eva Kostikov, Ph.D., who is his deputy at the Department of Finance. There were more than 15 presenters, including six foreign students, mostly from the Federal Republic of Germany.

This day was dedicated as an acknowledgement for his lifetime work to doc. Ing. Vladislav Pavlát, CSc., who is still an active member of the Department of Finance despite his “blessed” age. Mr. Pavlát was the co-founder and “scriptwriter” of almost all previous Financial Markets conferences, which are regularly held every two years.

All reviewed papers, especially those from the second day, will be included in the Proceedings of Financial Markets 2021, which will be published by the end of this year.



***Intensive (Online) Program “The Future of Sustainable Banking and Finance (IP FSBaF)”***  
***Intenzivní (online) program „Budoucnost udržitelného bankovníctví a financí (IP FSBaF)”***

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The necessity for change following the global financial crisis (2007–2008), sparking the Great Recession, in the area of ethics after excessive risk-taking and unethical behavior by banks was the introduction for organizing a truly international program for students in Business Studies. Together with universities in Spain (Universidad Zaragoza, CEU San Pablo –Madrid), Czech Republic (VSFS Prague), Poland (University of Economics Katowice), Belgium (HO Gent), Germany (Heilbronn university of applied science) and the Netherlands (Inholland University of applied science) an intensive program was developed.

This year, together with 7 different universities, the “The Future of Sustainable Banking and Finance” program was – after 8 years – converted from a physical international teaching program to a fully online teaching program. The challenge faced was not only to convert the program, but also to make the program more challenging in order to hold the attention of students because of the distance living in different countries.

In the design, a heavier emphasis was now given to the preparation phase in order to allow the students to acquire more substantive knowledge that could be taken on to the intensive three-day program. In the preparation phase, the students immersed themselves in the themes. The exciting thing about the structure of the program this year was that the preparation phase, unlike in previous years, also took place entirely internationally. In previous years, the preparation phase could be done at a national level, but due to the Covid situation, we have now opted for a completely international mix.

In this phase, students have been able to delve into the themes (Rating, Taxation, Corporate Governance, Fintech, Financing SME and Social Responsible Investments (SRI)) with minimal supervision. The sessions were accompanied by an introductory game and a lesson in cultural differences. As a result, there was greater understanding from the start of the need to bridge differences (such as available working hours that differ per country). At the end of the preparation phase, each theme group had drawn up a discussion paper that was used as input for the in-depth study of the intensive three-day.

On the basis of interfaces between the six themes, intensive work was done on in-depth issues over three intensive days. These issues were discussed in discussion groups at the end. Students showed their developments in writing a policy document on decision making within financial institutions, articulate factors for success when working with people from differing cultures and trained intercultural sensitivity by reflecting on intercultural collaboration. An exciting form of education in which experiences were shared between international students. Next year we will undoubtedly use a mix of the experience gained in a real blended education program.

## **Correction**

Based on authors' request, the Executive board decided to retract the article "Student Academic Studies, Lifestyle and Prospect as Future Accountant" from Issue 2/2020 because of unfortunate miscommunication about it last year. We thank the authors for cooperation on resolving this issue and remain committed to our Code of Ethics.

