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ACTA VŠFS

Economic Studies and Analyses
Ekonomické studie a analýzy

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The Rise or Decline of Craft Trades?
Evidence from Czech Republic and Poland
Vzestup nebo ústup řemeslných oborů?
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- **Benedikt FRANK:**
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How Selected Macroeconomic Factors Affect
the Corporate Profitability of Transportation
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podnikovou ziskovost společností z odvětví Doprava
a skladování ve vybraných evropských ekonomikách



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Editorial

Editorial

JAN MERTL

Dear readers,

This year's second issue of ACTA VŠFS, which you have just opened, was published under the usual conditions for editorial work. We are pleased to be able to bring you interesting scholarly articles in line with the journal's focus, which have undergone a demanding peer review process where reviewers have made several thought-provoking comments on the articles. The articles focus on the links between macroeconomic developments and corporate performance, an assessment of the impact of the financial crisis, and an analysis of international trade in relation to economic growth.

The first article was written by a Czech author in collaboration with a foreign author from Poland. It is entitled "The rise or decline of craft trades? Evidence from Czech Republic and Poland" and focuses on entrepreneurship in the craft professions, specifically comparing selected entrepreneurial activities in the Czech Republic and Poland, with an emphasis on the young generation and their employment in the labour market. The authors used statistical methods and present specific findings from both countries analysed. They discuss the consequences of socio-economic development on the craft industries and consider what steps would help their development in the future.

The second article, "The financial crisis in the 2000s: further implications for lending, regulation and efficiency", is written by a German author who looks at the consequences of the financial crisis and the options for dealing with it. He discusses the need for a public bailout of banks (by the state) and the regulation of the banking sector in relation to the consequences of the financial crisis. He bases his analysis on the literature on the subject and characterises the role of banks in the national economy as a key point in the global economic crisis of 2007–2009, including the subsequent steps in the regulation of the banking sector.

The third paper, "How selected macroeconomic factors affect the corporate profitability of transportation and storage companies in selected European economies", focuses on the macroeconomic analysis of the transport and storage sector and the impact of the macroeconomic situation on the profitability of firms operating in the sector. Macroeconomic indicators are conceptualised as exogenous factors and their impact on the profitability of firms, as measured by standard indicators of the corporate economy, is examined. A large number of firms were included in the research. The results suggest that the most important indicator affecting firm profitability is the benchmark interest rate.

The fourth paper "Threshold effects of import dependence on economic growth in Nigeria" was sent to the editorial office from far away Africa. The analysis uses annual time series data for the period 1981–2018 to examine the threshold effects of import dependence on

economic growth in Nigeria. Conditional least squares estimation is used to estimate the threshold model designed to determine the threshold level of import dependence. The study found a threshold level of 26% for total import dependence. Below this threshold, import dependence positively affects economic growth; above this threshold, the effect of import dependence on growth is negative. From these findings, the paper then draws recommendations for economic policy for the Nigerian government.

In the section "From scientific life", we provide a brief report of a visit to a congress on game theory and a look back at the Czechoslovak Family Business Day.

We hope you will find the new issue interesting and find at least one article in it that you will read from the beginning to the end, or even use as a source of insight for your own further research.

doc. Ing. Jan Mertl, Ph.D.

Executive Editor

Milí čtenáři,

druhé letošní číslo časopisu ACTA VŠFS, které jste právě otevřeli, vzniklo za obvyklých podmínek pro redakční práci. Jsme rádi, že vám můžeme přinést zajímavé odborné články v souladu se zaměřením časopisu, které prošly náročným recenzním řízením, kde recenzenti uplatnili k článkům řadu podnětných připomínek. Články se věnují vazbám makroekonomického vývoje a fungování podniků, zhodnocení dopadů finanční krize a analýze mezinárodního obchodu ve vazbě na ekonomický růst.

První článek napsala česká autorka ve spolupráci se zahraničním autorem z Polska. Jmenuje se „Vzestup nebo ústup řemeslných oborů? Přehled z České republiky a Polska“ a analyzuje podnikání v řemeslných profesích, specificky pak komparaci vybraných podnikatelských aktivit v Česku a v Polsku s akcentem na mladou generaci a její uplatnění na trhu práce. Autoři použili statistické metody a prezentují konkrétní poznatky z obou analyzovaných zemí. Zabývají se důsledky socioekonomického vývoje na řemeslné obory a zvažují, jaké kroky by pomohly jejich rozvoji do budoucna.

Autor druhého článku „Finanční krize po roce 2000: další dopady na poskytování úvěrů, regulaci a efektivitu“ pochází z Německa. V textu propojuje důsledky finanční krize a možnosti jejího řešení. Zabývá se nutností záchrany bank z veřejných prostředků (státem) a regulací bankovního sektoru ve vazbě na důsledky finanční krize. Svoji analýzu opírá o literaturu z předmětné oblasti a charakterizuje roli bank v národním hospodářství jako klíčového bodu globální hospodářské krize v letech 2007–2009, včetně následných kroků v oblasti regulace bankovního sektoru.

Třetí článek „Jak vybrané makroekonomické faktory ovlivňují podnikovou ziskovost společností z odvětví Doprava a skladování ve vybraných evropských ekonomikách“ se zaměřuje na makroekonomickou analýzu sektoru dopravy a skladování a otázku, jak makroekonomické situace ovlivňuje ziskovost firem, které se v tomto odvětví pohybují. Makroekonomické ukazatele jsou v článku pojímány jako exogenní faktory a je sledován jejich dopad na ziskovost firem, měřenou pomocí standardních ukazatelů podnikové ekonomiky. Do výzkumu bylo zahrnuto velké množství firem. Výsledky naznačují, že nejvýznamnějším ukazatelem ovlivňujícím ziskovost firem je referenční úroková míra.

Čtvrtý článek „Prahové účinky závislosti na dovozu na hospodářský růst v Nigérii“ byl do redakce zaslán z daleké Afriky. Analýza využívá roční časové řady dat za období 1981–2018 ke zkoumání prahových účinků závislosti dovozu na hospodářský růst v Nigérii. K odhadu prahového modelu určeného k určení prahové úrovně dovozní závislosti je použit podmíněný odhad nejmenších čtvrců. Studie zjistila prahovou úroveň 26 % pro celkovou závislost na dovozu. Pod touto prahovou hodnotou dovozní závislost pozitivně ovlivňuje hospodářský růst; nad touto prahovou hodnotou je vliv dovozní závislosti na růst nepříznivý. Z těchto zjištění článek následně vyvozuje doporučení pro hospodářskou politiku nigerijské vlády.

V sekci „Z vědeckého života“ přinášíme kratší zprávu z návštěvy kongresu věnovaného teorii her a ohlédnutí za Československým dnem rodinného podnikání.

Věříme, že nové číslo pro vás bude zajímavé a najdete si v něm alespoň jeden článek, který si přečtete od začátku až do konce, nebo jej dokonce využijete pro svůj další výzkum jako zdroj poznatků.

doc. Ing. Jan Mertl, Ph.D.

Výkonný redaktor

The Rise or Decline of Craft Trades? Evidence from Czech Republic and Poland

Vzestup nebo ústup řemeslných oborů? Přehled z České republiky a Polska

ANDREA TOMÁŠKOVÁ
ROMAN ŠMIETAŇSKI

Abstract

Entrepreneurial activity in the field of craft professions is an integral part of national economies. The aim of the authors is to prepare an overview article, which would simultaneously compare selected business activities in the Czech Republic and Poland in the field of craft trades with an emphasis on young people and their employability in the labour market. In line with the aim of the article, the authors identified four research questions, which they answered based on the analysis of secondary data. They drew data from databases of statistical offices, ministries and associations. Data were processed using a descriptive statistics apparatus. In the Czech Republic, interest in the study of crafts has stagnated for a long time. In recent years, the number of graduates of craft apprenticeships has been growing. Crafts in the field of mechanical and electrical engineering are preferred, e.g. car mechanic, repairman, mechanical locksmith, electrician. Decrease in the number of graduates is recorded in the food and most construction professions. After finishing the apprenticeship, graduates often leave their field. In Poland, most companies operate in the field of trade and repair of motor vehicles. Measured by the number of graduates, the predominant field is the machinery industry, wellness professions and professions in the food industry. The interest among young people in the studied craft trades is declining in most fields, the field of metal machining shows a growing trend. It is also necessary to confirm the craftsman's expertise with a master craftsman's certification. It is desirable to expand the possibilities of educating pupils and students in a real work environment. It is important that mutual communication between the worlds of practice and education is functional and effective.

Keywords

graduate, Czech Republic, Poland, craft trade, crafts

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Abstrakt

Podnikatelská činnost v oblasti řemeslných profesí je nedílnou součástí ekonomik států. Cílem autorů je zpracovat přehledový článek, který by současně porovnával vybrané podnikatelské aktivity v ČR a Polsku v oblasti řemeslných oborů s akcentem na mladé lidi a jejich uplatnitelnost na trhu práce. V souladu s cílem článku autoři stanovili čtyři

výzkumné otázky, na které odpověděli na základě analýzy sekundárních dat. Údaje čerpali z databází statistických úřadů, ministerstev a asociací. Data byla zpracována pomocí aparátu deskriptivní statistiky. V České republice zájem o studium řemeslných dlouhodobě stagnoval. V posledních letech roste počet absolventů učňovských řemeslných oborů. Preferována jsou řemesla z oboru strojírenství a elektrotechniky, např. automechanik, opravář, strojní zámečnick, elektrikář. Poklesy počtů absolventů jsou zaznamenány u potravinářských a většiny stavebních profesí. Po vyučení se absolventi svému oboru často nevěnují. V Polsku je většina podniků v oblasti obchodu a oprav motorových vozidel. Dle absolventů převažují obory v oblasti strojního průmyslu, wellness profese a potravinářské profese. Zájem mezi mladými lidmi o studované řemeslné obory je u většiny oborů klesající, rostoucí trend vykazuje obor obrábění kovů. Potřebné je také potvrzení odbornosti řemeslníka mistrovskou zkouškou. Je žádoucí rozšiřovat možnosti vzdělávání žáků a studentů v reálném pracovním prostředí. Důležité je, aby oboustranná komunikace mezi sférou praxe a sférou vzdělávání byla funkční a efektivní.

Klíčová slova

absolvent, Česká republika, Polsko, řemeslný obor, řemesla

Introduction

Trade business is the most widespread form of business. Its regime applies to most business activities (Průcha, Pomahač, 2002, p. 640). It is an integral part of everyday life in society. Development of business leads to greater prosperity, reduced unemployment, development of the business environment and competition.

Secondary vocational schools in the Czech Republic have long struggled with the lack of interest of young people in studying a craft trade. Although there is a growing tendency of interest in studies, many fields still lack craftsmen across all disciplines. Crafts preserve long-standing traditions, but also bring promising activities in terms of choosing a profession. Nevertheless, students have shown little interest in crafts studies in recent years, which is causing a shortage of craftsmen in the labour market. Craft activities are a key segment of the economy. The trade crafts significantly contribute to all issued trade licenses and craft services are the basis of urban and rural service. The development of industrial craft is in turn a necessary prerequisite for maintaining industrial and construction production (AMSP, 2020b). Interest in studying most apprenticeships has been declining since the 1990s and has been minimal. To some extent, the preconceptions of parents, who did not believe that their offspring would find a job with an apprenticeship certificate, played a role. Although interest in crafts is growing, it is far from sufficient to cover the needs of the market. Even if the situation improves immediately, there will be a generational deficit. The current composition of apprentice youth proves that the prestige of craftsmen is declining. Crafts are mainly studied by children with poor school results, often failing and with educational problems. The decrease in interest in crafts may also be due to the fact that higher education, studies at a higher secondary schools concluded with a final exam or university education is preferred (AMSP ČR, 2020c). In Poland, as in the Czech Republic, the number of people with a university degree is growing and interest in crafts apprenticeships is declining. In 2017, people with

vocational and secondary education accounted for up to 47% of the workforce aged 25–64. Men more often choose education at the secondary school level, women more often prefer studying at general secondary schools and universities (Sztanderska, Grotkowska, 2019, p. 1). The goal of the article is to initiate cooperation between the Czech and Polish academic spheres with connections to the business environment, which would contribute to the employability of graduates in line with the requirements of the labour market. The fulfilment of this goal will help to fill the gap in terms of comparison studies focused on the issue of crafts in the Czech Republic and Poland. In both countries, the support of the craft business is unclear leading to the lacking motivation of young people for employment in the craft sector. The aim of the authors is to prepare an overview article, which would simultaneously compare selected business activities in the Czech Republic and Poland in the field of craft trades with an emphasis on young people and their employability in the labour market.

1 Literature Review

Literature and research studies on the issue of self-employment presuppose two different directions of research. In the first direction, self-employment is associated with entrepreneurship and motivation to seize the opportunity. In the second direction, self-employment is opted for due to limited opportunities in salary evaluation as an employee. Entry and establishment in self-employment is primarily due to changes in labour market conditions, negative shocks to labour demand or limited opportunities. Understanding these differences is important for economic growth and policy making (Luque, Jones, 2019). Formica and Edmondson (2020, p. 28) talk primarily about doing good work and only then emphasise the importance of the economic factor, which in turn leads to a better life for people.

The number of self-employed people is growing rapidly in many European countries. *There is no consensus among academics and policymakers as to whether this is a desirable development, partly caused by the lack of background information on the characteristics of the solo self-employed* (van Stel, van der Zwan, 2020). The authors emphasise the rapidly growing importance of the self-employed, especially the highly educated, in modern, developed economies.

Globally, self-employment is promoted as a vehicle for increasing national and regional economic sustainability, contributing to economic growth, job creation and innovation creators (de Jager et al., 2016). The self-employed have more opportunities for creativity and independence in the chosen field of employment. If they have the opportunity to realise their potential, they are more involved. This commitment concerns basic work tasks, but also the social ones. The authors observe that the choice of employment as a self-employed is indeed an important predictor of the well-being of workers, regardless of the type of occupation chosen (Bujacz et al. 2017). Specific fields of self-employment are part of the creative industry, i.e. subgroups of arts and crafts. In these, knowledge of the field can be systematised and transferred, which can be a source of competitive advantage (Vito et al. 2019). Luck (2016, p. 19) emphasises the need not only for knowledge, skills and abilities, but also the need for communication and the ability to sell one's work.

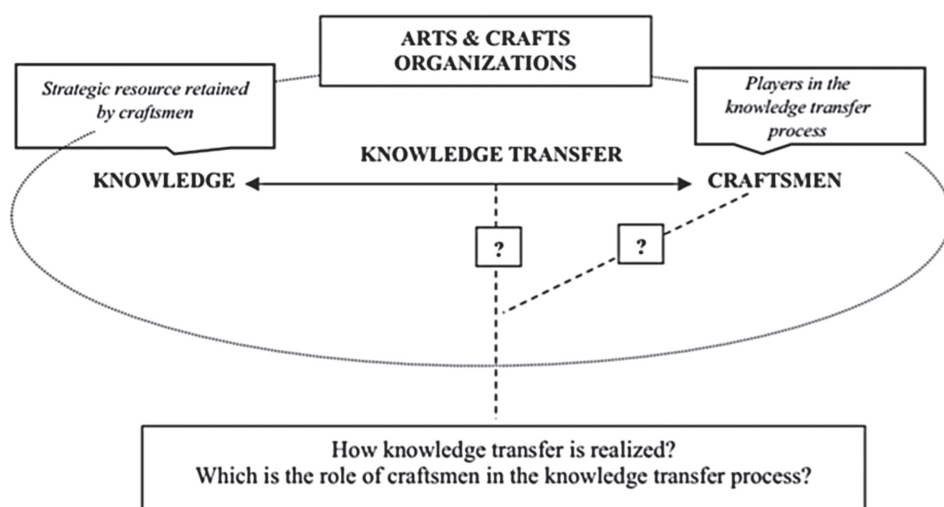
The boundaries are unclear and related concepts, such as craftsmanship, handicrafts or trade, may overlap. Mills (1969) names six main features of craftsmanship: 1. a secondary incentive at work is the product that is produced and the process of its production; 2. the particulars of the day's work are meaningful because they are attached to the product of the work; 3. the craftsman is free to manage his/her own work; 4. the craftsman learns from the daily practice and develops his/her abilities and skills; 5. there is no division of "work and play" or work and culture; 6. the craftsman "determines his/her livelihood and it influences his/her entire way of life" (p. 220). Similarly, Sennet (2006) defines "craftsmanship" as "doing something well for oneself". In addition to this emphasis on the process of generating values, the author argues that the craft should also be evaluated in terms of its outcome. This means that the effort to do things well is reflected in the quality of the final product. This is what Sennet (2006, p. 104) calls objectification, i.e. "a thing designed to matter on its own". According to Høgseth (2013), the issue of knowledge transfer in arts and crafts is gaining in importance. In this particular area, the products are usually made by hand, which makes the knowledge of craftsmen extremely valuable. Its value lies in the success of organisations and economies, as well as the intergenerational transfer of knowledge between craftsmen themselves. In the arts and crafts industry, the analysis of knowledge and its transfer is more important for its subtle connotation than in the creative industry in general. However, this type of knowledge is difficult to associate with performance results, because it exists mainly in the minds of craftsmen as a result of their many years of work experience (Høgseth, 2013). At the heart of the knowledge transfer process in a subgroup of arts and crafts are artisans, true "masters of the arts" who are able to use "hand intelligence", "heart passion" and "mind creativity", i.e. their fine knowledge (Schein, 2004), to gain aura of excellence and provide exclusivity to products that enjoy a unique position in international markets (Sennett, 2008).

Craft workshops are most often companies in the group of small and medium-sized enterprises. They most often employ several people, there is often a workshop for one person (e.g. tailor, goldsmith, shoemaker). Craft is a traditional field, but a modern field as well. *A craftsman is often an innovative, creative designer and producer at the same time, offering a unique product or an unconventional approach to a subject. On the one hand, the craft attracts and engages customers, introduces fresh air and, on the other hand, the market is tired of mass production. Increasingly, there is a trend towards maximum individualisation of the offer, which in turn is reflected in quality. Talent, workshop, experience and often aesthetic sense are the elements that make up a craftsman's success today. The crafts, reborn through its products, guarantee a unique product, which is its undeniable advantage given the growing demands of customers. The effort spent on brand development based on craftsmanship and workshop is a future-oriented investment* (Zjawiony, 2018). Břečková (2017) talks about the importance of small SMEs and craftsmen in terms of an innovation potential for the economy.

The knowledge of craftsmen can therefore be considered a real financial source (Davenport and Prusak, 2000). Emphasising the value of this knowledge and its transfer will become relevant to the survival and growth of arts and crafts and traditions. Nevertheless, in the field of arts and crafts, there is a lack of practical understanding of the relationship between knowledge and the role of craftsmen in the process of knowledge transfer (Manfredi et al., 2018). The knowledge of craftsmen is indeed a primary benefit in the modern economy, for example in the creative industries, where they are mainly the

result of individual inspiration and skills, talents capable of creating wealth (Hennekam and Bennett, 2017; Lampel and Germain, 2016). The activities of craftsmen are based on knowledge, their unique skills and abilities by primary functions. These have a significant impact on creating a competitive advantage through the development of exclusive handmade artefacts. To this extent, a craftsman or craft organisation that owns and effectively manages its knowledge and recognises it as a key resource to be transferred can build a solid and recognisable corporate and brand identity using a unique legacy of quality and creativity (Davenport and Prusak, 2000). Knowledge can therefore be considered a strategic organisational resource that needs to be properly managed and transferred among employees and to the new generation. According to Evans (2017, p. 28), the reason for the transfer and sustainability of knowledge is a significant value in the form of responsibility of individuals, teams and organisations. Kragulj (2017) conducted a survey of human capital in the craft industry in Austria. Metaphorically, he uses the terms “head” and “hand” to compare the two main types of knowledge that occur in the craft industry: rational knowledge (explicit knowledge) versus practical knowledge (tacit knowledge). He summarised the results into four statements: 1. Hand and head are equal – craft practice builds upon knowledge. 2. The hand knows more than the head – *Techne* is the predominant category of knowledge in the craft (note the term “*techne*” was promoted by e.g. Plato, Aristotle). However, the craft is perceived as a practice that goes beyond *techne*. 3. The head cannot say what the hand is doing – the skills involved in the craft practice strongly depend on the tacit knowledge, which is internalised and inherent in the craftsman, passed on mainly by demonstration and imitation. 4. It is more than a hand and a head – the craftsman’s knowledge is multidimensional: it includes knowledge of the body, tools/equipment and material. However, knowledge goes beyond pure technical skills and therefore includes other types of knowledge, such as aesthetic knowledge, emotional knowledge and intuition. Figure 1 below, the process of transferring craft knowledge and skills according to Vito et al. (2019).

Figure 1: Craft knowledge process cycle



Source: Vito, M. L., F. Frattini, A. M. Petruzzelli and M. Berner (2019), p. 1337

At a time when the business environment is constantly changing, it is a challenge for organisations to manage the tension between embedded (invested) learning from the past (from previous generations), which allows it to use and further develop learning, and new learning, which must be enabled to be viable, through the processes of proper knowledge transfer (Vito et al. 2019).

2 Methodology

The methodological option in this case was determined on the basis of a systematic review of the literature (Durach et al. 2017) so that it is possible to fulfil the goal, discuss the results and come to a conclusion. Based on the obtained data, the method of descriptive statistics was used for processing.

In statistical research, we are interested in mass phenomena and processes, in which we examine the rules that manifest themselves in a large number of elements. The elements of research are statistical units. For these units, we monitor the properties of statistical units, variables. The sum of characters and quantities forms data. The measurement method and variables must meet the conditions of validity (whether what is to be measured is measured), reliability (reproducibility of the measurement) and objectivity (whether different assessors measure statistical units in the same way). "The measurement results must be ordered, graphically expressed and parameterised with suitable empirical parameters. These tasks can be accomplished using basic statistical processing. The result of elementary statistical processing is an empirical picture of the examined sample statistical population. Elementary statistical processing also completes the group of basic statistical methods that can be called descriptive statistics" (Záškodný et al., 2011, p. 20, 22).

For the purposes of the paper, data from databases of statistical offices, ministries and associations in the Czech Republic and Poland were used. Data from ministries and statistical offices refer to the number of specific trades and business entities, business persons categorised by age group. Data from associations relate to the development of the number of graduates of study fields, data on study fields according to selected groups and fields of business. The monitored period is 2015–2019, depending on the availability of individual sources and countries. The data is processed into Figure and Table format.

The aim of the article is to map the area of crafts and young people's interest in them in the Czech Republic and Poland. Then carry out a comparative study of both countries. To meet the goal, the authors identified four research questions (RQ1, RQ2, RQ3, RQ4).

- **RQ1:** To what extent are young people motivated to run a business?
- **RQ2:** It can be assumed that young people, after graduating, first gain work experience and practice and only then start their own business in the field. To what extent is it important for young people to gain work experience before starting a business?
- **RQ3:** To what extent are craft trades promising for young people?
- **RQ4:** The engineering and manufacturing industries and services are important in the Czech Republic and Poland. Will these fields prevail among young people?

If so, to what extent will these fields be chosen by young people as their future professions?

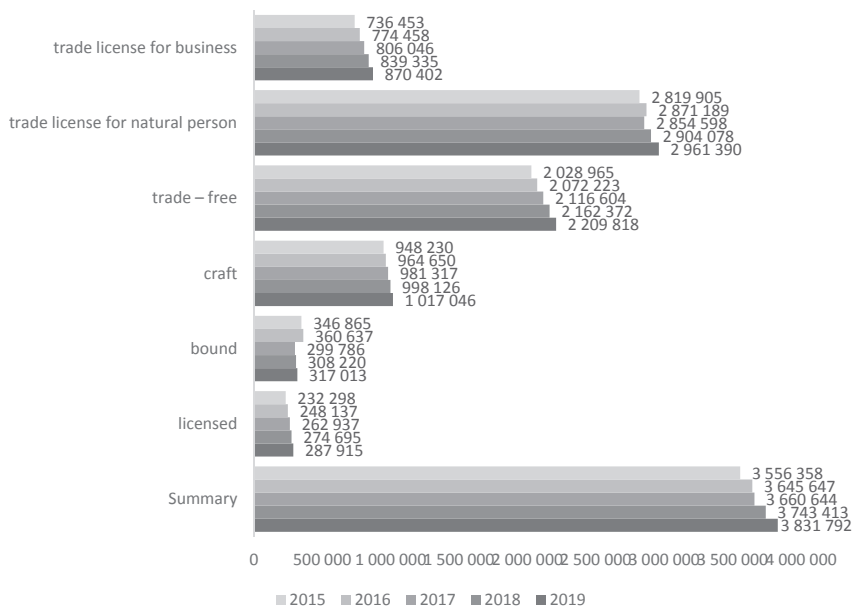
3 Research results

This chapter discusses trades and craft trades and the potential interest in entrepreneurship in young people in the Czech Republic and Poland. The current labour market in both countries seriously lacks quality employees and suffers by the lacking preparation of students for the real job. Quality does not equal highly qualified, but one who has a real interest in working and learning new things. This is a necessity for which the population in general must prepare. That is, lifelong learning will be essential for professional life. Both because of the rapid development of the technologies that will need to be worked with and because of the faster changes in society, its changing needs and demands. In both countries, the data is external, taken from public databases.

3.1 Research results in the Czech Republic

The following chapter will discuss entrepreneurs and trade licenses according to the age structure, and graduates of apprenticeships. Figure 2 below gives an overview of entrepreneurs and trades in the years 2015–2019 in the Czech Republic.

Figure 2: Overview of entrepreneurs and trades in the years 2015–2019 in the Czech Republic

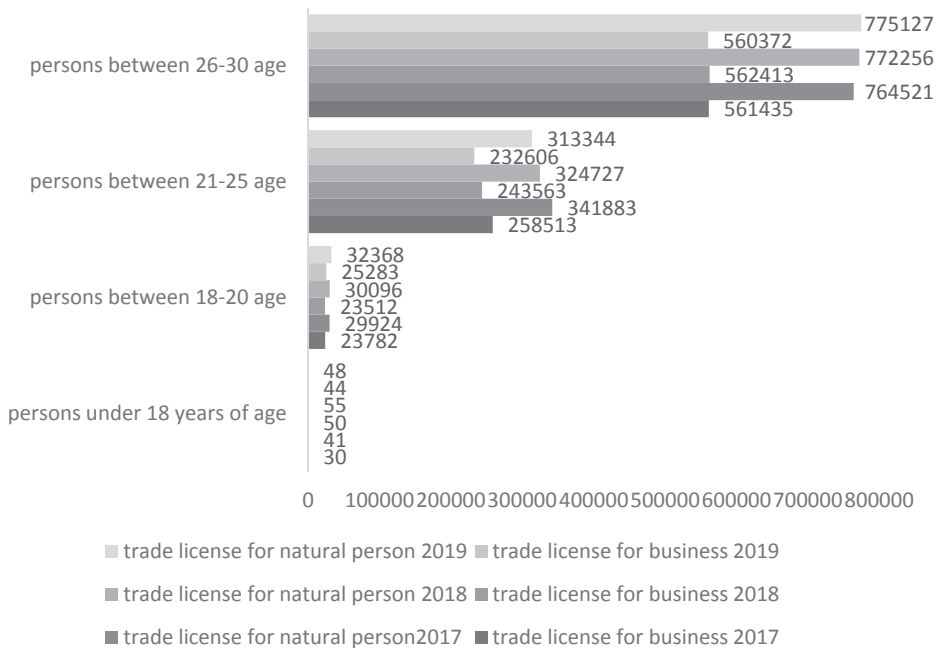


Source: authors' processing according to MPO, 2020a

In the Czech Republic, in the years 2015–2019, the number of issued trade licenses always increases by approx. 4% per year. The largest number of trade licenses was issued in 2019 and the least in 2015. The downward trend in the bound trades in the years 2017–2019. Free trades predominate, which may include, for example, the provision of services for agriculture, horticulture, pond farming, forestry and hunting, manufacture of machinery and equipment, wholesale and retail, accommodation services. This is followed by craft trades, such as the profession of butcher, baker, glassblower or hairdresser. Bound and licensed trades follow. An example of a bound trade is, for example, design activity in construction or the activity of accounting consultants. An example of a licensed trade is, for example, the production of alcohol, explosives or thermal energy. Of the total valid trade licenses, trade licenses for natural persons predominate compared to legal entities in the years 2015–2019, namely approximately 3.5times to 4.5times.

The following is a part concerning young natural persons in the age group up to 30 years of age engaged in business and trade licenses according to the age structure in the years 2017–2019 in the Czech Republic, see Figure 3.

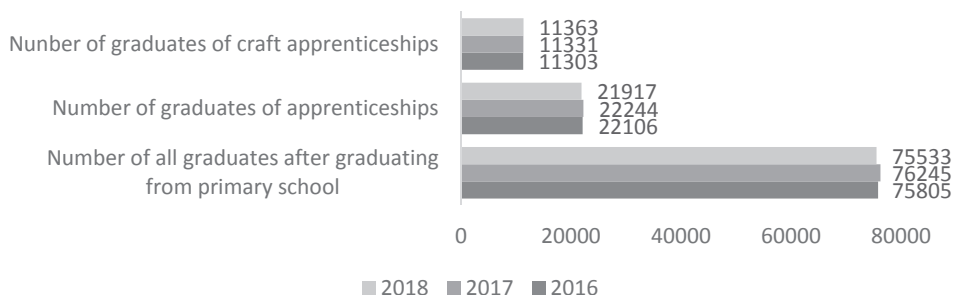
Figure 3: Numbers of natural persons engaged in business and trade licenses according to age structure in the years 2017–2019 in the Czech Republic



Source: authors' processing according to MPO, 2020b

From the above Figure 3, it is clear that the predominant group are owners of a trade license from the age group between 26–30 years, followed by the age group 21–25 years, then the age group 18–20 years. The age group up to 18 years is the least represented, where in the individual years it is only the units of young owners of a trade license. The following is the issue of apprenticeship graduates in the years 2016–2018 in the Czech Republic, see Figure 4.

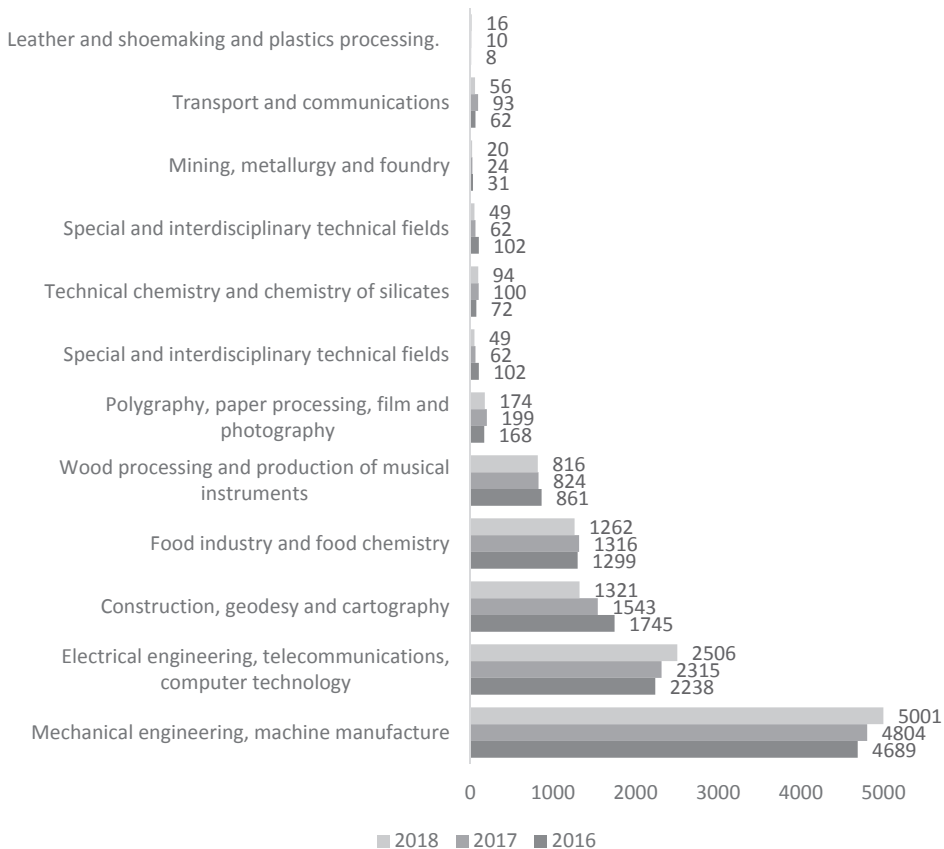
Figure 4: Comparison of graduates of all fields following the lower secondary schools with apprenticeships in the years 2016–2018 in the Czech Republic



Source: authors' processing according to AMSP, 2019

The number of graduates of apprenticeships in the years 2016–2018 is almost balanced. There are over 75,000 graduates every year. The share of apprenticeship graduates in relation to all graduates of fields following lower secondary schools in 2016 and 2017 is 29.2% and in 2018 it is 29%. The share of craft graduates in relation to all graduates of fields following lower secondary schools in 2016 and 2017 is 14.9%, and in 2018 it is 15%. The number of graduates of craft apprenticeships is half that of graduates of apprenticeships. The following is an overview of graduates and their share in fields of study in the years 2016–2018 in the Czech Republic, see Figure 5.

Figure 5: Development of the number of graduates of study fields in the years 2016–2018 in the Czech Republic

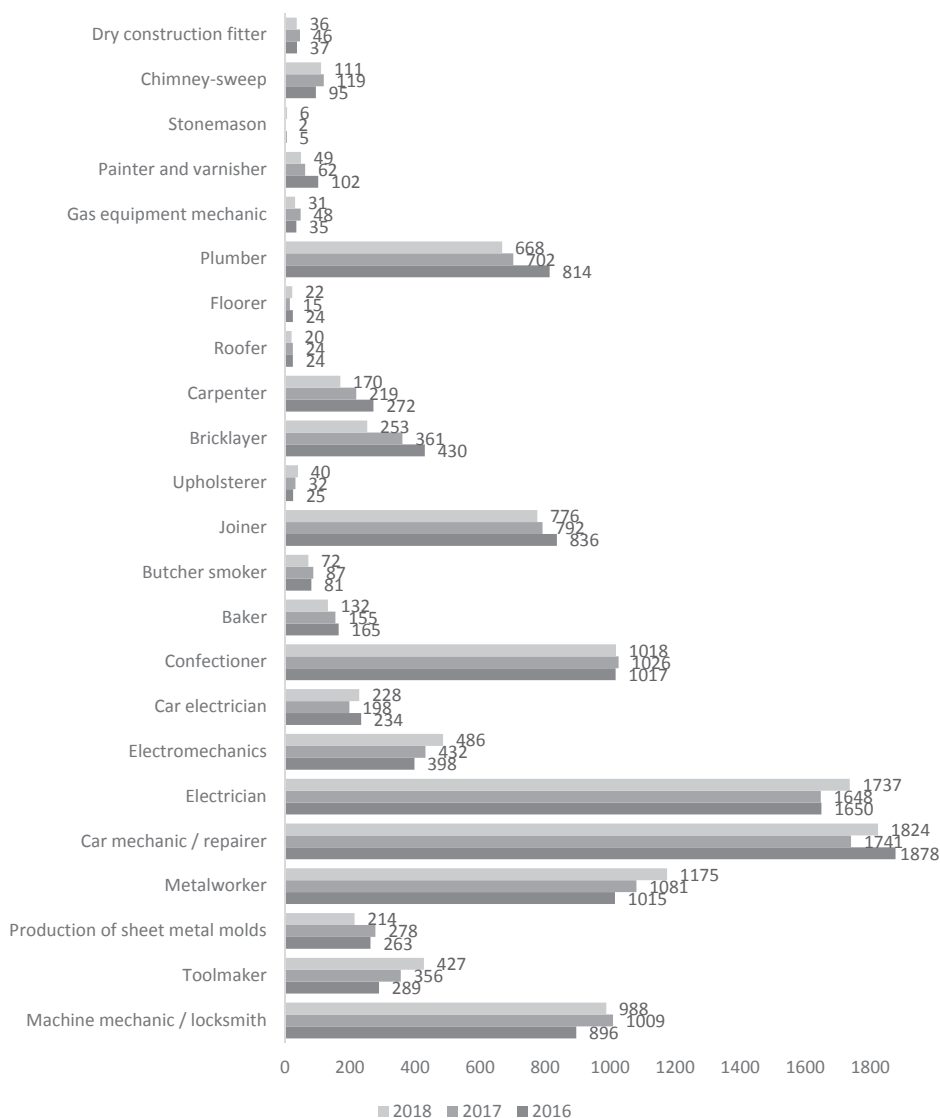


Source: authors' processing according to AMSP, 2019

The largest shares in the total number of graduates are in the fields of mechanical engineering, machine manufacture, electrical engineering, telecommunications, computer technology, construction, geodesy and cartography, food and food chemistry, wood processing, production of musical instruments. Graduates of other fields are represented in units, such as leather and shoemaking and plastics processing.

The following is the issue of study fields in selected groups in the years 2016–2018 in the Czech Republic, see Figure 6. The study fields are divided as follows: 1) engineering professions (mechanist/locksmith, toolmaker, coach-builder, metalworker, car mechanic / repairer, electrical professions, electrician, electrotechnical engineer, car electrician); 2) food professions (confectioner, baker, butcher, smoker); 3) furniture professions (carpenter, upholsterer); 4) construction professions (bricklayer, carpenter, roofer, floor layer, plumber, mechanic of gas equipment, painter and varnisher, stonemason, chimney sweep, drywall fitter).

Figure 6: Fields of study in selected groups of fields in the years 2016–2018 in the Czech Republic



Source: authors' processing according to AMSP, 2019

The predominant fields of study are engineering professions, such as car mechanic / repairman, electrician, metalworker and mechanist/locksmith. This is followed by the professions of confectioner, carpenter and plumber. The metalworker, electrician and toolmaker showed an upward trend. Decrease in the number of graduates is recorded in the food and most construction professions. For example, graduates of the stonemason, floor layer and roofer fields are represented in the order of units.

3.2 Research results in Poland

The following Table 1 shows the number of economic entities, which are compiled on the basis of the Polish classification of activities. This classification does not include craft as a separate sector. The Central Statistical Office does not provide such a list. It is impossible to say how many craft enterprises currently operate. Due to the fact that craft workshops and companies are not obliged to be part of craft organisations, e.g. a craft guild, it is difficult to determine the number of craft enterprises operated.

Table 1: Selected rates on newly-born and liquidated of enterprises by NACE sections

	Year	Number of enterprises			Rate			
		Active	Newly-born	Liquidated	Birth	Liquidation	Change in the no. of enterprises	Change in the no. of persons employed
Total	2014	2310075	289067	235707	12,5	10,2	22,6	25,0
	2015	2357486	283760	206314	12,0	8,8	37,5	31,3
	2016	2322431	282433	209866	12,2	9,0	34,6	28,5
	2017	2412068	290704	.	12,1	.	.	.
	2018	2329239	305731	.	13,1	.	.	.
Industry	2014	259387	26397	22846	10,2	8,8	15,5	14,4
	2015	262932	25858	20995	9,8	8,0	23,2	9,4
	2016	254099	25758	21427	10,1	8,4	20,2	4,5
	2017	260375	26565	.	10,2	.	.	.
	2018	248890	27156	.	10,9	.	.	.
Construction	2014	302932	43698	38448	14,4	12,7	13,7	16,8
	2015	311566	46646	34764	15,0	11,2	34,2	28,2
	2016	315231	50301	39574	16,0	12,6	27,1	19,0
	2017	329411	54835	.	16,6	.	.	.
	2018	326183	61043	.	18,7	.	.	.
Trade; repair of motor vehicles	2014	644770	73738	75062	11,4	11,6	-1,8	1,5
	2015	635182	66619	61500	10,5	9,7	8,3	5,2
	2016	589048	60986	57049	10,4	9,7	6,9	8,8
	2017	590067	56831	.	9,6	.	.	.
	2018	545548	55518	.	10,2	.	.	.
Transportation and storage	2014	172998	16948	17066	9,8	9,9	-0,7	9,8
	2015	176091	20584	14877	11,7	8,4	38,4	44,2
	2016	177323	20201	13492	11,4	7,6	49,7	58,4
	2017	185361	20349	.	11,0	.	.	.
	2018	172998	20555	.	11,9	.	.	.
Other activities	2014	929988	128286	82285	13,8	8,8	55,9	58,6
	2015	971715	124053	74178	12,8	7,6	67,2	64,0
	2016	986730	125187	78324	12,7	7,9	59,8	53,9
	2017	1046854	132124	.	12,6	.	.	.
	2018	1035620	141459	.	13,7	.	.	.

Source: authors' processing according to GUS, 2020b. Note: as at 31 December 2020.

In recent years, more than 300 thousand new enterprises have been created in Poland every year, but more than 200 thousand enterprises cease to operate. The presented data show that the number of active enterprises in Poland from 2014 to 2018 remains at a similar level, between 2.3 and 2.4 million. Most companies operate (with a declining trend) in the field of trade, motor vehicle repair. The highest number of enterprises that ceased to operate is recorded in this sector. The highest growth (with a growing trend of 14.4% in 2014 to 18.7% in 2018) of new enterprises is in construction. The following Table 2 shows the breakdown of enterprises by sector of the PKD field and their size in terms of number of employees.

Table 2: Entities of the national economy registered in the REGON register, declaring activities according to the expected number of employees and PKD 2007

CODE PKD 2007 Section	Expected number of employees				
	Total	0-9	10-49	50-249	250=>
Total Poland	4001600	3841945	129150	26360	4145
A – agriculture, forestry, hunting and fishing	63193	60465	2180	527	21
B – mining and quarrying	3974	3494	338	108	34
C – manufactured products	337236	308052	22310	5547	1327
D – electricity, gas, steam, hot water and air conditioning manufacturing and supply	9949	9388	308	191	62
E – water supply; sewerage, waste management and remediation activities	12751	10436	1659	582	74
F – constructions	498021	483480	12952	1447	142
G – wholesale and retail trade; repair of motor vehicles including motorcycles	868542	842915	22609	2684	334
H – transportation and storage	239643	234320	4461	679	183
I – accommodation and food service activities	112802	107662	4809	289	42
J – information and communication	164663	161883	2339	361	80
K – financial and insurance activities	109574	107823	1235	423	93
L – real estate activities	260755	256743	3235	703	74
M – professional, scientific and technical activities	422986	416536	5575	715	160
N – administrative and support service activities	124636	120059	3544	791	242
O – public administration and defense; compulsory social security	26514	20550	3324	2220	420
P – education	136518	105421	24658	6293	146
Q – human health and social work activities	240252	231659	6553	1494	546
R – arts, entertainment and recreation activities	72466	68992	2874	563	37
S – other service activities	284748	279904	3993	727	124
U – extraterritorial organizations and bodies	247	183	50	10	4
No PKD	12130	11980	144	6	-

Source: authors' processing according to GUS, 2020a. Note: as at 31 December 2020

The largest group of entities (96%) in Poland are micro-enterprises employing 1–9 employees. Most employees (45%) in three sectors: wholesale and retail; repair of motor vehicles, including motorcycles (22%), construction (12%), professional, scientific and technical activities (11%). In enterprises with more than 9 employees, the predominant entities are divided into three branches: processed products (according to the breakdown by occupation: 17%, 21%, 32%), wholesale and retail trade; repair of motor vehicles including motorcycles (18%, 10%, 8%) and education (19%, 24%, 4%)

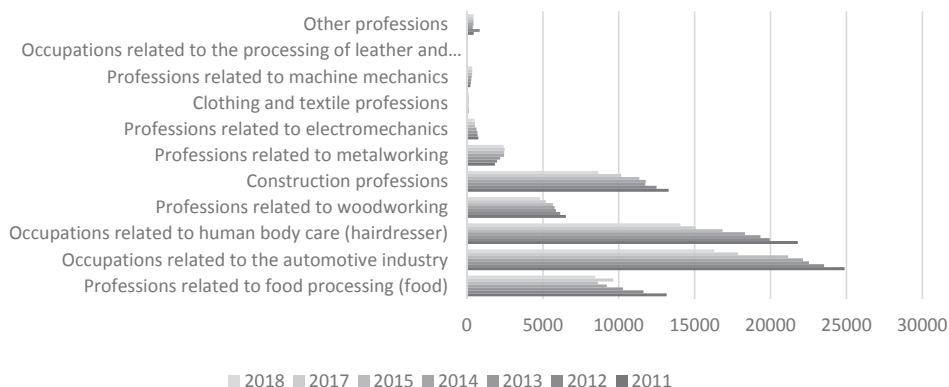
Although it is difficult to determine the actual number of craft enterprises in Poland, it is much easier to determine the number of future craftsmen. There are certain occupations for vocational and secondary education, including the craft occupations offered by the education system. The professions taught in vocational schools in Poland in the last 8 years were divided into 11 groups (Table 3 below), which included 80 occupations (details in ZRP-SUwZ, 2019).

Table 3: Young workers employed for apprenticeships in artisan workplaces

Group	Apprenticeship	Year						
		2011	2012	2013	2014	2015	2017	2018
A	Professions related to food processing (food)	13156	11624	10279	9209	8619	9635	8463
B	Occupations related to the automotive industry	24883	23524	22534	22141	21159	17847	16291
C	Occupations related to human body care (hairstylist)	21799	19949	19329	18319	16839	15064	14072
D	Professions related to woodworking	6510	6131	5855	5773	5661	5200	4831
E	Construction professions	13287	12487	11746	11777	11355	10164	8652
F	Professions related to metalworking	1836	1972	2187	2440	2447	2478	2413
G	Professions related to electromechanics	749	697	677	620	539	515	471
H	Clothing and textile professions	101	94	87	93	110	113	114
I	Professions related to machine mechanics	220	244	281	306	333	343	343
J	Occupations related to the processing of leather and fur	23	24	16	15	13	9	10
Different	Other professions	438	837	379	426	434	424	442

Source: authors' processing according to Związek Rzemiosła Polskiego, 2019b

Figure 7: Young workers employed for apprenticeships in artisan workplaces



Source: authors' processing according to Związek Rzemiosła Polskiego, 2019b

In the years 2011–2018, 6 professions predominated. In 2018, juvenile workers (similarly to previous years) were most often employed for training as a hairdresser – 14,072 people (group C), car mechanic – 12,307 people (group B), carpenter – 3,858 people (group D), confectioner – 3,854 people (group A), a chef – 3,090 people (group A) and an electrician – 2,880 people (group E). The only profession that saw an increase in interest in 2011–2018 is the machine tool operator (Group F). In 2018, 523 young people worked in this profession, an increase of almost 160% compared to 2011 (ZRP-SUwZ, 2019). The figures below show the number of craft establishments and the number of young workers in 2013–2018, see Table 4.

Table 4: Students – employment of young employees for professional preparation at craft workshop

Year		2013	2014	2015	2016	2017	2018	2018/2013
Number of training establishments		24702	23819	23087	23088	23516	21835	88%
Number of young people	apprenticeship including %:	76045	73575	71170	65982	64695	57544	76%
	women	32,98	32,3	32,7	-	-	33,56	102%
	men	67,02	67,7	67,3	-	-	66,44	99%
	apprenticeship training including %:	2395	2467	2553	-	-	1500	63%
	women	16,62	17,1	20	-	-	19,2	116%
	men	83,38	82,9	80	-	-	80,8	97%
	total	78440	76042	73723	-	-	59044	75%
	women	32,49	31,7	32,3	-	-	33,3	102%
men	67,5	68,3	67,7	-	-	66,7	99%	
Theoretical training of young people	school form	73510	66859	69407	-	-	56230	76%
	out of school form	3477	7226	2471	-	-	1684	48%
Adults		-	34	74	-	-	43	

Source: authors' processing according to Związek Rzemiosła Polskiego, 2019a

The data in Table 4 show that the number of craft enterprises admitting students to apprenticeships has decreased over the last 6 years to 12% since 2013. The decrease also concerns the number of apprentices in craft enterprises (24%) and persons trained to improve qualifications (37%). The number of adolescents using theoretical education has also decreased, i.e. by 24% in school form and by 52% in extracurricular form. The proportion of women and men remains unchanged.

4 Discussion

The issue of graduates of craft apprenticeships who, even after completing their apprenticeship, devote themselves to their craft as self-employed or as employees, is very topical in the Czech Republic and Poland. In the Czech Republic, there is an upward trend of issued trade licenses in the monitored years 2015–2019. Trade licenses for natural persons predominate, especially for free and craft trade. Free trades make up more than two thirds and craft trades almost a third of all issued trade licenses. In 2019, over 3,831 thousand trade licenses were valid, compared to 2018, this is an increase by almost 2.4%. There is a growing trend in the age group 18–21 years, compared to the age group 21–25 years, where the trend is declining. In Poland, over 300 thousand new enterprises are founded every year, but two thirds of them cease their activity each year. The lack of qualified staff in the field begins with the interest or lack of interest in studying the field. It is possible to observe a growing trend of issued trade licenses and an increase in the number of business entities. RQ4: The engineering and manufacturing industries and services are important in the Czech Republic and Poland. Will these fields prevail among young people? If so, to what extent will these fields be chosen by young people as their future professions? In the Czech Republic and Poland, there has been a long-term declining trend of graduates of craft apprenticeships. In Poland, this declining trend has been around 12% in recent years. However, interest in the fields of study has been growing in the last few years. The predominant group consists of the other general activities, followed by trade, motor vehicle repairs, construction and industry. The predominant group of entities (96%) are micro-enterprises with a focus on wholesale and retail; repair of motor vehicles, including motorcycles; construction; professional, scientific and technical activities. The structure is similar in both countries. The profession of graduate in the field of hairdresser and car mechanic has long prevailed. Carpenter, confectioner, cook and electrician follow well behind. The only profession that has seen an increase in interest of up to 160% is machine tool mechanic. In the Czech Republic, the predominant field is car mechanic / repairman, electrician, mechanist/locksmith, confectioner, carpenter and plumber. However, professions in some fields, such as hairdressing, can also be exercised after retraining. However, in the first years after training, recent graduates often leave their chosen field and do not pursue their profession in the future. Expert estimates speak of almost a half (AMSP, 2020d). Young people start a business between 26–30 years of age, followed by the age group 21–25 years, then the age group 18–20 years. The age group under 18 is the least represented, where it is possible to talk about units of young entrepreneurs. RQ1: To what extent are young people motivated to run a business? There is no clear answer. For young people, there is a noticeable increase in the number of issued trade licenses after graduating in their field of study. The selected field is especially important for the motivation of one's own business.

According to Petrů, Pavlák (2018), young people have lately preferred getting a conventional job to doing business. This is because minimum unemployment allows them to choose from the offers of many employers. Concerns about administration and impending sanctions also play a role. In addition, young people refuse to deal with things that cause stress, they don't live to work, but they work to live. RQ2: It can be assumed that young people, after graduating, first gain work experience and practice and only then start their own business in the field. To what extent is it important for young people to gain work experience before starting a business? Job experience is important for graduates, but the administrative burden of entrepreneurs, lack of knowledge of this issue and the preference of young people in work-life balance play a big role in deciding on their own business. The result of the survey is surprising in terms of students' readiness for the selected occupation. This topic is very often emphasised in the interaction with companies, but it was not significantly reflected in the survey. Entrepreneurs do not put much stock in the proper preparation of students in secondary vocational education. The result of the survey corresponds to the long-term view of entrepreneurs on secondary vocational schools. The prevailing opinion is that they cannot prepare pupils for subsequent work in the field (AMSP ČR, 2020c). According to Svobodová (AMSP, 2020d), many of the students lack ambitions to aim above the average, although the future of the craft is large and the number of young skilled people with ideas and ambitions is not declining (Petrů, Pavlák, 2018). According to Jaroš (2020), masters of the craft are no less in demand than specialists in other fields. The interest of lower secondary school graduates as well as their parents is evolving according to the increase in the number of children in strong year-classes. If parents are active in the craft, they very often want their offspring to continue in their line of work (AMSP, 2020d).

How to answer RQ3: To what extent are craft trades promising for young people? Research in Poland shows that new jobs are created mainly by industrial workers, machinery and equipment operators. Issues with finding employees with specific professional skills persist (Sztanderska, Grotkowska, 2019, p. 64). Many young people with vocational training have difficulty finding their first job because employers require skills that they cannot acquire at school and without the necessary work experience. Therefore, this is an area that should be given special attention in the process of education in vocational schools and in apprenticeship programs. This is influenced, among other things, by the educational profiles in schools and their connection with current and future labour market needs. New professions are emerging, the nature of work in existing positions is changing. These are factors that make it difficult to adapt training to employers' future expectations (Szcucka, Strzebońska, Worek, 2019, pp. 134–135). Employers are looking for employees with a specific profession, expect professional experience and skills from people with vocational training more than just formal education (Szcucka, Strzebońska, Worek, 2019, p. 121). It can be stated that crafts are promising for young people.

The lack of practising craftsmen in the Czech Republic is the result of the shortcoming in the concept of the studies of craft disciplines. After 1989, uniform and binding educational programs for primary and secondary schools were abolished and the education system diversified considerably. Gradually, a new study offer evolved, new fields. An important external circumstance that had a major impact on schools and school facilities was the loss of children due to the declining demographic curve. During the twenty years after the

Velvet Revolution, the number of pupils in schools gradually decreased as a result of the demographic decline of the 1980s and especially the 1990s. This decline was reflected in the second half of the 1990s with the optimisation of the school network. Changes were made in the system of fields, which in the context of the development of society as a whole went through a relatively dramatic development. Fields of study and apprenticeships were created according to rigid rules. The phenomenon of post-November development is the ever-decreasing share of pupils in apprenticeships. Since 1990, the share of apprenticeship education has been decreasing and the demand for graduation studies has been increasing. Interest in admission to non-graduation subjects declined mainly due to the fact that pupils gained a better prospect of admission to graduation subjects due to the growing educational offer of secondary schools and declining demographic trend (Ministry of Education, 2009)

Polish government policy in the 1990s was aimed at improving access to higher education. Young people were encouraged to study, the number of universities increased, including the establishment of private schools. Many vocational schools have been closed. Entrance exams have been cancelled at most universities. The ease with which it was possible to enter university studies has greatly contributed to the decline in young people's interest in studying at vocational schools. That is the case up until today. As a result, there was a shortage of people qualified to perform craft trades. In addition, the situation has been exacerbated by the demographic trend that has persisted since 2000. As in the Czech Republic, craftsmen and companies in Poland face difficulties finding young graduates. This is confirmed by research conducted by various institutions, such as the Central Statistical Office, the Polish Craft Association, the Ministry of National Education, and the Polish Agency for Business Development. The education reform launched in 2016 is expected to help the situation.

Crafts have undoubted advantages. These are SMEs that, while maintaining their tradition in comparison with large companies, can satisfy the needs of production of goods and services for the specific needs of customers and can be expressed by offering high-quality goods and services. The report on education in Poland, prepared for the European Union, states that in 2017, almost 178 thousand students graduated from vocational schools in Poland. This number is lower by almost 1% compared to 2016, and this declining trend has continued since 2013. This is mainly due to the demographic decline. Attention was paid to increasing the employment rate of vocational education and training graduates. In 2018, it increased to 78.4% (the EU average is 79.5%) from 75.2% in 2017 (MKiS, 2019, pp. 9,10).

After 1989, the education system in Poland was reformed several times. The reforms covered all forms of education. The last concepts related to the reform of education at the level of vocational schools and secondary vocational schools were launched in 2016. Legislation is included primarily in the Act of 14 December 2016 on the Education Act (Journal of Laws, item 59/2019). The changes introduced by law in the vocational education system in Poland are aimed, inter alia, at strengthening employers' participation in vocational education, implementing the monitoring of demand for professions, introducing student internships, changing the way of conducting vocational examinations, changing the organisation of schools and institutions, co-financing education costs students in deficit professions for

employers (MEN, 2018). By law, the first changes were introduced on 1 September 2019. Graduates of lower secondary schools who want to prepare for future careers can do so in the following types of vocational schools: industrial schools of the 1st level – three-year vocational schools; technique – five-year secondary schools preparing for the final exam and exams confirming qualification in the field; 2nd level industrial schools – from 1 September 2020. Students of a 1st level industrial school who are not juvenile employees and students of technical secondary schools may, on the basis of an agreement with the employer, complete an internship for which they receive remuneration paid by the employer, included in tax deductible expenses. The period of practice, as before, will be included in the period of employment of students. Second-cycle industrial schools are to offer education as part of a vocational qualification course (MEN, 2018). The practice or vocational training can take place as part of the school's own studies and workshops, vocational training centres, further education institutions, employers with whom the school will cooperate (Drogosz-Zabłocka, Stasiowski., 2019, pp. 88–95).

The Polish structure of the classification of occupations in vocational education includes over 200 occupations. Most traditionally, craft trades (e.g. locksmith, carpenter, goldsmith, watchmaker, chimney sweep) were included in group 7 – industrial workers and craftsmen (Roz.MEN, 2017). Craftsmen are natural persons who carry out an economic activity on the basis of the Act of 6 March 2018 – Business Act and who, inter alia, in accordance with the Trade Licensing Act, passed an examination under the Chamber of Crafts, obtained a master's degree or a certificate of journeyman profession. In the Czech Republic, this can be compared to the so-called master's certification. The Czech Republic is creating a system of master examinations and master certifications. In the Czech Republic, the master's examination will not only reward the craftsman for the work of the highest quality, but will also restore the function and prestige of the Masters of crafts. The introduction of the master's certification builds on an interrupted tradition that has worked successfully for centuries. The master's certification can be used as a suitable tool for reducing unemployment, as the state can direct applicants to their own business (Chamber of Commerce, 2019).

Discussions have now begun (September 2021) in the academic community and the business community regarding the “graduate profile”, which is actually required by business. This interconnection is one of the points of the Strategy for educational policy of the Czech Republic 2030+. It is necessary to create suitable conditions for easier transition of graduates to employment, or to higher vocational or higher education. Those fields of education that are required by the labour market are newly included in the system of fields of education, not only in connection with the process of digitisation and robotisation. Although there is an increasing number of examples of good practice in vocational education where employers can be involved in vocational training and pupils' practice, there is not yet a systemic and well-functioning link between education and work, enabling the school system to respond to changing requirements and needs of the labour market (Ministry of Education, 2020). Interest in studying most apprenticeships has been declining since the 1990s. Is this trend changing and are schools today able to offer high-quality education to students at all? According to Schön (2018), shortcomings mainly lie in the fact that schools do not hire expert teachers, e.g. from professional associations. Teachers cannot move with the times, do not work in the field, often do not know the

regulations and standards that are constantly changing (Businessinfo, 2018). It is desirable to identify fields of education in which pupils and students would be prepared for working life in the changing conditions of the 21st century and at the same time to reflect on the current needs of practice.

Conclusion

Interest in studying craft apprenticeships has been on the rise in recent years and is also evolving based on the number of children in strong grades. Graduates of craft apprenticeships often leave the field after completing the apprenticeship and do not pursue the craft. Future craftsmen often lack a role-model, someone who does their craft well and would pass on knowledge and skills. The advantage is given to those whose parents are engaged in the given craft. In the Czech Republic, the number of graduates of craft apprenticeships has been almost the same in the last few years, namely 11,300 graduates, which is almost 15% of graduates of all fields that follow the lower secondary school. Mechanical engineering, electronics and computer technology, construction and food industry predominate. These are mainly the professions of car mechanic and repairman, electrician, metalworker and mechanist. In the case of food industries, confectioners predominate. In construction, it is the profession of carpenter, bricklayer and plumber. Crafts are often physically demanding and the financial remuneration of a craftsman may not be lucrative and motivating for young people to devote themselves to the field of study. In Poland, the fields of study are automotive, fields related to body care, engineering and food. Specifically, it is the profession of hairdresser, car mechanic, carpenter and the food professions of confectioner and chef. However, the number of workplaces that offer internships and professional training to future graduates of craft apprenticeships has shown a long-term declining trend.

It is necessary to expand the possibilities of educating pupils and students in a real work environment using the widest possible means and forms of cooperation between schools and companies. Communication with representatives of employers is necessary in order to set up the transfer of information on the possibilities of training pupils at workplaces of employers. According to the Strategy 30+, it will be necessary to find the optimal field composition and subsequently revise the framework educational programs. The graduate must have the skills necessary to enter the labour market where the system of education in the professional environment follows, as well as skills necessary for study and civic life to be prepared for lifelong development and education and functioning in society. It is important that the link is two-way and that communication between the business community and the world of education is functional and effective. It is necessary to encourage the strengthening of entrepreneurial spirit in young people and support aspirations to start and run their own business, as society moves faster, its changing needs and demands. How can the question of the paper itself "The Rise or Decline of Craft Trades" be answered? Even at the very end of the article, the answer is not clear. There has been a long-term decline in interest in studying. However, we cannot attribute the decline only to the lack of interest of young people in the given field. It is necessary to take into account the demographic structure, which has a natural development according to the human life cycle, in contrast to which is

the development of society and technology. It is necessary to take into account society and families with different levels of education and to take into account the regional structure. Last but not least, a change in the political system and the subsequent consequences that have a long-term impact. However, the prediction of crafts in the future seems optimistic. New current fields are emerging that appeal to most young people, which use modern technologies or, on the contrary, crafts that are part of the intangible cultural heritage are starting to appeal. It is important to learn crafts from older generations, to preserve and pass them on to younger generations. The authors' future research will focus towards traditional crafts and intangible cultural heritage. It will be important to collaborate with researchers and experts at international and multidisciplinary level.

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*The Financial Crisis in the 2000s:
Further Effects Regarding Lending,
Regulation and Efficiency*
*Finanční krize v novém tisíciletí:
další dopady na úvěry, regulaci a ziskovost*

BENEDIKT FRANK

Abstract

The global financial crisis starting in 2007 was a central element of the new millennium and had a major impact on the global economy. This paper deals with the underlying causes and fundamental conditions as well as research and insights on the financial crisis in the area of liabilities and future lending, effects of regulations and bank resilience, as well as the changes in the banking industry in relation to the determinants of profitability. With three hypotheses developed on the basis of existing literature, that is critically evaluated and appraised, the paper aims to explore the global economic crisis from perspectives and origins beyond the often analysed triggers. The focus is on the pivotal point of the economic crisis: the banks and their international interconnectedness regarding lending, durability, and efficiency. Among other things, the findings revealed that the effect of the external funding shock on banks' domestic lending is significant, strong regulation, characterized as one-size-fits-all international best practice, is not always the blueprint for bank resilience and that efficiency has been a determining factor in bank profitability. Furthermore, no paradigm shift took place after the global economic crisis, and banks still seem to have to be rescued by the state in the event of bankruptcy due to their size.

Keywords

financial crisis, liabilities, lending, regulation, resilience, profitability, banks

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Abstrakt

Světová finanční krize, která začala v roce 2007, byla ústředním prvkem nového tisíciletí a měla zásadní dopad na světovou ekonomiku. Tento článek se zabývá základními příčinami a základními podmínkami, jakož i výzkumem a poznatky o finanční krizi v oblasti závazků a budoucích úvěrů, dopady regulace a odolnosti bank, jakož i změnami v bankovním sektoru ve vztahu k determinantům ziskovosti. Pomocí tří hypotéz vytvořených na základě existující literatury, které jsou kriticky zhodnoceny a posouzeny, si článek klade za cíl prozkoumat globální hospodářskou krizi z perspektiv a příčin přesahujících často analyzované spouštěče. Zaměřuje se na klíčový bod hospodářské krize: banky

a jejich mezinárodní propojení, pokud jde o poskytování úvěrů, odolnost a efektivnost. Zjištění mimo jiné odhalila, že vliv šoku vnějšího financování na domácí úvěrování bank je významný, že silná regulace, charakterizovaná jako univerzální mezinárodní osvědčený postup, není vždy plánem odolnosti bank a že efektivita byla určujícím faktorem ziskovosti bank. Navíc po globální hospodářské krizi nedošlo k žádné změně paradigmatu a zdá se, že banky musí být v případě úpadku vzhledem ke své velikosti stále zachraňovány státem.

Klíčová slova

finanční krize, závazky, poskytování úvěrů, regulace, odolnost, ziskovost, banky

1 Introduction

The economic crisis of the late 2000s was a key event in the economic experience and thinking of the modern era. In addition to the occurrence of a steadily growing price bubble and its sudden bursting, what was particularly frightening at the time, were the far-reaching and global effects and linkages, as well as the central lack of foresight and initiation of countermeasures by governing authorities to prevent a crash at an early point in time.

Questionable is, in what way problems arising in a small class of assets in one region, such as the United States, could spread worldwide, triggering a great recession. To take a basic introductory approach to the topic, some studies tried to describe the course of events in a traditional stylized way by dividing the conditions into two sections with the bases in the globalization of the banking system. Firstly, strain in the US banking system and those specifically exposed to US mortgages and structured goods spread across foreign borrowing markets, causing a liquidity crisis for banks around the world. Second, the disruption to different countries' banking systems' international financing was conveyed domestically by a decline in credit availability (Aiyar, 2012).

Because of the multinational nature of the situation and the large number of participants affected, such as banks, there were significant differences in their resilience and effects. As a result, it is unclear how the banking sector's resistance to the global financial crisis of 2007–2008 can be clarified (Maxfield & Magaldi de Sousa, 2015). Furthermore, the global economy and many markets have been affected by the financial collapse. Consequently, it is reasonable to conclude that widely respected topics like the study of systemic parameter of profitability have shifted as a consequence, and that the crash has altered the relationship between bank market share, performance, and profitability, as well as the link between market risk and concentration (Azofra et al., 2013).

Before dealing intensively with partial aspects and the analysis of the financial crisis addressed here, it makes sense to look at the initial situation and the conclusions and assessments to be drawn from it accordingly. With the worldwide economic crisis, which started in late 2007, there emerged a problem to the financial sector's regulations, sparking intense discussion in several European nations (Mayntz, 2011). Politicians and decision-makers in general were compelled to reassess their long-held assumptions

about the finance industry and its control. The evident flaws in the regulatory system may have triggered mechanisms of policy learning and policy adjustment in the nations most impacted by the economic meltdown. In bank regulation, there was no comparable of a modern 'Keynesian' economic model.

What transpired in the summer of 2007 served as a wake-up call for policymakers. It became obvious that they had perhaps allowed bank supervision to go for much too long, for far too long, they had assumed that markets would self-regulate. During the crisis, however, they had to admit that they had made a mistake. As a result, in the fall of 2008, the leaders of the 20 most significant developed and rising nations pledged that no financial market, no participant, and no financial market product would be allowed to operate without proper oversight and regulation. As a result, banks are now required to set aside additional equity capital. Consequently, many institutions have had to improve, enhance their buffer for difficult times, and therefore boost their equity ratio. Nevertheless, a second factor must be considered: the leverage ratio (= equity-to-total-assets ratio). The issue here is whether the banks have put aside an adequate amount of money in relation to their scale. However, a shortage of reserving is simply one of the risks that banks face. Another factor is a drop in their wages. Banks are finding it increasingly difficult to generate income in these days of low-interest rates.

On the other hand, banks are experiencing significant expenditures at the time. Conventional banks have been hesitant to invest for a long period of time and, like many other traditional banks, have remained inactive in the field of digitalization for a long time. Another source of future problems might be the fact that many banks are still "too big to fail". Specifically, they are so large that their insolvency would cause many private households and corporations to lose money that it would trigger a new economic crash. Nevertheless, in terms of dealing with the financial meltdown caused by a banking crisis in greater depth and from a variety of perspectives, it is necessary to examine liabilities and future lending, the effects of regulations and bank resilience, as well as the changes in the banking industry's profitability, as detailed below. Since banks in particular are considered to be the initiators of the global crisis, the aim of this paper is to examine them and their influence on the emergence of the crash in more detail from rather unknown angles and links between perspectives that have not yet been created. As especially the international interconnectedness of banking was the root of a global spread of a downturn, it is relevant to approach the link between as well as influence of mutual lending of money, how the intervention of governments for example through regulation has an impact on banking as corrective measures, as well as the principle, profitable operation of banks, and consequently their resulting resilience, especially in times of economic crisis. The paper introduces, based on the relevant existing literature and studies, three hypotheses from slightly different fields (1. The relation between foreign liabilities and development of domestic lending, 2. The relation between liberalization of bank industry including its higher international openness and government regulation, 3. The importance of some economic theories during financial crisis). The hypotheses are analysed and tested, and the paper also finds their common ground.

The paper is structured as followed. Second chapter describes the link between foreign liabilities and future lending. Afterwards, the paper covers whether measures taken after

previous crises have protected countries in the financial crisis in the late 2000s. In addition, there is a focus on the systemic determinants of profitability as a constant theme in the banking research. The paper looks which theory regarding this topic (either the efficiency theory or the concentration-fragility theory) proved to be valid during the time of financial crisis. Hypotheses formulated in each area are then verified and revised in the results section. The paper ends with a corresponding conclusion and an evaluation of the past situation as well as future risks.

2 Link between foreign liabilities and future lending

Though there is a large analytical dataset on the tension in the US banking system, and therefore the country of origin of the crisis, there is little information on the disruption to foreign funding. Given the overwhelming policy consensus that this was a bank-led slowdown in most countries, with declining credit supply leading to the decline of the real economy rather than vice versa, this void in the literature is critical. However, defining a connection between the external funding shock and domestic credit availability is difficult. In a cross-country environment, it is important to separate the need and supply components of the domestic credit contraction. Scientists seldom have access to this kind of bank-specific data that might help them solve identifying issues. Shekhar Aiyar (2012) creates and uses a novel bank-level dataset to investigate how the foreign funding shock affects banks' domestic credit offering in a big, industrialized economy like the United Kingdom. Any resident banks in the United Kingdom are required to report accurate balance sheet details to the Bank of England every three months. This confidential data document resident banks' domestic loans, broken down by recipient industry, as well as their liabilities, which enclose varying reports about non-resident liabilities. As a previous work, Aiyar (2011) provides a more detailed overview of the dataset. The bank-specific funding shock is instrumented and thus identified using pre-shock data on market positions of various forms of liabilities, whilst the variation of banks' lending patterns across sectors is utilized to control for demand effects. As an example, the resident banking industry in the United Kingdom consists of UK-owned banks' domestically incorporated divisions, as well as units and branches of banks headquartered abroad (Aiyar et al., 2012). Moreover, it is the world's biggest financial industry in terms of asset value. At the end of 2009, the UK had over 300 banks, with combined reserves of £7.6 trillion, or more than 500 percent of the country's gross domestic product (GDP). Although UK-owned banks are in the mean larger than international branches and affiliates, the latter are more numerous, resulting in assets of 50.5 percent and 49.5 percent of total assets for foreign-owned and UK-owned banks, respectively. The accumulation of assets is significant, but not overpowering. As a result, the top ten banks own about 59.8 percent of all financial assets. Banks based in the United Kingdom are increasingly globalized, with large liabilities to non-residents, rendering them especially vulnerable to international contagion. After the worldwide recession, the disruption to foreign funding was not only high, but also unparalleled. The estimated foreign liabilities of all UK-resident banks dropped by 22 percent on an exchange rate-simplified level from their height in end-March 2008 to end-October 2009, when they began to stabilize one more time, according to data from the Bank for International Settlements (BIS). By contrast, the previous highest 6-quarter drop

in external liabilities occurred during the early 1990s European Exchange Rate Mechanism (ERM) depression, when external liabilities fell by just 9 percent (Aiyar, 2012).

A bank may respond to a disruption to external liabilities in one of three ways, or a mixture of them, according to its balance sheet (Aiyar, 2012):

1. It has the ability to expand its domestic liabilities. That includes borrowing more from local units.
2. By lending less to non-residents, it will flatten its foreign assets.
3. By lending less to residents, it will reduce its domestic claims.

Aiyar's publications (Aiyar, 2011, 2012) create the basis to enter a field for which there has been little data available so far: the disruption to foreign funding apart from the country of origin of the crisis, the United States. The advantage of these studies is that by choosing the United Kingdom as the country to be analysed, the banks provide corresponding regular reports that can be evaluated in a structured manner. In this way, it was also possible to evaluate pre-shock data from the market and compare it with more recent data sets. This also allows investigating how during the crisis foreign liabilities of domestic bank (e.g. in our case bank with a seat or a branch in UK) affect their lending. The following Hypothesis will be tested:

Hypothesis 1: *A reduction in banks' foreign liabilities causes a contraction in domestic lending.*

3 Possible protections due to measures taken after previous crises

There is a perception that countries that were affected by economic collapses before the Great Financial Crisis were in fact less distressed. One explanation may be that regulatory changes enacted in response to the previous meltdown discouraged them from participating in reckless practices to the degree that triggered such high exposure anywhere during the late-2000s financial crisis. Cases like Mexico, Thailand or other Asian countries, for instance, have seen banking problems and eventual banking restructuring in the decades leading up to the worldwide financial crisis, but have shown resiliency before and since the 2007–2008 crisis. Firm regulation has also been cited by academics as a reason for banking sector stability in other countries, including India, Egypt, Canada, and Islamic nations for that matter (Maxfield & Magaldi de Sousa, 2015).

Furthermore, some reports claim that financial deepening, or expanded availability of financial markets with a broader range of goods aimed at all layers of society, is a feature of the financial environment that has exacerbated crisis contagion (Reinhart & Rogoff, 2010, Aisen & Franken, 2010). According to this line of study, firms in more mature capital markets rely more heavily on foreign financing, meaning that when a monetary recession arises, the economy experiences a long decline due to the effect of credit contraction on the actual economy. It is indeed a point being made in case reports of nations such as Cyprus, whose underdeveloped financial institutions escaped the global financial crisis

largely uninjured (Besim & Mullen, 2009). Based on that logic, another justification for the banking sector's stability in Mexico and other areas is that they have weak financial institutions or so-called shallow banking structures (Maxfield & Magaldi de Sousa, 2015). Moreover, Maxfield and Magaldi de Sousa (2015) created a framework to classify four ideal forms of regulation and bank growth and allocate 129 countries along this typology to provide a summary of countries studied, which can be seen below.

Table 1: Listing of countries with strong regulation and shallow banking

<i>Deep banking & strong regulation</i>	<i>Shallow banking & strong regulation</i>	<i>Deep banking & weak regulation</i>	<i>Shallow banking & weak regulation</i>
Algeria, Australia, Bahrain, Bangladesh, Canada, China, Cyprus, Czech Republic, Denmark, Egypt, El Salvador, Finland, France, Germany, Greece, Hong Kong, Iceland, Ireland, Israel, Italy, Japan, Jordan, Kuwait, Malaysia, Malta, Mauritius, Morocco, Netherlands, New Zealand, Norway, Pakistan, Philippines, Portugal, Singapore, Slovenia, South Africa, Korea (Rep.), Spain, Sweden, Switzerland, Syrian Arab Republic, Thailand, UK, US	Argentina, Brazil, Dominican Republic, Estonia, Hungary, Jamaica, Kazakhstan, Kenya, Latvia, Lithuania, Mexico, Nicaragua, Papua New Guinea, Russian Federation, Sri Lanka, Zimbabwe	Antigua & Barbuda, Austria, Belgium, Bolivia, Chile, Dominica, Ethiopia, Grenada, Guyana, India, Lebanon, Luxembourg, Oman, Panama, Saudi Arabia, Seychelles, Slovak Republic, St. Kitts & Nevis, St. Lucia, St. Vincent & the Grenadines	Angola, Armenia, Belarus, Belize, Benin, Bhutan, Bosnia & Herzegovina, Botswana, Bulgaria, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Colombia, Congo (Rep.), Costa Rica, Côte d'Ivoire, Croatia, Equatorial Guinea, Fiji, Gabon, Ghana, Guatemala, Guinea-Bissau, Honduras, Indonesia, Kyrgyz Republic, Lesotho, Macedonia, Malawi, Maldives, Mali, Moldova, Mozambique, Niger, Nigeria, Peru, Poland, Romania, Senegal, Suriname, Tanzania, Togo, Trinidad & Tobago, Uganda, Uruguay, Vanuatu, Venezuela

Source: Own work based on Maxfield and Magaldi de Sousa (2015)

Therefore, the liberalization of access and operation conditions, the financial sector could overexpand, resulting in a boom-cycle and the accumulation of threats. Without judicious regulation interventions, these threats will ultimately result in economic crises, known

as a bust-cycle, reducing banking resilience (Maxfield & Magaldi de Sousa, 2015). In particular, Maxfield and Magaldi de Sousa (2015) show that international money lending channels between banks can represent a risk. If governments, among others, then want to intervene in the banking system accordingly, the effect must, however, be considered with regard to the corresponding structure of the country-specific banking system. Thus, there are differences between deep banking and shallow banking and corresponding interactions of these economic forms with respective regulatory attempts. Based on these impulses and findings, the paper formulates the following hypothesis:

Hypothesis 2: *Strong regulation allowed for bank resilience to the 2007–2008 financial crisis.*

4 Changes in banking industry

The evaluation of the systemic determinants of profitability is a constant theme in the banking research. Due to the consequences for competitiveness, rules, and bank management, several analyses have focused on the connection regarding profitability, market concentration, and performance (Demsetz, 1973, Berger, 1995). At the one hand, the market power theory holds that greater market concentration, or market power, makes it easier to establish higher prices for consumers, resulting in higher windfall profits for banks. The efficiency theory, on the other hand, suggests a favourable association among efficiency and bank earnings (Azofra et al., 2013).

Existing research (Hannan, 1991, Berger and Hannan, 1997, Berger et al., 1999) that investigated the link between profitability, market concentration, and productivity found that market share and market concentration lead to non-competitive rentals. Deregulation, technical advances, and the internationalization of capital markets have intensified challenges in the banking industry over the years. This may have resulted in a decrease in the impact of market concentration on profitability. New research, nevertheless, have shown that market concentration continues to be important in deciding bank profitability, particularly in certain goods. In this respect, Carbó-Valverde et al. (2007) observed that market power is greater in non-traditional practices. According to De Jonghe and Vander Vennet (2008), banks with a wide market share in concentrated markets also produce non-competitive rents. They also discovered that banks with the best management had a competitive advantage. Furthermore, several scholars demonstrated that the validity of the performance and market power theory varied across countries (Gonzalez, 2008, Hsieh and Lee, 2010, Goddard et al., 2011). One major disadvantage of these experiments is that they were undertaken during a time of economic recovery and expansion when banks were profitable (Azofra et al., 2013).

Economic collapse may cause significant shifts in the banking industry's relationship between profitability, market power, and efficiency. They have a negative impact on bank profitability. From the other hand, mergers and acquisitions boost the concentration of the banking sector. Industry shocks, as per Mitchell and Mulherin (1996), trigger takeover motions. Despite the fact that greater market concentration can improve bank profitability, acquiring rents from market power is more challenging during crises due to

decreased credits, higher borrowing costs, and a growth in non-payments (Demirgüç-Kunt et al., 2006, De Jonghe and Vander Vennet, 2008, Bolt et al., 2012). Furthermore, during a recession, the disparity in profitability between more and less effective banks becomes more apparent when the former are able to cut costs, prevent unnecessary delinquency, and obtain better financing terms (Dietrich & Wanzenried, 2011, Bolt, et al., 2012).

Azofra et al. (2013) investigated previously shifts in the link between bank market share, efficiency, and profitability caused by financial crashes. In addition, the 2008 financial meltdown offered an impetus to examine the consequences of instability and assess the situation before and after a recession. While the severity of the recession varies by region, the gradual departure and consolidation of banks, a huge wave of mergers and acquisitions (Wheelock, 2011), a rise in delinquency, and a downturn in banking operation (Ivashina & Scharfstein, 2010) could be seen. Not only can a crisis change the connection between profitability, efficiency, and market strength, but it could also change the relationship between market concentration and bank risk. Hence, the second approach of Azofra et al. (2013)'s study was to examine the adjustments that the collapse created in this link. Market power has the potential to enhance or reduce bank risk based on two conflicting assertions: concentration-stability and concentration-fragility (Uhde & Heimeshoff, 2009). There may be a suggestion that crises perpetuate the concentration-fragility theory, since there is a propensity to consider greater danger in more concentrated markets due to structural risk in the aftermath of a meltdown (Azofra et al., 2013). These aspects make it relevant to look at the changes in the banking industry in the context of a crisis and the various interactions between market concentration, profitability and efficiency. In particular, Azofra et al. (2013) show in a study how crises have an impact on the management and funding of banks. Consequently, and specifically based on this research, the following hypothesis can be formulated:

Hypothesis 3: *A financial crisis strengthens the efficiency theory as well as reinforce the concentration-fragility theory.*

5 Results

As it is mentioned in second chapter, Hypothesis 1 is tested on the banks operating in UK both with headquarters in this country and branches of banks headquartered abroad. Table 2 gives some summary data with a spotlight on the two primary factors of interest, domestic lending and foreign liabilities. Because there are significant variances by bank type – if a bank is wholly owned by the UK, a subsidiary, or a branch – reflecting differences in business models, the summary data are fragmented correspondingly. The stock of domestic loans and foreign liabilities is assessed at the start of the shock period, which is the time between the end of 2008 Q1 as well as the close of 2009 Q3, when external liabilities fell substantially. Variations in the variables of interest are assessed as fluctuations over the shock period and are corrected for exchange rate volatility using currency composition data. The graphic emphasizes both the high amount of the shock to banks' foreign liabilities and the typically considerable percentage of overall bank liabilities derived from foreign sources. Foreign-owned banks and affiliates, as one might

assume, get a greater percentage of their funding from foreigners than UK-owned banks, although even for the latter, the median part is well over a third (Aiyar, 2012).

Endogeneity and excluded variable bias are also potential issues with OLS estimation. These issues are addressed by instrumenting the conditioning variable, which is the shift in external liabilities over the shock period. Three different instruments are employed. The first instrument is a bank's repurchase agreement portion of total external liabilities. There is considerable indication that the financing shock was conveyed through the repo market, with haircuts on repurchase agreement shares reaching record levels in the consequence of the Lehman collapse. A second instrument is the ex-ante share of external obligations due to subsidiary companies. That is borrowing from within the company compared to debt from unrelated enterprises. In the event of liquidity shocks, there is strong sign that multinational banks with foreign subsidiaries activate internal capital markets. The third tool is a measure of banking system strain in the region where a bank is based during a shock. According to the data, a 1.0% decrease in external liabilities leads to a 0.6 percent decrease in domestic lending, a significant influence. Demand shocks, as proxied by bank-specific sectoral exposures, have the anticipated sign on domestic lending. Table 2's status quo represents the stock position as of end-March 2008, with a variation estimated between end-March 2008 and end-September 2009. The sample includes 141 UK-resident banks, 92 of which are foreign branches, 32 of which are foreign subsidiaries and 17 were owned by the UK (Aiyar, 2012).

Table 2: Summarized data of domestic lending and foreign liabilities with differences in bank type, UK-resident banks in the time period 2008 to 2009

	Stock			Percent change		
	Mean	Median	SD	Mean	Median	SD
<i>Panel A. £ millions</i>						
External liabilities						
All banks 2 /	23,593	3,245	65,332	-16.1	-15.7	25.9
UK-owned banks	62,436	3,120	131,069	-13.3	-11.4	27.2
Foreign subsidiaries	6,712	1,438	12,753	-20.3	-20.3	27.9
Foreign branches	22,287	5,082	55,740	-15.1	-16.2	25.0
Domestic lending						
All banks	20,434	1,310	69,160	-15.4	-12.6	33.9
UK-owned banks	93,912	6,647	169,303	8.6	10.5	26.0
Foreign subsidiaries	15,515	1,264	41,153	-19.9	-19.6	27.7
Foreign branches	8,568	1,106	24,134	-18.2	-18.3	35.6
<i>Panel B. Percent of total assets</i>						
External liabilities						
All banks	62.7	67.2	24.3			

		Stock			Percent change		
	Mean	Median	SD	Mean	Median	SD	
UK-owned banks	40.8	37.3	29.3				
Foreign subsidiaries	51.4	55.0	25.1				
Foreign branches	70.6	72.7	18.6				
Domestic lending							
All banks	33.6	29.4	23.6				
UK-owned banks	58.1	57.6	26.5				
Foreign subsidiaries	46.6	41.5	20.5				
Foreign branches	24.5	19.8	18.3				

Source: Own work based on Aiyar (2012)

Based on the strong assistance from post-estimation checks and the intuitive appeal of the tools used in Shekhar Aiyar (2012)'s study, it is possible to conclude that the effect of the external funding shock on banks' domestic lending is well known and significant, proving Hypothesis 1 correctly. Aiyar (2011) examines the transmission process in greater depth with the performance of multiple robustness tests. Given the variations in funding trends and the scale of the shock reported, differences in delivery by form of bank – UK-owned, international branch, or foreign affiliate – should be explored in particular. The implication is that foreign extensions and affiliates cut lending by a higher proportion than domestically owned banks, while the latter adjusted domestic lending reductions more similarly to the scale of the funding shock. This implies a race-to-the-exits reaction by foreign-owned banks compared to domestically owned banks, which is a turbulent rush to deleverage regardless of funding pressures. There is some indication that foreign currency lending was reduced more than sterling lending, although this is most definitely due to the fact that foreign-owned banks invest in foreign currency comparably more (Aiyar, 2012).

This is a fundamental problem of a highly globalized banking world. After failing to raise money from foreign banks, domestic lending is more difficult or only possible to a limited extent due to a lack of financial resources. This also shows the international networking of markets and their vulnerability. Regional as well as country-specific financial crises can spread to continental and ultimately global recessions due to practices that need to be critically scrutinized in retrospect as well as cross-national economic activities.

To further underline this factor, the international interdependence of credit institutions and thus the impact of liquidity shocks on bank lending are once again particularly evident. Cetorelli and Goldberg (2011), for instance, examined how the liquidity disturbance to industrialized nations' banking systems was transferred to developing economies using aggregate data from the Bank for International Settlements (BIS). Furthermore, financial globalization has a profound and widespread influence on the local and worldwide distribution of US monetary policy. While large banks are commonly thought to have lending activity that is immune to US monetary policy, if financial institutions are removed

from this group of major banks, the other domestically-oriented institutions show substantial lending sensitivity to monetary policy. A functional internal capital market among multinational parents in the United States and their foreign locations helps to insulate major global banks from policy or liquidity shocks in the United States. From the other side, the mechanism employed suggest that, as banking globalization increases, the influence of monetary policy on national bank lending and the US economy itself is lessened, while domestic shocks are communicated more extensively to international markets via connected banks (Cetorelli & Goldberg, 2012).

The liquidity effect can be applied to other firms as well. Considering that nearly 70 percent of companies are unable to hedge adverse lending channel shocks and so face an elevated risk of financial hardship, bank liquidity shocks have significant long-term distributional repercussions. These distributional shifts are inclined to maintain not just because the primary effect is persistent, but also because they are strengthened by the succession of liquidity shocks that affect economies. Small companies' failure to insure implies that the constant costs of developing new banking connections may be a significant restriction in capital markets. Some companies may be able to "purchase" their way into privileged banking arrangements based on their size or corporate and political links (Khwaja & Atif, 2008).

The above-mentioned studies emphasize the significance of understanding the dynamics of foreign financing and should thus contribute in the formulation of successful policies. As a result, a financial system that becomes more international may have more resilience and self-adjustment in periods of local liquidity problems. Nevertheless, as shown in the financial crisis, the larger international transmission of disruptions may highlight the need of particular types for coordinated action by domestic policymakers (Cetorelli & Goldberg, 2012).

The efficiency of such action depends on the structure of banking sector in each country. Maxfield and Magaldi de Sousa (2015)'s study, inspired by the Mexican situation, sought to investigate the impact of policy and banking sector growth on bank resilience in the aftermath of the 2007–2008 financial crisis. They separated bank stability into two parts in their research: resilience in terms of bank profitability and resilience in terms of credit provision. In addition, they developed new analytical metrics of resilience, strict regulation, and shallow banking for 129 countries. According to a large-n quantitative experiment, neither strong regulation nor the mixture of strict control and shallow banking may justify bank stability in terms of credit provision. The only plausible reason for the survival of bank credit after the recession is shallow banking. Solid regulation could not alleviate the influence of the crisis on bank profitability. Rather, it exacerbated the crisis's disruptive effects on profitability in nations with shallow banking (Maxfield & Magaldi de Sousa, 2015).

As shown in Table 3, one way to investigating the link between strong regulation, shallow banking, and their influence on banks' loan provision and profitability was to evaluate the mean object rating for each group of nations. Despite adjusting for other factors, it's worth noting that the mean object score for the average variance of credit provision between 2007 and 2009 is regularly greater in nations with shallow banking systems than in those

with deep banking systems. That outcome indicates, irrespective of the stringency of their regulation, deep banking nations were afflicted the most of the crisis's consequences affecting loan provision. In contrast, the nations with the lowest mean object score for the effects of the crisis on bank profitability were those with shallow banking systems but strict regulation. Stern regulation does not appear to have reduced the effects of the crisis on profitability in deep banking nations, but the disparity in means implies that it might in shallow banking economies (Maxfield & Magaldi de Sousa, 2015).

Table 3: Mean object scores for groups of countries

	<i>Bank resilience: Credit provision</i>	<i>Bank resilience: Bank profitability</i>
Countries with deep banking & strong regulation	-0.449	0.07
Countries with shallow banking & strong regulation	0.382	-0.445
Countries with deep banking & weak regulation	-0.374	0.036
Countries with shallow banking & weak regulation	0.067	0.431

Source: Own work based on Maxfield & Magaldi de Sousa (2015)

These findings suggest that strong regulation, characterized as one-size-fits-all international best practice, is not always the blueprint for bank resilience, and therefore Hypothesis 2 cannot be completely proven. In reality, it could have an adverse impact on profitability when introduced in countries with comparatively underdeveloped banking systems. It is an interesting finding that requires more attention. The issue is whether robust regulatory frameworks designed to mitigate the effect of a recession end up exacerbating its negative consequences when implemented in countries with weak banking structures. There is guess that, by exposing deficiencies in a deeply dysfunctional financial structure, the recession rapidly causes corrective intervention and investor reactions that reduce bank profitability. This is probably a good idea from a policy standpoint, as it ensures that rules are in effect and working to enact the transparency required as a check on corporate governance. Furthermore, these findings demonstrated that the financial recession is associated with significant decreases in post-crisis credit provision in nations with mature banking systems. The recession has had a significant effect on countries with financial institutions that have a huge deposit base and are effective in issuing large amounts of credit. Finally, the results call into question the suggestion of one-size-fits-all regulation, such as the Basel Accords, for global banking industries (Maxfield & Magaldi de Sousa, 2015). Further than attempting to draw general lessons from the collapse in order to provide a fail-safe regulatory structure that will fit for any nation, the idea that various regulatory focus is needed for different national banking structures should be accepted (Acharya, 2003). An even more complex, multi-layered response to bank regulation is required, one that refers to the rationale of national financial system strengths and vulnerabilities. So even world market integration necessitates greater regulatory harmonization (Maxfield & Magaldi de Sousa, 2015). Other ideas involve reclassifying principles-based regulation as judgment-based and highly responsive risk-based regulation (Black & Baldwin, 2010).

Whether or not, these interventions' contribute to increased bank resilience should be the subject of interest of future academic research (Maxfield & Magaldi de Sousa, 2015).

However, it may be expected that during the financial crisis of the second century, policymakers and decision-makers in particular were compelled to reexamine their current ideas about the financial sector and its control. Thus, the global economic crisis disrupted conventional regulatory mindsets and fuelled the search for a new administrative model of financial supervision in member nations, the EU, and globally. Nevertheless, the regulatory adjustments made in the jurisdictions under consideration thus far are hardly paradigm changes. Furthermore, given the substantial quantity of policy study conducted following the crisis, apart from macroprudential oversight, policymakers and analysts created little significant new information. In bank regulation, there was no comparable of a modern 'Keynesian' business framework.

What transpired in the summer of 2007 served as a wake-up call for policymakers. Some changes have been made to bank regulation since then. For instance, deposit insurance, or the preservation of deposits, now has more consistent requirements. So far, the Europeans have largely concentrated on the core capital quota. However, a second indication should be considered: the leverage ratio. This is the equity-to-total-assets ratio. As a consequence, the question arises of whether the banks have put aside adequate money in proportion to their size emerges. However, experts frequently provide unfavourable answers to this critical topic, and politicians are partially to blame. Among other things, the numerous additional laws that banks must now follow have increased their size. The argument is that more stringent regulation is costly. Furthermore, mergers and acquisitions increase banking industry concentration and therefore the "too large, to fail" concept. According to Mitchell and Mulherin (1996), industry shocks induce takeover proceedings. Regardless of the fact that more market consolidation can boost bank profitability, obtaining rents from market dominance is more difficult in shocks due to less lending, higher borrowing costs, and an increase in non-payments (Demirgüç-Kunt et al., 2006, De Jonghe and Vander Vennet, 2008, Bolt et al., 2012). Additionally, during a crisis, the profitability gap among more and less successful banks becomes more visible as the former are able to decrease expenses, avoid needless delinquency, and secure better financing conditions (Dietrich & Wanzenried, 2011, Bolt et al., 2012). In general, there should be considered greater danger in more concentrated markets due to structural risk.

All relationship must be also investigated from the theoretical point of view including the issue which theory best fits the condition of the crisis. It can be argued that crises change the framework of the banking sector, what have an effect on the link between market concentration, efficiency, and profitability, as well as the connection between market concentration and risk. Azofra et al. (2013) conducted an observational study of a survey of credit institutions from major OECD countries from 2002 to 2009 to examine the changes.

A selection of credit institutions from key OECD nations was employed for the empirical investigation. Table 4 illustrates the number of organizations and data from each nation that were enclosed in the study. There was a quantity of credit institutions for each nation, with statistics provided for at least four sequent years from 2002 to 2009. The chosen time frame offers an ideal chance to examine the shifts brought about by the 2008 recession

in the relationships between profitability, market power, and efficiency, and the link amongst risk and market power. The *Sample representativeness* column comprises assets of banks in the sample by category, expressed as a percentage of total assets of banks in each category. Savings banks, cooperative banks, and other forms of banking businesses are examples of *Other banks* (Azofra et al., 2013).

Table 4: Number and data of credit institutions per nation in the time period 2002 to 2009

Panel A: Country Distribution of the Sample

	Number of banks per country				Sample representativeness		
	Observations	Number of commercial banks	Number of other banks	Number of total banks	Commercial banks (%)	Others banks (%)	Total banks (%)
Australia	196	30	17	47	93.06	25.81	81.14
Austria	1,497	38	186	224	55.01	42.57	46.64
Belgium	307	31	21	52	60.57	21.63	37.03
Canada	241	15	20	35	93.33	22.22	80.60
Chile	190	29	2	31	93.55	34.38	83.42
Czech Rep.	138	18	4	22	86.31	15.56	64.80
Denmark	598	51	34	85	54.66	10.56	38.96
Finland	76	8	6	14	59.55	34.57	50.96
France	1,724	97	177	274	45.04	38.50	41.37
Germany	11,678	100	1,557	1,657	94.35	63.24	72.48
Greece	66	9	3	12	21.36	20.00	21.13
Hungary	70	9	2	11	46.51	1.86	33.88
Ireland	50	7	4	11	69.51	5.10	31.43
Italy	4,703	89	966	1,055	34.46	37.10	35.54
Japan	3,654	116	400	516	58.42	20.40	36.03
Korea	79	12	4	16	61.14	24.81	40.69
Luxembourg	493	61	11	72	50.56	44.49	48.92
Netherlands	172	19	14	33	30.23	22.74	26.76
Norway	639	9	109	118	80.12	31.55	47.71
Poland	143	24	3	27	44.86	56.72	48.33
Portugal	103	10	12	22	61.73	76.86	70.09
Slovakia	84	12	2	14	79.81	8.74	51.26
Spain	421	18	68	86	74.84	50.85	62.05
Sweden	625	15	79	94	66.97	38.60	50.19
Switzerland	3,042	119	308	427	72.86	28.82	48.71
Turkey	236	31	13	44	68.76	11.11	52.04
United Kingdom	640	63	52	115	60.25	47.48	53.35
United States	72,711	7,730	2,555	10,285	85.89	34.72	46.49
Total	104,576	8,770	6,629	15,399			

Panel B: Sample allocation in certain period with number of banks

2002	2003	2004	2005	2006	2007	2008	2009	Total (observations)
12,913	13,353	13,795	15,001	13,448	12,851	12,053	11,162	104,576

Source: Own work based on Azofra et al. (2013)

The empirical research revealed a very substantial shift in the determinants of profitability after the beginning of the financial meltdown. Prior to the recession, most developed-country banks saw a significant rise in business as a result of increased mortgage demand, low-interest rates, and favourable economic conditions. In the sense of ample liquidity, strong demand for loans and credit from families and companies prompted financial institutions to pursue financing through bond markets, securitization, and asset packaging. According to the findings of this study, banks in more concentrated markets might have gained the most from this procedure, as suggested by the structure-conduct-performance (SCP) hypothesis. When the recession hit, many banks faced heavy losses due to increasing delinquencies. Moreover, the abrupt disappearance of liquidity in capital markets narrowed the options for funding troubled banks, many of which had to be stabilized or sought government interference. As a result, bank financing declined dramatically, leading in a shift in business strategies. Azofra et al. (2013) found that efficiency has been a determining factor in bank profitability, as suggested by the efficiency theory, which is addressed in Hypothesis 3.

Therefore, in a downturn, more profitable banks will achieve higher profits by improved cost containment and the introduction of better accounting and risk control strategies. In terms of risk analysis, these results revealed that the relationship between concentration and risk was quadratic over a time of development and expansion, as seen before the financial crisis. When market concentration is poor, greater market concentration leads to increased risk. As a result, the concentration-fragility theory was given more weight, which also supports Hypothesis 3. One potential answer is that increased concentration leads to higher interest rates for debtors, who subsequently prefer to engage in riskier ventures to pay back their loans (Boyd & De Nicoló, 2005). Furthermore, a rise in concentration may result in a decrease in the efficacy of internal control (Berger & Hannan, 1998).

Nevertheless, as market concentration grew, so did its connection to risk, with the concentration-stability theory becoming more significant. But further increased market concentration would minimize risk after a certain period. That shift in the connection involving market concentration and risk might be attributed to the fact that banks in highly concentrated markets have greater capital reserves as a result of windfall profits, making them more robust to disturbances (Boyd et al., 2004). Furthermore, supervision is more effective in concentrated systems with fewer banks, lowering systemic risk (Allen & Gale, 2000). Even so, during a recession, there is little evidence to confirm a connection between concentration and risk, which may be attributed to financing and liquidity issues, as well as an increase in mergers and acquisitions.

The interconnectivity and hence susceptibility of major banks with, among other things, hazardous transactions, as well as the link to states and private investors, can be observed in the section on the international banking industry and the connection to domestic lending. In

this framework, a market-oriented state must safeguard these “too large to fail” corporations and, in most circumstances, rescue them after the fact, because bankruptcy would harm many private investors as well as entire sectors of the economy. However, when it comes to the future and hence potential future crises, it is once again true that the banking market is rather concentrated and many banks are “too big to fail”. During the financial crisis, for example, it was realized how problematic huge banks might be. Specifically, so large that its failure would result in so many private people and enterprises losing money that it would spark a new economic crisis. Experts refer to these banks as “too big to fail”, implying that they are too large for the government to simply let them collapse and must instead bail them out with public money. Nevertheless, it appears that little has been learned from the past. It is reasonable to believe that banks have grown even larger in recent years. As a result, in the event of a further crisis, the government will almost certainly have to intervene once more to preserve these banks and, as a consequence, the deposits of private persons and citizens.

6 Conclusion

The late-2000s global recession was a defining moment in contemporary economic history and thinking. Problems occurring in a specific class of assets in the United States expanded globally and caused a great recession. Due to the overwhelming policy consensus in most countries that the recession was caused by a bank-led slowdown, with decreasing credit supply contributing to a decline in the real economy rather than vice versa, this gap in the literature is important. However, it is complicated to establish a linkage between the external funding shock and domestic credit availability.

According to its balance sheet, a bank could react to a disturbance in external liabilities in one of the following three ways, or a combination of them (Aiyar, 2012). Firstly, it has the ability to expand its domestic liabilities. That includes borrowing more from local units. Secondly, by lending less to non-residents, it will flatten its foreign assets. Or thirdly, by lending less to residents, it will reduce its domestic claims. Based on the strong support provided by post-estimation checks and the intuitive appeal of the methods used in analysis conducted by Shekhar Aiyar (2012), it is possible to infer that the impact of the external funding shock on banks' domestic lending is well recognized and significant, thus proving Hypothesis 1: *A reduction in banks' foreign liabilities causes a contraction in domestic lending.*

Aiyar (2011) investigated the transmission process in greater depth, and multiple robustness tests were carried out. Given the differences in funding patterns and the magnitude of the recorded shock, disparities in delivery by form of bank should be investigated in particular. The implication is that foreign subsidiaries and branches reduced lending more than domestically owned banks, while the latter modified domestic lending decreases more similarly to the magnitude of the funding shock. This again shows the international interconnectedness of markets as well as their vulnerability. Thus, regional as well as country-specific financial crises can spread to continental and eventually global downturns due to practices that need to be critically questioned in retrospect as well as cross-national economic practices.

Additionally, financial globalization has a profound and widespread influence on the local and worldwide distribution of US monetary policy. While large banks are commonly thought to have lending activity that is immune to US monetary policy, domestically-oriented institutions show substantial lending sensitivity to monetary policy (Cetorelli & Goldberg, 2012). The liquidity effect can be applied to other firms as well. Small companies' failure to insure implies that the constant costs of developing new banking relationships may be a significant restriction in capital markets (Khwaja & Atif, 2008). These data highlight the need of comprehending the mechanics of foreign finance once more.

Furthermore, there is a widespread opinion that countries that experienced financial crises prior to the financial crisis in the late 2000s were less affected. One possible reason is that reform efforts introduced in response to the recent meltdown prevented these previously hit countries from engaging in risky activities to the extent that caused such high exposure anywhere during the late-2000s financial crisis. Moreover, according to some sources, financial deepening, or the increased availability of financial markets with a wider variety of products targeted at all levels of society, is a characteristic of the financial system that has accelerated crisis contagion.

Another significant observation of this paper was the focus on resilience. In the context of the 2007–2008 financial crisis, Maxfield and Magaldi de Sousa (2015) aimed to explore the effect of regulation and banking sector development on bank resilience. A large-n quantitative experiment found that neither strong regulation nor a combination of close watch and shallow banking would explain bank stability in terms of credit provision. The only logical interpretation for bank credit to survive after the crisis would be shallow banking. These results imply that strong regulation, identified as a one-size-fits-all international recommended solution, is not always the template for bank resilience, and therefore Hypothesis 2: *Strong regulation allowed for bank resilience to the 2007–2008 financial crisis.* cannot be proved completely. When implemented in countries with relatively underdeveloped financial structures, it can even have a negative effect on profitability.

Following the financial crisis, policymakers and decision-makers in generally were compelled to reassess their previous assumptions about the financial industry and its control. The global financial crisis disrupted established regulatory paradigms and fueled the search for a new regulatory framework for financial supervision in member countries, the EU, and globally. However, the regulatory adjustments enacted thus far in the jurisdictions under consideration are not paradigm shifts, and policymakers and economists have not created significant new information. As a result, there is no comparable of a new 'Keynesian' economic model in finance regulation even now.

With regard to the findings, it can be said that, regardless of the severity of government regulation, deep banking countries were hit the most by the crisis's loan provisioning effects. Those countries with thin banking systems but rigorous regulation, on the other hand, saw the least impact of the crisis on bank profitability. In deep banking countries, strict regulation appears to have had little influence on profitability, but the gap in resources suggests that it would in shallow banking economies (Maxfield & Magaldi de Sousa, 2015). This once again demonstrates the important focus on banks as one of the main contributors to the global economic crisis at the time and especially the worthwhile

overview as well as creating links between international lending, the intervention of government regulation, the subsequent profitability and also therefore in inference the resilience of financial institutions.

Furthermore, assessing the structural determinants of profitability is a recurring topic in research studies. Because of the implications for competition, rules, and bank management, numerous studies have concentrated on the connection between profitability, market concentration, and performance. The so-called efficiency theory, for example, proposes a favorable association between efficiency and bank earnings. Furthermore, there is a possibility that disasters reinforce the concentration-fragility theory since, in the wake of a meltdown, there is a propensity to perceive greater threat in more concentrated economies due to systemic risk. Azofra et al. (2013) investigated previously observed changes in the relationship between bank market share, efficiency, and profitability as a result of financial crashes. Besides that, the 2008 financial crisis provided motivation to investigate the implications of instability and evaluate the situation before and after a recession. In order to examine Hypothesis 3: *A financial crisis strengthens the efficiency theory as well as reinforce the concentration-fragility theory* and thus the possible strengthening of the efficiency theory as well as a reinforcing of the concentration-fragility theory by a financial crisis, further literature was reviewed. Azofra et al. (2013), for example, examined the changes in an empirical analysis of a survey of credit institutions from major OECD countries from 2002 until 2009. The empirical analysis showed a significant change in the determinants of profitability following the start of the financial meltdown. When the crisis struck, many banks suffered significant losses as a result of rising delinquencies. Furthermore, the sudden absence of liquidity in financial markets limited the opportunities for financing distressed banks, many of which needed to be stabilized or pursued government intervention. As a result, bank lending fell precipitously, causing a transition in corporate strategy. According to the efficiency theory, which is discussed in Hypothesis 3, Azofra et al. (2013) discovered that efficiency has been a deciding factor in bank profitability. Throughout terms of risk assessment, research showed that the association between concentration and risk was quadratic over a period of development and expansion. As a consequence, the concentration-fragility theory received more weight, supporting Hypothesis 3. One potential answer is that increased concentration leads to higher interest rates for debtors or may result in a decrease in the efficacy of internal control (Boyd & De Nicoló, 2005).

The fact that market concentration still plays an important role is shown by the circumstance that many banks are still “too big to fail”. If they fail, many private individuals and companies lose their money, which in turn would trigger new economic crises. However, little has changed since the financial crisis in the first decade of the new millennium with a view to the future. In recent years, for example, the banks have become even bigger, partly as a result of mergers and acquisitions, and the state is likely to step in again with a considerable amount of taxpayers' money in the event of financial difficulties. However, the politicians themselves are partially to blame for this, because the institutions have become larger as a result of many new regulations.

Although a decade has passed since the financial crisis of the late 2000s, not all of its effects and implications have been fully understood. In this paper, the aspects of

bank liabilities and contraction in domestic lending, strong regulation as well as bank resilience could be examined. In addition, insights were provided into the international interconnectedness of markets, missed opportunities in an economic reorganization, and the realization that market power still plays a meaningful role. Thus, the basis for further financial crises seems to be given. The natural limitation of this study is, of course, the investigated sample, especially in the case of the first and third hypothesis. Therefore, it will be useful to extend research for banks operating in some other countries, and it is recommended to investigate some further effects and thoughts on the financial crisis in the late 2000s more profound in the future.

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How Selected Macroeconomic Factors Affect the Corporate Profitability of Transportation and Storage Companies in Selected European Economies

Jak vybrané makroekonomické faktory ovlivňují podnikovou ziskovost společností z odvětví Doprava a skladování ve vybraných evropských ekonomikách

PETRA RŮČKOVÁ
NICOLE ŠKULÁŇOVÁ

Abstract

The goal of most companies is to make a certain amount of profit, to which all-important business decisions are a subject. The importance of this goal is evidenced by the fact that profitability indicators belong to the key indicators of business success. Unfortunately, profitability is affected by many often-unpredictable factors, which usually come from the external environment of the company. In this research, these factors are represented by GDP growth rate, inflation rate, reference interest rate, unemployment rate, gross fixed capital formation and the exchange rate against the euro. The aim of the research is to find out whether selected factors influence the company's profitability or not. Companies of the transportation and storage industry coming from eight selected economies of Central and Eastern Europe are the subject of the analysis. The industry will be analysed at the level of fifteen sub-industries using the Generalized Method of Moment. The data cover the period 2010–2018 and provide information on approximately 25,000 companies. The size of the sample does not allow the results to be summarized in one sentence, but they showed that companies in the selected industry are for the most part negatively affected by the reference interest rate of the economy.

Keywords

corporate profitability, exchange rate, GDP growth rate, gross fixed capital formation, inflation rate, reference interest rate, unemployment rate

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Abstrakt

Cílem většiny podniků je dosahovat určité výše zisku, čemuž se podřizují snad všechna důležitá obchodní rozhodnutí. O významnosti tohoto cíle svědčí fakt, že ukazatele rentability jsou řazeny mezi klíčové indikátory podnikatelské úspěšnosti. Bohužel na ziskovost má vliv spousta mnohdy nepředvídatelných faktorů, které obvykle pocházejí z vnějšího okolí podniku. V tomto výzkumu jsou tyto faktory zastoupeny tempem růstu HDP, mírou inflace, referenční úrokovou sazbou, mírou nezaměstnanosti, tvorbou hrubého fixního kapitálu a měnovým kurzem k euru. Cílem výzkumu je zjistit, zda vybrané faktory ovlivňují podnikovou rentabilitu či nikoliv. Předmětem analýzy jsou podniky z odvětví Doprava a skladování pocházející z osmi vybraných ekonomik střední a východní Evropy. Odvětví bude analyzováno na úrovni patnácti pododvětví za použití zobecněné metody momentů. Data pokrývají období 2010–2018 a podávají informace o zhruba 25 000 podnicích. Rozsáhlost vzorku neumožňuje shrnout výsledky v jedné větě, avšak výsledky poukázaly na to, že podniky z vybraného odvětví jsou z velké části nejvíce ovlivněny negativně referenční úrokovou sazbou ekonomiky.

Klíčová slova

měnový kurz, míra inflace, míra nezaměstnanosti, podniková rentabilita, referenční úroková sazba, tempo růstu HDP, tvorba hrubého fixního kapitálu

Introduction

Profitability is a key characteristic of every business unit (except for non-profit companies), as profit generation allows a company to operate, expand and renew. This is a very important variable from the point of economic theories view. One of the basic theories being known by all economists the “profit maximization rule” is, which is associated with neoclassical economics. The profit also forms one of the investment triangle vertices, which is an important part of corporate finance theory.

We can measure profitability in different ways. The most common ones the ratios are, which measure various items in the balance sheet and profit and loss statement. As the subsequent literature review shows, ROA, ROE, ROAA, ROAE and net interest margin are the most common indicators. However, the research deals with companies being different from the literature review; it mainly includes companies of the banking and tourism industry and therefore, it is not appropriate to use all indicators mentioned in these reviews. The ROA, ROE and ROS indicators were selected for this research, as they gradually show how efficiently the assets are used, how the capital invested by investors is valued and what part of the revenues falls into the profit.

Everything in a business is affected by many factors. The first group includes factors that come from the internal environment of the company. These factors can be influenced and anticipated by the company. The second group includes factors coming from the external environment of the company. These factors are very unpredictable and cannot be influenced by the company. This research focuses on this group of factors. Specifically, there are six selected macroeconomic factors – the rate of GDP growth, the inflation rate,

the reference interest rate, the unemployment rate, gross fixed capital formation and the exchange rate against the euro.

The aim of the research is to find out whether selected factors influence the company's profitability. Within the target, a positive impact of economic development, gross fixed capital formation and the inflation rate at the level of profitability is expected. The reference interest rate and the unemployment rate should have a negative effect on the profitability level. There are no prerequisites for the exchange rate. Companies of the transportation and storage industry originating from eight selected economies of Central and Eastern Europe are the subject of the analysis. Specifically, these are the Czech Republic, Slovakia, Poland, Hungary, Austria, Slovenia, Bulgaria and Romania.

A dissemination of existing knowledge on the effects on corporate profitability should become the main benefit of this research as not many studies were provided dealing with industries other than banking and tourism. Also, current researches do not contain all six selected factors, so there should be an expansion of knowledge in terms of these factors and, last but not least, in terms of selected economies. Furthermore, all enterprises that had the relevant database available for the given economies, industries and periods are analysed. It should be noted that the results of the studies strongly depend on geographical, size and sectoral affiliation. At the same time, the size of the examined sample is also important, whether we analyse all companies from a database, or only, for example, the twenty largest companies in the industry, etc. In other economies, industries and examined sample of companies, the results may be different. In total, about 25,000 companies are analysed. Detailed analyses could become a benefit because the said industry is examined by fifteen subindustries individually and the factors' impact on profitability are then better readable than if the industry would be analysed as a whole.

This research is organized as follows. Section 1 outlines earlier studies on the factors of the corporate profitability. Section 2 presents the research methodology, variables and provides a description of the industry and examined economies. Section 3 describes the results of the analysis of variable dependencies. Section 4 presents the conclusions.

Literature Review

This part contains a summary of found studies in the field of corporate profitability and their determinants. The vast majority of these studies focus on corporate profitability in the banking and tourism industries. However, even though they are not in line with our chosen industry, some evidence is needed to create the expected impacts of selected determinants at the level of profitability.

Out of the twenty-nine studies found, the following twenty-eight studies examined the impact of economic development on profitability: Bourke (1989) for 90 banks from Europe, the US and Australia, Molyneux and Thornton (1992) for 18 European countries, Claessens, Demirgüç-Kunt and Huizinga (1998) for 80 countries, Demirgüç-Kunt and Huizinga (1998) for 29 countries, Bikker and Hu (2002) for 26 OECD countries, Bashir (2003) for 21 Islamic countries,

Athanasoglou, Brissimis and Delis (2008) for Greek banks, Albertazii and Gambacorta (2009) for countries from Euro area and Anglo-Saxon countries, Flamini, McDonald and Schumacher (2009) for 216 commercial banks from 42 countries in Sub-Saharan Africa, Aliaga-Diaz and Olivero (2010) for the US, Pervan, Pervan and Guadagnino (2010) for Croatia commercial banks, Dietrich and Wanzenried (2011) for 372 Swiss commercial banks, Ćurak, Poposki and Pepur (2012) for 16 Macedonian banks, Tan and Floros (2012) for 101 Chinese banks, Akotey, Sackey and Amoah (2013) for 17 life insurance firms from Ghana, Gaganis, Hasan and Pasiouras (2013) for 399 listed insurance firms from 52 countries, Kořak and Ćok (2013) for Croatian, Bulgarian, Romanian, Serbian, Macedonian and Albanian banks, Mirzaei, Moore and Liu (2013) for 308 banks from emerging economies and 1,621 banks from advanced economies, Dietrich and Wanzenried (2014) for 10,165 commercial banks from 118 countries, Almeida and Divino (2015) for 64 Brazilian banks, Djalilov and Piesse (2016) for 275 commercial banks from early and late transition countries, Saona (2016) for 7 Latin America countries, Zuidberg (2017) for 125 airports from Europe, the US, Canada, Australia and New Zealand, Chouikh and Blagui (2017) for ten Tunisian listed banks, Martins, Serra and Stevenson (2019) for 108 real estate banks from the US, the UK and Germany, Vera-Gilves et al. (2020) for 23 Ecuadorian private banks, Le and Ngo (2020) for 23 countries, Killins (2020) for 38 federally regulated domestic life insurers.

We can see that the authors have dealt with a number of economies. A positive impact on the level of profitability is the dominant impact. It is thus clear that the resulting impacts are more or less the same throughout the world. It can be seen that the results mostly indicate a positive impact of economic development on the level of profitability. Some explain the positive impact as saying that economic prosperity contributes to the growth of banks' economic activity. Such increase may be explained by an increase in household savings and an increase in corporate demand for credit.

For example, Athanasoglou, Brissimis and Delis (2008) have further revealed that if the output of the economy is above trend, the resulting coefficient for a given variable is doubled. Conversely, if the output of the economy is below trend, the coefficient is insignificant. It follows that Greek banks were able to isolate their performance during a period of unfavourable economic development.

Dietrich and Wanzenried (2011) and Martins, Serra and Stevenson (2019) also dealt with the banking sector and divided the period under investigation into whole, pre-crisis and crisis periods. Both studies showed the same result, namely a positive impact of economic development during the whole and pre-crisis period and a negative impact during the crisis. Based on this result, banks' profits appear to be pro-cyclical, given that demand for credit increases during economic growth. Conversely, if the economy is in recession, the credit quality of banks is deteriorating.

Other negative effects of economic development were found in the study of Tan and Floros (2012), Dietrich and Wanzenried (2014) for low-income economies, Saona (2016), Chouikh and Blagui (2017), Zuidberg (2017) for European low-cost airports, Rynair/easyJet and airports with more than 10 mil passengers, Le and Ngo (2020). It is difficult to say which economies included certain samples, however, if economies were to succeed, the negative impact could be explained by declining profitability for companies with

increasing output, as higher operating costs could become in many cases an additional output (or maintaining the current relatively high output level). The inflation's impact on profitability was included in these studies – Bourke (1989) for 90 banks from Europe, the US and Australia, Molyneux and Thornton (1992) for 18 European countries, Claessens, Demirgüç-Kunt and Huizinga (1998) for 80 countries, Demirgüç-Kunt and Huizinga (1998) for 29 countries, Albertazii and Gambacorta (2009) for countries of the Euro area and Anglo-Saxon countries, Flamini, McDonald and Schumacher (2009) for 216 commercial banks coming from 42 countries in Sub-Saharan Africa, Dietrich and Wanzenried (2011) for 372 Swiss commercial banks, Martins, Serra and Stevenson (2019) for 108 real estate banks from the US, the UK and Germany, Vera-Gilves et al. (2020) for 23 Ecuadorian private banks, Le and Ngo (2020) for 23 countries. Also, in the case of the inflation rate's effect on the profitability, a positive impact was revealed in most cases. Many authors argue that the inflation's impact on profitability depends on whether inflation movement is expected. If inflation is expected to rise, banks can adjust interest rates (increase) and thus increase their yields. It is also necessary to take into account whether banks' costs are rising faster than inflation. Of course, inflation can also have a negative impact on profitability, but there are not many such studies. A negative impact was found by Martins, Serra and Stevenson (2019) during the crisis period 2007–2010, Le and Ngo (2020).

The following studies included an analysis of the interest rates' impact on profitability – Bourke (1989) for 90 banks from Europe, the US and Australia, Molyneux and Thornton (1992) for 18 European countries, Claessens, Demirgüç-Kunt and Huizinga (1998) for 80 countries, Demirgüç-Kunt and Huizinga (1998) for 29 countries, Sufian ad Chong (2008) for Philippines banks, Albertazii and Gambacorta (2009) for countries of the Euro area and Anglo-Saxon countries, Mirzaei, Moore and Liu (2013) for 308 banks coming from emerging economies and 1,621 banks of advanced economies, Dietrich and Wanzenried (2014) for 10,165 commercial banks coming from 118 countries, Almeida and Divino (2015) for 64 Brazilian banks, Djalilov and Piesse (2016) for 275 commercial banks of early and late transition countries, Chouikh and Blagui (2017) for ten Tunisian listed banks, Martins, Serra and Stevenson (2019) for 108 real estate banks coming from the US, the UK and Germany, Vera-Gilves et al. (2020) for 23 Ecuadorian private banks. In the given studies, the slightly positive impact of the interest rate on the profitability prevails. The negative impact was revealed at Sufian and Chong (2008), Mirzaei, Moore and Liu (2013), Dietrich and Wanzenried (2014) for high-income economies, Djalilov and Piesse (2016) for early transition countries, Vera-Gilves et al. (2020).

Last but not least, we see that the interest rate also has a positive impact on profitability level. Studies to be reviewed selected by us did not include more determinants and therefore, the assumptions for the unemployment rate, gross fixed capital formation and the exchange rate have to be completely re-created.

Data and methodology

Companies operating in the territory of eight selected economies of Central and Eastern Europe are the subject of the research. Specifically, these are the countries of the so-

called extended Visegrád Group, which includes the Czech Republic (CZ), Slovakia (SK), Poland (PL), Hungary (HU), Austria (AT), Slovenia (SI), Romania (RO), Bulgaria (BG). The fact that representatives of these economies very often attend basic V4 meetings and this designation is commonly used in the media in connection with these economies is the reason for Austria, Slovenia, Romania and Bulgaria to be included in this research.

The selected industry is according to the NACE classification section H – Transportation and Storage. This industry is divided into fifteen groups – subindustries that are the subjects of our analysis. According to the mentioned classification, these are the following groups: 491 Passenger rail transport, interurban, 492 Freight rail transport, 493 Other passenger land transport, 494 Freight transport by road and removal service, 495 Transport via pipeline, 501 Sea and coastal passenger water transport, 502 Sea and coastal freight water transport, 503 Inland passenger water transport, 504 Inland freight water transport, 511 Passenger air transport, 512 Freight air transport and space transport, 521 Warehousing and storage, 522 Support activities for transportation, 531 Postal activities under universal service obligation, 532 Other postal and courier activities. In Table 1, we can see the number of companies in individual economic and sectoral groups. It should be noted that for subindustries covering less than five companies, no analyses were performed as the method used (GMM) requires at least five companies. Of course, for the subindustry represented by only one company, the simple panel regression can be applied, but the results are not statistically significant. Furthermore, the table shows which subindustries clearly dominate – Freight transport by road and removal service, Warehousing and storage and Support activities for transportation. Freight transport by road is evident because firstly, a half of the selected economies are landlocked countries (CZ, SK, HU, AT) and secondly, the selected countries export and import mostly in Europe and therefore, the use of road transport is more advantageous and less expensive than e.g. shipping or air transport.

The industry is considered one of the most important industries in Europe, and therefore in the world, as it is present in our daily activities – tourist transport, transport to work, storage of goods or food. Given its importance, the sector deserves an attention, even though, according to the statistics, the sector accounts for only around 5% of the European Union's GDP.

With regard to the sample of companies, these are all companies that have been found in the Orbis database, which provides information on medium, large and very large companies. A total of 25,242 companies are analysed. Information based on the financial statements comes from the Orbis database, while macroeconomic data are taken out of the World Bank database (GDP, inflation, unemployment, gross fixed capital formation), the databases of individual central banks (reference interest rate) and the Investing.com database (exchange rate). The data cover the period 2010–2018. This period was chosen with regard to the time series located in the Orbis database. Unfortunately, a longer time series is not available.

Table 1: Number of companies in individual subindustries in individual economies

	CZ	SK	PL	HU	AT	SI	BG	RO
491	9	2	16	2	12	1	19	6
492	20	11	53	24	10	5	12	44
493	290	140	726	169	517	45	332	616
494	3,127	1,373	4,418	1,263	1,238	699	1,264	1,987
495	2	2	8	2	3	1	1	2
501	1	15	12	2	13	1	10	1
502	1	21	37	1	2	9	13	9
503	4	4	5	12	8	0	6	6
504	7	4	13	11	1	1	9	22
511	25	9	52	12	50	13	17	26
512	2	3	15	8	7	0	16	10
521	219	103	292	224	60	15	98	106
522	630	388	1 141	604	599	197	453	561
531	1	1	2	1	4	2	13	2
532	33	41	62	94	52	18	94	135
Σ	4,371	2,117	6,852	2,429	2,576	1,007	2,357	3,533

Source: Author's own calculations based on data from Orbis database

The aim of the research is to find out whether selected factors influence the company's profitability. Specifically, there are six selected macroeconomic factors – the rate of GDP growth, the inflation rate, the reference interest rate, the unemployment rate, gross fixed capital formation and the exchange rate against the euro. Based on the literature review and based on our own assumptions, we expect the following relationships between determinants and profitability indicators:

- Positive relationship between the economic development and gross fixed capital formation – if the economy grows, companies usually thrive and their profits and demand for their products grow, too, as disposable income increases for all economic agents due to economic prosperity.
- Positive relationship between the profitability level and inflation rate – in this case, there is a link to the real interest rate, which decreases as the inflation rate increases resulting to companies being able to obtain a cheaper debt, which could support output growth and thus increase profits.
- Negative relationship between the profitability level and the reference interest rate – the lower the interest rates in the economy, the lower the cost of debt financing is, the use and advantage of which were mentioned in the previous point.
- Negative relationship between the profitability level and unemployment rate – rising unemployment usually leads to a decline in demand for business products or services, as social benefits or unemployment benefits are not as high as wages and therefore, household disposable income is lower.

- No assumption is made for the exchange rate. The impact of the exchange rate is analysed only for the Czech Republic, Poland, Hungary, Bulgaria and Romania, as these countries do not have the euro as their national currency. It is well known that a weaker currency stimulates exporters and a stronger currency stimulates importers. All five countries are both exporters and importers. Because it very much depends on which of the value (exports or imports) prevails during the observed period, it is not possible assume a relationship between variables.

Variables

The following subchapter describes the method used to analyse the impact of selected determinants on the companies' profitability level. The panel regression was chosen as the method using the GMM method. Within this method, we can divide the variables into endogenous and exogenous.

The left side of the equation or endogenous variable is represented by profitability indicators. The literature review showed the possibility of using several indicators, such as ROA, ROAA, ROAE, ROE, net interest margin, but given that the companies come mainly from the banking and tourism industry, not all of these indicators are suitable for all companies. Three indicators were selected with regard to the comparison on which part of corporate resources (assets, equity, sale) may have the greatest impact. The return on assets is the ratio of profit before tax and interest and total sales. Return on equity is the ratio of profit after tax and equity. Return on sales is then the share of profit before tax and interest and total sales. These are three perspectives, with the ROA indicator assessing the return on total assets invested in the company, regardless of the sources from which they are financed. The indicator is used to measure overall efficiency and de facto assesses the performance of past managers. The ROE indicator assesses the return on capital invested by shareholders or owners. It tells about the ability of management to manage their sources. At the same time, these two indicators have a certain connection between them, which is important in terms of the analysis of capital structure and financial leverage. It is true that if no debt sources and thus financial leverage are used, then the assets are financed only by own sources, and therefore the ROA and ROE indicators are equal. However, this research deals with macroeconomic effects on the level of profitability, and therefore this relationship is irrelevant. At the same time, it is not possible to determine the size of ROA and ROE for a huge number of companies, as companies are examined in panels where values are averaged and certainly at least one company will use debt sources to finance its activities, and therefore the indicators would never equal. The last indicator, the ROS indicator, tells us how many currency units of profit the company produces per currency unit of sales.

The right side of the equation or exogenous variables are represented by individual determinants. Exogenous variables are specifically in the form of the rate of GDP growth at market prices, basic interest rate of the economy (IR), inflation rate (INF), unemployment rate (UN), gross fixed capital formation (GFCF) and exchange rate to the euro. The exchange rate is included only in the analyses of the Czech, Polish, Hungarian, Bulgarian

and Romanian companies. Austria, Slovakia and Slovenia have the euro as their national currency. The euro was chosen in view of the fact that these are European economies trading mainly in Europe and have European countries as their main trading partners.

Methodology

As indicated in the previous section, panel regression using the Generalized Method of Moments was used to analyse the dependencies between the variables. A variety of econometric methods can be used, however, as reported by Jagannathan et al. (2002), this method eliminates the shortcomings of other methods and therefore found application mainly in the financial field. Given the number of companies, economies and determinants, the use of panels is a clear choice. Unfortunately, the least squares method is not suitable due to the need for stationary time series, which macroeconomic data often may not meet. (Průcha, 2014)

The GMM method was first described by Arellano and Bond (1991), who subsequently developed it in further studies with other authors – Arellano and Bover (1995), Blundell and Bond (1998). The method has its basic characteristics, which were summarized by Roodman (2009) in his study. The author states that the method is also ideal for shorter time series; there is a linear functional relationship and fixed individual effects are present; the endogenous variable on the left side of the equation is dynamic and depends on its lagged values; on the other hand, exogenous variables may not be strictly independent, as indicated by the fact that variables may be correlated with past and present errors; the method cannot test autocorrelation and heteroscedasticity and at the same time these phenomena should not occur through observation. The method also solves the endogeneity problem, which is the correlation between the exogenous variable and the error term, which could occur in the application of the least squares method. Ullah et al. (2018) states that the solution to this problem takes place through internal tools (lagged value of endogenous variable, internal transformation processes) that remove unobserved heterogeneity, simultaneity and dynamic endogeneity, which are considered sources of endogeneity.

Ullah et al. (2018) further adds that, as mentioned, since the method cannot test the presence of autocorrelation and heteroscedasticity, some tool is needed to determine whether the model and its results are credible. There are several tools. The Sargan test was chosen for this research, the final value of which must exceed 0.05 in order to make the model robust and reliable, so the model can be built correctly, which means that if we change the parameters slightly, we should get the same results.

The equation of the model looks like this:

$$PROF_{it} = \alpha_0 + \beta_1 * PROF_{it-1} + \beta_2 * GDP_{it} + \beta_3 * IR_{it} + \beta_4 * INF_{it} + \beta_5 * UN_{it} + \beta_6 * GFCF_{it} + \beta_7 * EX_{it} + \varepsilon_0; \quad (1)$$

where PROF means the gradual use of individual profitability indicators ROA, ROE, ROS. This variable indicates the profitability for the i-th number of companies in a given

economy in a particular subindustry during the period t (2010–2018). The right side of the equation consists of individual determinants, which are described above (GDP, IR, INF, UN, GFCF, EX). At the same time, there is a constant α on this side and a random component ϵ , which contains other determinants of profitability, which are not dealt with in this research, but affect its amount. The last variable on this page mentions the lagged value of the dependent variable several times. This is an annual lag.

Results and discussion

Tables 2, 3 and 4 show the results of the GMM method for three profitability indicators, individual subindustries and individual economies. Given that research focused on eight selected economies, we see that, with a few exceptions, most subindustries do not include results for all economies. The reason is that the models for the given economies did not meet the assumptions of the Sargan test (its values were lower than 0.05) and the model is not robust and the results are not reliable.

In Tables we can see the abbreviation “cor” with the abbreviations of individual determinants in some columns. This abbreviation means that a given time series (a given determinant) shows a high value of the correlation coefficient with another time series, and therefore there is no value of the coefficient for GMM model.

The first column includes a variable we did not select but it is an automatic part of each model; this variable also helps to solve the endogeneity problems we mentioned in the previous section. This is the lagged value of profitability indicators. All three profitability indicators are dominated by the positive impact i.e. if companies achieved a certain level of profitability in the past, they would continue in this trend in the future. However, the coefficients in all cases are very low (tenths, hundredths or thousandths), so we cannot talk about a significant impact of the variable on the profitability level. It is rather direction the profitability could take in the case a given coefficient reaches the larger values.

Another variable that can be mentioned before a more detailed analysis of the results, a gross fixed capital formation is. As with the lagged value of the profitability indicators, the coefficients for this variable are indeed very low; lower than in the previous case. The values reach certain numbers, which are multiplied by ten to minus the eighth and beyond. In this case, it is really a rough indication of the direction, in which this variable could affect the level of profitability. For the ROE and ROS indicators, no indication prevails; for the ROA indicator, the negative impact slightly outweighs the positive one. Gross fixed capital formation is linked to the economic and investment cycle. In terms of the positive impact, if companies created value in the previous period, they would continue to do so in the following period. In the case of a negative impact, this does not apply, in which case companies would create value in the following period but its amount would decrease.

The impacts of the remaining variables on the profitability level are analysed for individual subindustries and individual economies within these subindustries. The results for selected profitability indicators are also compared. Comments on the results focus more

on the variables with the greatest impact, as the analysis has shown a huge number of results that cannot be analysed in detail.

If we look at Czech companies, Table 1 showed that Czech companies are not represented in certain industries. No results for these companies can be found in subindustries 495, 501, 502, 503, 512 and 531. The remaining subindustries have a result for at least one profitability indicator. Overall, inflation and the unemployment rate have the greatest impact on the profitability level followed by the reference interest rate and economic development. Considering the return on assets of subindustries 491, 492, 494, 532, the unemployment rate has the greatest impact on it whether negative or positive. For subindustries 493, 504, 511 and 521, the inflation rate has the greatest positive impact. The impact of the inflation rate on the appreciation rate of the company's assets can be justified by the fact that in the Czech Republic, the average inflation rate was 1.6% within the period under review, which may have reduced the real expression of interest rates; those may have become lower thus companies could acquire additional assets, by them increase the production and thus their profitability. The negative impact of the unemployment rate is obvious, as during the period under review this rate fell from 7.3 to 2.2% in the Czech economy. The increase in the employed population meant an increase in the disposable income that could be spent on products in the given subindustries. The positive impact of the unemployment rate is strange and difficult to explain. Return on equity is affected by the reference interest rate (491, 532), the unemployment rate (492, 504) and economic development (511, 522). The negative impact of the interest rate meant cheaper debt financing costs. On average, the reference interest rate was 0.4%. If we add the mentioned rate of inflation, it was not expensive to get the other sources the owners could invest in the business and thus increase the production. The negative impact of the unemployment rate and the positive impact of economic development meant the same thing, namely an increase in disposable income that could be put into business. The level of the return on sales was affected by the inflation rate (491, 532) and the interest rate (492, 504, 511). The negative impact of the reference interest rate meant cheap debt financing, by which an increase in production could be supported resulting in sales increase. This idea can be supported by the positive impact of the inflation rate explained above.

We did not find any result for Slovak companies in subindustries 491, 495, 503, 504, 512 and 531. The remaining subindustries have a result for at least one profitability indicator. Overall, the reference interest rate has the greatest impact on the profitability level, which clearly dominates in twelve out of nineteen cases. The level of return on assets is mostly affected by the reference interest rate (492, 493, 501, 511, 521, 532) and in the case of subindustry 502, it is affected by the unemployment rate. The negative impact of the interest rate on the appreciation rate of the company's assets can be justified by the fact that in Slovakia the average reference interest rate was 0.3% in the period under review, which could mean very low costs when obtaining debt financing, out of which other assets can be purchased and thus the production could be increased. The negative impact of the unemployment rate is obvious, as, in the Slovak economy, during the period under review this rate fell from 14.4 to 6.5%. The increase in the employed population meant an increase in the disposable income that could be spent on products in the given subindustry. The inflation rate (492, 501, 502), the interest rate (511) and the

development of the economy (532) had an impact on the level of return on equity. The resulting impacts meet our assumptions. The Slovak economy had a very good growth rate during the period under review, which averaged 3.1%. This number indicates that the companies were in a period of economic prosperity, which usually means an increase in profits and disposable income that can be invested in the business and thus they could increase their future profits. The inflation rate averaged 1.4%, which reduces the real interest rate with the above-mentioned average reference interest rate. As a result, it was very cheap to obtain additional sources of financing that could be invested in equity and thus strengthen the financial background of companies. The level of return on sales was again most affected by the reference interest rate (494, 501, 502, 522, 532) and the inflation rate (511, 492). The development of variables has already been described in the previous text. The good development of these variables could lead to an increase in assets, equity and sales through debt financing.

Table 2: GMM results for ROA indicator

ROA(-)	GDP	IR	INF	UN	GFCF	EX	ROA(-)	GDP	IR	INF	UN	GFCF	EX
491							504						
CZ	183.6810 ^a	-80.3341 ^a		-468.1280 ^b		52.1581 ^a	CZ	0.6957 ^a	3.6790 ^a		12.5226 ^c		0.5591 ^a
PL		-5.0531 ^a	2.5150 ^b	-1.7932 ^a			HU	0.4479 ^a		-13.6725 ^a			-1.06E-13 ^a
AT	0.4540 ^a	1.5844 ^a	-14.2886 ^c		-4.95E-12 ^a	X	BG	0.4510 ^a	1.4037 ^a	-41.1145 ^a	-1.4068 ^a		27.6314 ^a
BG	0.3700 ^a	2.0982 ^a		1.5466 ^c	-1.1255 ^a	-4.7910 ^a	RO		124.2470 ^a		181.0210 ^a	-667.5700 ^a	-7.9454 ^a
RO	0.0560 ^a	-32.6865 ^c	-7.8467 ^a	-12.0722 ^a		-2.4794 ^a	511						
492							512						
CZ	0.2697 ^a		-2.8968 ^a	3.0472 ^b	6.71E-13 ^b		CZ		3.0212 ^b		8.1435 ^a		1.41E-12 ^b
SK	0.0779 ^a	2.5759 ^a	-108.8274 ^a	-11.3169 ^a		X	SK	0.4276 ^b		-35.4081 ^a		-1.4635 ^a	-1.09E-10 ^a
PL	0.4157 ^a	1.4089 ^b	-2.7148 ^a		-1.09E-12 ^a	-0.0930 ^b	PL		216.8282 ^a		-159.1230 ^a		10.6151 ^a
HU			68.4106 ^a		-30.5148 ^a		HU	0.5025 ^a	-8.7399 ^a	-20.3410 ^a	4.2307 ^a		
AT	0.1073 ^a	3.6555 ^a		5.3157 ^a	9.6720 ^a	X	AT	0.2595 ^a			2.3224 ^a		5.1474 ^a
SI		-13.9044 ^a		7.8942 ^a		X	SI	0.8354 ^a		-8.4889 ^a			8.74E-11 ^a
BG							BG	-0.3812 ^a	683.9646 ^a	-276.4860 ^a			-873.7373 ^a
RO							RO	0.2583 ^a	4.2038 ^a		-135.6004 ^a	cor EX, GFCF, INF	-5.52E-11 ^a
493							512						
CZ	0.4984 ^a	1.3672 ^a		3.0969 ^b		0.0241 ^a	PL	0.2351 ^a	1.0892 ^a	0.8923 ^a		0.4657 ^b	
SK	0.0342 ^a		-18.0861 ^a	3.0265 ^a		-5.42E-11 ^a	HU	0.2891 ^a	-15.6768 ^b		-170.7276 ^a		1.74E-12 ^b
PL	4.0533 ^a			1.1767 ^a			BG	-0.0560 ^c	16.6106 ^a	-136.2993 ^a		-11.7206 ^c	-0.2256 ^c
AT	0.0287 ^b	0.1978 ^a		-0.6711 ^b		X	RO	0.1171 ^a			7.4660 ^a	-6.9298 ^a	-0.2449 ^a
SI	0.1866 ^a			-2.0865 ^b		0.2908 ^c	521						
BG		-74.3167 ^a	-4.3700 ^b		5.55E-11 ^a	-10.0968 ^a	CZ	0.8081 ^a	1.5924 ^a		5.1882 ^a		0.0361 ^a
494							522						
CZ	0.2272 ^a	0.8482 ^a		0.9167 ^a			SK	0.0572 ^a		-6.6389 ^b	1.0293 ^b		0.4995 ^a
PL	0.1616 ^a	1.4218 ^a	2.0769 ^a	1.8094 ^a		-3.23E-13 ^a	PL	0.1053 ^a	0.2939 ^a		0.2012 ^a		3.95E-13 ^b
SI	0.2240 ^a			0.2471 ^a			HU			-3.1859 ^a		1.1569 ^a	-1.04E-14 ^a
BG	0.1773 ^a	1.8634 ^a			-1.6060 ^a	6.31E-12 ^b	SI	0.1579 ^a			2.1199 ^a		-1.9862 ^a
495							522						
PL	0.5146 ^a	0.6607 ^b	-0.2171 ^a		0.2621 ^a		BG	-0.0168 ^a	5.2293 ^a	-47.0283 ^a			8.3681 ^a
501							522						
SK	0.2661 ^a	1.2103 ^a	-4.6865 ^a			1.83E-11 ^b	RO	0.0246 ^a	-0.0962 ^b		-0.8782 ^a	0.3898 ^b	6.34E-13 ^a
PL	0.5911 ^a	4.0243 ^a		4.1108 ^b	2.3939 ^a	9.48E-13 ^a	531						
AT		-5.7658 ^a		-1.8754 ^a	-1.8754 ^a	-1.84E-12 ^a	BG	0.5432 ^b		-3.1218 ^a		-1.8903 ^a	3.42E-11 ^a
BG		cor UN	-397.6014 ^a	-8.9572 ^b	cor GDP, GFCF	17.2961 ^a	AT		0.5889 ^a	-1.4399 ^b		-1.0992 ^a	X
502							532						
SK		1.7599 ^b		-3.2548 ^a	-4.97E-11 ^a	X	SI	0.3111 ^a			-3.4502 ^b		0.8194 ^a
PL		16.7378 ^a	-287.8193 ^b	100.6994 ^a		8.4866 ^b	BG	0.0326 ^a	1.5331 ^a		-16.1623 ^a		0.5136 ^b
SI	0.4358 ^a		-9.0231 ^a		-3.1375 ^a	-3.14E-11 ^a	RO	0.3200 ^a		-2.4031 ^a	0.7154 ^a		-6.06E-14 ^a
BG	-0.4044 ^a		446.3173 ^a	19.6053 ^a		35.0154 ^a	531						
RO	0.6203 ^a	11.7123 ^a		-3.9175 ^b	-10.8805 ^a		BG						-1.8903 ^a
503							532						
PL	0.4703 ^b		-1.8867 ^a	2.1255 ^a		-1.17E-12 ^a	CZ		3.2310 ^a		-5.0293 ^b	-5.5887 ^a	-1.86E-12 ^a
HU	0.3776 ^a		338.9149 ^a	235.4665 ^a			SK	0.3408 ^a		-5.3069 ^b	1.3050 ^a		X
AT		5.3088 ^a	-17.7893 ^b			-1.03E-11 ^a	PL	0.2208 ^a	16.2156 ^a	-3.9659 ^a			-11.6054 ^a
BG			-60.3520 ^a		-1.3344 ^a		HU	0.4760 ^a		-101.4551 ^a			40.7941 ^a
RO	0.8552 ^a	5.6543 ^a		2.0672 ^a			SI	0.0605 ^a	2.6044 ^a		-2.0962 ^a		-0.1037 ^a

Source: Author's own calculations based on data of Orbis database

Symbols: ^a, ^b and ^c indicate significance at 1%, 5% and 10%.

As for Polish companies, we did not find a result in only one subindustry – 531. The remaining subindustries have a result for at least one profitability indicator. Overall, the

reference interest rate and the development of the economy have the greatest impact on the profitability level. The level of return on assets is affected by the development of the economy (495, 511, 512, 521, 532), the reference interest rate (491, 492, 494, 502, 522) and the inflation rate (493, 501, 503). The positive impact of economic development is obvious, as the Polish economy is one of the few economies that did not experience an economic downturn during the 2008/2009 financial crisis, the ensuing European debt crisis, the global slowdown in 2012/2013 and the global downturn at the end of the period under review. During the period under review, this economy grew by an average of 3.6% year on year. Economic prosperity increased the disposable income of households (increase in profits) as well as companies (possibility of reinvesting in other assets). The reference interest rate had both a positive and a negative impact. The negative impact was due to the decrease of this rate from 4.5 to 1.5% during the period under review, which resulted in cheaper debt financing, by which other assets could be purchased to increase production. On the other hand, the interest rate was high in the first half of the period, which could have had a positive impact due to, for example, the fact that companies borrowed at higher costs and could still increase their profitability. The inflation rate had a positive impact on the return on assets. The average inflation rate was around 1.5%, which may have reduced the real expression of interest rates, which may have become lower giving companies a room for debt financing; this way, they could acquire additional assets and by them to increase production and consequently the profit. The level of return on equity was mostly affected by the same determinants as in the case of ROA – economic development (491, 494, 495, 512), interest rate (492, 493, 501, 503, 532) and inflation rate (502, 511). These are the same directions of impact as for ROA and the explanation is therefore the same; only the assets for additional production are not increased but the equity is, out of which further development and purchase of such assets can be financed. The level of profitability of sales was again influenced by the reference interest rate (491, 492, 493, 495, 504), the development of the economy (501, 502) and, in addition, the unemployment rate (511, 532). As with ROA and ROE, the impact of the reference interest rate and economic development has the same rationale and, in addition to the effect on assets, equity, these variables may also affect sales. The negative impact of the unemployment rate is evident in view of the decline in this rate from 10.3 to 3.9% during the period under review. Along with this decrease, the employed population increased, which meant an increase in the disposable income that could be spent on products in the given subindustries.

No results for Hungarian companies can be found in subindustries 491, 495, 501, 502 and 531. The remaining subindustries have a result for at least one profitability indicator. Overall, the rate of reference interest rate, which clearly dominates in twelve out of seventeen cases, and the rate of inflation have the greatest impact on profitability. Both determinants have both positive and negative impacts, with expected impacts prevailing. The greatest impact of the reference interest rate can be found in subindustries 492, 503, 504, 511, 521, 532 for ROA, 494, 503, 512, 522 for ROE and 512 for ROS. On the contrary, the greatest impact of the inflation rate can be found in subindustries 512 for ROA, 492 for ROE and 492, 493, 503 for ROS. The negative impact of the reference rate is seen due to a decrease in the rate from 7.0 to 0.9% during the period under review, which resulted in cheaper debt financing, based on which additional assets could be purchased to increase output; at the same time, additional resources could be invested in equity in this way. On the other hand, the interest rate was high in the first half of the period, which could

have had a positive impact due to e.g. the fact that companies borrowed at higher costs and could still increase their profitability. The positive impact of the inflation rate on the profitability level could be due to the fact that the average inflation rate was around 2.4%; such situation could reduce the real expression of interest rates, which could thus become lower and give companies a room for debt financing; companies could acquire additional assets and thus increase their production and consequently their profitability. The negative influence of the inflation rate is difficult to justify, but occurs in only one case (512). The good development of these two variables could, through debt financing, lead to an increase in assets, equity and sales, which led to increase in profitability in most cases.

Table 3: GMM results for ROE indicator

ROE(-1)	GDP	IR	INF	UN	GFCF	EX	ROE(-1)	GDP	IR	INF	UN	GFCF	EX	
491							503							
CZ	211.4936 ^a	-253.5511 ^a			-3.80E-11 ^a	0.2633 ^a	PL	0.6456 ^b	-4.1651 ^a		-1.9221 ^b		-0.1465 ^b	
PL	-0.2906 ^c	359.4741 ^a		-108.6830 ^b		-27.8033 ^b	HU		-399.2830 ^b	103.6910 ^a		-2.43E-11 ^a		
AT		-233.3422 ^b	10.6431 ^a		8.27E-11 ^b	X	AT	0.7858 ^a	-48.5096 ^b	3.5593 ^a	-10.7748 ^b		X	
BG	-0.3526 ^a	9.1687 ^b		-4.7412 ^b	7.78E-11 ^a	-43.9699 ^a	BG		6.1794 ^a	4.3508 ^b		-9.39E-12 ^a	3.2139 ^a	
RO	0.4862 ^a	125.1177 ^a	55.5134 ^a		5.23E-11 ^b	-6.4560 ^b	RO	13.5443 ^a	15.4626 ^b		-16.1875 ^a			
492							504							
CZ	-0.1277 ^a	1.5249 ^b	4.4825 ^a	-6.6299 ^a	1.25E-12 ^a		CZ	14.7023 ^b		21.7674 ^a	-31.3689 ^b	3.14E-12 ^a		
SK	-0.1211 ^a	340.8669 ^a	cor INF	478.6595 ^a		cor UN	BG		-42.0258 ^a	-19.5475 ^a			112.6670 ^c	
PL	-0.0624 ^a		-35.7519 ^b		-14.3289 ^a	-1.0103 ^a	RO	0.5009 ^a	21.5853 ^a	18.4324 ^b		-14.8671 ^a		
HU	0.3899 ^a	cor EX, GFCF, IR, UN	461.4614 ^a	162.0244 ^a			511							
AT	0.0339 ^b		-2.1479 ^a	34.0472 ^a	-9.15E-12 ^b	X	CZ	-0.2641 ^a	45.1167 ^a		8.3354 ^a		8.32E-12 ^b	
SI	0.2750 ^a	-77.2070 ^a		804.3940 ^b	-116.4920 ^b	X	SK		68.5519 ^a	-107.6660 ^b	-6.6781 ^a		X	
BG		-66.6966 ^b	-10.1458 ^a	cor GDP, GFCF	-5.17E-11 ^b	65.0087 ^a	PL	-0.1577 ^a		-50.3261 ^a		4.08E-12 ^a	-1.2003 ^a	
493							BG	0.2320 ^a	-575.1542 ^a		-26.4749 ^b		47.9899 ^b	
PL	0.0215 ^a	-10.7940 ^a	5.1793 ^a		-3.8299 ^a		RO	0.7470 ^b	-14.0751 ^a	36.9854 ^a	cor EX, GFCF, INF	-2.82E-12 ^a	cor GDP, GFCF, INF, UN	
SI	-0.1832 ^a	13.9444 ^a		-12.8782 ^a	-2.70E-10 ^a	X	512							
494							PL	-0.3086 ^a	18.5838 ^a		6.0330 ^b	-14.0273 ^b		
PL	0.0092 ^a	3.8353 ^a		-2.1143 ^b		0.2023 ^a	HU		-892.3692 ^a		353.5926 ^c		0.9047 ^b	
HU	0.0408 ^a		-45.6828 ^a	21.5118 ^a	-9.30E-14 ^b		BG	0.0038 ^a	-398.7160 ^a	-15.7518 ^a		1.99E-10 ^c	35.8922 ^a	
AT	-0.4761 ^a	1.4667 ^a	-2.2283 ^a	-12.1173 ^a	-5.95E-12 ^b	X	RO		-38.3173 ^a	25.6591 ^b	-70.9017 ^b		-0.9475 ^a	
RO	-0.0005 ^b	9.1373 ^a		-51.2206 ^a	2.17E-11 ^b	-0.9323 ^a	521							
495							SI	-0.4370 ^a		-77.6119 ^a	80.8051 ^a		4.13E-10 ^c	X
PL	0.2097 ^a	7.0181 ^a		-1.2012 ^a	3.35E-12 ^a		BG	0.0105 ^a	46.8493 ^a		-19.0552 ^a		119.6255 ^a	
501							522							
SK	0.3083 ^a	35.2790 ^a	91.2420 ^a		3.77E-08 ^a	X	CZ	-0.0647 ^a	48.1830 ^a	-2.6090 ^b		cor GDP, GFCF, IR	-2.24E-12 ^a	
PL	0.4450 ^b		-15.5597 ^a		-4.7548 ^a	-9.30E-14 ^b	HU	0.0471 ^a		-152.4292 ^a	97.1827 ^a		-8.52E-13 ^a	
AT	-0.4742 ^a	4.0389 ^a	3.8616 ^b		-1.23E-11 ^a	X	AT	0.0045 ^a	2.3435 ^b		1.6225 ^a		-3.55E-12 ^a	
BG	-0.2597 ^a	cor UN	-75.5698 ^a	-11.5271 ^a	cor GDP	-192.0880 ^a	BG	0.0415 ^b	3.4157 ^a	-60.2391 ^a		-2.06E-11	-1.5796 ^a	
502							RO	-0.0079 ^a		22.9444 ^a		12.2770 ^a	1.9645 ^a	
SK	0.4142 ^a	40.2420 ^a	56.9737 ^a	-37.3669 ^b		X	531							
PL		-33.9285 ^a	52.5894 ^a		5.18E-11 ^a	6.1460 ^a	BG	0.5821 ^a	2.2768 ^b	-94.9194 ^a	3.2168 ^a		-15.9346 ^a	
SI	0.6905 ^a	-46.9718 ^a		-7.2771 ^a	8.15E-10 ^c	X	532							
BG	16.5002 ^a			-8.6240 ^a		-35.5643 ^b	CZ	-0.2936 ^a	1.6049 ^b	-28.4197 ^a			-0.2769 ^a	
RO	0.5017 ^a	-88.4734 ^a	36.2303 ^b		-9.15E-12 ^a		SK	-0.0550 ^a	8.8895 ^a	7.7843 ^a	-2.3074 ^a	2.06E-10	X	
							PL	-0.1130 ^a		43.5241 ^a	-31.2437 ^b	-13.6170 ^a		
							SI	0.2079 ^a	-9.4343 ^a	-49.7960 ^b	5.5854 ^a		X	

Source: Author's own calculations based on data from Orbis database

Symbols: ^a, ^b and ^c indicate significance at 1%, 5% and 10%.

As for Austrian companies, unfortunately, we did not find any results for subindustries 495, 502, 512 and 531. The remaining subindustries have a result for at least one profitability indicator. Overall, the reference interest rate has the greatest impact on the profitability level followed by the unemployment rate, economic development and the inflation rate. The return on assets is partly affected by the reference interest rate (491, 501, 503, 522) and partly by the unemployment rate (492, 493, 511). The negative impact of the reference interest rate can be explained by the fact that the rate was on average 0.3% during the period under review, which led to the possibility of cheap indebtedness, which could be used to acquire additional assets, which could lead to higher profits. The effect of the unemployment rate is ambiguous, which may be due to the fact that this rate fluctuated

between 4.6 and 6.0%. Periods of ups and downs alternated, which could lead to positive or negative impacts in the subindustries concerned. The sales profitability level is also affected by these two determinants, while the unemployment rate affects subindustries 491, 501, 511 and the reference interest rate affects subindustries 492, 494, 521 and 532. All cases meet our assumptions and therefore, the explanation is the same as for ROA indicator. The level of return on equity was affected by all four mentioned determinants – 491 and 503 by reference interest rate, 501 and 522 by economic development, 494 by unemployment rate and 492 by inflation rate. The impact of the reference interest rate and the inflation rate has already been explained. As for the average inflation rate, it was around 1.9%; it may have reduced the real expression of interest rates, which could have become even lower giving companies a room for debt financing; through an inflow of funds into equity, companies could finance their further production and development thus create more profit. The Austrian economy grew by an average of 1.6% year on year during the period under review. There was also no economic downturn, so it can be said that this economy coped very well with crises and economic external influences and companies were surrounded by an environment enabling them to grow their prosperity.

Results for Slovenian companies are missing in subindustries 491, 495, 501, 503, 504 and 531. The remaining subindustries have a result for at least one profitability indicator. Overall, the reference interest rate has the greatest impact on the profitability level followed by the inflation rate and economic development. The reference interest rate has a negative impact in all cases: 492, 493, 502, 511 for ROA; 502, 532 for ROE; 493, 532 for ROS. The negative impact is represented by the same effects as in the case of Austrian and Slovak companies, as the monetary policy of all three economies is managed by the European Central Bank. During the period under review, the interest rate was 0.3% on average, which led to the cheap indebtedness; such situation enabled to acquire additional assets, which would lead to higher profits. Similarly, these funds could increase equity. Everything could lead to growing sales and profits. The profitability level of subindustries 532 (ROA), 493 (ROE) and 521 (ROS) is positively affected by economy development. At the beginning of the period, the Slovenian economy suffered from the effects of the financial crisis of 2008/2009, which had the same course in Slovenia as in the United States. Also in this economy, a real estate bubble and a credit cripple occurred and after this crisis, moreover in 2013, this economy went through a banking crisis due to excessive risk-taking poor management of state banks as well as insufficient supervision. However, the economy recovered from the crises and achieved solid growth of over 2% in the second half of the period under review. Ultimately, good growth over half of the period under review had a positive impact on profitability. The profitability level in subindustries 494 and 521 (ROA), 492 and 521 (ROE) is affected by the inflation rate, which has a predominantly positive impact. The average inflation rate was around 1.2%, which, as in the remaining economies, may have reduced the real expression of interest rates; those may have become even lower giving companies a room for debt financing; this way, companies could to increase their profitability through the resources inflowing into assets and equity thus further development could be financed to increase future profits.

As for Bulgarian companies, only one subindustry (495) was not possible to obtain results for. The remaining subindustries have a result for at least one profitability indicator. Overall, the reference interest rate has the greatest impact on the profitability level followed by

the exchange rate and economic development. The impact of the reference interest rate is negative in almost all cases with one exception – 502 for ROA. The negative impact on the rate of the company's assets appreciation, equity and sales can be justified by the fact that the Bulgarian reference interest rate averaged 0.05% over the period, which clearly means very low costs when acquiring debt financing, based on which further assets could be provided, thus equity could increase as well as sales, production and profits. The impact of the exchange rate on the euro is very peculiar, as the Bulgarian lev is practically fixed on the euro and exchange rate movements are of very low amplitude to be able to move significantly with the amount of financial resources in conversion. However, in Bulgaria during 2010–2018, the value of imports prevailed the value of exports each year and therefore, an importer is affected mainly by the currency weakening. The currency weakened in 2010, 2012, 2013, 2014, 2017 and 2018, which has a negative impact on imports. This negative impact outweighed the impact on profitability indicators. A positive impact was found for subindustries 504 and 521 (ROE) and 504 (ROS). Here it would be necessary to find out what are the values of imports and exports in these subindustries. The positive impact of economic development was found in subindustries 491, 494 (ROA) and 503 (ROE). The Bulgarian economy was also developing at a good pace averaging 2.2% over the period under review and even 3.2% year on year in the second half. Businesses were prospering along with the economy and thus they were able to increase their assets and equity.

Table 4: GMM results for ROS indicator

ROS(-1)	GDP	IR	INF	UN	GFCF	EX	ROS(-1)	GDP	IR	INF	UN	GFCF	EX
491							504						
CZ	0.1834 ^a	161.3926 ^b	355.0653 ^b	-91.5949 ^b	cor UN		CZ	0.6439 ^b	-1.7164 ^a		-0.3275 ^a	9.54E-14 ^a	
PL	0.0011 ^a		21.6421 ^b	-2.9349 ^a	-1.23E-11 ^a		PL	3.0221 ^b	-39.3219 ^a	25.0293 ^a			0.0445 ^a
AT	0.5519 ^a	1.7246 ^a	-4.5972 ^b	-6.6590 ^a		X	BG	0.3314 ^a	-3.4158 ^a		1.1699 ^b	-3.08E-12 ^a	36.4988 ^b
BG	0.3358 ^a		-66.8085 ^a	2.9966 ^a	6.8E-12 ^a	-8.7811 ^a	RO	0.0676 ^a	59.4242 ^a	24.3876 ^a	-17.4191 ^a		8.2514 ^a
RO	12.9072 ^a	-8.4337 ^b		-8.9448 ^a		-1.7620 ^a	511						
492							512						
CZ	-0.1157 ^a	-2.1739 ^a	0.6507 ^a	3.42E-13 ^b	0.0274 ^a		CZ	0.4506 ^a	-11.2147 ^a	4.6015 ^a		8.56E-13 ^b	
SK	0.0056 ^a	6.2741 ^a	9.1982 ^a	-5.5608 ^a	cor UN	X	SK	0.4056 ^a	1.2489 ^a	1.3131 ^a	1.1726 ^a		X
PL	0.1308 ^a	2.7867 ^a	-5.5874 ^a	2.9966 ^a	-1.9267 ^a		PL	-0.0488 ^a	1.5282 ^a	1.7566 ^a	-2.2027 ^a		
HU	0.1348 ^a		29.0046 ^a	18.2293 ^a		0.0384 ^b	HU	0.4570 ^a	364.7665 ^a		-164.1973 ^a		-0.2624 ^a
AT	0.2625 ^a	3.7333 ^a	-16.6656 ^b	9.9435 ^a		X	AT	0.7186 ^a	3.7498 ^a	0.4354 ^a	-5.3944 ^a	-6.41E-12 ^a	9.5196 ^a
BG	0.6365 ^a		-242.6523 ^a	45.1652 ^a		-710.3704 ^a	BG	0.0027 ^a	38.2461 ^b	-160.5286 ^b	-8.0948 ^a		
RO	-0.5509 ^a	-4.9995 ^a	-6.5698 ^a	-13.0775 ^a		-1.4292 ^a	RO	-0.2305 ^a	-19.8570 ^a	283.0392 ^a	107.8700 ^a	cor EX, GFCF, INF	cor GDP, GFCF, INF, UN
493							521						
PL	0.0804 ^a		2.9808 ^a	-2.4045 ^a	-8.17E-13 ^b	-0.1368 ^a	HU	0.6405 ^a	-6.8249 ^a	4.4795 ^a		3.86E-14 ^a	
HU	0.0005 ^a	-1.0012 ^a	2.1205 ^a	1.8751 ^a		0.0050 ^a	BG	173.3813 ^a	-180.4230 ^b		-94.7771 ^a		-200.0957 ^a
SI	0.3625 ^a		-3.2787 ^a	-0.4806 ^b	-1.25E-11 ^b	X	RO	-3.9912 ^b		2.9426 ^a		1.41E-11 ^b	-0.2010 ^a
BG	0.0698 ^a		-10.7405 ^b	0.7752 ^a	-1.0183 ^a		522						
RO	0.0821 ^a	5.7285 ^a	4.5462 ^b	2.3514 ^a	1.77E-12 ^a	-0.2325 ^b	AT	-0.5740 ^a	5.4310 ^a	-33.9128 ^a		-1.93E-11	X
494							531						
SK	0.2012 ^a	-0.9471 ^b	0.3764 ^a		1.95E-14 ^a	X	SI	14.4956 ^a		12.7882 ^a	-12.9134 ^a		X
AT	0.2106 ^a		-0.8498 ^a	-0.1296 ^a		X	BG	0.2148 ^a		-101.0319 ^a	-4.3475 ^a		-12.0623 ^a
RO	0.0247 ^b	1.8529 ^a		0.9614 ^a	-3.9691 ^a	-0.1266 ^a	532						
495							533						
PL	0.9936 ^a		4.5926 ^a	-4.0267 ^b	-0.4985 ^a	-0.1712 ^a	BG	39.5154 ^a	-381.9642 ^b				-62.8844 ^a
501							534						
SK		-3.3904 ^b	-0.5728 ^b		8.45E-13 ^a	X	CZ	0.5429 ^a	2.1967 ^a	-2.9189 ^a	-1.5923 ^b		
PL	0.7676 ^a	5.0309 ^a	4.1286 ^a	-1.8928 ^a			SK	0.1792 ^a	-2.5152 ^a		0.2559 ^a	1.28E-11 ^a	X
AT	2.4640 ^b		-108.6200 ^a	-181.7359 ^a		X	PL	0.2615 ^a	1.1534 ^a	1.4124 ^a	-2.2620 ^a		-0.0378 ^a
BG	0.2836 ^a	cor UN	-155.1692 ^a	cor GDP	-1.74E-11 ^a	-1.9033 ^a	AT	0.1536 ^a	3.3243 ^a	-8.8411 ^a	-5.4125 ^a	-6.19E-12 ^a	X
502							535						
SK	1.5639 ^a	-3.8336 ^b			-1.47E-11 ^a	X	SI	0.4671 ^a	-6.3449 ^b		0.7064 ^a		X
PL	43.6962 ^a		4.3103 ^a	-8.4531 ^a		-3.4923 ^a	BG	0.4225 ^a	3.1682 ^a		0.9727 ^a	-1.6073 ^a	-5.1331 ^a
BG		-104.7630 ^a			1.37E-09 ^a	-217.5458 ^a	RO	0.0535 ^a		0.5353 ^a	-0.9240 ^b	2.3E-14 ^b	-0.1858 ^b
RO	0.6001 ^a	20.6812 ^a		-10.1810 ^b	25.0886 ^a	-3.5E-12 ^a	503						
503							504						
HU			13.1092 ^a	8.1412 ^a	-9.87E-14 ^b								
BG	-0.1299 ^a	15.1666 ^a	-67.1012 ^a	10.5605 ^b		24.8806 ^a							
RO	0.9702 ^a		8.3291 ^a		-16.7413 ^b	-0.2565 ^a							

Source: Author's own calculations based on data from Orbis database

Symbols: ^a, ^b and ^c indicate significance at 1%, 5% and 10%.

No results for Romanian companies can be found in subindustries 495, 501 and 532. The remaining subindustries have a result for at least one profitability indicator. Overall, the unemployment rate has the greatest impact on profitability followed by economic development, the reference interest rate and the inflation rate. Each of the determinants has both a negative and a positive impact. The unemployment rate has the greatest impact on the profitability level in the following subindustries – 492, 504 (ROA), 494, 503, 512 (ROE), 492, 494, 502, 503 (ROS). In the case of subindustry 502, the impact is positive, in the remaining cases the impacts are negative. The negative effects are justified by the decrease of the unemployment rate from 7.2 to 4.2% during the observed period. As a result of the decline, the number of employees with a salary higher than unemployment benefits got higher. Consequently, the people's disposable income increased so they could demand for more production of the given subindustries. The influence of economic development can be found in subindustries 502, 503 (ROA), 504 (ROE), 491, 493, 504, 512 (ROS). In the case of subindustry 512, the impact is negative, in the remaining cases the impacts are positive. The development of the Romanian economy was very strong throughout almost the entire observed period; in 2010, a decrease occurred of less than 4% as the consequence of the financial crisis in 2008/2009, when the Romanian government had to apply for an international loan to strengthen the credit market. In the following years, the year-on-year was respectable and in 2017, it even exceeded 7%. The economy was prospering and businesses and households could demand for more products and were prospering, too. The reference interest rate affected the profitability of subindustries 491, 522 (ROA), 491, 502, 522 (ROE) and 511 (ROS). For subindustries 491, 522 and 511 this impact is positive, for the remaining subindustries the effect is negative. The development of this rate is similar to the Polish and Hungarian rates. This rate decreased from 6.3 to 1.8% during the period considered. This decrease had a negative impact meaning very low costs of a debt financing acquisition, based on which the additional assets could be bought and equity, sales, production and profits could increase. On the other hand, the interest rate was high in the first half of the period, which had a positive impact due to e.g. the fact that companies borrowed finances at higher costs and could still increase their profitability. The profitability level of subindustries 511, 512, 521 (ROA), 511 (ROE) and 532 (ROS) is affected by the inflation rate. This rate averaged 2.7%, which is the most out of the monitored economies. Such a high value could reduce the real expression of interest rates, which could thus become lower and companies gained a room for debt financing; they could acquire additional assets, increase their equity, extend the production thus increase their profit. Negative impacts are difficult to justify.

A brief summary should be provided at the end of this section. In this part, only the largest impacts of determinants on selected profitability indicators in individual subindustries were discussed. Out of the one hundred and eighty-seven cases, the impact of the reference interest rate dominated in ninety cases. Most of these effects were negative meaning that a decrease of the rate would allow the lower debt financing costs; as the consequence of it, companies' assets and equity would increase, thus production, sales and profits would increase as well. In some economies, these interest rates were high at the beginning of the period under review but fell during this period, thus fulfilling our assumption. Other economies had these interest rates of almost 0% throughout the period under review, thus also fulfilling our assumption.

Conclusions

This research dealt with corporate profitability and its determinants. The analysed companies came from the transportation and storage industry and involved eight selected economies of Central and Eastern Europe. Namely, Czech Republic, Slovakia, Poland, Hungary, Austria, Bulgaria, Slovenia and Romania were considered. The business profitability of the selected industry was analysed involving fifteen subindustries and a total of 25,242 companies. The data covered the period 2010–2018. This period was chosen with regard to the time series located in the Orbis database. Unfortunately, a longer time series was not available. If we look at the economic development since 2018, when the world was hit by the covid pandemic, it can be assumed that the results could differ with the data for the period 2019–2021. However, due to the fact that all selected determinants come from the external environment of the company, the results of this research do not lose their value despite the change in the economic environment, as these are the main macroeconomic indicators that always affect business activities.

The sector is considered one of the most important sectors in Europe and therefore in the world, as it touches our daily activities – tourist transport, transport to work, storage of goods or food. Given its importance, the sector deserves an attention even though, according to the statistics, the sector accounts for only around 5% of the European Union's GDP.

The aim of the research was to find out whether selected factors influence the company's profitability or not. Specifically, there are six selected macroeconomic factors – the rate of GDP growth, the inflation rate, the reference interest rate, the unemployment rate, gross fixed capital formation and the exchange rate against the euro.

Given that eight economies, over 25,000 companies and the impact of six determinants were analysed, it is clear that there is a significant number of results. The previous part described in detail the most significant impacts of determinants in the given subindustries and individual economies with regard to three selected profitability indicators. One main conclusion emerged out of these analyses. The level of corporate profitability of the transportation and storage industry is primarily influenced by the level of the reference interest rate of the given economies. The negative influence dominated meaning that when interest rates fell, profitability should have increased; companies could take advantage of cheaper debt financing, which could generate additional profitability by buying assets and investing in equity. The resulting impact is not unexpected, as in the Czech Republic, Slovakia, Austria, Slovenia and Bulgaria, the values of key interest rates were very low, balancing around the zero for most of the period under review. Although interest rates were higher in Poland, Romania and Hungary at the beginning of the period under review, they fell sharply during the period under review making foreign sources of financing more attractive.

If we take a brief look at the results from the perspective of individual economies, the impact of the reference interest rate was most significant for Slovak, Polish, Hungarian, Austrian, Slovenian and Bulgarian companies. The profitability level of Czech companies was mostly affected by the inflation rate and the unemployment rate. The dominant positive effect

of the inflation rate can be justified by the fact that in the Czech Republic, the average inflation rate was 1.6% during the period under review, which may have reduced the real expression of interest rates, which may have become lower and companies thus gained a room for debt financing; this way they could acquire additional assets and increase the equity, extend the production and consequently make higher profit. The predominant negative impact of the unemployment rate is justified by the decrease in this rate from 7.3 to 2.2%. During the reference period. The increase in the employed population meant an increase in the disposable income that could be spent on products in the industry. The profitability level of Romanian companies was mostly affected by the unemployment rate, which had a predominantly negative impact. This impact is related to the decrease in the unemployment rate from 7.2 to 4.2% during the period under review. As a result of decline in unemployment, the number of employees with a salary higher than social unemployment benefits is increased. Consequently, a disposable income of population increased thus people were able to demand for more products and services of the sector.

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Threshold Effects of Import Dependence on Economic Growth in Nigeria

Prahové účinky dovozní závislosti na hospodářském růstu Nigérie

OZIENGBE SCOTT AIGHEYISI

Abstract

This study uses annual time series data spanning 1981–2018 to investigate the threshold effects of import dependence on economic growth in Nigeria. The ordinary least squares (OLS) and the fully modified OLS (FMOLS) techniques are employed for estimation of a quadratic regression model to determine the nature of the relationship between aggregate import dependence and economic growth. It is found that the relationship is concave, that is, it follows an inverted-U shape. The conditional least squares estimator is thereafter employed to estimate the threshold model specified to determine the threshold level of import dependence. The study finds a threshold level of 26% for aggregate import dependence. Below this threshold, import dependence positively affects economic growth; above the threshold, the growth effect of import dependence is adverse. Furthermore, it is found that the long-run growth effect of Inflation is adverse, and investment is favourable to long-run economic growth. Based on these findings, the paper recommends efforts by Nigeria's government to reduce import dependence below the estimated threshold of 26%, control inflation and encourage investment so as to enhance the growth of the nation's economy.

Keywords

economic growth import dependence, import penetration, Nigeria, threshold regression

JEL Codes

F14, F41, F43

DOI

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Abstrakt

Tato studie využívá roční časové řady dat za období 1981–2018 ke zkoumání prahových účinků závislosti na dovozu na hospodářský růst v Nigérii. K odhadu kvadratického regresního modelu pro určení povahy vztahu mezi agregátní dovozní závislostí a ekonomickým růstem jsou použity techniky obyčejných nejmenších čtverců (OLS) a plně modifikovaného OLS (FMOLS). Zjistilo se, že vztah je konkávní, tj. má tvar obráceného U. K odhadu prahového modelu určeného k určení prahové úrovně dovozní závislosti je poté použit podmíněný odhad nejmenších čtverců. Studie zjistila prahovou úroveň 26 % pro celkovou závislost na dovozu. Pod touto prahovou hodnotou dovozní závislost pozitivně ovlivňuje hospodářský růst; nad touto prahovou hodnotou je vliv dovozní závislosti na růst nepříznivý. Dále bylo zjištěno, že dlouhodobý růstový vliv inflace je

nepříznivý a investice jsou pro dlouhodobý hospodářský růst příznivé. Na základě těchto zjištění článek doporučuje nigerijské vládě, aby se snažila snížit závislost na dovozu pod odhadovanou prahovou hodnotu 26 %, kontrolovala inflaci a podporovala investice, aby se zvýšil růst národního hospodářství.

Klíčová slova

ekonomický růst, závislost na dovozu, penetrace dovozu, Nigérie, prahová regrese

1 Introduction

Nigeria's economy has been largely dependent on imports since the discovery and exploitation of crude oil in commercial quantities in the 1970s. The discovery led to the gradual relegation of the agricultural sector which was hitherto the main stay of the nation's economy, to the background. Also adversely affected by the emergence of the crude oil sector as the driver of the nation's economy was the industrial sector (especially, the manufacturing sector). Edo (2013) aptly noted that crude oil discovery had been the bane of the nation's manufacturing sector. Until recently, agricultural and manufacturing sectors were largely neglected by subsequent governments in the country (Feyisayo, et al., 2015; Egbulonu & Nwokolo, 2016). Consequently, output of agricultural produce and manufactures declined, necessitating increase in imports of those items to meet the growing domestic demand.

Importation enhances a country's access to foreign goods and technology which are not produced or developed locally, thereby contributing to economic growth as foreign technologies are deployed for efficient production locally. The chances of learning by doing are enhanced through knowledge transfers, importation being a key channel of transmission, thereby engendering improvement in innovations, skills and productivity of local workforce. Awokuse (2008) argued that the empirical evidence on the import-led growth is stronger than that of the export-led growth. This position supports Rodrik (1999) who noted that the benefit of trade lies on the import side rather than on the export side. However, it can also be argued that high dependence on imports could adversely affect economic growth. This is the thesis of this paper: that there exists a threshold level of import dependence below which it could be favourable to economic growth and above or beyond which it could adversely impact on economic growth. Import dependence (also known as import penetration) refers to the extent of reliance on imports for satisfaction of domestic demand in the economy.

This study is a single country-study focusing only on Nigeria and to the best of my knowledge no prior study has investigated the growth effect of import dependence, or established whether or not a threshold level exists for import dependence, or estimated such threshold, especially as it relates to Nigeria which to a large extent depends on imports to meet her domestic demand. In view of these, the study sets out to determine the extent to which Nigeria should depend on imports to meet or satisfy domestic demand in order to avoid possible adverse effects on economic growth.

This paper has three objectives which mark its contributions to the extant literature. The objectives are: (1) To investigate the growth effect of import dependence on economic

growth in Nigeria; (2) To investigate whether the relationship between the variables is linear or non-monotonic (that is whether an inflexion point or a threshold level exists in the relationship); (3) To estimate the threshold level if it is found to exist. The outcome of the study will serve as a useful policy guide to control dependence on imports, protect and revamp the local industries and the agricultural sector thereby making the country more self-reliant or self-sufficient and less dependence on import, creating employment in the sectors hitherto relegated and enhancing the growth of the nation's economy.

Previous studies including Alam (2006), Ogbonna (2015) and Aigheyisi (2019) assume the effect of imports on economic growth to be linear. The thesis of this study is that the relationship between import dependence and economic growth may be non-monotonic or nonlinear contrary to the assumptions of previous studies. There could be an inflexion point (or a threshold) in the relationship below which increase in import dependence could be favourable to growth, and above which it hurts economic growth. This obvious gap in the literature is what this study sets out to fill. This study contributes to existing literature by demonstrating that the relationship between import dependence and economic growth in Nigeria is non-linear, that an inflexion point or a threshold exists in the relationship. Additionally, it estimates the threshold level of import dependence and highlights its implication for economic growth in the country.

The rest of the study is outlined as follows: Section 2 presents a review of relevant literature. The Data and methodology used in the study, including specifications of model and the estimation technique is discussed in Section 3. The results of empirical analysis are presented and discussed in Section 4. Section 5 concludes the paper with some policy recommendations.

2 Literature Review

2.1 Theoretical Literature

The classical theories (Adam Smith's Absolute Advantage Theory, and the David Ricardo Comparative Advantage Theory) and the neoclassical trade theory (Heckshere-Ohlin Factor Endowment Theory) suggest a strong linkage between trade and output growth, based on some underlying assumptions. The New Growth theory on the other hand, suggests a positive long run growth effect of international trade through knowledge and technology transfer (Roe & Mohtadi, 1999). Barro and Lee (1994) identified trade openness as an important growth determinant as it paves way for acquisition of advanced technologies from highly industrialized countries.

Importation is one of the channels for knowledge and technology transfer. Global transmission of knowledge through this channel has been shown to be a source of total factor productivity (TFP) growth (Navaretti & Tarr, 2000; Belitz & Moulders, 2016). Considering that knowledge is inexhaustible (Arrow, 1991), the non-depletion of knowledge guarantees increasing returns to scale in the trading sectors, and this engenders improvement in factor productivity. The endogenous growth model establishes total

factor productivity growth and knowledge accumulation as principal connectors of trade and economic growth. Participation in global trade, characterized mainly by technology imports will engender rapid economic growth of developing countries (Jayme, 2001).

2.2 Empirical Literature

Empirical evidence on the growth effect of imports and import dependence has been inconclusive, suggesting that the effect is partly dependent on country-specific conditions.

Li et al. (2003) examines the growth impact of services imports in a sample of 83 countries comprising 20 developed and 63 developing countries during the period from 1985 to 1999 for developed countries, and 1990 to 1999 for developing countries. The study found that services imports impacted positively on economic growth in developed countries, but negatively in developing countries. The researchers attributed the different impacts on growth to the varying extent to which services imports engender transmission of knowledge and technical know-how into the services sector of each group of countries. The transmission is greater in developed countries than in developing countries. Another probable reason given is the differences in the nature of the services imported considering that importation of business services may have greater impact on economic growth than tourism imports.

Alam (2006) examines the growth effects of capital goods imports and manufactured exports in Mexico and Brazil during the period from 1959–1990 and 1955–1990 respectively. Various techniques including the Johansen normalized equation, ARDL and FMOLS were used to obtain the long run effects of the capital goods imports and manufactured exports on growth. Evidence from the three methods indicates that capital goods imports positively and significantly affects economic growth in both countries. The result also indicates that manufactured exports do not significantly affect economic growth in both countries while capital and labor were found to be significant growth drivers in both countries. These findings, to an extent, also provide justification for the Rodrik (1999) proposition that the benefit of trade lies on the import side rather than on the exports side.

Kim et al. (2007) examine the effect of imports on economic growth in the Republic of Korea using quarterly data spanning the period from 1980:Q1 to 2003:Q3. Results indicate that imports positively and significantly affect economic growth, but the statistical significance varies across different categories of imports. Specifically, consumption goods imports exert the most significant impact on economic growth in the country followed by capital goods imports and imports from G7 developed countries. Exports exert no significant impact on economic growth. Expenditure in R&D was found to also significantly and positively impact economic growth in the country.

Peltonen et al. (2008) examines the effect of import penetration from emerging market economies on profitability of the manufacturing sector in 10 Euro-area countries during the period from 1995 to 2004. The analysis reveals that the overall impact of import

competition on manufacturing sector profitability in the Euro-area countries is negative. This is more so for imports from China and Russia. Import completion from the United States of America is also found to negatively affect manufacturing firm's productivity. Contrary to these, however, imports from Latin America enhance the profitability of the manufacturing sector in countries.

Goldar and Renganathan (2008) estimated a dynamic panel model in a study to examine the effect of import penetration on capacity utilization in India using dataset covering the period from 1996/97–2003/04 on 62 industrial firms which encountered significant import competition during the period. The study found that import penetration adversely affects capacity utilization in the short run. However, over the long run, the firms are able to adjust to contain, as well as neutralize the negative effects.

Ogbonna (2015) investigates the growth effects of various categories of imports (namely food and live animals, manufactured goods and machinery and transport equipment) in Nigeria during the 1961–2008 period by adopting Johansen cointegration and Granger causality tests. No significant causation was found to run from the categories of imports to economic growth, suggesting that growth in the country is not import-led.

Ali and Li (2016) investigate the effects of various categories of imports on economic growth in Pakistan using ARDL Bounds Testing to cointegration approach and error correction modeling (ECM). The study found that imports positively and significantly affected economic growth in the country. Specifically, imports of food, heavy machinery, petroleum products, textile and metals, agricultural products and chemicals, and other goods, all positively and significantly affected economic growth in Pakistan.

In a study to investigate the determinants of economic growth in the Kingdom of Saudi Arabia during the period from 1980 to 2014, Altaee, et al. (2016) employs the ARDL approach to cointegration and ECM to investigate the effects of imports and other variables on economic growth in the country. The study finds that imports negatively and significantly affected economic growth in the short- and long-run. Growth in the country is found to be driven by investment (gross fixed capital formation), exports and financial development.

Hamdan (2016) examines the possible effects of exports and imports on economic growth in 17 Arab countries during the period from 1995–2013 using a fixed effect model. The study found that exports and imports positively affect economic growth in the countries. Gross capital formation and labor force were also found to have affected economic growth positively and significantly. This suggests that trade was a key ingredient of economic growth in the Arab countries studied.

Yamed and Dougherty (2016) estimate fixed effect models to examine the impact of import penetration on firms' productivity growth in OECD countries during the period from late 1990s to late 2000s. The study finds the effect to be non-linear and dependent on firms' proximity to the technology frontier as well as extent of deregulation of the product market. Import penetration positively affects productivity growth of firms that are close to the technology frontier, and where there is less stringent regulation of the product

market. However for firms that are far from the technology frontier, import penetration has no significant effect on firms' productivity growth irrespective of the level of deregulation of the product market.

Aigheyisi (2019) employs the panel FMOLS estimator to examine the effect of import penetration on economic growth in ECOWAS sub-region during the period from 1995 to 2015. The study finds an adverse long run growth effect of import penetration (or import dependence) in the sub-region, suggesting that the sub-region's high dependence on imports stalls its long run economic growth. However, the researcher notes high import penetration rate in advanced or highly industrialized economies may be due to intensification of intra-industry trade occurring particularly between developed countries, and accounting for significant share of global trade (Sawyer & Sprinkle, 2012). Studies by Owolabi-Merus (2015) and Omoke et al. (2021) involving OLS and ARDL cointegration analysis respectively, also found adverse long-run effect of imports on economic growth in Nigeria. These tend to suggest that high dependence on import in the country adversely affects the growth of the economy.

Rijesh (2019) estimates random effect models in a study to examine the effect of import penetration and other factors on productivity of manufacturing firms in India during the period from 1980 to 2013. The study finds that import competition induces negative economies of scale in the short run. However, overall (and in the long run), imports provide the channel of transmission of trade-linked productivity gains.

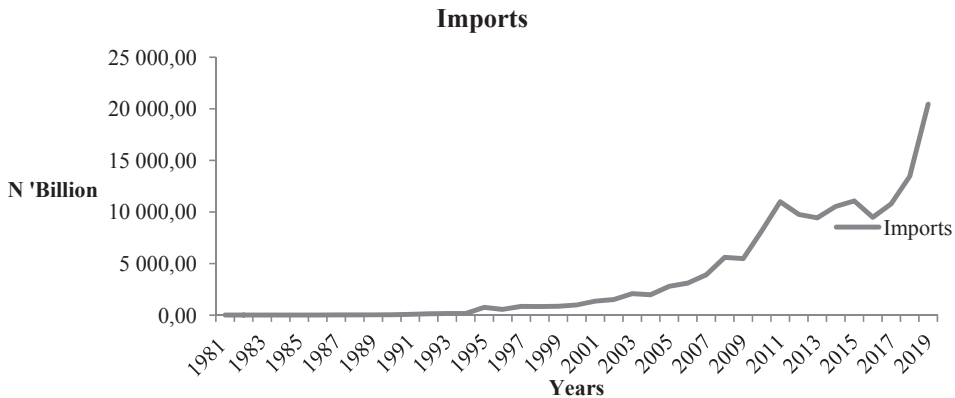
Syzdykova et al. (2019) explore the short and long run effects of imports and exports on economic growth in Kazakhstan during the period from 2000 to 2017. The ARDL Bounds Testing approach to cointegration and ECM were employed for the analysis. The empirical evidence indicates that both imports and exports positively and significantly affects economic growth, but the growth effect of import was more significant than that of export in the long run. In the short run, the growth effect of export was positive, but less significant than its long run growth effect. Import adversely affects growth in the short run.

It could be inferred from the mixed conclusions of the literature on imports and economic growth that though imports promote growth to some extent in both developed and developing economies, yet high level of import dependence could adversely affect economic growth. This implies existent of threshold level of import dependence. However, to my knowledge based on a wide search of the literature, the growth effect of import penetration, and the extent to which imports should be relied on in Nigeria have not been empirically investigated. Apart from the study by Aigheyisi which investigated the effect of import penetration on economic growth in the ECOWAS sub-region, other previous studies on Nigeria focused on the effect of imports (not import dependence or import penetration) on economic growth. Most of the existing studies on the effect of imports on economic growth assumed linear relationship between the variables. The current study fills the gaps in the literature by investigating the nature of the relationship to ascertain whether an inflexion point (or threshold) exists, and then proceeds to estimate the threshold, while examining what happens to economic growth at import dependence rate below and above the threshold rate.

2.3 Stylised Facts

Nigeria's non-oil trade is dominated by imports of virtually all categories of goods (primary goods and raw materials, intermediate goods and capital goods), and services. Generally, the country's import bill has been rising due to the weakness and low level of domestic output from the various sectors of the economy. The demand for import is necessitated among other factors, by the need to meet the high and rising domestic demand for goods (including capital, intermediate, consumer goods and raw materials) and services by the various economic units. The trend in the nation's import over the last four decades is shown in Figure 1.

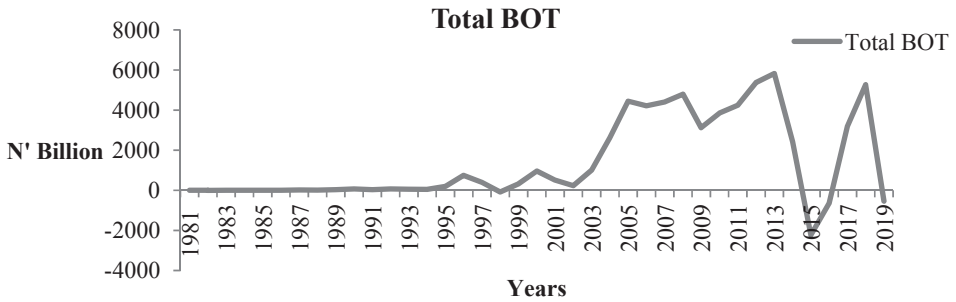
Figure 1: Trend in Nigeria's Imports



Source: CBN (2020)

The rising import demand has some implications for the nation's balance of trade and economic growth. The country's total balance of trade over the last four decades has been positive owing to the dominance of oil exports, except in 1981–83 and 1998 and recently in 2015–16 and 2019 where it was negative as a result of drop in crude oil price in the international crude oil market and the fall in demand for the country's crude oil by the United States as a result of exploitation of shale oil since 2014 which has been a useful alternative source of energy in the country. This also was partly responsible for the crash in global crude oil prices in those years (2015–2016). The trend in the country's BoT is shown in Figure 2.

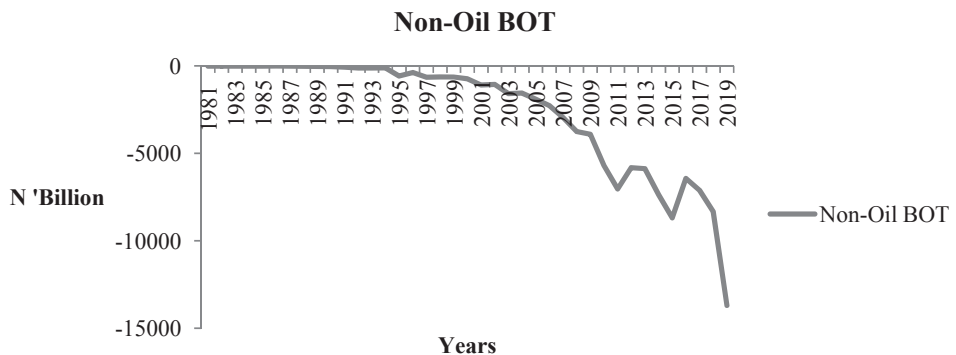
Figure 2: Trends in Nigeria's Balance of Trade



Source: CBN (2020)

However, the balance in the country's non-oil trade has been negative all through the years. This can be attributed to the high dependence of the economy on imports, and low volume of non-oil exports. Figure 3 shows the trend in non-oil balance of trade.

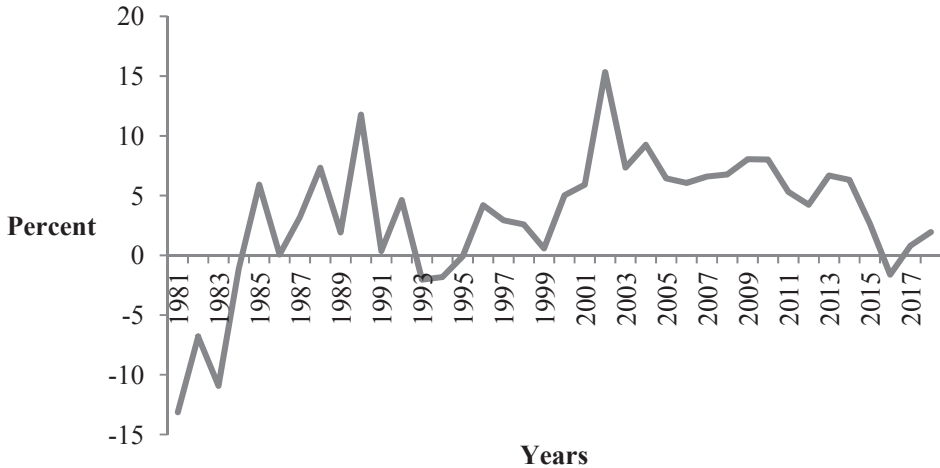
Figure 3: Trends in Nigeria's Non-Oil Balance of Trade



Source: CBN (2020)

The huge import bill has had adverse effect on the country's economic growth through excessive pressure on her reserves of foreign exchange, and its depressing effect on the value of the domestic currency causing it to depreciate rapidly. Furthermore, high level of imports has also had adverse effect on the nation's infant industries whose outputs are not able to compete with imports from the developed countries. Most of them are also not able to import foreign technologies to deploy or engage in domestic production as a result of increase in cost of importation caused by depreciation of the currency. These and many other factors including macroeconomic policy inconsistency, infrastructural decay, security challenges, low and unstable commodity prices, etc. have tended to adversely affect the growth of the nation's economy which has been quite slow and unstable as shown in Figure 4.

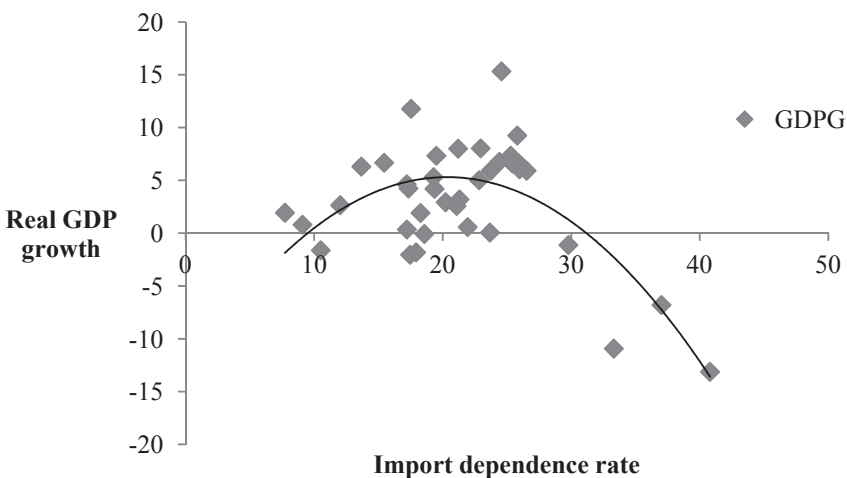
Figure 4: Nigeria's real GDP annual Growth Rates



Source: CBN (2020)

International trade theory and some thread in empirical literature argue that imports are necessary for growth. Through importation, countries are able to access variety of goods and services which cannot be sourced locally. High-tech or capital goods can be imported to the economy to boost productivity of firms thereby enhancing their outputs. However, high dependence on imports or high import penetration rate (especially for primary and final consumer goods) could adversely affect the growth of an economy. Figure 5 shows the scatter chat for Nigeria's import dependence (measured as total imports as a percentage of apparent consumption (also known as domestic demand) and her economic growth (measured as real GDP growth) during the 1981–2019 period.

Figure 5: Scatter Chat for Nigeria's real GDP annual growth and import dependence rates



Source: CBN (2020)

The scatter chart shows that the relationship between economic growth and import dependence in Nigeria has been an inverted U-shaped relationship. This suggests existence of a threshold level for import dependence. Economic growth trends positively at lower levels of import dependence, but at higher levels, economic growth is adversely affected. From the figure, the inflexion point in the relationship is between 20% and 30% import dependence rate. Determining the actual threshold level for import dependence is a major objective of this paper.

3 Data and Methodology

3.1 Data

Data used for the study are annual time series data spanning the period from 1981–2018. They were all obtained from the World Bank’s WDI (2019). The data were on real GDP growth (proxy for economic growth), inflation (measured as annual percentage change in consumer price index) and real exports, real imports and real GDP used for the computation of import dependence (measured as imports as percentage of aggregate domestic demand or domestic absorption), i.e.

$$\text{Import dependence (IMDPD)} = \frac{\text{REAL IMPORTS}}{\text{AGGREGATE DOMESTIC DEMAND}} * 100\%$$

$$\text{Import dependence (IMDPD)} = \frac{\text{REAL IMPORTS}}{\text{REAL GDP} - \text{REAL EXPORTS} + \text{REAL IMPORTS}} * 100\%$$

3.2 Theoretical Framework

The Solow (1956) growth model provides the theoretical framework for this study. The model is presumed to provide the framework for comprehending the determinants of economic wellbeing (Mankiw *et al.* 1992). It relates real output (Y) to factor inputs such as technology (A), capital (K) and labor (L). The relation is expressed as:

$$Y = f(A, K, L) \tag{1}$$

Taking the growth rate of Equation 1, we have:

$$Y_g = f(A_g, K_g, L_g) \tag{2}$$

where Y_g represents growth rate of real GDP, A_g represents technological growth, K_g represents capital growth, and L_g represents annual growth rate of labour.

The endogenous growth model recognizes knowledge (W) as an important determinant of economic growth (Lucas, 1988; Romer, 1990; Chen & Looi, 2005). Incorporating W into equation [2] yields:

$$Y_g = f(A_g, K_g, L_g, W) \quad [3]$$

The new growth theory relates international trade to economic growth through the channel of knowledge and technology transmission. This occurs mainly through capital and intermediate goods imports. According to Lowey and David (2003), the growth effect of openness depends on the extent of knowledge spillovers from abroad. Considering that importation component of trade is one of the key channels for transmission of knowledge and technology, which engenders growth in total factor productivity (Navaretti & Tarr, 2000; Belitz & Moulders, 2016), knowledge and technology growth can be said to be functions of import dependence. This is expressed functionally as:

$$W, A_g = f(\text{import dependence (IMDPD)}) \quad [4]$$

Import dependence can be substituted for W, A_g and incorporated in the growth model [equation 3] as a potential growth determinant as:

$$Y_g = f(K_g, L_g, \text{IMDPD}) \quad [5] \quad [5]$$

3.3 Model Specification

In empirical applications, the Solow model is augmented to incorporate policy variables which affect growth (Mankiw *et al.* 1992). In order to achieve the objectives of this study, the basic Solow growth model is augmented by incorporating import dependence (which is the key explanatory variable of interest) and its squared term, and inflation. Thus, the model of the study is specified functionally as:

$$\text{GDP_GR} = f(\text{IMDPD}, \text{IMDPD}^2, \text{INF}, \text{GCF_GR}, \text{POPG}) \quad [6]$$

The econometric representation of equation [6] is specified as:

$$\text{GDP_GR}_t = a_0 + a_1 \text{IMDPD}_t + a_2 \text{IMDPD}_t^2 + a_3 \text{INF}_t + a_4 \text{GCF_GR}_t + a_5 \text{POPG}_t + \varepsilon_t \quad [7]$$

where: GDP_GR represents economic growth, measured as annual growth of real GDP; IMDPD represents import dependence, IMDPD^2 is the squared term of import dependence incorporated in the model make it flexible and to ascertain the presumed quadratic relationship between import dependence and economic growth; INF represents Inflation; and GCF_GR represents investment calculated as growth of real gross capital formation; POPG represents annual population growth, proxy for labour growth; t indexes time; ε is the error term.

The *a priori* expectations are: $\alpha_1 > 0$, $\alpha_2 < 0$, $\alpha_3 < 0$, $\alpha_4 > 0$, $\alpha_5 > 0$. These are based on theoretical predictions. The expected signs on α_1 and α_2 suggests existence of a non-linear (inverted U-shaped) relationship between import dependence and economic growth. This implies that a threshold level (or inflexion point) exists in the relationship below which the growth effect of import dependence could be positive, and above which it could be adverse. The long run growth effect of high and persistent inflation is expected to be adverse in line with the monetarists' thought or the distortionist view as a result of increase in cost of production and reduction in consumption and welfare amongst others (Mundell, 1971; Taylor, 1979, Jung & Marshall, 1986; Flood, 2001; Barro, 2013). At the heart of every growth theory is investment (Baldwin & Forslid, 2000). The theories predict positive growth effect of investment in all economies. The growth of population which is the source of labour supply is expected to be positively related to growth of real GDP.

A two-step methodology was employed for the study. The first step involved OLS estimation of the flexible (quadratic) growth equation specified in Equation 7 as suggested in Rosenblad (2020). This was done to establish the nature of the relationship between import dependence and economic growth. For robustness, the equation was estimated using the fully modified OLS estimator developed by Phillips and Hansen (1990) and further developed by Phillips (1993) to correct the problems of autocorrelation and endogeneity associated with cointegrated regressors to yield optimal long run estimates. The relationship was found to be nonlinear or non-monotonic, implying existence of an inflexion point or a threshold level. Consequently, the second step was undertaken, and this involved specification and estimation of a threshold model to determine the threshold level of import dependence and its growth effects. The threshold model was specified as:

$$GDP_GR_t = \beta_0 + \beta_1 IMDPD_t + \beta_2 d(IMDPD - k)_t + \beta_3 INF_t + \beta_4 GCF_GR_t + \xi_t \quad [8]$$

This is the baseline model for determination of the threshold level of import dependence. ξ is the error term. k represents arbitrarily assumed threshold values of import dependence (in %), while d is a dummy variable which takes up the value of 1 if $IMDPD > k$, and 0 (zero) if $IMDPD \leq k$. This is expressed symbolically as:

$$d = \begin{cases} 1, & IMDPD > k \\ 0, & IMDPD \leq k \end{cases}$$

The aim is to determine the optimal value of k that minimizes the residual sum of squares or maximizes the R^2 or adjusted R^2 of equation 8.

Following Fabayo and Ajilore (2006), POPG which was incorporated in the growth model in Equation 7 was omitted in Equation 8 because it was found to be statistically not significant, though it was positively signed as reported in Section 4. However, its relevance in growth in theory and empirics is not undermined. Omitting the non-significant variable also helped avoid the problem of over-parameterization of the threshold model.

Conditional least squares technique was employed for estimation of Equation 8 as proposed by Khan and Senhadji (2001). This technique involves OLS estimation of threshold equation using various values of k to obtain the one for which the sum of squared residuals is minimized. Since application of the OLS estimator requires that the variables of the model be integrated

of order zero (i.e. be stationary at level, or they should not contain unit root), the variables were tested for unit root using the KPSS unit root test. All the variables were found to be $I(0)$, except import dependence. The cyclical component of the IMDPD series was removed using the Hodrick-Prescott (HP) filter, and the (long run) trend component which tested to be stationary at level was used along with other variables for estimation of the models.

4 Results and Discussions

The results of estimations of the specified models are presented and discussed in this section. The section begins with presentation and discussion of the descriptive statistics of the variables. This is followed by presentation of the results of the test for unit roots in the variables to ascertain their stationarity or otherwise. The results of estimations of the specified models are also presented and discussed.

Table 1: Descriptive Statistics

	GDPG	IMDPD	INF	GCF_GR	POPG
Mean	3.175	13.953	19.300	3.463	2.582
Maximum	15.329	24.226	72.836	59.301	2.710
Minimum	-13.128	3.134	5.382	-43.260	2.489
Skewness	-0.870	-0.155	1.742	0.287	0.086
Kurtosis	4.540	2.412	4.835	2.771	1.706
Jarque-Bera	8.548	0.700	24.558	0.587	2.697
Probability	0.014	0.705	0.000	0.745	0.260
Observations	38	38	38	37	38

The descriptive statistics of the variables are presented in Table 1. Average GDP growth in the period under consideration was 3.18% and it ranged between -13.13% and 15.33%. The series was not normally distributed as indicated by the p-value of the Jarque-Bera (JB) statistic which is less than 0.05, and the coefficient of skewness and Kurtosis. Import as a percentage of domestic demand averaged about 13.95%. It ranged between 3.13% and 24.226%. The series is normally distributed as indicated by the p-value of the JB statistic which is greater than 0.05. Mean (average) inflation was 19.30%. Maximum inflation in the period was about 72.84%, while minimum inflation was about 5.38%. The series was not normally distributed as indicated by the coefficient of skewness, kurtosis and the p-value of the JB statistic which is less than 0.05. Gross capita formation growth rate follows normal distribution as indicated by the p-value of the JB statistic. It ranged between -43.26% and 59.30%, averaging 3.463 in the period under consideration. Annual population growth rate averaged 2.58%. Minimum population growth rate within the period was 2.49%, while the maximum was 2.71%. The series followed normal distribution as shown by the p-value of the JB statistic and the coefficient of skewness.

Table 2: Unit Root Test Results

Variables	KPSS Unit Root Test			ADF Unit Root Test		
	Level			Level		
	KPSS test stat.	Critical Value (5%)	Inference	ADF test stat.	Critical Value (5%)	Inference
GDPG	0.144	0.146	S	-4.106	-2.943	S
IMDPD	0.105	0.146	S	-4.000	-3.548	S
INF	0.104	0.146	S	-3.967	-3.540	S
GCF_GR	0.104	0.146	S	-3.415	-2.951	S
POPG	0.249	0.463	S	-5.453	-2.968	S

Results of unit root test involving KPSS and ADF tests are presented in Table 2. The results indicate that all the variables are stationary at levels.

Table 3 shows the result of OLS estimation of the growth quadratic regression model specified in Equation 4 to determine the nature (linearity or non-linearity) of the relationship existing between import dependence and economic growth. The choice of this technique was informed by the fact that all the variables are stationary at level.

Table 3: OLS Estimation of Quadratic Growth Regression Equation.

Dependent Variable: GDPG					
Method: Least Squares					
Sample (adjusted): 1982 2018					
Included observations: 37 after adjustments					
	Variable	Coefficient	Std. Error	t-Statistic	Prob.
	C	-45.409	28.033	-1.620	0.115
	IMDPD	1.878	0.478	3.926	0.000
	IMDPD2	-0.046	0.011	-4.100	0.000
	INF	-0.068	0.039	-1.744	0.091
	GCF_GR	0.052	0.028	1.897	0.067
	POPG	12.599	10.204	1.235	0.226
R-squared		0.538	Adj R-squared		0.463
F-statistic		7.209	Durbin-Watson stat		1.955
Prob(F-statistic)		0.000			
Diagnostics					
Normality: Jarque Bera = 4.509 p = 0.105					
Serial Correlation (B-G LM): F(2,29) = 0.179 p = 0.837					
Heteroscedasticity(B-G-P): F(5,31) = 0.491 p = 0.780					
RESET: F(1,30) = 2.107 p = 0.157					

The result shows that all the variables are statistically significant individually (as indicated by their respective t-statistics and p-values) and jointly as indicated by the F-statistic which is highly significant even at the 1% level as indicated by its p-value. The coefficient of determination (R-squared) indicates that the model has a good fit, as the regressors account for nearly 54% of the variation in real GDP growth. The Durbin-Watson statistic of 1.955 evidences absence of autocorrelation problem. The Jarque-Bera statistic indicates that the residuals are normally distributed, while the serial correlation and heteroskedastic test statistics respectively indicate absence of problems of serial correlation and heteroscedasticity. The Ramsey RESET test statistic indicates that the specification of the regression equation is error-free.

Key explanatory variables of interest are $IMDPD$ and $IMDPD^2$ which are highly significant at the 1% level with positive and negative signs respectively. These imply that the relationship between import dependence and economic growth is quadratic, that is, it follows a concave or an inverted U-shape (\cap). Import dependence is favourable to growth at lower level, but at higher levels, it adversely affects economic growth. The observed adverse effect of high import penetration rate on economic growth is in sync with evidence from Aigheyisi (2019) which found significant negative effect of import penetration on economic growth in ECOWAS sub-region, and Owolabi-Merus, *et al.* (2015) and Omoke *et al.* (2021) which showed adverse effect of imports on Nigeria's long run economic growth. Inflation negatively affects economic growth, and the effect is significant at the 10% level. The observed negative growth effect of inflation corroborates evidence from Adekunle (2018) and Adaramola and Dada (2020) which also found adverse effect of inflation on economic growth in Nigeria. The long run growth effect of investment is positive and significant at the 10% level. The positive growth effect of investment conforms to a priori expectation and aligns with findings from Oyedokun and Ajose (2018) and Ijirshar, *et al.* (2019) which also found growth effect of investment in Nigeria and in Africa respectively. Though the effect of population growth on GDP growth is positive as expected a priori, it is however not statistically significant. This may be due to the fact that a small percentage of the population is engaged in productive economic activities. The observed growth effect of population growth corroborates evidence from Adenola and Saibu (2017) which also found positive, but non-significant growth effect of population growth, and buttresses the observation from Ogunleye, *et al.* (2018) which found positive, though significant effect of population growth on economic growth in the country. The difference in statistical significance could be due the different time scopes of the studies, and to their usage of (natural logarithm of) real GDP to proxy economic growth, whereas this study uses real GDP growth as the measure of economic growth.

Table 4: FMOLS Estimation of Quadratic Growth Regression Equation

Dependent Variable: GDPG				
Method: Least Squares				
Sample (adjusted): 1982 2018				
Included observations: 37 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-39.634	24.600	-1.611	0.118
IMDPD	1.527	0.519	2.944	0.006
IMDPD2	-0.036	0.013	-2.758	0.010
INF	-0.081	0.034	-2.348	0.026
GCF_GR	0.052	0.024	2.157	0.039
POPG	11.664	9.025	1.292	0.206
R-squared	0.446	Adj R-squared		0.353

For robustness check the quadratic growth equation was estimated using the FMOLS estimator. The result is presented in Table 4. As in the OLS-estimated equation, the result also shows that IMDPD and IMDPD² are significant at the 1% level, and their coefficients are respectively, positively and negatively signed. This further confirms that the relationship between import dependence and economic growth in Nigeria follows a concave (inverted-U) shape. Inflation is also observed to adversely affect economic growth, while investment and population growth positively affect economic growth, though only the growth effect of investment is significant. Thus the results are robust to alternative estimation techniques.

Table 5: OLS Estimation of Threshold Regression Equation using Various Values of k Arbitrarily Selected.

K	Regressors	Coeff.	Std Error	t-stat.	Prob.	R ²	Adj. R ²	SSR
10	C	-16.734	19.215	-0.871	0.390	0.307	0.221	597.098
	IMDPD	2.284	2.012	1.135	0.265			
	d(IMDPD – k)	-2.420	2.076	-1.166	0.252			
	INF	-0.058	0.044	-1.325	0.195			
	GCF_GR	0.089	0.031	2.830	0.008			
15	C	-7.612	6.100	-1.248	0.221	0.387	0.311	528.098
	IMDPD	1.024	0.467	2.196	0.036			
	d(IMDPD – k)	-1.357	0.568	-2.390	0.023			
	INF	-0.085	0.043	-1.974	0.057			
	GCF_GR	0.073	0.030	2.417	0.022			
20	C	-3.280	3.759	-0.873	0.389	0.453	0.384	471.672
	IMDPD	0.554	0.219	2.527	0.017			
	d(IMDPD – k)	-1.141	0.357	-3.198	0.003			
	INF	-0.089	0.040	-2.208	0.035			
	GCF_GR	0.066	0.029	2.294	0.029			

K	Regressors	Coeff.	Std Error	t-stat.	Prob.	R ²	Adj. R ²	SSR
25	C	-1.089	2.649	-0.411	0.684	0.580	0.528	361.982
	IMDPD	0.338	0.125	2.702	0.011			
	d(IMDPD – k)	-1.616	0.337	-4.799	0.000			
	INF	-0.061	0.033	-1.826	0.077			
	GCF_GR	0.042	0.026	1.604	0.119			
26	C	-0.343	2.573	-0.133	0.895	0.580	0.528	361.925
	IMDPD	0.287	0.118	2.424	0.021			
	d(IMDPD – k)	-1.705	0.355	-4.799	0.000			
	INF	-0.059	0.033	-1.753	0.089			
	GCF_GR	0.042	0.026	1.580	0.124			
27	C	-0.037	2.583	-0.014	0.989	0.570	0.516	370.605
	IMDPD	0.266	0.118	2.259	0.031			
	d(IMDPD – k)	-1.845	0.396	-4.663	0.000			
	INF	-0.057	0.034	-1.703	0.098			
	GCF_GR	0.046	0.027	1.724	0.094			
28	C	0.274	2.608	0.105	0.917	0.556	0.500	383.035
	IMDPD	0.247	0.118	2.083	0.045			
	d(IMDPD – k)	-2.010	0.450	-4.472	0.000			
	INF	-0.057	0.034	-1.663	0.106			
	GCF_GR	0.051	0.027	1.901	0.066			
29	C	0.756	2.649	0.285	0.777	0.532	0.474	403.129
	IMDPD	0.216	0.119	1.816	0.079			
	d(IMDPD – k)	-2.156	0.517	-4.172	0.000			
	INF	-0.056	0.035	-1.602	0.119			
	GCF_GR	0.057	0.027	2.130	0.041			
30	C	1.350	2.702	0.500	0.621	0.501	0.439	429.716
	IMDPD	0.180	0.120	1.496	0.144			
	d(IMDPD – k)	-2.285	0.603	-3.788	0.001			
	INF	-0.056	0.036	-1.532	0.135			
	GCF_GR	0.065	0.027	2.353	0.025			
35	C	3.686	2.945	1.251	0.220	0.358	0.277	553.737
	IMDPD	0.046	0.128	0.359	0.722			
	d(IMDPD – k)	-4.722	2.370	-1.993	0.055			
	INF	-0.055	0.041	-1.322	0.196			
	GCF_GR	0.082	0.030	2.691	0.011			

Following the determination of the nature of the relationship existing between import dependence and economic growth in Nigeria, the point of inflexion in the relationship (that is the threshold level) was determined by estimating the specified threshold model. The results of estimations of the models for various assumed values of k (threshold value) are presented

in Table 5. The aim was to determine the optimal k , that is the value of k for which the sum of squared residuals (SSR) is minimized, or the R^2 or adjusted R^2 is maximized. From the results, it can be seen that the optimal k for which R^2 or adjusted R^2 is maximized, and the sum of squared residual is minimized is 26%. This is because for values of $k = 10\%–25\%$, R^2 keeps rising till it gets to maximum 0.580 at 26% and thereafter begins to fall; and SSR keeps falling till it gets to minimum 361.925 also at 26% and begins to rise thereafter. Thus, a threshold level of import dependence is derived. If imports account for less than 26% of aggregate domestic demand or domestic absorption, the growth effect of import dependence is positive, however if imports accounts for more than 26% of domestic demand (or the country relies on imports to satisfy 26% of its domestic demand or more), then economic growth will be adversely affected. The adverse growth effect stems from the adverse effect of high import dependence on local infant industries, domestic employment, foreign exchange reserves, etc.

5 Conclusion and Recommendations

The paper had a three-fold objective of investigating the growth effect of import dependence, the nature of the relationship between import dependence and economic growth, and estimating the threshold import demand level for Nigeria's economy. The study found the relationship between the variables to be quadratic. Low levels of import dependence are favourable to long run economic growth. However, high levels of import dependence adversely affect economic growth. A threshold level of import dependence was estimated as 26%, implying that below 26% import dependence is favourable to growth, and above 26% it harms growth. The long run growth effect of inflation is adverse, while investment promotes economic growth.

In view of the empirical findings, it is recommended that Nigeria's government takes deliberate steps to revive and boost the nation's productive capacity in various sectors of the economy especially the industrial and agricultural sectors (considering that industrial and agricultural items constitute the bulk of the nation's imports) and implement trade policies including exchange rate, tariff and non-tariff policies targeted at reducing importation of specific categories of goods especially those for which she has the resource endowment to produce locally. Import dependence rate of less than 26% should be targeted. In addition, the government, through the monetary authority should bring inflation under control; strive to encourage investment by creating the ambience favourable to investment such as infrastructural development, especially energy and road infrastructure, etc., favourable tax regimes, tightening security, and so on.

The study is not without some limitations. There are limitations relating to data and coverage. However, estimating a threshold import dependence/penetration rate for Nigeria marks its novelty. A motivation has been created for future research. Available data from the source used for this study were annual data. As a recommendation for further study, future researchers may use higher frequency datasets. Alternative methodologies (specifications, techniques) may be applied for this investigation which may also be extended to other countries and regions especially the developing and under-developed areas where import-dependence is 'dangerously' high.

Furthermore, the estimated threshold level of 26% for import dependence is the overall threshold level. The threshold could vary across sectors for different categories of imports. Future studies may investigate separately, the threshold effects of capital goods, services and merchant (or consumer goods) import dependence on economic growth in Nigeria.

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*Reflection on the Progress and Benefits
of the 6th World Congress
of the Game Theory Society
Reflexe průběhu a přínosů
6. světového kongresu Game Theory Society*

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The 6th World Congress of the Game Theory Society, postponed by one year, took place in Budapest from 19 to 24 July 2021. The one-year postponement and the limitations resulting from the current Covid-19 epidemic were both present. Since we use game theory extensively, we formulate a view on the direction in which game theory could be further developed (in the following three strategic directions) to increase its practical applicability:

1. Examine not just individual games, but sets (conglomerates) of games.
Game theory is already beginning to realize this, and there is talk of the importance of externalities (external influences) of individual games. Here, a good theory must be homogeneous, in this case meaning that the externalities of individual games also take the form of games:
 - So far, the best studied and probably the simplest case are games with repetition. One completed game is followed by another, and so on.
 - One of the most common cases of related (contextual, follow-up) games are positional investing games. The winner is the one who can invest more in the next game (which is a trivial game, but changes the previous game in a non-trivial way), or increases the probability of winning in proportion to the difference or proportion of the amount that can be invested in the next game. Position investing type games are very common and it should not be a problem to work with the type of games resulting in position investing, and from there derive modified solutions to the previous games. This would bring game theory very close to reality.
 - Are there any other types of related games that would be standard extensions of non-contextual games? Presumably these are information and signalling games, i.e. games in which the original game involves a game associated with the delivery of information or signalling of something. If we follow the

homogeneity principle of the theory here as well, then the most significant information or signalling of something will be a message like “what game is being played” or “what game is dominant (and subordinates other games)”.

- Then it may be other games, for example, associated with the loss or gain of reputation (which will significantly affect the solution of games like the Prisoner's Dilemma and their ilk).

2. What is the basic game in this or that case, i.e. the problem of anchoring the model. Related to the preceding is the raising of the question in the case of solving any relevant practical problem, what is the basic game in this or that case? This is by no means a trivial question. The fact that the theory avoids it has the effect of moving its models away from reality, unable to approach, by way of analysis of the games involved, the discovery of what is at stake in this or that case. Instead of being oriented towards practical applicability, theory then just gleans, waiting for an opportunity to find a practical application somewhere. Such a position is unworthy of game theory.

3. From preferences to returns on investment opportunities, a different “ontology” of final effects.

Game theory is too beholden to neoclassical economics. It is based on “utility maximization”, but intelligently described in the form of an axiomatic theory of preferences already in the seminal work of J. Neumann and O. Mongerstern. But our experience mechanism (which is multidimensional and much more complex than we realize) is only a decision-making mechanism, not an objective-forming one. The goal-directedness of the actions of individuals and households was best captured by M. Friedman when he argued that households convert present income into future income so as to maximize the present value of future income by acquiring and operating assets, consisting of human and non-human capital, from present income. And the subjective experiences of individuals only better or worse orient them to this strategic orientation in the particular temporal and cultural conditions

A Look Back at the Czechoslovak Family Business Day, which Included a Conference Entitled Family Business, Intergenerational Milestones and Generators of Value
Ohlédnutí za Česko-slovenským dnem rodinného podnikání, jehož součástí byla i konference s názvem Rodinné podnikání – Mezigenerační milníky a generátory jejich hodnoty

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University of Finance and Administration has been researching the specifics of family business since 2014. The theory of family business should be able to distinguish family businesses from non-family businesses, it should respond to changes in the political, economic, social, technological, environmental environment, as well as to changes in the purchasing and consumption behaviour of customers, trends in the use of information and communication technologies in the theory and real practice of family businesses. The emergence of family businesses has brought together three systematically different worlds – the world of emotions with the world of rationality and the world of family and corporate asset management. Their supporting specificity is the interaction of family and business, the interaction between the rational and performance-oriented world of business and the emotional family ties and relationships. The research carried out shows that the basic principles of their success include wisdom and know-how passed on from generation to generation, pride, trust, tenacity, flexibility, a stable corporate culture, speed of decision-making, loyalty, honesty, ethics, responsibility towards the next generation, the ability to motivate people in their environment, support the development of the region etc. These characteristics gradually become an important generator of values, emotional or social, i.e. non-economic wealth of family business.

In 2021, approximately 31 years have passed since the first family businesses were founded in the Czechia and Slovakia – the first ever modern intergenerational exchange is taking place, which is associated with many unresolved issues – the transfer of management, ownership, conflict resolution, innovation, diversification, risk management etc. The conference, held on 21 September, aimed at exchanging information, experiences and presenting research results not only from academic institutions in the field of management and promotion of FP. It was one of the outcomes of the TA CR project TL02000434 entitled Family businesses: generators of value and determination of value in the process of succession. Thanks to the participation of about 78 interested persons from the Czechia,

Slovakia, but also from Poland and Hungary, from the ranks of academics, consulting firms, Associations, representatives of the state sphere and real owners, the goal was fully fulfilled. During the conference session, a number of stimulating contributions were made, focusing e.g. on the social perception of FP, the impact of the COVID pandemic and the resilience of FP, the mediating role of social capital, rational initiatives as a prerequisite for sustainability, the importance of diagnostic auditing, the potential of intellectual property protection etc. Different methods used by academics were discussed, e.g. the vitality assessment model, the F-PEC model, the CHROMA model etc., and participants also assessed the limits of research on this social group and expected future topics.

Then, at the end of the day, a joint Declaration on the development of family business towards governments was approved. An example of the themes is:

- promote investment and sustainability of family businesses as drivers of national economies,
- to encourage family business owners to reinvest their own resources, especially in the development of their businesses,
- develop the availability of lifelong learning and advice on family business,
- in connection with the legal anchoring of the definition of family businesses and their activities in the Czech Republic and Slovakia, to support related adjustments to existing legislation etc.

The participants unanimously declared that they will always assist the governments of the Czech Republic and the Slovak Republic in the implementation of their intentions, because they see the perspective and future of our countries in family business.

UFA initiates entrepreneurial thinking in its students

VŠFS iniciuje podnikatelské myšlení u svých studentů

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In the context of current trends in higher education, in which emphasis is placed on the connection between theory and practice, preparatory work is underway at the University of Finance and Administration in Prague to launch the Business Centre, whose mission will be to help with the implementation of student entrepreneurial projects, provided that they are innovative and address horizontal topics. As Business Centers for student start-ups already exist at both domestic and foreign universities, this makes the University of Finance and Administration more competitive and attractive to both domestic and international students.

The research of the startup environment in the Czech Republic and abroad has been systematically and long-standing at the University of Finance and Administration. Two IGA projects have already been implemented at the school. Currently, work is underway on the project Analysis of the prerequisites for the establishment and sustainable development of the University Business Centre. Within the framework of the implementation of this project, the researchers (Dr. Eva Kostikov and Dr. Miroslav Pavlák) have managed to build an action-oriented international team of very high-quality students (Timur Elyas, Sabina Alijagić, Anton Kalenikov, Jakub Toman and Jan Wegmann), who last month prepared a very successful Business Plan and Canvas Business Model of the upcoming Business Centre. We have to say, and we are really happy to do so, that we have respect for the students, how well they have done in the preparation of the assignment. We are really excited and pleased with the quality of students we have. Currently, the students are tackling a creative assignment: the structure and content of a website that should become our school's showcase for promoting student project activities.