



FINANCIAL MARKETS 2019

A FACTOR OF EUROPEAN COMPETITIVENESS

Proceeding of the 9th International Conference held in Prague
on 23rd-24th May, 2019

Arnošt Klesla, Vladislav Pavlát, Otakar Schlossberger (eds.)

Vysoká škola finanční a správní, a.s.
(University of Finance and Administration), Praha, 2020

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Praha, 2020

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Arnošt Klesla, Vladislav Pavlát, Otakar Schlossberger (eds.)

Financial Markets 2019 – A Factor of European Competitiveness, Proceeding from the 9th International Conference held in Prague on 23rd – 24th May, 2019

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- Fintech
- innovation
- investment
- payments
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- SMEs
- Start-Ups

XX - Economy

34 - Law

JEL CLASSIFICATION

F 21, G 11, G15, K23,

Abstrakt:

Tato publikace je sborníkem příspěvků z devátého ročníku mezinárodní vědecké konference Finanční trhy 2019 – Faktor evropské konkurenceschopnosti. Tato konference byla v minulých letech již tradičním vyvrcholením mezinárodní prezentace výsledků vědy a výzkumu v oblasti finančních trhů, kterou pořádá Vysoká škola finanční a správní každé dva roky. Záštitu nad devátým ročníkem převzal guvernér České národní banky pan Jiří Rusnok. Konference se zaměřila na prezentaci a diskusi financování investičního rozvoje malých a středních podniků, na rozvoj akciového a dluhopisového trhu včetně východisek pro rozvoj regulovaného trhu s finančními nástroji v rámci Koncepce kapitálového trhu v letech 2019 – 2023. Místo konání: Vysoká škola finanční a správní, Estonská 500, 101 00 Praha 10, datum konání: 23. – 24. května 2019.

Abstract:

This publication is a proceeding from the 9th International Scientific Conference Financial Markets 2019 – A Factor of European Competitiveness. In recent years, this conference has been a traditional culmination of the international presentation of science and research results in the field of financial markets, organized by the University of Finance and Administration every two years. The ninth year is held under the auspices of the Governor of the Czech National Bank, Mr. Jiří Rusnok. With the aim to achieve academic excellence, the conference will focus on issues related to financing and funding the SMEs' investment

development as well as the development of the stock market and the bond market, including the basis for developing a regulated financial tools' market within the frame of the National Strategy for Development of the Capital Market in the Czech Republic 2019 – 2023. Venue: Estonská 500, 101 00 Prague 10, date of Event May 23 - 24, 2019.

Klíčová slova:

Dluhopisy, kapitálový trh, konkurenceschopnost, vzdělávání, finanční instituce, Fintech, inovace, platební styk, regulace, MSP, Start-Upy.

Key Words:

Bonds, capital market, competitiveness, education, financial institutions, Fintech, innovation, payments, regulation, SMEs, Start-Ups,

Pokud není dále uvedeno jinak, publikace zohledňuje právní předpisy a judikaturu ve znění účinném k 31. březnu 2019.

Unless otherwise specified below, the publication takes into account legislation and case-law as in force on 31 March 2019.

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PREFACE

The Department of Finance at the University of Finance and Administration (VŠFS) had the honour of hosting the 9th VŠFS international conference “**Financial Markets 2019 – A Factor of European Competitiveness**” held in Prague on 23rd – 24th May, 2019 under the auspices of the Governor of the Czech National Bank Ing. Jiří Rusnok.

With the aim to achieve academic excellence, the conference had to focus on issues related to financing and funding the SMEs' investment development as well as the development of the stock market and the bond market, including the basis for developing a regulated financial tools' market within the frame of the National Strategy for Development of the Capital Market in the Czech Republic 2019 – 2023.

The conference program was organized across dynamic conference tracks focusing on crucial areas of current theory and practice as follows:

- Topical trends in financial market development in the EU and the Czech Republic.
- Current developments in the EU financial markets' regulation and its impact on the Czech Republic.
- Bases and opportunities of SMEs in terms of acquiring and strengthening investment resources from the Czech organized capital market.
- Start-up support after 2019.
- Potential impacts of Brexit on the financial markets of the EU member states.
- The impact of digitization and robotics on the field of investment financing.
- Analyses of financial market infrastructures in the EU and the Czech Republic.

On the first conference day, the plenary session was opened by Assoc. Profesor Petr Budinský, vice-rector of the University of Finance and Administration. After his opening speech, three pannel discussions were held. In the first panel, the first key note speaker was Assoc.Prof. Karel Havlíček, Ph.D., MBA, vice Prime Minister of the Czech Government and Minister of Industry and Trade. In his key note speech he stressed the role of the Czech-Moravian Guarantee and Development Bank in the financement of the Czech small and middle-size enterprices. The key second note speech of Ing. Tomáš Nidetzký, vice-governor and member of the CNB Council, on the role of the Czech National Bank played on capital markets, was presented. The third key-note speech was given by JUDr. Ing. Lenka Dupáková, Ph.D., Vice-Minister of Finance, on the role of financial regulation and the concept and strategy of the Czech capital market development for the next years.

The second conference day was opened by Assoc. Professor JUDr. Otakar Schlossberger, the Vice-Dean of the Faculty of Economic Studies and Head of the Department of Finance of the University of Finance and Administration in Prague. In the first bloc of the second day of conference, academic topics were dealt with. In the first bloc, 7 papers were presented by guests from Slovakian republic (EUBA) and researchers and staff-members from participating university (VŠE, ČZÚ) and VŠFS. The second and third bloc was reserved for students' papers; 11 papers were presented. The academic day was closed by the speech of Assoc. Professor JUDr. Otakar Schlossberger, Vice-Dean of the Faculty of Economic Studies who stressed that

the conference brought many new ideas how to improve pedagogical and research work at VSFS and the co-operation with the Czech Ministries, Central Bank and other Authorities. All presented papers are published in Conference Proceeding under the responsibility of individual authors. Selected papers will be published in ACTA (Academic Journal of the University of Finance and Administration) later on dependently on the results of a double blind procedure of the Journal.

The conference was held at the premises of the University of Finance and Administration in Prague - Vršovice, Estonska Street 500. The information on the conference was published on the University of Finance and Administration's web-side in English and in Czech (<http://www.vsfs.cz/financnitrhy>). The Conference Proceedings include 19 selected papers.

The conference offered to the 63 participants – researchers and policy makers (mainly from the Czech Republic and Slovakia) and from different institutions - the possibility of scientific discussion and the exchange of knowledge. A greater part of presented papers was dedicated to different research tasks which gave a possibility to interesting international comparisons of the EU countries.

The next International Conference on Financial Markets organized by the University of Finance and Administration in Prague will take place in the year 2021.

Prague, October 2019.

Assoc. Prof. Ing. Vladislav Pavlát CSc.
and Assoc. Prof. JUDr. Ing. Otakar Schlossberger, Ph.D.
Editors



Program 9. ročníku mezinárodní vědecké konference na téma

„FINANČNÍ TRHY 2019 – FAKTOR EVROPSKÉ KONKURENCESCHOPNOSTI“

**Záštitu nad konferencí převzal guvernér České národní banky
pan Ing. Jiří Rusnok**

Čtvrtek 23. května – pátek 24. května 2019

Kongresové centrum Vysoké školy finanční a správní, a. s., Estonská 500,
101 00 Praha 10

1. den – 23. května 2019

08:30 – 09:00 – **Registrace účastníků**, ranní káva

09:00 – 10:15 – **Zahájení konference Finanční trhy 2019 – Faktor evropské konkurence-schopnosti – doc. RNDr. Petr Budinský, CSc., VŠFS, prorektor pro pedagogickou činnost.**

Hlavní referáty „Key note speakers“:

doc. Ing. Karel Havlíček, Ph.D, MBA – Ministerstvo průmyslu a obchodu, ministr + vicepremiér

Ing. Milan Šimáček, Ph.D. – Česká národní banka, poradce člena bankovní rady

JUDr. Ing. Lenka Dupáková, Ph.D. – Ministerstvo financí ČR, náměstkyně ministryně

10:15 – 10:30 – **Přestávka**

10:30 – 11:45 – **I. panel – Historie, současný stav a hlavní problémy financování MSP z kapitálového trhu vč. problémů regulace. Moderuje doc. RNDr. Petr Budinský, CSc., VŠFS.**

V panelu vystoupí:

Mgr. Ing. Jana Brodani, MBA, LL. M., AKAT – key note speaker, Ing. Petr Kobic, PBCP, Ing. Vratislav Svoboda, MBA, J&T Banka a Ing. Arnošt Klesla, VŠFS.

11:45 – 13:00 – **II. panel – Faktory rozvoje zdrojů z kapitálového trhu pro investice MSP do inovací, digitalizace a robotizace. Moderuje Maria Stazkiewicz, FInTech Asociace.**

V panelu vystoupí:

Ing. Petr Očko, MPO – key note speaker, Morana Mavricek, LL.M., Unie kapitálových trhů, DG FISMA, Ing. David Navrátil, CSAS, Morana Mavricek, Evropská komise.

13:00 – 14:00 – **Přestávka na oběd**

14:00 – 15:15 – **III. panel – Východiska pro rozšiřování příležitostí a zdrojů investičního financování MSP z kapitálového trhu do roku 2023. Moderuje doc. JUDr. Ing. Otakar Schlossberger, Ph.D., VŠFS.**

V panelu vystoupí:

Mgr. Bc. Aleš Králík, LL. M., MF ČR – key note speaker, Simone Mirani – CRIF, Ing. Libor Kazda, FAÚ a Ing. Jiří Šindelář, Ph.D., MBA, Broker Consulting.

15:15 – 15:45 – **Přestávka na kávu**

15:45 – 17:00 – **Závěrečná diskuse**, vyhodnocení a závěr I. dne

17:15 – 19:15 – **Raut a neformální výměna zkušeností, informací a poznatků.**

2. den – 24. května 2019

08:30 – 09:00 – **Registrace účastníků**

09:00 – 09:10 – Zahájení druhého dne konference – doc. JUDr. Ing. Otakar Schlossberger, Ph.D., VŠFS, proděkan pro výzkum a publikační činnost Fakulty ekonomických studií a vedoucí Katedry financí.

I. Blok – akademický. Moderuje doc. JUDr. Ing. Otakar Schlossberger, Ph.D.

09:10 – 09:40 – prof. Ing. Božena Chovancová, CSc., EUB, SR – Aktuální trendy na kapitálovém trhu.

09:40 – 10:00 – doc. Ing. Peter Árendáš, Ph.D., EUB, SR – The application of cost averaging on ETF markets.

10:00 – 10:20 – Ing. Ctibor Pilch, Ph.D., EUB, SR – Selected deviations from rationality when investing in financial markets.

10:20 – 10:40 – doc. Ing. Vladislav Pavlát, CSc., VŠFS, ČR – Junckerův plán investic a realita.

10:40 – 11:00 – Ing. Arnošt Klesla, Ph.D., VŠFS, ČR – Podmínky otevření sekundárního organizovaného trhu emisí dluhopisů SME v objemu do 1 mil. EUR.

11:00 – 11:15 – Ing. Miroslav Pavlák, Ph.D., ZÚ v Plzni, ČR – Promotion of Innovation activities at start-ups: Innovation as an Instrument of Competitiveness.

11:15 – 11:30 – Ing. Jana Kotěšovcová, Ph.D., VŠFS – Výběr ukazatelů pro stanovení ratingu firmy

11:30 – 11:45 – **Přestávka na kávu**

II. Blok – studentský. Moderuje doc. JUDr. Ing. Otakar Schlossberger, Ph.D.

11:45 – 12:00 – Ing. David Křížek, doktorand ČZÚ, ČZÚ, ČR – Dopady kvantitativního uvolňování na vzájemné působení mezi centrální bankou a vybranými subjekty finančního trhu na případu České republiky.

12:00 – 12:15 – Frederika Janoštiaková, studentka I. ročníku NMgr., VŠFS, ČR – Středoevropský fond fondů a financování start upů

12:15 – 12:30 – Ondřej Zelo, student I. ročníku NMgr., VŠFS, ČR – Podmínky obchodovatelnosti dluhopisů.

12:30 – 12:45 – Marek Miškovič, student I. ročníku NMgr., VŠFS, ČR – Primární trh dluhopisů MSP.

12:45 – 13:00 – Arailym Mukhitova, studentka I. ročníku NMgr., VŠFS, ČR – Fintech jako nástroj rozvoje kapitálového trhu pro financování MSP.

13:00 – 13:15 – Jan Bosák, student NMgr., VŠFS, ČR – Průmysl 4.0

13:15 – 13:30 – **Přestávka**

III. Blok – studentský. Moderuje doc. JUDr. Ing. Otakar Schlossberger, Ph.D.

13:30 – 13:45 – Mgr. Ing. Jana Brodani, MBA, LL. M., doktorandka VŠE, ČR, AKAT ČR – Vliv regulace na rozvoj kapitálového trhu.

13:45 – 14:00 – PhDr. Ladislava Knihová, doktorandka VŠE, VŠFS, ČR – Vzdělávání zákazníků finanční instituce.

14:00 – 14:15 – Ing. Zuzana Chlumská, doktorandka VŠFS, VŠFS, ČR – Investice do vzdělávání jako faktor růstu HDP v Indonésii.

14:15 – 14:30 – Ing. Miroslav Červenka, doktorand VŠFS, ČR – Kritický pohled na nejnovější regulaci oblasti zprostředkování na finančním trhu.

14:30 – 14:45 – Ing. Zuzana Košťálová, doktorandka EUB, SR; doc. Ing. Dana Tkáčová, Ph.D., EÚB, SR – Indepedtness of Slovak Republic Citizens.

14:45 – 15:00 – **Závěrečné slovo** – doc. JUDr. Ing. Otakar Schlossberger, Ph. D. – proděkan pro výzkum a publikační činnosti FES, VŠFS.

Program of the 9th International Scientific Conference on
„FINANCIAL MARKETS 2019 – A FACTOR OF EUROPEAN
COMPETITIVENESS“

**The conference is held under the auspices of the Governor of the Czech
National Bank Ing. Jiří Rusnok**

Thursday, May 23 - Friday, May 24, 2019

Congress Center of the University of Finance and Administration, a. s.,
Estonská Str. No. 500, 101 00 Prague 10, Czech Republic

Day 1 – May 23rd, 2019

08:30 – 09:00 – **Registration of participants, coffee**

09:00 – 10:15 – *Opening of the conference Financial Markets 2019 – A factor of European Competitiveness by Associate Profesor RNDr. Petr Budinský, CSc, Vice-Rector of VSFS*

Key note speakers:

Associate Professor Ing. Karel Havlíček, Ph.D, MBA – Deputy Prime Minister, Minister of Industry and Trade, Minister of Transport

Ing. Milan Šimáček, Ph.D. - Czech National Bank, Advisor to a Member of the Bank Board

JUDr. Ing. Lenka Dupáková, Ph.D. Ministry of Finance, Deputy Minister

10:15 – 10:30 – Coffee break

10:30 – 11:45 – *Pannel I – History, current situation and key issues of SME financing by the capital market, including financial regulaton. Chair: Assoc. Prof. RNDr. Petr Budinský, CSc., VŠFS.*

Speakers:

Mgr. Ing. Jana Brodani, MBA, LL. M., AKAT – key note speaker, Ing. Petr Kobic, PBCP, Ing. Vratislav Svoboda, MBA, J&T Banka and Ing. Arnošt Klesla, VŠFS.

11:45 – 13:00 – *Pannel II – Capital market resource development factors for SME investment in innovation, digitalization and robotics. Chair:: Maria Stazskiewicz, Czech Fintech Association.*

Speakers

Ing. Petr Očko, MPO – key note speaker, Morana Mavricek, LLM, Capital Markets Union, DG FISMA, Ing. David Navrátil, CSAS, Morana Mawricek, European Commission.

13:00 – 14:00 – Lunch break

14:00 – 15:15 – **Pannel III – Basis for expanding the opportunities and resources of SME investment finance by the capital market until 2023. Chair: JUDr. Ing. Otakar Schlossberger, Ph.D., VŠFS.**

Speakers:

Mgr. Bc. Aleš Králík, LL. M., MF ČR – key note speaker, Simone Mirani – CRIF, Ing. Libor Kazda, Head of Financial Analytical Office and Ing. Jiří Šindelář, Ph.D., BA, Broker Consulting.

15:15 – 15:45 – Coffee break

15:45 – 17:00 – **Final discussion**, evaluation and conclusion of the first day

17:15 – 19:15 – **Buffet and Informal Discussion**

Day 2 – 24. května 2019

08:30 – 09:00 – **Registration**, coffee

09:00 – 09:10 – Opening speech – **Assoc. Prof. JUDr. Ing. Otakar Schlossberger, Ph.D., Vice-Dean for Research and Publishing of FES and Head of Financial Department of VSFS**

I. academic block. Chair: Assoc. Prof. JUDr. Ing. Otakar Schlossberger, Ph.D.

09:10 – 09:40 – Prof. Ing. Božena Chovancová, CSc., EUB, SK – Current trends in the capital market.

09:40 – 10:00 – Assoc. Prof. Ing. Peter Árendáš, Ph.D., EUB, SK – The application of cost averaging on ETF markets.

10:00 – 10:20 – Ing. Ctibor Pilch, Ph.D., EUB, SR – Selected deviations from rationality when investing in financial markets.

10:20 – 10:40 – Assoc. Prof. Ing. Vladislav Pavlát, CSc., VŠFS, CZ – Juncker Investment Plan and reality.

10:40 – 11:00 – Ing. Arnošt Klesla, Ph.D., VŠFS, CZ – Conditions for the opening of the secondary organized market for SME bond issues in the amount of up to EUR 1 million.

11:00 – 11:15 – Ing. Miroslav Pavlák, Ph.D, ZU in Pilsen, CZ – Promotion of Innovation activities at start-ups: Innovation as an Instrument of Competitiveness.

11:15 – 11:30 – Ing. Jana Kotěšovcová, Ph.D., VŠFS, CZ – Selection of indicators for determining the company's rating.

11:30 – 11:45 – Coffee break

II. student block. Chair Assoc. Prof. JUDr. Ing. Otakar Schlossberger, Ph.D.

- 11:45 – 12:00 – Ing. David Křížek, doctoral student ČZÚ, CZ – Impacts of quantitative easing on the interaction between the Cantal Bank and selected financial market entities in the case of the Czech Republic.
- 12:00 – 12:15 – Frederika Janoštiaková, first year student NMgr., VŠFS, CZ – Central European fund of funds and its possible use in the field of start-up.
- 12:15 – 12:30 – Ondřej Zelo, first year student NMgr., VŠFS, CZ – *Adaptation of the czech legal order tu the regulativ of the European Parliament and the EU Council on the rospectus of debt securities.*
- 12:30 – 12:45 – Marek Miškovič, first year student NMgr., VŠFS, CZ – Primary SME bond market.
- 12:45 – 13:00 – Arailym Mukhitova, first year student NMgr., VŠFS, CZ – Fintech as an alternative to traditional financial services.
- 13:00 – 13:15 – Jan Bosák, first year student NMgr., VŠFS, CZ – Industry 4.0.
- 13:15 – 13:30 – **Přestávka**

III. student block. Chair: Assoc. Prof. JUDr. Ing. Otakar Schlossberger, Ph.D.

- 13:30 – 13:45 – Mgr. Ing. Jana Brodani, MBA, LL. M., doctoral student VŠE, CZ, AKAT ČR – Vliv regulace na rozvoj kapitálového trhu.
- 13:45 – 14:00 – PhDr. Ladislava Kniňová, doctoral student VŠE, VŠFS, CZ – Customer education in financial institutions: Innovative educational platforms.
- 14:00 – 14:15 – Ing. Zuzana Chlumská, doctoral student VŠFS, CZ – Investment in education as a factor of GDP growthof Indonesia.
- 14:15 – 14:30 – Ing. Miroslav Červenka, doctoral student VŠFS, CZ – A critical look at the latest regulation of financial market intermediation.
- 14:30 – 14:45 – Ing. Zuzana Košťálová, doctoral student EUB, SK; Assoc. Prof. Ing. Dana Tkáčová, Ph.D., EUB, SK – Indepthedness of Slovak Republic Citizens.
- 14:45 – 15:00 – **Concluding remark** – Assoc. Prof. JUDr. Ing. Otakar Schlossberger, Ph. D. – Vice-Dean for Research and Publishing of FES and Head of Financial Department of VSFS.

HLAVNÍ PARTNER:

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From Other Banking

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ČAS F



PX
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BURZA CENNÝCH PAPIRŮ PRAHA



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THE APPLICATION OF COST AVERAGING ON ETF MARKETS

PETER ARENDÁŠ, PETER KUŠNIR

Abstract

Cost averaging is an investment strategy based on regular investing of equal amounts of money, regardless the price development of the underlying asset. This strategy is broadly used as a way of decreasing investment risks. It is also used by the capitalization pillars of pension schemes. This paper investigates how the performance of several cost-averaging effect-based investment strategies compares to a simple buy & hold investment strategy, on the ETF markets. For investigation, one common ETF (SPDR S&P 500 ETF) and two more volatile ETFs (SPDR S&P Biotech, VanEck Vectors Gold Miners ETF) were selected. The results show that the analyzed investment strategies were unable to provide results similar to the buy & hold strategy over the analyzed time period. They tended to underperform.

Keywords

ETF, cost averaging, value averaging, buy & hold

Abstrakt

Priemerovanie nákladov je investičná stratégia založená na pravidelnom investovaní rovnakej sumy peňazí, bez ohľadu na vývoj ceny podkladového aktíva. Táto stratégia je široko využívaná k znižovaniu investičného rizika. Je tiež využívaná v rámci kapitalizačných pilierov dôchodkových systémov. Tento článok porovnáva výkonnosť niekoľkých investičných stratégií vychádzajúcich z princípov priemerovania nákladov, s výkonnosťou jednoduchej investičnej stratégie “kúp a drž”, na trhu ETF. K analýze bolo využité jedno bežné ETF (SPDR S&P 500 ETF) a dve volatilnejšie ETF (SPDR S&P Biotech, VanEck Vectors Gold Miners ETF). Výsledky ukazujú, že analyzované investičné stratégie počas analyzovaného obdobia neboli schopné priniesť výsledky porovnateľné so stratégiou “kúp a drž”. Mali tendenciu byť menej efektívne.

Klíčová slova

ETF, priemerovanie nákladov, priemerovanie hodnoty, kúp a drž

JEL Classification

G01, G14, G15

Introduction

Cost averaging, also known as dollar cost averaging, is an investment strategy commonly used by the investor community. However, numerous studies argue that this strategy, although it may limit some short-term risks related to temporary market declines, is not efficient in the longer-term. This paper analyses several investment strategies based on the principles of cost averaging, with an aim to find out whether they are able to provide returns similar to a buy & hold (lump sum) investment strategy.

The analysis is made using three different ETFs. The ETF market was selected due to its cost efficiencies. Some stock brokers offer to its clients the possibility to make one purchase and one sale of ETF shares per month fee-free. It is an important advantage that reduces the transaction costs significantly in the long-term. Moreover, nowadays, the ETF industry offers a wide range of investment opportunities from major and minor stock markets, through commodities, to exotic underlying assets such as volatility indices.

1 Literature Review

Various authors paid attention to the problematics of investment strategies, cost averaging included. Some of the older researches (Constantinides, 1979; Brennan and Solanki, 1981) criticized the cost averaging investment strategy due to its inefficiencies. According to Rozeff (1994), at a stock market with a positive risk premium, the buy & hold strategy (a lump sum investment) is always more efficient than cost averaging. On the other hand, Statman (1988) claims that from a behavioral point of view, a cost averaging investment strategy may help to eliminate some negative psychological aspects that affect the investment process. Statman's findings were supported by Dichtl and Drobetz (2011) who state that "dollar-cost averaging may not be a rational but rather a perfectly normal behavior of a prospect theory investor.

Brennan et al. (2005) compared the efficiency of cost averaging and a buy & hold strategy over a 77-year period from 1926 to 2003. They concluded that cost averaging is better for risk averse investors. They also concluded that cost averaging doesn't provide an efficient time diversification, as the overall results are much more dependent on the last than on the first months of the investment period.

Panyagometh and Zhu (2016) came to conclusion that cost averaging is approximately equivalent to an asset allocation strategy that puts 50-65% of the investment portfolio in risky assets and the remainder in "risk-free" assets. Dunham and Friesen (2012) presented a modified dollar cost averaging investment strategy that assumes that the regular monthly investment is decreased by a pre-determined fixed sum every month following month with a positive return and increased by the same amount every month following month with a negative return. Their strategy was able to outperform the basic cost averaging strategy. Among other authors that paid attention to cost-averaging belong Vanduffel et al. (2012), Chovancova and Arendas (2015), Lai et al. (2016) or Fong (2017).

In this article, the investment strategies are tested on three different exchange traded funds (ETFs). Also the problematics of ETFs is quite popular in recent years and authors pay attention to various aspects of this topic. For example Hurlin et al. (2019) studied the counterparty risk

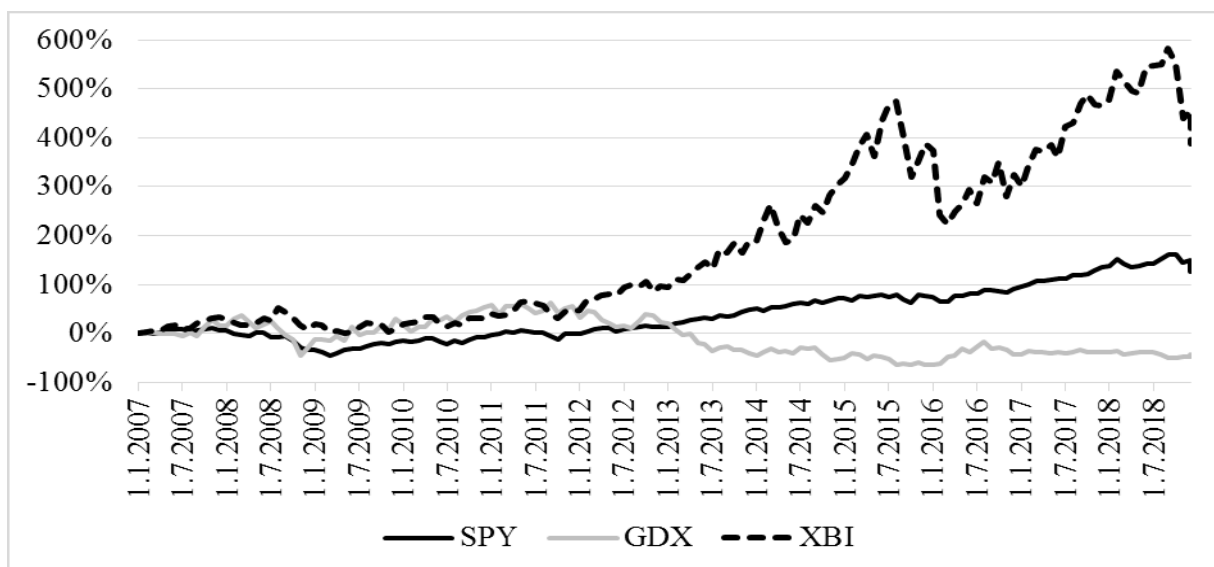
related to ETF products. Baltussen et al. (2019) found out that due to the rapid growth in popularity of ETFs and index mutual funds, the serial dependence in daily and weekly index returns around the world has turned significantly negative. Rompotis (2018) investigated the herding behavior of 66 large-cap and small-cap ETFs, concluding that the ETFs don't tend to herd. Dorocakova (2017) paid attention to the tracking-error and its impacts on performance of ETFs. Studies of Lechman and Marszk (2015), Marszk (2018), Marszk and Lechman (2018) focused on development tendencies of the ETF market.

2 Data and Methodology

This paper analyses four modifications of the classical cost-averaging investment strategy, with an aim to find a modification with returns comparable to the buy & hold investment strategy. The analysis is performed on three ETFs (SPDR S&P 500 ETF, SPDR S&P Biotech ETF, VanEck Vectors Gold Miners ETF) with different risk profiles as well as very different share price developments recorded during the investigated time period that spans from January 1, 2007 to December 31, 2018. This time period was selected due to the relatively short history of two of the selected ETFs.

The SPDR S&P 500 ETF (SPY) was established in 1993 and it tracks the S&P 500 stock index, one of the main benchmarks of the U.S. stock market. The SPDR S&P Biotech ETF (XBI) was launched in 2006 and it is focused on stock companies from the biotechnological industry. The VanEck Vectors Gold Miners ETF (GDX) was created in 2006 as well. Its portfolio includes the most important large-cap and mid-cap gold miners. As can be seen in Graph No. 1, the three ETFs experienced a different share price development over the 2007 – 2019 time period. While XBI experienced a 400% growth and shares of SPY grew approximately by 150%, GDX shares declined almost by 50%. It is also possible to see that XBI is notably more volatile than SPY and GDX.

Graph No. 1: Share price development



Source: own processing, using data of YahooFinance

A simple buy & hold investment strategy (B&H) and four different investment strategies based on the cost-averaging effect were tested for each of the ETFs, on moving 5-year windows (the windows are moving by one month, i.e. January 2007 – December 2011, February 2007 – January 2012, etc.). In the buy & hold strategy, the investor invested a lump sum of \$10,000 at the beginning of each 5-year window. In order to obtain reasonable comparisons, we assumed that also at investing using the cost-averaging strategies, the investor had the whole lump sum at his disposal from the very beginning. As the philosophy of the cost-averaging effect indicates, investments in the ETF must be made gradually. However, we assumed that the portion of money that hasn't been invested in the ETF yet is allocated in some safe money market assets that generate the same returns as the 6-month U.S. t-bills. The four alternatives of the cost-averaging investment strategy are as follows:

- Strategy 1 (Cost Averaging 1 – CA1): a typical cost-averaging investment strategy. A flat sum of \$166.66 is invested every month in the ETF.
- Strategy 2 (Cost Averaging 2 – CA2): a modification that should help to limit the growth of average cost. A flat sum of \$166.66 is invested every month that follows after month when a negative return was recorded by the ETF.
- Strategy 3 (Cost Averaging 3 – CA3): another modification that should help to limit the growth of average cost. The investment in the ETF is made every month that follows after month when a negative return was recorded by the ETF. However, the invested sum is not flat, it equals the sum of money remaining on the money market account, divided by number of months remaining till the end of the 5-year period.
- Strategy 4 (Value Averaging – VA): an investment strategy based on so called value averaging. Value averaging is an investment strategy derived from the philosophy of cost averaging, however, this strategy enables the reduction of the ETF investments if the ETF price grows. On the other hand, if the ETF price declines, the regular investments can be increased. Under this strategy, the growth target for the ETF account is set at \$170. It means, that we expect the value of ETF investments to equal \$170 after the first month, \$340 after the second month, \$510 after the third month, etc. After each month, the projected value is compared to the real market value and appropriate adjustments are made. If the actual value is lower than the projected value, additional money is transferred from t-bills to ETFs. If it is higher than projected, a corresponding sum of money is transferred from ETFs to t-bills.

As 5-year moving windows are analysed, there are 85 different windows with 85 different results for each ETF and each strategy. To evaluate whether a strategy provides returns comparable to the buy & hold strategy, a statistical test whether the differences between the returns of the buy & hold investment strategy and a cost-averaging-based investment strategy are statistically significant is realized.

3 Results and Discussion

The basic descriptive statistics for results of application of the five investment strategies on SPY, GDX and XBI can be found in Table No. 1. As can be seen, in the case of SPY, the buy & hold strategy was the most successful one by far, with average returns of 78.35% and median returns of 91%. This result is superior to all of the three alternatives of the cost-averaging strategy with average returns of 40.99%, 17.49%, and 23.91% respectively, as well as to the value averaging strategy (35.36%). It is also possible to notice that in this case the basic cost averaging strategy (CA1) was more successful than its modifications (CA1, CA2) and even than the value averaging strategy (VA). On the other hand, it is possible to notice also higher riskiness of the B&H strategy, as the minimum return recorded over the 85 different time windows was -4.7%, while none of the other strategies recorded a window with negative returns. Results of the B&H strategy have also the highest standard deviation by far.

For GDX, the results are different. The gold market was in a bear market for a significant part of this decade and the gold price is still significantly below its peak values. The negative gold price development had a negative impact also on share prices of gold producers included in GDX. This is why GDX underperformed SPY as well as XBI significantly, as can be seen in Graph No. 1. Under these conditions, the B&H investment strategy is inefficient, which is confirmed also by results captured in Table No. 1. The B&H strategy provided an average return of -33.39%, with maximum of 46.73% and minimum of -76.87%. Although also the other four tested investment strategies recorded negative average returns, the average losses were notably lower. The best average results were recorded by strategy CA2 (-5.3%). It is also possible to see that the differences between minimum and maximum returns and standard deviations are notably lower than in the case of SPY.

Over the investigated time period, XBI did much better than GDX and even than SPY. The result is a clear dominance of the B&H investment strategy that recorded average returns of 163.8%. During the worst 5-year window, return of 40% and during the best 5-year window, return of 396% was generated. Also in the case of XBI, similar to SPY, the basic cost-averaging strategy (CA1) outperformed the two modified cost-averaging strategies as well as the value averaging strategy.

Table No. 1: Descriptive statistics for results of the investment strategies

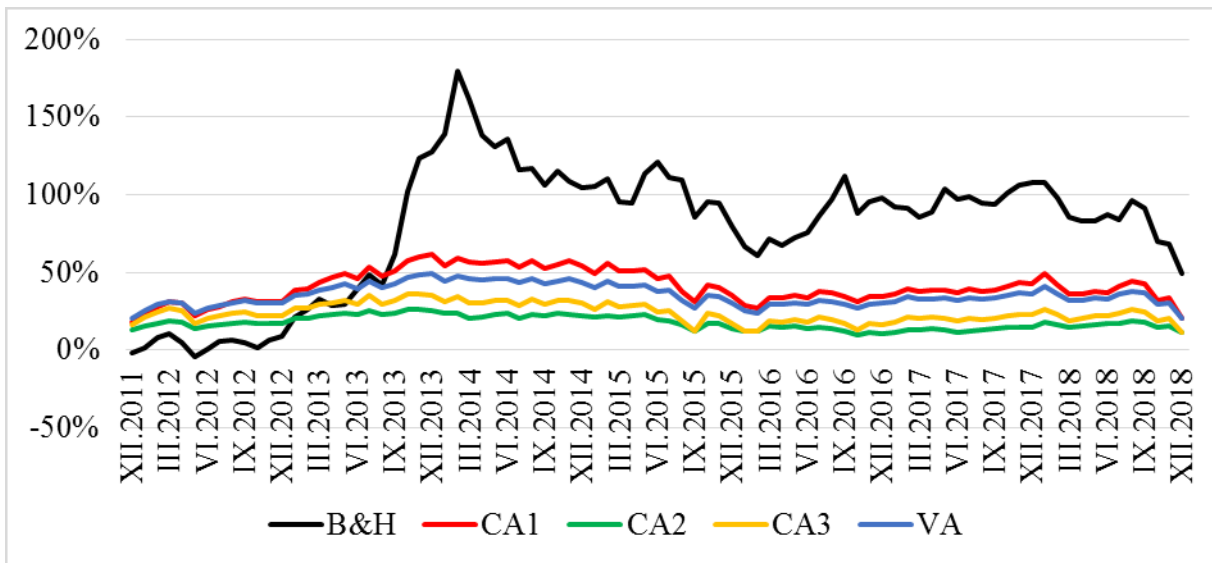
SPY					
	B&H	CA1	CA2	CA3	VA
average	0.78352	0.40991	0.17494	0.23911	0.35363
median	0.91051	0.38643	0.16891	0.22515	0.33621
minimum	0.047033	0.1761	0.093234	0.11004	0.20033
maximum	1.7988	0.61411	0.26013	0.36299	0.48859
standard deviation	0.42232	0.10413	0.04334	0.061059	0.069296
Shapiro-Wilk test (p-value)	0.000135	0.041685	0.008553	0.116964	0.019577
GDV					
	B&H	CA1	CA2	CA3	VA
average	-0.33393	-0.15682	-0.05344	-0.089366	-0.090742
median	-0.40882	0.092258	0.014623	-0.057408	0.048746
minimum	-0.76867	-0.57079	-0.2779	-0.46094	-0.75746
maximum	0.46731	0.34534	0.24159	0.33126	0.48762
standard deviation	0.30591	0.24912	0.13302	0.2062	0.35849
Shapiro-Wilk test (p-value)	0.00006	0.00009	0.00252	0.00186	0.00000
XBI					
	B&H	CA1	CA2	CA3	VA
average	1.6379	0.7609	0.35156	0.48893	0.62269
median	1.674	0.62594	0.31181	0.44598	0.57951
minimum	0.40416	0.11341	0.093566	0.043613	0.21166
maximum	3.9578	1.7916	0.78158	1.1039	1.0697
standard deviation	0.78623	0.37734	0.14807	0.22877	0.18307
Shapiro-Wilk test (p-value)	0.00563	0.00004	0.00241	0.00241	0.01044

Source: own calculations

Results of particular investment strategies applied on the three selected ETFs are shown in Graphs No. 2, 3 and 4. Each curve consists of data-points that represent the return of the investment strategy recorded over the preceding 5 years. It means that the initial point of each curve (XII.2011) shows the result recorded during the I.2007 – XII.2011 time period and the last point of each curve (XII.2018) shows the returns recorded over the I.2013 – XII.2018 time period.

As shown in Graph No. 2, in the case of SPY, the B&H strategy underperformed during the early 5-year windows, due to the negative impacts of the global financial crisis of 2008-2009. However, due to the post-crisis stock market recovery and subsequent long-lasting bull market, the B&H strategy outperformed all of the other evaluated investment strategies.

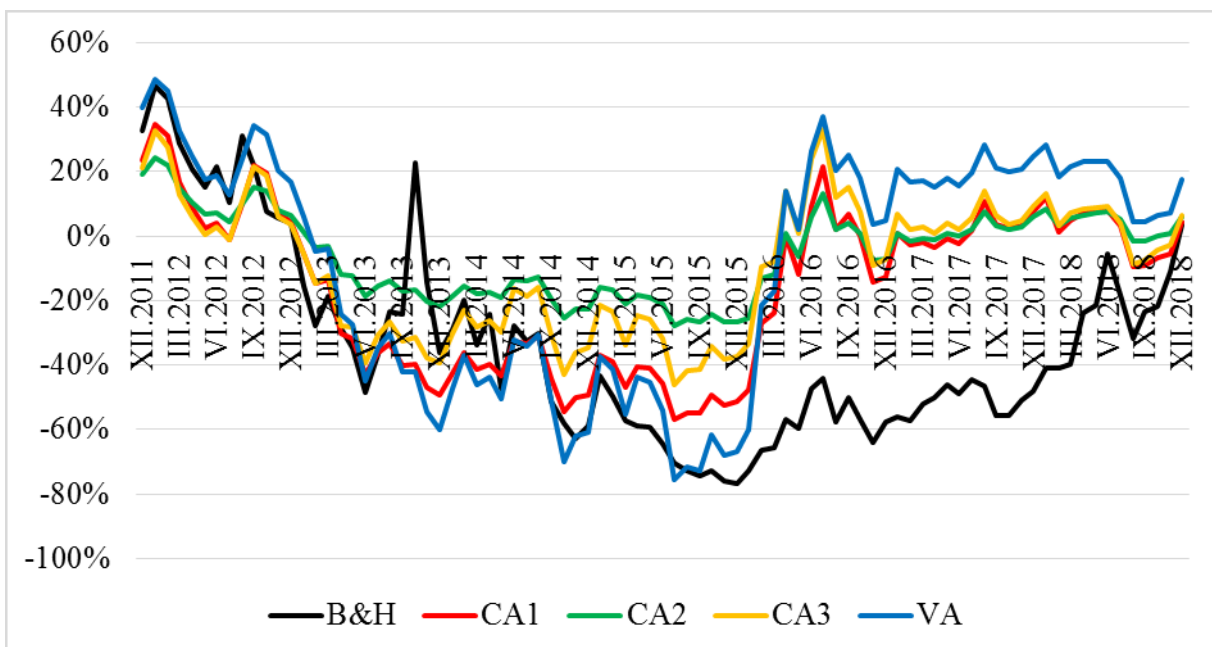
Graph No. 2: Results of the investment strategies (5-year windows) (SPY)



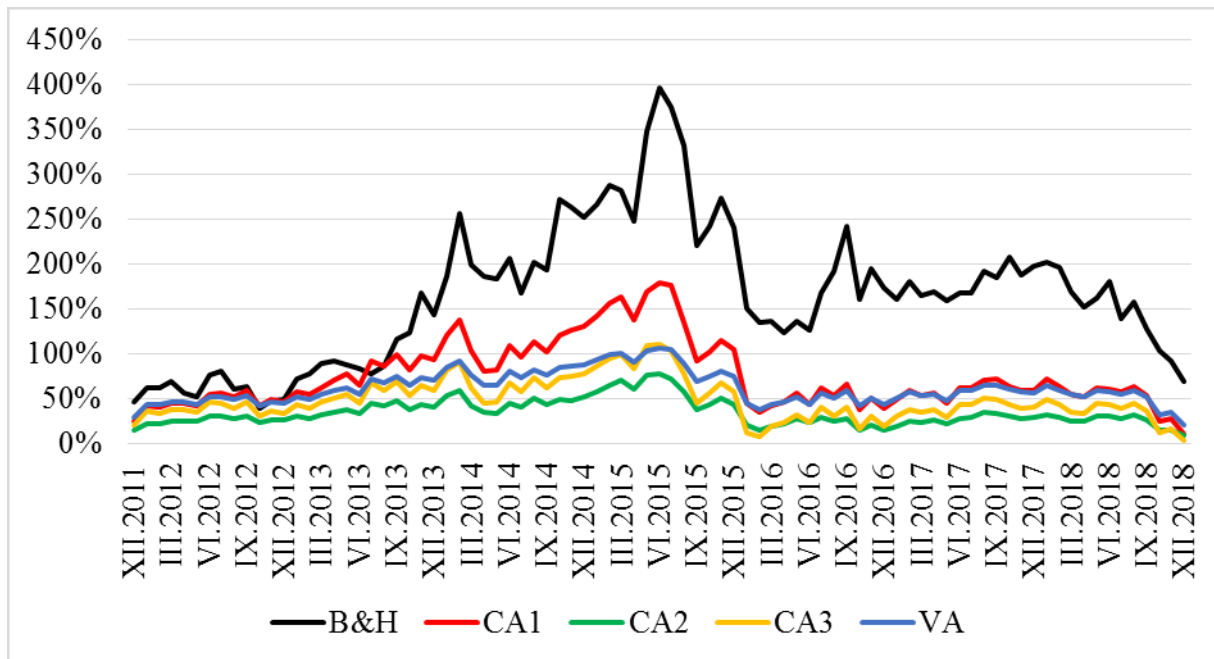
Source: own calculations

Results of application of the investment strategies on GDJ are captured by Graph No. 3. In this case, the B&H strategy underperformed during the majority of 5-year windows. The cost-averaging based investment strategies and especially the value averaging investment strategy outperformed during the windows that included the post-2013 gold bear market, as expected.

Graph No. 3: Results of the investment strategies (5-year windows) (GDJ)



Source: own calculations

Graph No. 4: Results of the investment strategies (5-year windows) (XBI)

Source: own calculations

Results for XBI are shown in Graph No. 4. The results are not surprising, given the very positive development of XBI's share price. The B&H strategy dominated during the vast majority of time windows. The CA1 strategy did relatively well in comparison to the other cost-averaging based investment strategies and the value averaging strategy, however, during the latest windows its outperformance disappeared.

As shown in the graphs, the cost-averaging investment strategies and the value averaging investment strategy tend to provide very similar returns. Moreover, the stability of the returns is much higher than stability of returns generated by the B&H strategy. On the other hand, it is also possible to see that there tend to be notable differences between the returns generated by the B&H strategy and returns generated by the remaining four strategies.

To verify whether there are statistically significant differences between returns recorded by the B&H strategy and the four other strategies, two-sample t-test was used. As can be seen in Table No. 2, in all of the cases, for SPY, GDX and also XBI, there are statistically significant differences at $\alpha = 0.01$. As can be seen in Table No. 1, according to the results of the Shapiro-Wilk test, returns generated by CA3 on SPY are not normally distributed. As a result, the differences between returns of B&H for SPY and CA3 for SPY were evaluated also using the nonparametric Wilcoxon rank-sum test. This test confirmed that the differences are statistically significant.

Table No. 2: Statistical significance of differences between results of particular investment strategies (p-values)

	SPY	GDX	XBI
B&H - CA1	0.0000000000	0.0000550700	0.0000000000
B&H - CA2	0.0000000000	0.0000000008	0.0000000000
B&H - CA3	0.0000000000	0.0000000000	0.0000000000
B&H - VA	0.0000000000	0.0000000042	0.0000000000

Source: own calculations

Based on results presented in Table No. 2, it is possible to conclude that none of the four cost-averaging-based investment strategies delivered results similar to results of the buy & hold strategy. In all of the cases, the differences in returns were statistically significant. Although the analysed investment strategies were modified in order to eliminate some of the advantages of the buy & hold strategy, the buy & hold investment strategy is still dominant, which is in line with findings of previous authors such as Constantinides (1979), Brennan and Solanki (1981) or Rozeff (1994).

Conclusion

The results show that the buy & hold investment strategy clearly outperforms the analyzed cost averaging-based investment strategies, including the value averaging investment strategy, during the bull markets. Even the market turbulences and short-term corrections are unable to help to beat the buy & hold strategy on a regular basis. A strong and relatively long bear market is needed for them to outperform, however, their bear market outperformance is usually much less significant than their bull market underperformance.

Although the results presented in this paper are quite persuasive, some further research is needed to come to more robust conclusions. For example, the analyzed time windows were only 5 years long, due to the relatively short history of two of the selected ETFs that were established only in 2006. Longer time periods, especially if they contain more than one bear market, may lead to different results. Moreover, some further modifications of the cost-averaging based investment strategies may help to close the gap in returns as well.

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ALTERNATIVE FUNDING FOR SMEs: A COMPARISON BETWEEN REGIONAL FIXED INCOME MARKETS IN EU

MARCO BOSANTO

Abstract

On the global background of capital markets evolution the comparison of regional fixed income markets in EU is clearly outlined and documented by examples. The contribution of rating to greater transparency of the issuer towards the financial community, international credibility and internal financial discipline is explained and the role of domestic rating agencies emphasised. The author introduces CRIF Ratings, the CRIF Group rating agency currently supervised by ESMA under Regulation (EC) 1060/2009 and recognized as an External Credit Assessment Institution (ECAI) by the EBA and ESMA. Two main agency rating propositions – ratings and ancillary services – are described, as well as definition of assessment scales and activities in the Czech and Slovak Republics.

Keywords

Capital markets, fixed income markets, domestic rating agency, rating, rating scale.

Abstrakt

Na globálním pozadí vývoje kapitálových trhů je srovnání regionálních trhů s pevným příjmem v EU jasně nastíněno a dokumentováno příklady. Je vysvětlen příspěvek ratingu k větší transparentnosti emitenta vůči finančnímu společenství, mezinárodní důvěryhodnosti a vnitřní finanční kázni a je zdůrazněna úloha domácích ratingových agentur. Autor zavádí ratingy CRIF, ratingovou agenturu skupiny CRIF, která je v současné době pod dohledem ESMA podle nařízení (ES) 1060/2009 a EBA a ESMA je uznávána jako externí instituce pro hodnocení úvěrového rizika (ECAI). Jsou popsány dva hlavní návrhy ratingových agentur - ratingové a pomocné služby, jakož i definice hodnotících stupnic a aktivit v České a Slovenské republice.

Klíčová slova

Kapitálové trhy, trhy s pevným výnosem, domácí ratingová agentura, rating, ratingová stupnice.

JEL Classification

G01, G14, G15

IMPACT OF THE REGULATION ON THE CAPITAL MARKET DEVELOPMENT

JANA BRODANI

Abstract

The legislative environment of capital market in the Czech Republic and in Europe is constantly evolving. Most of the rules aim at preventing some form of market failure. With regards to the importance of the capital market for the whole society, the regulation should be also focused on introducing the rules to promote the capital market in order it can effectively provide its services to the society. This article is focused on the positive regulation aiming at developing and promoting the capital market. The main goal of this article is to analyze which high-level regulatory measures are considered to be in the capacity to develop the capital market, from European, Central and Eastern European, and Czech perspective.

Keywords

Capital market, regulation, re-regulation, development, CMU

Abstrakt

Legislativní prostředí kapitálového trhu v České republice i v Evropě se neustále vyvíjí. Cílem většiny pravidel je zabránit určité formě selhání trhu. S ohledem na význam kapitálového trhu pro celou společnost by se však regulace měla zaměřit také na zavedení pravidel na podporu kapitálového trhu, aby mohl společnosti efektivně poskytovat své služby. Tento článek je zaměřen na pozitivní regulaci zaměřenou na rozvoj a podporu kapitálového trhu. Hlavním cílem tohoto článku je analyzovat, která regulatorní opatření na vysoké úrovni jsou považována za schopná rozvíjet kapitálový trh z evropského, středo a východoevropského i českého pohledu.

Klíčová slova

Kapitálový trh, regulace, re-regulace, rozvoj, CMU

JEL Classification

K2

Introduction

Capital market plays a crucial role in the lives of citizens, communities and companies. The main mission of the capital market from the society's perspective is twofold: to place investments and savings of the population into the economy, thanks to which companies can gain the funds needed for their growth, and to help individuals and households to create savings

for their future. The notion of the capital market is not defined in the Czech legislation, although this term is commonly used¹. In the academic theory, the capital market is defined as a *place, where offer and demand for the long-term capital meet*.² With regards to the importance of the capital market, there is a strong interest and determination in the society to regulate it.

In the past few years, we have seen a significant reactionary regulation, mostly arising from the experience of the last financial crisis, rather than the stable development of the regulation. This is in contradiction with the concept of regulation, which should be understood rather as the “*channelling of certain phenomenon, in order to maintain or change it*”³. Most academic papers on capital market regulation focus on reasons for the regulation mostly based on market failures, or on the possible weaknesses of the capital market, which should be eliminated, such as informational asymmetry, negative externalities, systemic risk, market abuse, imperfect competition, minimization of the dishonest practice etc.⁴

However, apart from the rules that aim to prevent some form of market failure, or to “punish” those who have acted immorally in the past, and with regards to the considerable value and benefits of the capital market to the whole society, the regulation should be also focused on introducing the rules to preserve and support functioning of the capital market for the society. A significant number of academic papers focuses on benefits of developing the capital market, e.g. J. E. Stiglitz's 'Financial Markets and Development' (1989) or 'How Capital Markets Enhance Economic Performance and Facilitate Job Creation' (2004) by W. C. Dudley and R. G. Hubbard. Therefore in this article, the regulation is considered mainly from the perspective of enhancing it via de-regulation, or rather so-called re-regulation, as suggested by some academics⁵. From this perspective, the new regulation does not have to only bring the change of the existing regulation, but may also bring some new benefits to the regulated subjects, such as the direct state support, new vehicles etc.

Therefore this article is focused on the regulation from the perspective of promoting the capital market. As such, the academic method is rather descriptive, with the use of analytical tools in order to reach the deduction. With regards to the vast concept of the capital market and with regards to author's professional background⁶, capital market in this article is regarded mostly from the asset managers' and investment funds' perspective, in order to achieve deeper insight

¹ Such as in the Act No. 256/2004 Coll., On Capital Market Undertakings.

² MUSÍLEK, Petr. *Trhy cenných papírů*. 2. aktual. vyd. Praha: Ekopress, 2011. 520 s. váz. ISBN 978-80-86929-70-5, p. 43.

³ DĚDIČ, J. a kol. *Právo v podnikání V. (Právo cenných papírů a kapitálového trhu)*. 1. vyd. Praha: Prospektrum, 2000. ISBN 80-7175-084-0, p. 203.

⁴ MUSÍLEK, Petr. *Trhy cenných papírů*. 2. aktual. vyd. Praha: Ekopress, 2011. 520 s. váz. ISBN 978-80-86929-70-5, p. 113 and following.

⁵ DĚDIČ, J. a kol. *Právo v podnikání V. (Právo cenných papírů a kapitálového trhu)*. 1. vyd. Praha: Prospektrum, 2000. ISBN 80-7175-084-0, p. 206.

⁶ Author is the Executive Director of the Czech Capital Market Association, which is the most important professional association on the capital market in the Czech Republic. The Association associates major managers - management companies and asset management companies, as well as investment firms and banks operating in the Czech Republic and other entities providing services in the capital market field. The Association's activities help to increase the transparency of the capital market, protect investors and promote the interests of its members. The Association strives in particular to develop the capital market and collective investment. With its activities and self-regulatory measures, it wants to develop the awareness, knowledge and credibility of the capital market.

in the area researched. The main contribution of this article should be to assess which measures are being considered as the ones that could bring the development to the market, from the European, Central and Easter European region and Czech Republic in particular.

1 European regulation: CMU vs FTT

1.1 History

European regulation of asset management is very complex and mainly consists in regulation of investment funds. Based on the development of the European regulation, two main streams of fund regulation evolved, one for UCITS⁷ funds, the other one for all the other funds, so-called alternative funds⁸.

The beginnings of European regulation of investment funds date back to the 1980s, when the regulation of UCITS funds arose as an effort to build a uniform foundation for a strong European product and thus support the development of funds not only in the European Union but also its competitiveness on a global scale.⁹ The original proposal of the UCITS Directive aimed to create conditions for the single market in the field of investment funds and to facilitate their cross-border marketing. Other proposals in the form of UCITS II, UCITS III and UCITS IV also aimed at simplifying the functioning of UCITS funds.

1.2 Post-crisis regulation

On the other hand, UCITS V directive, adopted after the outbreak of the financial crisis in 2008, had already a different aim than the development of this product. As said then Internal Market and Services Commissioner Michel Barnier: *"In the aftermath of the biggest financial crisis in recent memory, the financial sector must place consumers at its heart. Retail products must be safer, information standards must become clearer, and those selling products must always be subject to the highest standards. That is why we have adopted a package solely dedicated to consumers, so that they can choose financial products based on clear and sound information and professional advice which puts the consumer's interests first."*¹⁰ Therefore mostly orientation on the strong regulation with references to investor protection.

The same direction of the regulation was applied to alternative funds. As Internal Market and Services Commissioner Charlie McCreevy said: *"Alternative investment fund managers have become important participants in the European financial system and their activities have had a significant impact on the markets and companies in which they invest. There is now a global consensus – as expressed by the G20 leaders – over the need for closer regulatory engagement with this sector. In particular, it is essential that regulators have the information and tools*

⁷ Regulated by the Directive 2009/65/EC of the European Parliament and of the Council of 13 July 2009 on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (UCITS).

⁸ Regulated by the Directive 2011/61/EU of the European Parliament and of the Council of 8 June 2011 on Alternative Investment Fund Managers.

⁹ It should be noted, that this initiative was successful, as UCITS label is considered as a quality trademark worldwide.

¹⁰ *European Commission*. 2012. [online]. EUROPA.EU. [cit. 30.5.2019]. Available from: https://europa.eu/rapid/press-release_IP-12-736_en.htm

necessary to conduct effective macro-prudential oversight. The crisis has also underscored the importance of robust risk and liquidity management systems and the need for reliable investor information as the basis for effective due diligence."¹¹ It is clear that in this case preventing the systemic risk was the main goal of the new regulation.

After the financial crisis, investor protection (together with the punishment of the financial institutions) consisting in harsh and complex regulation were the main aims of the European Commission and the subsequent regulation brought a considerable increase in administration (and administrative costs) for financial institutions. There are many examples of such pieces of legislation.

Probably the most complex regulation adopted was the Directive on Markets in Financial Instruments repealing Directive 2004/39/EC and the Regulation on Markets in Financial Instruments, commonly referred to as MiFIDII, adopted by the European Parliament and the Council of the European Union and published in the EU Official Journal on 12 June 2014. This legislation brought a very complex regulation of capital market, including regulation of the OTC market, organizational requirements, trading venues, product governance, inducements, disclosures and remuneration. Only in the Czech Republic, the estimated costs related to the implementation of this regulation reached hundreds of millions of Czech crowns¹².

One proposal, which could be particularly harmful to investors, has not yet been adopted as a European legislation, (only in the form of an enhanced cooperation of participating countries), but is regularly brought to discussions on the European level as an open issue, is the proposal for the introduction of a financial transactions tax¹³. It is clear that levying tax on financial transactions could have not only detrimental impact on investment returns, but also could have a macroeconomic effect of moving transactions outside Europe.

1.3 CMU

Completely different aim has the Action plan on building a capital markets union introduced in 2015. As Commissioner at that time Jonathan Hill, responsible for Financial Stability, Financial Services and Capital Markets Union said: *"I want the Capital Markets Union to help European businesses, and our SMEs in particular, have a wider range of funding sources. I want it to give consumers more options for investing their money. I want to knock down barriers to make it easier for capital to flow freely across all 28 Member States."*¹⁴ Principal aim of this initiative was to eliminate barriers in financing in the European Union, to making it easier for companies, both start-ups and SMEs to raise capital, and enabling mainly retail investors to benefit from the whole European market.

¹¹ *European Commission*. 2009. [online]. EUROPA.EU. [cit. 30.5.2019]. Available from: https://europa.eu/rapid/press-release_IP-09-669_en.htm

¹² Based on the market participants' information provided to the Czech Capital Market Association. Most of the costs were associated with the change of IT systems.

¹³ COUNCIL DECISION of 22 January 2013 authorizing enhanced cooperation in the area of financial transaction tax (2013/52/EU).

¹⁴ *European Commission*. 2015. [online]. EUROPA.EU. [cit. 30.5.2019]. Available from: https://europa.eu/rapid/press-release_IP-15-5731_en.htm?locale=en

These aims are to be achieved by the various actions such as simple, transparent and standardized securitization, Prospectus Regulation, Pan-European personal pension product (PEPP), Covered bonds, Crowdfunding, facilitating Cross-border distribution of collective investment funds, Investment firms review, Preventive restructuring, second chance and efficiency of procedures, Promotion of SME Growth Markets, Third-party effects on assignment of claims, European Supervisory Authorities review, European market infrastructure regulation (Supervision) and Sustainability measures.

After years of strong regulation, proposals aimed at promoting the market received very warm welcome from industry participants. Peter de Proft, Director General of EFAMA¹⁵, commented: *“Europe is facing an important challenge, which is also a unique opportunity. We very much welcome the fact that EU policymakers are embracing the opportunities that the asset management industry offers in terms of supporting sustainable economic growth and long-term financing.”*¹⁶

2 Stakeholders’ view on the capital markets development in the CEE region

2.1 CFA Institute Survey

In 2018, the CFA Institute¹⁷ conducted a survey of its members in the Central and Eastern Europe (CEE) region to understand their views on regulatory issues specific to the local capital markets¹⁸. More than 260 responds from financial professionals across the region were received. Based on this survey it is clear, that even though capital markets in the Central and Eastern Europe region face different obstacles in their development, there is a number of regulatory issues which are different from Western Europe, but have common features in these countries.

2.2 Vienna Initiative

Similarities in needs of CEE countries were analyzed also by the Working Group on Capital Markets Union, which was established in March 2017 in the context of the Vienna Initiative of the European Commission. Based on the economic analysis the fact that countries from Central, Eastern (and South-Eastern Europe) suffer from less developed capital markets. This initiative aimed at identifying necessary steps to enhance local capital markets that could be implemented both at national or European level. In its Final report¹⁹ the Working group conclusions represent similarities with the CFA Institute’s research. Among others were considered the issues of privatization, pension funds’ investments, financial education, need for proportionality and EU

¹⁵ European fund and asset management association.

¹⁶ *European fund and asset management association*. 2015. [online]. EFAMA. [cit. 30.5.2019]. Available from: <https://www.efama.org/Pages/EFAMA-underlines-its-support-for-European-Capital-Markets-Union.aspx>

¹⁷ CFA Institute is the premier global association for investment management professionals

¹⁸ *CFA Institute*. 2018. [online]. CFA INSTITUTE. [cit. 30.5.2019]. Available from: <https://slideplayer.com/slide/16197090/>

¹⁹ *Vienna Initiative*. 2019. [online]. VIENNA INITIATIVE. [cit. 30.5.2019]. Available from: <http://vienna-initiative.com/resources/themes/vienna/wp-content/uploads/2018/03/VI-CMU-Working-Group-Final-Report-March-2018.pdf>

harmonization. Even though this article focuses on the CFA Institute's research, references are made to the Vienna Initiative findings as well.

2.3 Key findings

It is not a surprise that most of the respondents from CEE countries call for increased centralization of supervision of European financial markets and agree that supervision should be more centralized. Based on the numerous interviews of the author²⁰ with the representatives from the CEE countries, the national regulation beyond the European regulation level represents a significant problem in the whole CEE region. Not only these regulations decrease the competitiveness of local countries by bringing additional costs to the local market participants, but they also bring uncertainties in the application of these local rules, as their application cannot be considered from the perspective of other countries' experience.

This problem can also be noticed in the Czech Republic, where most of the problematic rules come from the purely local regulation, which is beyond the European regulation, often so-called gold-plating. Gold-plating is to be defined as "*an excess of norms, guidelines and procedures accumulated at national, regional and local levels, which interfere with the expected policy goals to be achieved by such regulation.*"²¹ From this perspective, not only supervision, but also harmonization of the EU regulation would be welcome by market participants. However, unsurprisingly, the regulation should not be such like the above mentioned MiFIDII regulation, which is not considered as a positive regulation by the respondents. Apart from the complexity of MiFIDII regulation, the problems arise also in cases, where the rules are unclear, and the local supervisors and regulators may create various interpretations of this regulation, which vary from country to country and undermines not only the single market, but also the competitiveness of local markets.

Based on the open questions, various further issues arise from the replies of survey participants, such as suggestions for the best regulatory approach to increase the activity in the local capital market. Amongst these it is the pension reforms, privatization, financial education and proportionality. From the topic analyzed by this article, mainly the proportionality principle is interesting issue. In financial services regulation one size does not fit all, and vast complex rules for a global bank providing to its clients very complex services should not be applied to the small local boutique investment firm. Therefore the above mentioned harmonization should be applied proportionally based on the systemic relevancy of the institution to implement the rules, but also based on the market qualities, size, systemic relevancy etc.

On the other hand, pension solutions, increasing financial education and privatization are activities, which rather than regulating the financial market focus on the activities, which may be the done by the local government itself. For the pension reform, there are various

²⁰ Author is Board of Directors member of the European Funds and Asset Management Association (EFAMA), where nearly all the CEE countries are members and which represents the most relevant platform for the CEE countries representatives discussions and sharing of experience and opinions.

²¹ *Directorate-General for Internal Policies of the Union*. 2014. [online]. EUROPEAN PARLIAMENT. [cit. 30.5.2019]. Available from: [http://www.europarl.europa.eu/RegData/etudes/etudes/join/2014/490684/IPOL-JOIN_ET\(2014\)490684_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/etudes/join/2014/490684/IPOL-JOIN_ET(2014)490684_EN.pdf)

opportunities, e.g. introducing new pension vehicles, state subsidies for citizens to invest in these vehicles, or investment rules for pension vehicles. In the Vienna Initiative Final Report, investments of pension funds are mentioned within the institutional investors' chapter.

Interestingly, quite often the need for a strategy for the capital market development has been mentioned by respondents, both as a comprehensive document focusing on introducing the measures for the capital market development and also on the promoting of the local capital market. Example of such strategy introduced in the Czech Republic is analyzed in the chapter below.

3 Czech Strategy for the capital market development

3.1 Origins of the Strategy

In the Czech Republic, the Ministry of Finance published in March 2019 the National Strategy for the Development of the Capital Market in the Czech Republic 2019 – 2023²². This document is a result of the Czech Capital Market Association's initiative from 2014, which aimed at bringing together market participants and putting together a list of ideas how to enhance the capital market in the Czech Republic. The idea behind this initiative was to follow the famous quote "The time to repair the roof is when the sun is shining". After the crisis, the market was on the pace towards its recovery, and the aim was to prevent future problems by better positioning the local market in the European environment. After the initial discussions, this initiative was covered and led by the Ministry of Finance, and final document represents the list of measures approved by the Czech government and to be introduced by the year 2023 in order to enhance the local capital market by unlocking its potential.

3.2 Basis

From the Asset managers' perspective, there was a strong demand to increase a number of local securities in order to enable allocation of more of the investments of local clients into local securities. Based on the research done by the Czech Capital Market Association²³, only a small portion of assets managed by asset managers in the Czech Republic²⁴ was invested into local securities. Structure of the asset management in the Czech Republic in 2014:

- Czech shares
 - Financial institutions: 0.34%
 - Non-financial institutions: 0.67%
- Foreign shares
 - Financial institutions: 2.31%
 - Non-financial institutions: 5.65%
- Czech debt instruments as issued by:

²² Ministry of Finance. 2019. [online]. MFCR. [cit. 30.5.2019]. Available from <https://www.mfcr.cz/cs/aktualne/tiskove-zpravy/2019/ministerstvo-financi-predstavilo-koncepc-34656>
In English available from:

<https://www.mfcr.cz/en/news/press-releases/2019/the-ministry-of-finance-introduced-the-n-34785>

²³ Czech Capital Market Association. 2015. [online]. AKATCR. [cit. 30.5.2019]. Available from: <https://www.akatcr.cz/Asociace-AKAT/Kolektivni-investovani/prezentace-akat-ke-konci-roku-2014>

²⁴ At the time of the research in 2014 totaling 1 100 bn Czech crowns.

- Financial institutions: 2.75%
- Czech Republic: 32.06%
- Non - financial institutions: 18.51%
- Foreign debt instruments as issued by:
 - Financial institutions: 7.84%
 - Foreign state: 5.34%
 - Non - financial institutions: 13.21%

There were two key aims defined in this initiative based on the needs resulting from the analysis of the local asset management market. First aim was the creation of an offer of Czech investment instruments in which asset managers could invest by supporting companies' demand for capital market financing together with the second aim, which was the change in the structure of funds entrusted to asset managers in terms of the length of the period for which investors entrust their funds to them by supporting investment and saving for a long time. It should be also noted, that this was full in line with the European CMU project.

3.3 Key proposals

In many countries, pension funds are both the main driver of the capital market and a source of finance for the economy. E.g. in Poland, pension funds can invest in a much wider portfolio of securities, including stocks, which is also linked to a wider stock offering on the Warsaw Stock Exchange. German pension funds, represent an important source of investment in infrastructure. In the Czech Republic, the main obstacles to greater involvement of pension funds within the capital market have been identified as not very convenient diversification limits of pension funds, resp. the guarantee of annual yield. Change in diversification limits towards the more long-term assets together with the introduction of so-called individual savings account were therefore proposed. Individual savings account is preliminary defined as an investment account designed to create savings for retirement which is not taxed throughout its existence and is not taxed when withdrawn. These measures with regards to pension funds and retirement savings belong to the most important measures brought by the Strategy.

Active involvement in pan-European and global initiatives, such as European Fund for Strategic Investments (so-called Juncker Package) or so-called Innovative Financial Instruments, or with the World Bank and other global institutions are planned in the Strategy in order to continue with the initiatives towards the capital market development. From the regulatory perspective, active involvement in the law-making process in the EU is crucial. Most of the capital market legislation comes from the European level, therefore ensuring that it will not have a detrimental effect on the local market is the key. One of the particularly important issues to be observed is the strict following of the principle of proportionality, as described above, and as requested by market participants.

There are many more measures proposed by the Strategy. However, the existence of the strategy by itself may be also considered as a significant step towards the Czech capital market development, as it brings the recognition the importance of the capital market by the government, together with introduction of measures helping to develop the local market. Maybe

even more importantly, the Strategy originated from the market participants, and is supported by them. Which is often a key for the willingness of market participants to actively participate at developing the local market.

Conclusion

Recent developments of the regulation on the European level shows incoherence in the regulation, which undermines the efforts for the capital market development. Harsh regulation after the financial crisis has been implemented by market participants at a very high costs at the same time, when plans for boosting the global competitiveness of the European capital market were designed. This incoherence causes the ineffectiveness of the European market, and also of the European stakeholders. More focus should be put on considerations, how measures can affect the development of the European capital market.

Local regulation, often contains gold-plating rules, is another important regulatory obstacle preventing from greater development mainly of the CEE countries. There is no surprise that market participants from these countries call for a uniform and clear regulation in the whole European Union. However, this harmonized regulation should not be only focusing on preventing potential market failures, but also help the development of local markets and should of a high quality, in order to prevent the local gold-plating.

Views of market participants on the possible steps to be taken in order to develop the local capital markets are very similar in the CEE countries, as seen in the CFA Institute's Survey but also based on the discussions within the Vienna Initiative. Measures such as importance of pension vehicles and their investments, financial education and privatization are considered by market participants as very important. With regards to the European regulation, the strong need for proportionality and EU harmonization is demanded by market participants.

From the market participants' perspective, there is also a strong demand for the promotion of the capital market, by some kind of a development Strategy. Even also the Capital Markets Union is the Union of capital markets and not just a one market. For regulators it should be considered as very important, to listen to the needs of market participants, and take into account their needs and requests. Because whatever the regulation is, the market development depends on market participants (including investors). Without them, there would be no market (and no need for regulation).

Therefore every regulation should be considered very carefully and rules should be well balanced between preventing the market failures and promoting the market benefits. This particularly valid for the European legislation, which represents most of the capital market regulation, but also locally by avoiding gold-plating and promoting the local markets. Only with the need for market development taken into account by market participants the capital market may efficiently bring benefits to societies.

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BOND PROSPECTUS ANALYSIS

JOSEF BUDÍK

Abstract

The aim of this text is to discuss opinions regarding the financing of small and medium enterprises through the issuance of bonds. Each issue of securities can be analyzed from the perspective of an issuer or investor. The issuance of securities provides the issuer with external resources for development and growth. For investors, bonds may be a way to adequately valorize money and minimize the risk with the investment associated. The Czech National Bank publishes information relating prospectuses of SME bonds issues on its website. The CNB's role is defined by the rules and in the discussion section of paper the attention is also paid to this role.

Keywords

Bond, issuer, analysis, investor

Abstrakt

Cílem tohoto textu je prezentovat některé názory týkající se financování malých a středních podniků prostřednictvím emise dluhopisů. Každá emise cenných papírů může být analyzována z pohledu emitenta nebo investora. Emise cenných papírů poskytuje emitentovi externí zdroje pro rozvoj a růst. Pro investory mohou být dluhopisy způsobem, jak přiměřeně valorizovat peníze a minimalizovat riziko spojené s investicí. Česká národní banka zveřejňuje informace týkající se prospektů emise dluhopisů pro malé a střední podniky na svých webových stránkách. Role ČNB je definována pravidly a v diskusní části příspěvku je této úloze věnována pozornost.

Klíčová slova

Dluhopis, emitent, analýza, investor

JEL Classification

C52, D18, D53, E51

Introduction

“The Czech Republic is spreading dirty debts” was the headline in one important newspaper. It was sometime at the end of February 2019. The author, Petříček (2019), reflected on the strategies of companies seeking development funds among the public. He discussed the philosophy of investors who bought bonds only according to the "maximum yield" criterion and mostly regardless of possible risk. And risk can be high. In the Czech Republic, companies usually first apply for a bank loan. Only if the bank refuses to lend to the company, the issue of bonds is the second choice. And banks, with their sophisticated calculations, usually know

why they decided to do so. Even for individual investors, the financial results of bond issuers should become the basic criterion of economic decisions.

1 Risks of lending

The minimum of loss-making transactions is a part of the entire portfolio of credit operations of financial institutions. The fees and prices charged to clients must respect these costs associated with the risk of default. It is economically and ethically justified. Financially capable lenders will lose relatively little, while others may be devastated by the loss of risks they have not calculated with. Experienced financiers monitor credit limits when lending and control how loans are used. In the event of improper use of funds or other problems, they act in such a way as to reduce their losses associated with non-repayment of loans. In addition, the mechanisms used ensure that the money is allocated efficiently. If a useful mechanism for finding potentially loss-making loans were eliminated, there would be a misallocation of funds. However, internal banking processes associated with a preliminary analysis of future credit can be evaded by securitisation of debt, i.e. by issuing bonds.

Creditors' caution is the main tool against lending to poor development plans. Potential low viability of plans translates into financial indicators. Monitoring the financial indicators of a company is useful for diagnosing its health and acts as a feedback to reflect the company's business truthfully, objectively and undistorted. For use in financial analysis are suitable and basically the best known ratios. But aggregate indices, value indicators and other information are also used.

2 Methodology

On the one hand, the topic of trading corporate bonds seems traditional, relatively low-risk, and quite uninteresting for research. However, the topic of corporate bond issues began to appear more widely in the Czech media at the beginning of 2019. What are the reasons for this, and if the theory of bond investments, their markets and investors' opinions have fundamentally changed in 2019, the text submitted may be partly in response.

Companies in different European countries can be in trouble. Vogel et al. (2013) published a text entitled „Dealing with financially troubled Swiss corporates“ and found that „...If the last annual accounts show that half of the share capital and the legal reserves are no longer covered by assets (when there has been partial loss of the registered equity capital) Swiss corporate law obliges the board of directors to call a general meeting of shareholders without delay in order to propose a financial reorganisation of the company (article 725 paragraph 1 of the Swiss Code of Obligation (CO))...“. Companies in the Czech Republic are probably no exception. Braucher (2006) dealt with over-indebtedness a decade ago in the text „Theories of Over indebtedness: Interaction of Structure and Culture“. The main content of his work was the topic, that „...consumer bankruptcy scholars typically stress either a structural or a cultural account of individuals' problems with debt. Drawing on the history of poverty research, this article argues that research on consumer over indebtedness and bankruptcy should avoid the pitfall of seeing structural and cultural factors as opposing explanations. Deregulation of the credit industry and

an incomplete social safety net are key structural conditions that lead to a culture hospitable to over indebtedness. Furthermore, the interaction of structure and culture has practical policy implications. Structural changes such as interest-rate deregulation inevitably transform both business and consumer culture. Policies designed to create a different consumer culture will have a hard time when pitted against strong structural causes of over indebtedness. At a minimum, efforts to create a culture of personal financial responsibility need a strong structural base, such as public education starting at a young age, and could easily require a generation or more to take hold.”

Other authors, such as Angel and Heitzmann (2015), or Brenan and Gallagher (2007), dealt with over-indebtedness of households.

A little less research has been worked on the topic of "over-indebted enterprises. These include the work of Samkin, Pitu and Low (2014). The objectives of this paper are to identify the financial skills small business owners believe necessary to be successful in business, and to establish whether there is a role for secondary school accounting in contributing to the learning of these skills. A combination of a social network website and snowball sampling technique was used to invite small business owners to participate in the study. The social network website was used to promote the study, with research participants being directed to it for further information. Semi-structured interviews with 18 owners of 17 small businesses situated in the North Island of New Zealand were undertaken. English and maths were identified as being the most important subjects studied at secondary school that contributed to interviewees' understanding the financial side of their business. The small number of business owners interviewed means that the findings of this study may not be representative of the whole population of New Zealand small businesses owners.

Knewton and Qi. (2019) presented a text stating that the purpose of this paper is to provide an insurance framework to address the challenge of managing default risk for lenders providing credit to small and micro businesses. A theoretical model is developed showing how microfinance lenders can better manage the default risks of small and micro businesses, which assists lenders in sustainably providing affordable microfinance.

As the previous text shows, the basic research question may be: "How the credibility of corporate bond issuers can be determined? A few clicks in the internet search engine will offer two basic steps. The first is to find the financial statements and study it. In the second step, then calculate some useful pointers.

2.1 Financial statements finding

Dubious companies often do not disclose their financial statements, although it is required by law. Companies are likely to choose such a practice to withhold information on mismanagement. If the issuer of bonds repeatedly does not disclose its financial statements, it may commit an administrative offence and infringe obligations. When buying corporate bonds by companies without published financial statements, an investor can easily get into a significant problem because he or she risks own money in the deal.

2.2 Calculation of indebtedness indicators

The fundamental risk to the investor is the over-indebted of the issuer, i.e. a situation where the legal entity has more creditors and its payables due are higher than its assets. In this context, a long-term problem arises. There is not always possible to distinguish unequivocally between the temporary loss of company and the actual and permanent over-indebtedness of company. In a situation of scarcity of own funds, companies use foreign resources to finance their activities. The extent of the use of foreign resources is reflected through debt indicators. With increasing indebtedness, the risk of bankruptcy increases, due to the declining financial stability of the company.

Jark (2020) published an idea, that in the situation, when investor wants to explore the financial situation of a company, a number of indicators can use. A company's debt/EBITDA ratio measures its ability to pay off its incurred debt, which is critical for junk bonds. It is a useful tool for investors trying to estimate how likely an issuer is to meet its obligations. EBITDA stands for earnings before interest, taxes, depreciation, and amortization, so the debt/EBITDA ratio can provide a different picture than earnings alone.

But an investor can consider EBITDA to be too complicated an indicator. In that case, he can select two different indicators regarding the issuer's indebtedness:

- **Creditor Risk indicator** which, according to Kislinger (2004, p. 85), is shaped like:

$$A) \text{ Total indebtedness} = (\text{foreign resources} / \text{total assets}) \times 100 [\text{in \%}]$$

The interpretation of the calculation of total indebtedness is not very complicated. When the indicator is higher, higher and more dangerous indebtedness is. The indicator should range from 0.3 to 0.6 (30% - 60%).

- **The Debt Ratio Indicator** which according to Vochozka (2011, p. 26) is shaped:

$$B) \text{ Debt ratio} = (\text{foreign capital/equity}) \times 100 [\text{v \%}]$$

This indicator expresses the proportions of foreign resources and equity. Usually a ratio of 1:1 is recommended. Taking into account financial risk, 40 % of foreign capital is taken relative to its own as the basic safe debt ratio.

Another analyst may prefer, for example, liquidity indicators, indicators showing at what speed and cost it is possible to convert certain forms of assets into money. Liquidity is then indicated by the company's ability to pay its liabilities in a timely manner. Insufficient liquidity can plunge the entrepreneur into insolvency and lead to bankruptcy.

Another option of access to the current condition of the company, or bankruptcy status and future financial developments is to use the multi parameter index associated with the name Edward Altman. Emeritus Professor Altman (world authority on junk bond markets) has argued that players in this market are very sophisticated and market participation requires quality knowledge in debt valuation.

3 Data and findings

3.1 Financial statements

A number of relevant information relating bonds issuers, including annual reports, can be found in the Commercial Register. The CNB provides another point of view of company information. The CNB maintains a register of approved prospectuses and their additions and notified prospectuses and their additions under Directive 2003/71/EC of the European Parliament and of the Council. The list contains 251 records from February 2010 to March 2019. Of these, 64 are issued by banks. The three most recent records are in Table 1.

Table No. 1: CNB-approved prospectuses

Issuer	Name of the Prospectus	Type of Security	Date of Approval
WOOD SEEDS s.r.o.	Basic bond prospectus - Union prospectus for growth	Debt CP, nominal value less than EUR 100 000	November 15th, 2019
Natland Bonds s.r.o.	Basic bond prospectus	Debt CP, nominal value less than EUR 100 000	October 24th, 2019
RN Solutions a.s.	Union prospectus for growth - bonds	Debt CP, nominal value less than EUR 100 000	October 18th, 2019

Source: https://oam.cnb.cz/sipresextdad/SIPRESWEB.WEB_PROSPECTUS.PROSPECTUS_SEARCH_DO

In the event that an investor intends to buy a corporate bond, he should rely on his decision in the first place on whether the issuer publishes its financial statements in the Commercial Register. If not, there is a mistake somewhere and it would be advisable to withdraw from the purchase. It would even be possible to ask the registry court to negotiate a remedy with the company.

3.2 Calculations

If an investor finds financial statements, he or she can follow the formulas listed above and calculate whether the investment is potentially returnable. It is also possible to choose a simpler procedure and visit the register maintained by the CNB. The register also includes a basic emission prospectus. The investor can read on the CNB website, that by agreeing to approve the prospectus of the security, the Czech National Bank certifies that the approved prospectus contains the data required by law necessary for the investor to make a decision on whether or not the security will acquire. The Czech National Bank does not assess the economic results or financial situation of the issuer and by approving the prospectus does not guarantee the future profitability of the issuer or its ability to repay the returns or nominal value of the security.

It is therefore entirely up to the investor to assess the prospectus data.

One of the basic prospectuses states (for example):

- assets 2 000 000 CZK,
- total nominal value of bonds in the upcoming issue.... CZK 5,000,000,000,
- the issuer is a subsidiary of UNICAPITAL N.V. (established in the Netherlands).
- the final owner of the Parent Company is with a 100% share of the capital and a 100% share of the voting rights of Mr. Pavel Hubáček.

That example should lead a potential investor to the idea that if a bond issuer gets into financial trouble, he won't be able to pay coupons, but probably not even an invested amount (principal).

The CNB is not legally entitled to examine the creditworthiness of their issuer when issuance of bonds. The likelihood of the debtor paying off his obligations is assessed by independent credit rating agencies, which, on the basis of a detailed risk analysis of the debtor, determine the so-called 'riskiness of the debtor', i.e. rating. Its investment or speculative degree expresses the likelihood that the debtor will repay his obligations properly and in a timely manner. If the borrower's credit rating is not available (issuers of highly interest-bearing corporate bonds usually do not have a rating), the potential investor needs to find out as much information as possible about the issuer's creditworthiness, as the return on the financial funds dedicated to the purchase of bonds.

Conclusion

The information that the CNB has approved the issue of bonds means only that the CNB has verified whether the prospectus of the relevant bond issue meets all the formalities laid down by law. In the so-called private bond issues (i.e. issues that cannot be offered to investors publicly and for which the number of investors is legally limited to 150) and for public bond issues of up to EUR 1 million (or their equivalent in CZK) the CNB does not approve the prospectus of the security!

Lack of knowledge of Czechs plays into the cards to companies using aggressive business methods in order to sell risk bonds. It is true that anyone who borrows money and knows in

advance that they won't make money, commits credit fraud. But small investors will lose their money.

Therefore, small investors can be advised to invest their money in corporate bonds with investment-grade credit ratings to avoid defaults of issuer and its liquidity problems.

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INVESTMENT IN EDUCATION AS A FACTOR OF GDP GROWTH IN INDONESIA

ZUZANA CHLUMSKÁ

Abstract

Financial literacy is a specialized part of wider economic literacy, which also includes, for example, the ability to earn income, the orientation on the job market, the ability to decide on expenses, etc. Financial literacy is an important investment in education. The aim of the seminar work is to specify investments in education as one of the factors of GDP growth. The assessment showed a positive impact of investments in education on the GDP development. The assessment of government investments was done by comparing planned and real investments in education. And this showed that the Indonesian government has a huge interest in increasing its competitiveness worldwide. The key skill remains to be the education of financial literacy that can help people with a different culture to navigate the world of finance, which will be a prerequisite for the changes that economic and technological changes will bring about in the following years. The result is an incentive for further research activity to demonstrate investments in education and GDP growth.

Keywords

Indonesia, GDP, economy, investment in education, financial literacy

Abstrakt

Finanční gramotnost je specializovanou součástí širší ekonomické gramotnosti, která navíc zahrnuje např. schopnost zajistit si příjem, orientaci na trhu pracovních příležitostí, schopnost rozhodovat o výdajích apod. Finanční gramotnost je důležitou investicí v rámci vzdělávání. Cílem seminární práce je specifikovat investice do vzdělání jako jeden z faktorů růstu HDP. Zhodnocení ukázalo pozitivní vliv investic do vzdělání na vývoj HDP. Zhodnocení vládních investic proběhlo na základě porovnání plánovaných a reálných investic do vzdělání. A to ukázalo, že indonéská vláda má obrovský zájem na zvyšování konkurenceschopnosti na světové úrovni. Klíčovou dovedností zůstává vzdělávání finanční gramotnosti, která obyvatelstvu s odlišnou kulturou dokáže pomoci se orientovat ve světě financí, což bude nezbytnou podmínkou se změnami, které přinesou ekonomické a technologické změny v následujících letech. Výsledkem je podnět pro další výzkumnou aktivitu pro prokázání investic do vzdělání a růstu HDP.

Klíčová slova

Indonésie, HDP, ekonomika, investice do vzdělávání, finanční gramotnost

JEL Classification

A22

Introduction

Education is an investment that is one of the factors of economic growth and increased labour productivity, an investment that contributes to the development of personality and society as a whole, and that reduces social inequalities. The aim of the seminar work is to specify investments in education as one of the factors of GDP growth. The seminar paper will try to confirm or refute the hypothesis that investment in education promotes economic growth. Sources of economic growth are built on three basic pillars. The first is natural resources, the second pillar is capital resources and the pillar of human resources is divided into the amount of work and the human capital. Therefore, it is necessary to increase investment in education and to enhance skills.

India is currently among the fastest growing economies in the world, and with a growth rate of 7.3% between 2018 and 2019, it surpassed China. The Chinese economy reached a growth rate of 6.9% in 2017, slowed its growth to 6.6% in 2018, and the Asian Development Bank's estimate for 2019 is 6.4%. Indonesia is the largest economy in the Southeast Asia, it is rich in all kinds of natural resources as well as in cultural diversity. Two decades after the Asian crisis of 1998 and a decade after the global financial crisis, the standard of living of Indonesians is at a much higher level and the economy is much more resilient. Over the past twenty years, GDP has increased by 70% per person²⁵, the Indonesian economy has achieved a 6% increase in GDP²⁶ in recent years.

Indonesia consists of 17,508 islands with an area of about 1.9 million km², making it the 15th largest country in the world²⁷. The largest islands are Kalimantan and Papua, the best known are Bali, Sumatra and Java, where the capital Jakarta is located. The national economy is comprised of the primary sector of 21.5%, 33.1% is industry including construction and 45.4% are services²⁸. Tourism is one of the most important contributors to economic growth (14%) through foreign exchange income from tourist consumption²⁹. Although Indonesia is partly classified as the so-called "emerging country", a country with a sufficiently large domestic market and an industrial base capable of self-sustaining development, as stated by Svatoš,³⁰ tourism plays an irreplaceable role in the economic development.

²⁵ *Economic Forecast Summary* [online]. [cit. 2019-08-13]. Available at: <https://www.oecd.org/economy/indonesia-economic-snapshot/>

²⁶ *CzechTrade: Indonésie* [online]. [cit. 2019-08-13]. Available at: <https://www.czechtrade.cz/czechtrade-svet/asie/indonesie/>

²⁷ *Central Intelligence Agency: The World Factbook* [online]. [cit. 2019-08-13]. Available at: <https://www.cia.gov/library/publications/the-world-factbook/geos/id.html>

²⁸ OECD (2018), "Annual GDP growth rates in Indonesia, OECD and dynamic Asian economies, 2007-2018: Year-on-year growth rates", in SME and Entrepreneurship Policy in Indonesia 2018, OECD Studies on SMEs and Entrepreneurship, OECD Publishing, Paris, <https://doi.org/10.1787/9789264306264-graph19-en>.

²⁹ SINGAGERDA, Faurani. *International Tourism Trade Flows and the Impact of Indonesian Tourism*. Intl. J. of Business and Management Science [online]. 2017, 7(2), 317-335 [cit. 2019-07-27].

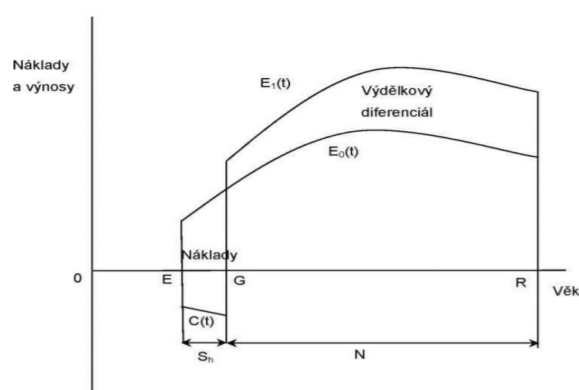
³⁰ SVATOŠ, Miroslav. *Zahraniční obchod: teorie a praxe*. Praha: Grada, 2009. Expert (Grada), p. 21.

1 Investment in education and its return

In recent years, there has been a growing interest in the return on investment, especially in higher education, from the perspective of the state budget makers. This is due to the growing problems in funding higher education because of the increase in the number of students. (For example, in the Czech Republic, a total of 311,383 students attended one of universities or colleges in 2016, according to data from the Ministry of Education, Youth and Sports (MEYS), of which 43,622 were foreign students, therefore reaching a 14% share)³¹. It is precisely the fact that the higher education has a high private rate of return for students in the future that represents the argument why there is the need to shift more burden of financing higher education from the state budget from taxpayers' money to students, i.e. university or college graduates.

In a number of countries, it is discussed whether society is producing too many university educated individuals, who cannot find jobs appropriate to their qualifications afterwards and find jobs in positions where secondary education is required. The theory of human capital assumes that the choice of the type of educational path, its duration and its focus depends on the calculation of the return on investment of resources in this education. In higher education, such an investment are direct costs (whether borne by the student or the public) and also unrealized earnings over several years of study. The returns of this investment are attributable to the increased earnings compared to those with lower education. High school students will be the reference group for higher education³². The figure shows the corresponding costs and revenue:

Figure No. 1: The course of earnings according to age and education



Source: Psacharopoulos (1995, p. 3)

³¹ Nejvíce cizinců studuje v ČR na vysokých školách: *Statistika&My* – měsíčník Českého statistického úřadu [online]. [cit. 2019-09-13]. Available at: <https://www.statistikaamy.cz/2018/01/nejvice-cizincu-studuje-v-cr-na-vysokych-skolach/>

³² PICHANIČOVÁ, Ludmila. *EKONOMIKA VZDĚLÁVÁNÍ*. VŠCHT, 2015.

1.1 The Mincer Equation

Based on the human capital theory, Jacob Mincer developed a regression equation to determine the impact of various factors on employee income. This equation, also called Mincer earning regression or Mincer earnings function, appears in a variety of options in the current social stratification literature. However, its basic version has the following form:

$$\ln W = aS + bZ + C$$

where $\ln W$ is the natural logarithm of income, S is the number of years spent studying and Z is the number of years of work experience since graduation. Additive constant C includes all other intervening variables. Income is expressed as hourly or monthly, which allows different working hours of differently educated employees to be taken into account. The income that is exponentially-dependent on the study duration by using logarithms results in linearization of this dependence, so the linear regression method can be used for the analysis. The number of years spent studying is modelled as the standard time required to complete a given level of education (8/9 years for elementary school, 12/13 years for secondary school, etc.). The number of years of experience is calculated as the difference between the year, in which the data was collected, and the year, in which the respondent completed their formal education³³.

It is important to differentiate between the private, social and fiscal return on investment in education. On the one hand, the private rate of return compares the individual's private education costs with the return on human capital in the form of wages. Private costs can be divided into direct and indirect costs. Direct costs include all student expenses (food, housing, transport, books). Indirect costs here take the form of costs of lost opportunity or earnings. Therefore, it is a potential loss of financial earnings at the time of the individual's study.

The returns from this investment are characterized by increased incomes of individuals with higher education than those with lower education. In this context, we can state that the law of declining profits applies here. While this law is in effect, marginal utility can be seen to decline along with any other unit spent on education investments. The social rate of return on investment in education will include all education costs regarding the expenses and gross earnings regarding the earnings. Possible tuition fees are only a transfer to calculate the social return on investment in education, if there is the support for education by the state and is higher than tuition fees. The fiscal rate of return on investment in education includes the expenses and earnings that the state incurs in support of the higher education³⁴.

2 Relationship between investment in education and GDP

Indonesia is an important economy in the world, its potential is enormous and it is also the fourth most populous country in the world. Only China, India and the USA, major world economies, have more population. As the economy grows, investments in human capital should

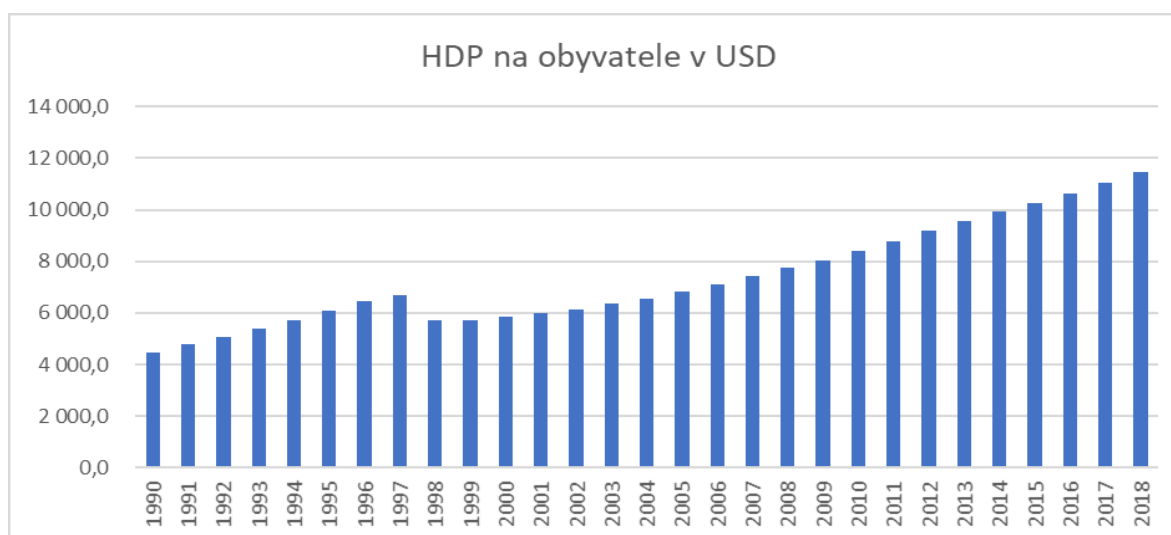
³³ FINARDI, Savina, FISCHER, Jakub. *Odhad Mincerovy funkce v podmínkách České republiky*. Vol. 12. No. 3, p. 57–68: Český finanční a účetní časopis, 2017.

³⁴ URBÁNEK, Václav, (2005). *Vzdělání a lidský kapitál*. Praha: VŠE. [cit. 2019-09-10]. Available at: https://is.muni.cz/el/1456/podzim2007/PVEKSK/um/vzdelavani_a_IK_Urbanek.pdf, p. 4.

also grow, as Jílková states³⁵. Valenčík perceives the education sector as the dominant production sector when shifting to an educational society³⁶.

The development of GDP in the 16th largest economy in the world³⁷ is also influenced by globalization, which is primarily due to the global division of labour.³⁸ In the context of globalization, Indonesia has not avoided the effects of economic crises. The most significant one that struck Indonesia was the Asian crisis, which manifested itself in the second half of 1997, due to excessive capital inflows and fixed exchange rates in countries later affected by the crisis (especially Thailand, Indonesia, South Korea and Malaysia)³⁹. This resulted in a decline in GDP between 1998 and 1999, and the trend has been increasing since 2000⁴⁰. The economic development has also undergone a global financial crisis, triggered by the American Mortgage Crisis in 2007⁴¹, which did not have a negative impact on Indonesia's GDP development.

Figure No. 2: Development of GDP in Indonesia



Source: Own processing according to OECD (https://www.oecd-ilibrary.org/economics/oecd-economic-surveys-indonesia-2018_eco_surveys-idn-2018-en)

³⁵ JÍLKOVÁ, Petra. *Teorie lidského kapitálu v kontextu návratnosti soukromé a veřejné investice do terciálního vzdělávání*. *Ekonomika a Management* [online]. 2016, (4), 40-51 [cit. 2019-07-28].

³⁶ VALENČÍK, Radim. *Ekonomie produktivní spotřeby: teoretický základ analýzy role odvětví produktivních služeb*. Praha: Vysoká škola finanční a správní, 2019.

³⁷ OECD (2018), *SME and Entrepreneurship Policy in Indonesia 2018*, OECD Studies on SMEs and Entrepreneurship, OECD Publishing, Paris, <https://doi.org/10.1787/9789264306264-en>.

³⁸ MULAČOVÁ, Věra, MULAČ, Petr. *Obchodní podnikání ve 21. století*. Praha: Grada, 2013. Finanční řízení, p. 93.

³⁹ KOHOUT, Pavel. *Finance po krizi: Evropa na cestě do neznáma*. 3rd, ext. edit. Praha: Grada, 2011. Finanční trhy a instituce, p. 170.

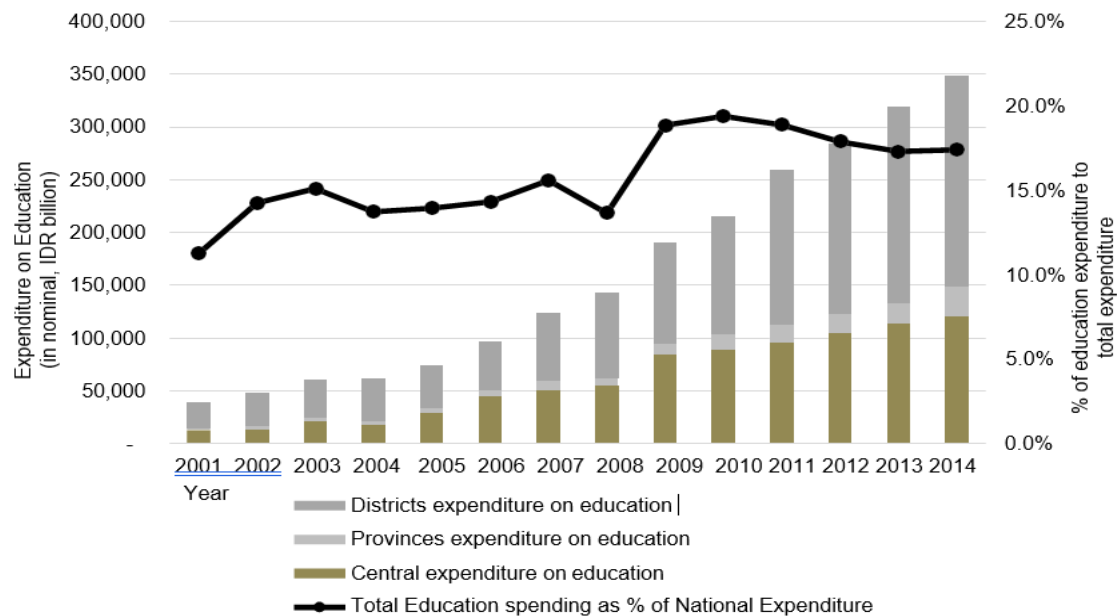
⁴⁰ OECD: *Level of GDP per capita and productivity* [online]. [cit. 2019-08-13]. Available at: https://stats.oecd.org/viewhtml.aspx?datasetcode=PDB_LV&lang=en

⁴¹ GEVORGYAN, Kristine. *Analýza cenových bublin na českém trhu s nemovitostmi*. *Acta Oeconomica Pragensia* [online]. 2015, 2015(5), 45-63 [cit. 2019-08-01]. DOI: 10.18267/j.aop.485. Available at: <http://www.vse.cz/aop/485>

The goal of the Indonesian government is to focus on improving the quality of human resources. Human resources are not only a necessary condition for Indonesia to take full advantage of the country's demographic location as well as global competitiveness⁴². In 2005, the Parliament of Indonesia changed the constitution and demanded that the government spend 20% of its budget on education. This was first achieved in 2009⁴³.

Hanushek and Woessmann found that cognitive skills are closely related to earnings, income distribution, and economic growth⁴⁴. Hanushek et al. they also confirmed the hypothesis that highly skilled individuals are better adaptable to change and can take advantage of the opportunities that the technological and economic change brings⁴⁵.

Figure No. 3: Government expenses on education in Indonesia in 2001 - 2014



Source: OECD (https://www.oecd-ilibrary.org/education/data/education-at-a-glance/educational-finance-datasets_c4e1b551-en)

Investment in education is one of the factors that support economic growth but also quality of life. Individuals with higher education earn higher wages and are more likely to be employed.

⁴² KOMPAS.COM: *Zvyšování úrovně lidských zdrojů* [online]. [cit. 2019-08-13]. Available at: <https://nasional.kompas.com/read/2018/01/03/16514421/2018-jokowi-ingin-pemerintah-fokus-tingkatkan-sdm>

⁴³ KURNIAWATI, Sandra. *Education in Indonesia: A White Elephant?*. Journal of Southeast Asian Economies (JSEAE) [online]. 2018, 35(2), 185-199 [cit. 2019-07-30].

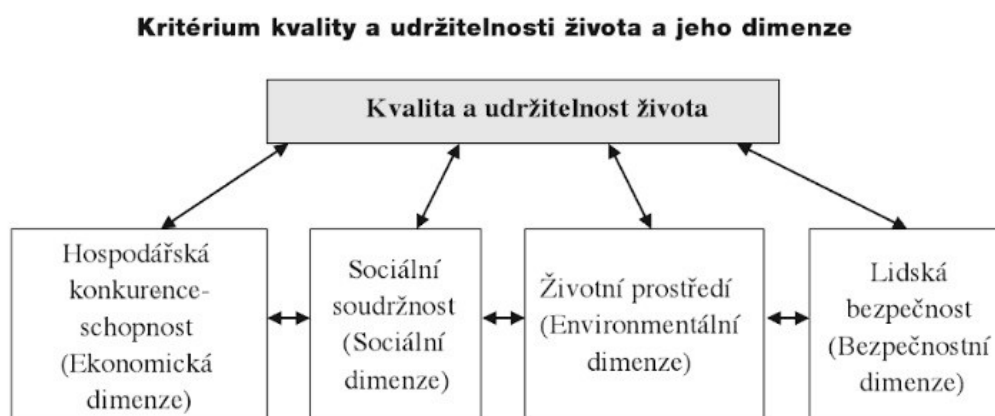
⁴⁴ HANUSHEK, Eric, WOESSMANN, Ludger. *The Role of Cognitive Skills in Economic Development*. Journal of Economic Literature [online]. 2008, 46(3), 607-668 [cit. 2019-08-18]. DOI: 10.1257/jel.46.3.607. Available at: <http://pubs.aeaweb.org/doi/10.1257/jel.46.3.607>

⁴⁵ HANUSHEK, Eric. *Coping with Change: International Differences in the Returns to Skills*. NBER Working Paper Series [online]. 2016, 1-21 [cit. 2019-08-13].

At the level of society as a whole, better education leads to higher GDP growth, higher tax revenues and lower social spending⁴⁶.

Quality of life from the economic point of view is based primarily on the evaluation of objective indicators such as gross domestic product, labour productivity, average earnings, buying power. Two dimensions can be traced here, according to which life satisfaction or quality of life is assessed - the cognitive and the emotional. The cognitive dimension is one's own conscious and rational assessment of the individual's life, cognition is the basis of any judgement after all. The emotional dimension affects the emotional experience and the capture of emotional drive of one's life⁴⁷. Figure 4 shows the individual dimensions of quality of life.

Figure No. 4: Quality of life



Source: Štědroň (2012, p. 6)

3 Evaluation of investment in education as a factor affecting GDP

Investments in education are among the factors contributing to the GDP growth. The assessment of Indonesia's GDP development in 1990 - 2018 showed the stability of the economy, which overcame the effects of economic crises. Government investment in education is increasing in Indonesia, with investment reaching 20% of government spending in 2009. However, investment in education is not the only factor affecting the growing GDP. The growing economic growth is also affected by the inflow of foreign capital⁴⁸. Foreign investments are important for further economic growth, although Indonesia belongs to the so-called "emerging countries".

⁴⁶ OECD: *III. Quality of life* [online]. [cit. 2019-09-13]. Available at: <http://www.oecd.org/sdd/47918063.pdf>, p. 24.

⁴⁷ HNILICA, Karel. *Diagnóza a věk moderují vztah mezi zdravím, emočním životem a spokojeností se životem*. Československá psychologie 2006, volume L, No. 6, p. 486.

⁴⁸ KALÍNSKÁ, Emilie. *Mezinárodní obchod v 21. století*. Praha: Grada, 2010. Expert (Grada), p. 28.

The construction and realization of the Moto GP circuit on Lombok has brought many foreign investors and the influx of capital with them. The circuit and infrastructure offer job opportunities for the local population as well as the opportunity to increase the quality of life. This will cause a number of tourism multipliers such as the income, employment, investment, wage, government investment and manufacturing multiplier⁴⁹. This change will bring foreign capital, job opportunities to the country and the population will have to prepare for the changes brought by tourism. On the other hand, the advantage is the opportunity of education, eventual retraining for the profession, which are associated with tourism.

The government's policy statement recognizes the importance of investment and education support, and the government has managed to invest 20% of its resources in education since 2009. In Indonesia, over 266,000 schools operate in primary and secondary education, with about 2.7 million teachers teaching 45 million students. It is different with the university education. There are 371 universities in Indonesia and 2.2 million students study there, which is only 0.9% of the total Indonesian population⁵⁰. The development of education and the implementation of financial literacy, which is not included in the curriculum, are crucial.

Sufficient financial education and dissemination of financial literacy would be an appropriate solution for the economic changes affecting the area. Excessive inflows of foreign capital and insufficient knowledge of the principles of financial literacy can result in poverty of the local people. In addition, according to Hubinková, poverty is a hard-to-grasp phenomenon that can hardly be included in statistics because people are ashamed of this situation and do not talk about it⁵¹. In the first half of 2019, Czech organization Yourchance⁵² started to help with financial literacy through Kintari foundation⁵³.

Indonesia is one of the most developing economies in the world and is a member of the G20 economic group. Moreover, in developing market economies, the level of democratization increases the favourable macro- and micro-conditions that attract large direct foreign investments in finance infrastructure projects, as Doces states⁵⁴. Globalization itself is associated with the 1990s, when market economies emerged in Central and Eastern Europe, as well as the strengthening of economic activities in China and India⁵⁵. The results of the analysis confirm general theories that one of the positive aspects of globalization is the increase in the economic activity mainly thanks to the international trade. The adverse consequences include enormous pressure on natural resources and its commercially advantageous and inconsiderate

⁴⁹ PALATKOVÁ, Monika. *Mezinárodní turismus: analýza pozice turismu ve světové ekonomice, změny mezinárodního turismu v důsledku globálních změn, evropská integrace a mezinárodní turismus*. 2nd, updated and extend. edit. Praha: Grada, 2014, p. 14.

⁵⁰ LANGUAGE COURSE: *Univerzity v Indonésie - Žebříčky a recenze* [online]. [cit. 2019-08-13]. Available at: <https://www.languagecourse.net/cs/univerzity--indonesia>

⁵¹ HUBINKOVÁ, Zuzana. *Psychologie a sociologie ekonomického chování*. 3rd, updated, compl. and revised edit. Praha: Grada, 2008. Psyché (Grada), p. 45.

⁵² YOURCHANCE [online]. [cit. 2019-08-13]. Available at: <http://www.yourchance.cz/>

⁵³ KINTARI [online]. [cit. 2019-08-13]. Available at: <http://www.kintari.org/>

⁵⁴ DOCES, John A. (2010). 'The dynamics of democracy and direct investment: an empirical analysis', *Polity*, 42(3): 329–351.

⁵⁵ KISLINGEROVÁ, Eva. *Inovace nástrojů ekonomiky a managementu organizací*. In Prague: C.H. Beck, 2008. C.H. Beck pro praxi, p. 4.

exploitation, as Moldan states⁵⁶. This is also associated with travel, which has been linked to globalization processes since history⁵⁷.

Conclusion

The aim of the paper was to specify the investment in education as a factor contributing to GDP growth. Investment in education has been shown to affect GDP growth, while educated individuals are more adaptable to the social, economic and technological changes that are coming. Only further research will seek to prove these connections. The assessment of government investments in education has proved that the Indonesian government has a huge interest in increasing the value of human resources as well as increasing its competitiveness.

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⁵⁶ MOLDAN, Bedřich. *Podmaněná planeta*. Second, extended and modified edition. In Prague: Univerzita Karlova, Karolinum, 2015, p. 63.

⁵⁷ HUBINKOVÁ, Zuzana. *Psychologie a sociologie ekonomického chování*. 3rd, updated, compl. and revised edit. Praha: Grada, 2008. Psyché (Grada), p. 72.

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ROLE OF GOVERNMENT EXPENDITURES IN SUPPORTING OF TECHNOLOGICAL INNOVATIONS IN THE CONTEXT OF INDUSTRY 4.0 AND CONSEQUENCES ON STOCK MARKETS

BOŽENA CHOVANCOVÁ, JANA KOTLEBOVÁ, MAREK PAVLOV

Abstract

Challenging innovative processes connected with the arrival of new stage of industry revolution call for engagement not only private but also public sector. Stock market, mainly during the last decade, plays not only signalling, but also allocative function. In advance it calls for attention to the changes and necessity of restructuring processes in economy. On the other hand, it is necessary to make provision to the effects of various factors in fiscal policy, which can influence the size and direction of government expenditures. The main aim of this paper is to investigate the efficiency of government expenditures in supporting of implementation of new technologies, which could lead to the growth of real economy as well as stock market.

Keywords

Government expenditures, stock market, support of technological innovations, R&D expenditures

Abstrakt

Náročné inovatívne procesy spojené s príchodom novej fáze priemyselnej revolúcie vyžadujú zapojenie nejen súkromného, ale i verejného sektoru. Akciový trh, zejména v posledním desetiletí, hraje nejen signalizační, ale i alokační funkci. V předstihu vyžaduje pozornost ke změnám a nezbytnosti restrukturalizačních procesů v ekonomice. Na druhou stranu je nutné zohlednit dopady různých faktorů ve fiskální politice, které mohou ovlivnit velikost a směr vládních výdajů. Hlavním cílem tohoto příspěvku je prozkoumat efektivitu vládních výdajů při podpoře zavádění nových technologií, které by mohly vést k růstu reálné ekonomiky i akciového trhu.

Klíčová slova

Vládní výdaje, burza, podpora technologických inovací, výdaje na výzkum a vývoj

JEL Classification

G11, G12, G15

Introduction

Fiscal policy and especially its expenditure side has positive impact in supporting of real economy as well as stock market development. This positive impact can be reinforced, if public spending takes form of public procurement to buy the goods and services from companies, by the follow-up increase of their profits as well as increase of their stock market prices. A market appreciates these government purchases because of their enormous financial amount and low risk of buyer insolvency. As an example of such positive policy measure realized in various European countries, the scrapping subsidy can be mentioned. It was driven not only to support automotive industry with effects for total economy (stock market included), but also by environmental goals. Similar project has been realized in US, known as CARS (Car Allowance Rebate System). As a result, in relatively short-term the stock market faced an increase followed by positive consequences on real economy with some time lags.

During the financial crisis a large amount of money was spent to protect banking sector and not only the low interest rates, but also direct financial injections were executed. In present, this spending is considered as low or ineffective stimulus and various economists, for example, Nobelist Stiglitz (2015) claims, that the policy “too big to fail” is necessary to end.

On the other hand, the current problem in the form of growing public deficit calls for limiting of government expenditures. To finance the deficit, new issuances of debt securities are needed. It leads to exhausting of resources for investments on stock market as well as to decrease of stock market prices. The growth of public deficit results in increase of interest rates and in shift of investors from stock market to the market with interest priced tools. As negative measure of this process the crowding out effect occurs.

In last decade mainly private investors by their investments considerably change the structure of stock market. IT and health care sectors are most contributing to the growth of stock market. The stock market calls for restructuring of economy in respect to Industry 4.0, processes of digitalization and robotization. It makes the pressure to redirect the government expenditures into the R&D. From this view of point the state can become the serious player as important investor.

Literature Review

In empirical research the expenditures side of fiscal policy is analysed from different aspects. Special attention is paid to the relationship among the individual items and stock market. Up to now the majority of authors examines for the consequences of general fiscal policy on stock market. Mainly impact of tax policy is analysed. Ochmann (2016) investigates the impact of reduced taxes on households saving decision and on allocation of wealth to portfolio of assets. Author uses simulation based on an ex-ante behavioural microsimulation approach. Remarkable reduction in tax rates brings benefits for households and investors. Households increase their savings and change the structure of asset demand as a consequence of move in relative asset prices.

According to Mbanga and Darrat (2015) effects of fiscal policy on stock market are short run as well as long run, but in long run the impact is stronger. Error connection models support the existence of robustness in long run between fiscal policy (not monetary policy) and stock returns. The positive correlation can be explained by transmission to the real economy through the stock market.

Gowriah, Boopen, Lamport, Seetah (2014) highlight that the relationship between stock prices and most of the macroeconomic variables are statistically significant. A long run significant relationship was confirmed among stock prices and most of the macroeconomic variables, except for budget deficit. A short run significant relationship was found among stock prices and both money supply and GDP.

Ali, Zaman, Ziaei, Anuar (2014) emphasize the importance of commodity and house prices for public finance. For net commodity exporters the stable price of commodities is necessary because of their significant impact on state budget revenues. On the contrary, for net commodity importers the decrease of commodity prices is an important impulse for domestic economy. Authors confirm the positive but weak effect of house prices on the stock returns.

Chatziantoniou, Duffy, Filis (2013) build structural VAR models to measure the effects of fiscal policy shock on stock market in selected countries. Authors underline the necessity of simultaneous management of fiscal and monetary policy to affect stock market. It should be clear for investors and analysts that they act together.

Gomes, Michaelides, Polkovnichenko (2013) investigate the impact of fiscal policy on macroeconomic activity, wealth distribution and asset prices. Higher public debt leads to increase in the riskless rate and to decrease in the equity premium, while increase of tax rate from capital income leads to a higher equity premium. The results of models confirm the existence of crowding-out effect in case of substitution government debt and capital.

Clemens and Miran (2012) investigate the relationship between fiscal policy and government spending. They take into consideration the different approach to fiscal policy and budget constraint with respect to the phase of business cycle. Paper identifies the pro-cyclicality of obligatory and mandatory expenditures based on the size of domestic economy. Authors emphasize substantial differences between subnational and national fiscal policy.

Greenhalgh (2016) investigates a relation between fiscal policy and stock market in connection with science, technology and innovations. The government can support innovations through direct and indirect stimuli. They have an impact on fiscal position as well as on real economy. The new progressive companies have very perspective growth potential. By IPO these companies will be able to reach interesting revenues compared with index revenues average.

Cedric, Mbanga and Darrat (2016) analyse the relationship among budgetary revenues, expenditures and stock markets in US. Based on long-term dataset they claim, that the fiscal measures affect the stock market returns. According to them, it is not important these measures are expected or not. The stock market is an important fiscal transmission channel for real economy.

The importance of modern technologies in management increases. Strielkowski, Trielkowski, Gryshova, Kalyugina (2017) argue that expenditures on new technologies provoke higher efficiency of economic governance. The government should be closer to citizens and decrease the bureaucracy. IT brings a breakpoint in this governance. New innovative possibilities in public administration occur and save a time and money.

Aim and Methodology of Research

The main goal of this paper is to investigate how the government expenditures on R&D affect the stock markets in US and Germany.

US and Germany are leaders in technological changes in the world, so it will be very interesting to observe the effects of these spending on innovation productivity.

We use dataset of European Central Bank, International Monetary Fund, Ministry of Finance in Germany and other databases like Tradingeconomics, Econstats and sources of national statistical offices.

Our analysed time period covers years from 1996 till 2017, we use monthly and annual data.

By our research we try, among other things, to find the answer to the following question:

At present price bubble on stock market is it necessary to limit also government expenditures on R&D?

Results and Discussion

Government expenditures on R&D in the form of subventions help to decrease the costs of private companies as well as motivate their further own spending on R&D. The government can successfully cooperate with private companies through the public institutions specialized on R&D. The importance of R&D is in added value brought by institutions which act in this area. Countries with higher added value level are more stable and perspective for future growth.

United States of America

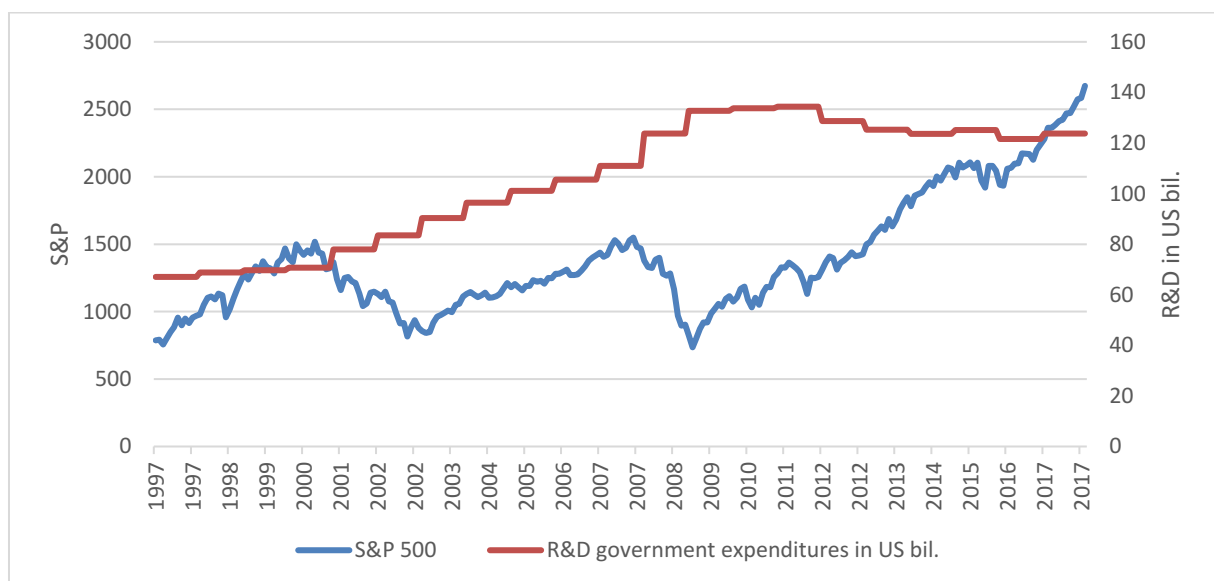
As Figure 1 indicates, in time period 1997-2000 stock market (index S&P) grew by more than 93%, while R&D expenditures only by 5.46%. The reason of this slower government expenditures was Dot.com bubble on stock market, caused by enormous injection of private capital following the aim to build an internet economy. The threat of overheating of US economy led to the capping of government expenditures.

The lapse of stock market index S&P 500 to the lowest value (46.3%) in 2002 and popping of internet bubble resulted not only in high losses on stock markets, but also in failure of US economy as a whole. Government responded by an increase of 10.13% in government expenditures already in 2001.

Increase of R&D government expenditures caused the positive turn on till then decreasing stock markets. In 2003 the long period of growth has started. Between 2001 – 2008 R&D government expenditures grew by 7.27% in average on yearly basis. The growth followed up to 2008.

During this period, the growth rate of expenditures didn't break. As very helpful to this development we can consider special events in research and development in the country. After calls of most important research agencies in 2005 the new act was announced in 2007. America Competes Act 2007 pays enormous attention to research and development. The main goal of this act is to achieve an increase of competitiveness of US. As a consequence of this act, government spends large amount of money to research and development. It results in appreciation on stock markets till the financial crisis in 2008. As after the popping of Dot.com bubble, likewise in 2008 the government uses its fiscal tool in form of expenditures. In 2009 stock market index fails by 52.55 % against the highest value from the end of 2007. On the other hand, during this period government expenditures increased by 19.65%, which in comparison with the average growth for previous period means an increase by more than 270 %. In 2010 the growth rate of government expenditures slowed down to the yearly growth only at 0.48%. The increase of government R&D expenditures should have once again positive impact on stock markets. Their weaker growth of rate was cause by accelerating of private sector investments. Government injections in so large amount of money were no longer needed because from 2011 the private investments to R&D increase markedly. These private investments increased by 7.3 % in that year and reached level of 250.87 US bil. Along of this positive tendency in private sector, the government has started gradually decrease R&D expenditures. Stagnation on stock market between 2015 and 2016 was caused by contraction in oil prices as well as by problems on other commodity markets. After 3 years of drop in these expenditures, government has started with the moderate growth of its expenditures.

Figure No. 1: The development of government expenditures on R&D in US and stock market index S&P 500



Source: Authors own processing. Data from OECD (2019) and Yahoo Finance (2019)

The process of innovations and inventions is crucial for subsequent progress in technologies. We can observe it also by patents.

Patents show us broad spectrum of technological areas and the level of their progress. They allow us to investigate the impact and effect government expenditures on the development of R&D in an economy. Patent provides the protection of new inventions for long term period. During this period, it guarantees an exclusive right of usage to owner. He makes profit from the sale of final product, from lease of patent or from the sale of patent as well. It provides long term stability for technological sector in economy. Therefore, it is very important to eliminate potential stagnation or failure in development of new innovations. It could bring long term sustainability, stable growth of economy and last but not least the positive impact on stock market.

Table No. 1: Number of patent applications in US

Year	Number of patent applications	Year	Number of patent applications
1996	195187	2007	456154
1997	215257	2008	456321
1998	243062	2009	456106
1999	270187	2010	490226
2000	295926	2011	503582
2001	326508	2012	542815
2002	334445	2013	571612
2003	342441	2014	578802
2004	356943	2015	589410
2005	390733	2016	605571
2006	425967	2017	606956

Source: Authors own processing. Data from U.S. Patent and Trademark Office - USPTO (2019)

In US the development of patent applications has increasing tendency in long term (Table 1). From 1996 till 2017, the number of patent applications more than tripled.

While during 1996 - 2000 the growth of applications was driven mainly by internet bubble, after 2000 it was caused especially by government expenditures. Despite a lapse of stock market after 2000, the number of applications continually grew. Hence, the increase of growth rate in R&D government expenditures after 2000 had positive effect on process of innovations in the country. In 2006 US reached the 2nd place in number of patent applications and got ahead of Japan.

Financial crisis in 2008 impaired the growth rate of patent applications. While till 2007 they grew by 8.17 % in average, during 2007 – 2009 their number didn't change so much, but moreover in 2009 decreased by 200 applications. After the increase of government actions at expenditures side, the number of applications grew by more than 34000. In 2010 the private

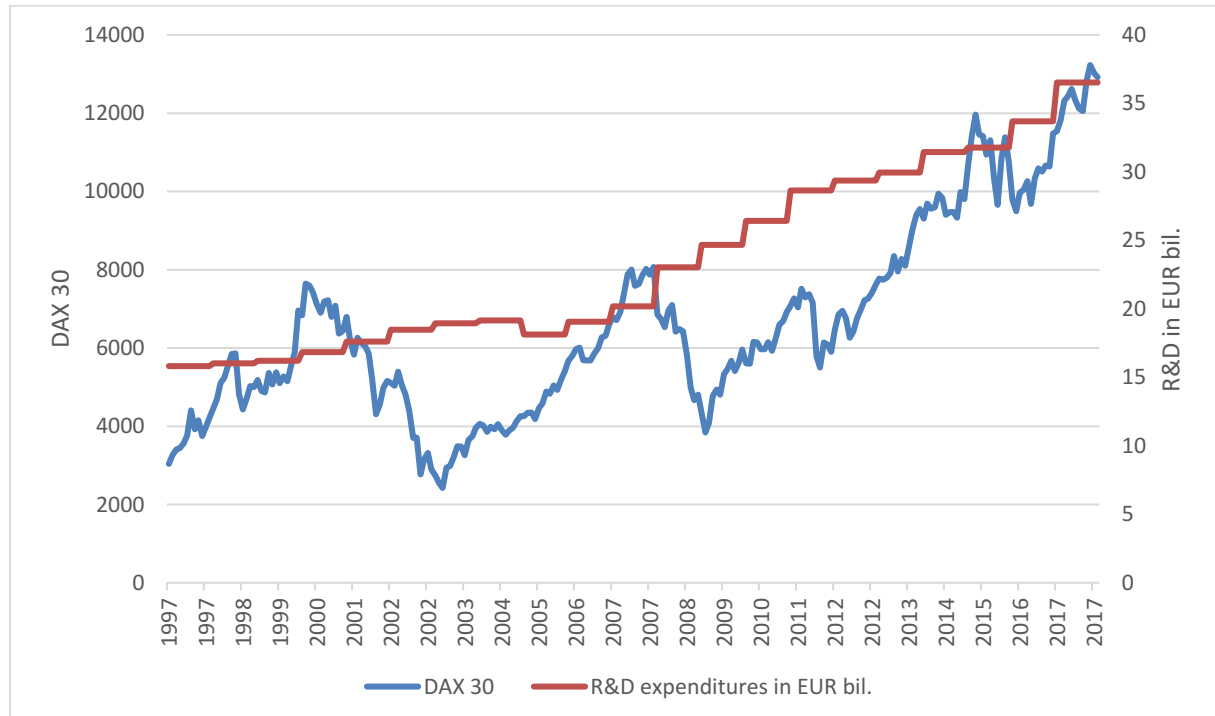
R&D expenditures decreased by 0.8%. Without supportive steps from government side, the threat of failure in patent applications could become real and more drastic. The government helped to reboot the process of innovations. This analysis confirms the positive impact of government R&D expenditures on stock market. Hereby these expenditures were really supportive in the area, to which they were allocated.

Germany

Germany belongs to the most advanced and prospering economies in Europe. High economic performance has positive impact on stock market in economy. For analytical purposes stock market index DAX30 will be used.

Despite the fact that Germany is an economic leader in Europe, it is one from 7 members of the intergovernmental organisation of OECD, which doesn't provide any form of tax stimuli for enterprises investing in R&D. The role of research and development is unambiguous. Therefore, the German government tries to create the best environment for companies in this area. This philosophy is successful thanks to various finance programs supporting new and existing companies in this area. For example, Central innovative program for small and middle enterprises, programs of German development bank Kreditanstalt für Wiederaufbau as well as German ministry of economy and energetics - High-Tech Gründerfonds for finance support of innovative start-ups. The development of government R&D expenditures in Germany demonstrates Figure 2.

Figure No. 2: The development of government expenditures on R&D in US and stock market index DAX 30



Source: Authors own processing. Data from OECD (2019) and Yahoo Finance (2019)

At start of analysed period the expenditures grew only by moderate rate. During 1997 - 1999 the annual growth rate reached 1.2% and between 2000 and 2004 increased to 3.42 %. Exactly

after 2000, the stronger increase in this growth rate supported stock market against deeper failure. After the stock market recovery in 2003 the growth rate of government R&D expenditures declined from 5.02 % to 2.48 % in 2004. This supportive fiscal tool was used by German government only for a short term. Insufficient level of structural measures before 2005 resulted to the consecutive decline of these expenditures. Reversal came in 2006. From that time up to now the growth rate of government R&D expenditures achieves in average on annual basis 5.85%.

During the financial crisis in 2008, through the promotional packages to the education and innovative processes the German government has supported the stock market growth. The government promptly reacted to the situation in the world as well as in domestic economy and increased this type of expenditures by more than 14%. This increase had once again strongly positive impact on R&D as well as on stock market. During 2008 – 2011 the growth rate of expenditures weakened because of debt crisis in Europe. In 2014 the stagnation of stock market was accompanied by increasing of government expenditures. Two years later the similar situation occurred with the more significant increase of expenditures. These fiscal measures followed the long-term goal of sustainability of technological and innovative progress in Germany. Innovations are the important part of economic competitiveness.

Intentions of German government in R&D are very serious and long-term. There are not only growing expenditures but also direct financing schemes for the support. The development of number of patent applications is illustrated in Table 2.

Table No. 2: Number of patent applications in Germany

Year	Number of patent applications	Year	Number of patent applications
2000	62530	2009	58839
2001	60982	2010	59435
2002	59082	2011	59612
2003	59182	2012	61361
2004	59234	2013	63177
2005	60222	2014	65963
2006	60585	2015	66898
2007	61714	2016	67907
2008	62325	2017	67707

Source: Authors own processing. Data from German Patent and Trademark Office (2019)

During 2000 - 2005 the depreciation of structural measures is visible. It transformed to the decline or to the very slow growth of applications number.

Patent applications reflect innovative performance in country. Our observation confirms, that growing expenditures to research and development after 2005 had expected positive effect and supported intensive growth in number of applications. Critical situation occurred in 2009.

Number of applications failed by 5.6% against 2008. After the stimuli in forms of special programmes the recovery in this development arrives. Up to 2016 the growth rate of patent applications achieved 2.07 %. Despite the moderate decline in 2017, from long-term view of point the development of patents is positive.

Conclusion

New era of industrial revolution Industry 4.0 is present and calls for broad and extensive structural changes in each economy. These changes will touch the economy as a whole as well as each economic entity. They will require more intensive support from government side. As previous analysis confirms, the US government was more flexible to the changes in real economy as well as on stock markets. By higher government expenditures evoked post-crisis recovery of stock markets in 2001 as well as in 2009. In contrary, during the economic overheating and occurrence of price bubble decreased their level. This tendency mirrored in the development of patent applications on US market. Last 6 years the lower level of government R&D expenditures is accompanied by increase on stock market, which can predict the future price bubble.

On the other hand, Germany as a leader of Industry 4.0 in Europe, especially from 2005 continuously increases the level of government R&D expenditures and their development is copied by the development of stock market. Market with patents and inventions in Germany shows lower dynamics in comparison with US's one, which is in contrary with proclaimed needs of German economic and stock market development.

Acknowledgements

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CENTRAL EUROPEAN FUND OF FUNDS AND ITS POSSIBLE USE IN THE FIELD OF START-UP

FEDERIKA JANOŠTIAKOVÁ

Abstract

The Central European Fund is a regional project of the European Investment Fund for private equity investments in start-up and growing small and medium-sized enterprises, which are located in the Central European region. The fund entered into force at the end of 2017. This fund should help finance growth-oriented Czech companies (and Central European firms) that need capital to grow or expand to enter the foreign market. Therefore, the target group are companies in the phase of later stage / growth. The Czech Republic joined the project through the Czech-Moravian Guarantee and Development Bank and the Ministry of Industry and Trade, continuing its cooperation with the European Investment Fund in case of the venture capital fund, which focuses on start-up investments in start-ups.

Keywords

EIF, CEFoF, CEE, startup, funding

Abstrakt

Stredoeurópsky fond fondov je regionálnym projektom Európskeho investičného fondu zameraného na investície private equity do začínajúcich a rastúcich malých a stredných podnikov, ktoré sa nachádzajú v regióne strednej Európy. Fond vstúpil v platnosť na konci roku 2017. Tento fond by mal pomôcť financovať rastovo orientované české firmy (a firmy krajín strednej Európy), ktoré potrebujú kapitál na svoj ďalší rast, prípadne na expanziu pre vstup na zahraničný trh. Cieľovou skupinou teda sú firmy v tzv. fáze later stage/growth. Česká republika sa do projektu zapojila prostredníctvom Českomoravskej záručnej a rozvojovej banky a Ministerstva priemyslu a obchodu, čím nadviazalo na svoju spoluprácu s Európskym investičným fondom v rámci fondu fondov rizikového kapitálu, ktorý sa zameriava na investície do začínajúcich firiem typu start-up.

Klíčová slova

EIF, CEFoF, CEE, startup, financování

Introduction

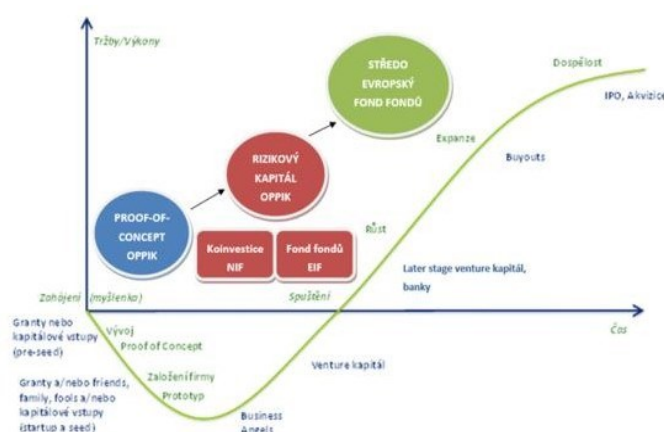
The central importance of the Central European Fund of Funds is to support start-ups and growth firms in the Central European region. This fund is under the auspices of the European Investment Fund and involves countries such as the Czech Republic, Slovakia, Austria, Slovenia and Hungary and their development banks. The agreement on the establishment of this fund entered into force at the turn of 2017 and 2018. The inspiration for the establishment of the Central European Fund of Funds and its operation became the so-called. Baltic Innovation Fund.

The use of this fund will help start-ups and growing SMEs to simplify initial financing or expand their scope in the form of expansion of production or entry into international trade, which will ensure their better competitiveness.

The Central European Fund will cooperate with existing funds operating with venture capital and private equity from the Central European region. The selection of all these funds should last until approximately 2021. The first of these selected funds affecting the Czech territory is the ESPIRA fund, which focuses on both Czech and Slovak investment opportunities. These funds will invest up to 50% of the funds to support entrepreneurs, and the rest will be complemented by private investments. Consequently, the fund manager will select individual applications from small and medium-sized enterprises from participating countries to whom they will provide capital.

The Ministry of Industry and Trade of the Czech Republic invested EUR 8.2 million in this project, with a total fund capacity of EUR 80 million. On the basis of the Czech deposit, the European Investment Fund should provide Czech start-ups or expanding firms with a minimum value of this deposit, with the provision of finance to Czech firms under the administration of the Czech-Moravian Guarantee and Development Bank. But thanks to the participation of Czech private investors, the amount provided for Czech companies could climb up to EUR 25 million.

Figure No 1: Scheme of support types according to company development stage:



Source: MP ČR (2018)

1 Capacity and focus of the fund

The Central European Fund of Funds (CEFoF) is a proposal for a new European Regional Fund of Funds with approximately EUR 120-150 million. This is based on the successful regional initiative of the Baltic Innovation Fund. CEFoF focuses on capital pooling in approximately 7 Central European countries together with 60 mil. EUR as a co-investment of the European Investment Fund (EIF) to further support the development of the venture capital and private equity markets in the CE region.

As regards the investment strategy, CEFoF will focus on the scope of investments in later stages of venture capital and growth funds, with the possibility of including mezzanine and hybrid debt or equity investments. Targeted funds are established or emerging teams that are located in the CE region or are international venture capital and private equity funds with an investment focus on target countries.

The main objectives of CEFoF can be characterized as follows:

- Increasing the level of equity investments in growth-oriented enterprises;
- Promoting the creation of a healthy market infrastructure (an adequate number of competitors, private fund management teams);
- Ensure the sustainability of the investment model and provide a return on investment investors appropriate to the market situation;
- Creating best entry conditions for institutional and other private investors by encouraging the adoption of best industrial practices;
- Attract foreign investors and investment managers to the region.

2 Investment strategy

CEFoF will invest in equity and venture capital funds and, where appropriate, in a mezzanine and hybrid debt or equity funds, which may be co-invested with these funds. All investments made under CEFoF will be based, to an appropriate extent, on the EIF's usual investment process and internal procedures, rules and policies, in particular, the Capital Investment Directives.

The assumption that the total amount of 150 mil. EUR is expected to be in the range of 6-9 transactions during the five-year investment period.

Each transaction is expected to be between \$ 15 and \$ 25 million. EUR subject to the 20% concentration limit, unless the Advisory Committee decides otherwise.

Schop The ability to recycle revenues under CEFoF can be explored to achieve optimal capital allocation and greater implementation flexibility.

Furthermore, where appropriate (eg to ensure the construction of a balanced CEFoF portfolio in terms of amounts invested), other capital resources mandated by the EIF may be considered to be invested together with the CEFoF.

The approval process for CEFoF investments will be the normal approval process of the EIF Governing Board, as in the case of other facilities managed by the EIF.

Conclusion

In, I would like to emphasize the great usefulness of this fund for the financing of small and medium-sized enterprises, which in this way will raise the necessary capital either to expand their production or to enter a foreign market, which can all lead to their competitiveness. The Central European Fund of Funds focuses on supporting growth-oriented companies, later-stage growth, which does not fully include start-ups. It should be considered whether this fund could allocate some of the funding to start-ups.

Alternatively, the Czech market may even consider creating a platform directly managed by the Czech-Moravian Guarantee and Development Bank or the Ministry of Industry and Trade, where new start-ups could share their experience in obtaining funds from this fund, or similar to it, for example, following the example of such private equity. And then the start of the start-up association could become the peak of this process.

Resources

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SMEs AND FINANCIAL SOURCES OF INVESTMENT IN THE CZECH REPUBLIC

ARNOŠT KLESLA

Abstract

The role of small and medium-sized enterprises in the economy of the Czech Republic is significant. Therefore, the revolutionary technological changes of recent years need to be implemented also in this important area of the Czech, open and export-oriented economy. The way of ensuring innovations in the required volume is to ensure the availability of investment resources from the capital market, especially in the form of debt financing.

Keywords

Small and medium-sized enterprise, innovation, digitization, investment, capital market, debt financing

Abstrakt

Role malých a středních podniků v ekonomice České Republiky je významná. Revoluční technologické změny posledních let je proto potřeba implementovat i v této významné oblasti české, otevřené a exportně orientované ekonomiky. Cestou zajištění inovací v potřebném objemu je zajištění dostupnosti investičních zdrojů z kapitálového trhu, především ve formě dluhového financování.

Klíčová slova

Malý a střední podnik, inovace, digitalizace, investice, kapitálový trh, dluhové financování

JEL Classification

G 30

Introduction

The prosperity of any economic system is conditioned by the performance of all entities that add value. Large, small and individual entrepreneurs. Mastering modern technology and related processes in the coming years will be a precondition for success in a global, interconnected product market. This is primarily about the digitization and robotization of processes, which is

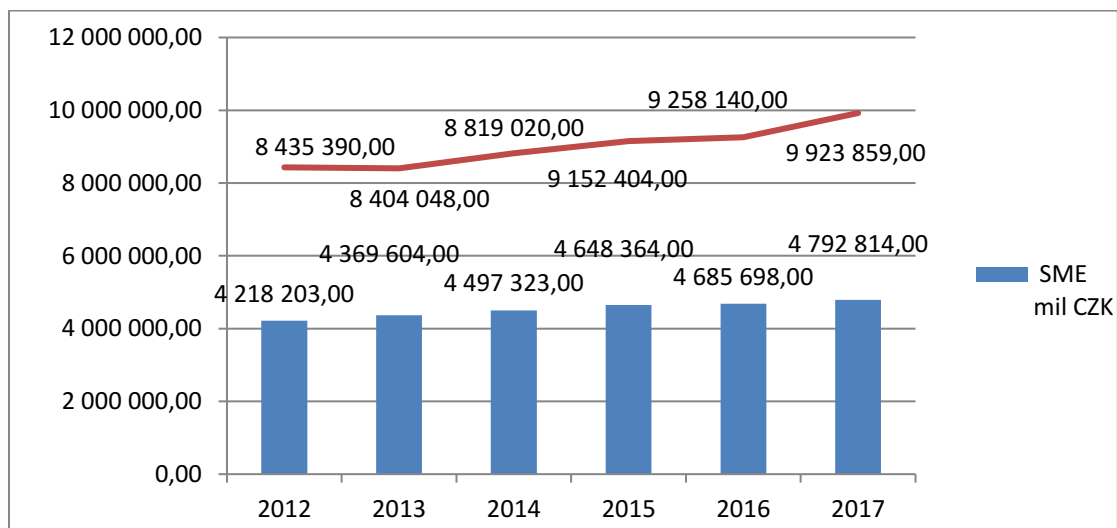
brought by the Industry 4.0 concept. Especially the largest, capital-equipped and technologically most advanced global companies are the bearers of extremely capital-intensive, sophisticated and robotized production systems, lines and product complexes. In connection with the economic problems of implementation of new modern methods and concepts in the whole economy, not only in large companies is a question. Does it make sense to support the development of capital-intensive investments in modern technologies, especially digitalisation, also in the segment of domestic SMEs? What are the basic macroeconomic arguments in favour of SME development in the conditions of the Czech economy at the threshold of the third decade of the 21st century? And what are the conditions for obtaining new financial resources for investments of SMEs from the Czech capital market in the coming years?

1 Small and Medium Enterprises as Half of the Economy

Small and medium-sized enterprises as half of the Czech productive economy. According to CZSO statistics, business activities in the CR in 2017 were 1,150,302 legal and natural persons with the number of employees up to 250. Natural persons 876,957 and legal persons 273,345. The share of SMEs in the total number of active business entities was 99.8 %.(CZSOa 2018)

Small and medium-sized enterprises generated outputs of CZK 4,792,814 million. This represents a year-on-year increase of CZK 107,116 million (2.3%). The share of SMEs in the total performance of the business sector in 2017 reached an impressive 48.3%. (MPO CR 2018)

Graph No. 1: Total outputs and performances of SMEs (mil. CZK)

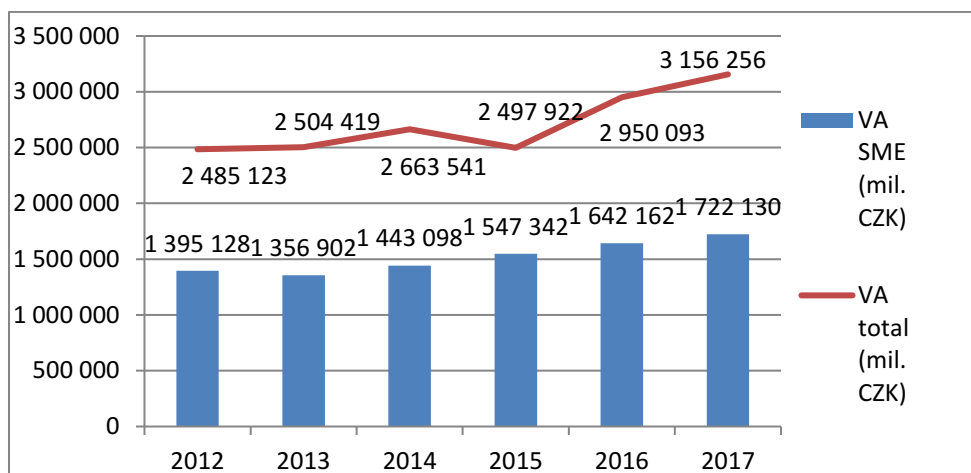


Source: CZSOa, 2019

Value-added was created by small and medium-sized enterprises in the amount of CZK 1,722,130 million, with a year-on-year increase of 5%. The share of SMEs in the total value

added of the business sector reached 54.6% in 2017, which represents approximately the same percentage share in the total value-added as in 2016 and in previous years. (CZSOa 2018.)

Graph No. 2: Value Added total and SME (mil. CZK)

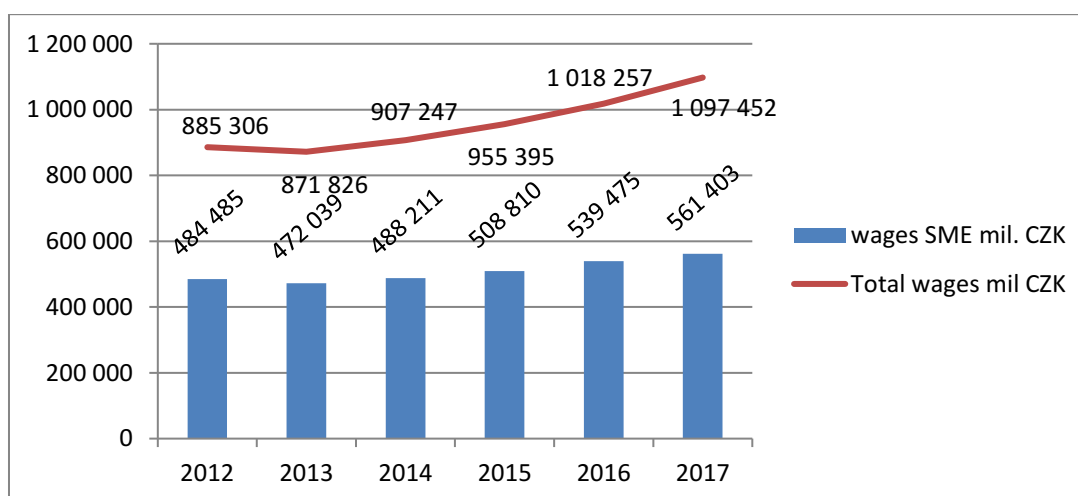


Source: CZSO, 2019

In the long term, SMEs have confirmed their important macroeconomic role in value-added valuation. With a share in a total output of 48.3%, it thus positively contrasts with 54.6% of the total value added of SMEs within the business sphere in the Czech economy in the year-on-year achieved volumes. (CZSO b 2018.)

One of the sources of the permanently higher efficiency of SMEs is the very modest wage development. The wage costs of SMEs in 2017 amounted to CZK 561,403 million, ie CZK 21,928 million more than in the previous year. Thus, wage growth in 2017 brought 4.1% higher remuneration for SME employees for work. However, the growth rate of total labour costs in the business sector was almost double. It reached 7.8%. (MPO CR 2018.)

Graph No. 3: Wages total and SME (mil. CZK)



Source: CZSO, 2019, own creation

From the above information, we can describe the role and importance of SMEs in summary as follows. SME in the Czech Republic is characterized by a very dispersed ownership structure. It consists of 99.8% of active business entities. It accounts for almost 50% of the total business sector, on the value-added almost 55% of the total.(CZSOa 2018) The labour costs of SMEs significantly reduce and, as a result, labour productivity from value-added is basically double that of the average level of business entities in the Czech Republic. Czech SMEs seem to know how to do it. But how can we keep excellent results of Czech SMEs in the conditions of digitization and keep them competitive in the coming years? Investment development is also key for SMEs, focusing primarily on innovation in the core value-creation processes of companies.

2 The innovative appetite of small and medium-sized companies

In July 2018, the Association of Small and Medium Enterprises (AMSP) conducted a survey entitled Innovation in Small and Medium-Sized Czech Companies (AMSP 2018). The results show a number of important starting points and trends, which will undoubtedly play an important role and will in future have a significant influence on the focus of productive innovative investments by SMEs. Businesses focus innovation on increasing sales or added value, but not on business value growth. This means that in the Czech Republic, the owners of SMEs are dominated by the strategic investor approach, which develops the company in a long-term perspective, not for the purpose of its rapid appreciation and subsequent sale.

More than 8 out of 10 companies consider innovation to be important. The most common types of implemented innovations are process and product. This trend is extremely positive in terms of maintaining the existing high level of labour productivity and added value. (AMSP 2018.)

Investment in innovation in SMEs has increased slightly over the past 5 years. SMEs invest 10.2% of their turnover in innovation, ranking them among the top ten in the EU. (MPO CR 2018.)

Significant is the structure of sources of investment that selected companies spent on innovation. 68% of companies invested from their own resources. Another 21% is only half of it from foreign sources. In addition to companies' own resources to finance innovation, SMEs often also use state support or bank loans. This confirms the long-term trend where more than half of companies invest in innovation through European funds. A total of 57% of respondents financed their innovations from European subsidies, 56% from banking sources and 48% of SMEs benefited from various forms of state support. The expected reduction in the volume of European subsidies thus poses a real risk for SME financing. Subsidies will need to be replaced by financial instruments of the capital market.(AMSP 2018)

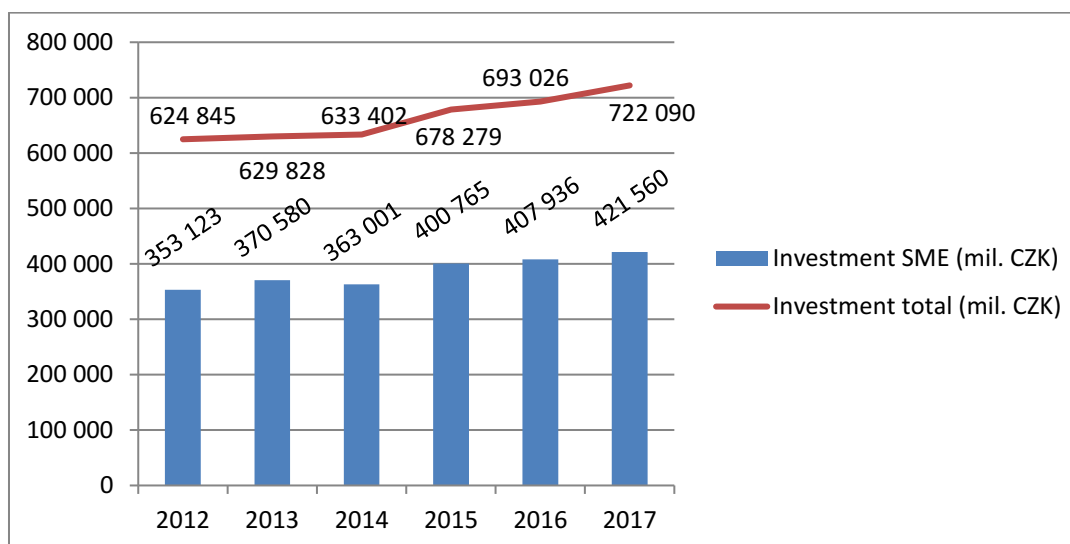
Small and medium-sized companies in the Czech Republic seem to understand very well the key role of innovation for a successful future. But what about one of the decisive conditions for the success of the innovation process, investing in SMEs?

3 Investment - the key to the future

Investments of small and medium-sized enterprises amounted to CZK 421,560 million in 2017, which is CZK 13,624 million more than in 2016, ie by 3.3%. The share of small and medium-sized enterprises in investments of the business sector in 2017 was significant, 58.4%, and corresponded to their share in the created value-added. Compared to 2016, however, this was a decrease of 0.5 percentage points. (MPO CR 2018.)

However, the data presented in the Report of the Ministry of Industry and Trade of the Czech Republic on the Development and Support of SMEs in 2017 (MPO CR 2018) also signal faster growth in investment in the whole business sector in the Czech Republic, compared to the development in the SME segment.

Graph No. 4: Investment SME and Total (mil. CZK)



Source: CZSO, MPO CR, own creation 2019

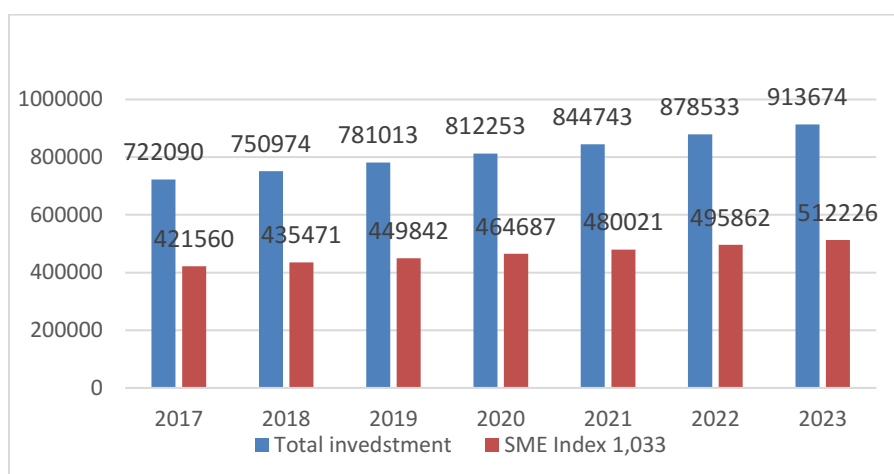
Since 2016, investment in total volumes in the business (corporate) sector in the Czech Republic has been increasing, as shown in the graph, namely 2.1% in 2016 and 4.1% in 2017. According to CZSO statistics, the dynamics of investment processes in Czech SMEs were dampened. Specifically, in 2016 SMEs showed investment growth of only 1.8% in total and in 2017 only a slight improvement to 3.3%. (MPO CR 2018)

At first glance, however, the differences between the overall investment growth dynamics of the entire corporate sector and the development of investment in the SME segment are not dramatic. The results of 2018 and 2019 in the area of corporate bank financing are signalled by the CNB as very dynamic. Naturally, somewhat different developments can be seen in detail in the results captured by statistics in industry, construction, trade and services. From the perspective of another perspective, it is necessary to ask how the continuing tendency of the weakening investment activity of SMEs would continue in the next 5 years (until 2023).

4 Prognosis

Let us assume in the investment expenditure forecast for 2018 - 2023, based on a trivial linear model, that in an optimal variant, SME investment will grow on average at the same annual rate of 4% as achieved by 2017 in the corporate sector as a whole. In contrast to this development, let us assume a pessimistic variant for developments in the SME segment, where in the same period investment would only increase at a pace reached by 2017, ie 3.3%.

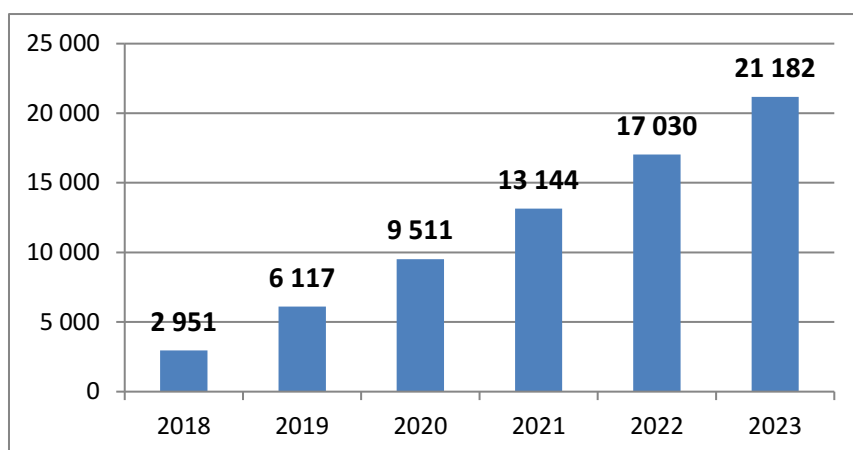
Graph No. 5: Investment forecast until 2023 (mil. CZK)



Source: MPO CR, own creation, 2019

The graphical representation of the model shows that even a very small difference in the trend of strengthening investment, less than 1%, means opening up the scissors between the investment development of the entire business sector and the SME segment in the coming years.

Quantification of projected differences of invested funds in SMEs in absolute values in CZK million between both trends of 3.3% and 4% growth, ie between pessimistic set dynamics of SME investment growth and the current variant of the model show a grim reset.

Graph No. 6: Forecast of SME investment deficit by 2023 (mil. CZK)

Source: own creation 2019

If in the next period investments of SMEs in the Czech Republic grew on average only by 0.7% slower than investments on average in the whole Czech corporate sphere, the risk of lagging investments of Czech SMEs in the next 5 years would gradually increase to CZK 21bn deficit. In total, investments in innovation and new technologies in SMEs totalling up to CZK 70 billion would be missing during this period.

6 Financial resources for SME investments

The real risk of a significant lag in SME investment activity needs to be addressed in a timely manner. Investing as a demanding and risky process in the SME segment is conditioned by a number of factors. In addition to human resources, research and technology (which are addressed by artificial intelligence strategies), the basic condition for success is, besides speed, the availability of financial resources for investment (Havlíček et al 2019). A survey of investment decisions shows that SME owners in the Czech Republic prefer to invest their own resources. Especially profit from previous years.(AMSP 2018) However, its accumulation to the required volume to cover investment expenditure requires a longer period of time. Revolutionary technological changes are taking place in the fierce competition also in the field of SMEs. For this reason, on a global and continental scale, at very short intervals. Acceleration of technological development brings shortening of the innovation investment cycle very often before the amortization of the investment.(Czech Rep 2019) In this current situation, there is no choice but to turn attention to resources from the capital market.

Except for subsidies that have passed by the end of this decade, all available resources are considered. Leasing is the starting point for current investments and its potential is certainly not exhausted in the Czech economy. However, many SMEs, especially small firms, do not meet the conditions of leasing companies, or the leasing instalments are too high for them. In the case of a bank loan, the requirements for the creditworthiness of the credit client under BASEL III play a decisive role. Especially the smallest, so-called micro-enterprises, family companies and sole traders are not able to meet these strict banking requirements. In particular, their ability

to repay, as reflected in the RVA, is very often depleted to secure operational funding (overdraft). The activities of the Czech-Moravian Guarantee and Development Bank help significantly within the announced programs of support for SME financing. Last year, it provided support to SMEs in the amount of CZK 11.9 billion, of which CZK 11 billion in the form of a guarantee. The vast majority of projects (98%) were carried out in the Czech Republic by small enterprises (ie enterprises with less than 50 employees). They were even projects of small entrepreneurs employing a maximum of 9 people. However, the sources of support for SME financing are limited, and this financial institution is also gradually transitioning to the principle of support through financial instruments, ie the principle of return on loans (CMZRB 2018).

Non-traditional forms of financing such as crowdfunding, business angels and private equity/venture capital. are becoming increasingly common in the start-up segment, but for hundreds and thousands of SMEs in the Czech Republic, they will hardly be a realistic starting point in the coming years. Therefore, as in all advanced economies, there is no other way to turn attention and ensure realistic conditions for financing the Investment Development of SMEs from the capital market. This perspective is dealt with in a very detailed and concrete way from the point of view of the real starting points by the government document Capital Market Concept 2019 - 2023.(MFCR 2019) It is not limited to all available forms and possibilities of obtaining capital from the market, but also shows solutions for small SMEs. There are basically two options. Opening of the registered capital of SMEs to new partners, resp. new shareholders through new share issues. This is not a solution for small and medium-sized companies with low equity. In addition, it brings a number of new risks for existing business owners who are strongly averse to both forms in the Czech Republic, especially in small businesses. In addition, there is no functional capital market for strengthening SME equity. Initially, the Prague Stock Exchange's program is called START. However, its limit is the high cost of issuing new shares and is thus only effective for medium-sized enterprises.

Conclusion

The last but most promising way is the form of small bond issues (in units of CZK million), manageable even for small, for example, family businesses with several employees. These entities too need urgent investment resources to innovate technologies and processes to facilitate their work and ensure their competitiveness. However, the current liberal regulation under the EU institutions regulation has brought a chaotic and totally non-transparent market environment with a range of speculative, extremely risky debt instruments in 2012, in an unorganized part of the primary debt capital market, at an annual equivalent of less than EUR 1 million. The way out of this situation is shown by the concept of the capital market 2019 - 2023, which was welcomed by regulators and entities trading on the Czech capital market. The realization of the ideas and starting points of this document for expanding and deepening the fair capital market and for SME financing will be a decisive condition for opening up a new, much-needed resource for investment, including innovation for competitiveness.

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CUSTOMER EDUCATION IN FINANCIAL INSTITUTIONS: INNOVATIVE EDUCATIONAL PLATFORMS

LADISLAVA KNIHOVÁ

Abstract

All financial institutions in the world, especially those specializing in financial markets, are continuously exposed to ever-increasing competitive pressures. Specifically, it is the competition that motivates corporations to create and offer solutions with added value for their customers, specifically in the form of products and processes innovations. In the core of these value-creating activities, customer education plays an indispensable role. The objective of this study, which has been a part of the new category labelled Behavior Finance since 2017, is to identify, analyze and evaluate the current portfolio of innovative digital educational platforms available for the delivery of specific educational content focused on the current needs of the financial sector and its clients. Firstly, specific challenges financial educators are facing with regards to the new generation of learners are examined briefly. Then, innovative educational platforms are considered to accommodate the changing learning preferences of financial institutions' clients while educational videos within MOOCs (Massive Open Online Courses) are in the focus of this research. In order to identify specific educational content suitable for financial institutions, a set of variables has been carefully chosen for the quantitative content analysis of relevant textual materials and MOOCs providers' offerings. Last but not least, barriers to the smooth integration of the research findings into corporate practice have been considered. As for originality and value of this study, many research projects on product-related customer education exist, however, this study aims to shed some light on the learning preferences of the new generation of learners, both generally and in the financial industry specifically. Also, the impact of innovative educational platforms based on digital learning technologies on the overall levels of competitiveness of financial institutions through their clients' expertise has rarely been in the focus of researchers; however, fresh data is needed for their successful operations.

Keywords

Cognitive factors, customer education, digital learning platforms, education-based content, educational video, generation Z, Massive Open Online Courses.

Abstrakt

Všechny finanční instituce na světě, obzvláště pak ty, které se specializují na finanční trhy, jsou vystaveny stále rostoucím konkurenčním tlakům. A právě konkurence je motivačním faktorem pro korporace k tomu, aby vytvářely a nabízely řešení s přidanou hodnotou pro své zákazníky. Jedná se převážně o inovace produktů a procesů. V jádru různorodých firemních aktivit vytvářejících přidanou hodnotu hraje vzdělávání zákazníků nepostradatelnou roli. Cílem této studie, která od roku 2017 obsahově patří do nové kategorie označované jako behaviorální

finance, je identifikovat, analyzovat a vyhodnotit stávající portfolio inovativních digitálních vzdělávacích platform dostupných pro poskytování konkrétního vzdělávacího obsahu, který je zaměřen na současné potřeby finančního sektoru a jeho klientů. Nejprve jsou stručně představeny specifické výzvy, kterým vzdělavatelé v oblasti financí čelí v souvislosti s novou generací klientů. V další části příspěvku jsou analyzovány inovativní vzdělávací platformy z pohledu jejich vhodnosti vzhledem k měnícím se preferencím klientů finančních institucí a procesu jejich učení; předmětem této analýzy jsou vzdělávací videa jako základ pro MOOCs (masivní otevřené online kurzy). Za účelem identifikace specifického vzdělávacího obsahu pro potřeby finančních institucí byla pečlivě vybrána sada proměnných pro kvantitativní obsahovou analýzu příslušných textových materiálů a nabídek poskytovatelů MOOCs. V neposlední řadě byly také vzaty v úvahu překážky na cestě k plynulé aplikaci výsledků výzkumu do podnikové praxe. Pokud jde o originalitu a hodnotu této studie lze konstatovat, že existuje značný počet výzkumných projektů zaměřených na produktově orientované vzdělávání zákazníků; cílem této studie je však objasnit preferovaný styl učení typický pro novou generaci studentů, a to obecně i zcela konkrétně pro odvětví financí. Vliv inovativních vzdělávacích platform založených na technologii digitálního učení na celkovou úroveň konkurenceschopnosti finančních institucí prostřednictvím odborných znalostí jejich klientů byl však jen zřídka předmětem zájmu výzkumných pracovníků, i když aktuální data z této oblasti jsou velmi potřebná pro úspěšné fungování všech typů finančních institucí.

Klíčová slova

Kognitivní faktory, vzdělávání zákazníků, digitální vzdělávací platformy, edukační obsah, vzdělávací video, generace Z, masivní otevřené online kurzy.

JEL Classification

G40, G41, G410

Introduction

In 2017 Bell et al. published an iconic research article under the title “*Unraveling the Customer Education Paradox: When, and How, should Firms Educate Their Customers?*” in the Journal of Service Research. (Bell, Auh, Eisingerich 2017) The authors have brought a very specific insight into education in the financial sector. They consider customer education to be a valuable augmentation to a firm's service offerings and, in their article, they examined very carefully the educational content focus in relation to customer loyalty. Their research findings proved that “*educating customers for firm-specific expertise leads to increased loyalty, while building market-related expertise may decrease customer loyalty.*” (Bell, Auh, Eisingerich 2017, p. 1) In line with the managerial implications and findings originating from their research, it is of utmost importance to adopt a proactive attitude towards customer education. Financial educators must take proactive initiatives focused on educational content, delivery platforms, and - above all - on the learners themselves. Generation Z is emerging on the stage. It is necessary to answer the questions who these young people are and to bring some insight into their learning styles and preferences. Instructional designers creating their solutions

not only for the financial sector must consider these questions before the stage of designing a modern educational environment for these young clients as they will be the ones who will foster future finance-led economic development. For example, today, for financial markets, they are most probably ‘prospective investors’. However, sooner or later they might become ‘investors’, i.e. new owners who have acquired the shares and have a financial interest in knowing that the company is performing well. (Weetman 2019, p. 340) Whatever the case, financial education is a must for them.

1 Generation Z: new clients of financial institutions

Generation Z is entering the world of finance. Gen Z differs from its predecessors in many ways. McKinsey&Company prepared a review of generations in their article ‘True Gen’: Generation Z and its implications for companies – see Table 1.

Tab. No. 1: Generation Z and Its Implication for Companies

	B Baby boomer 1940–59	X Gen X 1960–79	Y Gen Y (millennial) 1980–94	Z Gen Z 1995–2010
Context	<ul style="list-style-type: none"> • Postwar • Dictatorship and repression in Brazil 	<ul style="list-style-type: none"> • Political transition • Capitalism and meritocracy dominate 	<ul style="list-style-type: none"> • Globalization • Economic stability • Emergence of internet 	<ul style="list-style-type: none"> • Mobility and multiple realities • Social networks • Digital natives
Behavior	<ul style="list-style-type: none"> • Idealism • Revolutionary • Collectivist 	<ul style="list-style-type: none"> • Materialistic • Competitive • Individualistic 	<ul style="list-style-type: none"> • Globalist • Questioning • Oriented to self 	<ul style="list-style-type: none"> • Undefined ID • “Communaholic” • “Dialoguer” • Realistic
Consumption	<ul style="list-style-type: none"> • Ideology • Vinyl and movies 	<ul style="list-style-type: none"> • Status • Brands and cars • Luxury articles 	<ul style="list-style-type: none"> • Experience • Festivals and travel • Flagships 	<ul style="list-style-type: none"> • Uniqueness • Unlimited • Ethical

McKinsey&Company

Source: (Generation Z Characteristics and Its Implications for Companies | McKinsey 2018)

Generation Z members are young people who have not developed financial habits yet. The oldest members of this generation are finishing their college education and are about to enter the job market. They have grown up fully immersed in technologies (digital natives), they are active users of social networks, and – as a rule - they are sensitive to ethical issues.

1.1 Generation Z learners and their characteristics

In Forbes magazine, Miguel D. Vasquez, the CEO of the Financial Fitness Group (FFG), a financial education technology firm located in San Diego, California, characterized the Gen Z

with the following words: *“Having grown up with a constant awareness of financial and environmental crises, ubiquitous social media and opportunities enabled by technology, Gen Z presents challenges for educators.”* (Six Challenges Financial Education Providers Are Facing With Gen Z 2019) He believes that some of the major challenges in addressing these young learners are the following: (1) *they are immersive*, i.e. they expect multisensory applications, experiential learning, interactive learning experience, video learning-on-demand, bite-sized content, and class discussion opportunities; (2) *they are socially aware*, i.e. high level of awareness of major issues is typical of them; they feel a pressing need to be involved in the solution to many society' ills, e.g. Greta Thunberg, a young climate activist; (3) *they want to help create content*, i.e. they are comfortable with being co-creators of content and sharing it on social media; (4) *they are conservative with money*, i.e. high costs of education and housing make them responsible money managers; (5) *they are social*, i.e. more than half of them use social media constantly, and (6) *they are independent and innovative*, i.e. technology makes them independent; more entrepreneurs and business owners are likely to arise among members of Gen Z than among previous generations. (Six Challenges Financial Education Providers Are Facing With Gen Z 2019)

The above-mentioned characteristics of Gen Z give some guidance to financial educators in their efforts to prepare a relevant learning environment and materials while making use of the preferred learning platforms.

1.2 Key benefits of digital learning

Having been an educator for many years and based on her own experience, the author of this article is fully convinced that digital learning has changed the traditional paradigm of learning fundamentally. There are many positive aspects of this change. In the article "The Shift to Digital Learning", Tom Vander Ark identified 10 benefits of digital learning, They are the following: (1) personalized learning; (2) expanded learning opportunities; (3) high engagement learning; (4) competency-based learning, (5) assessment for learning; (6) collaborative learning; (7) quality learning products; (8) sharing economy; (9) relevant and regularly updated content, and (10) next-gen learning for educators. (Vander Ark 2015) All these benefits of digital learning are complemented by technological advancement towards cloud solutions helping the even higher level of personalized learning solutions and collation and accessibility of learning materials flexibly on a 365/12/24 basis.

All of the above-mentioned benefits of digital learning, including the cloud solutions and also mobile apps, are fully applicable to the financial sector, disregarding if it is the stock market where customers need excellent knowledge, high-quality data, and real-time information to make informed decisions or perhaps education on investment opportunities.

Concerning MOOCs, in his article, Spyridon writes, quoting Haavind and Sistik-Chandler: *"The participants will appreciate when lessons they are offered add value to their personal or even professional development."* (Spyridon 2017, (Haavind, Sistik-Chandler 2015)

Chapter 2 gives some insight into the current MOOCs offered by randomly chosen two of the most renowned MOOCs providers.

2 Methodology and research findings

The research method of *quantitative content analysis* followed by data summary and interpretations of findings is in the core of the research design of this study. In the focus of the content analysis, there are MOOCs for financial sector customers.

Tab. No. 2: Research data set – keyword ‘financial markets’ – provider: COURSERA

Course provider		Coursera (Stanford University)					
Keyword		Financial markets					
Total No. of courses		175					
Language:	Level:	Selected Partners (co-creators):		Main Skills:			
English	45	Beginner	72	University of Pennsylvania	26	Finance	4
Chinese	9	Intermediate	29	University of Illinois	12	Market (Economics)	25
Russian	5	Advanced	4	National Research University		Management	19
				Higher School of Economics	8		
		Mixed	68	Indian School of Business	7	Investment	18
				IESE Business School	6	Modeling	15
				Moscow Institute of Physics and Technology	6	Entrepreneurship	14
				University of California	6	Marketing	13
				American Institute of Business and Economics	5	Economics	10
				HEC Paris	4	Financial markets	10

Source: Author's own elaboration based on COURSERA mobile courses' catalogue

Tab. No. 3: Research data set – keyword ‘financial markets’ – provider: UDEMY

Course provider		Udemy					
Keyword		Financial markets					
Total No. of courses with rating 4,5 and higher (out of max. 5)		1,432					
Language:	Level:	First 10 Skills according to frequency:					
English	1340	All levels	853	Stock Trading	54		
Arabic	15	Beginner	399	Forex	25		
		Intermediate	156	Investing	33		
		Expert	23	Financial trading	29		
				Finance fundamentals	19		
				Swing trading	10		
				Fibonacci trading	7		

		Passive income	6
		Value investing	6

Source: Author's own elaboration based on UDEMY mobile courses' catalogue

The above-mentioned quantitative content analysis of two prestigious mobile education providers, i.e. Coursera and Udemy (belonging to the category of MOOCs), has revealed that there are 1,607 courses offering different types of skills related to financial markets.

In order to identify specific educational content especially useful for financial institutions, a set of variables/keywords has been carefully chosen for the content analysis of relevant textual materials and MOOCs providers' offerings. The variables and their occurrence are shown in Table 4.

Tab. No. 4: Technical skills for business and finance in demand in 2019

Variables / keywords	Occurrence/Coursera No. of courses	Occurrence / Udemy No. of courses	Occurrence / Total No. of courses
machine learning	310	10,000	10,310
algorithmic trading	24	5,186	5,210
blockchain	50	932	982
mobile wallets	2	3,318	3,320
online trading	13	3,539	3,552
artificial intelligence	344	2,459	2,803

Source: Author's own elaboration based on Coursera and Udemy online catalogues of courses

The findings of the above-mentioned quantitative content analyses demonstrate that educational content available within MOOCs fully corresponds to current trends and demands on the side of customers. Thanks to technology, it can be easily accommodated within proprietary solutions of companies and organizations that wish to educate their customers in an innovative, flexible and cost-effective way.

3 MOOCs integration into customer education strategies

When considering the design of customer training opportunities and education strategies with the integration of (mobile) MOOCs, there are two paths to take: (1) identification and integration of the already available courses; (2) building a new MOOC from scratch. (Spyridon 2017) Spyridon suggests the following strategy: “For the content areas requiring more interaction and collaborations, organizations may opt to integrate instructor-led training (ILT) and the MOOCs into a blended learning environment.” (Spyridon 2017) Learning can be divided into small chunks (learning nuggets) and delivered within the frame of education-based marketing strategies which might be beneficial for organizations and motivational for learners.

The selected solution will respect the actual needs of an organization and will be either face-to-face instructor-led class education, or autonomous (self-directed) online (mobile) learning with or without a tutor either self-paced or with set dates, or, finally, a mixture of both options.

3.1 Benefits of MOOCs in customer education

Unlike traditional courses, there are some new important benefits of MOOCs and their integration into customer education. The most important benefit for organizations consists in the customer education *costs reduction*. Though initial costs occurring in connection with creating the learning materials and uploading them into the system are inevitable, later on, technology and learning management systems (LMS) will enable *flexible and convenient delivery to learners anytime anywhere*. MOOCs courses are *offered for free* (basic versions) and lecturers are very often *the best professors from top world universities* and other educational institutions. *A wide range of existing learning topics* can meet even the most demanding customer learning needs. Currently, among the most demanded technical skills for business and finance, there are the following subjects: machine learning, algorithmic trading, blockchains, mobile wallets, online trading, artificial intelligence, augmented reality or even courses related to cybersecurity. Without the existence of MOOCs, it would be virtually impossible to offer such a huge portfolio of customer education courses.

4 Barriers to the smooth application of the research findings into corporate practice – managerial implications

Regarding mobile MOOCs, *low completion rates* are often mentioned. Though it is rather difficult to have a complete insight into the problem, some learners may acquire the knowledge and skills they wanted without completing the whole course. (Spyridon 2017) Accessibility of MOOCs due to their multimedia character may also be a challenge for many potential learners with a poor Internet connection. *Language barriers* have to be considered, too, even though free online translation applications are available. However, a growing number of courses are localized into one or more languages, and virtually any expert in a particular area can become a member of the translation team and help create new versions of courses in different languages. Besides, *adapting the design and content to fit specific cultural and economic requirements of different countries*, e.g. the question of *compliance*, can be seen as a barrier which can be solved, however the costs for potential local providers might be high. (Bates, A. W. 2015)

5 Discussion and suggestions for further research

The quantitative content analyses have brought data about the number and focus of mobile MOOCs for the financial sector. There are still many questions to be answered concerning MOOCs: from evaluation standards to assessment/peer assessment, automated essay scoring

accuracy and reliability, or copyright restrictions etc. Researchers should also focus their attention to the educational video and its integration into customer education which is another innovative educational platform to be examined due to the growing popularity of the video communication channels, namely YouTube and TED. Educational content and its sharing using ever more sophisticated technology might be a discouraging factor for many researchers. There is a growing concern that academia will not be in the vanguard of innovative teaching methods and instructional design solutions since corporate practice will be much faster and take the lead.

Conclusion

The objective of this study was to identify, analyze and evaluate the current portfolio of innovative digital educational platforms available for the delivery of specific educational content focused on the current needs of the financial sector and its clients. The quantitative content analyses proved that the enormous number of educational opportunities exist for learners specializing in financial markets (1,607 courses) within the MOOCs offered by Coursera and Udemy, just two of many existing mobile educational courses' providers. These two providers were selected based on their excellent reputation among the community of their learners. Simultaneously, the third content analysis proved that the portfolio of educational courses designed for financial sector reacts to the current needs of the industry, e.g. for the algorithmic trading there are 5,210 courses available, or you can learn about the specifics of mobile wallets in 3,320 courses.

There is a growing need for further research to be done in the area of MOOCs to bring updated data and an explanation of the pros and cons of this innovative learning platform.

MOOCs offer a great potential of reinventing the ways we learn and acquire new skills. Specifically, high professional levels of their content, multimedia character, and flexibility enable the seamless integration of these courses into blended study programs within the frame of formal tertiary education.

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HOUSEHOLD INDEBTEDNESS IN SLOVAKIA

ZUZANA KOŠTÁLOVÁ, DANA TKÁČOVÁ

Abstract

At present, the household indebtedness is highly relevant and current issue in the Slovak Republic due to its highest growth rates of household loans in the European Union. In the long run, an unsustainable loan growth and increasing household debt pose a problem for both banks and households. The article discusses the development of household indebtedness and examines the determinants of household indebtedness, such as interest rates, a positive macroeconomic environment, real estate market development that encourage indebtedness. We study the specific aspects of indebtedness in comparison with selected V4 countries or the EU countries.

Keywords

Indebtedness, loans, household, interest rates, GDP, V4 countries

Abstract

Problematika zadlženosti obyvateľov Slovenskej republiky je v súčasnosti vysoko aktuálna, pretože za posledné obdobie zaznamenávame najvyššie tempá rastu úverov domácnostiam v rámci Európskej únie. Neustály rast úverov a zvyšovanie zadlženosti domácností je z dlhodobého hľadiska veľký problém tak pre banky, ako aj domácnosti. Článok sa zaoberá vývoj zadlženosti domácnosti a faktormi, ktoré prispievajú k zvyšovaniu dlhu domácností, ktorými sú napr. úrokové sadzby, pozitívne makroekonomické prostredie, vývoj na realitnom trhu. Vybrané aspekty zadlženosti skúmame v porovnaní s vybranými krajinami V4, resp. EÚ.

Klíčová slova

Zadlženosť, úvery, domácnosti, úrokové sadzby, HDP, krajiny V4

JEL Classification

B26, G21

Introduction

The household indebtedness can be defined as the total amount of liabilities that a household owes financial institutions and that the household is obliged to repay within the agreed period. The debtor – the household - pays back the nominal value of a debt (principal) and an interest presenting a profit for the lender.

The household debt usually consists of credit for housing financing, consumer loans and credit card debt. Quantitatively speaking, the housing loans usually make up a majority of the total provided loans. The indebtedness can be classified in different ways. Based on OECD methodology, it is expressed as a household debt to net disposable income ratio⁵⁸. The indebtedness can be also defined as a debt-to-GDP ratio.

We can look at loans from different perspectives. On one hand, new loans could boost an economic activity in the country; the housing loans improve the housing quality; the education loans improve the future positions of credit applicants at the labor market; the consumer loans enable to buy the most modern products, improve the living standards and leads to higher consumption. Debt enables the households to increase their today's consumption and to fulfill service debt in the future when they will have higher income. This is in line with the theory of permanent income that states that higher indebtedness leads to a rise in future income.

On the other hand, an excessive indebtedness can make the economy vulnerable. The recent studies have shown that a sustainable indebtedness can have an adverse impact on the economy, the effects could be particularly intensified during a recession, causing problems to the lenders – banks (Zabai, 2017). Since the households are sensitive to changes in interest rates and to an unemployment loss, the indebtedness level influences their ability to deal with unexpected worsened conditions. A rise in interest rate or a job loss increase the risk of losing an ability to repay the loans due to higher installment payments.

This paper is organized as follows. In section 1 we discuss the development of household indebtedness in Slovakia. In section 2 we study the factors which drive the indebtedness, focusing particularly on macroeconomic determinants.

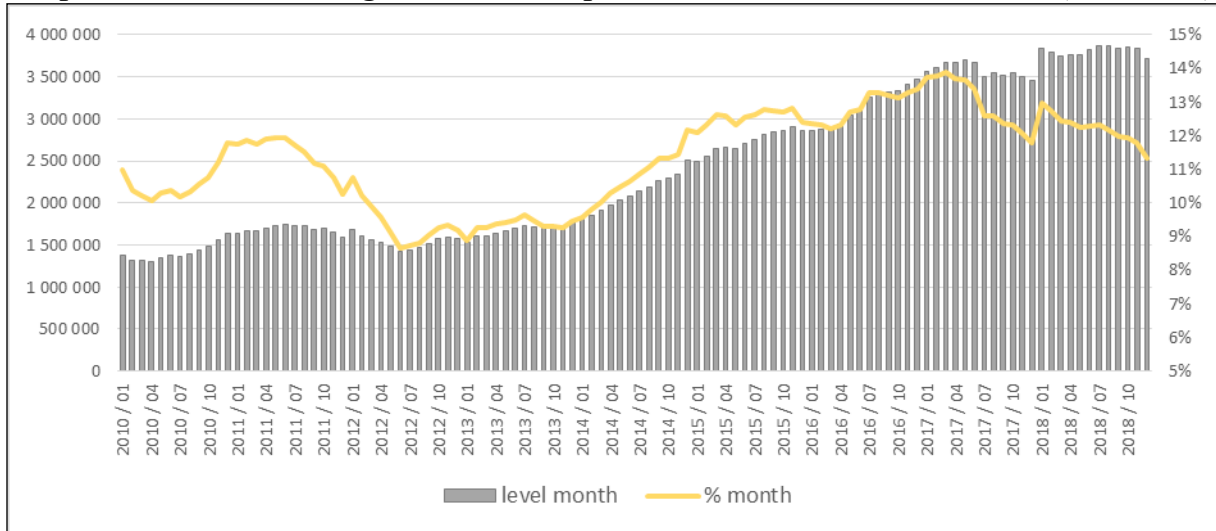
1 Development of household indebtedness in Slovakia

The incessant lending growth in Slovakia has been one of the biggest trends in the past years. The Slovak economy has been growing steadily and has recorded a GDP growth of more than 3%; and the GDP is expected to continue growing. However, this favorable credit development also brings risks, which can pose economic problems in the long run.

The below graph no. 1 demonstrates a sharp loan growth since March 2016 that might be attributed to mainly a legislation change in early loan repayment. The Slovak National Bank set a maximum percentage of fee for repaying early loans (1%) which is supposed to cover the banks' costs. This regulation has two-fold effects. The clients could suddenly repay early their loans for a lower charge than it was in the past when the early repayment charge was around 5%. This has led to a rise in refinancing loans. Now the clients can refinance their loans with lower installments or get a higher loan and keep the same monthly payment. The demand for loans was growing rapidly and the banks decreased the interest rates in order to keep their market share. The total amount of loans was growing; however, the loans installments did not drop down.

⁵⁸ The income is defined as the sum of consumption expenditure and savings minus the change in net equity of household in pension funds.

Graph No. 1: Annual changes in new loans provided to households in Slovakia (2010-2018)

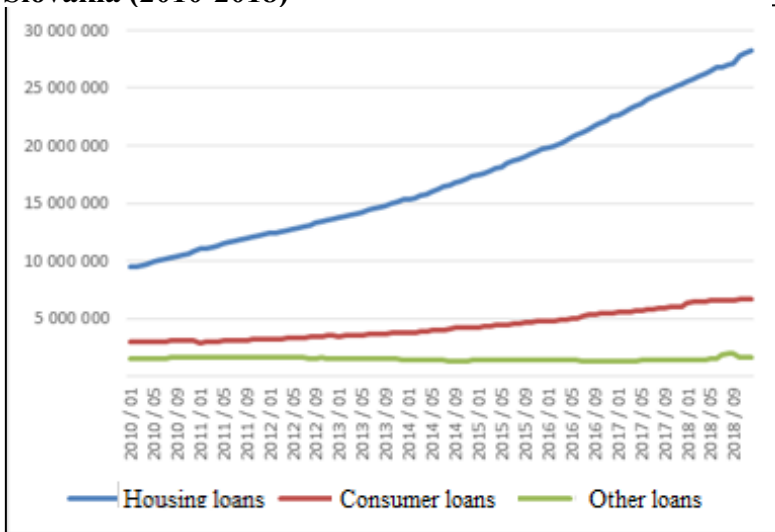


Source: own processing based on data of Slovak National Bank

The effects of macroprudential policy of the Slovak National Bank could be gradually seen in 2017 and 2018; the absolute changes in loans started to slowly stabilize which also meant lower percentage changes in loan growth. The aim is still to keep the loan growth rate below 10% and to move it closer to the rate in the rest of the EU.

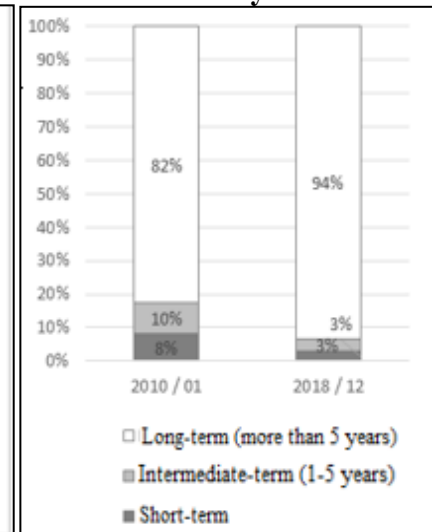
The debt structure of the Slovak households consists of consumer loans, current account overdraft, credit cards, housing loans and other types of loans. For better clarity, we join the first three categories into one category.⁵⁹ The graph no. 2 shows that the housing loans make up the majority of total loans. Their average annual growth rate reached 12.9% during the period from 2010 to 2018. The growth rate of consumer loans was 9.5% and other types of loans grew slowly with a rate almost of 1%.

Graph No. 2: Development of household loans in Slovakia (2010-2018)



Source: own processing based on data of Slovak National Bank

Graph No. 3: Loan structure based on maturity in Slovakia

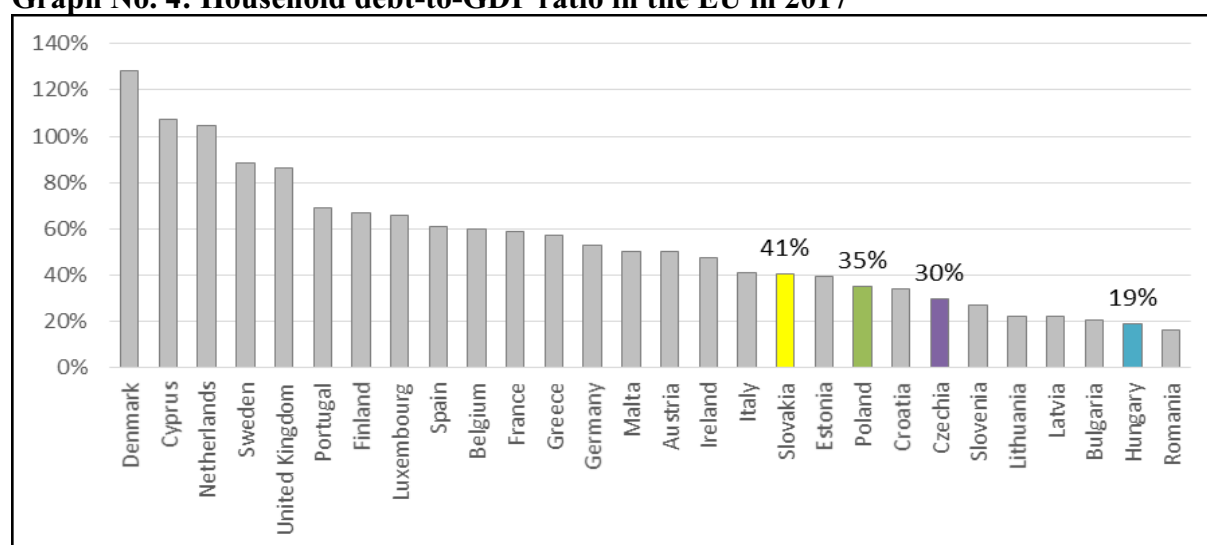


⁵⁹ The Slovak National Banks uses the same methodology.

The graph no. 4 indicates that the ratio of the household debt to its GDP higher in the developed Western countries while the debt-to-GDP in the countries of the Central and Eastern Europe is positioned in the second half of the graph.

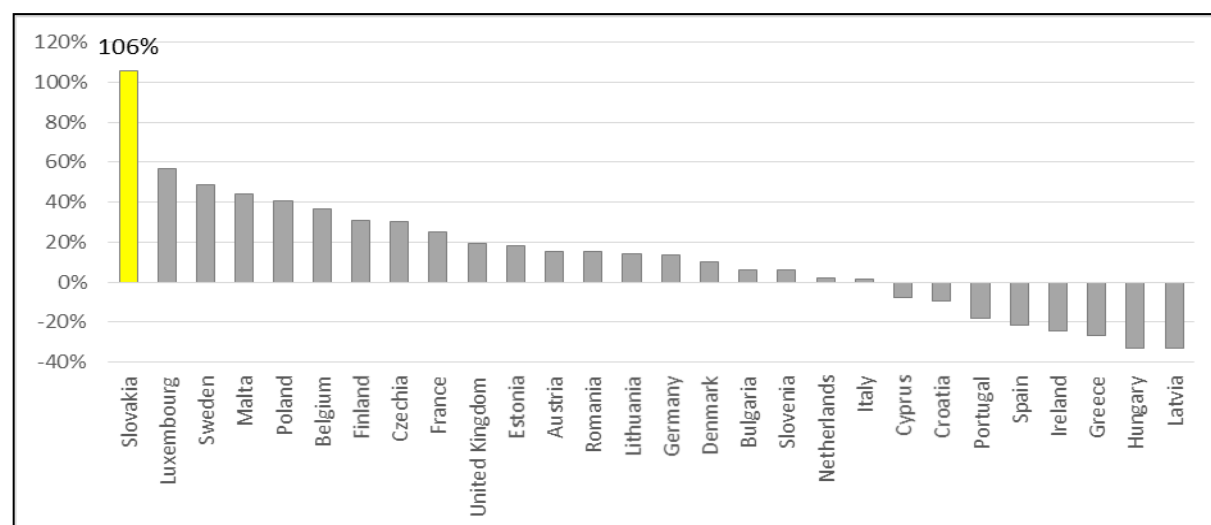
The Slovak household debt-to-GDP is on the 18th place out of the EU member states. It seems that the position is not bad. Nevertheless, the IMF analysis indicates that in the long run the debt-to-GDP ratio around 30% has adverse effects on the economy and the positive link between the debt-to-GDP higher than 60% and economic crisis can be identified. In 2017 the ratio of household debt to GDP reached 41% in Slovakia, which is two times higher than 10 years ago. Moreover, Slovakia has the highest indebtedness compared to the V4 countries. While the household indebtedness in 2017 was 35% in Poland, 19% in the Czech Republic and 19% in Hungary.

Graph No. 4: Household debt-to-GDP ratio in the EU in 2017



Source: own processing based on data of Eurostat

Graph No. 5: Percentage change in total household loans in the EU from 2010 until 2017



Source: own processing based on data of Eurostat

We can identify the rapid indebtedness growth in Slovakia since 2010. Slovakia recorded the highest annual growth rate of loans in the EU in period from 2010 until 2017. The graph no. 5 suggests that some countries experienced almost no debt growth or a negative growth rate, such as PIIGS countries or Hungary. The debt crisis had a negative impact on the ability of affected countries to finance their fiscal debt. Due to the global financial crisis and liquidity shortage the investors were buying less risky bonds and risky countries had to pay very high interests in order to finance their public debt. This uncertainty also seems to influence the banking market in a way that instead of rising household lending growth, those countries recorded decreasing loan growth.

2 Determinants of household indebtedness

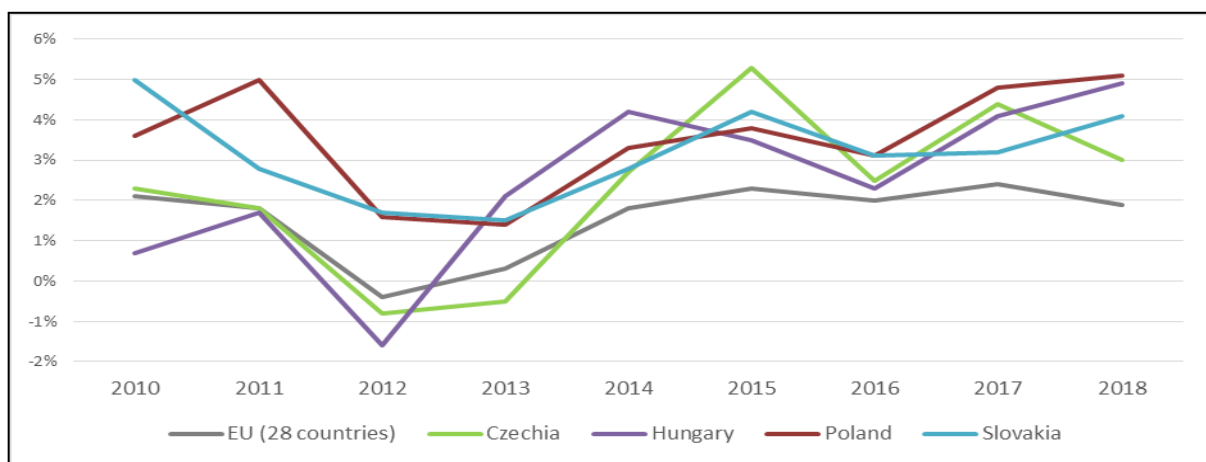
In the last years, both strong client's demand and supply side have resulted in a fast growth rate of loans. Favorable macroeconomic environment seems to be one of the main determinants of loan growth, particularly GDP growth, decreasing unemployment rate and rising wages.

2.1 GDP growth

In recent years, the Slovak economy, together with a majority of the EU countries, has been experiencing high GDP growth rate and an expansion phase of the economic cycle. The GDP has been continuously above 0% and after two weak years, 2012 and 2013, the GDP started to grow more than 3%.

The GDP growth of V4 countries has been higher than the EU average since 2014. The Polish and Slovak economies have been steadily growing and have managed to keep a growth rate around 2% even during a weaker period 2012-2013. In spite of favorable economic development in V4 countries, the Slovak lending growth has been developing differently.

Graph No. 6: GDP growth in EU and V4 (2010 until 2018)



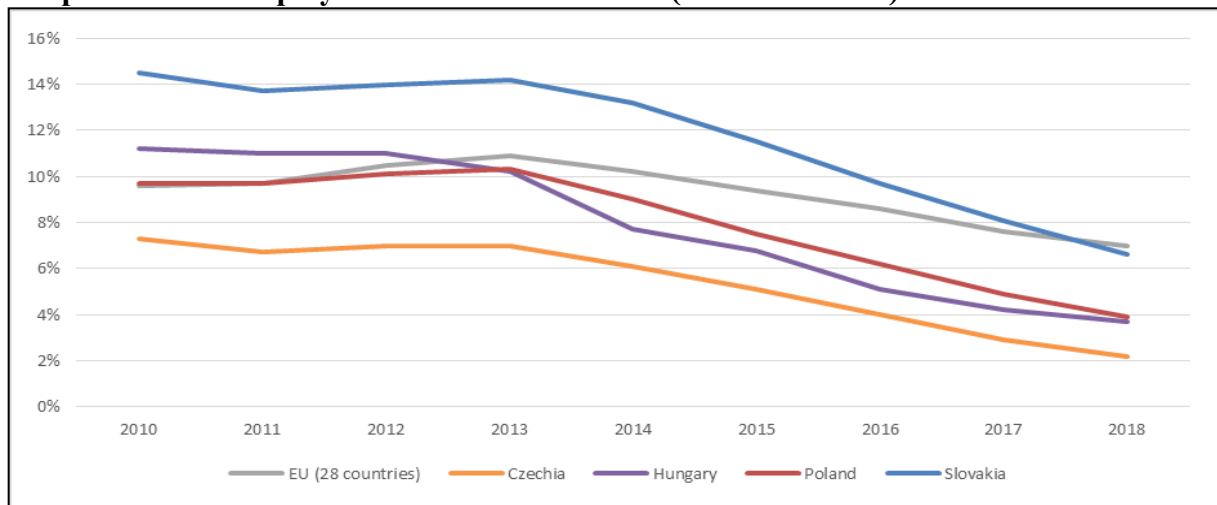
Source: own processing based on data of Eurostat

2.2 Unemployment rate

The expansion phase and the start of overheating of an economy have primarily an impact on the labor market. The unemployment directly affects the ability of clients and possibilities to get a loan. The income is the basic requirement that a client has to meet in order to get a loan. Moreover, decreasing unemployment rate and shortage of qualified employees have pushed up wages in the economy.

The unemployment rate in Slovakia was one of the highest in the EU in 2010 but it has been decreasing since 2010. The downward trend in unemployment rate can be visible in all V4 countries. The Czech Republic has the lowest unemployment rate (2.2%) in V4, followed by Poland and Hungary, which report approximately the same rate (4%).

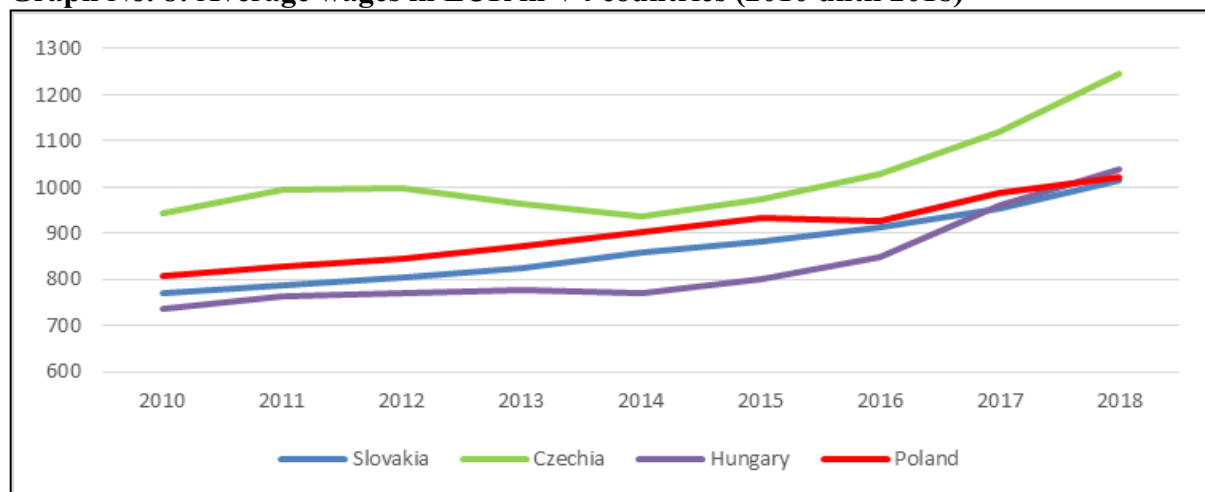
Graph No. 7: Unemployment rate in EU and V4 (2010 until 2018)



Source: own processing based on data of Eurostat

2.3 Wages

The income level is correlated with an amount of loan that the banks can provide to their clients. That is why the salary is also one the main factors which stimulates the household demands for loans. The wage level positively influences the ability of households to serve their debts and avoid late payments, particularly rising wages are supposed to contribute to a drop down in the non-performing loans.

Graph No. 8: Average wages in EUR in V4 countries (2010 until 2018)

Source: own processing based on data of Eurostat

2.4 Interest rates

During a crisis period, the central banks tend to decrease the interest rates in order to boost the economic growth. Loans get cheaper and investors are more willing to invest. Rising investments lead to a creation of new jobs, tend to increase the salaries as well as price level. This mechanism did not function at the period of debt crisis in the Eurozone. High fiscal deficits and inability of countries to borrow in the financial market brought serious issues. It took time for the EU to get over these problems. The inflation started to decrease towards a zero, being far away from the targeted 2%.

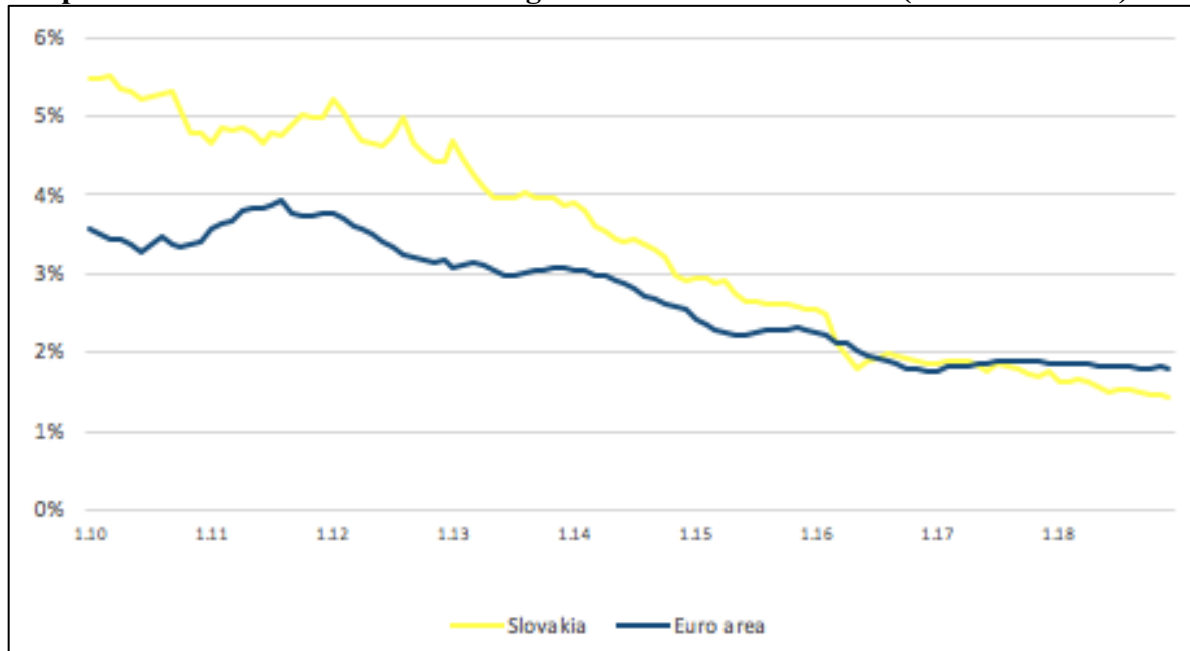
The inflation below 0% can pose a serious problem because the investments and loans become cheaper, which can further on lead to a deflation spiral. People prefer savings and tend to limit their consumption, the firm reduce staff due to lower demand and the economy might slide to recession. The EU decreased interest rates with a purpose of stimulating the economy and moving towards to its target value.

In 2014 the inflation started to be a threat since it started to sharply decline and the ECB benchmark interest rates stuck at zero. Following the example of Japanese central bank and FED, the ECB started to apply nonconventional monetary policy, mainly the so-called quantitative easing. The ECB initiated a program of purchasing bond instruments from banks in order to provide the financial market with extra liquidity. The commercial banks were selling the bonds and getting money from the ECB. The aim was to get it transformed to loans and redistributed it among the firms and households. This money together with lower interest rates were supposed to be the driving force of both inflation and economic growth. The ECB strategy clearly has affected the loan interest rates offer by the commercial banks to the household and companies.

The graph no. 9 shows the development of housing loan interest rates in EU and particularly in Slovakia. The cheapest housing loans were provided in Finland in 2010, with an average interest rate of 1.94%. In Slovakia the interest rate for housing loans was the highest; the housing loans were even more expensive than in Greece that time. In January 2010, the average interest rate was 3.58% in Greece that is more than 2% lower than in Slovakia.

A big change happened at the end of 2018. The average interest rate for new housing loans dropped down in most of the Eurozone, with the exception of Ireland. In Slovakia the interest rate dropped to 1.55% which is the third lowest rate after Finland and Portugal. Slovakia has been reducing the gap since 2010. Other countries of V4 could set their own monetary policy and set the benchmark interest rates which serve as a base for pricing loans in the country. Thanks to this, the V4 countries, except of Slovakia, were able to keep the interest rates higher than 2%, therefore the interest rates of loans stayed at higher rate compared to the Eurozone countries.

Graph No. 9: Interest rates for housing loans in EU and Slovakia (2010 until 2018)



Source: own processing based on data of Eurostat

Conclusion

We can observe that the amount of new loans has been growing excessively in Slovakia while other macroeconomic fundamentals do not copy this trend. Moreover, a household debt-to-GDP ratio has been steadily growing, attaining 40% in 2017. This suggests that Slovakia is catching up the average of the Western countries, which does not necessarily mean an undesirable situation. The non-performing loans ratio has been below 5% since 2010. However, if we take into consideration other factors, such as the macroeconomic ones or financial situation of the Slovak households, the excessive indebtedness can pose a serious risk. The debt-to-GDP of households has doubled since the last financial crisis which could ultimately make it more difficult to meet their debt service obligations. Moreover, the low ratio of financial assets to GDP in Slovakia make the households even more sensitive to changes in a business cycle.

The regulation of the Slovak National Bank that imposed different limits on new loans seems to address the unsustainable lending growth. The annual lending growth rate is expected to decrease by 1 - 1.5 of percentage points. The loan-to-value and debt-to-income limits are supposed to decelerate the credit growth for housing while the cash reserve requirement of 20% aims to limit risky lending to client with a low income.

The credit growth is also closely linked to an increasing housing demand and housing prices. Rental housing does not have a tradition in Slovakia. The low share of rental housing is a result of the transition from the centrally planned economy to the market economy. The amount of rent in individual regions also plays a role. Thanks to decreasing interest rates, the Slovak households prefer buying their own apartments and houses instead of long-term rentals because the loan installments are often lower than the rent. Hence, it is essential to also address the situation of long-term housing in Slovakia.

Acknowledgment

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IMPACTS OF QUANTITATIVE EASING ON THE INTERACTION BETWEEN THE CENTRAL BANK AND SELECTED FINANCIAL MARKET ENTITIES IN THE CASE OF THE CZECH REPUBLIC

DAVID KRÍŽEK, JOSEF BRČÁK

Abstract

The article deals with the impacts of the non-standard monetary policy of the Czech National Bank applied during the economic crisis in the form of foreign exchange interventions. The primary impacts are on financial markets and their entities, including commercial banks, which are active participants in this unconventional policy. On the basis of selected indicators relating to commercial banks and interest rates and the amount of foreign exchange interventions by central banks, relationships are examined between these entities and their possible changes due to quantitative easing. The statistical methods utilised are correlation with the Pearson coefficient and regression analysis based on given parameters. The results confirm a significant relationship between foreign exchange interventions and the monitored indicators. Conversely, the relationship between interest rates and the monitored indicators was not proved.

Keywords

Central Bank; commercial banks; quantitative easing; monetary policy; interest rates

Abstrakt

Článek se zabývá dopady nestandardní monetární politiky České národní banky aplikované v průběhu hospodářské krize formou devizových intervencí. Primární dopady směřují na finanční trhy a jeho subjekty, z nichž aktivními účastníky této nekonvenční politiky jsou komerční banky. Na základě vybraných indikátorů týkajících se komerčních bank a úrokových sazeb a výše devizových intervencí centrální banky jsou zkoumány vztahy mezi těmito subjekty a jejich případné změny v důsledky kvantitativního uvolňování. Použita je statistická metoda korelace s Pearsonovým koeficientem a regresní analýza založená na daných parametrech. Výsledky potvrzují významný vztah mezi změnou devizových intervencí a změnou sledovaných indikátorů. Naopak v případě změn úrokových sazeb a změn sledovaných indikátorů se nepodařilo vztah prokázat.

Klíčová slova

Centrální banka; komerční banky; kvantitativní uvolňování; monetární politika; úrokové sazby

JEL Classification

E4, E5, G1, G2

Introduction

The main objective of this paper is to assess the impact of the financial and subsequent economic crisis on the relationship between the central bank and the commercial banks. These are the main players in the financial market, which was primarily affected by non-standard monetary policy measures; and through the market they were to continue to influence the national economy through the spill-over effect. Foreign exchange interventions, as a form of quantitative easing used in the Czech Republic, have hit very significantly the standard market-conform functioning of the financial market, and it can be assumed that there has been significant distortion and disruption of the previously common relationships that worked between the central bank and commercial banks. Thus, the hypothesis can be formulated in such a way that, as a result of the non-standard monetary policy of the Czech National Bank, there was a change in the behaviour of commercial banks, which as a result became more independent of the monetary policy set by the central bank. This can further affect other sectors of the national economy and hence the whole potential product of the Czech Republic.

1 Literature review

After the outbreak of the financial and subsequent economic crisis, the central banks of developed countries that were hit by this crisis began to pursue an expansionary monetary policy in order to restore market confidence in the system and restore price growth in the desired inflation zone. However, most of the central banks, including the Czech National Bank, very soon closed down the space to implement standard monetary policy, as the interest rate reached technical zero. Consequently, quantitative easing has been applied. From the outset, Benford (2009) said it was expected that the inflation target would be reached in the medium term due to increased money supply. However, the effect is difficult to predict in view of the fact that it is primarily up to commercial banks how much they expand their credit creation, by which means they can make more money. Rodnyansky (2017) notes that the effect of quantitative easing has different effects on financial institutions and that there is no equilibrium effect. These conclusions are based on difference-in-differences identification, based on exploring different assets. However, this is again research into central bank behaviour with impacts on markets and agents, not on the relationship between commercial banks and the central bank. Similarly, the impact on another asset, government bonds, is dealt with, for example, by Joyce (2011). Many studies then deal mainly with the implications of the quantitative easing of the world's major central banks, i.e. the Federal Reserve, the Bank of England, the European Central Bank, and the Bank of Japan; more can be found in Fawley (2013).

In essence, the behaviour of commercial banks is influenced by three factors that are generally categorized by McLeay (2014) as follows:

- a) the banks themselves,
- b) households and businesses,
- c) monetary policy.

In the first case, it can be assumed that the condition of profit maximization is maintained, but also that the internal rules for assessing the solvency of the client are not changed, and if the market agents' behaviour is not significantly influenced and the demand for banking products is only slightly deflected due to the crisis, then it is necessary to focus attention on the third element. Monetary policy has changed significantly, and as a result, commercial banks can be expected to react with a change in their behaviour. Not only did interest rates reach technical zero in the long term, but as a result of asset purchases by the central bank, the resources of commercial banks held in the central bank's reserve account also significantly increased, as was found, for example, for the Federal Reserve and the Bank of England in Meaning (2011), who states on the basis of multiple regression parameters that it is not a tool that should replace standard measures.

2 Data and methodology

For the investigation of the mutual relations of selected indicators, the regression function method will be used primarily, depicting relationships with regard to the changing situation at the outbreak of the financial and economic crisis and the subsequent changes in monetary policy. The aim of this article is to capture the possible changes in the behaviour of commercial banks (CB) based on the change in behaviour of the Czech National Bank (CNB). The primary data used are secondary data from the Czech National Bank's database, both for it and for commercial banks operating in the Czech Republic. All data is on a monthly basis. Given the single source of data, a uniform methodology is guaranteed to allow comparison and analysis. The main indicators describing the behaviour of the Czech National Bank are the interest rate, represented by the main monetary policy two-week repo rate (2-T repo), and foreign exchange reserves in millions of Czech crowns, forming the balance sheet of the Czech National Bank. Other indicators are then selected on the basis of the need to describe the behaviour of commercial banks resulting from their market role. There are two categories:

- a) deposits and loans with central banks,
 - i.e. debit balances on the bank's own payment accounts with central banks, other deposits of banks with central banks, loans to central banks and any other funds of banks with central banks, and relations with the bank's clients (including the government sector), i.e. volumes of loans to clients (Czech National Bank, 2019);
- b) deposits and loans received from central banks,
 - i.e. credit balances on bank current accounts with central banks, loans received from central banks (in repo transactions and other loans), central bank term deposits and client relationships, i.e. the total volume of deposits and loans received from clients broken

down by type, including subordinated loans and deposits received from non-banks (Czech National Bank, 2019).

Everything is again in millions of Czech crowns. The reference period is divided into two parts. The first is from 31 January 2002 to 31 December 2011. During this period, the Czech National Bank's monetary policy is still characterized by the application of the standard monetary policy instrument, i.e. the interest rate. The second period is from 31 January 2012 to 28 February 2019. At the beginning of this period, the central bank's interest rate went to so-called technical zero and non-standard monetary policy began to apply. All parameters, including the abbreviations used in this article, are listed in Table 1.

Table No. 1: The parameters used and their abbreviations

Parameter	CNB interest rate	CNB foreign exchange reserves	CB loans and deposits provided	CB deposits and loans with central banks	CB deposits and loans received from central banks	CB deposits and loans received from clients
Abbreviation	<i>i</i>	<i>fer</i>	<i>a₁</i>	<i>a₂</i>	<i>a₃</i>	<i>a₄</i>

Source: own processing.

A correlation method is used that interprets the Pearson coefficient. It is based on the work of Mukaka (2012). The relationship between selected indicators and the strength of the relationship is monitored. The resulting value is always in the interval $\langle -1; 1 \rangle$ and considering the real data, it is not assumed that the endpoints of the interval would be reached. In the case of a positive value, it is a direct correlation, in the case of a negative value it is indirect. The closer the given result is to the extreme value, the stronger the correlation. If the resulting value is close to zero, then the relationship is inconclusive; it is an independent relationship. The coefficient is always calculated for given data according to the given formula:

$$r = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{[\sum_{i=1}^n (x_i - \bar{x})^2][\sum_{i=1}^n (y_i - \bar{y})^2]}} \quad (1)$$

where $[x]$ and $[y]$ are the measured first and second values, parameter $[\bar{x}]$ is the arithmetic mean of the first measurements and parameter $[\bar{y}]$ is the arithmetic mean of the second measurements. The letter $[n]$ indicates the number of measurements. Then classical regression analysis is used on the given data. Regression coefficients are identified that continue to help describe the issue under investigation.

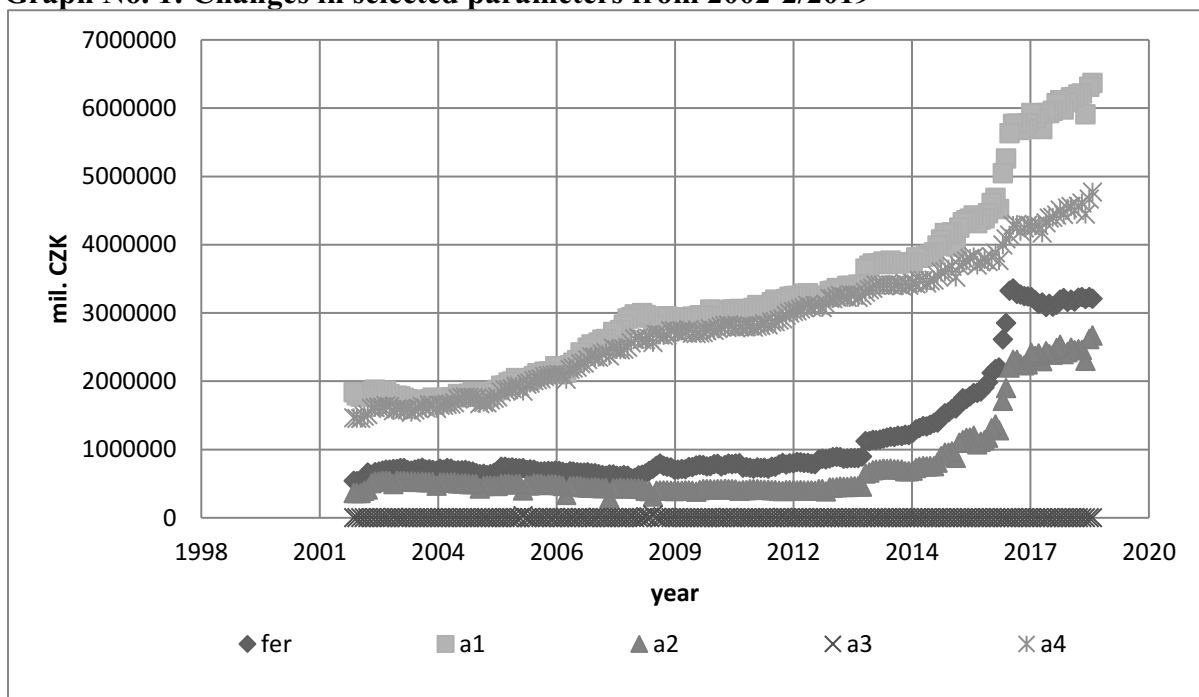
$$i \vee fer = a_1\beta_1 + a_2\beta_2 + a_3\beta_3 + a_4\beta_4 + \alpha, \quad (2)$$

where the parameters $[i]$, $[fer]$, $[a_1]$, $[a_2]$, $[a_3]$, $[a_4]$ are listed in Table 1. The parameter $[\alpha]$ represents a random component, or error component. Furthermore, the parameters $[\beta_1]$, $[\beta_2]$, $[\beta_3]$, $[\beta_4]$, or the determination coefficients, indicate to what extent the dependent variables change when the independent variable changes. Furthermore, the coefficient of determination indicating the quality of the output from the regression analysis or the variability of the tested indicators can also be determined from these values. It indicates how much the independent variable changes the dependent variable, or the variance in observation. Values are in the interval $<0; 1>$. In the case of a zero value, it is an indicator whose changes are not determined by an independent variable.

3 Results

Basic descriptive data analysis predicts a strong link between the growth of foreign exchange intervention and significant jumps in clients' commercial bank loans and deposits. This is also evident from Graph 1. It is thus possible to conclude that the quantitative easing of the Czech National Bank and the increase in the credit creation of commercial banks are directly correlated.

Graph No. 1: Changes in selected parameters from 2002-2/2019



Source: Czech National Bank

Furthermore, correlation testing for the selected period and indicators was performed. For the monthly time series in the period 2012 - 2/2019, the results are shown in Table 2.

Table No. 2: Correlation analysis of selected parameters in the period 2012- 2/2019

	CNB interest rate	CNB foreign exchange reserves	CB loans and deposits provided	CB deposits and loans with central banks	CB deposits and loans received from central banks	CB deposits and loans received from clients
Pearson Correlation	1	,981**	,991**	,992**	-,211*	,960**
Sig. (2-tailed)		,000	,000	,000	,027	,000
N	110	110	110	110	110	110

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Source: Czech National Bank, own processing.

The significance is zero or still in the desired interval and hence we can reject the hypothesis that there is no relationship. There is a very significant direct correlation for the relationship between foreign exchange reserves and client relationships, and also in the case of deposits and loans of commercial banks with the central bank. However, foreign exchange interventions have an indirect and weak impact on central bank deposits and loans received by commercial banks. The overall correlation coefficient for all indicators and foreign exchange reserves is 0.993, which again indicates a very strong relationship and is statistically significant with the given 95% confidence level and the determination coefficient; i.e. the square of the correlation coefficient is 0.985, indicating a high percentage of common variability. However, it should be noted that the dependence can be apparent and caused by the fact that both time series grow as shown in Graph 1.

Given the significant link between the indicators, the equation of the regression line (2) can be compiled from the data. For the period 2012-2019, excluding the total assets of the commercial banks:

$$y = 0.374472a_1 + 0.776506a_2 - 2.10523a_3 - 0.13504a_4 - 259397$$

(3)

For the second interval, the period 2002-2011 with the use of standard monetary policy instruments, the correlation analysis data is presented in Table 3.

Table No. 3: Correlation analysis of selected parameters in the period 2002-2011

	CNB interest rate	CNB foreign exchange reserves	CB loans and deposits provided	CB deposits and loans with central banks	CB deposits and loans received from central banks	CB deposits and loans received from clients
Pearson Correlation	1	-,045	,028	-,215*	,071	-,117
Sig. (2-tailed)		,666	,784	,035	,489	,258
N	96	96	96	96	96	96

*. Correlation is significant at the 0.05 level (2-tailed).

Source: Czech National Bank, own processing.

In the given period, the central bank was supposed to influence commercial banks using interest rates. However, the significance is more than 5% and we cannot reject the hypothesis that there is no relationship between the variables of interest. Also, the correlation coefficients indicate a very weak relationship between the interest rate and the monitored indicators. In general, the correlation coefficient for interest rates and the monitored indicators at the given 95% confidence level is 0.68, which can be considered as a direct relationship. The determination factor then has a value of 0.46 and the common indicator information does not reach a significant level.

Because of the inconclusive results, it is pointless to compile the regression equation for the period 2002-2011.

Conclusion

The aim of this article is to determine the influence of the monetary policy represented by the Czech National Bank and commercial banks in the Czech Republic. The reference period is divided into two sections. The first, from 2002 to 2011, is characterized by the use of a standard monetary policy instrument, the interest rate. For the second period, from 2012 to February 2019, the application of a non-standard monetary policy of quantitative easing is significant because of zero interest rates, which only started to rise at the end of the period. There were foreign-exchange interventions, which were reflected in the case of the central bank on its foreign exchange account. Indicators representing the main commercial activities of commercial banks were selected, i.e. deposits and loans to central banks and clients, as well as deposits and loans from central banks and clients.

The results very convincingly confirm the positive relationship between foreign exchange interventions and the monitored indicators, except for deposits and loans from central banks to commercial banks, where there is an indirect and weak relationship. This indicates that commercial banks are more independent of the central bank due to the creation of significant

funds as a result of the quantitative easing in the commercial bank's reserve accounts with the central bank. The more the central bank intervenes, the more money there is in the reserve accounts of commercial banks and the lower the need to use loans from the central bank. This also reduces the impact of the central bank's interest rate on commercial banks, as they are no longer affected by its changes.

In the period when interest rates were used, an unconvincing and inconclusive relationship is found. It is, therefore, a rather surprising result, indicating a weak link between central bank policy and the behaviour of commercial banks. Were (2014) comes up with similar findings, identifying other factors affecting commercial banks. The reason may also be a link between the monthly values that affect each other and the shortness of the time series. Conversely, Khan (2014) verifies the positive relationship between changes in the central bank's interest rate and that of commercial banks. However, this may be due to some rigidity to reduce client interest rates of commercial banks. For further research, it is appropriate to focus on the causes of these conclusions about the inconclusive relationship between changes in the interest rate and the monitored indicators.

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SMEs WILL – WILL NOT USE THE CAPITAL MARKET

MICHAL MAREŠ

Abstract

A number of successful SMEs show "strong" balance sheets: relatively high levels of equity, reasonable amounts of operating loans, richly covered by net operating assets, and a smaller share of long-term or investment loans. The crystal clear ownership structures are no exception: one or a few owners. However, considerations on alternative ways to finance investments or special projects are often left for "afterwards".

The aim of this paper is to open questions about the practical use of a broadly defined capital market for SMEs in the context of the Concept of Capital Market Development in the Czech Republic 2019-2023.

The contribution of SMEs to the growth of the Czech economy is substantial. However, the "mentality" of a number of SMEs is lagging behind the assumptions in the government's concept and the perception of the need for alternative financing within the capital market is still insignificant. Is this due to the current favourable state of the economy and the excellent position of banks on the Czech market today? Or fears of the "unknown", doubts about the using untested instruments and an unwillingness to make the necessary effort?

Keywords

Capital market, small and medium enterprises, alternative financing from capital market

Abstrakt

Řada úspěšných malých a středních podniků vykazuje „silné“ rozvahy: relativně vysoká úroveň vlastního kapitálu, přiměřená výše provozních úvěrů, bohatě krytá čistými provozními aktivy a menší podíl dlouhodobých nebo investičních půjček. Křišťálově čisté vlastnické struktury nejsou výjimkou: jeden nebo několik majitelů. Úvahy o alternativních způsobech financování investic nebo zvláštních projektů však často zůstávají „později“.

Cílem této práce je otevřít otázky týkající se praktického využití široce definovaného kapitálového trhu pro malé a střední podniky v kontextu Koncepce rozvoje kapitálového trhu v České republice 2019-2023.

Príspevek malých a středních podniků k růstu české ekonomiky je významný. „Mentalita“ řady malých a středních podniků však zaostává za předpoklady vládní koncepce a vnímání potřeby alternativního financování na kapitálovém trhu je stále zanedbatelné. Je to kvůli současnému příznivému stavu ekonomiky a vynikající pozici bank na českém trhu dnes? Nebo obavy z „neznámých“, pochybnosti o použití nevyzkoušených nástrojů a neochota vyvinout nezbytné úsilí?

Klíčová slova

Kapitálový trh, malé a střední podniky, alternativní financování z kapitálového trhu

JEL Classification

G 30

Introduction

Businesses almost always start small or medium-sized. True giants do not appear in large numbers “like mushrooms after rain” - they usually grow in importance and size over a number of years, but sometimes also stay mid-sized. However, there are examples of rocket launches: Henry Martin Ford achieved such a start at the beginning of the last century, when he sold 1,700 vehicles in the first year of production - at that time his company would “qualify” using today's parameters as a medium-sized business. But Ford vehicles went ‘hot’ and the company stayed small for a relatively short period – within 10 years, Ford Motor Company emerged as one of the global giants of its time, producing over a quarter of a million cars a year.

In the Czech Republic, there are good examples of entrepreneurial spirit at both poles - entrepreneurship with invention and ferocity, versus satisfied businesses without growth and innovative ambitions. The number of small and medium-sized enterprises that long for financial innovation is still relatively insignificant. But such companies do exist.

SMEs are one of the main drivers of the economy. Of course: within the European Union, micro, small and medium-sized enterprises account for 99% of all companies, provide two thirds of private-sector jobs, and their contribution to the total value added generated by businesses is over half⁶⁰. The Czech Republic is in line with these parameters: In 2017, the share of SMEs compared to the total number of active business entities was 99.8%, their share in GDP was 54.6% and the share of SME employees in the total number of employees in the business sphere was 58.0%⁶¹. They are therefore quite logically a key focus for financial institutions. And they are also the object of “exploitation” (taxation) and support (subsidies and tax motivation instruments) by the state and multinational institutions.

The principle of finance is simple and applies generally: using money to make money. The superstructure supporting this principle is extensive - from putting aside money in a money box at home and relatively simple accounting to financial derivatives and today's sophisticated ways of trading on capital markets. Businesses cannot pass by financial and capital markets. No escape. However, for SMEs assimilating all the available financial instruments together with

⁶⁰ Fakta a čísla o Evropské unii - 2019. Malé a střední podniky. <http://www.europarl.europa.eu/factsheets/cs/sheet/63/male-a-stredni-podniky>.

⁶¹ Zpráva o vývoji malého a středního podnikání a jeho podpoře v roce 2017. <https://www.mpo.cz/cz/podnikani/male-a-stredni-podnikani/studie-a-strategicke-dokumenty/zprava-o-vyvoji-maleho-a-stredniho-podnikani-a-jeho-podpore-v-roce-2017--241070/>

the continuous movement on the capital markets complicates the issue. Therefore, until recently, the use of different financial alternatives has been difficult for SMEs to grasp.

1 Room for successful SME development

In the last two decades of the last millennium, Europe has seen the advent of SME support from governments and state institutions. Already in 1983, the European Parliament launched the "Year of SMEs and Crafts" and started a number of initiatives to support their development. However, the boom in the various resolutions and recommendations by this supranational body came after 2000.

Since the turn of the millennium, the wider interest of governments, and the "greedy" capital markets, in SME's has been evidenced in the attracting of small and medium-sized enterprises (and not only them) in the use of alternative financing instruments to the detriment of prevailing self-financing and standard bank loans. In Britain, the Alternative Investment Market (AIM) was established in 1995, in the Nordic countries First North in 2005 followed by others (for example NewConnect in Poland in 2007).

The reason for the "top-driven" effort was the well-known impact of broadly developed capital markets on GDP growth. In the Czech Republic, this awareness has crystallized recently with the adoption of the Capital Market Development Concept in the Czech Republic 2019 - 2023⁶² by the government ("the government Concept"). The document was chronologically even a few days ahead of the European Parliament's political agreement with EU Member States⁶³ on the same issue. And various support declarations have begun to roll in (e.g., government document on the support of family businesses and trades, approved by the government only about two months after the Concept⁶⁴).

The "top side" has therefore expressed its goals: The government Concept is an all-encompassing declaration of interest to help (a) households to manage savings more intelligently, and (b) enterprises to appropriately complement their own and banking financial sources with alternative financial instruments. In addition, the state intends to support direct participants in the Czech capital market (with the aim of increasing the volume of trades on the organized markets), foreign investors, and itself - by developing the government bond market and reaching a "developed capital market" status compliant with Morgan Stanley Capital International (MSCI) criteria.

⁶² Koncepce rozvoje kapitálového trhu v České republice 2019 – 2023. Vládou schválena 4. 3. 2019. <https://www.mfcr.cz/cs/aktualne/tiskove-zpravy/2019/ministerstvo-financi-predstavilo-koncepc-34656>

⁶³ MSP dostanou další šanci, jak financovat své podnikání. 6. 3. 2019. <https://cebre.cz/aktuality/dane-finance-podpora-eu/akcni-plan-pro-obehove-hospodarstvi-je-temer-splnen>

⁶⁴ Vláda schválila definici rodinného podnikání. Firmám se otevírají možnosti větší podpory. <https://www.novinky.cz/domaci/504717-vlada-schvalila-definici-rodinneho-podnikani-firmam-se-oteviraji-moznosti-vetsi-podpory.html>

2 SMEs with growth potential

As a rule, faster future growth is expected from emerging small businesses. Business ‘angels’ invest in the potential of a business idea but do not expect it to remain just an idea. Venture capital invests with a predictable exit strategy “when the time comes” - that is, at the time of very high return on the given transaction that implicitly assumes the company's growth and high market value. Even small investors, in large quoted companies, expect a rise in value, however, they are not in the driving seat and have effectively no opportunity to influence the development of the investment. That is why the possibility of investing in publicly traded SMEs is attractive for capital market participants. And for SME support programs, their growth is both a prerequisite and a goal.

In addition to capital, building and growing a company requires a great deal of visionary, entrepreneurial instinct, intuition, and the determination to take greater risks.

Several observations can be made in the discussion based on an eclectic and far from representative sample of small and medium-sized enterprises with which the author has cooperated. These observations indicate some of the reasons for the so far unsatisfactory participation of SMEs in the capital markets. It is worth noting that the state of the SME segment in the Czech Republic is currently very good, although SMEs are rarely seen on the capital markets.

2.1 Start-ups are growing, but...

Ambitious start-ups typically grow from zero to medium-sized companies in about ten years. Growth opportunities are evident in every sector, though today they are most often mentioned in the context of new technologies or the energy industry (renewable resources).

In many cases, however, entrepreneurs lose interest in the further growth of their companies at some point, although opportunities are still open: the reasons may lie in fatigue from the search for new ideas or products, management “wear and tear”, self-satisfaction, or in the feeling that the family and progeny are financially secured. The company then falls into real stagnation - it can manage the rise in input prices, maintain a certain level of profits, but it grows just slightly above the level of wage inflation, say 4-7% per year. It is stagnating.

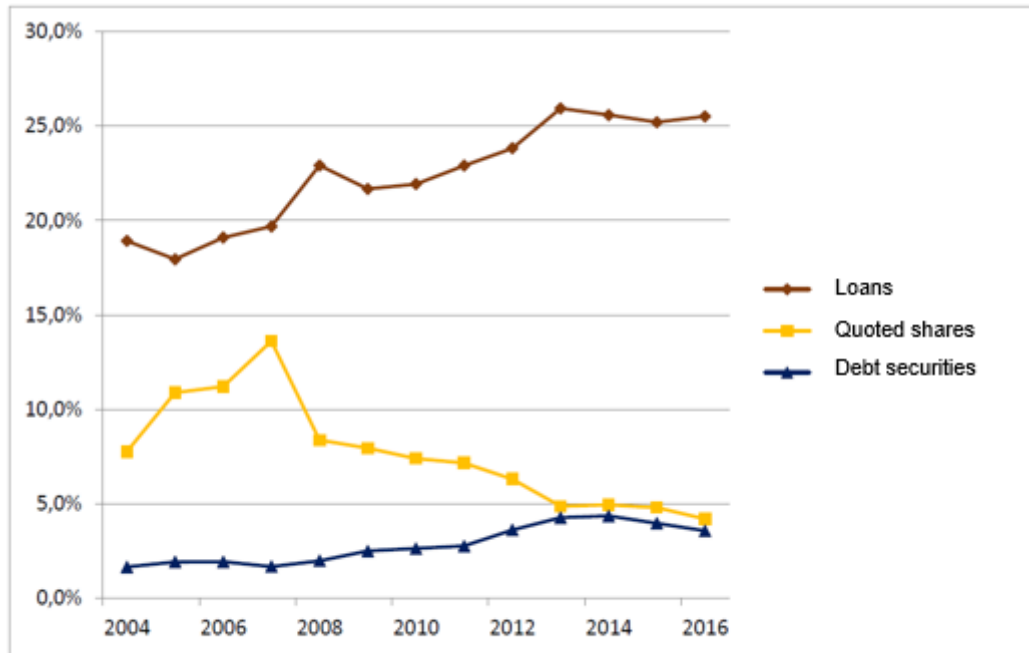
Stagnation is not sustainable in business. But successful entrepreneurs from the 1990s often face a succession problem. While there are examples of building a family business, the founding fathers, however, see – after a quarter of a century – a company disposal as an easier step. A sale of the 100% ownership.

Nothing should be generalized. Czech companies have proven many times that they are at the cutting edge in innovation and progressive ideas. The founders and visionaries in these companies are rarely considering a complete "exit" and it is difficult for them to accept that they would lose full control over the future development of the company. However, such an attitude is more likely to be found at companies that have been established recently.

2.2 Indebtedness of SMEs and their interest in capital structure upgrades

Many SMEs today are still overcapitalized in terms of using their own funds. This is also documented in the government Concept with reference to the Czech National Bank analysis. Although the chart below summarizes data for all Czech non-financial corporations, it is clear that SMEs are copying this funding scheme:

Figure No. 1: Czech non-financial corporations



Source: CNB

Source: CNB

The excess capital in SMEs comes from the preference for "self-financing" - retaining the historical profits on the balance sheet. The second source is a higher operating capital balance - a surplus of total trade receivables and inventories over trade payables. The above chart shows mainly the low debt of companies.

Except distressed businesses or total losers, bank loans are at the moment the most convenient financing tool that SMEs can use, despite the expected modest rise in interest rates. There is still room for growth in standard credit financing.

The aforementioned does not in itself mean a mistake in the way the company is financed. But the companies could do better. Namely with respect to the release of cash to owners (or in favour of new capital expenditure). In the price negotiations – during the company sale process - an experienced valuation expert can cope with this quite easily. In financial projections, he simply assumes that tomorrow or in the near future, the management (current or future) will adjust the asset and liability structure to a more favourable position. And on this basis, he establishes a "true and fair market value". It works differently in practice, though.

In theory, the interest rate for healthy businesses should remain far behind the return on equity. The market itself should exclude businesses or entrepreneurs who are not in line with this concept. But ...

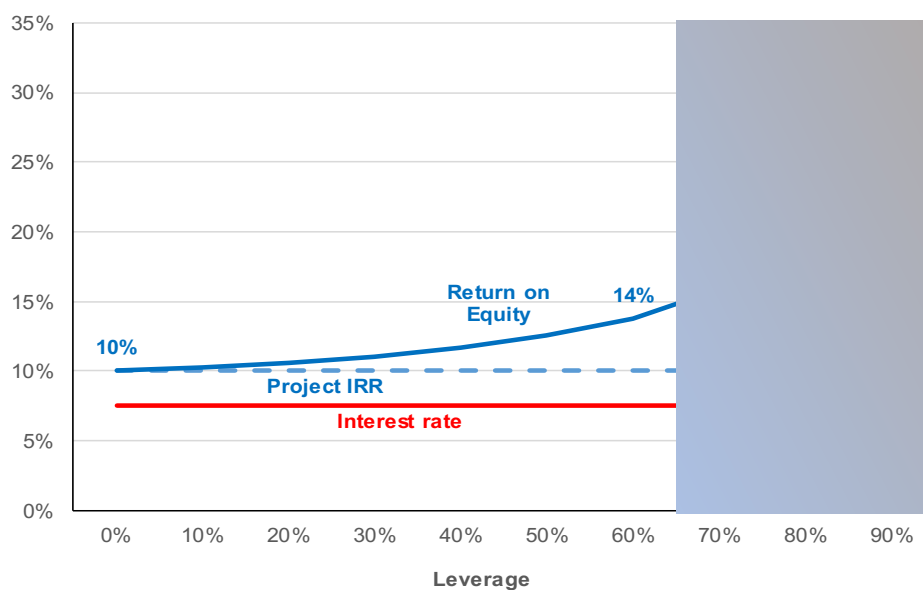
SMEs have high technical or technological expertise, but their interest in financial theory is negligible. In this respect, the “mentality” of many Czech SMEs is comparable to the conservative approach of households to the use of more economically efficient financial instruments instead of “cash” savings. A small example:

Although the terms internal rate of return, cost of debt and return on equity have been tumbling out of financial textbooks for about half a century, their practical SME "implementation" is negligible.

The interpretation of the weighted cost of capital (WACC) or "U-curve" (curve illustrating the optimal capital structure) seems unimpressive to the management of SMEs: they perceive these valid and simple concepts as working just in the long term.

The insight into the effects of leverage could be shown to SMEs, for example, as follows (constant interest rate assumed here for simplicity):

Figure No. 2: SMEs – effects of leverage



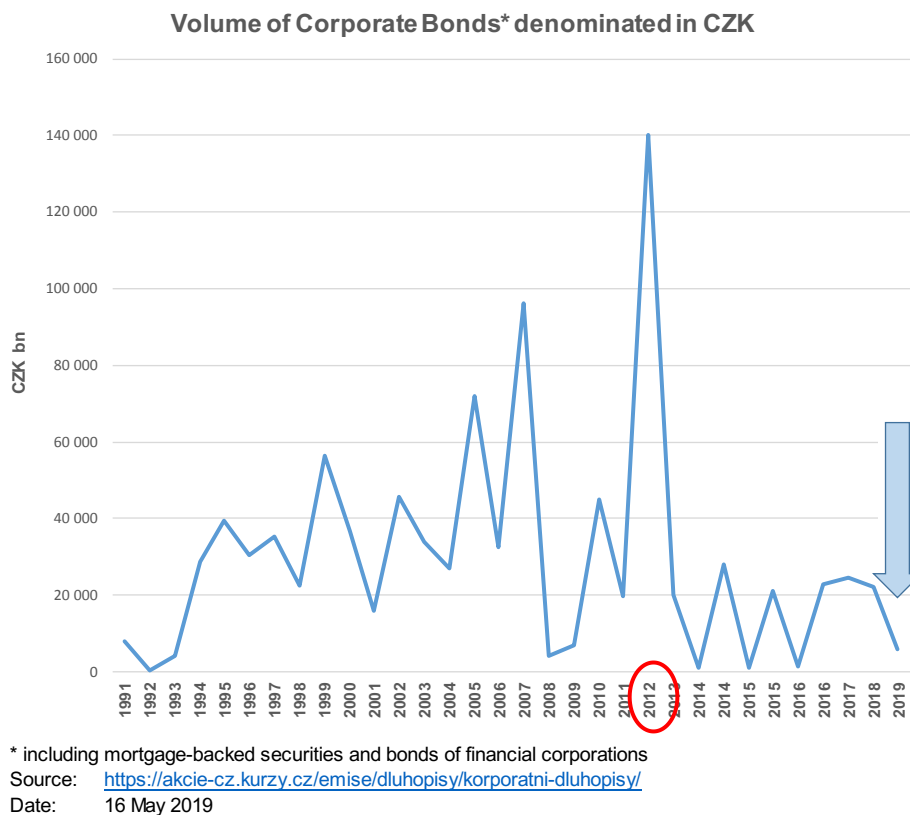
Source: CNB, own creation

At “non-visionary” entrepreneurs, such an explanation brings questions: And why would I borrow more when the company earns it all? Answer: To buy more music for less - investing in new activities, diversifying risks, and the like. Immediate response from the entrepreneur: Ehmm ... Now we are fine-tuning our tax return, then we have to take care of next year's operations, so maybe later ...

2.3 Little interest in the diversity of financial forms? Yes and no. And it depends

Small and medium-sized businesses are quite satisfied with what they have: utilizing their own resources and a rather small loan of an operational nature. Other options appear to be of interest only in certain advantageous circumstances – in the relatively recent past, issuance of the so-called one-crown bonds that legally promised considerable tax savings represented such an opportunity. The graph below illustrates the history of interest in this external financing alternative.

Figure No. 3: Volume of Corporate Bonds denominated in CZK



Source: below the Figur

In the 1991 through 2018 period, the number of corporate bond issues (including financial corporations) ranged from 1 to 51 per year, with a total annual volume of between CZK 4 billion and CZK 96 billion. Among the issues included in the chart are - perhaps erroneously - also the National Property Fund's bonds of CZK 7.8 billion in 1991. The lowest volume, in 1992, was only CZK 200 million with one corporate issue (GLAVUNION, a.s., Teplice).

At first glance, the explosion of corporate bonds in 2012 attracts attention. At that time, the government's unreasonable legislative action created a five-month space for unregulated and

uncontrolled bond issues with a nominal value of CZK 1: the interest was not taxed on the part of the bondholder, and it created a “tax shield” on the issuer's side.

The volume of more than five hundred bond issues by non-financial corporations in 2012 reached over CZK87 billion. This was an unprecedented amount compared to the usual close-to-zero annual volume of corporate bonds "before and after" 2012. Obviously, the CZK 87 billion included bonds of SMEs.

3 Adverse media coverage uncertainty

Media coverage of some events and situations often leads to incorrect conclusions. This also applies to the financial sector.

Regarding the above-mentioned bonds issued in 2012, the aftertaste persists - the general perception of the corporate one-crown bond issues, as special-purpose tax evasion tools, comes partly from the media coverage of the most glaring cases and their generalization. Certainly, there were cases of tax evasion and violations of tax rules, but the issuance of one-crown bonds in this period cannot be condemned as fraud en bloc.

Another example of similar media misinterpretation may be the newspaper headlines or internet articles on CNB Supervisory Benchmark No. 2 (March 2019) “on bonds”. The CNB's material clarifies the cases of acquiring risky debt investment instruments by customers of investment advisors or investment funds. This is also in the light of the growing demand from SMEs for bond financing. It emphasizes compliance with the rules set by applicable legislation for traders, investment advisors and brokers. Marginal attention is given to bond issuers, mentioning just relevant legislation, key rules and regulation. Nevertheless, some media present this document in the light of a "wild corporate bond market" and imply that issuers do not act properly. Such inaccurate media interpretation is misleading.

There are many similar examples. However, small and medium-sized entrepreneurs rarely study or verify the detailed background material in the tabloid reports. Rather, they perceive the banner headlines. And as far as new forms of financing are concerned, they usually come to a simple conclusion: "Let's wait for it to be clarified and see – maybe, we issue bonds then ...". That does not encourage a wider upswing in the use of financial alternatives in the near future.

4 Capital markets have a legitimate reputation for “selectivity”

Capital markets are seen as selective. Participants (issuers and traders) are exposed to the market, they are visible and have to present their businesses well. In addition, they are expected to behave ethically in a sometimes tumultuous market environment.

For large companies, with an army of theoretically well equipped CFOs, analysts, and external consultants, utilizing the financial and capital markets is almost routine. Issuers have traditionally been subject to pressure from institutions from the "other side" - shareholders,

banks and other capital market participants - and they were forced to monitor and use new, tailor-made, financial products and capital structures.

Until recently, capital markets for SMEs in the Czech Republic appeared to be a “beyond reach” source of financing. Even now, when 5 share issues have been placed on the START market within less than a year of this stock exchanges existence, awareness of the availability of funds is still weak. And so far, there is a belief among entrepreneurs that by entering this alternative stock exchange they will lose significant influence on their company's operations. The benefits that arise from entering the stock exchange - visibility, labels of success and credibility, and the interest of market participants in transactions with the issuer - are not yet appreciated. The persistent SME feeling: „Is it worth the effort?”

However, even some very successful Czech entrepreneurs do not see any urgent need to raise finance on the capital markets. The founder, co-owner and manager of one of the most successful Czech companies, that in less than 30 years of existence has grown from a small enterprise to a global company with an estimated market value of over CZK 13 billion can be quoted⁶⁵: “You put the company on the stock market mostly because you need money, but that's not our case. We have enough money and we pay close-to-nothing interest to banks today. The IPO advantage is, however, that by subscribing for shares you get a company valuation. You can give the shares to your children – and they can do with it whatever they want.”⁶⁶ It should be noted that after ten years of its existence, this company almost fully met today's parameters of a medium-sized enterprise. And its subsequent growth was exactly what would be the “exempla trahunt” for capital markets. Assuming the company had entered the market.

5 SMEs do not “cultivate” their stories

Only exceptionally, SMEs present themselves in a way that affects perception of their market value. The company's story has an impact on possible price negotiations with strategic or financial investors, but SMEs generally do not feel the need for a well-structured presentation until the last minute.

A value-based story is mostly “written” by advisors at the time of a merger with a strategic investor, sale of the company, or in special transactions – getting some form of structured finance, such as an acquisition loan or other funding that smaller bank branches cannot handle and must pass it on to the higher levels in the bank hierarchy.

A transaction may come at any time. Companies listed on stock exchanges are typically able to react promptly, and they are ready to briefly, clearly and attractively describe their position, needs and requirements. They are “brought up” by investors and market participants. Investors on the other side devote their time to studying stories that can attract attention in the first few

⁶⁵ Světově úspěšná česká firma Linet na prodej? Vedení vyhlíží strategického partnera. 28. února 2017, <https://www.info.cz/byznys/svetove-uspesna-ceska-firma-linet-na-prodej-vedeni-vyhlyzi-strategickeho-partnera-5434.html>

⁶⁶ Ing Zbyněk Frolik, zakladatel společnosti Linet. Rozhovor 25. 6. 2016. https://www.lidovky.cz/byznys/firmy-a-trhy/z-kravina-az-k-miliardam-ceska-nemocnici-luzka-dobývaji-svet.A160620_101343_firmy-trhy_kain

minutes. However, the well-known idea of a well-prepared “elevator pitch” has not yet been sufficiently established in the entrepreneurial thinking of SMEs.

Professor Aswath Damodaran⁶⁷ has recently documented that combining the different quality of a story with credible numbers can lead to a different perception and expression of the business value⁶⁸. Although he deals with IPOs of large companies, it is clear that a well-thought-out and high-quality presentation of company’s history, vision and future outlook affects its business valuation. Good storytellers can better incorporate and narrate numbers, and open opportunities for more imaginative models that withstand scrutiny and indicate high valuation even for a company that has never turned a profit.

“Good presentation anytime” is one of the things that small and medium-sized entrepreneurs - involved more in operational management - pay little attention to.

Conclusion

Capital markets are open to successful and ambitious SMEs. They represent an opportunity for such companies to achieve further milestones in their development. On the Prague Stock Exchange, START currently trades the first five SME issues quarterly, and it is expected that this market will grow.

So, is the more extensive entry of SMEs to the Czech capital market a long-, medium- or short-distance run?

“SME mentality” and a favourable banking situation has lead to attitudes that hamper the transition to more complex and sophisticated capital structures and, consequently, faster capital markets growth. Again, nothing should be generalized, but the following characteristics can still be observed in a number of enterprises:

- SMEs do not feel any threat of a significant economic slowdown. GDP growth is unlikely to stay at the levels of the past three years, but predictions do not indicate stagnation or recession. Financing the operations and development of SMEs from their own resources, or from short-term loans, seems sufficient.
- The room for growth in SME credit financing has not been exhausted. Given the rather low indebtedness of corporations and the sufficient liquidity of banks, the availability of bank financing does not seem to be an issue. Even the increase in base rates seen in early 2019 is not perceived as a threat.

⁶⁷ DAMODARAN, Aswath. *Narrative and numbers: the value of stories in business*. New York: Columbia Business School Publishing, [2017]. ISBN 978-023-1180-481.

- SMEs are not under pressure to seek alternative financial sources of funds. Interest in financial alternatives can only be expected if there is a clear and immediate benefit - tax relief, low interest, etc. This happened in 2012, but history cannot be expected to repeat.
- SMEs still view the capital market with some detachment and apprehension: preparation, admission to trading, compliance, uncertainty regarding company control, etc. - all this leads to “shyness”, hesitation, and delays in stock exchange considerations, although the special SME-focused stock exchanges are waiting and show lower regulatory requirements.

As for the government Concept, it is, in short ... a concept.

In the section on the support to businesses/issuers, 9 measures are elaborated into 12 tasks. The wording of most of them is somewhat vague and the set objectives are difficult to quantify. These are analyses of the current situation on the Czech market: analysis of the number of so-called business angels operating on the market, estimates of the number of high net worth individuals - in order to find out more potential business angels on the basis of taxpayers' analysis (!?!), surveys of demand for start-up funding, or analysis of crowdfunding support options.

In these areas, specific forms of support are not provided: in better cases they are formulated in words like "possibly (or consecutively) further measures will be proposed..."

A more specific measure is aimed at simplifying the form of joint stock companies, which should make it easier for start-ups to obtain funding on the capital market - here, after the initial analysis, a proposal for legislative changes should (again “possibly”) follow.

A general measure, for the necessary training of CFOs at potential issuers, is also formulated more specifically. However - just as with other declared measures - only time will show the impact of a "possible" implementation.

These comments are not meant as criticism: they raise questions about the practical impact of implementing the government Concept. The business community should always raise questions and requirements regarding practical outcomes and concrete support for the broader entry of SMEs into capital markets with regard to the deadlines set in the Concept; to ensuring that the Concept does not remain just a concept.

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PROMOTION OF INNOVATION ACTIVITIES AT START-UPS: INNOVATION AS AN INSTRUMENT OF COMPETITIVENESS

MIROSLAV PAVLÁK, NADĚŽDA PETRŮ

Abstract

Start-Up business is now a widespread form of starting a business, and is a way that is mostly preferred among younger entrepreneurs. In general, the lack of financial resources and the initial enthusiasm of the whole team over an innovative project is often a feature of this form of entrepreneurial activity.

Companies in the current market face many challenges, such as the globalization of markets and technologies. The supply of products available to consumers is increasing, and therefore the competitive environment is changing. In order to continue to develop in such conditions, companies need to differentiate their offers from those of their direct competitors. Therefore, innovation plays a crucial role in creating competitive advantage. Each company has a certain form of competitive advantage; however, despite this fact, due to constant changes in the market, this advantage worsens, forcing companies to innovate and apply innovation models to preserve existing advantages or create new ones.

The presented article analyzes the implementation process of innovation model within start-ups; and identifies key success factors of start-ups in a competitive environment.

Keywords

Start-up, competitiveness, innovation, competitive advantage, key success factors

Abstrakt

Startupy jsou nyní poměrně rozšířenou formou zahájení podnikání, které je většinou preferováno mladšími podnikateli. Obecným znakem této podnikatelské činnosti bývá nedostatek finančních zdrojů a počáteční nadšení celého týmu.

Společnosti na současném trhu čelí mnoha výzvám, jako je globalizace trhů a vývoj nových technologií. Nabídka převyšuje poptávku spotřebitelů, a to má za následek změnu konkurenčního prostředí. Aby se společnosti mohly nadále rozvíjet, musí odlišovat svou nabídku od nabídek svých přímých konkurentů. Inovace proto hrají klíčovou roli při vytváření konkurenční výhody. Každá společnost má určitou formu konkurenční výhody; ta však není trvalá, a proto jsou společnosti nuceny inovovat a uplatňovat inovační modely pro zachování stávajících výhod nebo vytváření nových.

Předkládaný článek analyzuje proces implementace inovačního modelu v rámci start-upů a identifikuje klíčové faktory úspěchu start-upů v konkurenčním prostředí.

Klíčová slova

Startup, konkurenceschopnost, inovace, konkurenční výhoda, klíčové faktory úspěchu

JEL Classification

M14, M48

Introduction

Companies in the current market face many challenges, such as the globalization of markets and technologies. The positive side is that the supply of products available to consumers is increasing, and therefore the competitive environment is changing (Tidd, 2005). In order to continue to develop in such conditions, companies need to differentiate their offers from those of their direct competitors. Therefore, innovation plays a crucial role in creating competitive advantage (Porter, 1980; Basoglu et al, 2013). Morris (2013) argues that each company has a certain form of competitive advantage; however, despite this fact, due to constant changes.

In the market, this advantage worsens, forcing companies to innovate and apply innovation models to preserve existing advantages or create new ones. Even though innovations for the company guarantee a competitive advantage, they are temporary, especially in high-tech industries and in those industries where differentiation and innovation are easy to imitate (Morris, 2013). This can be explained by the fact that when the mainstream market adopts new technologies, existing companies begin to lag far behind and entrepreneurial firms will overlord the market (Bower and Christensen, 1995; Levitt, 2004). In addition, Tees et al. (1997) argue that the leadership position in the global market is taken by companies that can quickly and flexibly introduce innovations, thereby responding to changing market needs. Based on the above, firms must develop the innovation potential necessary to ensure a continuous, uninterrupted stream of innovations (Grant, 1991). Innovative ability can be interpreted as the ability to transform knowledge and ideas, for instance, into new products or processes that are of great value to customers or organizations (Lawson and Samson, 2001).

Before further development of continued innovation, it is necessary to define this concept. “Continuous innovations entail a search for new configurations from the point of view of product-market-technology organization in which the degree of novelty shifts from continuous improvement to radical changes” (Tidd, 2005). This definition implies that companies at the same time need to innovate in two areas: continued improvement and drastic change (Day and Schoemaker, 2000). Most of the literature on innovation management claims that there is a big difference between these areas in terms of strategies and mechanisms. Therefore, in order to remain constantly innovative, a company must be able to contemporaneously manage these two

areas (Tidd, 2005). According to Bessant, John and Ina Goller (2017) innovations can be identified as way things came about, as well as a process of transformation an idea, a gleam into the new thing people are being asked to buy or use.

However, most companies innovate, only a few do it systematically and reliably. Instead, many innovations occur despite organization, rather than because of the organization, following invisible development routes, which require separate acts of heroism and a large dose of irregularity (Blank, 2010).

The concept of Innovation Management Systems isn't new (see e.g. Damanpour, 1991), but despite the huge amount of research on innovation management, the construction and application of Innovation Management Systems have so far only been briefly studied in literature. The biggest part of innovation management literature on the innovation of processes, products, or business models, and, as Blank (2010) put it, most of these concepts focus on individual factors, such as the generation of ideas. However, some fundamental works such as Van de Ven (1986), stress the importance of a holistic approach to innovation management, emphasizing the importance of a holistic approach to managing innovation, which includes all factors affecting the ability of organizational innovation to maximize organizational innovation. Following this line of reasoning, it seems that it is necessary to consider how different innovative actions interact in order to improve the organization's innovative potential. Damanpour (1991) further emphasizes the need to consider several aspects of innovation to increase the organization's innovativeness. Furthermore, continued innovation is a strategic and human process much more than a technological one, and it is achieved by a thoughtful repetition of the right methods (Morris, 2011). Consequently, there is a need to explore successful practices of innovation management in each part of Innovation Management Systems in order to set up productive methods.

1 Basic concepts – Innovation, the purpose of innovation, the role in the enterprise

In order to understand innovations, their purpose and role in corporate activities, it is worth analyzing first the definition of this term and its possible interpretations.

As noted by Orstavik, Dainty and Abbott (2015, p. 4), innovation can be defined as *“humanly created changes in established approaches to value creation”*. The authors note that the term “value creation” is larger than the term ‘production’, which is often used in similar definitions. Under this approach, it can be stated that the main aim of any innovations is to ensure improvements in terms of the implementation of particular activities aiming at value creation. A similar approach is promoted by Talukder (2014, p. 27), who cites the definition provided by Zalman, Duncan and Holbek: *“innovation can be defined as an idea, practice or material artefact perceived to be new by the relevant unit of adoption”*. According to this definition, innovations can be applied to different units, and the ultimate aim of any such innovation is to improve the unit's operation or its use by people. Sundbo and Toivonen (2011, pp. 25-26) provide two definitions of innovation: *“innovation can be defined as making practical use of*

creative ideas in a commercial and/or social context” and *“innovation is the effort to develop an element that has already been invented, so that it has a practical-commercial use, and to gain the acceptance of this elements”*. According to these definitions, innovations are seen as applicable specifically to elements which have already been designed, so as to improve their particular characteristics and to raise the opportunities of its use in practice.

Bekkers, van Duivenboden and Thaens (2006, pp. 10-11) note that innovation is a necessary precondition for modernization. The concept of innovation is associated closely with change: innovation is always based on some changes: either in terms of the methods of implementing particular processes, use of new inventions, or adoption of new points of view regarding particular matters. However, the authors note that not every change can be considered as innovation. The distinction between innovations and changes is based on the deepness of change which an innovation brings, i.e. which systemic effects an innovation brings to the organization of particular processes or production of particular goods or services, the degree to which it allows improving such processes. Also, innovations always entail optimization and aim at raising the quality of the processes affected, while changes can be neuter and can substitute several interchangeable processes.

Thus, as it can be seen from the information presented above, innovations are interlinked closely with business, including both in the corporate and the public sectors. According to Bekkers, van Duivenboden and Thaens (2006, p. 11), today, innovation cannot be separated from entrepreneurship and is used widely in the corporate sector as one of the key competitive advantages based on which companies aim at gaining market leadership. The corporate sector is the main generator of innovations on the global scale. Companies drive greater innovations in terms of new products, new technologies, and new approaches, as such innovations are indispensable for the most effective organization of their business activities. Being innovative should be seen as one of the most important preconditions for being competitive and withstanding the impact of market rivals today.

As noted by Matthews and Brueggemann (2015, p. 22), a particularly important role in the creation and spreading of innovations is played by large multinational corporations running their business activities on the international scale. Such companies concentrate large financial resources and benefit from the economies of scale. Thanks to this, they can invest significant funds in the development of own technological and other innovations. Such innovations are among the main factors which guarantee their market domination. However, small and medium enterprises play an important role in the development and implementation of innovations too. In order to survive in the conditions of fierce competition, they have to develop unique business models. As a result, even though such companies do not have large financial resources, they focus on the development of innovations in particular business niches as well, seeing it as one of the key factors of their competitiveness.

It should be noted in particular that innovations are promoted by the growing spreading of the Internet access and the growing availability of online and digital technologies to companies all over the world. The use of such technologies is important not only for the development of

innovative products, but also for the emergence of innovative ways of interaction and communication between companies and their customers, more effective marketing activities, and so on. This trend should be expected to persist in the near future, especially taking into account the current tendency for a steadily growing use of portable devices by people around the globe.

McIntyre, Ivanaj and Ivanaj (2013, p. 18) note another important trend in innovations, which persists today. Namely, this is the growing focus on sustainable innovations, i.e. innovations contributing to improved conditions of the natural environment and preservation of the environment from negative human impact. Innovations in terms of environment protection have become possible thanks to people's shifting preferences from consumerism to responsible consumption. As a result of these tendencies, companies now focus on the production of environmentally friendly products, minimization of negative effects for the environment, and so on. The concept of sustainable economy assumes the creation of favourable conditions for the healthy life of future generations.

According to Matthews and Brueggemann (2015, p. 22), given the current development of business tendencies around the globe, further growing role of innovations should be expected in the near future. Companies without sufficiently innovative activities will be likely to keep losing their influence, while innovative companies from different segments will be likely to dominate on the markets. However, significant concerns exist in terms of the differences in the levels of development of developed and developing countries. While developed states are leaders in terms of innovations and contribute to more effective business activities in different fields, developing countries do not have such opportunities to drive sufficient economic growth through innovations, and therefore their development remains more retarded and outdated. An important role is played by technological exchange with more developed states and by the crossborder activities of international corporations. However, this gap between developing and developed states will be likely to persist in the future, including in the corporate sector.

2 The Concept of Start-ups

The concept of startup appears in several professional publications or literature. However, there is no clear definition which clearly defines this concept. In this paper are showed several definitions which differ from each other. The boundary of the description of this term is difficult to define and is linked to explanations from several disciplines. It is taken from various subjects of observation, philosophy, psychology or business.

One of the definitions is offered by an American entrepreneur, Professor Steve Blank, who is considered as an expert of startup, has introduced "Lean startup". He claims that the startup is not a miniature of a big-size company, and the difference is that startup looks for a business model while the company implements it. Steve Blank emphasizes that the goal of startup is using other tools for the implementation and successful management than those, which are being used by large companies.

Steve Blank claims: *“A startup is not smaller version of a large company. A startup is temporary organization in search of scalable, repeatable, profitable business model. At the outset, the startup business model is a canvas covered with ideas and guesses, but it has no customers and minimal customer knowledge.”*

With another vision of startup are coming some foreign investors, who take the concept of startup as a company, which created for rapid growth. He seeks to change the presumption that for new established firm there is no reason for naming it as startup. Base for that should be quick growth.

In this thesis is needed to link concept of startup with innovation and therefor is mentioned the Eric Ries's definition of startup. He claims that startups are using different innovations, for example innovative scientific discoveries, adaptation of old technologies to the new purpose, new business models that access previously hidden values or simply implement products or services on new place or serve the group of customers which was not served previously. In all of these cases innovation is the core of the company's success.

3 Methodology

The published results are part of a complex research conducted at the University of Finance and Administration (VŠFS) in Prague as part of the internal **Start-ups project and their growth through the business incubator** in 2017-2018.

The research was conducted through:

a) on-line interviews (questionnaire survey) in selected start-ups in the Czech Republic Altogether 185 questionnaires were sent and 150 completed.

(b) 80 telephone interviews were subsequently conducted to clarify answers to some open questions.

The breakdown of analyzed start-ups was as follows:

Table No. 1: Structure of start-ups analyzed by location

Praha	79	53%
Brno	21	14%
Plzeň	6	4%
Ostrava	3	2%
Olomouc	4	3%
Liberec	2	1%
Klatovy	2	1%
Hradec Králové	2	1%
Frydek-Místek	3	2%
Ostatní	28	19%

Source: Own research

It is clear from the table that most of the analyzed start-ups are based in Prague. The next strongest region is Brno and its surroundings, as the second most important centre of economic and social life in the Czech Republic.

Table No. 2: Structure of start-ups analyzed by year of origin

2007	4	3%
2008	9	6%
2009	7	5%
2010	11	7%
2011	10	7%
2012	13	9%
2013	21	14%
2014	17	11%
2015	17	11%
2016	18	12%
2017	13	9%
2018	10	7%

Source: Own research

Within the questionnaire survey it was found out that in the time series of 2007 - 2018 the years 2013 - 2016 were the strongest in terms of creating new start-ups. According to start-ups, the decline in 2017 and 2018 is triggered by measures in the government's economic policy.

Table No. 3: Structure of startups analyzed by number of employees

0	8	5%
1-5	47	31%
6-9	10	7%
10-19	15	10%
25-49	2	1%
50-99	1	1%
100-199	2	1%
200-249	1	1%

Source: Own research

The questionnaire survey showed that the category of enterprises with 1-5 employees (31%) is the strongest, followed by start-ups with 10-19 (10%) and 6-9 (7%) employees. The results of this finding are not surprising, since start-ups are emerging as small companies and only later are expanding. Medium-sized businesses (over 50 employees) will only exceed 4% of start-ups.

4 Research

Taking into account the overview of innovations and their different parameters presented above, it is worth now proceeding **to a key success factor analysis from the perspective of business competitiveness.**

To identify the success factors of a business, it is proposed to use the Success Factor Analysis (see Table 4). The following summary of success factors can be improved by using own experience and considerations for an organization. At the same time it is important to consider:

- Whether the impact of the success factors improve the company in the coming years;
- The extent to which these success factors are reflected in the company.

According to Blank (2010), all activities of the company, which running smoothly or any unique resources enterprise, are considered as a strength. Weaknesses are other activities that do not go well with the company. Thus, the following table 4 shows the success factor analysis. Several choices and resources of selected start-ups were chosen. This table was evaluated by management of start-ups after mutual consultation. It indicates how strong the success factors are and how important they are for the business in the future.

Table No. 4: Key success factors

	How strong the success factors are	Very weak	Weak	Medium strong	Strong	Very strong
Abilities and resources of the company	Clear objectives known to all employees				x	
	Motivation style of staff management			x		
	Effective organization structure					x
	Further training courses for employees				x	
	Good organization of the work environment					x
	Hight productivity					x
	Motivational system of benefits					x
	Good organizational culture					x
	Friendly work environment					x
	Good information flow within the company					x

	Hight own equity				x	
	Cost management					x
	Capacity utilization					x
	Protections rights					x
	Compliance with deadlines					x
	Technical know how				x	
	Using of equipment					x
	What the business impact will be from the success factors in the future	Unimportant	Weakly significant	Medium significant	Significant	Very significant

Source: Own research

It can be stated from the indicated answers that the selected success factors of start-ups are strong to very strong and will have a moderate to very significant impact on the company's future operations.

Start-ups' core capabilities and resources include reliability, machine utilization, capacity utilization, and high productivity. It is the observance of agreed terms and conditions that builds strong links between external customers. Continuous inspections and revisions of all technologies where the rate of failure rate, obsolescence and wear and tear are important. When these limits are reached, there are incentives for changes in the composition of production machines and equipment.

Everything goes hand in hand with motivation and constant training of employees. Employee satisfaction is maintained by appropriate working conditions in the workplace and high financial rewards. Employees at all levels of the company are familiar with the company's vision and goals, so their work contributes to the printer's strategy. It is also clear to that if employees want to be part of the company, they have to keep pace, which determines the trend and the development of the market.

Start-ups seek to use part of their own financial resources to finance all business operations, mostly using leasing companies offering advantageous interest rates. Start-ups also own the protection rights for certain production processes and defends its technical know-how.

The quality and speed of order processing is a priority for this printer. For these reasons, they are implementing innovations that involve expanding production capacities and acquiring the latest technologies that are currently offered across the market. Even incremental changes result

in a gradual improvement of production processes and the complex operation of the entire enterprise.

In our research we also tried to identify the factors influencing innovative actions at start-ups in question. **In order to identify the factors influencing innovative actions** in the business, the analysis was divided into five sections: (1) actions for continuous improvement; (2) internal management system; (3) pressures for cost cutting; (4) sectorial technological innovativeness; and (5) structures for managing innovation (see Table 5).

Table No. 5: Description of the factors influencing the innovativeness

Factor	Description	Concrete measures
Factor 1	Actions for continuous improvement	Improved staff competence, team approach, learning organization, improved quality of product/service, shared vision, design to meet market need, high innovation profile.
Factor 2	Internal Management System	Performance measurement for managers, targets for performance improvement, support for creative people, manager responsible for innovation.
Factor 3	Pressures for Cost Cutting	Importance of waste reduction, reduction of staff numbers.
Factor 4	Sectorial Technological Innovativeness	Products include high tech, high tech processes, R&D dependence for innovation, high impact of information technology on product.
Factor 5	Structures for Managing Innovation	Technology portfolio analysis, board promotion of innovative behavior.

Source: Own research

Dealing with the dilemma of innovations, the lack of knowledge on the characteristics of innovation process is apparent: no one is willing to take the risk of not supporting the innovation process and possibly end up with having lower rates of economic growth, employment and the welfare of small firms.

There are three “areas” for innovation that appear in a different light when discussing during research about promotion of innovative activity: the start-ups, SMEs and the large companies. As we concentrated on start-ups, let us explain this type of entrepreneurial activity: By the “start-up we mean a new enterprise with a new entrepreneur, starting firm from “scatch”.

The innovation types, which are found in start-ups, are most likely to require assistance and resources for implementation. For the promotion of innovations in start-ups firms the catalytic (disruptive) innovation is rare in start-ups, largely because this type of innovative activity requires highly specialised organisational and technical resources and skills. Start-ups, by definition, normally suffer the lack of critical learning-related capabilities, and the routes of overcoming the learning-problem would include e.g. external innovation strategies, which would require a reasonable level of face validity from the starting entrepreneur in the business environment.

Conclusions

In today's competitive environment, the challenge for all businesses is not only to innovate in existing markets to survive and remain profitable, but also to innovate in new markets in order to stay in front of competitors. In this article the author identifies factors influencing the innovativeness.

Some factors are related to both product and process innovations, others are related either to product or to process innovation.

Among factors related to both innovations we can mention *pressures for cost cutting*, *structures for managing innovation* and *internal management system* as these innovations (product and process) create an innovative organization based on innovative behaviour and financial discipline.

The product innovation is significantly related to *sectorial technological innovativeness* because of its emphasis on development and research in high technology.

The process innovation is related to the factor *actions for continuous improvement* which include many process-related activities.

The context in which innovation is likely to take place in SMEs (start-ups), relates to perceiving of new market opportunities, intensifying of current internal resources or recycling resources into new uses. Here we come back to the importance of internal initiative for innovation, the use of teams, applying of different creative techniques and the use of external expertise would bring valuable inputs in regard to the innovative quality of the decisions.

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JUNCKER'S EU INVESTMENT PLAN: DO THE PROS OUTWEIGH THE CONS?

VLADISLAV PAVLÁT

Abstract

IDEA: The purpose of the Paper is to highlight the merits and failures of the Juncker's EU Investment Plan (2015–2019). The main aim of the Plan was to remove obstacles to investment; to provide technical assistance to investment projects; and to make more efficient the use of financial resources. **DATA:** EU documents; relevant opinions and criticisms presented by selected authors. **TOOLS:** Predominantly analytical methods for qualitative research were applied. **WHAT IS NEW:** During the 2019 many attacks against the change of the role of EFSI started; discussion continues. The overvaluation of the results of EU plan was heavily criticised. Certain doubts about the continuation of the EU Investment Plan appeared. **SO WHAT?** Before December 1, 2019 no new decisions of the EU Commission about the EU Investment Plan can be expected. **CONTRIBUTION:** The paper may be of interest for economists, analysts and researchers. However, the continuation of the EU Investment with a new content and form is highly dependent on the evaluation of *final real result* of the Juncker Plan.

Keywords

EU Investment Plan, Juncker's Plan, results of Invest Plan Implementation, EC Commission Next Investment Plan

Abstrakt

IDEA: Účelem tohoto dokumentu je upozornit na přínosy a neúspěchy Junckerova investičního plánu EU (2015-2019). Hlavním cílem plánu bylo odstranit překážky pro investice; poskytovat technickou pomoc investičním projektům a zefektivnit využívání finančních zdrojů. **ÚDAJE:** dokumenty EU; relevantní názory a kritiky předložené vybranými autory. **NÁSTROJE:** Byly použity převážně analytické metody pro kvalitativní výzkum. **CO JE NOVÉHO:** Během roku 2019 se objevilo mnoho útoků proti změně úlohy EFSI; diskuse pokračuje. Nadhodnocení výsledků plánu EU bylo silně kritizováno. Objevily se určité pochybnosti o pokračování investičního plánu EU. **CO DÁL?** Před 1. prosincem 2019 nelze očekávat žádná nová rozhodnutí Evropské komise o investičním plánu EU. **PŘÍSPĚVEK:** Příspěvek může být zajímavý pro ekonomy, analytiku a výzkumníky. Pokračování investic EU s novým obsahem a formou je však velmi závislé na vyhodnocení konečného skutečného výsledku Junckerova plánu.

Klíčová slova

Investiční plán EU, Junckerův plán, výsledky Investičního plánu, příští Investiční plán Evropské Komise

JEL Classification

F02, F15, F21, N74

Introduction

After the World Economic Crisis, the EU Authorities decided to set up its Investment Plan (known as the Juncker Plan) that should stimulate massive investment in all EU member states in the future. The first measure of this project consisted of creating an EU Common Capital Market (CMU) during the years 2015 – 2019. The main task of this action was to accelerate the rate of economic growth by supporting capital investment through strong regulatory measures. During the world crisis, the EU financial market declined and mutual investment between the EU member states was weaker than before. The degree of EU financial integration (its depth) declined and it had to increase to be able to meet the investment need of all member countries. Without a special action, it was almost impossible to stop the general recession.

The purpose of the Paper is to highlight and evaluate the merits and failure of the Juncker's EU Investment Plan (2015 -2019). Especially the criticisms published in the literature are discussed and evaluated. Analytical methods typical for qualitative research are applied. The research predominantly deals with economic and political phenomena; legislative questions are not subject to evaluation. As the scope of the conference papers is limited, only approx. 20 selected sources (from 80 relevant items) are dealt with.

1 Survey of Literature

It is hardly possible to compile a survey of a vast literature about the phenomenon of European integration. Therefore, our survey will be limited on the cited selected references.

From the existing literature were selected, firstly, academic contributions (doctoral theses, working papers, etc.), relevant for the Juncker's Plan research, and secondly, selected official documents published by the EU and other international organizations dealing with the Juncker Plan.

In the academic literature the goal to create the EU CUM (as a very important component of the Juncker's Plan) has been studied from the point of view of different theories. The theory of the international economic integration and theory of growth (optimal sustainable growth) have to be quoted. Theory of the international financial regulation, theory of state governance, theory of globalization and theory of behaviour have to be mentioned as well.

According to the prevailing theoretical orientation and significance, the general trend of the research on European Integration can be de-composed into five periods. 1. Since the 60ties (1960) approx. until the 80ties the research about the economic, regional and other forms of integration in Europe and other continents prevailed; the basics about integration as an important trend of the process of internationalization were elaborated (Example: Balassa B.,1962); 2. Since the 80ties up to the end of the century research based on theories of growth

took the lead; the basics of the theory on the optimal sustainable growth were created; 3. After the year 2000 the question of economic, financial etc. regulation represented the dominating (pre-crisis and after-crisis) research trend; 4. After the protracted cyclical recession the theory of the internationalization and globalization of the world economy dominated the scene; 5. A new trend of research – based on the application of the behaviorist theories – started. Nowadays, the adherers of all the above theoretical streams continue their research in a parallel way; the coexistence of manifold opinions (together with computers and internet) enables an unprecedented accumulation of new empirical findings.

During the 2014 - 2015, the EU announced, described, explained and finally set up the first version of the Juncker's plan (i.e. EU Investment plan). Jean-Claude Juncker – as the new elected President of the EU Commission – officially presented the Plan in his speech on December 16, 2014 (*European Commission Press Release, 16. 12. 2014*). *This speech practically corresponded to his electoral speech on 27. 7. 2014 in the European Parliament called "A New Start for Europe: My Agenda for Jobs, Growth, Fairness and Democratic Change Political Guidelines for the next European Commission" and to his "Opening statement" on the same date. "As candidate for President of the European Commission, I see it as my key task to rebuild bridges in Europe after the crisis. To restore European citizens' confidence. To focus our policies on the key challenges ahead for our economies and for our societies. And to strengthen democratic legitimacy on the basis of the Community method." Juncker said. The "Guidelines" contained "10 Theses" for the EU Commission for the five-year period 2015 – 2019. The European Parliament on its October meeting held in Strasbourg (22. 10. 2014) finally approved Juncker's "Political guidelines" green light.*

Apart from the massive EU propaganda in favour of the approved Plan, the general reaction on the Juncker's Plan was rather sceptical: from the very beginning, the "White Elephant" Project was criticized - from different positions.

For example, Peter Laurence (British BBC) published one of the numerous critical commentaries: "... Jean-Claude Juncker appears to be staking a lot of credibility on an ambitious ... scheme to boost private investment in European infrastructure projects... One difficulty is that the Commission can put relatively little cash upfront", hesitations about EIB financial capabilities etc. (Laurence, Peter. EU investment: Juncker's cunning plan).

Nicolas Hirst (from Politico) wrote (27. 11. 2014): „Critics question whether Juncker can turn €21bn into €315bn. For businesses, reform of the single market is more important... The Greens in the Parliament described the figures as "wildly unrealistic". Bernadette Ségol, general secretary of the European Trade Union Confederation (ETUC), also doubted how realistic the Commission's projections were: "The European Commission seems to be relying on a financial miracle like the loaves and fishes." She added that the sum would make up only 40% of the "annual investment shortfall since the crisis. (Hirst, Nicholas. Juncker's investment plan is no silver bullet. 2014.)

At the end of 2015, the first version of the EU Investment Plan was ready. In spite of the fact that the EU Commission accepted many criticisms, new criticisms "from outside" were put forth. Bernd Rieger (DW Made for Minds) reminded the negative reaction of many members

of European Parliament in October 2015: “In parliament, there was criticism from all sides. People spoke of “voodoo” magic and unrealistic promises. Even the Conservatives, who usually support Juncker, harbour considerable doubts as to whether the Commission president's plan will actually succeed.” (2016 Rieger, Berndt. Opinion: Reality check - Juncker's plan is not working, 2016.)

In 2017, the EC Commission published its evaluation of the Juncker’s Plan implementation. However, Financial Times (representing the business opinion of big enterprise) heavily criticised this evaluation as unrealistic. The Sarah Gordon article (29. 3. 2017) based on many facts was a „death sentence”. “The Juncker’s Plan was an ambitious and imaginative attempt. But like many such *grand projects* implementations has lagged behind conception.” (Gordon, Sarah. Juncker’s European investment plan: the rhetoric versus reality 2017.) Caixa Bank shared the negative opinion of Financial Times: “So far the Juncker Plan seems to have achieved a good level of investment, in line with expectations. However, it is still too early to draw any conclusions regarding its effectiveness or impact. Many projects have yet to be implemented and their results will be seen in the medium term. It is also difficult to evaluate whether the projects chosen have been implemented without the Plan, i.e. whether they are actually «additional». Their level of risk is also difficult to gauge, in spite of the fact that the degree of innovation and riskiness is a necessary condition to involve EFSI support. Claeys and Leandro believe it is premature to state that the EFSI has led to the funding of additional projects as most of those approved are very similar to others already financed by the EIB, and the little information available makes it difficult to judge their risk profile.” (Domenech, Infrastructure in the EU and the Juncker Plan, 2017.)

The setting up of the EFSI (2015) evoked series of negative comments. On the other side, According to Rios, the new investment fund was positively commented by important institutions: „...The new InvestEU fund was welcomed by the European Economic and Social Committee (EESC), the EU consultative body representing social partners.“ However, NGO were dubious about the Fund sustainability. (Rios, Beatriz. Goodbye Juncker Plan, hello InvestEu, Europe's new Investment Fund, 2018.)

One of the best studies about broader questions connected with the Juncker Plan implementation is the Ernst and Young study 2018. The study presents (*inter alia*) country rankings (Czech Republic included). (Ernst and Young, 2018 EY study 2018.) The EY Study was highly appreciated by EC. Commission.

In 2018 – 2019, the discussions about positive and negative features of the Juncker Plan reflected the political situation within the EU: it seems that the factor of approaching date of EU Parliament elections was more significant than any time before in the preceding years.

In October 2019, EU Auditors announced preliminary results of the state of agenda about the Capital Market Union and published partial data on inefficiency of the preparative works about this important part of the Juncker Plan.

In January 2019 Sophia Elanidou reported, that Juncker's Plan results "may be overstated". (Elanidou, Sophia. Juncker Plan's results may be overstated, auditors say. 2019.) Many other institutions, organisation sand enterprises published similar information on the same day. New criticisms against the new role of EFSI were published. Sophia Perryer comments on the significance of the Juncker Plan for small and medium-sized were positive. She criticized some features of the Plan as well. "While Juncker's strategy has greatly improved Europe's fortunes, a number of significant and deep-seated issues remain, although the EFSI has succeeded in catalysing a significant amount of investment, it has not boosted Europe's economy in the way Juncker hoped: foreign direct investment across the bloc has still not returned to pre-2008 levels." (Perryer, Sophia. Juncker investment gives small and medium-sized companies a boost. 2019.)

In the Spring 2019, the Budget for the "new" Investment plan for the period of 2021-2027 (no more "Juncker Plan") was approved by the European Parliament (EU Budget 2021-2027, 2019). The Budget Draft was worked out in 2018.

2 Methodology

To be able to select influential examples of critical attitudes of different streams against the Investment Plan for Europe (2014) based on different academic disciplines, a preliminary list of relevant sources was set up. Content of selected articles is available in the part 2 of this paper. Four selection approaches were chosen: firstly, a historical approach (older vs. newer criticisms); secondly, "internal" criticisms, i.e. opinions of subjects with a seat in the EU vs. external subjects with their seat outside EU (third countries); thirdly, subject of criticisms. Then disposable documents (collected through data mining) were selected to enable to evaluate the probable trustworthiness and significance of each selected item. The author discusses the Negatives and Positives in the section 4. of the paper. Twelve groups of criticism were selected in accordance with the importance of the content of criticisms. Negatives and Positives of Juncker's Plan were compared according to the two elementary criteria (fulfilment of target, effectiveness of implementation).

3 Results and Discussion

The author of this Paper had to give up his intention to compare the apprehensions, doubts and criticisms put forth in 2014-15 with the situation in 2019 (after EU Parliament elections). It probably would show that many former objections against the Juncker's Plan still exist (and even in a worse form). Therefore, only 12 groups of the most important criticisms were selected (based mainly on Wallace, "Not worth celebrating – yet? June 2019, Science Business, 2018).

The following text discusses the Authors' opinions on the "merits and criticisms" of the Juncker Plan. On the first place, criticisms are commented, as (most of them) reflect the Negatives of the Plan and possibly imply better solutions. As for Positives, comments are reduced to two

basic questions: firstly, whether Plan was fulfilled (and to what extent), secondly, whether it was economically effective.

The “curve of criticism” of the Juncker’s plan has been growing from the first moment of its announcement in 2014 till the attempt of its miraculous transformation into “a new EU Invest Plan” in the Autumn in 2019. In 2014, the EU Investment Plan, on one side, was positively accepted by a big part of EU members’ public, on the other side, it was “doomed to death” by a part of the powerful economic experts. Since the “point zero” in 2015, the level of criticism mildly grew, until the first positive result were officially pronounced in 2016. Then the curve grew more steeply, and with the approaching date of Juncker Plan termination (by the end of 2019), the curve shot up: the Juncker Plan was almost torn to shreds.

It is possible to generalize the main objections to the Plan in the following way: firstly, in spite of the fact that the declared increased target of 500 billion was fulfilled, the originally approved and applied model of growth partially allegedly does not correspond to the changing reality. In the author’s opinion, this criticism is just: the speed of technical revolution is substantially higher than in 2014 and its effects (in combination of other factors, such as climate, ecology, Brexit and other non-economic factors) are more important.

It is not true that The Juncker’s Plan failed or that majority of the officially declared promises was not fulfilled. It is true that the Investment Plan for Europe (No.1) really failed to be “a game changer”. The following groups of criticisms were identified (see Table 1.)

Table No. 1: Groups of main criticisms

- | |
|---|
| <ol style="list-style-type: none"> 1. Target fulfilment 2. Effectiveness of implementation 3. Institutional Structure 4. The role of EIB 5. The role of EFSI 6. Structure of Organisation 7. Governance 8. Global Management 9. Investment tools differentiation 10. Geographical Investment Structure 11. Sectoral Investment Structure 12. Regulation |
|---|

Source: own elaboration

The most important criticisms in the 12 selected groups are briefly characterized:

Ad 1: Both primary target and additional target quantitatively fulfilled; however, unemployment not reduced. Ad 2: Explicit and transparent criteria of implementation effectiveness are missing. Only partial evaluation of effectiveness on macro- and micro-level is available. Ad 3: Institutional structure rather confusing; too many organisations under “one hat”; overlapping competence of different institutions; undefined inter-relations.

Ad 4: The role of EIB was over-estimated; credits were excessively expensive (as compared of other investment sources). Ad 5: Serious doubts about sustainability of EFSI. Ad 6: Structure of organisation was very complex, non-systemic; reporting of changes often was rather chaotic. Ad 7: There a general lack of co-ordination on all levels. Ad 8: investment targets' setting often not sufficiently explained; target setting only for individual actions accessible; -unified decision process rules missing/not disclosed. Ad 9: Investment tools' differentiation did not work efficiently because of an inability of banks to find a correct mix of investment tools selection. Ad 10: Failure of a fair geographical distribution of investment sources (case of Spain and Italy). Ad 11: A false sector investment structure: transportation investment overestimated; human capital investment underestimated. Ad 12: Regulation: complex, rigid, not transparent.

The main positive results of the Juncker Plan 1. A substantial Growth of Employment. 2. A substantial growth of Investment in the EU member countries. 3. The growth of EU Countries integration. 4. The growth of EU countries effectiveness. 5. The growth of standard of living of EU countries population.

However, it is not possible to evaluate the comprehensive effectiveness of the Juncker Plan before evaluation of its final results. Firstly, the EU Investment plan was not officially ended. Secondly, there is a series of methodical, technical and political impediments.

NOTE:

A Methodological note on opinions and analyses of opinions

The word “opinion” means a written or verbal communication expressed by its author. Another person called “analyst” or “evaluator” is somebody who tries to analyse and/or to evaluate some opinion or opinions of a given author. His analysis or evaluation should be *neutral* (in the sense that it should not be motivated and distorted by his emotions). The analysis should be based on current analytical methods, not only on “intuition” or “common sense” reasoning. The analyst/evaluator under normal condition does not speculate about “what the author really had in mind” and/or on the authors’ motives for communicating his opinion, i.e. the result of the performed analysis should be (in the sense that he has to respect all available information and data).

The added value of the Paper (according to the own opinion of the author) consists: firstly, in an attempt to evaluate the Negatives of the content and structure of the Juncker’s Plan, and in setting up a recommendation of a further academic research on EU development based on a politically neutral approach, taking in account potential risks and barriers. Secondly, in setting up a new periodization of the research on European integration.

From the very beginning it was supposed (based on theoretical premises of the theory of optimal growth) that the Juncker Plan “automatically” will bring new jobs and employment and a whole series of important results. This expectation was not fulfilled. Risks and barriers were underestimated and practically not thoroughly analysed. The marketing of the Juncker Plan was well prepared and efficient. This was the reason why the Plan was supported almost by many people. However, some of the specific economic subjects were opposed to it (for fear that they might lose a part of their economic power).

The Juncker's Plan is a typical example of a comprehensive "Big project." (a White Mammoth). Without a thorough complementary analysis of all of its partial structures, without deep analyses of its structural network, and without a systemic analysis of the supported projects as a system (application of a holistic/systemic approach), an acceptable final judgment is hardly possible. Doubts about the relative weight of merits and failures and about the realistic presumptions for its continuation remain, and any comprehensive evaluation can be formulated.

Serious doubts about the weight and strength of non-economic factors (the inner and international policy, Brexit, unwanted migration, undeclared cybernetic war, etc.) and the probability that anyone of such factors would be able to undermine or destroy all expected positive economic effects, represents a real danger for the next future...

Conclusion

The purpose of the Paper is to highlight and evaluate the merits and failures of the Juncker's EU Investment Plan (2015 -2019). The evaluation was ambiguous and after all an urgent question arose: Who is the winner and who is the loser? According to the opinion of Balance and CEE Bankwatch Network Journal "...the Juncker Plan has so far shown weaknesses in its transparency, sustainability, geographical concentration and additionality, and calls for improvements for its post-2020 phase."

There is an urgent need to create an EU development tentative alternative vision for the next 30-50 years. The 5-years programs are too dependent on the political decisions of the present politicians. This vision should be flexible: (sliding planning) and should respect potential risks/barriers. Such vision should prepare a broad politically neutral and independent team of experienced researchers selected with a consent of academic communities of all member countries.

Any formal modification of the EU Commission continuation of the former Juncker Program would be inefficient and harmful for EU, unless it would not be backed by governments of all member states; any decisions forced upon the "weaker" EU members would not work. Minority should not be oppressed by the "big" members. Unless the above demands would be fulfilled in a satisfactory way and level, short- and middle-term investment plan would not be feasible.

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SELECTED DEVIATIONS FROM RATIONALITY IN INVESTING IN FINANCIAL MARKETS

CTIBOR PILCH

Abstract

Behavioral finance theory suggests that some financial issues and phenomena can be better described and understood by using models in which entities do not necessarily behave rationally. According to this theory, there are a number of deviations from rationality. Some are better described, others less. Some are emotional-dependent, called emotional. Others, independent of emotions, are called cognitive. Two of them are analyzed in this paper. These are the deviations of Nonlinear Valuation of Probabilities and Aversion to Loss and Regret. The results of a survey on a sample of 1,350 respondents conducted by the author of the paper illustrate the fact that these variations exist despite education and age.

Keywords

Cognitive aberrations, emotional deviations, non-linear probability evaluation, aversion to loss and to regret

Abstrakt

Teorie behaviorálních financí hovoří o tom, že některé finanční otázky a jevy dokážeme lépe popsat a pochopit tehdy, když použijeme modely, ve kterých se subjekty nemusí zákonitě chovat racionálně. Podle této teorie existuje množství odchylek od racionality. Některé jsou popsány lépe, jiné méně. Některé jsou závislé na emocích, nazývají se emoční. Jiné, nezávislé na emocích, se nazývají kognitivní. Dvě z nich jsou analyzovány v předloženém příspěvku. Jde o odchylky Nelineární oceňování pravděpodobností a Averze vůči ztrátě a lítosti. Výsledky průzkumu na vzorku 1350 respondentů, který provedl autor příspěvku, dokumentují fakt, že dané odchylky existují navzdory vzdělání a věku.

Klíčová slova

Kognitivní odchylky, emoční odchylky, nelineární oceňování pravděpodobností, averze vůči ztrátě a lítosti

JEL Classification

G21, G23

Introduction

In response to the malfunctioning of effective market theory and rational behavior models in practice, a new approach has been developed to explain the behavior of financial market participants, namely behavioral finance. Some deviations from rationality arise as a result of people not having the proper mental mechanisms in place to solve some problems, or using mechanisms that are not very suitable for a particular problem.

Other deviations from rationality are adaptive because they allow people to adapt to certain situations and adopt more cost-effective and faster solutions. At the time, these solutions are not based on detailed rational analysis, but on the use of economical and intuitive designs.

For practical use, deviations from rationality can be defined as systematic mistakes by investors in selecting, analyzing and evaluating information and subsequently in making economic decisions. These are indeed systematic errors, because a random error does not necessarily mean deviation from rationality. The current science of behavioral finance knows many deviations from rationality and their number is probably not finite.

Some of the deviations overlap to a substantial extent, or may be due to others. Deviations from rationality can occur at any stage of the decision-making process. From the form in which the new information is presented to the adoption of the decision.”

For the purposes of this contribution, it seems better to break down the deviations by nature. According to this criterion we divide deviations from rational behavior into cognitive, emotional and mixed. Some sources only categorize cognitive and emotional, we do not see it as accurate enough.

A) Cognitive aberrations

Cognitive deviations from rational behavior are usually based on incorrect collection, analysis and interpretation of information. They can be corrected by learning or by appropriate financial advice. It should be noted that science does not adequately explain the origin of these deviations from rationality.

B) Emotional deviations

Emotional deviations from rationality in thinking and action are conditioned by emotional factors, especially by desire and fear. Not every emotion must be an expression of irrationality. Emotions, however, encourage quick and cost-effective decisions, which are particularly beneficial when problems are very complex and rational will take longer than is acceptable. In certain situations, however, emotions can suppress rational thinking and lead to harmful or irrational behavior. Changing emotional inclinations is much more difficult than cognitive aberrations. Emotional aberrations in literature are generally categorized according to their origin in mental mechanisms:

- 1) Exceptions that support the willingness to believe in something, which affects positive feelings, even where there is evidence of false perception of specific phenomena.
- 2) Deviations that make people strong when they refuse to accept phenomena and events that are unpleasant for people. These are mainly aversive emotions.

C) Mixed deviations

Individual deviations often overlap. It is not always clear whether deviation is cognitive or emotional. Typically they include both. They are usually a combination and it is unclear whether emotions or misinterpreted information prevail. So far, the distribution of imbalances has mainly been based on their external manifestations and usually reflects a certain decision-making process in which they occur or is governed by the nature of the imbalances.

In this article, I will focus in more detail on one deviation from the emotional category, namely the aversion to loss and regret, and one deviation from the cognitive category, a deviation called a non-linear estimate of probability.

1 Nonlinear probability evaluation

The theory of maximizing the expected benefit is based on the assumption that people behave sensibly, that is, they are rational and will always be based on this main axiom. But our subsequent experiments have shown that people very often violate this assumption. That is, they usually overestimate low probabilities and underestimate high probabilities. That is, they appreciate non-linear. We asked our respondents a total of 10 questions about this trap.

Task 1. Which combination of the lotto betting lottery numbers of Tipos, a.s. (formerly Sportka), where 6 numbers out of 49 are drawn, you would prefer to bet.

- a/ 2, 7, 13, 26, 28, 44
- b/ 7, 8, 9, 10, 11, 12
- c/ other combination

Table No. 1

Results One	Task	Year 1.	Year 1.	Year 3.	Year 3.	Year 5.	Year 5.
		Men EU	Women EU	Men EU	Women EU	Men ESF MU	Women ESF MU
a/2,7,13,26,28,44		48 %	36 %	46 %	33 %	9 %	11 %
b/7,8,9,10,11,12		2 %	2 %	5 %	3 %	2 %	8 %
c/ other combination		50 %	62 %	49 %	64 %	89 %	81 %

Source: Own research

Respondents were offered 3 options. Almost no one admitted the possibility that 6 numbers in a row would be drawn. More than 92% of respondents would always choose a combination of our own or a combination of numbers that we propose.

However, the probability of each six-combination is exactly the same.

This lottery has been drawn in the former Czechoslovakia since 1957. First one draw / one combination of numbers / Sunday, then two draws. Currently, the draw is the same in the Czech Republic and Slovakia, two times a week for two moves. Together, it is drawn in both Republics approximately 416 times a year.

The probability of winning in the first order (ie guessing all 6 numbers) is 1: 13.983.816.

If we wanted each combination of numbers to come out just once, it would take more than 30,000 years to draw.

The truth is that so far it has not been possible to draw a combination of 6 consecutive numbers in a row. And it was drawn in both Republics more than 12 thousand times.

On the other hand, it has happened 4 times that 5 consecutive numbers have been drawn. In the former Czechoslovakia 2 times in 1970 and 1989, and in Slovakia in 1996 and 2005.

But it has also become an incredible thing for gamblers. One combination of the nearly 14 million options has already been published twice. In 1984 and 30 years later, in 2014, exactly the same numbers - 3, 4, 7, 15, 27, 45 - were drawn.

Some bettors are betting on which numbers did not go any longer, respectively, which they think they need more often. Even this tactic has nothing to do with rationality.

This is also evidenced by an overview of how often each number was drawn.

For example, in the SR since 1993, the number of draws of individual numbers ranged from 525 times to 615 times.

Task 2. What would you rather accept?

a / donated 100 euro banknote

b / 1% chance to win € 10,000 without having to make a deposit

Table No. 2

Results Task Two	Year 1.	Year 1.	Year 3.	Year 3.	Year 5.	Year 5.
	Men EU	Women EU	Men EU	Women EU	Men ESF MU	Women ESF MU
Possibility a/	82 %	94 %	79 %	93 %	61 %	92 %
Possibility b/	18 %	6 %	21 %	7 %	39 %	8 %

Source: Own research

A substantial part chooses the security of the 100 euro banknote, both of which are actually equivalent in terms of probability.

Task 3. What do you think is more advantageous?

a / have 1000 Euros now or b / have 1150 Euros in 30 days

Table No. 3

Results Task Three	Year 1.	Year 1.	Year 3.	Year 3.	Year 5.	Year 5.
	Men EU	Women EU	Men EU	Women EU	Men ESF MU	Women ESF MU
a/ now	18 %	29 %	8 %	33 %	32 %	18 %
b/ 30 days later	82 %	71 %	92 %	67 %	68 %	82 %

Source: Own research

We evaluate Question 3 together with Question 4

Task 4. What do you think is better?

(a) have EUR 1000 per year or (b) have EUR 1150 per year and one month

Table No. 4

Results Task Four	Year 1.	Year 1.	Year 3.	Year 3.	Year 5.	Year 5.
	Men EU	Women EU	Men EU	Women EU	Men ESF MU	Women ESF MU
Possibility a/	14 %	21 %	9 %	17 %	43 %	22 %
Possibility b/	86 %	79 %	91 %	83 %	57 %	78 %

Source: Own research

In question 3, a proportion of respondents (up to one third of women and even 43% of the fifths) choose 1000 Euros immediately. It does not care that in a month the yield from this amount is extremely high. They probably follow the motto - what is home is counted. (As in Question 2). There have been fewer men with such tactics in recent years.

In question 4, we just moved it all down by one year. The majority of respondents are willing to wait here. But only a little more. It is interesting to note that in respondents with higher age (and education) this deviation is even worse.

Task 5

Table No. 5

Choose one of two options	A or B
A: Winning 350 Euros with a probability 33% and at the same time B: 300 EUR win with 100% probability	B: 300 EUR win with 100% probability
A: Winning 300 Euros with a probability 66% and at the same time B: 300 EUR win with 100% probability and at the same time	
winning 0 with probability 1%	

Source: Own research

Table No. 6

Results Task	Year 1.	Year 1.	Year 3.	Year 3.	Year 5.	Year 5.
Five						
	Men EU	Women EU	Men EU	Women EU	Men ESF MU	Women ESF MU
Possibility A/	32 %	25 %	34 %	27 %	21 %	52 %
Possibility B/	68 %	75 %	66 %	73 %	79 %	48 %

Source: Own research

Task 6

Table No. 7

Choose one of two options	A or B
A: Winning 350 Eur with a probability 33 %	B: Winning 300 Eur with a probability 34 %
And at the same time winning 0 with a probability 67 %	And at the same time winning 0 with a probability 67 %

Source: Own research

Table No. 8

Results Task	Year 1.	Year 1.	Year 3.	Year 3.	Year 5.	Year 5.
Six						
	Men EU	Women EU	Men EU	Women EU	Men ESF MU	Women ESF MU
Possibility A/	32 %	25 %	34 %	27 %	21 %	52 %
Possibility B/	68 %	75 %	66 %	73 %	79 %	48 %

Source: Own research

Questions 5 and 6 are also closely related. In both options, we reduced the probability of winning 300 Euros by 66%. The results should also be approximately the same in both questions. They are not, except for women of the 3rd year. This is irrational behavior.

Task 7**Table No. 9**

Choose one of two options	A or B
A: Winning 5 000 Eur with a probability 80 %	B: Winning 4 000 Eur with a 100% probability

Source: Own research

Table No. 10

Results Task Seven	Year 1.	Year 1.	Year 3.	Year 3.	Year 5.	Year 5.
	Men EU	Women EU	Muži EU	Women EU	Men ESF MU	Women ESF MU
Possibility A/	36 %	42 %	45 %	43 %	11 %	21 %
Possibility B/	64 %	58 %	55 %	57 %	89 %	79 %

Source: Own research

Task 8**Table No. 11**

Choose one of two options	A or B
A: Winning 5 000 Eur with a probability 20%	B: Winning 4 000 Eur with a probability 25%

Source: Own research

Table No. 12

Results Task Eight	Year 1.	Year 1.	Year 3.	Year 3.	Year 5.	Year 5.
	Men EU	Women EU	Men EU	Women EU	Men ESF MU	Women ESF MU
Possibility A/	68 %	45 %	62 %	44 %	48 %	32 %
Possibility B/	32 %	55 %	38 %	56 %	52 %	68 %

Source: Own research

Similarly, questions 7 and 8 were only modified, with the two variants of question 8 only reduced by four. The answers should also be roughly similar. In the case of women they are almost the same in this case, so they dealt with both issues rationally

Task 9

Table No. 13

Choose one of two options	A or B
A: Winning a three weeks trip to Spain and Portugal with a 50 % probability	B: Seven weeks trip to Spain with a 100% probability

Source: Own research

Table No. 14

Results Task Nine	Year 1.	Year 1.	Year 3.	Year 3.	Year 5.	Year 5.
	Men EU	Women EU	Men EU	Women EU	Men ESF MU	Women ESF MU
Possibility A/	54 %	29 %	57 %	27 %	58 %	29 %
Possibility B/	46 %	71 %	43 %	73 %	42 %	71 %

Source: Own research

Task 10

Table No. 15

Choose one of two options	A or B					
A: Winning a three weeks trip to Spain and Portugal with a 1 % probability	B: One week trip to Spain with a 2% probability					
Results Task Ten	Year 1.	Year 1.	Year 3.	Year 3.	Year 5.	Year 5.
	Men EU	Women EU	Men EU	Women EU	Men ESF MU	Women ESF MU
Possibility A/	56 %	45 %	61 %	47 %	81 %	51 %
Possibility B/	44 %	55 %	39 %	53 %	19 %	49 %

Source: Own research

Questions 9 and 10 are also closely related. The respondents also answered roughly the same. Here the younger ones were more rational and estimated the probability linearly. Older and women less.

Of the ten questions, nine were irrational considerations for men and eight were irrational decisions for women.

In cases where two options are compared, namely the possibility of a smaller win with a high probability and a lower risk and the possibility of a higher win but with a lower probability, people choose a more secure and lower win.

If the probability of winning is reduced by the same percentage in both options, but significantly, then respondents are more likely to take risks and choose the option with a higher win and a higher risk.

2 The Aversion to Loss

2.1 The Aversion to Loss

If an investor buys a stock and its price drops, the loss is initially fictitious, actually only on paper. Only when the investor sells the stock at a price lower than its purchase price does the loss become real for the investor. Many investors therefore refuse to sell the stock at a lower price than they bought it. This phenomenon is one form of aversion to loss.

The aversion to loss may be one of the reasons that even a high risk premium on shares is not convincing enough for most people to invest in stocks.

Known is the case of the financial derivative trader Nick Leeson, trading on the Singapore stock exchange SIMEX. He traded on behalf of the British bank Barrings. In 1992, he first earned £ 10 million on speculative deals. Later, however, he stopped flourishing, during the same year made two million. In an effort to erase the loss, he embarked on increasingly risky trades, but in which he produced an increasing loss. In January 1995, the cumulative loss amounted to £ 827 million and the bank went bankrupt. The investigation later showed that the named trader had not enriched, the main motive of his risky conduct was to erase the loss suffered.

2.2 The Aversion to Regret

Regret represents a significant negative consciousness and emotion related to the individual's past activities, decisions and behavior. Forms and expressions of regret range from shame and guilt to sadness and depression. An important feature of regret is that it is psychological pain associated with being aware of the responsibility for the loss suffered, and sadness may also result from facts for which the individual is not responsible. Accordingly, the aversion to regret is one of the emotional deviations from rational behavior.

Regret is a natural biological mechanism that inhibits risky behavior with possible adverse consequences. Regret can cripple and hinder further action. Feelings of regret represent a high psychological burden on people. It is therefore normal that they try to avoid them. Avoiding regret is therefore a certain prevention against the consequences of risk decisions. In the 1980s a direction emerged in the theory of decision-making, which sought to explain the principles of decision-making on the basis of the expected regret. Graham Loomes and Robert Sugden introduced „Theory of Regret“ in „Uncertainty Model Decision Making.“ They assumed that people made rational choices, but made their decisions conditional not only on the expected benefits, but on the expected regret. To avoid negative emotions after making a decision, they prefer to make choices that will generate positive feelings, albeit with less potential gain.

The literature on behavioral economics and psychology recognizes regrets stemming from two kinds of misconduct

- errors of action
- errors of not-acting.

The regret of action is usually more intense than the regret of not acting, but it will disappear faster. In the long run, people are much more and more sorry for things they didn't do than they did. Gilovich and Medvec asked the people who regretted things most in the last week. The ratio between executed and non-executed cases was approximately the same (53%: 47%). When asked what they regret as much as possible in a retrospective view of their entire life, the share of regret for not acting was up to 84%. Gilovich and Medvec also summarized several other surveys of the American population, focusing on the things that people most regret in life. This was also a long-term view. In almost all cases, regret was mainly related to inactivity. Typical responses in the surveys were "I should have gotten a better education", "I should have worked harder", "I should have tried harder to make a career", "I should have been more assertive".

The feeling of misconduct usually comes immediately and is very intense. on the other hand, awareness of the failure to act requires more thought and involves comparing the results of potential but unmet decisions with the current situation.

Loss aversion is closely related to feelings of regret. Many people try to avoid the loss precisely because they do not have to feel intense regret. The aversion to regret thus leads to not maximizing profit but minimizing regret. Paradoxically, this can lead them to very risky behavior, especially if they have a potentially large loss.

Many investment decisions are influenced by aversion to regret. Very often, for example, investors prefer to sell a profitable financial product rather than a loss-making product. The classic rationale is that "a profitable product has already earned itself while a lossy product has not yet". Selling a loss-making product means admitting the loss and suffering for it. Such behavior is emotionally understandable, but completely rational in terms of investment. An investor who sells profitable investments and keeps losses is thus deprived of future profit. While selling a loss-making investment, it will suffer regrets in the short term (admitting a mistake), but it will open up a chance for future positive developments. If he does not sell the

loss-making investment, his desire to minimize regret in the short term will come true, but feelings of regret will be more intense in the future (when he admits a failure to act).

The aversion to regret leads to the fact that the vast majority of investors invest money in the so-called. Risk - free products. Their investments are too conservative and will not yield enough returns in the long run. Paradoxically, this type of investment ultimately brings regret over non-action and unrealized opportunities.

Conclusion

We think everyone knows that the chances of winning lotteries are very low. Of course, the price is chosen so that the total price is higher than the price. Thus, the cost per lot is usually lower than the average win per lot. This is the case with all lotteries. Despite these features lotteries are very popular among people. So we assume that at the time of purchasing the draw people have a better chance of winning than its real probability. But as we have seen, people are very different in their high probability.

The price of life insurance or property insurance is calculated by the insurance company based on the average amount of claims and the probability of damage to property. Of course, the price of an insurance policy always includes the profits of the insurance company and is therefore always higher than the average loss value. Nevertheless, life and non-life insurance are among the most widespread products on the financial market. This is probably due to people's aversion to loss and mis-estimation of the probability of claims. Unequal evaluation of very low and high probabilities is probably the reason why people buy a lot (ie they risk losing) and at the same time they buy insurance (ie they hedge against loss). Low probabilities, such as 2-3%, many people perceive more than 2-3%, but about 90% perceive less than 90%. Many people are therefore willing to buy a lot and insure existing assets in larger quantities than would be assumed by the rules of logic. So let's say that people do not correctly assess the probabilities. Low probabilities overestimate, high underestimate. This can be reflected in financial practice even if the savings are imposed at a very low interest rate and at the same time they take out insurance for events with a very low probability of occurrence. At the same time, people think differently about near and distant time periods. Normally, they prefer the short term. This generally reduces the possible yield. many people are willing to buy a lot and insure an existing property at a higher rate than would have been assumed by logic rules. So let's say that people do not correctly assess the probabilities. Low probabilities overestimate, high underestimate. This can be reflected in financial practice even if the savings are imposed at a very low interest rate and at the same time they take out insurance for events with a very low probability of occurrence. At the same time, people think differently about near and distant time periods. Normally, they prefer the short term. This generally reduces the possible yield. many people are willing to buy a lot and insure an existing property at a higher rate than would have been assumed by logic rules. So let's say that people do not correctly assess the possible probabilities. Low probabilities overestimate, high underestimate. This can be reflected in financial practice even if savings are imposed at a very low interest rate and at the same time they take out

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THE IMPORTANCE OF CERTIS FOR THE CAPITAL MARKET SETTLEMENT

OTAKAR SCHLOSSBERGER, PETRA KORBASOVÁ

Abstract

The authors consider the importance of the interbank settlement system in the Czech Republic - the CERTIS system (Czech Express Real Time Interbank Gross Settlement system), (hereinafter referred to as "CERTIS"), which also serves for the settlement of operations on capital and/or money market. As this market is very wide, the authors attempt to prove its factual significance in the settlement of short-term bond operations, i.e. with a maturity of up to one year. The aim of the paper is to verify the validity of the following hypotheses, which are defined as follows: "CERTIS is fast and reliable and therefore has an irreplaceable position for clearing capital market operations" and the hypothesis "Short-term bond system represents min. 5% of the volume of the cleared CERTIS payment transactions". The authors proceed from the literature search and use scientific methods, which are description, analysis and last but not least also deduction.

Keywords

CERTIS, SKD, payment system, irrevocability, clearing

Abstrakt

Autoři zkoumají význam mezibankovního vypořádacího systému v České republice - systému CERTIS (český expresní mezibankovní vypořádací systém v reálném čase) (dále jen „CERTIS“), který slouží také k vypořádání operací na kapitálovém a/nebo peněžním trhu. Protože je tento trh velmi široký, autoři se pokoušejí prokázat jeho význam při vypořádání operací s krátkodobými dluhopisy, tj. se splatností do jednoho roku. Cílem příspěvku je ověřit platnost následujících hypotéz, které jsou definovány následovně: „CERTIS je rychlý a spolehlivý, a proto má nezastupitelné místo pro zúčtování operací na kapitálovém trhu“ a hypotéza „Systém krátkodobých dluhopisů představuje min. 5% objemu zúčtovaných platebních transakcí CERTIS“. Autoři vycházejí z rešerše literatury a používají vědecké metody, které jsou popis, analýza a v neposlední řadě také dedukce.

Klíčová slova

CERTIS, SKD, platební systém, odvolatelnost, zúčtování

JEL Classification

Classification by AEA: G21, G24, K22

Introduction

Interbank payments are an integral part of economic and legal relations in the financial markets. Without it, it would not be possible to ensure the transfer of funds from one entity to another in the form of non-cash or non-cash transactions of electronic money. In order to ensure this, different approaches have been developed over the years and are applied with varying degrees of intensity. There are several factors influencing this area - see Table 1.

Table No. 1: Factors influencing the method of settlement

Factor	Criterion
Territory	National International (cross-border vs. foreign)
Currency	Domestic currency Foreign currency
Accas	Direct acces (correspondent) Clearing (settlement) access

Source: Own processing and (Jílek, 2013; Schlossberger, 2012; Dvořák, 2005)

The process of clearing and settlement of operations consists of two basic areas. These are operations of clients of banks, or other providers of funds transfers (such as credit unions or payment institutions), but also operations of banks as legal entities or other financial institutions operating on the financial market. Client transactions are represented by basic payment services, such as transfers of funds initiated by payers (payments) or recipients of money (direct debits), or they are implemented as a stimulus caused by a payment card (transfer of funds from payer to payee but through the payee). However, they may also be transfers of funds resulting from the execution of, for example, checks, drafts, letters of credit or direct debit, or clearing and settlement of securities transactions. Bank transfers of funds then focus primarily on the actual business activities related to the so-called dealer operations of the bank or other financial institution as such, balancing positions according to the rules of regulation and supervision of the financial market, etc. In the Czech Republic (hereinafter the “CR”), the centralized processing of payment operations, resp. transfers of funds within the then State Bank of Czechoslovakia (hereinafter referred to as “SBČS”), to put it simply, within the ABO system (automated banking operations). After 1 January 1993, the so-called clearing center was established within the Czech National Bank (hereinafter referred to as the “CNB”), later referred to as the CERTIS - Czech Express Real Time Interbank Gross Settlement System. (Schlossberger 2012)

The authors discuss the importance of CERTIS for the settlement of capital market operations. They did so because they did not find much resources and information on how payment systems generally serve for clearing and settlement of capital market operations and what share of the number and volume of transactions are processed by CERTIS. Given the vastness of the capital markets and the variety of trades in their instruments, the authors proceeded in their research to examine money market operations under the short-term bond system (hereinafter referred to as

the 'SKD'). These are the operations of banks when buying, respectively the sale of short-term government bonds through which the CNB conducts its monetary policy through an instrument referred to as open market operations. However, they will base their research on the following hypotheses H1 and H2. H1 reads: “CERTIS is fast and reliable and therefore has an irreplaceable position for clearing capital market operations”, H2 is defined as follows: “SKD represents min. 5% of the volume of cleared payment operations by CERTIS”. The authors do not deal with the economic, respectively monetary impact of the application of this instrument, but they deal with the operations themselves, in particular their quantitative aspects, defining the legal relationship between the issuer and the investor.

1 Literary research and methods of scientific work

1.1 Literary research

Payments, payment services, clearing and settlement are addressed by only a few authors who, however, deal with the broader context of financial services in the financial markets. Domestic authors dealing with payment system areas include, for example, Jindřichová, Hládek (2014), who discussed in detail commentary on obligations arising from an account agreement, a one-off deposit and a letter of credit or collection under the new Civil Code. You can read about payment systems in doc. Dvořák (2005), prof. Polouček (2013) or prof. Jílek (2013), however, who were primarily interested in selected aspects of the regulation and functioning of banking or payment systems and currency in a broader context. Among the more recent authors who have been partly involved in the area of payment and clearing, we can mention for example Kantnerová (2016) or Mejstřík, Pečená and Teplý (2015).

Among foreign authors, it is worth highlighting the older but still current monograph Klimiková (2008) or co-authors Rambure and Nacamuli (2008). These are standard works dealing, inter alia, with the payment system in general and also mention interbank settlement. The monograph more focused on electronic payments using mobile applications is then a newer title by Téllez and Zeadally (2017) or monograph by Bramberger (2019), but discussing different areas in the implementation of new regulatory measures in the European payment system linked to the so-called. PSD II.⁶⁸

However, these titles do not directly deal in detail with interbank payment research or the analysis of the use of the selected payment system. Therefore, these or other monographs or scientific works by the authors were used only as an inspiration in shaping this article.

1.2 Methods of scientific work

With respect to the research carried out by the authors, selected methods of scientific work were used, which were - in addition to the literary research – also methods of description, analysis and partly also the method of deduction. These methods of work ensured the authors' fulfillment of the aim of the study and whether the established hypotheses were valid or questioned.

⁶⁸ PSD II - Directive (EU) 2015/2366 of the European Parliament and of the Council on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No. 1093/2010, and repealing Directive 2007/64/EC.

2 CERTIS and its characteristics

The CERTIS system, as mentioned above, was first established as a settlement center of the SBČS, resp. CNB after 1989, calling it CERTIS in the first half of the 1990s. Generally, the date of origin of the CERTIS system is not mentioned until 8 March 1992 (CNB, 2019a), but the name CERTIS was not actually used at that time. This date is related to the fact that the SBČS started the national interbank clearing itself without the assistance of an authorized bank, which was Komerční banka. The date is linked to the implementation of the so-called bank codes (the predecessor of the current payment codes) so as to equalize the use of national interbank payment systems for all its participants at that time.

The conditions for the operation of the CERTIS system, as well as the rights and obligations of its participants, are based on Act No. 370/2017 Coll., para 107 - 126, about payments. Accounts for interbank payments are maintained with the CNB on the basis of contracts on participation in the payment system concluded pursuant to the PSA and the Act No. 89/2012 Coll., the Civil Code (hereinafter referred to as the “Civil Code”). These contracts establish uniform standards for all participants, as well as legal and technical conditions for the maintenance of payment accounts and for the transmission and processing of interbank payment data.

In 2018, the CNB's Clearing Center processed a total of 672.8 million items, totaling CZK 319,028 billion. The average was 2.69 million items per day. The average daily value of items was CZK 1,276 billion.

Table No. 2: Overview of payments in CERTIS by value and priority in 2018

Amount	Number of non-priority payments	Turnover of non-priority payments	Number of priority payments	Turnover of priority payments
< 10 000	524 271 331	1 056 434 917 444	1 240 835	3 733 124 213
< 100 000	130 547 098	3 268 697 157 353	982 654	32 203 489 078
< 1 mil.	13 272 472	3 443 065 352 318	438 807	145 510 935 359
< 10 mil.	1 375 561	3 258 852 599 840	230 199	806 999 868 541
< 100 mil.	91 574	2 161 931 682 461	205 057	6 646 077 439 900
< 1 mld.	7 508	1 811 776 817 398	103 698	35 475 211 229 118
>= 1 mld.	434	957 366 063 075	44 047	259 959 732 948 124

Source: CNB, authors' own processing

2.1 Principles of the CERTIS system

The CERTIS payment system as a settlement finality system is based on the following principles of operation (CNB, 2019):

- settlement of interbank payments only in Czech crowns regardless of the amount;
- settlement takes place on the interbank payment accounts held in CNB (which also serves as the reserve requirement accounts);
- direct participation of banks, credit unions and branches of foreign banks; the system does not allow indirect participants;
- irrevocability of items accepted by the system - within the meaning of the Settlement Finality Directive in payment systems (EU, 1998);
- processing of various types of transactions - payments; direct debits; corrective settlement (cancellation of payments); ancillary system transactions; information and control items; immediate payments. These are client or bank transactions;
- “gross” real-time Settlement (RTGS), i.e. there are no mutual credits (netting);
- the debit balance is not allowed in interbank payment accounts;
- the principle of non-uncovered payments applies. Payments that do not have sufficient funds in the account at the moment are put on hold and only posted when there are enough funds in the account;
- The CNB provides banks with interest-free fully collateralized intraday credit. The loan is secured by securities registered in the SKD, eventually CDCP. The aim of intraday credit is to ensure sufficient liquidity for the smooth functioning of the payment system;
- if the intraday credit is not repaid by the bank by the end of the CERTIS accounting day, the securities used as collateral for the intraday credit are transferred to the CNB account.

2.2 Course of interbank transfer of funds (payments) in Czech crowns (CZK)

Payment is a payment transaction executed by the payer's bank on the initiative of the payer based on his order.

The payer enters an order for standard or express (express) payment to his bank, for example, through a direct banking channel or by submitting a written payment order (collection box, counter, etc.).

The payer's bank then:

- enters a written payment order into the bank's internal system,

- processes a payment order in its internal system - ensures the debiting of funds from the payer's account,
- creates and sends payment data to CERTIS in order to credit the payment to the beneficiary's bank account.

CERTIS system (i. e. CNB):

- ensure receipt and processing of data with payment from the payer's bank,
- performs a coverage check on the payer's bank and transfers funds from the payer's bank account to the payee's bank account,
- creates and sends data with payment to the beneficiary's bank.

Bank of receiver:

- receives and processes data with payment from CERTIS,
- credit the beneficiary's account.

On the side of the beneficiary, the funds are available to the beneficiary's account in the PSA set deadlines (i. e. at the latest on the following day - D +1 from the load moment of the payer's account), which fully corresponds to the ZPS requirement, namely para 169 and 170.

2.3 Instant payments

With effect from 1 November 2018, immediate payments were put into operation in CERTIS.

Instant payment can be characterized by the following basic principles:

- This is a one-time electronic payment in CZK, which is processed by the scheme participants in units of seconds. This means that the amount of the payment will be immediately available to the payee upon receipt of the payee's bank for further payment transactions and the payer will be promptly provided with information on the delivery of the payee's bank.
- They are only used for one-time, instantly payable payments (not for multiple batch payments).
- The maximum amount of the standard limit of one immediate payment is set at 400 thousand CZK.
- The minimum amount of immediate payment is 0.01 CZK.
- Service availability is 24/7/365.
- It can only be sent between banks participating in the scheme.

- A bank participating in the scheme does not have to offer an instant payment service to its clients (payers).
- The bank participating in the scheme is obliged to accept immediate payments and make them available to the beneficiary immediately.

Tables 3 and 4 below show how many entities on the territory of the Czech Republic already provide the possibility for clients to enter immediate payments. The following is an overview of the number and volume of immediate payments for the first four months of 2019. Even from these partial available data, it can be stated that the launch of this payment instrument is interesting at the moment and will surely be offered by other payment service providers and clients.

Table No. 3: List of participants in immediate payments (as of May 2019)

Payment system code	Name of the participant
0800	Česká spořitelna, a.s.
2250	Banka CREDITAS a.s.
3030	Air Bank a.s.

Source: CNB, authors' own processing

Table No. 4: Number of immediate payments

Month	Number of immediate payments	Immediate payments turnover
04.2019	181 144	1 457 786 818
03.2019	140 496	1 040 181 815
02.2019	33 356	219 770 684
01.2019	413	5 606 714
12.2018	490	7 361 488
11.2018	110	667 949

Source: CNB, authors' own processing

3 Short-term bond system (STBS) and its characteristics

The STBS operated by the CNB is a system that is the central register of securities and the settlement system of securities transactions maintained in these records. STBS keeps records and settles transactions in securities issued by the Czech Republic (Ministry of Finance of the Czech Republic) and payable within one year, resp. short-term securities issued by the CNB and other bonds with maturities of up to one year. All securities are issued in Czech currency and in book-entry form.

3.1 Basic functions of STBS

In terms of the basic functions provided by the STBS system, the following can be said (CNB 2019c):

- securities records by issuers and owners;
- evidence of STBS participants;
- primary sales of short-term government bonds, CNB bonds and other short-term bonds;
- executing participants' orders to register securities information;
- settlement of securities transactions;
- Securing repayment of bonds and payment of yields on them.

The STBS provides the possibility of using various auction algorithms to cover investors' orders in the auction. It provides for banks the possibility of drawing intraday credit, which is provided by the CNB exclusively through the CERTIS system.

3.2 STBS participants - agents, clients and custodians

With regard to the functioning of the STBS, the participants shall be divided from July 1, 2005 into:

- agents,
- clients, respectively customers,
- custodians.

Clients and custodians participate in STBS activities through their agents. At the end of 2018, 56 clients, 11 custodians and 89 STBS asset accounts were registered.

3.3 Securities issues

Only the client can issue securities in the STBS. A client wishing to issue securities must use the services of an agent who has access to his asset account. Securities recorded in the STBS may be issued by the CNB, the Ministry of Finance of the Czech Republic and clients authorized to issue securities included in the contract and authorized by the CNB to issue.

Emission, respectively subscription of securities in the STBS can be briefly characterized by the following steps:

- if interested, clients submit electronic orders for the purchase of securities of the given issue,
- on the day of the auction on the basis of clients' orders via an auction point, the distribution of securities of the given issue is entered into STBS records among individual auction participants and revenues for which the primary sale will be realized in individual cases according to the procedure determined by the issuer,
- on the day of issue, STBS realizes the primary sale of bonds.

3.4 Settlement of securities transactions

Settlement of paid and unpaid transfers of securities within the STBS is done for clients and custodians based on the instructions of their agents. The settlement of remunerated transfers of securities is carried out by STBS for clients and custodians in cooperation with the CERTIS system according to the delivery versus payment principle. It involves the transfer of securities from the Seller's or Custodian's property account on which the Seller's security is recorded to the Client's or Custodian's property account on which the Buyer's security is recorded, and the settlement of the agreed purchase price by the Buyer to the Seller.

3.5 Intraday credit for banks

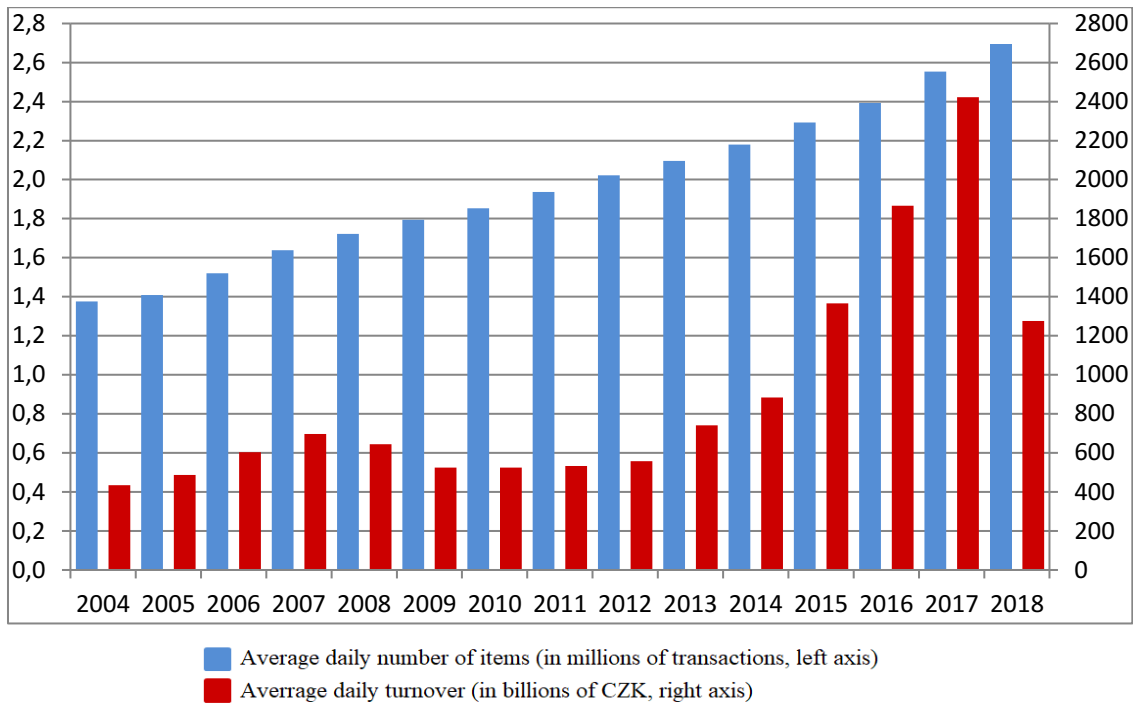
One of the important functions of the STBS allows banks that are the STBS clients, free intraday credit, which provides them with the CNB's operations in CERTIS. Intraday credit depends on the bank's activity and can be increased and decreased arbitrarily from the start of the SKD accounting day (8:30 am) to the end of the CERTIS accounting day (4 pm) (CNB, 2019c).

4 Discussion

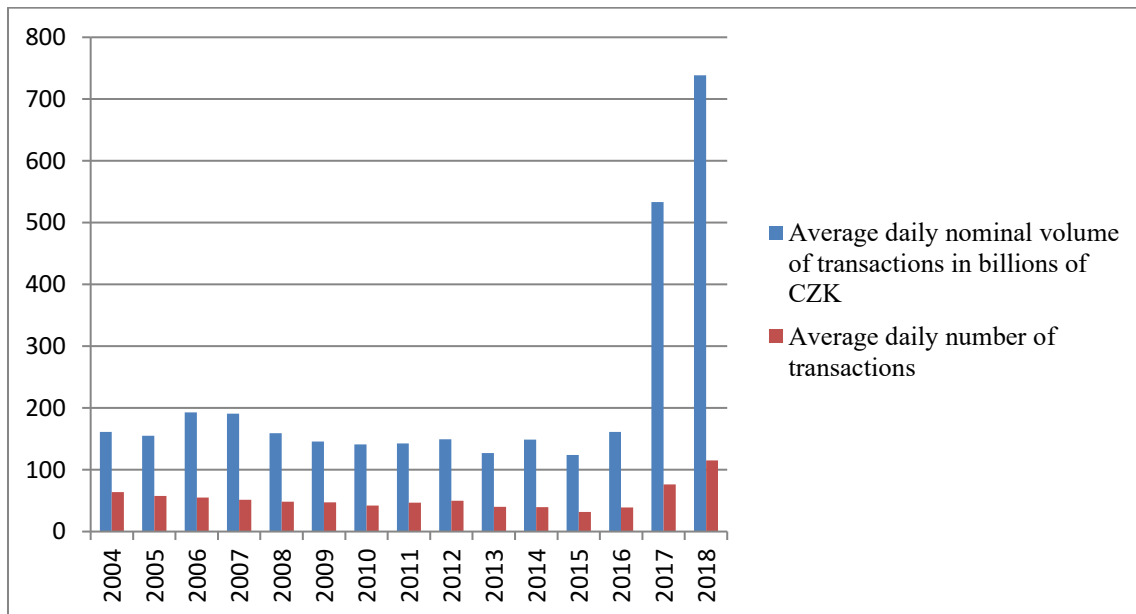
In fulfilling the main objective of the investigation, which is to verify both hypotheses, the authors proceeded to define certain assumptions in order to properly interpret the achieved results.

These assumptions are given as follows:

- All STBS operations are implemented through CERTIS,
 - The data used by the authors includes all interbank payment transactions, both from the capital and money markets. In their examination, the authors proceeded from data obtained from publicly available sources of the CNB (CNB, 2019).
- Graphs 1 and 2 below show the average daily values processed by CERTIS and STBS, which also illustrate the relationship between the two systems - one clearing and the other settlement.

Graph No. 1: Average daily values - CERTIS

Source: CNB 2019, authors' own processing

Graph No. 2: Average daily values – STBS

Source: CNB 2019, authors' own processing

Graphs 1 and 2 document how the average daily nominal volume of transactions in CZK billion developed in both the STBS settlement system and the CERTIS settlement system. E.g. In 2018, the average daily number of transactions was 115, with an average daily nominal volume of CZK 738 billion. At CERTIS, the average daily value of items amounted to CZK 1,276 billion in the same year, which proves that the average daily nominal volume of STBS is more than

half. On the other hand, the share of STBS in the number of CERTIS items is almost zero (see analyzes below).

The increase in all transactions, both in number of operations and in volumes, is particularly apparent in STBS in 2017 and 2018. This phenomenon can be explained by the fact that the Czech National Bank terminated foreign exchange interventions (April 6, 2017) and commercial banks more importantly bought or sold short-term bonds settled in the STBS.

From the description of the CERTIS system and the stated values it can be stated quite simply that H1, which the authors set at the beginning of this paper, is true.

In order to prove the hypothesis H2, the authors proceeded with a simple comparison of the share of the total number of transactions for the time period 2004 to 2018 and a comparison of the share of the total volume of transactions for the same time period. The relationship examined can be expressed by the formula:

$$x = \frac{\text{STBS}}{\text{CERTIS}} \times 100, \quad (1)$$

where x is the STBS share of CERTIS.

Tables 5 and 6 show both the total number of transactions for a given year of both systems and the total volume of transactions for that year, again in the time series for the years 2004 to 2018.

Table No. 5: Share of STBS on CERTIS in% - total number of transactions for the given year

Year	2004	2005	2006	2007	2008	2009	2010	2011
SKD	16 214	14 552	13 810	12 870	12 220	11 914	10 588	9 967
CERTIS	349 655 958	356 203 711	381 654 630	411 215 900	435 559 017	450 400 400	468 859 511	490 158 782
Share of SKD on CERTIS	0,0046	0,0041	0,0036	0,0031	0,0028	0,0026	0,0023	0,0020

Year	2012	2013	2014	2015	2016	2017	2018
SKD	12 588	10 154	9 920	7 897	9 873	18 918	28 736
CERTIS	509 624 340	528 328 405	549 209 857	575 591 762	603 081 161	638 389 976	672 811 875
Share of SKD on CERTIS	0,0025	0,0019	0,0018	0,0014	0,0016	0,0030	0,0043

Source: CNB, authors' own processing

The values calculated according to equation (1) in terms of the total share of the number of STBS and CERTIS transactions can be commented that the STBS has absolutely minor to negligible significance in terms of the number of transactions - see Table 5. The quoted values are in thousands of percent. The CERTIS system clears in particular the client operations of the members of the system, eventually interbank transactions not recorded in the STBS.

The results of the examination of the share of SKD in CERTIS in terms of transaction volume over the reference period are shown in Table 6.

Table No. 6: Share of STBS on CERTIS in% - total volume of transactions for the year in CZK billion

Year	2004	2005	2006	2007	2008	2009	2010	2011
SKD	40 924	39 018	48 202	46 902	39 922	36 184	35 541	32 064
CERTIS	110 236	123 353	151 537	174 854	162 993	131 679	132 882	134 909
Share of SKD on CERTIS	37,12	31,63	31,81	26,82	24,49	27,48	26,75	23,77

Year	2012	2013	2014	2015	2016	2017	2018
SKD	37 296	31 710	36 789	29 750	38 555	125 617	177 441
CERTIS	140 611	186 737	222 530	342 705	470 195	605 457	319 000
Share of SKD on CERTIS	26,52	16,98	16,53	8,68	8,20	20,75	55,62

Source: CNB, authors' own processing

The results of comparing STBS's share in CERTIS are quite different from the number of transactions. STBS's contribution to the clearing of transactions by CERTIS is significant. From these values we can see three stages in the development of this share. The first stage consisted of the years 2004 to 2006, when the share of STBS in CERTIS stabilized in about one third of the total volume of transactions. Since 2007, a steady decline has been observed until 2016 (with the exception of 2012), which could be due to two factors. The first factor could be the financial crisis, when banks did not buy or sell short-term bonds, which would mean that they were not traded so much. This may have been due to the above-mentioned CNB foreign exchange intervention, which started in November 2013. The second stage therefore consists of the years 2007-2016. The start of the third stage can be considered the year 2017, when there was a significant increase in the volume of settlement of short-term securities settled by the STBS, between the years 2017/2016 and 2018/2017 by 3.2 times higher, resp. 1.4 times higher. However, CERTIS had a different development between these years - in 2017, compared to 2016, it increased only 1.2 times in the volume of operations and even decreased between 2018 and 2017, to 53% of 2017. A substantial increase in trading in STBS can be attributed to the CNB's cancellation of foreign exchange commitment (intervention), but what caused a significant decrease in interbank settlement volumes would go beyond the original intent and content of this contribution and further research on this issue. The authors believe that a significant decline could be due to limited interbank trading of temporary free resources between commercial banks, a lower volume of mortgage lending if interbank transfers would normally occur. By the above calculations and arguments, H2 can be considered validated and thus valid. The research shows that the share of SKD in cleared CERTIS operations is well above the set value of 5% and varies between 8 - 55, 6%. The average value is then represented

$$\bar{X} = \frac{1}{n} \sum_{i=1}^n X_i \quad (2)$$

where \bar{X} is the mean, n is the number of years (15) and $\sum_{i=1}^n X_i$ is the sum of the individual values in the observed years.

The average share according to formula (2) of the STBS settlement system in the CERTIS settlement system is then based on 25.54%.

Conclusion

The authors dealt with the issue of the importance of the system for interbank settlement in the Czech Republic - the CERTIS system, which also serves for clearing operations on the financial market in investment instruments. Given that this market is very wide, the authors tried to prove its importance in clearing the selected capital market product, namely short-term bond operations settled by the STBS. The aim of the paper was to verify the validity of the following hypotheses, which were defined as follows: H1 - CERTIS is fast and reliable and therefore has an irreplaceable position for the settlement of capital market operations. H2 - The system of short-term bonds represents min. 5% of the volume of cleared payment operations by CERTIS. Based on a literature review, a description of the phenomena and processes related to STBS and CERTIS, and a comparative analysis, the authors demonstrated that both of the above-mentioned hypotheses were valid. In particular, H2 proved to be underestimated by its authors, as the importance of STBS's share in CERTIS in processing the volume of operations was significantly higher and averaged 25.54% in the years under review.

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FINANCIAL MARKETS AND THE FAIR DISTRIBUTION OF WEALTH

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Abstract

The paper raises the question of why the problem of fair distribution of wealth in society is not addressed as a water problem. Subsequently, it clarifies the meaning of this question and solves it using the theory of cooperative games, namely the form of multipoint extension of Nash's (S, d) negotiating problem. It shows that the above question (somewhat analogous to the question of why at night darkness, which significantly influenced the development of cosmology) gives very strong incentives to economic theory in the field of financial market theory, the theory of cooperative games, the theory of reforms in financing investment in human capital and the theoretical aspects of overcoming the limits of the neoclassical approach.

Keywords

Wealth distribution, cooperative games, water problem, human capital, financial markets, productive consumption

Abstrakt

Článek se zabývá otázkou, proč problém spravedlivého rozdělení bohatství ve společnosti není řešen jako problém s vodou. Následně objasňuje význam této otázky a řeší ji pomocí teorie kooperativních her, a to formou vícenásobného rozšíření Nashova (S, d) vyjednávacího problému. Ukazuje, že výše uvedená otázka (poněkud analogická s otázkou, proč v noci temnota, která významně ovlivnila vývoj kosmologie), poskytuje velmi silné pobídky ekonomické teorii v oblasti teorie finančního trhu, teorie kooperativních her, teorie reformy financování investic do lidského kapitálu a teoretické aspekty překonání mezi neoklasického přístupu.

Klíčová slova

Distribuce bohatství, kooperativní hry, problém s vodou, lidský kapitál, finanční trhy, produktivní spotřeba

JEL Classification

C71, G10, I38

Introduction

One of the most important questions of today is: Why is the problem of the fair distribution of wealth in society not addressed as a water problem? In most cases, the problem of fair distribution is directly linked to the need for redistribution, i.e. how much should or should the richer give up their wealth in favor of the poorer to make society fairer. Using different theoretical considerations and models, the optimum redistribution rate is then sought.

In our paper we look at the issue quite differently. However, we must briefly describe what the so-called water problem is, in terms of the theory of cooperative games. Suppose we have more water users (farmers), each with a certain supply of water. Let us also assume that each farmer can sell part of his water supply to another farmer. We will have the most efficient water distribution if the last unit of water used by each farmer for his land plots equally, i.e. the marginal yields from the last used unit by each of the farmers are equal. At the same time, the relevant marginal yield will determine the price per unit of water, i.e. how much one farmer has to pay to another for using his water on his land. In this sense, the relevant water distribution is not only as efficient as possible but also fair.

Let us now look at the problem of optimal and fair distribution of social wealth. Just as each farmer has some specific water use opportunities, each person has some investment opportunities (including those associated with the acquisition, preservation and exercise of their abilities). Addressing the problem of optimum wealth distribution, similarly to the problem of water distribution with the possibility of compensation, would mean that each person's investment opportunities are exploited according to their rate of return, regardless of who they belong to. We will have the most effective distribution of wealth, ie the means to realize investment opportunities, when the last unit of investment means that each person uses equally, ie the marginal returns on the last unit used by each individual are equal. At the same time, the relevant marginal yield determines the price of the unit of investment funds, ie how much one person (debtor) has to pay to the other person (creditor) for using his or her investment funds. In this sense, the respective distribution of wealth (investment resources) is not only as effective as possible but also fair.

1 Material and methods

The subject of this paper is to answer the question of what is needed to address the issue of fair wealth distribution as a problem of maximizing the sum of the returns on investment opportunities that individuals possess (which is a prerequisite for efficiency) while each owner of investment funds was compensated by providing its own investment funds to realize foreign investment opportunities at a price that corresponds to the marginal return on investment opportunities (a prerequisite for fairness).

Note that the problem of fairness in this case stands in the opposite guard than when we treat the question as a redistribution issue. There, we consider it “fair” that the richer give up part of their wealth in favor of the poorer. On the contrary, we consider it fair that those who possess

foreign investment funds to realize their own investment opportunities give up part of their income to those who provided them with investment funds.

In this paper we will use the following methods:

1. Interpretation of models from the so-called water problem to the financial markets (as indicated in the introduction).
2. Clarifying the content of key terms by precisely defining them (while pointing out some misleading interpretations that conflict with the content of the terms).
3. Analysis of some of the most important seeming resp. misinterpreting what makes it impossible to solve the problem of fair distribution of social wealth as a so-called water problem, including how to overcome the obstacles (here it is used as a methodological element of analogy with the answer to the question "Why it is dark at night").
4. Multipoint extension of Nash (S, d) negotiation problem (which is on the one hand a separate partial result presented in the paper, on the other hand an effective tool to answer the question we ask in our paper).
5. Putting the issue in the context of the long-term hypothesis that current society is undergoing major changes comparable in terms of breakthrough and scale to those undergone during the industrial revolution, when the focus of economic development is shifting to the emerging sector of productive services, ie services associated with the acquisition, preservation and exercise of human capabilities.
6. Consequently, the answer to the question of how to solve the problem of fair distribution of wealth based on the so-called water problem, to the question of what complex reforms are currently necessary, what barriers and why the relevant reforms encounter.

Let's take a closer look at the questions we have asked. We will understand the economic system as a system of entities, each of which possesses certain investment opportunities that have a certain rate of return. Consider the following:

1. Investment opportunities shall be seized on a rate of return, irrespective of who they belong to.
2. All investment means that exist in the economic system are used to realize investment opportunities.
3. The use of any investment opportunity for which there are investment funds in accordance with the first two conditions shall not affect the rate of return of any other investment opportunity for which investment funds exist in accordance with the first two conditions.

If these conditions were met, then:

1. It was possible to solve the problem of fair distribution of wealth in society as a water problem with compensation.
2. The fair distribution was based on the maximum amount of return on investment opportunities.

3. The price per unit of investment means (interest or its equivalent) was determined by the return on the last used unit of investment opportunities.

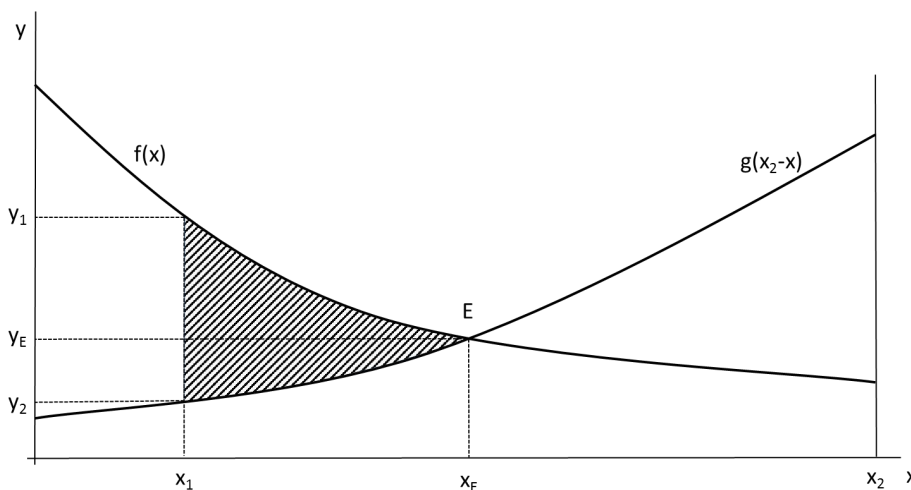
The split would be also fair in the sense that it would allow everyone to realize their investment opportunities (including those related to the acquisition, preservation and use of human capital, ie human capabilities) independently of the underlying assets (fulfilling the condition of equal opportunities for full the life of everyone, while meeting the condition of individual rationality). At the same time, this division would be fully effective (in terms of collective rationality, or pareto optimum).

2 The reasons of difficulty solution

And what is the theoretical answer to the introductory questions? - The use of one investment opportunity may limit the use of other investment opportunities. If this is the case, it is necessary to name the problem and then describe it (preferably by a suitable mathematical model or set of models). In our opinion, this is a problem of investing in a social position, resp. positional investment, which can be described by a system of models such as multipoint Nash extension (S, d) negotiation problem.

The microeconomic model, which is used to demonstrate the relationship between the owner of the investment opportunity and the owner of the investment vehicle, assumes a certain amount of investment opportunity for the subjects as well as some investment vehicle. Income is the income from the realization of investment opportunities. Both entities will maximize their revenue, that is, they will realize opportunities according to their revenue.

Figure No. 1: Supply and demand of the investment opportunities



Source: own contribution

In Figure 1, x_1 , $x_2 - x_1$ are the amount of investment funds available to the subjects, y is the future yield in marginal quantities, $f(x)$, $g(x)$, and $g(x_2 - x)$ are the marginal yield functions of z investment opportunities ($g(x)$ is adjusted for more illustrative presentation). $E(x_E, y_E)$ is the point at which $f(x) = g(x) = f(x_2 - x) = g(x_2 - x)$; at this point, all investment opportunities of both entities are used according to their rate of return. The revenue of the entities will be:

$$y(1) = \int_0^{x_1} f(x)dx$$

Respectively

$$y(2) = \int_{x_1}^{x_2} g(x_2 - x)dx$$

It can be seen from Figure 1 that the volume of available funds of the first entity (x_1) is limited compared to the second entity and allows it to realize only a small part of the investment opportunities. The other entity has more investment means, it can realize more of its investment opportunities. However, their yield from a certain point (namely point E) will be lower than the missed opportunities of the first entity due to lack of investment funds.

The highlighted area between points x_1 and x_E represents a possible surplus that can be obtained by both entities by working together - if the other entity offers its first investment resources for more profitable investment opportunities. The question will be under what circumstances the two entities decide to cooperate and how they will divide the surplus obtained.

Technically, the solution to the problem of distribution, where the marginal yields of both entities equal, ie. in point E. In such a situation, the highest combined yield occurs. Compensation of y_E will provide a reason for the entity with sufficient investment resources to offer such funds to the entity with more profitable investment opportunities.

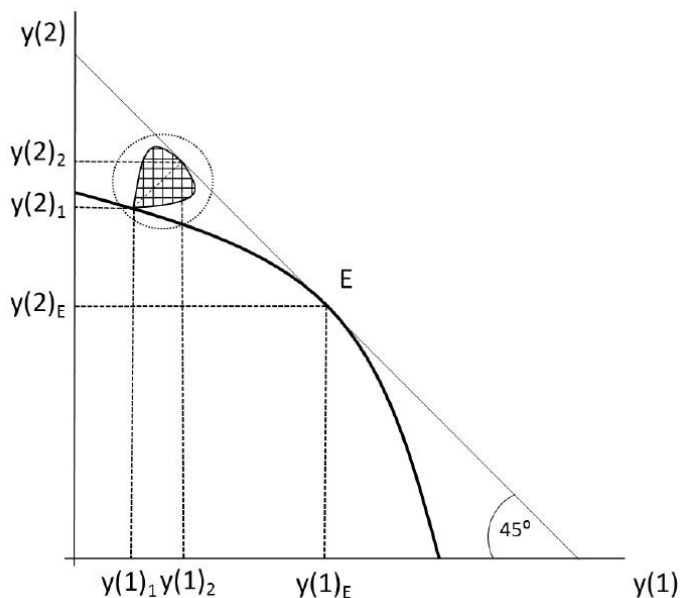
From the microeconomic model point of view, theoretically all available resources can be exhausted and a common maximum can be achieved. In most cases, however, this is prevented by individual rationality, where the individual maximum of individual entities is not at the point of the common maximum. This so-called snag attacks to mark the "inefficiency" of the markets and possible remedy by some form of regulation. However, this is not necessary because, in a more detailed analysis, it can be shown that any negotiation result, when not all available resources are used, creates the basis for renegotiation. In this way, by means of multistage negotiations, all available resources will be depleted and thus a common maximum will be reached.

This negotiation of the distribution of the surplus will necessarily be a complex matter during which both parties will want to get the maximum possible for themselves. All this, even if the theoretical assumption of availability of all information. What then decides on how to allocate the surplus is a complex of circumstances and capabilities, collectively called the bargaining power of individual entities. The greater the bargaining power, the greater the possibility of gaining a greater part of the surplus for itself.

Under real conditions, the situation is even more interesting. Most parameters such as value of investment opportunity, value of alternatives, payout function, etc. they are largely subjective, or at least quantified depending on subjectively assessed parameters such as different risks, future revenues, market growth and the like. Thus, from the point of view of theory, neither the set of solutions S nor the point of agreement (d) are known and objective quantities. In such a situation, it is not the facts that are negotiated, but the shared interpretation of these facts. The

ability to create a model of reality and convince your partners about it is gaining importance. Obviously, presenting a capable negotiator will reduce your own benefits and exaggerate the benefits to the partner so that the resulting solution can be described as fair, and at the same time as advantageous to the negotiators.

Figure No. 2: Alternative description of Pareto improvement made by capital market



Source: own contribution

The situation illustrated by the model can be translated into Nash (S, d) problem described by Nash (1950) and further developed for cooperative games (1953). The role is further elaborated by Raiffa (1953), Kalai and Smorodinsky (1975), Kalai (1977) and others. Within the framework of the VŠFS, the problem is dealt with by Valenčík, Wawrosz and Černík (2015), Valenčík and Černík (2016) or Červenka (2019). Kibris (2010) summarizes different approaches. In fact, a virtually infinite number of solutions can be found depending on the criteria chosen. This literature provides the theoretical foundations for this work.

Productive consumption economics, which assumes that individual economic operators do not maximize their benefits, but the present value of future income (in terms of long-term strategy of their behavior in given historical and cultural conditions) is the reason why not all investment opportunities are utilized. social positions, which can take various forms:

Veblen's conspicuous consumption.

Economic segregation within social capital, ie position social networks.

In this context, it should be emphasized that the question of why in situations between the creditor and the borrower there are situations in which the investment funds held by one and the other are not used according to their rate of return is essential and the answer to it is not trivial:

It is therefore crucial that its answer will show why, in addressing the issue of the equitable distribution of wealth, it is not possible to move from a cooperative game

derived from the achievable limit to a cooperative game derived from the attainable income limit. The role of the distribution of equitable wealth could then be addressed as a water problem with compensation (where the role of water would be played by investment means), and achieving justice would be associated not with loss of efficiency, but vice versa - achieving maximum efficiency. That - perhaps with a little exaggeration, perhaps even without exaggeration - would mean solving one of the greatest riddles of history.

Empirically, an unlimited number of cases can be described where one player can use his / her assets superiority (having more investment resources) to achieve a position superiority (better armament, hire a better lawyer, recruit an official, etc.) but also from a practical point of view it is necessary to rise to a sufficient level of generality and to find what is common to various situations. In other words, we need a model that, by its precision and clarity, corresponds to the crucial importance of answering the question of what leads to the fact that investment opportunities in a creditor-debtor relationship do not have to be exploited according to the rate of return. In a cooperative water-type game, something else happens. As a result, inequalities (increasing inequality in the area of distribution) will increase as well as system efficiency loss. The answer to the question of what is causing cannot be given other than in the form of an accurate and comprehensible model.

To differentiate and model positional investment from those forms of investment that do not interfere with the use of investment opportunities in lender-to-borrower relationships, the multipoint Nash extension (S, d) negotiation problem, which under certain conditions leads to a water compensation problem.

The first case to consider is a two-point (trivial) extension of the Nash (S, d) bargaining problem, in addition to the point d (disagreement) that derives from the cooperative game that allows for higher payouts by either or both players, we will consider point p (positional investing), where one player by investing in a position (instead of acting as a creditor) can use the superiority he owns in investing assets to achieve a payout corresponding to point p. In this case, there are three options:

Point p does not affect Nash's negotiating problem,

Nash problem does not affect selection of p,

Nash's negotiation problem is modified.

The extension of the point investment position leads to a trivial task, the solution of which is connected with the application of one single axiom - the axiom of individual rationality (or the principle of opportunity cost).

Experience from the research work says that when we are solving a significant task in reality, it is not enough to describe models with trivial solutions. The research situation can be expressed in more detail as follows - if we want to create an abstract (mathematical) model that allows us to "decipher" reality, we must try to simplify reality as much as possible. However, this must not lead to the formulation of only trivial tasks. In this case, we must try to

complement the model in a suitable way with elements that lead to non-trivial tasks, but without complicating the model from the point of view of clear and realistic interpretation.

3 Discussion

Our concept has many applications. The most important is the analysis of the behavioral situation in the implementation of the reforms, which, based on the use of HCC contracts (human capital contracts), can solve the problem of fair distribution of wealth in society by exploiting investment opportunities according to their profitability, ie to create conditions for equal opportunities in the area of acquisition, preservation and utilization of human capital by improving the capital market.

There are various forms of resistance when communicating the preparation and obtaining political and public support for reforms of this type:

By those who wish to retain the benefits of benefiting from the economic and consequently social segregation of society, inequalities of opportunity, the possibility of investing in a social position (in the case of individuals, social groups and between countries).

Thus, a substantial part of the public, which reflects its often negative experience of misuse of "reforms" in the area of expectations to weaken their income position and consequently deepen economic segregation of society without being able to distinguish these pseudo-reforms from real reforms with the development, preservation and application of human capabilities.

Based on the concept presented above, real social situations, including in the field of communications related to economic issues, can be modeled and identified as key moments of social events. One of the important applications is to transform models into economic experiments, which allow to identify important determinants of human behavior associated with the influence of (often only subconsciously) experience, while finding what opens the way to a balanced and objective explanation of the risks and benefits of reforms that are necessary for the further development of society. Another application is addressed directly to those who will try to enforce relevant reforms in this area:

“From the top”: In this case, they will find support on how to explain exactly "up" there that the reforms are worth implementing, and "down" there to get allies and weaken any resistance to the reforms.

“From the bottom”: In this case, they will find a way of explaining exactly "down there" that the relevant reforms are worth implementing and weaken any resistance to the reforms from the public, thus getting "allies" up there.

The description of the games that are played in this context requires somewhat different concepts. Likewise, the question of whether, given the specific social conditions, reforms can be expected to come "from above" (in the form of "enlightened reign") or "from below" (in the

form of "qualified resistance") requires a separate analysis, and the different concepts and models that game theory can offer.

Conclusion

The paper shows that the problem of fair distribution of wealth in society can be solved as a so-called water problem. However, it is necessary to create a number of conditions:

- In the field of theory, create a background based on the economics of productive consumption as an overlap of neoclassical economics in the direction of identifying those economic effects of consumption that are associated with the acquisition, preservation and application of human capital.
- In the field of social reality, through interrelated reforms to enhance the role of the productive services sector, productive in contributing to the acquisition, preservation and use of human capital.

Game theory can provide incentives and create a solid foothold for those who are currently attempting the necessary reforms. Depending on how she is able to respond to current challenges, how much time pregnant with very complex problems will give birth to personalities capable of solving these problems also depends substantially.

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ADAPTATION OF THE CZECH LEGAL ORDER TO THE REGULATION OF THE EUROPEAN PARLIAMENT AND THE EU COUNCIL ON THE PROSPECTUS OF DEBT SECURITIES

ONDŘEJ ZELO

Abstract

The terms and conditions of issuance do not provide the investor with information about the issuer's ability to pay and thus meet its obligations. The absence of information on the issuer of bonds in the issuing conditions seems to be a problem in relation to the protection of small investors. At least a partial solution to this problem is the regulatory adjustment in national conditions inspired by the new legislation of the summary of the prospectus pursuant to Regulation 2017/1129 of the European Parliament and of the Council of 14 June 2017 on the prospectus to be published on a public offering or admission to regulated bond market.

Keywords

Regulation of the European Parliament and Council 2017/1129, bond market, investor protection.

Abstrakt

Emisní podmínky neposkytují investorovi informace o emitentově schopnosti splácet a dostát tak svých závazků. Absence informací o emitentovi dluhopisů v emisních podmínkách se jeví jako problém v souvislosti s ochranou drobných investorů. Alespoň částečným řešením tohoto problému je úpravou regulace v národních podmínkách inspirovanou novou právní úpravou shrnutí prospektu podle nařízení Evropského parlamentu a rady 2017/1129 ze dne 14. června 2017 o prospektu, který má být uveřejněn při veřejné nabídce nebo přijetí cenných papírů k obchodování na regulovaném trhu.

Klíčová slova

Nařízení Evropského parlamentu a Rady 2017/1129, trh dluhopisů, ochrana investorů.

JEL Classification

G24, P34

Introduction

The Chamber of Deputies is currently discussing a new bill amending certain laws in the area of financial market business regulation. The proposal has already been discussed and praised by the Government and is now being discussed by the Chamber of Deputies and is registered as the House Press 398.

The main reason why this proposal was created is the need to adapt the Czech legal order to the regulation of the European Parliament and the EU Council related to the prospectus of securities. This results in the deletion of the regulation governing the prospectus of the security issuer in the Capital Market Undertakings Act, as this would duplicate this new European regulation.

Another reason for the creation of the new law is the amendment of the Bonds Act. In the Bonds Act, the ISIN allocation should be newly regulated for each bond issue for reasons of transparency and traceability. In addition to these two changes, which are directly related to bonds, the new law is intended to regulate the distribution on the capital market, to adjust deficiencies in the Act on investment companies and investment funds and last but not least to adjust deficiencies relating to bankruptcy mutual funds.

The previous paragraph therefore mentions all the reasons for the creation of a new law, but the most important reason for submitting this proposal is the adaptation of the Czech legal order, namely the Capital Market Undertakings Act to the European Parliament and Council Regulation 2017/1129 of 14 June 2017 on the prospectus to be published on the public offer or admission of securities to trading on a regulated market, which was published on 30 June 2017 in the Central Journal of the European Union. This Regulation is effective from 21 July 2019 and replaces the Directive of the European Parliament and of the Council of the EU, in particular replaces Directive 2003/71 / EC of the European Parliament and of the Council of 4 November 2003 on the prospectus to be published of trading papers, and further replaces Directive 2001/34 /EC.

1 Discretion - Increase of the limit for exemption from the obligation to publish a prospectus from EUR 1 million to EUR 8 million, Current situation and legislation in force

The current legislation of the prospectus of securities is regulated in the Prospectus Directive contained in the Capital Market Act, specifically in paragraphs 34 to 36m and in paragraph 57. The prospectus is further regulated in Government Regulation No. 190/2011 Coll., Which stipulates and regulates certain limits related to the public offering of securities, the prospectus of the security and, last but not least, the information obligation of the issuer of the security. The aforementioned Prospectus Directive is further supplemented by European Commission Implementing Regulation No 809/2004.

1.1 Exemption from the obligation to publish a prospectus

Exemptions from the obligation to publish a prospectus are offered by securities whose value of consideration does not exceed 100 thousand. EUR for 12 months. Furthermore, they have an exception of a bid with a total consideration of EUR 5 million (this amount was increased by Amendment 2010/73 / EU from the original EUR 2.5 million). Last but not least, the issue of such issues, where the value of securities issued does not exceed EUR 1 million, this amount was increased in 2011 from the previous 200 thousand. On the basis of the adoption of Act 188/2011 Coll., Which partially amended many acts, including the Act on Capital Market Undertakings (Act No. 256/2004 Coll.), which regulated this value.

1.2 Considered legislative changes in the Czech Republic

In the new Regulation of the European Parliament and of the Council on the prospectus, the lower limit for the exemption from the obligation to publish a prospectus is increased to EUR 1 million. As far as the upper limit is concerned, the EU member states can set it according to their wishes, up to a maximum of EUR 8 million.

The current wording of the legislation in the case of Czech law sets a uniform limit for the exemption from the obligation to publish a prospectus for an issue value of up to EUR 1 million.

Thus, two options were considered when creating the new law. The first option was not to use discretion and to leave the current uniform limit for the exemption from the obligation to publish a prospectus at EUR 1 million. On the basis of this decision, the Czech Republic would be among the states with the most protectionist regime. While it is true that it is not yet known how other Member States will treat this discretion, it is very likely that countries that have previously had an exemption threshold above EUR 1 million are unlikely to lower that threshold. , but on the contrary, they will still consider its possible increase.

The second option considered was to accept discretion and thus increase the current threshold for exemption from the obligation to publish a prospectus to a value between EUR 1 and 8 million.

Experts from the CNB and other financial institutions were consulted on both options. After considering the pros and cons, it was proposed to use the first option, ie not to use the discretion, leaving the currently set threshold for exemption from the obligation to publish a prospectus at EUR 1 million. Consideration was given to what threshold would be ideal and sufficient for both investment crowdfunding and the protection of retail investors.

2 Discretion - Compulsory replacement of part of the prospectus summary with key information - applicable legislation and changes

An important part of the security prospectus, from which potential investors obtain all the key information about the issue that is necessary for the investor to assess the quality of the planned investment, is called the prospectus summary. The summary of the prospectus can be understood

as a short introduction to the whole prospectus, which must not exceed 7 pages of A4 size. After studying the summary of the prospectus, the retail investor should have the information to be able to make an informed decision about the planned investment.

Article 7 (7) of the new European Parliament and Council Regulation on the Prospectus provides for each EU Member State the possibility to require an issuer of a security to which the PRIIPs Regulation (Regulation of the European Parliament and of the retail investment products and insurance products with an investment component (CNB) obliges a key information document to replace the third section of the prospectus summary with information containing the key information document pursuant to Article 8 (3) of the PRIIPs Regulation. The particulars that must include key information statements under PRIIPs are significantly more comprehensive than the current requirements of the third section of the prospectus summary containing key information on the security issued.

The current wording of the legislation in the case of Czech law does not allow for a choice of choice and lays down uniform rules for the content particulars of the prospectus of a security.

Thus, when creating the new law, two options were considered. The first option was not to use discretion. As the new Regulation of the European Parliament and the Council of the EU introduces a new concept in the form of a key information document with summary prospectus information, the present prospectus summary will be changed in any case, even in the absence of this discretion. In case of non-use of discretion, the prospectus summary will have a uniform form, even if the issuer is already obliged to prepare the key information document pursuant to the PRIIPs Regulation.

The second option considered was the use of discretion, which would mean requiring issuers to replace the third part of the prospectus summary with a key information statement. However, choosing the second option would practically result in a dual regime for producing prospectus summaries, depending on whether or not the issuer is obliged to prepare the key information document under PRIIPs. Consequently, the prospectus would be expanded, which could be counterproductive given the purpose of the prospectus, as a brief summary of the basic information used to make objective decisions for potential investors.

After considering both variants it was suggested to use the first variant, ie not to use this discretion. Although the proposed solution in the form of replacing the third section of the prospectus summary with information containing PRIIPs key information messages may seem a rational step towards improvement, the introduction of a dual prospectus summary scheme that would result in that practical complications for potential issuers of securities. In a situation where the prospectus summary would include the key information document, the scope of the prospectus summary would also increase significantly, which, given the nature of the prospectus summary, as a concept of the summary information for retail investors, should be kept as concise as possible and the most transparent form. However, despite the non-use of discretion, it is proposed that the proposed option be left optional so that issuers can only use it if they are interested.)

3 Strengthening retail investor protection for non-prospectus bonds

The issue conditions are the main source of basic information for retail investors who invest their funds in corporate bond issues, which benefit from statutory exemptions from the obligation to publish a prospectus. The terms of issue achieve sufficient content on the issued bonds, but no longer provide sufficient information on the issuer of these bonds. For example, under the issuance conditions, the investor will not find any information about the issuer's ability to pay and thus meet its obligations. Such a lack of information subsequently raises doubts as to whether the terms and conditions of the bonds issued contain enough information to protect retail investors in a high-quality way.

The absence of information on the issuer of the bonds in the issuing conditions therefore appears to be a problem in relation to the protection of small investors. It would therefore be appropriate to focus on improving the structure and quality of information in these emission conditions. This offers the possibility of being inspired by the new legislation on the summary of the prospectus under the new European Parliament and Council Regulation on the prospectus. In terms of content, the prospectus summary is divided into four parts (introduction, issuer information, securities information and information relating to a public offer or admission to trading on a regulated market). Therefore, the prospectus summary contains sufficient information about the issuer of the securities compared to the issuance conditions and is now considered as a standardized communication of key information on the issue of securities with a fixed content format.

Conclusion

Under the legislation currently in force, issuers of securities benefiting from the exemption from the obligation to publish a prospectus are required to create only the issuing conditions but which do not contain the information necessary to assess the quality of the investment as contained in the issuer's prospectus.

Thus, when creating the new law, two options were considered. The first option was to keep the current legislation in force unchanged. However, the current legislation in force does not contribute much to the protection of a small investor if it wishes to invest in a bond issue where issuers benefit from an exemption from the obligation to publish a prospectus. This is due to the fact that the terms of issue in terms of their content do not provide potential investors with a sufficient amount of comprehensive information, especially information concerning the issuer of the security. Based on this fact, a small investor is not able to make a fully informed decision about a potential investment. The second option considered was to strengthen the protection of retail investors in relation to bonds issued using the exemption from the prospectus. Thus, in the context of the second option, it was decided that if this option were to be enforced, the protection of retail investors would be strengthened, in particular by requiring that each issued bond issue be assigned an ISIN (International Security Identification Number). It would thus identify all bond issues without exception, not as is currently the case under current legislation only for book-entry bond issues. This step would, among other things, streamline the collection of the necessary information resulting from the issues in question and thus increase protection in the bond market overall. In

relation to this information, it will be possible in future to make more effective and qualified decisions on further possible legal steps to improve the quality and protection of retail investors in the context of the emerging corporate bond market.

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