



Tomas Bata University in Zlín
Library

Determinants of profit repatriation: Evidence from the Czech Republic and OECD countries as a group

Citation

VU, Hoang Duong, and Drahomíra PAVELKOVÁ. Determinants of profit repatriation: Evidence from the Czech Republic and OECD countries as a group. *Structural Change and Economic Dynamics* [online]. vol. 67, Elsevier, 2023, p. 58 - 68 [cit. 2025-01-23]. ISSN 0954-349X. Available at <https://www.sciencedirect.com/science/article/pii/S0954349X23000905>

DOI

<https://doi.org/10.1016/j.strueco.2023.06.007>

Permanent link

<https://publikace.k.utb.cz/handle/10563/1011608>

This document is the Accepted Manuscript version of the article that can be shared via institutional repository.



TBU Publications

Repository of TBU Publications

publikace.k.utb.cz

Determinants of profit repatriation: Evidence from the Czech Republic and OECD countries as a group

Hoang Duong Vu^{a,b,*}, Drahomíra Pavelkova^a

^a*Tomas Bata University in Zlin, Faculty of Management and Economics, Mostni 5139, Zlin 76001, Czech Republic*

^b*Vietnam Institute of Economics, Vietnam Academy of Social Sciences, 1 Lieu Giai, Hanoi, Vietnam*

*Corresponding author at: Zahrebska 19, 61600 Brno, Czech Republic. E-mail address: vu@utb.cz (H.D. Vu).

ABSTRACT

The paper examines the determinants of *FDI* profit repatriation in the Czech Republic and *OECD* countries as a group from 2013 to 2019. By applying the Lintner model about repatriation decisions at the national level, the paper finds the following findings. Firstly, the repatriation rate in the Czech Republic is higher than in most *OECD* countries. Secondly, financial development and investment opportunities negatively affect the payout ratio of *OECD* countries as a group, while the appreciation of host countries' currency and higher effective rates positively affect the payout ratio of *OECD* countries as a group. However, in the case of the Czech Republic, two factors that cause a higher payout ratio are financial development and anti-corruption enforcement. It implies that the Czech Republic should improve its financial market development and reduce the level of corruption to keep the profit from *FDI* in the country.

Keywords: FDI, repatriation rate, Czech Republic. OECD, financial development, corruption enforcement, investment opportunity, currency exchange rate, effective rates

1. Introduction

The profit repatriation decision is one of the most important decisions in Multinational Corporations (*MNCs*) (Desai et al., 2014). The decision to repatriate or reinvest directly affects the flow of foreign direct investment and then impacts the economy of host countries. Several factors might affect the repatriation/reinvestment decision, including intra-firm factors and host countries factors. The intra-firm factors relate to the ownership structure of *MNCs*, parent company loans, or parent companies' financing needs (Desai et al., 2004). In comparison, the host countries' factors are tax rates, the credit supply of host countries, corruption (Tahir et al., 2020), appreciation/depreciation of host countries' currency, and the investment opportunity (Lundan 2006). As a recipient, a host country is unlikely to change the inter-firm factors, and if the host country wants to increase the capital from *MNCs*, they have to improve influencing factors from their side. Therefore, the paper focuses on host countries'

factors that could affect *MNCs'* decisions and then examines why *MNCs* repatriate their profits from some countries and reinvest in other countries. The topic is essential for host countries as the host countries want investors to reinvest money because if the investors repatriate their profits, host countries might lose capital for accumulation and investment (**Akkermans 2017**). Certainly, the recipient countries expect *FDI* firms to stay to earn more profit and host countries take full advantage of the appearance of *FDI* firms and The key point is that the host countries must be promising enough to keep the foreign investors. Otherwise, *FDI* can be “extractive institutions” that simply extract income and wealth (**Acemoglu and Robinson 2012**). Hence, identifying the determinants of repatriation is crucial.

The *FDI* inflow and outflow from *OECD* countries account for a large proportion of the global *FDI*. More specifically, in 2019, *FDI* inflow and outflow of *OECD* groups comprise 52% and 70% of the *FDI* worldwide (**OECD, 2021**). Therefore, the decision of *MNCs* to reinvest or repatriate their profits in *OECD* countries can affect the pattern of *FDI* in the world. Generally, the *IMF* Balance of Payments data shows that *OECD* countries repatriate more than 50% of their income from outward *FDI*. The dividend payout in *OECD* nations varies, and this paper attempts to examine the impact of several host countries' factors on this situation. Among *OECD* countries, the paper focuses more in detail on the case of the Czech Republic because of the following reasons. First, the Czech Republic is one of the most attractive destinations for foreign investors. In 2020, the ratio between *FDI* stock and *GDP* of the Czech Republic was 77.54% (rank 9th amongst *OECD* countries) (**OECD, 2022**). Hence, the impact of any *FDI* decisions, including repatriation decisions, can be seen clearly in the Czech Republic. Second, in the Czech Republic, dividend to *FDI* outward income or *GDP* are higher than other countries while the effective tax rate is comparatively low. The literature shows that one of the reasons for the repatriation decision is the tax difference between home countries and host countries (**Dodonova and Khoroshilov, 2007; Barrios et al., 2012; Tahir et al., 2018**). However, it is not the case in the Czech Republic. It implies that the high rate of repatriated profits in the Czech Republic depends on country-specific factors.

Given the importance of repatriation behavior and the specific situation of the Czech Republic, the paper examines the repatriation issue in this country. Within the knowledge of the authors, no paper examines the repatriation situation of the Czech Republic in a comparison with *OECD* countries as a group. Therefore, after comparing the repatriation ratio between the Czech Republic and *OECD* countries, the paper examines the impact of other determinants on the Czech Republic's repatriation ratio compared with *OECD* countries. The result is expected to point out the important determinants of repatriation in *OECD* countries as a group and also explain why repatriation in the Czech Republic is higher than in other countries.

Several papers use the **Lintner (1956)** dividend model when examining the repatriation issue, which provides a framework to analyze repatriation policies (**Desai et al., 2001, 2014**). The model is one of the best available for describing the dividend setting process (**Benartzi et al., 1997; Desai et al., 2014**). Therefore, the paper extends the Lintner model and applies it at the national level. Most papers that apply the Lintner model take dividend repatriation rate from the *MNCs* database. This paper takes advantage of the Balance of Payments to compare the Czech Republic and *OECD* countries.

The paper is organized as follows. The next part overviews the background of the profit repatriation in *OECD* countries with a more detailed focus on the Czech Republic, and hypotheses are developed. The methodology part describes the database and method to test the hypotheses. Consequently, the empirical results and discussion are followed. The last part of the paper concludes the paper.

2. Background

2.1. Overview of profit repatriation in the OECD countries and the Czech Republic

Repatriation in a country can be seen from the Balance of Payments as a part of direct investment income (Stehrer et al., 2020). The share of FDI outward income differs among OECD countries, with an average repatriation rate of 55% (Fig. 1). It implies that foreign investors in OECD countries tend to repatriate more than half of their income to their home countries. Greece is an outlier, where the rate is more than 100%. The Czech Republic is one of the top countries with the ratio between repatriated income, and FDI income is 64.74%.

From another perspective, Fig. 2 shows the share of repatriated profit to the GDP of OECD countries. Apart from the cases of Luxembourg, the Netherlands and Switzerland (the countries that are highly ranked tax havens¹), this ratio is lower than 7% across nations. Among OECD countries, the Czech Republic has a high rate of income repatriation over GDP. More specifically, this rate of the Czech Republic is 5.739% which is slightly lower than that of Belgium (6.770%) and Ireland (5.791%). Generally, the two ratios show that the repatriation rate of the Czech Republic is always higher than the average level of the OECD nations.

One of the reasons for the repatriation decision is the tax difference between home countries and host countries (Dodonova and Khoroshilov, 2007; Barrios et al., 2012; Tahir et al., 2018). MNCs tend to reinvest in the host countries where the tax is lower than in their home countries. However, the effective tax rate in the Czech Republic is relatively low compared to other OECD countries (Fig. 3). Therefore, it seems that tax is not the main reason for the high repatriation ratio in the Czech Republic.

Then the reason can come from the side of investors or the Czech Republic characteristics. From the investors' side, the main investors in the Czech Republic are the Netherlands, Germany, Luxembourg, Austria, and France. These countries have a high rate of dividend inward over GDP, especially Luxembourg and the Netherlands, which are considered tax havens (Fig. 4). It seems that MNCs from these countries tend to repatriate a high share of their profits overseas to their parent companies in their home countries. It can be one reason for the high repatriation rate in the Czech Republic. However, the Netherlands, Germany, Luxembourg, Austria, and France are also the main partners of some neighboring countries, including Poland and Slovakia, and they do not have as high a repatriation rate as the Czech Republic. Therefore, the paper attempts to examine the influencing factors of repatriation rates of the Czech Republic compared with other OECD countries.

2.2. Hypotheses development

Profits of multinational companies (MNCs) can be reinvested in host countries or repatriated as dividends to parent companies in their home countries. Host countries want investors to reinvest money because if the investors repatriate their profits, host countries might lose capital for accumulation and investment (Akkermans 2017). If FDI firms decide to reinvest their profit, the crowding in effect might arise (Kamaly 2014; Farla et al., 2016). From the investors' side, they might consider reinvesting or repatriating to maximize their benefits. The paper is based on the argument of Sornarajah (2010) is that "The main objective of all foreign investments is to make profits and repatriate those profits to the home state" (p.206).

¹ <https://cthi.taxjustice.net/en/cthi/cthi-2021-results>

However, the paper also argues that foreign investors might not repatriate their profits if they still see the chance to earn more profit in host countries. It can be seen as a win-win situation when *FDI* firms stay to earn more profit and host countries take full advantage of the appearance of *FDI* firms. The key point is that the host countries must be promising enough to keep the foreign investors. Otherwise, *FDI* can be “extractive institutions” that simply extract income and wealth (Acemoglu and Robinson 2012).

MNCs have to decide the repatriation policy to reduce the agency problem of using the cash flow from their earnings. The agency problem can be seen at the firm level or the national level. At the firm level, it is a conflict of interest between the principal - parent companies and agent -affiliates at host countries (Tahir et al., 2020). The principal authorizes and empowers the agent to run its business in the host countries, and the former heavily relies on the local knowledge of the latter. Then, agency problems occur if the goal of foreign subsidiaries is different from the goal of a parent company. Consequently, the parent company might use the repatriation policy to monitor and control the subsidiaries. Stulz (2005) argues that state rulers can increase their welfares by extracting profits from foreign investors at the national level. This expropriation by the states can bring "the agency problem of state ruler discretion"(Stulz 2005, 1597). In this case, *MNCs* might consider repatriating their profits rather than leaving them extracted by state rulers. This paper looks at the issue at the national level and temporarily ignores the interest conflict between parent companies and foreign subsidiaries. In this case, *MNCs* repatriate or reinvest depending on several conditions of host countries.

The first influencing factor is tax rates, which have been used widely in previous research (Hines 1999; de Mooij and Ederveen 2003; Devereux et al., 2002; Gorter and Parikh 2003; Altshuler and Grubert 2003). *MNCs* have to pay corporate income tax in host countries, and they might have to pay tax on repatriated earnings in their home countries as well. However, some countries exempt *MNCs* from paying tax for their earnings abroad, while some countries ask *MNCs* to pay tax for the repatriated earning conditional on the difference between the tax rate of their countries and host countries.

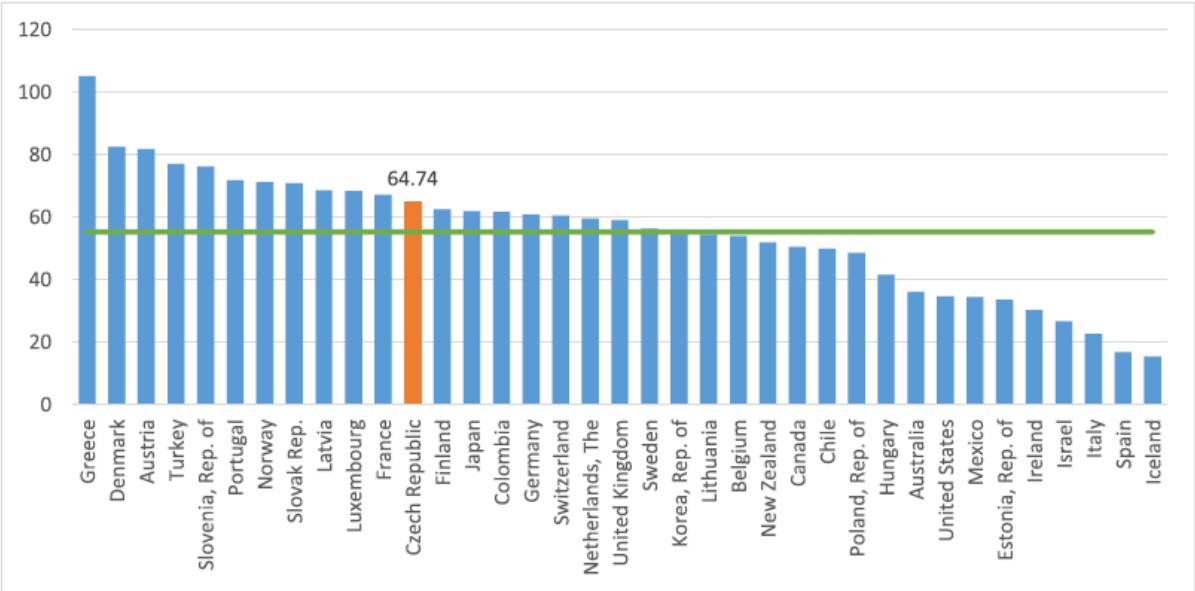


Fig. 1. Ratio between repatriated income and *FDI* outward income, 2000-2020 cumulated (%). Source: Own calculation on IMF

The first system is territorial taxation, and the second one is credit taxation. Therefore, tax can cause behavioral effects from which *MNCs* might decide to repatriate or reinvest their incomes (**Lundan 2006**). Lundan (2006) states that tax can affect the behavior of *MNCs* in four ways, including timing and extend of profit repatriation, the financing of foreign branches, joint venture activities, and the payment of royalties. **Similarly, Desai et al. (2001)** find that foreign affiliates of the US *MNCs* that locate in the higher tax rate areas have higher repatriation rates. **Grubert & Mutti (1999)** also find that subsidiaries in low effective tax rate countries only repatriate about 7% of their earning.

H1: The high tax rates in host countries have a positive impact on the repatriation rate.

Additionally, currency value can impact the repatriation rate because when *MNCs* want to repatriate their incomes, they need to convert money from local currency to their currency. A depreciation of the recipient's currency might have a negative impact on the repatriation decision of *MNCs* (**Lundan 2006**). In this case, consumption and production costs at host countries can be relatively cheaper, and then *MNCs* might be motivated to invest rather than to repatriate their earnings. Moreover, **Tahir et al. (2018)** argue that exchange rate fluctuation is an essential factor that affects the decision of *MNCs*. More specifically, the appreciation of the currency of the host country against the currency of the home country might lead to higher dividend repatriation (**Tahir et al., 2018**). **Polat (2016)** agrees with this argument stating that repatriation is the opportunity cost of keeping funds in host countries then certainly, the appreciation of exchange rate negatively affects reinvestment. Generally, the existing studies show that depreciation/appreciation in the value of the currency of host countries leads to a negative/positive impact on the repatriation rate in those countries. This paper uses the real effective exchange rate to capture the value of the host countries' currency. A positive coefficient implies appreciation, and a negative coefficient implies depreciation.

H2: The appreciation of host countries' currency has a positive impact on the repatriation rate.

Another factor is corruption. Corruption in host countries might lead to a lower profit for *MNCs* because they need to pay extra costs to obtain contracts or agreement with local authorities (**Tahir et al., 2020; Blouin et al., 2012**). In countries with a high level of corruption, state rulers might improve their welfare by extracting profit from *MNCs* (**Stulz 2005**). Consequently, it is harder for parent companies to control and monitor the activities of their branches which in turn motivates them to ask for a higher level of repatriation (**Col and Errunza 2015**). Furthermore, a high level of corruption implies uncertainty about future cash flow because agreements might not be enforced by law (**Freckleton et al., 2012**), therefore, foreign subsidiaries may prefer to repatriate their earnings from those countries. Corruption can reduce the return on investment and put more risk in investment and **Cieslik & Goczek (2018)** show that corruption has a negative impact on the stock of international investment in recipient countries. Generally, the repatriation rate is expected to be lower in the host countries where anti-corruption enforcement is better.

H3: Anti-corruption enforcement has a negative impact on the repatriation rate.

Repatriation is a significant part of financial cash flows. Hence the repatriation decision of parent companies shows their concern on subsidiary cash flows to deal with their financial issues and affiliates' financial issues. (Desai et al., 2006, 2014). Firms in countries with a higher level of financial development have more chances to approach financing sources, and costs can be lower. From the side of parent companies, they can see that the lower cost of capital in the host countries can bring more opportunities for affiliates to earn a profit. Therefore, they might want to reinvest their profit instead of withdrawing it. Additionally, apart from deciding to repatriate or reinvest their profits, parent companies can let affiliates invest in passive assets which can be as good as direct remittances (Altshuler and Grubert 2003). In the host countries with the higher development level of the financial market, investing in passive assets is less costly, hence parent companies might not repatriate their profits. From the side of the affiliates, better financial development of host countries might provide them with a better chance to raise the capital with lower costs rather than waiting for subsidiary cash from parent companies. Therefore, in this case, both parent companies and affiliates have a motivation to stay in the host countries to get more profits, and consequently, the repatriation rate is lower. Moreover, Tahir et al. (2020) argue that the parent companies might include more debt in the capital structure of foreign subsidiaries instead of demanding dividends to reduce the agency cost or control issues. It might motivate the managers to perform better to avoid job loss or bankruptcy. The debt financing choice depends highly on the supply of credit and the financial market development of the host countries.

H4: The development of the financial market in host countries has a negative impact on the repatriation rate.

One important factor that encourages reinvestment and discourages repatriation is investment opportunities (Lundan 2006). Certainly, *MNCs* want to get more profit in host countries. If they can see favorable conditions and promising investment opportunities, they might be motivated to put more money in the host countries. Consequently, the repatriation rate could be lower. In fact, *FDI* is a multidimensional factor that includes equity capital, reinvested earnings and intracompany loans. *FDI* firms firstly come to host countries with initial equity capital and then the choice of financial structure can be adjusted from the future investment opportunities. They can raise the reinvested earning or intracompany loan depending on potential profits they can see from opportunities at the host countries (Polat 2016). More specifically, the repatriated earning component reflects the perception of parent companies. "If the parent sees the opportunity to make profitable investments in its affiliates, the parent might choose to reinvest more money in them" (OECD 2015, 29). There are several ways to present investment opportunities, including the *GDP* growth rate at the national level and income by *MNCs* at the industrial level (Lundan 2006). The paper uses the Doing Business index that has been developed by World Bank. The database is available for all *OECD* countries.

H5: Better investment opportunities have a negative impact on the repatriation rate.

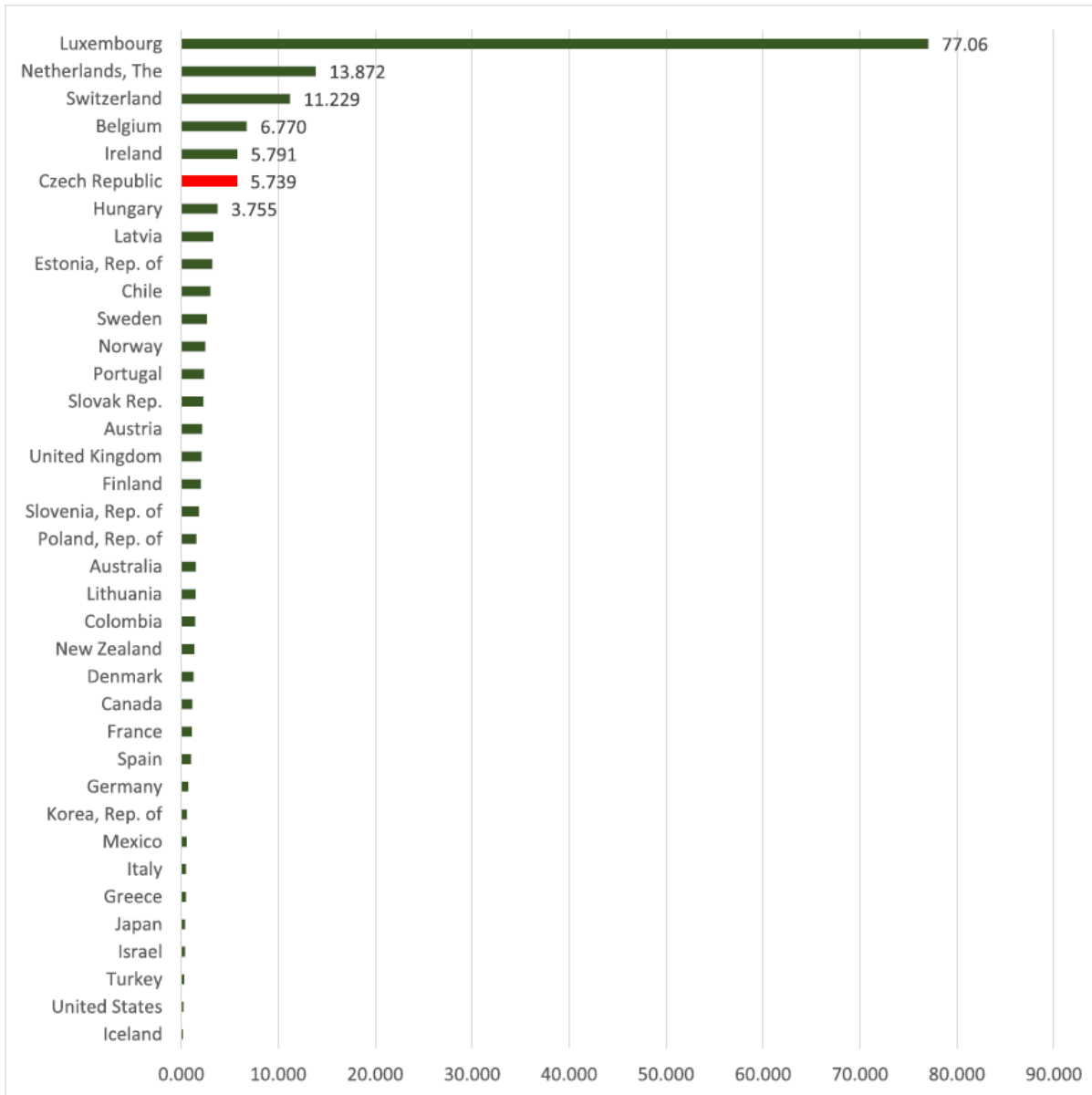


Fig. 2. Dividend repatriation/GDP in 2019 of OECD countries (%). Sources: WB and IMF

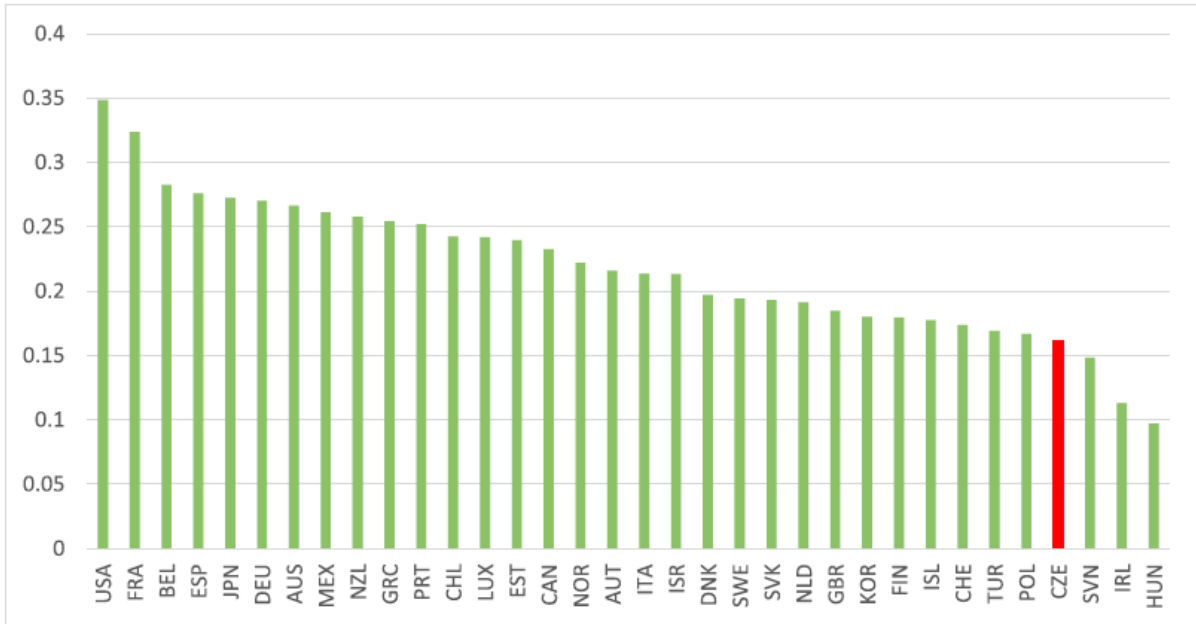


Fig. 3. Effective tax rate in 2017. Source: *ORA*

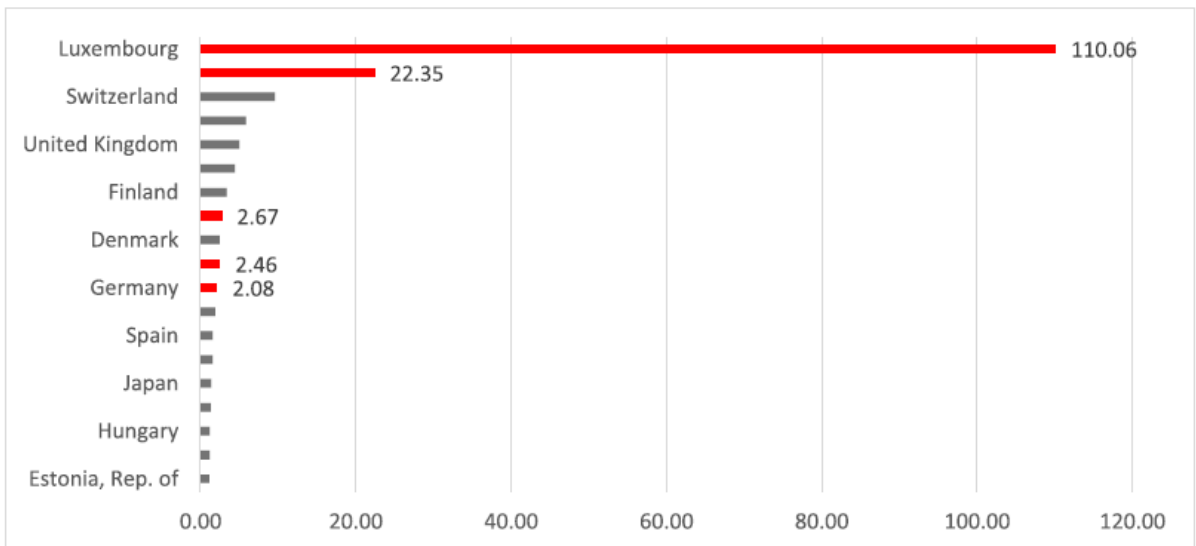


Fig. 4. Inward dividend as a share of *GDP* in 2019. Source: *WB* and *IMF*

3. Methodology

The paper makes use of the Lintner equation about dividend payment decisions. **Lintner (1956)** argues that firms might have the desired ratio level between dividend and earnings, but dividends are stable from years to years and slowly adjust to the desired level. Accordingly, several authors apply the method in the research of dividend and repatriation, including **Desai, Foley and Hines Jr., 2004**, **Lehmann and Mody, 2004**, **Desai et al., 2014**. The Lintner equation is as follows:

$$\Delta D_{it} = \alpha(D_{it}^* - D_{it-1}) + \varepsilon_{it} \quad (1)$$

Where ΔD_{it} is the change in the dividend of country i between time t and time $t-1$, α is an adjustment parameter, and ϵ_{it} is an error term. D_{it}^* is target dividends which equal to:

$$D_{it}^* = \mu + k_{it} Y_{i,t} \quad (2)$$

Where μ ..., k_{it} is the desired payout ratio which can be timevarying, and $Y_{i,t}$ is income. Then, plug it into the first formula, it is:

$$D_{it} = \alpha\mu + \alpha k_{it} Y_{i,t} + (1 - \alpha) D_{i,t-1} + \epsilon_{it} \quad (3)$$

Note that the key point here is not D_{it} but k_{it} that is the payout ratio. The payout ratio can be calculated by substituting the estimated coefficients of $Y_{i,t}$ and $D_{i,t-1}$ and solving at a steady state. It is given by the ratio of the estimated coefficient of income and the estimated adjustment parameter. Notably, until now, the Lintner equation is mainly applied at the firm level with D_{it} and $Y_{i,t}$ are dividend and income of firm i at time t . This paper attempts to apply it at the national level, and then D_{it} and $Y_{i,t}$ are dividend and income of a country i at time t . The payout ratio can vary and can be affected by several country-specific characteristics, then the formula becomes:

$$D_{it} = \alpha\mu + \alpha k(X)_{it} Y_{i,t} + (1 - \alpha) D_{i,t-1} + \epsilon_{it} \quad (4)$$

Where X is a vector of variables including tax, cost of capital, investment opportunities, anti-corruption enforcement, and exchange rate of host countries. The interaction terms between these variables and income are created to examine the influencing factors on the payout ratio. But. Importantly, the coefficient of $Y_{i,t}$ includes the payout ratio k , therefore, the interaction terms between $Y_{i,t}$, and other variables can impact the coefficient of $Y_{i,t}$, and then k – the payout ratio. This method is applied by **Lehmann and Mody (2004)** and **Desai et al. (2014)**. The paper uses the generalized least square (*GLS*) method with panel data to estimate coefficients in Eq. (4).

3.1. Data

Different to previous papers, the paper exploits data at the national level for *OECD* countries from 2013 to 2019. The Dividend (D_{it}) is collected from the *IMF*, which is the dividends and withdrawals from the Income of Direct Investment in the Current Account. The income of a country is represented by *GDP*, which is taken from World Bank. Previous papers apply the Lintner model at the firm level, and the income is a firm's income. This paper uses the Lintner model at the country level, hence the income of a country can be measured by *GDP*.

There are four common tax rates in the literature: statutory, average, effective marginal, and effective average. Tax-related variables are collected from Oxford University Research Archive. Statutory and average tax rates do not show the real burden on *MNCs* without deductions or tax holidays. Therefore, effective marginal tax and effective average tax rates can capture the impact of the tax in a better way

(Lundan 2006). The paper uses effective marginal tax rates to examine the impact on the payout ratio. The Corruption Perceptions Index from Transparency International measures corruption. Countries that control corruption better have a higher value of the index. The development of the financial market is presented by the financial market efficiency from IMF. Investment opportunities of countries are proxied by the Doing Business Index from World Bank. This index shows the ease of doing business in a country. It is calculated as an average of 10 dimensions: Starting a business, dealing with construction permits, getting electricity, registering property, getting credit, protecting investors, paying taxes, trading across borders, enforcing contracts, and resolving insolvency. The appreciation/depreciation of the host countries' currencies is proxied by the real effective exchange rates, which are collected from IMF². All monetary figures are in real value. Variables description can be seen in **Table 1**.

4. Results

Firstly, the paper applies the basic Lintner model to point out the difference between the Czech Republic and *OECD* countries as a whole. Then, other factors are added to examine their impacts on the payout ratio.

The Lintner model is applied for *OECD* countries in Model 1 in **Table 2**. The key points here are the adjustment parameter and the desired payout ratio. The adjustment parameter for all *OECD* countries equals 1-0.9575. The payout ratio at the steady-state equals the estimated coefficient on *GDP* divided by the adjustment parameter (Desai et al., 2014). Then the payout ratio is $0.0002/(1-0.9575)=0.004760$. This number implies that *OECD* countries in general only payout 0.47% of *GDP* as dividends.

In Model 2 in **Table 2**, the interaction term between Czech and *GDP* is created to examine the situation of the Czech Republic particularly. The coefficient of the interaction term is 0.0378, and it is statistically significant. It implies that the difference between the Czech Republic and other countries is 0.0378. The impact of *GDP* in the case of the Czech Republic is $0.0378 + 0.0003=0.0381$. Therefore, the payout ratio is $0.0381/(1-0.9447)=0.6889$. This rate is much higher than the ratio of *OECD* countries as a whole.

The authors compare the difference between the Czech Republic and other countries in the *OECD* group in Model 3 in **Table 2**. The interaction terms among *OECD* countries and *GDP* are created to compare to the Czech Republic as the base model. The negative coefficients mean that these countries have a lower payout ratio than the Czech Republic. The positive coefficients mean that these countries pay a higher rate than the Czech Republic. The result in Model 3 shows that the Czech Republic pays a higher dividend than most *OECD* countries when a majority of the coefficients are negative and significant. Only four countries pay a higher dividend to *GDP* ratio: Switzerland, Luxembourg, the Netherlands, and Chile.

Generally, the basic Lintner model shows that the dividend payout situation in *OECD* countries differs. Some countries, including the Czech Republic, Luxembourg, the Netherlands, Switzerland, and Chile, tend to pay a high ratio, while others tend to pay less. Therefore, the paper attempts to look at factors that influence the payout ratio by creating interaction terms between *GDP* and several variables. This approach is commonly applied in the literature (Desai et al., 2001, 2014; Lehmann and Mody, 2004).

² The real effective exchange rate is measured as effective exchange rate (a measure of the value of a currency against a weighted average of several foreign currencies) divided by a price deflator or index of costs.

The first factor is the effective marginal tax rate. The results in Model 10 in **Table 4** show that higher effective marginal tax rates bring a higher payout ratio in *OECD* countries. This result is equivalent to the findings of **Lehmann and Mody (2004)** and **Desai et al. (2014)**. It implies that MNCs tend to repatriate their profits from a country with a higher level of effective marginal tax rate because they might be taxed higher in the future. The first hypothesis is approved in the case of *OECD* countries as a group. However, the payout ratio in the Czech Republic is not affected by tax when the interaction terms between Czech and *GDP* and *EMTR* in Model 11 are not statistically significant.

The second factor is the real effective exchange rate. The paper confirms the impact of the real effective exchange rate on the dividend payout in *OECD* countries but cannot show a similar impact in the Czech Republic. The interaction term between *GDP* and *RXE* in Model 12 in **Table 4** is positive and significant. It means that the appreciation of the host country's currency positively affects the dividend payout of MNCs in *OECD* countries as a group. However, it is not the case in the Czech Republic when the interaction term Czech**RXE***GDP* in Model 13 is positive but not significant. Therefore, similar to the first hypothesis, the second hypothesis holds for the *OECD* countries as a group but does not hold for the Czech Republic.

The next factor is anti-corruption enforcement. Note that the variable here is anti-corruption and the higher value of anti-corruption means the lower level of corruption in the countries. The interaction term in Model 6 in **Table 3** is negative, which indicates that countries with a higher anti-corruption (mean a lower level of corruption) might have a lower level of repatriation. However, the coefficient is not statistically significant. Therefore, it is unable to confirm the impact of anti-corruption in Model 6. But in the case of the Czech Republic in Model 7 in **Table 3**, the coefficient of the term among Czech, anti-corruption, and *GDP* is positive and significant. It can interpret that anti-corruption in the Czech Republic is not good and corruption is a concern, and because of it, the payout ratio is higher. The coefficient of the interaction term of *GDP**anti-Corruption in Model 7 is equivalent to Model 6. It reveals that corruption in *OECD* countries as a group (except for the Czech Republic) does not impact the payout ratio. The difference between the Czech Republic and the rest is 0.0276.

The fourth influencing factor is the financial market efficiency that is the capability to provide financial services at low cost and with sustainable incomes. It implies that countries with a higher value of financial market efficiency could have a lower cost of capital. Then investors might want to reinvest in these countries rather than repatriate their profits. The coefficient of the interaction term in Model 4 in **Table 3** is negative and significant, which approves the argument and hypothesis 4. The payout ratio of *OECD* countries with the mean value of *FME* now is $(-0.0015 \cdot 0.5649574 + 0.0016) / (1 - 0.9266) = 0.011$.

Table 1 Variable description.

Variable	Unit	Obs	Mean	Std. Dev.	Min	Max	Source
Dividend	Mil. USD	259	153.87	237.78	0.12	1448.03	IMF
GDP	Mil. USD	259	12,284.8	28,335.79	141.10	182,808.4	WB
Doing Business	Index	238 ¹	77.26	5.16	62.3	87.5	WB
Anti-Corruption	Index	259	67.41	15.76	28	92	Transparency International
Financial market efficiency	Index	222 ²	0.53	0.37	0	1	IMF
Average marginal tax rates	%	259	0.14	0.059	-0.09	0.32	IMF
Real effective Exchange rate	LCU/EUR	259	97.05	10.14	61.69	145.38	IMF

Sources: IMF, WB, Transparency international.

¹ Data is not available for all *OECD* countries

² Data is not available for all *OECD* countries

Note that this payout ratio is incomparable to the payout ratio calculated from Model 1. This is because the database for *FME* is only valid until 2018; hence, the observation number in Model 4 is reduced to 185. The key point from Model 4 is the negative and significant coefficient of the interaction term. Turning to Model 5 in **Table 3**, the interaction term among *GDP*, *FME*, and Czech is created to examine the situation of the Czech Republic. Other pair interactions are also created to avoid the bias of the model. The coefficient of the interaction term in Model 5 is positive and significant, implying that in the Czech Republic, the financial market efficiency seems to encourage repatriation. In other words, the cost of capital in the Czech Republic might be more costly, and consequently, investors might not want to reinvest. The difference between the Czech and other *OECD* countries is 0.0518. More specifically, the payout ratio of the Czech Republic, with its mean value of *FME*, is 0.62, which is higher than the number of *OECD* countries as a whole (0.011). Generally, it can say that financial market efficiency is a factor that discourages repatriation in *OECD* countries. However, the current situation of that factor in the Czech Republic is encouraging *MNCs* to repatriate more.

The last factor is an investment opportunity, which is presented by the Doing Business Index from World Bank. Models 8 and 9 in **Table 3** examine the role of an investment opportunity on dividend payout in the *OECD* group and the Czech Republic. If investors find promising opportunities in the host countries, they might want to invest more to get more profit. Otherwise, they tend to withdraw their money by issuing dividends to parent companies or redistributing their profits to other branches in other countries. The results in Model 8 support this argument and hypothesis 5 when the coefficient of the interaction term between *GDP* and doing business is negative and statistically significant. Note that the observation here is 204 because some *OECD* countries do not have the Doing Business index. Turning to Model 9, the coefficient of the term among Czech Doing Business and *GDP* is negative and significant, which implies that the investment opportunity is a factor that reduces the dividend payout in the Czech Republic. The difference between the Czech and other *OECD* countries is 0.0281. It can interpret that *MNCs* can see a better potential chance to get more profit from the investing environment of the Czech Republic, which might stop them from repatriating their profits.

5. Discussion

The regression results show that most hypotheses are approved in the case of *OECD* countries but not for the Czech Republic. More specifically, the paper could not detect the impact of tax rate and exchange rate on the payout ratio of the Czech Republic. However, it does not imply that tax rate and exchange rates are not important factors in the Czech Republic; they only indicate that repatriation in the Czech Republic seems not to be affected by these factors.

Another interesting factor is anti-corruption enforcement. For the *OECD* countries as a whole, the paper is unable to detect the impact of corruption on repatriation. It is understandable because *OECD* comprises 38 advanced countries and the level of anti-corruption enforcement there is high (it also means that the level of corruption is low). Therefore, when considering *OECD* countries as a group, corruption should not be a problem. However, if considering a single country such as the Czech Republic, it is a problem. The result from regression is reasonable if we look at the corruption index of the Czech Republic. The corruption perception index from Transparency International shows that the level of corruption index of the Czech Republic is high among *OECD* countries³. Consequently, it can demotivate foreign investors to reinvest their profits.

³ <https://www.transparency.org/en/cpi/2020/index/cze>

Moreover, the impact of financial development on the Czech Republic is understandable. According to **Wardle and Mainelli (2022)**, Prague ranks only 68/119 centers in the world. Additionally, according to **World Bank (2020)**, the stock market capitalization of the Czech Republic stands at 56th place among 99 countries. Furthermore, the number of banks in the Czech Republic is 54, ranking 17th among EU28 (**Statista 2022**). All the indicators show that the financial market of the Czech Republic is relatively small compared to other developed countries. It could be an obstacle for *FDI* firms if they need financial instruments to finance their operation.

The implication of the paper is that the repatriation rate in the Czech Republic is higher than in other countries but it can be reduced if the financial market is improved and the level of corruption is under control. Additionally, the paper indicates that the investment opportunity in the Czech Republic is attractive to foreigners and this factor helps keep the profits of investors in the country. Therefore, it is better to keep improving this factor in the future.

6. Conclusion

The paper examines the profit repatriation rate in *OECD* countries and the Czech Republic from 2013 to 2019 using the Lintner model at the national level. Note that most papers used the Lintner model about the repatriation profit at the firm level, but this paper uses the national-level data from the Balance of Payments. Therefore, it is hard to compare this paper to the existing papers in the literature. The paper shows the following results. Firstly, the payout ratio in the Czech Republic is higher than in most *OECD* countries. Secondly, financial development and investment opportunities negatively affect the payout ratio of *OECD* countries as a group, while the appreciation of host countries' currency and higher effective rates positively affect the payout ratio of *OECD* countries as a group. However, in the case of the Czech Republic, two factors that encourage repatriation are financial development and anticorruption enforcement. Investment opportunity in the Czech Republic is the factor that encourages *MNCs* to reinvest, not repatriate their profits. The payout ratio is not affected by effective income tax and effective exchange rate in this country. The results imply that the high payout ratio in the Czech Republic might come from the insufficient development of the financial market and the high level of corruption in a comparison with *OECD* countries as a group.

Table 2 Regression result 1.

	Model 1	Model 2	Model 3
Lagged dividend	0.9575*** (0.0000)	0.9447*** (0.0000)	0.0930* (0.0216)
GDP	0.0002+ (0.0817)	0.0003* (0.0343)	0.0509*** (0.0000)
Czech		-64.6084+ (0.0537)	
Czech*GDP		0.0378* (0.0253)	
AUS*GDP			-0.0515** (0.0014)
AUT*GDP			0.0131 (0.5294)
BEL*GDP			-0.0353 (0.7046)
CAN*GDP			-0.0306*** (0.0000)
CHE*GDP			1.0545** (0.0075)
CHL*GDP			0.0680** (0.0029)
COL*GDP			-0.0204** (0.0089)
DEU*GDP			-0.0473*** (0.0000)
DNK*GDP			-0.0252 (0.1018)
ESP*GDP			-0.0393*** (0.0000)
EST*GDP			-0.0111 (0.5608)
FIN*GDP			0.0288 (0.3562)
FRA*GDP			-0.0525*** (0.0002)
GBR*GDP			-0.0781** (0.0046)
GRC*GDP			-0.0469*** (0.0000)
HUN*GDP			-0.0696* (0.0298)
IRL*GDP			-0.0724* (0.0160)

Table 2 (continued)

ISL*GDP			-0.0386*** (0.0000)
ISR*GDP			-0.0530*** (0.0000)
ITA*GDP			-0.0424*** (0.0000)
JPN*GDP			-0.0413*** (0.0000)
KOR*GDP			-0.0374*** (0.0000)
LTU*GDP			-0.0716*** (0.0000)
LUX*GDP			1.2725* (0.0160)
LVA*GDP			0.0427 (0.2942)
MEX*GDP			-0.0593*** (0.0000)
NLD*GDP			0.2539** (0.0064)
NOR*GDP			-0.0403** (0.0022)
NZL*GDP			-0.0361 (0.3194)
POL*GDP			-0.0383*** (0.0000)
PRT*GDP			0.0040 (0.8529)
SVK*GDP			-0.0050 (0.9251)
SVN*GDP			-0.0135* (0.0297)
SWE*GDP			-0.0620*** (0.0001)
TUR*GDP			-0.0491*** (0.0000)
USA*GDP			-0.0582*** (0.0000)
Country dummy	N	N	Y
N	222	222	222

p-values in parentheses

="+ p<0.1

* p<0.05

** p<0.01

*** p<0.001"

Source: Authors p-values in parentheses. ="+ p<0.1. * p<0.05. ** p<0.01. *** p <0.001". Source: Authors.

Table 3 Regression result 2.

	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Lagged dividend	0.9266*** (0.0000)	0.9205*** (0.0000)	0.9580*** (0.0000)	0.9284*** (0.0000)	0.9558*** (0.0000)	0.9319*** (0.0000)
GDP	0.0016* (0.0175)	0.0017* (0.0134)	0.0007 (0.2923)	0.0006 (0.3369)	0.0042* (0.0243)	0.0044* (0.0175)
FME	9.9030*** (0.0000)	9.7909*** (0.0000)				
GDP ² FME	-0.0015* (0.0234)	-0.0015* (0.0183)				
CZECH ² GDP ² FME		0.0518** (0.0092)				
Anti-corruption enforcement			0.0305 (0.1797)	0.0379 [†] (0.0888)		
GDP ² Corruption enfor.			-0.00007 (0.4212)	-0.00005 (0.5960)		
Czech ² GDP ² Corr. enfor.				0.0276*** (0.0000)		
Doing Business					0.0206 (0.1838)	0.0219 (0.1509)
GDP ² Doing Business					-0.00005* (0.0315)	-0.00005* (0.0264)
Czech ² GDP ² Doing Business						-0.0281 [†] (0.0791)
Czech		-64.6084 [†] (0.0537)		3146.9*** (0.0000)		-3979.99 [†] (0.0909)
Pair interaction terms	Y	Y	Y	Y	Y	Y
N	185	185	222	222	204	204

p-values in parentheses. = " + p < 0.1.

* p < 0.05.

** p < 0.01.

*** p < 0.001"

Source: Authors.

Table 4 Regression result 3.

	Model 10	Model 11	Model 12	Model 13
Lagged dividend	0.9537*** (0.0000)	0.9306*** (0.0000)	0.93230*** (0.0000)	0.8971*** (0.0000)
GDP	0.0009* (0.0410)	0.0010 [†] (0.0612)	0.00371*** (0.004)	0.0003 [†] (0.0526)
EMTR	7.0915 (0.1775)	7.6969 (0.1316)		
GDP ² EMTR	0.0031 [†] (0.0768)	-0.0024 (0.1737)		
Czech ² GDP ² EMTR		3.9831 (0.2667)		
Czech		1322.5170 (0.2939)		-407.7275 (0.1945)
RXE			0.01881 (0.152)	-0.0018 (0.4651)
GDP ² RXE			0.00003*** (0.007)	0.0000 (0.2808)
Czech ² RXE ² GDP				-0.0108 (0.1729)
N	222	222	222	222
Pair interaction terms	Y	Y	Y	Y

p-values in parentheses.

= " + p < 0.1.

* p < 0.05

** p < 0.01.

*** p < 0.001"

Source: Authors

References

Acemoglu, Daron, Robinson, James, 2012. Why Nations Fail: The Origins of Power, Prosperity, and Poverty. Crown Publishers, New York.

Akkermans, Dirk H M, 2017. Net Profit Flow per Country from 1980 to 2009: The LongTerm Effects of Foreign Direct Investment. PLoS One 12 (6), 1-28. [https://doi.org/ 10.1371/journal.pone.0179244](https://doi.org/10.1371/journal.pone.0179244).

Altshuler, Rosanne, Grubert, Harry, 2003. Repatriation Taxes, Repatriation Strategies and Multinational Financial Policy. J. Public Econ. 87 (1), 73-107. [https://doi.org/ 10.1016/S0047-2727\(01\)00173-6](https://doi.org/10.1016/S0047-2727(01)00173-6).

Barrios, Salvador, Huizinga, Harry, Laeven, Luc, Nicodeme, Gaetan, 2012. International Taxation and Multinational Firm Location Decisions. J. Public Econ. 96 (11-12), 946-958. <https://doi.org/10.1016/j.jpubeco.2012.06.004>.

Benartzi, Shlomo, Michaely, Roni, Thaler, Richard, 1997. Do Changes in Dividends Signal the Future or the Past? J. Finance 52 (3), 1007-1034. [https://doi.org/ 10.1111/j.1540-6261.1997.tb02723.x](https://doi.org/10.1111/j.1540-6261.1997.tb02723.x).

Blouin, Jennifer L, Krull, Linda K, Robinson, Leslie A, Graham, John, Guenther, David, Hanlon, Michelle, Mcdonald, Tim, Mills, Lillian, Sansing, Richard, 2012. 'Is U.S. Multinational Dividend Repatriation Policy Influenced by Reporting Incentives?'. The Accounting Review 87 (5), 1463-1491. <https://doi.org/10.2308/accr-50193>.

Cieslik, Andrzej, Goczek, Lukasz, 2018. 'Control of Corruption, International Investment, and Economic Growth - Evidence from Panel Data'. World Dev. 103, 323-335. <https://doi.org/10.1016/j.worlddev.2017.10.028>.

Col, Burcin, Errunza, Vihang, 2015. Corporate Governance and State Expropriation Risk. J. Corp. Finance 33, 71-84. <https://doi.org/10.1016/j.jcorpfin.2015.04.005>.

Desai, A., Fritz Foley, C., Hines Jr, James R, 2014. Dividend Policy inside the Multinational Firm. Financial Manag. 36 (1), 5-26.

Desai, Mihir A, Fritz Foley, C., Hines Jr, James R, 2001. Repatriation Taxes and Dividend Distortions. Natl. Tax J. 54 (4), 829-851. <https://search-ebshost-com.ezproxy.is.cuni.cz/login.aspx?authtype=shib&custid=s1240919&profile=eds>.

A Multinational Perspective on Capital Structure Choice and Internal Capital Markets. J. Finance (Wiley-Blackwell) 59 (6), 2004, 2451-2487. <https://search-ebshost-com.ezproxy.is.cuni.cz/login.aspx?authtype=shib&custid=s1240919&profile=eds>.

Capital Controls, Liberalizations, and Foreign Direct Investment. Rev. Finan. Stud. 19 (4), 2006, 1433-1464. <https://ideas.repec.org/a/oup/rfinst/v19y2006i4p1433-1464.html>.

Devereux, Michael P, Griffith, Rachel, Klemm, Alexander, Thum, Marcel, Ottaviani, Marco, 2002. Corporate Income Tax Reforms and International Tax Competition. Economic Policy 17 (35), 449-495. <http://www.jstor.org/stable/1344772>.

Dodonova, Anna, Khoroshilov, Yuri, 2007. Income Repatriation Decision for Multinational Corporations : Tax Issues. J. Account. Public Policy 26, 376-384. <https://doi.org/10.1016/j.jaccpubpol.2007.03.003>.

Farla, Kristine, Crombrughe, Denis D E, Verspagen, Bart, 2016. Institutions, Foreign Direct Investment, and Domestic Investment : Crowding Out or Crowding In ?'. World Dev. 88, 1-9. <https://doi.org/10.1016/j.worlddev.2014.04.008>.

Freckleton, M., Wright, A., Craigwell, R., 2012. Economic Growth, Foreign Direct Investment and Corruption in Developed and Developing Countries. J. Econ. Stud. 39 (6), 639-652.

Gorter, Joeri, Parikh, Ashok, 2003. How Sensitive Is FDI to Differences in Corporate Income Taxation within the EU? *De Economist* 151 (2), 193-204. [https://doi.org/ 10.1023/A:1023913618978](https://doi.org/10.1023/A:1023913618978).

Grubert, Harry, Mutti, John, 1999. Dividend Exemption Versus The Current System for Taxing Foreign Business Income. U.S. Treasury Department, Washington DC.

Hines, James R., 1999. Lessons from Behavioral Responses to International Taxation. *Natl. Tax J.* 52 (2), 305-322. <http://www.jstor.org/stable/41789395>.

Kamaly, Ahmed., 2014. Does FDI Crowd in or out Domestic Investment? New Evidence from Emerging Economies. *Modern Economy* 5. <https://doi.org/10.4236/me.2014.54038>.

Lehmann, Alexander, and Ashoka Mody. 2004. 'International Dividend Repatriations'. WP/04/5.

Lintner, John., 1956. Distribution of Incomes of Corporations Among Dividends,

Retained Earnings, and Taxes. *Am. Econ. Rev.* 46 (2), 97-113. <http://www.jstor.org/stable/1910664>.

Lundan, S.M., 2006. Reinvested Earnings as a Component of FDI: An Analytical Review of the Determinants of Reinvestment. Transnatl. Corp. 15 (3), 33-64.

Mooij, Ruud A de, Ederveen, Sjef, 2003. Taxation and Foreign Direct Investment: A Synthesis of Empirical Research. *Int. Tax Public Financ.* 10 (6), 673-693. <https://doi.org/10.1023/A:1026329920854>.

OECD. 2015. 'Measuring International Investment by Multinational Enterprises: Implementation of the OECD's Benchmark Definition of Foreign Direct Investment'.

OECD. 2021. 'Foreign direct investment in figures'. Retrieved from: <https://www.oecd.org/daf/inv/mne/investmentnews.htm#:~:aztext=30%2F04%2F2021%20-%20New,38%25%20decrease%20compared%20to%202019.&text=In%202020%2C%20global%20FDI%20flows,theii%20lowest%20level%20since%201999>.

OECD. 2022, 'FDI stocks (indicator)'. doi: 10.1787/80eca1f9-en (Accessed on 07 April 2022).

Polat, Burcak., 2016. 'Financial Components of FDI and Choice of Capital Structure : An Analysis for 30 OECD Countries. *Appl. Econ.* 1-12. <https://doi.org/10.1080/00036846.2016.1229418>.

Sornarajah, M., 2010. *The International Law On Foreign Investment*, 3rd ed. Cambridge University Press. <https://doi.org/10.1017/CBO9780511841439>.

Statista, 2022. Number of Banks in Europe (EU28) As of August 2021, By Country. Retrieved from. <https://www.statista.com/statistics/940867/number-of-banks-in-europe-by-country/>.

Stehrer, Robert, Stdlinger, Roman, Hunya, Gábor, Hanzl-Weiss, Doris, Holzner, Mario, Reiter, Oliver, Schratzenstaller, Margit, Bachtroegler-Unger, Julia, Kubeková, Veronika, Blomeyer, Roland, 2020. How EU Funds Tackle Economic Divide in the European Union. European Parliament, Brussels.

Stulz, Rene M., 2005. The Limits of Financial Globalization. *J. Finance* 60 (4), 1595-1638. <https://doi.org/10.1111/j.1540-6261.2005.00775.x>.

Tahir, Muhammad, Ibrahim, Haslindar, Hadi Zulkafli, Abdul, 2018. Exchange Rate Fluctuations and Dividend Repatriation Decision of Multinational Corporations. Glob. Busi. Manage. Res. Int. J. 10 (3).

Tahir, Muhammad, Ibrahim, Haslindar, Hadi, Abdul, Mushtaq, Muhammad, 2020. 'Corruption, National Culture, Law and Dividend Repatriation Policy. J. Multinatl. Finan. Manage. 57-58, 100658 <https://doi.org/10.1016/j.mulfin.2020.100658>.

Tahir, Muhammad, Ibrahim, Haslindar, Hadi Zulkafli, Abdul, Mushtaq, Muhammad, 2020. Influence of Exchange Rate Fluctuations and Credit Supply on Dividend Repatriation Policy of U.S. Multinational Corporations. J. Central Bank. Theo. Pract. 9 (s1), 267-290. <https://doi.org/10.2478/jcbtp-2020-0031>.

Wardle, Mike, and Michael Mainelli. 2022. 'The Global Financial Centres Index 31'.

World Bank, 2020. Listed Domestic companies, Total. Retrieved from. <https://data.worldbank.org/indicator/CM.MKT.LDOM.NO>.