

A Work Project, presented as part of the requirements for the Award of a Master's degree in
Economics from the Nova School of Business and Economics.

HOW CORPORATE TAX IMPACTS DECISIONS IN
MERGER AND ACQUISITION DEALS.
THE PHENOMENON OF "PROFIT SHIFTING"

BIANCA RONCALLI

Work project carried out under the supervision of:

Prof. Pedro Pita Barros

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Abstract

Using data on mergers and acquisitions, this paper aims at evaluating the impact of corporate tax on the type of M&A deals. The results suggest the existence of a negative relationship between the corporate tax rate charged in the target's country and the probability of having a merger/acquisition corresponding to 100% of the target company. Suggesting that cross-border deals, where the target's country is characterized by lower tax rates, may result in profitability gains for the acquiring company. Moreover, benefits and implications of a harmonized corporate tax base are presented as a possibility for hedging against "profit shifting" practices resulting in a reduction of cross-border M&A deals.

Keywords: Mergers and acquisitions, Corporate tax rate, Profit shifting,
Consolidated Corporate Tax base.

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1. Introduction

Despite the current worldwide economic situation, characterized by record levels of interest rates and inflation, and high uncertainty caused by the Ukraine War, the merger and acquisition market is still prospering. Even though it is not possible to surpass the outstanding results obtained in 2021 both in terms of number of deals as well as in terms of value, M&A transactions will become more relevant in corporate plans, and there may even be better possibilities for investors to produce solid returns in today's market as valuations fall.

Since the growing relevance of M&A, this paper aims at introducing the drivers of M&A deals and, particularly, at investigating the role that corporate taxation plays on the choice of the target's location. Given the fact that there is no unified and harmonized corporate tax system across the world, acquirer firms can exploit differences in taxation between countries for the practice of "profit shifting". In fact, what we have found out is that it exists a positive relationship between the corporate tax rate charged in the acquirer's country and the probability of having a merger/acquisition corresponding to 100% of the target company. On the other hand, the relationship with the target's corporate tax rate is of the opposite sign and an increase in tax rate in the target country will reduce the probability of having a complete deal. "Profit shifting" results in favoring low tax rate countries by enabling them to collect more tax revenues than high tax rate countries. Policy makers are exploring their options in order to reduce as much as possible this phenomenon. Already in 2011, the European Commission has proposed a reform of the taxation system in favor of a "Common Consolidated Corporate Tax" base, likely to reduce cross-border deals given their responsiveness to changes in taxation rates and the results obtained in later sections. This proposition carries pros and cons that will be analyzed later on.

The paper is structured as followed. Firstly, we review the relevant literature on the topic. Many authors already tried to prove and explain the role that taxation plays in cross-border M&A deals, and some of them also explored the motivations and possible benefits of acquiring a target located in a country considered as a tax haven. Next, we review how the M&A industry has evolved in recent years and what factors can be considered motives for mergers and acquisitions. We explore both microeconomic and macroeconomic drivers. The subsequent section will be describing the data obtained through the combination of two different datasets, ZEPHYR and OECD data, as well as theoretically introduce the empirical model that will be implemented later on. The second part of the paper will present the analysis and the result obtained. We will first test the hypothesis that in case the acquirer company has considerable taxable income it may be attracted to merge with a target characterized by significant tax losses. And secondly the hypothesis that an acquire may be able to exploit differences in corporate tax rate between countries in order to enjoy tax benefits once the deal is completed. The final section presents the policy implication and investigates what could be the pros and cons of a possible unified and harmonized European corporate tax system.

2. Literature Review

There is a vast literature investigating the role of taxation in M&A deals with particular attention on the effect it has on the choice of the target's location.

Atanassov, Bhagwat, and Liu (2018) used data on changes in state corporate tax rates in the United States to examine their effect on mergers and acquisitions. By implementing a linear probability regression over a firm-year panel what they discovered is that an increase in state's tax is related to a 1.5 percentage points higher probability that a firm announces an acquisition, while

for a tax decrease this relationship doesn't hold. Moreover, what they discovered is that, in order for the acquirer to enjoy tax benefits from the merger a relocation to the lower tax state of employees, revenues and activities must occur. Their main discovery is that M&A deals can be used by the acquirer as a method of neutralizing the negative effect on incentives of higher corporate taxes and that the main reasoning behind the negative relationship between the probability of being a target and increase in corporate tax is due to the fact that the acquiring company may choose a target with large operational losses in order to balance earnings of the acquiring firm.

Meier, Smith (2020) investigate the role of tax-havens on cross-border M&A deals and the effect of tax havens on real investment. One of their main assumptions is that tax-haven should be distinguished between small and large havens based on the volume of economic activity, GDP, characterizing the country. Moreover, they identify two different types of M&A deals: asset building and haven purchases. The first one refers to the case in which the acquiring company is located in the tax haven, while the latter relates to the opposite case, target country is a tax haven. In order to assess the effect of small and large tax havens on the aggregate M&A deal values they implement two gravity models, one with and the other without the control variables. They were able to identify a positive relationship between the number of M&A deals and size of the economy, geographical proximity, and colonial ties between acquirer and target countries, hinting at cultural and geographical factors as possible drivers for mergers and acquisitions. They were able also to estimate the amount of taxes avoided annually by the acquirer: for haven purchases avoidance is of \$20.2 billion, for non-haven purchases is \$31.3 billion, and for asset building is \$4.5 billion. Moreover, they discuss some policy reforms like formulary apportionment, define tax residence based on the companies' headquarters' location, and increase substance requirements to make more difficult to move tax domicile.

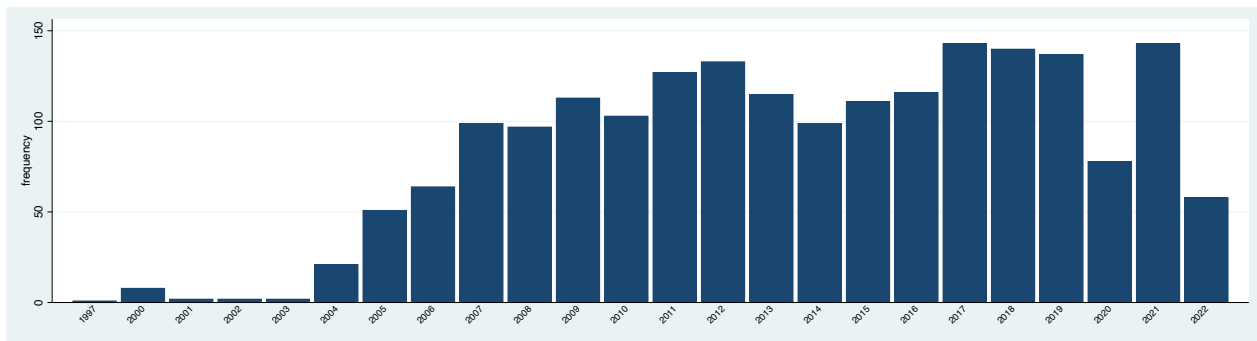
Arulampalam, Devereux and Liberini (2012) did a step further by making a specification distinguishing between multinationals and domestic companies. Firstly, they investigate the drivers of M&A deals reporting different cases in which surplus can arise. Subsequently they implemented a standard multinomial logit distinguishing not only multinationals and non-multinationals companies, but as well as between domestic and cross border deals. Also in this case, the role of cultural, geographical and economic factors is taken into consideration in the target's location choice. Their main conclusion was that, in general, target's tax rate has a negative impact on the probability of a target being acquired. On the other hand, this effect is dependent on some characteristics of the acquirer as well as if the deal is domestic or not. For example, multinationals are strongly impacted by both domestic and cross-border acquisitions while being less impacted by differences in taxes between acquiror and target countries. Moreover, in case an acquiror is established in a country that operates a worldwide tax system with a credit for foreign tax, it will not be affected by the tax rate charged in the foreign country.

And finally, we are going to present van der Horst, Devereux, Loretz, Bettendorf (2011) papers on the pros and cons of a corporate tax reform in the European Union. They studied the economic effect of the "Consolidated Corporate Tax" base and discovered that member states will enjoy benefits only if both the tax rate and tax base are harmonized so to increase, on average, GDP by 0.3%. On the other hand, this reform is improbable to generate significant benefits in efficiency, GDP and unemployment rate since differences in tax rates between countries will not be removed. This paper has been introduced with the purpose of framing the topic of our final discussion on the possibility of harmonizing and standardizing the corporate taxation framework, at least inside the European Union, to disincentivize the practice of profit shifting exploited by many multinationals.

3. Drivers of M&A Deals

From 2010 until 2021, over 500,000 M&A deals have been completed worldwide.¹ The yearly deal number has always been increasing but not at a constant trend. Some peaks in the number of deals were observed particularly in 2017 and 2021, as also reflected by the dataset at our disposal.

Figure 1: Number of completed M&A deals



Many industries' specialists have attributed this increase to a combination of both macroeconomic and microeconomic factors like inflation, high liquidity and unemployment, shortage of skilled employees has forced some CEO to resort to the use of M&A deals to quickly fix the problem, as well as the lack of target companies, and the need of some companies to change their operating and business model, by implementing transformative deals. However, the most common drivers for M&A deals are value creation, diversification, increase in financial capacity, personal interests and goals of top management, and tax motives.²

¹ Statista Research Department. 2022. "Number of M&A deals globally 2010-2021". Statista Website. <https://www.statista.com/statistics/267368/number-of-mergers-and-acquisitions-worldwide-since-2005/>. (accessed, November 26, 2022)

² Calipha, R., Tarba, S. and Brock, D. (2010)

1. Value creation³

After the completion of the deal, the merged entity may be characterized by synergies able to increase the value of the new company. In general, synergies can be of two different types: cost synergies and revenue synergies. Cost synergies highlight specific cost-reducing actions able to decrease the entity's cost structure. On the other hand, revenue synergies rely on the fact that the merged entity will be able to generate more revenues than the two separate companies.

2. Diversification⁴

Acquirers can exploit M&A deals to diversify its business by entering a new market or offering new products.

3. Increase in financial capacity⁵

This motive usually characterizes acquirers that have reached their financial capacity and are not able anymore to finance their operations. By acquiring the target, the merged entity will gain access to new and increased financial capacity.

4. Personal interest⁶

Might be in the personal interest of top management to carry out an M&A deal. Some of the motivations might be increase brand recognition by expanding its size of the market.

This will also result in an advantage over its competitors, reducing so competition concerns.

The motives related to taxes are the one we are most interested in and that we will go in more in depth in subsequent sections.

³ Roberts, A., Wallace W., Moles, P. (2016)

⁴ Roberts, A., Wallace W., Moles, P. (2016)

⁵ Roberts, A., Wallace W., Moles, P. (2016)

⁶ Roberts, A., Wallace W., Moles, P. (2016)

4. Data

Data on M&A deals come from the ZEPHYR dataset, one of the most comprehensive datasets available that offers information on historical detail, comparables, multiples and original document even for deals in niche markets. However, one of the main limitation of ZEPHYR is that does not provide financial information for privately held companies, this leads to missing values in our dataset.

The data on merger and acquisition deals taken into consideration are characterized by at least one of the companies involved being located in the Euro-area and filtered by selecting only merger and acquisition deals. This is done with the purpose of reduce our sample. The information relative to countries' corporate tax rate are from the OECD database, however one issue arises: not all countries included in the dataset are part of the OECD, this leads to some missing value in the *taxrateA* and *taxrateT* variables, identifying the corporate tax rate charged in the acquirer and target's country.

Table 1: Variable description

Variable name	Description	N° of observation
acquirer	Name of the acquiring company	1,963
acquirer_country	Country code for the acquiring company's headquarter country	1,948
target	Name of the target company	1,963
target_country	Country code for the target company's headquarter country	1,963
type	Type of M&A deal	1,963
value	Total deal value in EUR	1,780

same_industry	Dummy variable, takes the value of one in case the two merging companies belong to the same industry	1,936
same_country	Dummy variable, takes the value of one in case both target and acquiring company have their headquarters in the same country	1,963
announcedyear	Year in which the merger/acquisition was announced	1,963
completedyear	Year in which the merger/acquisition was completed (confirmed completion)	1,963
predTtax	Pre-deal tax paid by target company (last available data)	1,183
predAtax	Pre-deal tax paid by acquiring company (last available data)	1,082
postdTtax	Post-deal tax paid by target company (first available data)	952
postdAtax	Post-deal tax paid by acquiring company (first available data)	1,321
taxrateA	Corporate tax rate of the acquiring company's country during the announcement year	1,662
taxrateT	Corporate tax rate of the target company's country during the announcement year	1,619
percentage	What percentage of the target company was acquired	1,853
p_7	Dummy variable, takes the value of one in case the percentage of the target company acquired was 100%	1,963

completed	Dummy variable, takes the value of one in case the merger/acquisition was completed	1,963
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5. Methodology

5.1 Probit model

When the dependent variable is a dummy, meaning a variable that can only assume the value of 1 or 0, the probit model ⁷estimates the probability of a value falling into one of the two possible binary outcomes. We are so interested in modelling conditional probabilities, which corresponds to modelling conditional means:

$$E[y_i|x_i] = P(y_i = 1|x_i) = p(x)$$

where $p(x_i)$ is called response probability. With linear index models like probit, we employ non-linear functions to shape the response probability:

$$P(y_i = 1|x_i) = G(x_i\beta)$$

In most cases, while $x_i\beta$ is linear, $G(\cdot)$ is a non-linear function transforming the linear index into a real number bounded between 0 and 1. Generally, $G(\cdot)$ is a cumulative distribution function for a continuous random variable with density $g(\cdot)$. For the probit model, $G(\cdot)$ is the standard normal cumulative distribution function Φ . One of the assumptions of this model is that y_i , the dependent variable, is generated by a linear latent variable model where errors are normally distributed:

⁷ Greene, W.,H. (2003)

$y_i^* = x_i\theta + e_i$ Where y_i^* is not observed

$$e_i|x_i \sim N(0,1)$$

$$y_i = \begin{cases} 1 & \text{if } y_i^* > 0 \\ 0 & \text{if } y_i^* \leq 0 \end{cases}$$

From this we are so able to derive the response probability:

$$P(y_i = 1|x_i) = P(y_i^* > 0|x_i) = P(x_i\theta + e_i > 0|x_i) = P(e_i > -x_i\theta|x_i)$$

Therefore, considering the assumption made previously on the distribution of the error term:

$$P(y_i = 1|x_i) = 1 - \Phi(-x_i\theta) = \Phi(x_i\theta)$$

We are now able to characterize the conditional distribution using the cumulative distribution function. We can so write

$$f(y|x; \theta) = [1 - \Phi(-x_i\theta)]^{(1-y)} \Phi(x_i\theta)^y \quad \text{if } y \in \{0,1\}$$

We are able to do so since we have already established that: $P(y_i = 1|x_i) = \Phi(x_i\theta)$ and $P(y_i = 0|x_i) = 1 - \Phi(x_i\theta)$.

The log-likelihood function used to retrieve the coefficient we are interested in will then be:

$$\mathcal{L} = (1 - y)\ln(1 - \Phi(x\theta)) + y\ln[\Phi(x\theta)]$$

Then the partial effect for x_j , unconditional on y but still conditional on x , is equal to:

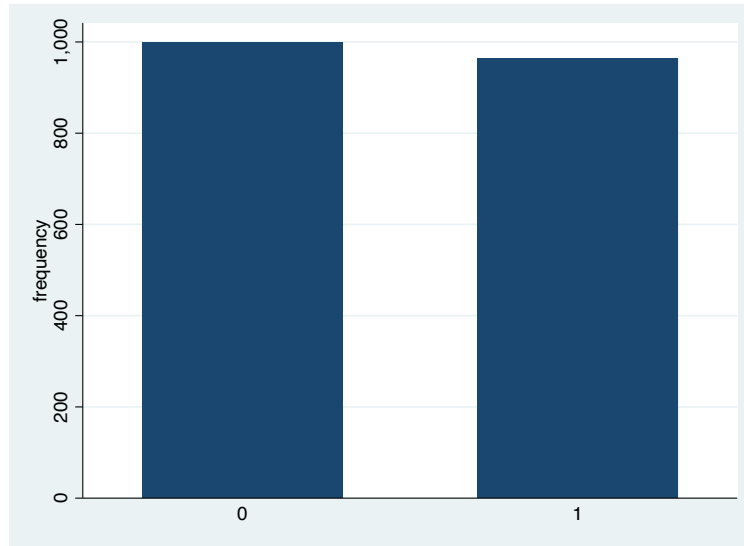
$$\frac{\delta p(x)}{\delta x_j} = \theta_j \phi(x\theta)$$

5.2 Account for microeconomics and macroeconomics drivers

As already discussed above, M&A deals are influenced by both microeconomic and macroeconomic events.

To capture the effect on M&A in a country of events like financial crisis or high inflation environment the variable *same_country* was introduced in the model. The underlying assumption is that, by introducing this variable, we control for exogenous factors affecting a country's economy. As mentioned before, macroeconomics events are considered as drivers for M&A deals, period of high liquidity and low inflation increase the number of mergers. Since we are interested in isolating the effect of a country's corporate tax on the probability of a complete merger/acquisition it is important to control for other factors that might have an impact on the dependent variable. Moreover, the *same_country* variable enable us to distinguish between domestic and cross-border deals, since is obtained by comparing the variables *acquirer_country* and *target_country*. This variable will take the value of one in case acquirer and target operate in the same country, identifying domestic mergers/acquisitions, while the value of zero in the opposite case, when the deal is cross-border.

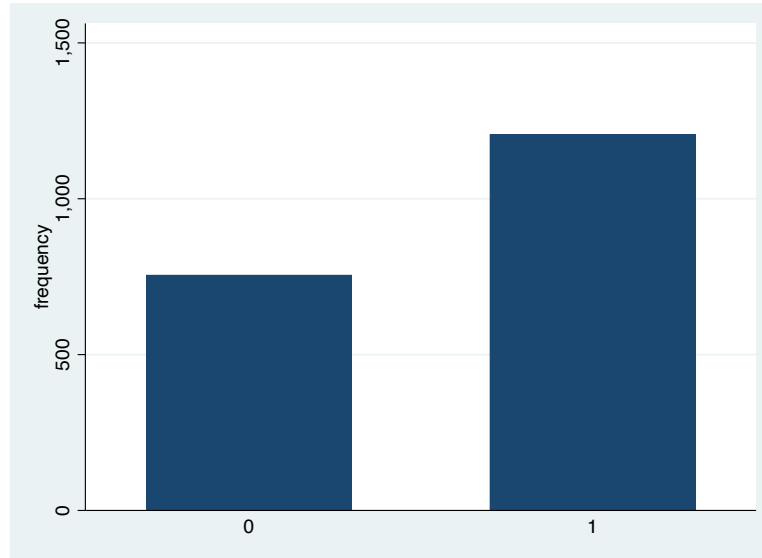
Figure 2: Summary of *same_country* variable



On the other hand, the variable *same_industry*, obtained by comparing the target and acquirer's industry variables provided by Zephyr, was introduced to capture microeconomic trends affecting a certain industry like labor shortages, degree of competition, raw material shortages, etc.

Also in this case, the underlying assumption is that two companies in the same industry will be affected by the same macroeconomic shocks that might be considered by a possible acquirer as motives for an M&A deal. Moreover, the *same_industry* variable discloses also the possibility that the driver of a deal was diversification, if the acquirer wants to expand into another industry this variable will take the value of zero, or value creation, in case the acquiring company's wants to reduce costs or increase revenues the value of it will be equal to one.

Figure 3: Summary of same_industry variable



6. Tax Motives for M&A Deals and Results

As briefly mentioned before, tax can be considered as one of the drivers of M&A deals. It is possible to identify two potential benefits related to taxation:

- a) In case the acquirer has considerable taxable income, it may be attracted to merge with a target characterized by significant tax losses. After the deal is completed, the resulting entity will be able to enjoy lower tax liabilities.

We are going to implement the model described above in order to verify if this statement holds true also with the data we have available.

Table 2: Results for Domestic Deals

p_7	Coefficients	Std. Err
announcedyear	-0.0208927	0.149853
same_industry	0.3136234	0.1376443
acquirer_country	-0.1329029	0.741763
target_country	0.1186065	0.064557
predAtax	-9.50E-07	3.53E-06
predTtax	8.25E-06	3.63E-06
Pseudo R2: 0.0471		
Number of obs: 413		

First of all, is important to mention that this regression is characterized by a huge drop in the number of observation (from 1,963 to 413) due to the fact that privately held companies are not mandated to publicly disclose their financial statements leading to missing values in the *predAtax* and *predTtax*.

Considering only domestic mergers this holds true. In fact, by looking at the coefficients obtained we notice that an increase in the amount paid by the acquirer in taxes before the deal will reduce the probability of having a merger/acquisition corresponding to 100% of the target company. On the other hand, we see that an increase in target's tax liabilities will increase the probability of having a complete merger/acquisition.

As shown by the table below, however, this does not hold true for cross-border M&A deals, hinting to other possible tax benefits influencing the decision of going through with the deal. While the interpretation of the coefficient for the *predAtax* remains the same, we see that the opposite happens for *predTtax*, in this case an increase in target's tax liabilities will reduce the probability of having a complete M&A deal.

Table 3: Results for Cross-Border Deals

p_7	Coefficients	Std. Err
announcedyear	0.0369186	0.0169363
same_industry	-0.1596552	0.1614664
acquirer_country	0.0049973	0.0041988
target_country	0.0074826	0.0037931
predAtax	-4.03E-07	3.82E-07
predTtax	-5.93E-06	4.54E-06
Pseudo R2: 0.0293		
Number of obs: 317		

- b) Acquirer may be able to exploit differences in corporate tax rates between countries in order to enjoy tax benefits once the deal is completed. In theory, if acquirer and target's company are active in two different industries characterized by two different tax rates, is it possible that the acquirer takes advantage of this difference in tax rates.

Considering this, the target's location should play an important role in the surplus generated by the M&A deal.

Let's assume that the target is subject to high costs, since is established in a high cost economy. This may motivate the acquiring company to enter an M&A deal in order to switch the acquired company from high cost to low cost through processes of reorganization, improvements of technological equipment, or better training for both employees and management. However, due to high wage level in a country, there will be some limitations to the feasible savings arising from reorganization. Consequently, is riskier for an acquirer to undertake such type of deal since the benefits are not granted and depend on different exogenous elements. This is the reason why, together with the fact that the tax saving activities are generated in the acquirer's country, this particular case is not much of our interest.

On the other hand, what we are interested in is the common practice of “profit shifting”. The practice of profit shifting is commonly associated with tax havens. In recent year many multinationals have been accused of moving their profits from the countries where they produce and distribute their goods and services to countries considered tax havens in order to enjoy lower taxations on their revenues. Some multinationals also incurred in considerable legal fines because of it, one of the most infamous cases is the one known as the “Unhappy Meal Case” involving McDonalds⁸. However, we are not interested in the extreme case of companies merging with targets located in tax havens, but just with targets located in countries characterized by lower tax rates.

The first possibility for profit shifting is related to the lending activity, the target, located in the low tax country, will be lending to the acquirer, in the high tax country. This way the acquirer will be able to achieve a tax relief on interest payment by exploiting the lower tax rate charged in the target’s country.

Another possibility is the case in which the acquirer chooses to merge with a company located in a lower tax rate country in order to capitalize on the possibility of mis-price the transaction to shift revenues from the high tax country to the low one, this is extremely common in vertical mergers.

The following tables reports the targets countries that were involved in more than 15 deals over the timeframe we have taken in consideration.

⁸ European Federation of Public Service Unions. 2016. “Unhappy Meal €1 billion in Tax Avoidance on the Menu at McDonalds’ “. Notaxfraud.eu website. March 2016.
<http://www.notaxfraud.eu/sites/default/files/dw/FINAL%20REPORT.pdf>

Table 4: Countries with more than 15 M&A deals

target_country	Freq.	target_country	Freq.
AT	30	GB	88
AU	12	IE	33
BE	60	IT	167
CA	39	LU	21
CH	16	NL	93
CN	51	NO	37
CY	36	PL	42
DE	169	PT	34
DK	31	RU	66
ES	111	SE	85
FI	53	US	166
FR	195		

Figure 4: Countries with more than 15 M&A deals

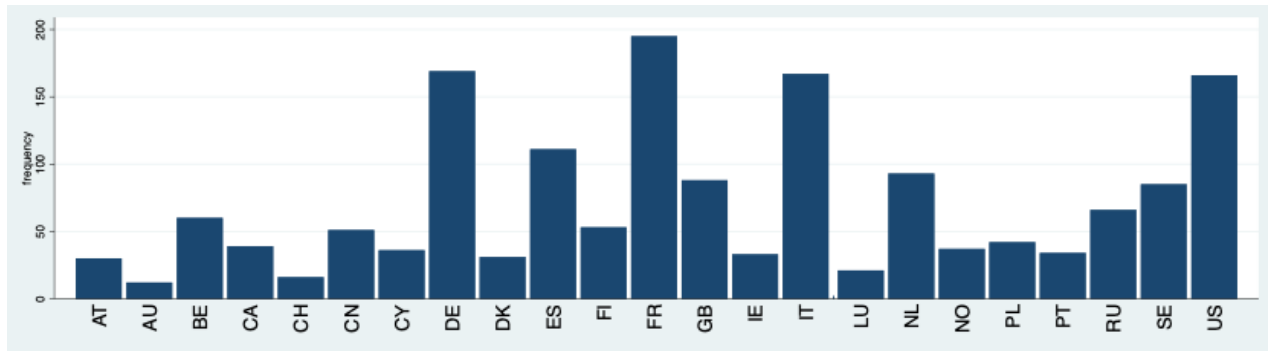
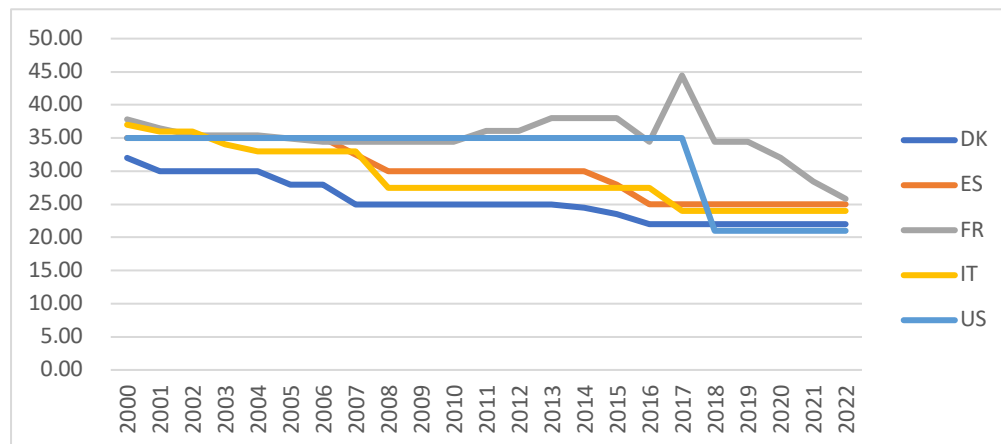


Figure 5: Evolution of corporate tax rate



By further reducing the countries under observation, considering only the one that were involved in more than one hundred deals, and comparing it to the average tax rate of target's countries we notice that from 2005 onward the countries included in the graph are below it. This can be a possible explanation of why these countries were the most popular choice for target countries in our dataset.

Table 5: Description of taxrateT variable

Variable	Obs.	Mean	Std. Dev.	Min	Max
taxrateT	1,619	25.65672	7.382209	8.5	44.4

Table 6: Results for Cross-Border Deals

p_7	Coefficients	Std. Err
announcedyear	0.0171867	0.0115039
same_industry	-0.1381563	0.1258266
acquirer_country	0.0135971	0.0029648
target_country	0.0031576	0.0032934
taxrateA	-8.49E-03	8.06E-03
taxrateT	-1.20E-02	7.95E-03
Pseudo R2: 0.0477		
Number of obs: 588		

Since we are interested in investigating the effect of differences in corporate tax between the target and acquirer country on the probability of having a 100% merger/acquisition we should focus only on cross-border deals, defined as deals in which the acquirer and target companies are from two different countries.

The above regression confirms what stated since now. By looking at the coefficient of the *taxrateA* variable we see that, keeping all the other variables constant, an increase in the acquirer's corporate tax will reduce the probability of having a complete deal. This is because an increase in corporate tax will result in more tax liabilities for the acquirer that will lose the incentive to expand its activities through an M&A deal due to the increasing costs. Moreover, the acquirer is further discouraged by the fact that it will be charged higher taxation on the additional revenues resulting from the merged entity.

Looking at the interpretation of the *taxrateT* coefficient we notice that also in this case there is a negative relationship between this variable and the dependent one, and the interpretation does not differ from the one just provided for the *taxrateA* variable. Assuming that the acquirer is not characterized by considerably high taxable income, higher corporate tax will translate in higher costs for the target company making it less attractive to the acquirer.

On the other hand, we could focus mainly on the cases where it exists a gap between the target and acquirer's corporate tax rate and so where it is possible for the acquirer to shift its profits to the lower tax economy.

Table 7: Results for "Profit Shifting" Deals

p_7	Coefficients	Std. Err
announcedyear	0.0451325	0.170396
same_industry	-0.295592	0.1922395
acquirer_country	0.005975	0.004445
target_country	-0.0002799	0.0045508
taxrateA	3.41E-02	1.77E-02
taxrateT	-1.54E-01	1.74E-02
Pseudo R2: 0.0622		
Number of obs: 272		

In fact, in this case we see that the coefficient of the *taxrateA* variable has changed. Keeping all other variable constant, an increase in the corporate tax rate charged in the acquirer country will increase the probability of having a complete merger with a company located in a country with a lower corporate tax rate.

On the other hand, the opposite holds true for the variable *taxrateT*. An increase in the target's corporate tax rate will reduce the gap between the two taxation indexes making the target less attractive to the acquirer that aims at shifting profits.

Even though the different models implemented since now are in line with the theory, our models present some limitations. First of all, in cross-sections data, like the one used in our computations, the R^2 of the model is very low and there are several variables that are not significant. This is due to the fact that there many heterogeneous features of the M&A deals that are not properly captured by our data. As the literature suggests, the use of panel data and fixed effect is more commonly used in this framework in order to filter out the heterogeneity of the dataset.

Secondly, as already mentioned before, some of our variable, in particular *predTtax* and *predAtax*, have missing value, since privately held companies are not mandated to disclose their financial information. When including both variables in the model we observe a drastic drop in observations implying a more imprecise estimations of the variables on the probability of having an 100% merger/acquisition deal.

Moreover, for the purpose of completeness, we could deepen our analysis by including in our dataset information about possible M&A deals in order to investigate the effect of shock in tax rates on these deals. However, information as such is impossible to retrieve and therefore our analysis has further limitations.

7. Conclusions

As just discussed in the latter section, corporate taxes are a relevant driver of M&A merger also because can enable the acquirer to both reduce its costs and increase its revenues. On the other hand, policy makers are trying to stop the phenomenon of “profit shifting” because detrimental to countries considered as high tax. In fact, this practice does not only reduce government’s tax revenues, but will also affect national GDP and unemployment rate. Let’s assume the extreme case in which we will only consider two countries with only two companies: company A, in high tax country, and company B, in low tax country. Moreover, we hypothesize that the company A wants to acquire company B in order to move its production there. This will cause in country A a drop in national GDP as well as an increase in the unemployment rate. Even though in a very simplified scenario, this example summarized the effects of “profit shifting” and clearly illustrates the reasons why many policy makers are trying to implement reforms. One possible option is known as “formulary apportionment”. Under this reform, companies instead of calculating their earnings separately in each tax jurisdiction they operate in, will have to distribute their tax obligations across the nations in which they are present. This allocation is based on estimates of real economic activity in each area. However, this proposal carries major drawbacks. In order for the formulary apportionment to effectively works, international cooperation between major economies as well as standardized accounting methods for profits estimations are required.

On a similar note, another possibility was firstly proposed in 2011 by the European Commission and is known as the “Common Consolidated Corporate Tax” base aiming at reducing profit shifting activities and facilitating cross-border investments. This reform consists in file a European consolidated profit on a common definition of the tax base. This profit would be allocated

to member states on the base of apportionment formula considering employment, payroll, assets, and sales.⁹

However, this proposal carries two major disadvantages. Firstly, a common consolidated corporate tax will imply that some member states, especially smaller countries, will be forced to increase their corporate tax rate making them less attractive to more developed economies. This will not only be detrimental from a tax revenues point of view but will also increase the unemployment rate of these countries. Moreover, there are other countries outside the Eurozone that are characterized by low corporate taxes. Therefore, increasing tax rates in Europe will chase away many multinationals that would rather move their operations, that pay higher corporate taxes, resulting in lower tax revenues for member states.

Even though it seems there isn't an optimal solution to the problem of profit shifting, policy maker should focus on finalizing a tax reform since we have proven that differences in corporate tax rates between countries are a possible driver of M&A deals.

Nonetheless, we have demonstrated that assuming a merger/acquisition deal has occurred, it is more likely to be cross-border if there are corporate tax rate differences between the target and the acquirer country. However, taxation motives are not mutually exclusive, companies, other than exploiting profit shifting practices, are still able to take advantage from possible costs or revenues synergies arising from the merged entity.

⁹ Van der Horst, Albert, Devereux, Michael, Loretz, Michael, and Bettendorf, Leon. 2011. "Corporate tax reform in the EU: Weighing the pros and cons". VoxEU, March 20. <https://cepr.org/voxeu/columns/corporate-tax-reform-eu-weighing-pros-and-cons>

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