The Influence of Taxes on Foreign Direct Investment:  
Systematic Literature Review and Bibliometric Analysis

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Abstract:

**Purpose:** The paper proposes a systematic review and bibliometric analysis of the corporate finance literature on tax and multinational investment, since the complexity of legislations and taxation is a challenge to researchers who seek to understand their influence on corporate financing decisions. It presents the most relevant papers about the influence of taxes on corporate capital structure, classifies and codifies the various characteristics of these articles, describes the strengths and weaknesses of the studies and provides an agenda and a research framework to address the key gaps in the current knowledge on the theme.

**Approach/Methodology/Design:** The study classifies 41 selected articles cited in the WoS database. The papers are reviewed and their main contributions are identified.

**Findings:** The results indicate that tax is a determinant for multinational companies. However, the complexity of the legislations implies problems in estimating and the results of these studies. Among the knowledge gaps identified, the estimation problems of the models stand out, due to the difficulty in calculating the tax proxies. The papers present opposite results for the same information bases and research problems, depending on how the tax independent variable is modulated.

**Practical Implications:** The study will contribute positively to the understanding of foreign direct investments, world organizations, multinational companies and investors.

**Originality/Value:** To the best of the authors’ knowledge, this is the first systematic review identifying what is missing in the literature on taxation and capital structure of multinationals, while offering recommendations for future studies.

**Keywords:** Tax, Foreign Direct Investment, capital structure, systematic literature review, bibliometric analysis.

**JEL:** F38, F30, F23, G30.

**Paper Type:** Literature review study.

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1. Introduction

In 1905, the German economist Georg Friedrich Knapp formulates the thesis that currency and taxes are inseparable. All economic agents have assets and liabilities with the State. Thus, the currency becomes the unit of accounting. According to Knapp (1924), the acceptance of the currency stems from the fact that it may be used to pay taxes. Taxation is known as having an influence on financing and investment corporate decisions. According to the trade-off theory (TOT), the company, encouraged by the indebtedness tax advantage, resorts to third party capital to the level at which the costs, associated with bankruptcy risks, outweigh this advantage. Barclay et al. (2013) synthesize the relevance of this discussion by highlighting the core question about the existence or not of an optimal capital structure for companies. They inquire: how could investment financing be divided between equity and third parties’ capital, to maximize the company's value?

From the 1990s onwards, the world market gains greater business flow and competition between countries stimulates the reduction of corporate income tax rates. Huizinga et al. (2008) observe a gradual decline in effective marginal rates, from around 38% in 1994 to 33% in 2008. In addition, the latest global financial crisis - which starts in 2007 in the United States - broadens tax competition as a consequence of the budget deficits acceleration in developed countries. In this scenario, companies implement strategies on global platforms, producing in different continents and registering their assets in several countries, which are not necessarily the organization’s origin’s. According to Damgaard et al. (2019), foreign direct investment (FDI) is an important driver of international economic integration. For the authors, FDI is also guided by the possibility of tax payment reduction, and part of the investments is channeled to tax havens. The International Monetary Fund (IMF) estimates a stock of 15 trillion dollars deposited in these countries in 2018.

Dunning (1977) presents studies on the performance of companies abroad, to clarify the *modus operandi* of international production and management. His theoretical approach - eclectic paradigm - points out the reasons why multinational companies (MNCs) opt for a global strategy rather than being limited to the national territory. According to the author, MNCs have advantages over domestic organizations, such as: lower production costs and better quality of goods - enabled by research and development, market power, advertising and branding. For Buettner et al. (2018), these companies may use the financial structure of foreign operations to shift the international allocation of taxable profits.

In particular, intercompany debt financing may be used to create interest payments, which are deducted in countries with high taxes (Fuest et al., 2011; Dischinger et al., 2014; Hansson and Olofsdotter, 2014; Devereux et al., 2018). From a theoretical point of view, a MNC - which operates in a developed capital market - may minimize its global tax payments by managing loans in the economic group to which it belongs - from parent to subsidiary and among subsidiaries (Desai et al., 2004;
Bénassy-Quéré et al., 2005; Azémar, 2010; Barrios et al., 2012; Egger et al., 2014; Hebous and Ruf, 2017). Governments seek FDI through tax incentives to MNCs. The effectiveness of these incentives depends on the taxation regime of companies’ residence country (Coeurdacier et al., 2009). According to Egger and Seidel (2013), the raise in tax rate on profits increases the magnitude of intra company imports. FDI has an effect on economic growth, reducing unemployment, increasing government revenues from tax collection, reducing imports and/or increasing exports, contributing to technology transfer and developing local entrepreneurship (Tian, 2018).

For Buettner and Wamser (2013), the complexity of international taxation hinders accurately measure incentives to profit shifting and to FDI flow analysis. According to Herger et al. (2016), the role of taxation in a globalized economy, largely organized around MNCs, remains at the top of the political agenda. Ongoing debates focus on different issues, such as: tax base erosion; international tax competition; how to deal with double taxation; transfer pricing; capitalization restriction; tax havens; and inversion of headquarters to reduce corporate tax burden. In the tax and public finance literature there is an understanding that taxes affect the decision by multinationals to invest in a given country. Bénassy-Quéré et al. (2007), in turn, state that the concept that capital migrates from countries with high taxes to countries with low taxation is both widespread and popular; however, it may be misleading. In the 1990s, researchers begin to claim that investment decisions are indifferent to the existence of taxes (Wheeler and Mody, 1992; Ning and Reed, 1995; Porcano and Price, 1996). The researchers’ question is renewed in this scenario with fiscal crisis in many countries and income tax rate reduction: do taxes influence the investment decision by MNCs?

In view of the above, the objective of this study is to map and analyze the existing bibliography on the MNCs’ taxation. It is intended, therefore, to identify: a) trend of publication on the topic; b) most influential journals, works and authors; c) intellectual structure of research in the area; and d) knowledge gaps offering opportunities for the evolution of this relevant, current and multidisciplinary theme.

To this end, a systematic literature review and a bibliometric analysis are carried out on the relationship between taxes and financing/investment decisions by MNCs. The period considered is twenty years (2000-2019). The systematic review aims at systematically researching and locating studies to carry out a critical evaluation of the literature and to point out gaps in the research (Tranfield et al., 2003). The bibliometric method, in turn, uses data from publications to construct structural images of scientific fields, allowing the recognition of the current state of research and the identification of future approaches (Li et al., 2017).

The other items in this study are organized as follows. The literature review is presented in section 2. In section 3, the methodology of the systematic review is detailed. The bibliometric analysis is itemized in section 4. In section 5, the
classification of the works are outlined. Section 6 highlights the results of the research, including the knowledge gaps. Finally, section 7 points out the main conclusions and limitations.

2. Literature Review

For Hebous and Ruf (2017), since the seminal contributions by Modigliani and Miller (1958 and 1963) and Miller (1977), the influence of taxes on companies’ capital structure is discussed. The theoretical assumption of its non-existence - in the initial propositions of these authors - gives rise to theories considering the reality of market imperfections, analyzing their relevance in the definition of the financing sources for companies. Among the theories that stand out are TOT (Kraus and Litzenberger, 1973; Bradley et al., 1984; Kane et al., 1984) and the pecking order (Stiglitz, 1973; Myers and Majluf, 1984), among others.

When company has taxable profit, the use of more third party capital reduces the taxes due. TOT uses the debt tax advantage and the costs associated with bankruptcy risks as fundamental arguments for the existence of an optimal level of debt (DeAngelo and Masulis, 1980). According to Faulkender and Smith (2016), the empirical research has been evincing that the variation in the capital structure stems from the change in the estimated corporate income tax rates. For the authors, both the tax rates applied to MNCs and the taxable profit earned are being obtained incorrectly. According to Buettner and Ruf (2007), the rates - statutory and marginal - used in the research, have no predictive power. The authors argue that significant differences are found, depending on the rate applied in the studies.

The Organization for Economic Cooperation and Development (OECD) states, in 2017, that the latest financial crisis culminated in a complex and unstable international environment. As a result, there is a combination of budget deficits in developed countries and the continued intensification of a tax competition among governments, with the purpose of attracting companies and generating jobs. Countries hosting foreign companies tend to introduce specific rules that limit the possibility for subsidiaries to transfer profits abroad. From initiatives by the European Commission (1997), the OECD (1998, 2013) and supranational organizations, suggestions are being defined for MNCs’ tax planning opportunities reduction (Buettner et al., 2018). These suggestions are intended to restrict tax base erosion and profit shifting among countries.

In addition, the OECD estimates that the extent of the problem is a challenge, with a loss of up to US$ 240 billion annually, in global corporate income tax revenues. According to Cen et al. (2017), one of the most used ways for profit shifting from subsidiaries in tax havens is through the customer-supplier relationship. For Zucman (2014), the reduction in corporate income tax rates is not natural. Profit shifting is the main driver of this decline, over the fiscal competition for productive capital. This phenomenon is not a necessary by-product of globalization and technological
change, but the result of policies by countries with a high tax burden. Globalization does not imply that corporate income tax rates are fated to decrease. Countries implement measures to restrict profit shifting, through capitalization rules and by limiting the possibilities of manipulating transfer pricing (Buettner and Wamser, 2013; Schindler and Schjelderup, 2016; Hopland et al., 2018). The literature also examines the effectiveness of transfer pricing regulations (Buettner et al., 2018).

According to the property, location and internalization (PLI) approach - also known as an eclectic paradigm - companies use these three potential sources of competitive advantage to decide on their global performance. For Dunning (2000), MNCs have the property or privileged access to certain assets that are not available to local competitors, showing the ability to coordinate them across borders. The location advantage is related to the characteristics of the country – e.g., labor supply and incentives from the local government. Finally, internalization allows the control of production processes, reducing the dependence on intermediaries (Egger and Seibel, 2013; Herger et al., 2016). MNCs exploit these resources, rather than selling or renting them to other companies.

Long et al. (2015) provide empirical evidence that, as studying the Chinese market, the presence of FDI positively affects the institutional quality of host countries. Subsidiaries located in regions with a higher level of FDI tend to face a lower level of tax burden, less tax bureaucracy and better legal protection. According to Becker et al. (2012), public policymakers should not only be concerned with the FDI flow, but also with its quality, that is, the results that the investment provides to the host country. The studies by Fedderke and Romm (2006) about South Africa suggest that FDI is impacted by taxation, net return rate, wages and infrastructure. For Bénassy-Quéré et al. (2007), besides the tax rates, other aspects also interfere in companies’ location decision and the consequent increase in FDI - geography, market size, agglomeration effects and public infrastructure.

The studies by Becker and Riedel (2012) suggest that the activities of parent and subsidiary are positively correlated and that, a 10% increase in taxation in the invested country reduces the affiliate's share capital by 5.6%. According to them, from the well-being point of view, this cross-border tax effect on stock of capital generates negative fiscal externality in companies’ taxation. Empirical results by Ang (2008), in Malaysia, indicate that the Gross Domestic Product (GDP), financial development, investment in infrastructure, trade openness and macroeconomic uncertainty are positively related to FDI. In contrast, the increase in corporate income tax, exchange rate appreciation and social uncertainty have a negative impact on FDI. Arena and Roper (2010) demonstrate in their work that, in addition to the corporate rate, FDI is impacted by personal taxes and withholding taxation on dividends and interest.
3. Methodology

According to Fink (2019), the literature review is a systematic, explicit and reproducible project to identify, evaluate and interpret the existing body of documents. The analysis of this material should be rigorous, independent and follow a methodological approach. In addition, it needs to be explicit in the presentation of the procedures adopted, comprehensive in scope, including all relevant material. Therefore, it should be reproducible by others who follow the same path in the study of the topic. The literature review seeks to: i) summarize the existing research, recognize patterns, themes and issues, and ii) identify the conceptual content of the field, contributing to the theory.

Thus, the purpose of this section is to present the work structure, providing a methodological organization on how the research is designed. The strict criteria used in the systematic review are linked to the objective of basing the analyses on the best quality evidence. The independent variable “taxes” is studied for its influence on MNCs’ financing and investment - dependent variable. The systematic review of the literature, based on the methodology adapted from Tranfield et al. (2003), is detailed in steps from 1 to 6, while the bibliometric analysis is described in step 7. Step 8 combines both methods:

Step 1 - The Web of Science (WoS) database is chosen for the quality of its organization, data availability and selection of papers with relevance in the scientific community. Step 2 - Filters are used to select the initial sample, with the objective of delimiting the research (Table 1).

<table>
<thead>
<tr>
<th>Description</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search date</td>
<td>September 25, 2019</td>
</tr>
<tr>
<td>Keywords</td>
<td>Tax* and FDI or Foreign Direct Investment and Capital Structure</td>
</tr>
<tr>
<td>Language</td>
<td>English</td>
</tr>
<tr>
<td>Material type</td>
<td>Article and review</td>
</tr>
<tr>
<td>Concentration areas</td>
<td>Economics or business or business finance or management.</td>
</tr>
<tr>
<td>Search period</td>
<td>From 2000 to 2019</td>
</tr>
<tr>
<td>Initial sample</td>
<td>211</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations.

Note: The asterisk (*) is used to allow searching for keywords by their root. As a result, it is possible to obtain them in their various suffix variations.

Step 3 - From 211 papers found, 37 are excluded for not receiving, at least, one citation in the WoS database itself. Thus, the resulting sample consists of 174 articles, from January 1st, 2000 to September 25th, 2019. Step 4 - The articles are obtained from the academic bases: Science Direct, Ebsco, ProQuest, JSTOR and Google Scholar. From them, the following information is obtained - complementarily to those already extracted from WoS - to capture the general data
of the papers: title, name, affiliation institution and authors’ country of origin, journal name, volume, start and end page number, year of publication, origin country, keywords, Digital Object Identifier (DOI), Journal of Economic Literature (JEL) and number of the article citations in the WoS database. Step 5 - A reading of the abstract, introduction and conclusion of each paper is performed, to check whether they are in accordance with the defined theme, excluding the non-pertinent articles.

Thus, 55 are excluded for referring to domestic companies’ capital structure, 24 for not considering multinational investment and financing as the dependent variable, 23 for not having corporate taxes as an independent variable, 19 for not presenting an empirical test, 9 for being financial institutions or real estate companies, 3 for dealing exclusively with taxes of individuals. At the end of this process, the final sample consists of 41 articles. Step 6 – Referred articles are classified by decreasing order of Corrected Impact Factor - CIF. Step 7 – The 41 articles of the final sample are submitted to the bibliometric analysis, using the VOSviewer and RStudio softwares. Step 8 – Both results of bibliometric analysis and systematic review are analyzed together, with the identification of information, standards and content gaps, in order to indicate future directions of knowledge.

4. Bibliometric Analysis

By means of the WoS database, the bibliometric analysis is employed to construct structural images. The method allows presenting the influence of articles, journals and authors as measuring the co-citations among them by using the total link strength (TLS). Co-citation is defined as the frequency with which two documents are cited together by other documents. The more co-citations two documents receive, the greater their TLS will be - see equation 1 (Van Eck and Waltman, 2010):

\[
TLS_{ab} = \frac{C_{ab}}{W \cdot W'}
\]

where:
\(C_{ab}\) = number of co-citations by the authors of A and B
\(W\) = total number of citations by authors of A and B

According to Castriotta et al. (2019), bibliometric analysis is the most appropriate method for studying the conceptual structure of a research area. The method allows the development of studies that recognize the current state of research and identifies opportunities for future studies, through different approaches presented – academy’s interest, analysis of the influence of journals, authors, articles, keywords and contribution by country.
4.1 Academy’s Interest

The WoS database calculates the h-index (16) of the final sample. The h-index is a measure of productivity and of impact of the theme, made available by the databases. Productivity is quantified by the number of papers, while the impact is measured by the number of citations which the researchers’ publications received. In the construction of the indicator, the number of articles in the sample (41) is weighted with their respective citations, discounting the disproportionate weight of the articles with few or many citations – outliers. The sample period is 20 years (2000-2019). With these data, it is possible to calculate the academic relevance of the topic by using the M-index (Banks, 2006) - see equation 2. According to Banks, the theme is promising when “M” is in the range between 0.50 and 2.00, presenting a window of opportunity for future research. The result of $M = 0.80$ indicates that the academy is likely to have an interest in the topic.

$$M = \frac{H}{NY} = \frac{16}{20} = 0.80$$  \hspace{1cm} (2)

where:
H = h-index of sample articles
NY = number of years since the sample was first published

4.2 Analysis of the Influence of Journals

Through VOSviewer, the 10 most influential journals of the sample of this study are identified, as well as the total co-citations received. These journals are important sources of research and reveal a potential target journal for future publications on the theme. The number of papers published by the journal - International Tax and Public Finance, in 16% or 7 articles in the sample - should be noted as not necessarily representing a greater impact for academy.

The influence of journals can be seen in Figure 1, in which the nodes of the networks represent the journals, the size of the nodes is the dimension of influence of journals and the edges (lines) between the nodes represent the strength of co-citation of publications. Co-citation occurs when two authors or two sources appear together in the reference list of a single publication (Tunger and Eulerich, 2018). According to Small (1973), co-citation is more dynamic, and thus, better accompanies changes in the field of knowledge. The main collaborating journals in the field are also identified in the co-citation network map, being Journal of Public Economics (j public econ), Journal of Finance Economics (j financ econ) and Journal of Finance (j financ).
Figure 1. Map of the influence of journals

4.3 Analysis of the Influence of the Sample Authors

Figure 2 shows the map of the influence - TLS - of the sample researchers, in which the relationship clusters between the authors are identified. Wamser, Egger, Buettner and Overesch are the most important researchers in the studies of the relationship between taxes and MNCs’ financing and investment. The identification of Wamser as the author with the greatest impact is only possible through the bibliometric tools - VOSviewer and RStudio - used in this study, since the researcher is not the main author in any of the works in the sample; however, he participates as a co-author in 6 papers with Buettner, Egger and Overesch.

Figure 2. Map of the most influential sample authors
4.4 Analysis of the Influence of Authors and Articles from the WoS Database

In the 41 articles in the final sample, 758 authors are cited, from whom Figure 3 shows the most influential ones. These researchers are a relevant source for the study of the relationship of taxes in the investment decision. Graham, for example, is an acknowledged researcher on the influence of taxes as a determinant of companies' capital structure. Also noteworthy is the example of Devereux, being the most influential author in the complete database.

Figure 3. Map of the most influential authors from the WoS database

4.5 Analysis of the Influence of Articles

The 41 articles in the final sample mention 1235 references, 215 from which are cited at least twice, while other 98 are cited at least three times. The popularity of an article is measured by its number of citations, while its prestige is measured by its influence - TLS.

Figure 4 shows the most relevant articles on the theme. As analyzing them, it appears that, in addition to confirming the importance of direct taxes, they present complementary paths - relevance of indirect taxes (Desai et al., 2004), impact of loans among subsidiaries (Huizinga et al., 2008), dimension of rates - marginal, average and statutory (De Mooij and Ederveen, 2003; Devereux and Griffith, 2003), agglomeration effect (Devereux and Griffith, 1998; Bénassy-Quéré et al., 2005; Demekas et al., 2007) and tax havens (Hines and Rice, 1994).
4.6 Analysis of Keywords

According to Strozzi et al. (2017), the keywords used by the authors indicate the content of articles and may mean the trend of research in the area. Figure 5 shows the VOSViewer’s co-occurrence map, with the most used keywords in the sample articles, as well as the relationship among them. Such a fact allows to observing the most addressed themes by the authors. The strength of the lines connecting the nodes illustrates the intensity of the relationships of the keywords mentioned in the sample (Carvalho et al., 2013).

Figure 5. Map of keywords co-occurrence
The analysis of the co-occurrence of keywords also allows to revealing the conceptual framework of the articles. Its objective is to identify relationships and trends emerging from the research on the influence of taxes on MNCs´ financing and investment. This verification is done through correspondence analysis (CA) that uses dimensionality reduction techniques to draw a conceptual structure map of the field and to cluster common concepts (Fisher, 1940) (Figure 6).

Cluster 1 - in lilac - identifies the relevance of research on location, verticalization and agglomeration decisions (Hubert and Pain, 2002; Hansson and Olofsdotter, 2013; Cen et al., 2017). Cluster 2 - in red - highlights tax decisions influenced by issues of fiscal policy and the macroeconomic ones, in host countries (Coeurdacier et al., 2009; Fuest et al., 2011; Becker and Riedel, 2012). Cluster 3 - in green - highlights the importance of domestic capital markets and the financing and investment decisions by economic groups (Desai et al., 2006; Huizinga et al., 2008; Egger et al., 2014). Finally, Figure 7 highlights the words strongly related to the 3 clusters, which are "the United States" and "impact".

**Figure 6. Conceptual structure map - correspondence analysis method**

4.7 Analysis of Contribution by Country

The theme “influence of taxes on the financing and investment by MNCs” is analyzed by the articles whose most of samples are made up of companies from Germany, the United States and England, in that order of relevance. Together, authors represent more than 55% of the sample of the 41 papers analyzed in this study. This fact is due to the economic relevance of these countries that concentrate 32% of the world GDP (IMF, 2019), as well as due to the differentiated quality of the databases made available by their governments. The total TLS of these countries appears prominently in the academy - 49% of the sample. This concentration, on the one hand, contributes robustly to the literature. However, on the other hand, it skews the results on the topic. Tax laws and macroeconomic conditions in these three
countries - highly developed - tend not to represent most of the variables for other countries. The map of network of countries that most collaborate and contribute, jointly, to the topic under research is shown in Figure 7. The outstanding presence of Germany as the most influential country on the theme is confirmed, as well as the peripheral presence or absence in emerging countries.

**Figure 7. Map of co-authorship between countries of the articles’ samples**

5. **Classifications**

The 41 papers in the final sample are classified by decreasing order of Corrected Impact Factor - CIF - whose formula is presented in equation 3. The most 10 papers according to CIF: Huizinga et al., 2008; Cen et al., 2017; Brülhart et al., 2012. Desai et al., 2006; Bénassy-Quéré et al., 2007; Ang, 2008; Coeurdacier et al., 2009; Barrios et al., 2012; Fedderke e Romm, 2006; Demekas et al., 2007. For Jabbour (2013), classification is one of the most relevant aspects of systematization, as it identifies the characteristics of the articles under analysis.

\[
\text{CIF} = \text{AAC} \times (1+\text{IFJCR})
\]

where:
CIF = Corrected Impact Factor; AAC = Average Annual Citations; IFJCR = Impact Factor of Journal Citation Reports

In Figure 8, the frequency of the different tax proxies used by the authors is presented as an explanatory variable - taxes - in order to better capture the influence on MNCs’ financing and investment decisions. This aspect is quite controversial in the literature and is far from a consensus. Some researchers state that an inadequate tax proxy may result in estimation errors (Buettner and Ruf, 2007; Wijeweera et al., 2007). At this point, the systematic review result is interesting because, despite the intense debate about the appropriate measure to capture the influence of taxes, most articles (36%) make use of the simplest one among them. These studies only consider the statutory income tax rate (STR). Yet, the second most used proxy -
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EATR - is also easy to obtain and is analyzed in 18% of the papers. On the other hand, proxies requiring deepening of calculations and of domestic and international tax legislations - MTR and ITR - have low adherence.

Figure 8. Independent variable proxies (taxes)

As for Figure 9, there is a diversification of the proxies used for the dependent variable - MNCs’ investment, with emphasis on the most frequent ones in the articles - indebtedness (23%), FDI stock (18%) and FDI flow (18%).

Figure 9. Dependent variable proxies (investment)

Figure 10, in turn, shows the databases frequency used in the samples of the 41 papers in this study. The MiDi database - made available by the German government - is the most used by researchers (32%). This tool's distinctive position results from the Bundesbank's attention to data - since 1976 - on foreign direct investment by local companies. The other highlighted databases are: Amadeus - Moody’s group - which provides data from European companies (16%); Eurostat, which is the European Union's main statistical database (13%); and OECD (13%).
The 41 articles in the final sample apply econometric models in their empirical studies. Figure 11 shows the methods used by the authors, with emphasis on the Least Squares Method - Ordinary Least Squares (OLS) - which is a widely spread way of estimation in econometrics. It is present in 37% of the articles in this study, followed by static panel data (16%); Poisson regression (14%); dynamic panel data (14%) and logistic regression (12%).

**Figure 10. Databases**

**Figure 11. Econometric methods**

5. Discussion

Research on the influence of taxes on the financing and investment by MNCs has been evolving and following the changes in the world economy, with impacts on public and corporate finances - economic turbulences (Ang, 2008), fiscal crises and tax competition among countries (Overesch and Wamser, 2010), verticalization of production chains (Egger and Seibel, 2013) and business strategies (Herger et al., 2016), international organisms’ concerns about fiscal erosion (Cen et al., 2017) and country responses through restriction to thin-capitalization and transfer pricing rules (Buetter et al., 2018).

Academy demonstrates being aware of the demands of governments and companies in seeking fiscal, financial and economic environment improvement. The analysis of the 41 articles in this study aims at identifying: a) trends in publication, b) journals, papers and most influential authors, c) research intellectual structure, and d) gaps offering opportunities for the theme evolution. As a result, the following main findings are highlighted.

Research on the impact of taxes on investment decision may be inferred as having increased at a growing pace in the last 20 years, arousing current interest by academy. This fact is evidenced by the number of citations and results of the h-index calculation of the WoS database. The most relevant papers in the sample suggest as
paths for research: the study of economic groups (Huizinga et al., 2008) and their verticalization processes (Cen et al., 2017), in agglomeration environments (Bénassy-Quéré et al., 2007) and observing the activity sector (Brühlhart et al., 2012). The most influential works on the topic - sample and WoS complete database - in turn, suggest research on the influence of indirect taxes (Desai et al., 2004; Egger et al., 2009) and estimation of studies, with attention to tax proxies (Devereux and Griffith, 1998; De Mooij and Ederveen, 2003).

The analysis of the keywords conceptual structure allows to graphically visualizing the categories of the variables and, thus, verifying the degree of interaction among them. With this method, it is possible to dimension 3 interest groups by the academy for research - a) verticalization and agglomeration; b) tax regulation in the countries of investees; and c) economic group.

The authorial analysis indicates that Wamser, Egger, Buettner and Overesch are the most important researchers in the sample. Their works study the themes of loans to affiliates and tax restrictions, capital markets of investees’ countries, proper selection of tax proxies, bilateral taxes and verticalization. The most influential authors in the field - WoS complete database - are Devereux and Graham who contribute, mainly, with the construction of tax proxies.

The journal with the largest number of publications on the subject is the International Tax and Public Finance, representing 16% or 7 articles in the sample. Considering the importance that this journal assigns to the theme, its recent publications are studied to identify opportunities for publication. The covered topics deal with tax rules on internal indebtedness and profit shifting in host countries, with emphasis on thin-capitalization and transfer pricing (Buetter et al., 2016; Herger et al., 2016; Buetter et al., 2018). The most influential journals are: Journal of Public Economics, Journal of Finance Economics and Journal of Finance. The Journal of Public Economics publishes the article on the significant differences observed in the estimates of the taxes-investment relation, depending on the tax proxy applied in the studies (Hebous and Ruf, 2017).

The data samples in the 41 articles are predominantly from companies in Germany, the United States and England. On the other hand, noteworthy is that the only two papers focusing on developing countries - Malaysia and South Africa - are among the 10 most influential in the sample, which may suggest the interest by academy for studies in peripheral countries.

The econometric method of differences in differences is not used by researchers. The possibility of assessing the influence of taxes, based on relevant changes in tax systems, seems promising for future publications. The United States, for example, make in 2017 - in force in 2018 - the biggest restructuring of their tax rules, since 1996. The effect of financial crises on MNCs’ capital structure and investment is poorly studied, offering opportunities for research.
The analysis of the empirical studies of the 41 works of the sample in this systematic review identifies 30 papers which consider corporate tax as an important determinant in MNCs’ decision. As for the results of the other studies, most researchers conclude that tax is determinant in the financing and investment decisions by MNCs (Wolff, 2007; Egger and Merlo, 2011; Nagano, 2013; Buettner et al., 2016). Three of them define taxes as a weak determinant (Bénassy-Quéré et al., 2005; Buettner and Wamser, 2013; Herger et al., 2016). Some four others point to taxes at the same level as other determinants - tax shields, market size, agglomeration effects, public infrastructure (Bénassy-Quéré et al., 2007; Kersan-Škabić, 2015).

Finally, there are still four others who vary between considering impact on certain conditions or irrelevance of taxes, such as: a) FDI is not influenced by taxes, with the exception of MNCs having deferred tax high stocks - even so, with little significant effect (Altshuler and Grubert, 2001); b) FDI is sensitive to taxation in developed host countries, but not in developing countries (Goodspeed et al., 2011); c) corporate taxation negatively affects FDI decisions, for new member countries of the European Union (EU), however, for existing members - EU15 - labor taxes are a more important determinant (Hansson and Olofsdotter, 2014); d) taxes do not influence subsidiaries in countries with thin-capitalization restrictions, but they positively influence - weak effect - subsidiaries with unrestricted environments (Buettner et al., 2011).

The main issue of this research is about the influence of corporate taxes in the decision of financing and investment by MNCs, in a world scenario with continued reductions in tax rates, provided by countries seeking for new resources, amid low growth economies. Most part of the sample studies confirms the relationship expected by the literature. However, the authors of this study have many concerns about the effectiveness of this relationship by the authors - tax proxies; multiple taxes; complexity of tax legislation; tax havens; effect of the financial crisis; increasing indebtedness with decreasing corporate rates - challenging researchers to new studies.

6. Conclusion

The relationship between taxes and investment decisions by MNCs has been arousing the interest by researchers, especially in recent years, given the strong growth of international business - globalization - and the challenges of world economies - low growth. The literature review of any topic tends to be complex, due to the volume of published works and the variations that the subject builds over time. The systematic review, combined with bibliometric analysis, aims at identifying the main contributors, the key areas, the current dynamics, and suggests guidelines for future research on the theme. From the application point of view, this study contributes to the understanding of the research on the influence of taxes on MNCs’ financing and investment decisions, the paths trailed, the current stage and the
direction to where the research is evolving. It also highlights the gaps in the current body of knowledge and its future perspectives.

The work classifies and uses bibliometrics in the articles extracted from the systematic literature review. The 41 selected articles are cited in the WoS database. Citations are influenced by scientific factors - such as the magnitude of the study - and by non-scientific factors - such as the author's literature knowledge. Subsequently, the papers are reviewed and their main contributions are identified. These elements of research and analyses allow to deepening the study of the topic.

Among the knowledge gaps identified, the estimation problems of the models stand out, due to the difficulty in calculating the tax proxies. The papers present opposite results for the same information bases and research problems, depending on how the tax independent variable is modulated. The complexity of tax laws and the specifications of each country pose a challenge to researchers. Identifying the direct corporate tax rate is not enough to analyze its impact on investments. There are a multitude of rules that may accompany the calculation of taxable profit, such as offsets, exemptions, tax benefits, destination of results, exclusions and additions to the accounting calculation.

Therefore, there is an opportunity for deeper studies on the topic, which include all the tax rules of the countries in which the MNC develops business. In addition, the sample articles are verified as not analyzing the effect of the financial crisis on the MNCs’ financing-investment relationship. The study of bankruptcy costs, in the midst of an increase in corporate debts, has a potential for contribution.

At last, also found is that the studies focus on the relationship between direct taxes and FDI, with little analysis on the impact of indirect taxes. These taxes become even more relevant, in a scenario with business global chains. Multinational companies have several production options, including verticalization. Thus, the analysis, combined of (in) direct taxes, allows a better understanding of the theme.

As for the limitations of this study, the results presented refer to the set of articles from the journals that meet the established selection criteria and the database used. In addition, the analysis of articles, exclusively with empirical tests, may have excluded the examination of papers with mathematical modeling, research and essays also having relevant contributions.

References:


The Influence of Taxes on Foreign Direct Investment: Systematic Literature Review and Bibliometric Analysis


