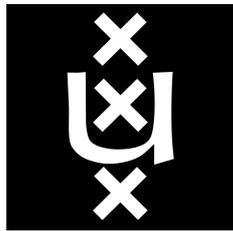

Investigating the effect of firm financialization on effective tax rates



*A thesis submitted in fulfilment of the requirements
for the degree of Master of Science*

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July 3, 2019

Abstract

This thesis discusses the effects of financialization, along with the firm-level drivers providing incentive for firms to engage this process. It presents argument and evidence for firms using the financialization of productive capital to lower their effective tax rate by eroding their taxable base. Empirically, this is done by designating financialization as the increasing economic importance of intangible assets at the level of the firm. Based on a large sample of approximately 4 million firms from the Orbis database, the reported results are robust against controlling for firm size along with other relevant firm-level aspects, firm fixed effects and varying country characteristics.

Keywords: Financialization, Effective Tax Rates, Base Erosion, Intangible Assets

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Chapter 1

Introduction

Financialization, in the broadest sense, denotes a shift in mode of production away from productive capital and towards financial capital (Hilferding, 1912; Aglietta, 1976; Arrighi, 1994). Through its wide interpretation the concept of financialization has been used to describe a plethora of social phenomena, ranging from the increasing macro-economic importance of financial investments and sectors dedicated to activities such as finance, insurance, and real-estate (Boyer, 2000; Crotty, 2003; Stockhammer, 2004; Krippner, 2005; Epstein, 2005), the rising importance of 'shareholder value' as guiding principle of company behaviour (Froud, Haslam, Johal, & Williams, 2000b) and the financial commodification of every-day life (Zwan, 2014; Erturk, Froud, Johal, Leaver, & Williams, 2007a, 2007b).

Besides academic interest the question can be raised of whether financialization actually matters in the social world. Positioning the process of financialization in Marxian and Keynesian growth theories suggests that it does, since these attribute a key role to the accumulation of physical capital in driving real economic growth (Stockhammer, 2004). Moreover, financialization has been argued to contribute to economic inequality (Crouch, 2009; Fligstein & Shin, 2007; Tomaskovic-Devey & Lin, 2011; Lin & Tomaskovic-Devey, 2013), and higher market volatility (Stockhammer, 2012; Lapavitsas, 2012).

With a great deal of the literature on financialization focusing on the macro-economic outcomes, at the level of the firm, financialization has some important implications as well. Here, in economic terms, it has been taken to refer to the relationship between the non-financial corporate sector and financial markets (Orhangazi,

2008). In this context it has been shown that financialization is related to a decrease in investments in productive capital (Orhangazi, 2008). Here, the main concern is that (similar to the macro-economic level) an increase in financialization leads to less accumulation of physical capital by reducing investments in productive means, and thus inhibits real economic growth. In extension, it has been argued that firm financialization might have significant negative implications for developing countries created by the lack of investments in productive capital. However, research into firm financialization and its potential effects remains scarce.

Given that firms make up the units that produce the macro-economic trends of financialization (Orhangazi, 2008; Krippner, 2005), the firm will be the main unit of analysis in this thesis. Furthermore, drawing on the theory of financialization as a mode of production (Hilferding, 1912), and following Bryan, Rafferty, and Wigan (2017), Schwartz (2017) and Beer and Loeprick (2015), for this thesis, financialization will be designated as the increasing economic importance of intangible assets at the level of firm. In this context, intangible assets constitute non-physical assets such as intellectual property (IP), trademarks and revenue generated from royalties (Bryan et al., 2017; Schwartz, 2017).

A second and equally important phenomena in this thesis is profit shifting. Profit shifting denotes actions taken by a company to erode their taxable base (Heckmeyer & Overesch, 2012), and is generally done by moving profits away from operating profits since these are taxed at the higher level of the statutory corporate income tax (CIT). Empirical evidence of profit shifting has been found to hold over a range of periods, and with data from both private and public sources at the global, regional, and national levels (Hines Jr. & Rice, 1994; Huizinga & Laeven, 2008; Weichenrieder, 2009; Zucman, 2013, 2014; Beer & Loeprick, 2015; Cobham & Janský, 2018; Tørsløv et al., 2018). While profit shifting refers to strategies undertaken by firms to decrease their fiscal obligations, the product of this behaviour, whereby the taxable base of a firm is reduced, is generally referred to as base erosion (Tørsløv et al., 2018). Profit shifting thus leads to base erosion.

At the core of the debate on base erosion is its implications for the capability of governments to collect the taxes that they are owed, since government income from corporate tax is a vital source of finance all over the world. More so in developing

countries, where income from corporate taxation, on average, make up a larger share of government revenue than in developed countries with a large middle-class and well-developed institutions (Cobham & Janský, 2018). Thus, when it comes to base erosion the main social-scientific concern is that states miss out on revenue which could otherwise have been spent on public goods such as the funding of a welfare state (Genschel, Kemmerling, & Seils, 2011). In terms of magnitude, annual state-level revenue loss through profit shifting has been estimated at between \$500 billion (Cobham & Janský, 2018) and \$650 billion (Crivelli, Mooij, & Keen, 2015).

A third factor in this thesis is the importance of accounting for the institutional context in which a firm is situated. Both when studying financialization and taxation. For example, the well-known tax havens have found to be associated with higher degrees of fiscal secrecy, profit shifting, and substantial reductions in effective tax rates (ETR) (Hines Jr. & Rice, 1994; Zucman, 2014; Tørsløv et al., 2018). Moreover, it has been found that the mere presence of a EU-wide framework for tax-coordination and tax jurisprudence brings with it downward pressure on tax-competition (Genschel et al., 2011). This means that even in "open" institutions where fiscal secrecy is not necessarily a part of the modus operandi, the institutional context still matters when it comes to how much taxes a firm pays.

In extension, empirical evidence suggests that in competing for investments, countries have developed different "attraction profiles" geared towards attracting specific sorts of foreign direct investments (FDI) (Reurink & Garcia-Bernado, 2018). The diversity of country-level FDI attraction profiles, with some of them specifically geared towards financialized activities such as the holding of a patent or a trademark, underscores the importance of accounting for the heterogeneity of country-level characteristics. In consequence, any research strategy aimed at understanding firm-level financialization must be able to accommodate the impact of the institutional setting.

While profit shifting might seem theoretically independent from financialization, the main claim of this thesis is that these two concepts are both theoretically and empirically related. This arises from a strategy where the financialization of productive capital effectively allows firms to erode their taxable base. In short: financialization facilitates base erosion. Therefore, this thesis identifies two problematic, and related, social dynamics: one is part and parcel of the wider process of financializa-

tion, whereas the second relates directly to the issue of base erosion. In doing so, this research is an attempt to bridge the two bodies of literature by underscoring the theoretical and empirical connection between these two.

In sum, this thesis seeks to explore the effect of firm level financialization by raising the following research question: *Do firms use the financialization of productive capital to lower their effective tax rate?* To answer this, a large sample of around 4 million firms from 85 countries covering the period of 2012 to 2016 will be used. Moreover, to address the significant impact of the institutional framework in which a firm is situated, an analytical framework that can accommodate institutional differences in taxation will be adopted. In answering this research question, argument and evidence for firms using the financialization of productive capital to lower their effective tax rate will be presented. The reported results will be shown to be robust against controlling for firm size along with other relevant firm-level aspects, firm fixed effects and varying country characteristics.

In accordance with the stated purpose of this research, this thesis will proceed in the following way: First, a theoretical outline of the proposed mechanisms will be carried out, concluding with the formulation of a testable hypothesis. Secondly, an outline of the necessary steps to empirically study the theorised phenomena will be explained. This includes a discussion of the data, sample selection, data limitations, and method. Thirdly, empirical results in support of the stated hypothesis will be presented. In the end, the implication of the results will be discussed and related to the wider theory at hand along with recommendations for further research.

Chapter 2

Theoretical framework

2.1 Theoretical outline

The main claim of this thesis is that the financialization of productive capital allows firms to lower their ETR. To substantiate this, the following chapter will elaborate on the theoretical mechanisms at hand. This will be done by first introducing the broader theory of financialization, along with the central role that intangible assets play in this process. Furthermore, it will be argued that financialization of productive capital at the level of the firm works through (and is typified by) intangible assets. Next, an outline of the most relevant motivations and drivers of firm-level financialization will be provided, followed by an explanation of how this ultimately, through base erosion, affects firm-level ETR. The chapter will conclude with a summary of the outlined theoretical mechanism, and the formulation of a testable hypothesis.

2.2 Financialization and intangible assets

As (Krippner, 2005) has pointed out, when it comes to the broader theory of financialization, an important question to ask is: "What constitutes relevant evidence for financialization, and how should this be evaluated?" (p. 175). Even though shifts in economic structure are mostly typified by changes in employment, production patterns or the services being offered (Clark, 1940; Scase & Bell, 2007; Castells, 1996), Krippner (2005) argues that this approach does not suffice for financialization. This

hinges on the notion that financialized activities are not employment intensive and that their 'products' do necessarily not show up in national economic statistics. With this in mind, in coming to grips with connecting the theory of financialization with the empirical reality Krippner (2005) takes to looking at the relative economic importance of sectors compromised of finance, insurance, and real estate (p. 179).

Given how crucial it is to connect the wider macro-economic theory of financialization to the smaller unit of the firm, it is central to bridge the two levels of analysis. While Krippner's (2005) approach is well-suited for studying of macro-economic trends, it does not accommodate the heterogeneity of revenue streams at the level of the firm, or the firm-level relationship between productive and financial capital. Recalling that financialization is typified by the increasing reliance on non-productive capital (Hilferding, 1912; Aglietta, 1976; Arrighi, 1994), it makes theoretical sense to look at how the productive means of a specific firm are organised. That is, if the broader process of financialization is typified by changes in productive patterns, it is to be expected that financialization at the level of the firm will be so as well.

With this in mind, settling on a conceptualisation of the financialization of productive capital at the level of the firm is a logical following step in laying the theoretical foundation on which this research will be founded. To do so, this thesis denotes the prevalence of intangible assets as an indicator of financialization of productive capital at the level of the firm (Bryan et al., 2017; Schwartz, 2017). Here, intangible assets denotes non-physical assets such as patents, trademarks, royalty payments and intellectual property (IP) (Bryan et al., 2017; Schwartz, 2017; Beer & Loeprick, 2015; Grubert, 2003).

The reason that intangible assets serve as a good indicator for firm-level financialization is that they inherently are non-physical, and therefore signify a category (or mode) of productive means that is separate from classical productive assets (Hilferding, 1912; Bryan et al., 2017; Schwartz, 2017). Thus, for the sake of analytical clarity: this thesis denotes financialization as a mode of production at the organisational level of the firm, whereas intangible assets constitute the means through which this productive process occurs. An increase in the prevalence of intangible assets at the level of the firm is therefore viewed as evidence of the financialization

of a firm's productive means.

2.3 Firm-level drivers

With firm-level financialization being typified by the prevalence of intangible assets, it remains to be motivated why firms are expected to partake in this process. In short: what is the theoretical rationale for expecting firms to engage in the financialization of productive capital?

The theoretical motivations for expecting firms to do so are four-fold. These mechanisms, or drivers, can be summarised in the following way: (1) shareholder value has become the guiding principle of company behaviour, (2) intangible assets are easy targets of aggressive (mis)-pricing strategies, (3) intangible assets increase capital mobility, and (4) the presence of fiscal country-level preferential treatment of intangible assets. In general, the first three of these mechanisms can be typified as push factors since they exert influence from within the firm, whereas the last one can be deemed a pull-factor.

Shareholder value and the restructuring of firm assets

The first driver is the rise of the so-called 'shareholder value' paradigm (Froud, Haslam, Johal, & Williams, 2000a; Froud et al., 2000b; Aglietta, 2000). A crucial point in this literature is that it denies the neutrality of finance, while pointing out that a shareholder's claim to an increase in value generation is the direct outcome of a new ordering of firm property rights. In this recent ordering of firm property rights, the shareholder is positioned at the top.

The theory of shareholder value provides a way of coming to grips with modern organisational behaviour by underscoring the structural change in guiding norms at the organisational level of the firm. Most clearly, this is illustrated by the fact that, in most modern companies, employee well-being falls outside the scope of organisational goals, or is at least subjugated to the maximisation of profit (Froud et al., 2000a). While this might seem like a bold claim, empirically, with firms in the UK, it has been shown that organisational restructurings are mostly associated with one motivation and two outcomes: (1) an attempt to meet the expectation of the

capital market, (2) that restructurings work against labour, and is often initiated in response to a lack of organic growth and (3) if the impact of the restructurings on capital returns is negative, the outcome for labour will most likely be so as well (Froud et al., 2000a, p. 795-796). These findings thus underscore the subjugation of labour to the overarching goal of profit maximisation.

Given that the shareholder value paradigm is essentially a process reflected at the level of firm organisation (Froud et al., 2000a), it is to be expected that the institutionalisation of these norms are also reflected in how firms are organised. This is also the case, with the underlying demand for profit maximisation (i.e. shareholders' increasingly stronger claim on firm value generation) driving firms to increasingly unbundled, relocated and outsource operational activities. The resulting process of firm reorganisation is generally referred to as "the fragmentation of the firm" (Reurink & Garcia-Bernado, 2018). In short, firms are pushed to reorganise in order to maximise profit, resulting in increasing firm fragmentation.

Essentially, the fragmentation of the firm happens at two levels of corporate organisation: the operational and the legal-financial (Reurink & Garcia-Bernado, 2018). The most prominent example of firm fragmentation at the operational level is the outsourcing and relocation of production activities to countries with low labour-costs (Blinder, 2006). This underscores the point made by Froud et al. (2000a) that labour is mostly disadvantaged as a product of organisational reorganisation. A well known product of the relocation or outsourcing of productive activities is the rise of so-called "manufacturers without factories" such as Apple and Nike (Bryan et al., 2017, p. 57), where productive activity is completely separated from the financial capital it generates.

Fragmentation at the other level, the legal-financial, lays at the heart of how firms have sought to maximise profits through financialization. The reason that these two are intrinsically related is that the legal-financialization level of the firm is also the part of the firm engaging in non-productive activities. The legal-financial fragmentation of company functions can further be broken down into three categories: (1) the interposition of (intermediate) holding companies in group ownership structures, (2) the rearrangement of value-creating assets, and (3) the introduction of innovative approaches to intra-group financing (Reurink & Garcia-Bernado, 2018).

The interposition of intermediate holding companies in group ownership structures constitutes companies that engage in very narrow activities such as the holding of a patent or the (sub) licensing of IP. Empirically, the use of holding companies has increased greatly since 2000s. For example, assets held by intermediate holding companies in The Netherlands increased from 1.8 EUR trillion in 2006 to 3.8 EUR trillion in 2015 (Reurink & Garcia-Bernado, 2018). Additionally, assets held by intermediate holdings in Germany increased by 1400% from 1989 to 2001 (Weichenrieder & Mintz, 2008). This underscores the financial significance and effect of firm reorganisation in the push for profit maximisation, while pointing to the fact that the separation of productive from non-productive capital is an increasingly prevalent trend among firms.

Secondly, fragmentation at the legal-financial level of the firm is characterised by rearrangement of value-creating assets. This entails the transferal of IP, patents, copyrights or trademarks across multiple subsidiaries, with the sole aim of maximising profits through the minimisation of fiscal obligations. Entities holding these are typically located in jurisdictions that levy low or no taxes on royalties and revenue streams generated by intangible assets (Reurink & Garcia-Bernado, 2018).

Lastly, the redesign of inter-group financing arrangements is characterised by the use of hybrid financing instruments combining different properties of equity, thus giving firms the possibility to leverage loopholes between different national tax systems (Bryan et al., 2017; Seminogovas, 2015). In this context, a hybrid instrument is a financial instrument that combines features of equity and debt. The reason that such instruments are attractive is that equity is connected to ownership, whereas loans are not (Seminogovas, 2015). Given variability in cross-country legislative frameworks, hybrid instruments can therefore be used to attain different levels of taxation dependent on the tax regime.

In sum, while the rise of the shareholder value paradigm constitutes the institutionalisation of a new set of norms in corporate governance, its consequences manifests themselves physically in the form of the reorganisation of the firm. Here, the main take-away is that the shareholder value paradigm has formed the normative framework in which the decision to unbundle and reorganise company functions has been made, resulting in the legal separation of intangible assets from the productive

activities of the company, creating financialized entities in the process.

Transfer pricing and intangible assets

A second driver of financialization at the level of the firm is grounded in the difficulty of enforcing the Arm's Length principle when it comes to the pricing of intangible asset (Bontis, 2000; Beer & Loeprick, 2015). The Arm's Length principle dictates that for two parties engaging in a financial transaction, the price of a given product being traded must be set at the open market price. This forces separate parties of the same parent to trade with each other as if they were unrelated. However, when it comes to the pricing of intangible assets, this principle is hard to enforce since the pricing of intangible is inherently difficult given that the value bound up in an intangible asset is highly subjective (Borkowski, 2001; Grubert, 2003). When dealing with an intangible asset (for example the rights to use a logo or an algorithm) the pricing is further made difficult by the fact that such assets normally have no comparable assets in the market to be priced against (Grubert, 2003).

Besides the difficulty of carrying out proper pricing of intangible assets, the enforcement of the Arm's Length principle has also been found to be applied quite loosely across institutional contexts (Bartelsman & Beetsma, 2003; Lohse & Riedel, 2012). When combined with loose enforcement of the Arm's Length Principle, related-party transactions are more likely to be used in conjunction with aggressive (mis)pricing strategies aimed at eroding the taxable base of a firm (Bartelsman & Beetsma, 2003; Lohse & Riedel, 2012; Grubert, 2003). This means that companies can effectively use the pricing of intangible assets as a way of either undervaluing or overvaluing the amount of profits derived from intangible assets, while shifting profit in the process by transforming income from operating to financial revenue. For instance, when entity A in one country pays royalties or interest to entity B of the same corporation in another country it transforms part of the income earned from operating income to financial income.

In consequence, transfer pricing has been argued as being one of the most important channels of profit shifting since (Clausing, 2003; Buettner & Wamser, 2007). Moreover, the presence of so-called bilateral advanced price agreements (BAPA) have been found to facilitate profit shifting by either undervaluing or overvaluing

the asset being priced, especially when companies are related through inter-firm trading (Tomohara, 2004). In reaction to this, many countries have implemented transfer pricing documentation requirements to stop profit outflow through intra-firm distortions in pricing. However, such frameworks are not in place in all countries (Beer & Loeprick, 2015). When they are, they have been found to be working by exerting a negative effect on profit shifting (Beer & Loeprick, 2015; Lohse & Riedel, 2012).

Capital mobility

The third driver of firm-level financialization comes from the inherent mobility of intangible assets (Grubert, 2003). While related to the driver of transfer pricing, intangible asset mobility can be viewed as a driver in itself because it facilitates easy transferal of intangible assets between firm subsidiaries. Without mobility, the opportunity for transfer pricing would not have risen in the first place. As Bryan et al. (2017) point out, intangible assets give "mobility and fluidity" to capital (p. 56). By engaging in financialization, firms effectively make their capital more mobile, making them able to "transcend" the spatial and temporal borders of production normally contained within the nation-state (Harvey, 1982). An example of this is the choice to relocate patents to other jurisdictions in response to smaller changes in taxation (Karkinsky & Riedel, 2012). Such a choice is much harder to make and requires more logistical resources if the relocation would concern productive capital or assets such as a factory. In consequence, increased capital mobility gives disproportional leverage and mobility to firms by providing them with the a viable exit strategy in the face of increased taxation or legislative constraints (Baaij, Mom, Van den Bosch, & Volberda, 2015).

Through mobility, the moving of profits from revenue to intangible assets poses an opportunity for aggressive (mis)pricing. This is especially the case when it comes to evaluating the costs of Research and Development (R&D) and intellectual property (IP) (Grubert, 2003; Karkinsky & Riedel, 2012). For example, this strategy has been argued as being used by Google when they transferred their IP between different subsidiaries prior to its public offering, where it ex post facto was determined that the initial valuation was significantly under the real value of the asset

being priced (Zucman, 2014).

Country-level competition for FDI

The last factor can be described as a pull-factor. This is a product of country-level legislative frameworks in place to either reward or discourage the declaration of profits from intangible assets. Such a framework can generally be viewed as the product of inter-country competition for foreign direct investment (FDI) (Reurink & Garcia-Bernado, 2018). An example of a country where the legislative framework is geared towards this is The Netherlands, where the statutory CIT stands at 25%, whereas profits derived from patents (the so-called "patent box") are taxed at 7%.

Moreover, empirical evidence shows that competition for FDI is not expressed as a homogeneous race to the bottom, but rather that different countries appear to have different "attraction profiles" when it comes to FDI (Reurink & Garcia-Bernado, 2018). As such, it is to be expected that heavily financialized subsidiaries, or subsidiaries created only for the purpose of holding a patent, are more likely to be located in jurisdictions providing advantageous terms to the financialized activities that the subsidiary is undertaking (Baaij et al., 2015).

Besides tax leveraged on income from intangible assets, another important country-level characteristic is tax-law (Genschel et al., 2011; Arel-Bundock, 2017; Baaij et al., 2015). Again, like the well-known tax haven, some countries have legislation in place that encourages the construction of corporate structures with the sole aim of reducing fiscal obligations through higher degrees of financialization. This often arises from a web of bilateral tax treaties - originally created to prevent the issue of double taxation (Arel-Bundock, 2017) - but which has increasingly become a way for firms to gain a comparative advantage by leveraging legislative loopholes. This kind of behaviour on the part of firms is also commonly referred to as "treaty shopping". A prime example of such a loophole made available through treaty-shopping is the so-called "double Irish Dutch sandwich" (DIDS).

The DIDS earns its name from the fact that it is made up of two Irish affiliates, with a Dutch shell company "squeezed" in between the two Irish affiliates (Zucman, 2014). This strategy enabled Google to reduce its effective tax rate on non-US income to 2.4% in 2010 (Bogenschneider & Heilmeier, 2016; Arel-Bundock, 2017).

However, even in the absence of loopholes in bilateral tax-treaties, just being present in a single market like the EU has been found to exert downward pressure on taxation (Genschel et al., 2011), hence underscoring the competitive nature of FDI-attraction. Therefore, it is to be expected that some countries will exert a stronger "pull" on companies undertaking financialized activities than others (Reurink & Garcia-Bernado, 2018), thus having a significant part of the institutional setting being accountable for the presence (or absence) of financialized firms.

2.4 Base erosion and effective tax rates

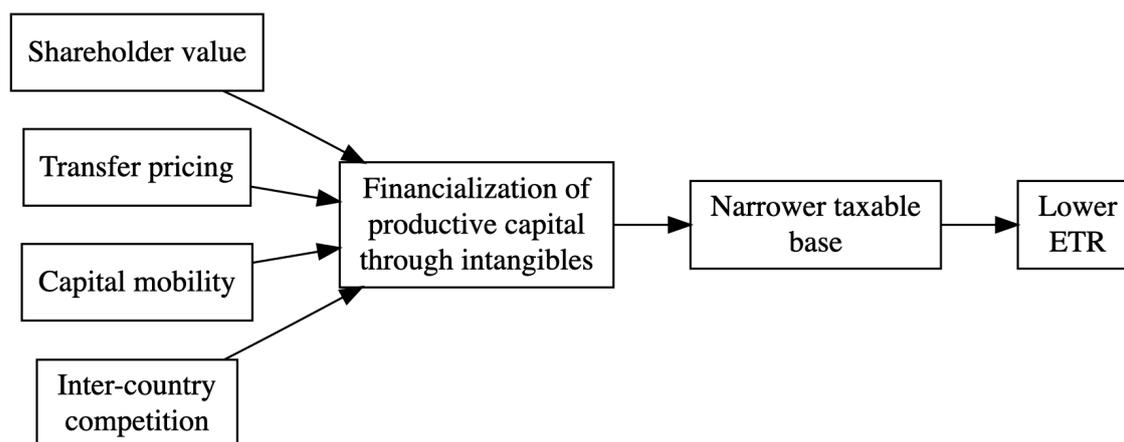
With the drivers of firm-level financialization outlined, how this effects firm ETR remains to be motivated. In general, the ETR of a firm is determined by two things: the country-level statutory corporate income tax (CIT), and the base (Cobham & Janský, 2018). The base constitutes all profits, however some countries reduce the base for the financial part of the profit, or use a different tax rate. For example in the case of the so-called patent box. In essence, the effective tax rate is the average rate at which the pre-tax profits of a firm are taxed. A common strategy utilised by firms to decrease the fiscal obligations is to reduce their taxable base, thus indirectly minimising the amount of profits over which the CIT is leveraged (Hines Jr. & Rice, 1994; Huizinga & Laeven, 2008; Weichenrieder, 2009; Zucman, 2013, 2014; Cobham & Janský, 2018; Tørsløv et al., 2018). This means that merely looking at country-level differences in CIT will not suffice in studying taxation, since the primary strategies used by firms to lower their effective tax rate are geared towards moving profits away from sources taxed at the level of the CIT.

In order for a company to further decrease their base, deductibles are used. This can be done by writing up costs for depreciation of material, or for loans. More importantly, the declaration of profits from financial sources (such as intangibles) might constitute another strategy aimed at reducing the taxable base, since financial profits are often not taxed at the same level as the CIT. Financial profits are not limited to dividends and pay-back on loans, but more important they can also be derived from royalties from patents, trademarks, and IP.

Drawing on the logic of base erosion, a great deal of literature has already focused

on empirically studying the moving of profits from one subsidiary to another in reaction to parent-subsidiary differences in CIT (see for example Beer and Loeprick (2015)). Here, the general expectation is that if exploitable differences exist in CIT between parent and subsidiary a firm will "shift" profits away from subsidiary-level operating profits in order to reduce their base (Heckmeyer & Overesch, 2012). Grounded in the theory of base erosion, looking at effective tax rates is a logical step in studying the effect of financialization. This flows from the fact that having assets in intangible assets will likely reduce the taxable base of a firm, thus ultimately decreasing the total amount of tax that a firm pays, which in turn reflects on the ETR. Taxation will therefore serve as a proxy of base erosion, since a reduction in the base will reflect on how much tax effectively is paid at the CIT.

Figure 2.1: Theoretical model of the financialization hypothesis



2.5 Summary of theoretical model

Drawing on the outlined mechanisms, Figure 2.1 summarises the theoretical proposition. First, the outlined drivers and motivations push firms towards financialization. At the level of the firm, the financialization of productive capital is denoted by higher levels of intangible assets. Since intangible assets and revenue from intangible assets are not taxed at the same level as the CIT, this results in base erosion, which in turn produces a lower ETR for firms that are more financialised. With this theoretical

rationale in mind, the following testable hypothesis can be formulated:

Higher levels of financialization will be associated with a lower effective tax rate

For the remainder of the thesis this theoretical mechanism will be referred to as "the financialization hypothesis".

Chapter 3

Method

3.1 Data

Firm-level data is obtained from the Orbis database, which is managed and made available (commercially) by Bureau van Dijk (BvD). Orbis provides global administrative information on more than 300 million companies. Most of the data is collected by national institutes such as Chambers of Commerce, and then subsequently standardised and compiled for commercial use by BvD. The database has information on the different levels of corporate organisation with both consolidated and unconsolidated data available. Data in Orbis is most complete from the mid-2000s and onward, but in some cases coverage goes all the way back to the 1980s. Due to completeness of the data the years 2012 to 2016 will be used to build the dataset for the subsequent analysis. All financial data in Orbis is reported in millions of US dollars.

The analysis will be conducted at the unconsolidated level. The unconsolidated level refers to the unconsolidated accounts of a firm. Unconsolidated accounts thus reflect the activities of a specific corporate entity, whereas consolidated accounts reflect the activities of the corporate entity along with all of its subsidiaries.

3.2 Data limitations

While Orbis provides ample data, it has a number of known shortcomings as well. One main disadvantage of Orbis is that it does not provide equal coverage for indi-

vidual firms in all countries. Orbis contains less data on firms located in tax havens or developing countries, while the data quality of firms located in OECD countries is generally well updated and maintained on a regular basis. Moreover, in a few cases, differences within countries exists as well. For example, in the United States, a large number of companies registered in the state of Delaware are not covered by Orbis since companies registered in Delaware are not required to file any information (Bogenschneider & Heilmeyer, 2016). In terms of coverage, it has recently been shown that Orbis only contains 17% of global profits (Tørsløv et al., 2018). While this in itself introduces bias into the sample, the fact that tax havens are less probable to be documented in Orbis is likely to mean that any estimates will be biased downwards (Tørsløv et al., 2018; Reurink & Garcia-Bernado, 2018).

Another shortcoming of Orbis is its dependence on the accounting standards per country since Orbis does not collect any data directly. For example, in Germany, Austria and Denmark, self-created intangibles were not always accounted for on the balance sheets (Beer & Loeprick, 2015). In general it is to be expected that countries (or states) facilitating higher degrees of fiscal secrecy will be be poorly covered in Orbis. However, similar to the argument on scarcity of data from tax havens, this means that any results are likely to represent the lower bound of the observed effect.

3.3 Relevant variables

Dependent variable

The dependent variable will be the eETR of a given firm. The ETR is calculated in two steps: first the difference in dollars between operating profit or loss (P/L) before and after tax is calculated. Afterwards, to calculate the total amount of dollars payed in tax is divided by operating profit P/L. That is, the ETR is the total tax divided by earnings before tax. This a number ranging from 0 to 1, with the maximum value corresponding to an ETR of a 100%. It should be noted that operating P/L includes dividends which have already been taxed in a different country. Dividing by the operating P/L produces a more conservative estimate of intangible income, because a part of the intangible income from dividends is already included in operating P/L.

Independent variables

The model will have three main independent variables. The first being firm financialization. In order to calculate financialization two variables are used from Orbis: Firstly, intangible assets, which denotes the total self-reported value of intangible asset in US dollars for a given firm. This includes patents, trademarks, and other IP. Secondly, total assets is used. Total assets denotes the total value of all assets held in a given firm. Following Beer and Loeprick (2015), firm-level financialization is measured by calculating the ratio of intangible to total assets. In this way, a firm with the majority of its total assets in intangibles will have a higher financialization ratio, with a maximum value of 1, corresponding to 100% of the total assets reported as being in intangible assets. The expectation is that firms that are highly financialized will, on average, have a lower ETR.

The second independent variable is financial P/L. Financial P/L denotes the amount of profits derived from financial products such as intangible assets, payback on loans, royalties and dividends. For example, if a firm generates profit from a specific patent or trademark through royalties this is accounted for as financial profit. Therefore, this variable is relevant in assessing how much profit a firm derives from its intangible assets. Since financial profits are taxed, albeit at a lower rate than operating profits, financial P/L is expected to have a positive effect on ETR.

The third independent variable will be an interaction of the level of the financialization with financial P/L. This variable is key in capturing the proposed theoretical relationship. Since it can be theorised that a firm is brought into life in order to hold some form of intangible asset, but that the asset subsequently does not generate any profit, the effect of financialization on ETR should be conditional on financial P/L. Thus, if financial P/L is zero (i.e. that no profits are derived from the intangible assets) then it is to be expected that financialization has no effect on ETR since no profits are derived from the financialized assets. To address this mechanism the first two independent variables will be interacted with each other. The reasons that this mechanism is not described in the theoretical model is that it is more of a empirical issue than a theoretical one since the absence of financial profits cannot be expected to produce an effect on the outcome.

Controls

Because confounding variables can blur the observable effect on an outcome, a range of controls will be added to the model as well. There should be a clear theoretical rationale for expecting the controls to influence the key variable of financialization for them to be included. With this in mind, the following variables will be used as controls: fixed assets, loans, number of employees, and operating P/L.

Fixed assets constitute physical objects such as factories and productive facilities and embody what can be referred to as productive capital. In relation to the outcome, amortisation of physical capital can be used for tax-deductions. Moreover, fixed assets could be (negatively) correlated with level of financialization since firms engaged in productive activities might also be less financialized. In addition, a firm with a lot of fixed assets will find it significantly harder to transfer a significant part of its assets since factories or other productive capabilities are not easily relocated (Bryan et al., 2017).

Loans can be used as a deduction from operating P/L, and will therefore have an indirect negative effect on the outcome variable. In addition, intangible assets can in some situations be entered as collateral when taking out a loan (Martin, 2001), thus possibly influencing the valuation of intangible assets, and therefore also the estimated level of financialization.

The number of employees will serve as a proxy for company size, with the expectation that companies with more employees will also have a higher ETR since these are more likely to be engaged in non-financialized activities. The number of employees is therefore expected to be negatively correlated with the key predictor. This flows from the reasoning that a firm merely holding a patent does not need a lot of staff, while a firm engaged in productive activities does.

Lastly, operating P/L is added as a control as well. The logic for doing so is grounded in the fact that this variable will be strongly correlated with taxation since operating P/L is the profits over which the CIT will be leveraged. Since it is theorised that firms erode their taxable base by moving profits away from operating profits through intangible assets, it is expected that firms that are more financialized will have a lower operating P/L.

As mentioned in the introduction and theoretical framework, a last and relevant

control is the effect of the institutional context. However, this data is not available in Orbis. Given that the institutional context matters when it comes to taxation (Hines Jr. & Rice, 1994; Tørsløv et al., 2018; Genschel et al., 2011; Lohse & Riedel, 2012; Arel-Bundock, 2017) and financialization (Beer & Loerprick, 2015; Grubert, 2003; Baaij et al., 2015; Bryan et al., 2017), it makes theoretical and methodological sense to include country-level controls as well. In order to address this issue a model will be used which can accommodate variance attributed to the nested structure of the data. Instead of adding country-level controls the analytical strategy will accommodate the nested structure of the data by drawing on a multi-level model where firms will be nested in countries.

3.4 Sample selection and data preparation

In Table 3.1 the sample selection is shown. First, the sample is restricted to the years 2012-2016. The reasoning for doing so is that this period has the most complete data and therefore allows for the building of the biggest sample. Next, firms with missing data on the relevant variables are dropped. To increase the robustness of the model the reported data for the selected time-period is averaged. This means that all data in the dataset will represent the five-year average for a given unconsolidated account. An important advantage of this approach is that it evens out yearly fluctuations since losses (i.e. negative operating P/L) can be carried over to other years, thus reducing the ETR in the following year. Averaging the data therefore reduces this bias and produces a more robust estimate.

Next, following the recommendations of Maffini and Mokkalas (2011), accounts reporting negative profits are dropped from the sample. In order to ensure that the sample only includes corporations, all non-corporate entities are dropped from the sample as well. This means that financial entities such as banks or hedge-funds are dropped, which is a logical step given that the focus of this thesis is on the financialization of productive capital and its subsequent effect on ETR. Banks or hedge-funds do not directly engage in any productive activity and are inherently financialized institutions.

The next step is the removal of accounts that have reported no operating profits

Table 3.1: Sample Selection

Step	Description	Observations	Percentage of	
			Step($x-1$)	Step 1
1	Downloaded from Orbis	197,243,024	100.00	100.00
2	Restrict to years 2012 - 2016	75,639,850	38.35	38.35
3	Remove missing values	28,061,293	37.10	14.23
4	Calculate average per company	9,155,110	32.63	4.64
5	Remove negative profits	6,699,559	73.18	3.40
6	Drop non-corporate entities	5,370,371	80.16	2.72
7	Drop if taxation & EBIT = 0	4,930,115	91.80	2.50
8	Drop if tax-rate < 0 or > 1	4,076,484	82.66	2.07
9	Drop if financialization < 0 or > 1	4,070,572	99.86	2.06

Step 2 restrict sample to the years 2012 to 2016, *Step 3* drop rows with missing values, *Step 4* calculate mean value per firm in five-year period *Step 5* remove firms with negative operating profits, *Step 6* drop all firms not in corporate sector, *Step 7* remove firms reporting to paying no tax and having no operating P/L, *Step 8* remove firms reporting tax rates higher than 100%, or negative tax rates, *Step 9* drop firms with financialization-ratio greater than 1 (more intangibles than total assets) or less than 0 (entities reporting negative total assets).

in conjunction with no taxation over the five-year period in the data. Accounts with negative tax rates or tax-rates above 100% are dropped as well. Such values can be produced when taxes owed (due the account running at a loss) are deferred to a different year. Next, accounts with a negative financialization ratio are dropped. The negative financialization ratio can be produced by accounts reporting negative total assets. In the same sample cut, accounts where the average reported value of their intangible assets is greater than the total assets are dropped as well since it financially does not make sense for the intangible assets in a firm to be more valuable than the total value of all assets.

Prior to the analysis the data will be transformed to insure that the model residuals are normally distributed. Due to the fact that a lot of accounts report paying 0 dollars in tax, and that the financial data also contains negative values, most of the variables have a right skew. To correct this, while retaining the negative and zero values, all independent variables (except the number of employees) are transformed with the cubic-root. This transformation means that all coefficients will be expressed in terms of predicted cube-rooted change in the dependent variable, and will consequently vary for different levels of the predictor.

In order to give an impression of the data used for the model descriptive statis-

tics of the untransformed data can be seen in Table 3.2. Descriptive statistics of the transformed data can be viewed in Appendix A. From Table 3.2 a few general observations should be noted. Firstly, the average ETR across the sample is 0.21, corresponding to 21%. In relation to the main independent variable (financialization) it can be observed that accounts in this sample, on average, have 2% of their total assets in intangibles.

Table 3.2: Descriptive statistics of untransformed data

Statistic	Mean	St. Dev.
Effective Tax rate	0.21	0.16
Taxation	153,880	8,343,505
Financialization	0.02	0.09
Total assets	10,644,645	662,481,085
Intangibles	440,236	49,368,074
Fixed sssets	55,300,07	374,889,950
Financial P/L	2501	15,074,715
Operating P/L	6,99,179	35,702,276
Loans	1,012,977	300,809,933
Number of employees	35.69	925.37

$N = 4,070,572$

Orbis 2012-2016, own calculations

All financial variables are reported in millions of dollars

3.5 Model Specifications

To model the effect of firm-level characteristics on ETR, while controlling for variance explained by the institutional context in which a firm is embedded (i.e. the expectation that within-country observations are correlated with each other), a two-level mixed model will be used. In this model firms will be nested in countries. Another analytical strategy could have been to use a multi-level model with firms nested in years (Beer & Loeprick, 2015). However, since the five-year average was calculated to ensure better model-robustness in dealing with between-year tax deferrals this approach is not applicable.

Following the recommendations provided by Hox, Moerbeek, and Schoot (2017), the model will be built step-by-step. This will be carried out in five steps: first starting with a simple null-model for the mean to test whether sufficient variance is

attributed to differences in country-level characteristics to use a multi-level model. If this is the case a model with a random intercept will be added. This will be followed by the testing for random slopes of the key predictor. If the model-fit is better with a random slope of financialization, a model with a random intercept and a random slope for the key predictor will be added. This will be followed by the inclusion of the relevant controls. Lastly, a full model will be specified with the relevant controls and an interaction of financialization and financial P/L.

Drawing on the variables outlined, a test for the financialization hypothesis can be estimated by the following regression:

$$\pi_i = \alpha + \beta_1 I_i + \beta_2 F_i + \beta_3 I_i \times F_i + \delta Firm_i + v_c + \epsilon_i$$

where π_i corresponds to the ETR of firm i , $\beta_1 I_i$ the level of financialization for firm i , $\beta_2 F_i$ financial profits declared by firm i , $\beta_3 I_i \times F_i$ the interaction between level of financialization and financial P/L. Lastly, $\delta Firm_i$ is a vector containing the firm-level controls, v_c contains the cluster residual, and ϵ_i the unit residual.

The expectation is that both $\beta_1 I_i$ and $\beta_3 I_i \times F_i$ will have a negative effect on π_i . Recalling the theoretical model outlined in Figure 2.1, a negative $\beta_1 I_i$ and a negative $\beta_3 I_i \times F_i$ will be viewed as support for the financialization hypothesis.

Chapter 4

Results

4.1 Regression results

Table 4.1 presents the results of the multilevel regression models. Following Hox et al. (2017), model 1 estimates whether enough variance resides at the country level to justify using a multi-level model. Dividing the between-cluster variance with the total variance produces a variance partition coefficient (VPC) of 17%¹. This means that in model 1, 17% of the total variance resides at the country-level. This is sufficient to justify using a multi-level model, with 5% considered as the threshold in cross-country models (Hox et al., 2017). The constant of 0.20 denotes the mean ETR across all countries in the model.

In model 2 financialization is added as a fixed effect, while relaxing the assumption that all countries have the same intercept. The random intercept model produces a coverage interval of [0.08;0.32]². Thus, in the population of 85 countries, it is expected that 95% of countries will have an intercept (i.e. mean ETR) within this range. This should be interpreted with the statistical caveat that the clusters are not randomly sampled for this model. In line with the theoretical expectation, firm-level of financialization has a negative effect on ETR, with a unit change in financialization (corresponding to going from a ratio of intangible to total assets of 0 to 1) being associated with an average predicted cube-rooted change in ETR of -0.02. When comparing model 2 to model 1, the within-country variance declines

¹ $(\frac{0.004}{0.004+0.019}) \times 100$
² $0.20 \pm 1.96 \times \sqrt{0.004}$

Table 4.1: Multilevel OLS models predicting the effect of financialization on effective tax rate

	Model 1	Model 2	Model 3	Model 4	Model 5
Financialization		-0.02*** (0.001)	-0.01** (0.01)	0.01 (0.01)	-0.01** (0.01)
Financial P/L				0.001*** (0.001)	0.001*** (0.001)
Fixed assets				0.002*** (0.001)	0.002*** (0.001)
Operating P/L				-0.001*** (0.001)	-0.001*** (0.001)
Loans				-0.001*** (0.001)	-0.001*** (0.001)
zNumber of Employees				0.001*** (0.001)	0.001*** (0.001)
Financialization × Financial P/L					-0.001*** (0.001)
Constant	0.20*** (0.01)	0.20*** (0.01)	0.20*** (0.01)	0.23*** (0.01)	0.23*** (0.01)
Random Effects					
Intercept	0.004 (0.067)	0.004 (0.068)	0.004 (0.063)	0.004 (0.068)	0.007 (0.085)
Residual	0.019 (0.138)	0.018 (0.135)	0.021 (0.146)	0.019 (0.138)	0.017 (0.132)
Financialization			0.001 (0.038)	0.003 (0.055)	0.002 (0.041)
<i>N</i>	4,070,572	4,070,572	4,070,572	4,070,572	4,070,572
Log Likelihood	2,044,984	2,046,000	2,047,427	2,121,459	2,125,007
AIC	-4,089,962	-4,091,993	-4,094,842	-4,242,896	-4,249,989
BIC	-4,089,923	-4,091,940	-4,094,763	-4,242,750	-4,249,830

Fixed effect standard errors and random effect standard deviations in parentheses

Orbis 2012-2016, own calculations

***p < .01; **p < .05; *p < .1

from 0.019 to 0.018, which corresponds to a 5.26% percentage decrease. Within-country differences in financialization thus explain 5.26% of within-country variance in ETR. That is, some countries have, on average, more highly financialized firms than others. The coverage interval of the intercept in model 2 (the between-country variance) does not change with the inclusion of the extra predictor.

Model 3 relaxes the assumption that the effect of financialization on ETR is the same across all countries in the sample, while allowing for variability in the intercept. In model 3 a unit increase in firm-level financialization is associated with a predicted cube-rooted change in ETR of -0.01. In comparison to model 2, the within-country variances increases from 0.018 to 0.021 after the inclusion of the random slope. This corresponds to a 14.29% increase in residual variance. This can happen when the variation in country ETR is cancelled out by variation in firm-level financialization. The random effect of financialization has a coverage interval of [-0.07;0.05]. Given that zero falls within the coverage interval, the effect of financialization on ETR will be non-significant for some countries in the sample.

Model 4 incorporates the relevant controls, along with a random intercept and a random slope of financialization. When controlling for firm-level characteristics the effect of financialization on ETR becomes non-significant. The fact that the effect of financialization on ETR is non-significant underscores the point made in the previous section that the effect of financialization on ETR is conditional on the profits derived from the financialized assets. This happens because ETR is measured as tax paid in dollars divided by operating P/L. As expected, financial P/L is positively associated with ETR, i.e. that more profits from financial sources will be associated with paying more taxes. The same pertains to fixed assets and number of employees, with one standard deviation in the number of employees corresponding to an average increase of 0.001 in ETR. In consequence, firms with more employees, which are also more likely to be engaged in productive activities, have, on average, a higher ETR.

Interestingly, in model 4, higher levels of operating profits have a negative effect on ETR. Firms reporting more profits will, on average, have a lower ETR. The intercept increase with the inclusion of the predictors, which is logical given that negative effects of the other predictors. That is, given the negative effect of these

coefficients, if a firm has not reported any loans or operating P/L, the ETR will be higher. The residual decreases, from 0.021 to 0.019, corresponding to a decrease of 10.53%. That is, within-country differences in the controls explain 10.53% of the within-country variance in ETR. The random slope of financialization provides a 95% coverage interval for the following range: [-0.10;0.12]. In consequence, for some countries in the current sample, the effect of financialization on ETR can also be positive, or non-significant. The variability in the effect is also underscored by the fact that the main effect in this model is non-significant. The new coverage interval for the intercept is [0.11;0.35], corresponding to the lower and upper bound of the intercept for all countries in the sample.

Model 5 presents the full model incorporating a random slope for financialization, random intercept, controls, and the interaction of financialization and financial P/L. In model 5 the interaction is the main coefficient of interest. Given the financialization hypothesis, it is expected that highly financialized firms deriving higher levels of financial profits from their assets will also (on average) have a significant lower ETR. This hypothesis is supported by an added effect (on top of the main effect) corresponding to an average cube-rooted decrease in ETR of 0.001 for one unit increase in financialization and financial P/L. Moreover, when compared to model 4, the main-effect is statistically significant again, which can be interpreted as the effect of financialization on ETR only being present when profits are also derived from the financialized assets. This supports the empirical argument that the effect of financialization on ETR depends on the amount of financial P/L and vice versa.

In model 5 the variance of the random intercept increases with 42.86%. With ordinary least squares regression (OLS), adding a predictor can only decrease the variance. However, in multilevel modelling, adding individual level predictors can make the group-level variance increase. This can occur when the individual-level predictors are negatively correlated with the group coefficient. In the case of model 5 it would mean that between-country variance might be caused by countries that, on average, have more firms with higher levels of financialization, will also, on average, have lower ETRs, which theoretically also makes sense. That is, countries that leverage less taxes, will have more firms, with some them also being more financialized. This is also aligned with the decrease in within-country variance signifying

that this effect is now controlled for in each of the clusters in the model.

The new random intercept in model 5 produces a coverage interval of [0.07;0.39], corresponding to the variability in CIT in the different countries in the sample when controlling for the interaction between financialization and financial P/L. The within-country residual decreases with 10.52%. Within-country differences in the added interaction thus explains 10.52% of within-country variance in ETR. Lastly, the random effect of financialization has a coverage interval of [-0.10;0.08]. Given the range of the coverage interval, for some countries in the full model the effect of financialization on ETR will be naught.

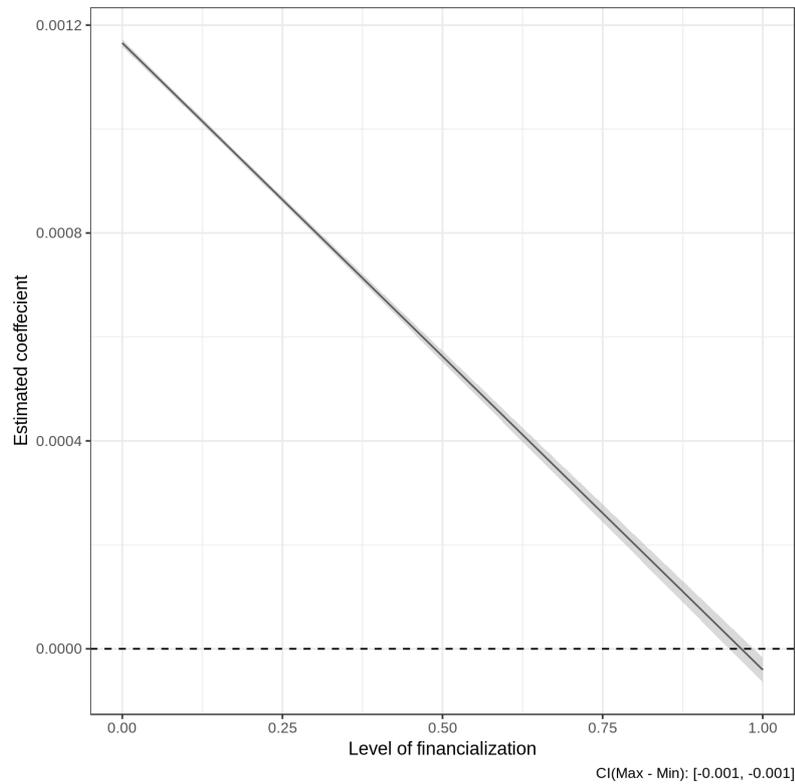
4.2 Average marginal effect

To examine whether the effect of financial profits on ETR is conditional on the level of financialization, Figure 4.1 shows the conditional marginal effect of financial P/L for different levels of financialization. From Figure 4.1 it is clear that the effect of financial P/L is conditional on the level of financialization. Higher levels of financialization thus correspond to a stronger negative effect of financial profits on ETR. That is, for the most financialized firms in the sample, the effect of the interaction is also the strongest. Additionally, Figure 4.1 shows that the effect of financial P/L on ETR first becomes negative at a higher level of financialization. As such, from Figure 4.1 it can be deduced that companies where more than 90% of their total assets are in intangibles are expected to have the greatest negative effect on ETR. This aligns with the theory on the legal-financial reorganisation of the firm where the interposition of intermediate holding companies are used to separate the revenue generated from intangible assets from the rest of the firm, since firms with more than 90% of total assets in intangibles are likely to be intermediate holdings.

4.3 Random effects by country

Given the range of the the random effects, Appendix B and Appendix C breaks down the average effect per country in model 5. Since this thesis is not comparative in nature, the country-differences will only be briefly discussed. It should be noted that quite a lot of countries have relatively few observations, resulting in wide confidence

Figure 4.1: Estimated effect of financial P/L on effective tax rate by level of financialization



intervals for some clusters in the sample.

In general, it is to be expected that the country effects of financialization on ETR in Appendix B is correlated with the CIT, with countries with the highest CIT also having the highest intercept. The countries with the highest intercept are Egypt (EG), Argentina (AR) and Italy (IT), whereas Jordan (JO), Lithuania (LI), and Mexico (ME) have the lowest. In Appendix B the range of the random intercept of financialization is reproduced. Here, it can be seen that the average effect of financialization on ETR differs greatly per country, with Ukraine (UA), Brazil (BR), and Romania (RO) having the largest positive effect, whereas Greece (GR), Colombia (CO), and Australia (AU) the largest negative effect.

Chapter 5

Conclusion

This thesis has analysed the potential effect of firm financialization on effective tax rates. The results provide support for the financialization hypothesis, signified by the negative and statistical significant effect of firm-financialization on ETR. The findings reported are robust against controlling for firm size and other relevant firm-level aspects, firm fixed effects and varying country characteristics. Increasing the ratio of intangible to total assets by one unit translates into a predicted cube-rooted decrease in effective tax rate of 0.01. Moreover, this effect is found to be stronger for firms with a higher level of financialization, with a one unit increase in financialization and in financial profits translating into an added predicted cube-rooted decrease in effective tax rate of 0.001. Going back to the question of whether firms use the financialization of productive capital to reduce their effective tax rate, the results presented in this thesis warrant the conclusion that this is the case. In extension, these findings support the argument that financialization is a pathway through which firms can erode their taxable base, and in extension their effective tax rate. While the results are not conclusive, they represent a novel attempt at investigating the relationship between firm-level financialization and effective tax rates.

In terms of theoretical consequences, a few remarks are warranted. First, in relation to the problem of investment underscored by Orhangazi (2008), whereby it is argued that higher levels of firm financialization are associated with lower levels of investment in productive capital. Building on this, the findings in this paper represent another incentive for firms to further financialize. While Orhangazi (2008)

point to the economic outcome of firm-level financialization, this thesis underscores the financial rational present at the level of the firm for financializing in the first place. Moreover, as Boyer (2000) has pointed out, having a highly developed economy is a necessary precondition for accessing the economic gains generated by a financialized economy. In consequence, country differences in levels of financialization could potentially exacerbate existing economic inequalities between "developed" and "developing" economies.

In addition, the results provide empirical evidence for the driving economic rationale behind the fragmentation of the firm (Froud et al., 2000a, 2000b; Aglietta, 2000; Reurink & Garcia-Bernado, 2018). This is underscored by the finding that the observed effect of financialization on ETR is strongest for unconsolidated accounts in the sample where more than 90% of the total assets are bound up in intangible assets. As such, it can be argued that there is a strong incentive to place intangible assets in separate accounts with the only purpose of reducing taxation, with this claim also substantiated by the empirical results.

Recalling that the macro-economic consequences of financialization have been associated with increasing financial inequality (Crouch, 2009; Fligstein & Shin, 2007; Tomaskovic-Devey & Lin, 2011; Lin & Tomaskovic-Devey, 2013), and higher market volatility (Stockhammer, 2012; Lapavitsas, 2012), the new evidence presented by this thesis adds another issue to the list of adverse affects of financialization, namely that of base erosion. While the empirical work in this thesis is not longitudinal in nature, it further supports the empirical evidence brought forward by Krippner (2005). This is done by strengthening the understanding of the underlying drivers and economic rationale for engaging in financialization at the level of the firm. Therefore, similar to the academic work presented by Krippner (2005), Stockhammer (2004), Bryan et al. (2017) and Orhangazi (2008), these findings are relevant for the academic debate on the increasing economic importance of non-productive capital.

While lending support to the financialization hypothesis, the analytical strategy and results have some limitations that warrant attention as well. First of all, data in Orbis only covers about 17% of global profits (Tørsløv et al., 2018). However, given that fiscal secrecy is associated with lower data quality, it is reasonable to argue that the estimates presented in this thesis represent the lower bound of the

observed effect (Tørsløv et al., 2018; Reurink & Garcia-Bernado, 2018). The same logic pertains to the fact that the values for the current model have been computed by taking the five-year average, which means that firms that have not been consistent in their accounting are also less likely to be in the sample. Another limitation is due to the fact that OECD countries provide better coverage. Therefore, finding ways to incorporate the Asia-Pacific region and Africa would be a good addition to this research, especially given the argument that financialization might hamper real economic growth in developing countries.

In terms of further research, given the inter-country variability, new research could focus on documenting the effect of different institutional frameworks by engaging in a more comparative study. For example, building on Beer and Loeprick (2015) and Lohse and Riedel (2012), studying whether stronger documentation requirements has a negative effect on base erosion through intangible assets would be a meaningful addition to the work presented here. Taking steps to better understand the substantial differences in effect by country, and building on Reurink and Garcia-Bernado (2018), a comparative study on which countries attract the most financialized firms would form a meaningful contribution as well. Moreover, while this research provides evidence of financialization of productive capital being used to lower fiscal obligations, in order to engage in a more informed debate, further research could work towards estimating how much state-level revenue is lost through this channels. One way to do so could be by extrapolating from the results presented in this thesis. To enhance model-robustness, another meaningful addition would be to control for parent-subsidiary differences in size and ETR.

In conclusion, the findings in this thesis do not necessarily lend themselves easily to the formulation of policy. However, they do provide some empirical foundation to build further on. The findings support the claim that profits are shifted through intangible assets. Moreover, adding to the results provided by Krippner (2005) and Stockhammer (2004), if we are witnessing a change in mode of production, then policy should be reconfigured in order to deal with this change. For example by formulating concrete steps towards re-conceptualising what it means for a firm to be "productive". If intangible assets are increasingly becoming the primary driver of revenue for a significant proportion of firms, they should also be taxed accordingly.

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Appendix A

Descriptive statistics of transformed data

Statistic	Mean	St. Dev.
Effective tax rate	0.21	0.16
Intangibles	10.00	29.91
Total assets	86.47	96.93
Financialization	0.08	0.17
Financial P/L	-6.35	28.04
Operating P/L	37.21	39.29
Fixed assets	48.23	76.90
Loans	21.34	45.48
zNumber of employees	2.09	1.41

$N = 4,070,572$

Orbis 2012-2016, own calculations

All variables except effective tax rate and number of employees are transformed with the cube-root

Appendix C

Random effect of financialization by country

