

LUND UNIVERSITY

School of Economics and Management

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**The Economic Consequences on Investment
Decisions in Development Activities Due to the
Imposition to Expense Development Costs for SMEs:
An Experimental Study**

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Keywords:

Economic consequences, IFRS for SMEs, SMEs, Development cost, Investment decision making.

Purpose:

The purpose of this study is to investigate the impact of the prohibition to capitalise any development cost in SMEs, as required by IFRS for SMEs (section 18.14), on SMEs' managers' decisions on investments in development activities.

Methodology:

The methodology applied in this study is represented by an experimental approach structured in simulations built with Microsoft Excel. The empirical results are then interpreted with the support of two-way mixed ANOVA in SPSS.

Theoretical perspective:

This study is based on economic consequences theory, as well as previous studies that investigate the effects of certain accounting regulation.

Empirical foundation:

The empirical findings were collected through simulations sent out to 79 Master's students in Accounting and Finance enrolled at LUSEM in 2016/2017, out of which 25 answered the simulation. These 25 responses represent the empirical foundation of this research.

Conclusions:

Based on statistically significant findings, this study concludes that an accounting regulation which mandates the expensing of development costs decreases the tendency of managers to spend money on development projects and causes them to prefer investments in PPE rather than in development activities.

*'The art is not one of forgetting but letting go. And when everything else is gone,
you can be rich in loss'*

(Rebecca Solnit)

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1. INTRODUCTION

1.1. Background

With the intention of having a significant future benefit (ACCA, 2015), companies, regardless of how small or big they are (Hong and Lee, 2016), tend to spend part of their money on research and development (R&D) activities. The importance of R&D for companies is well explained by Ganapathy (2014). He believes that R&D is the trigger of companies' innovation and each failure of innovations is needed to finally succeed. In other words, R&D can be used for accelerating organisations' growth (Ganapathy, 2014) hence economic growth (Lev et al, 2008). This process will lead to an increased society's standard of living (Lev et al, 2008). Therefore, we assert that R&D is an important topic to be further researched.

The contribution of small and medium-sized enterprises (SMEs) in the innovation process is seriously underpinned by policy makers. SMEs are a paramount part of the economy, and, only in Europe, they account for around 99% of all enterprises and employ an increasing number of persons (ec.europa.eu, 2017). This means that SMEs are columns of any economy in terms of output, employment and technological change (Ortega-Argilés et al., 2009).

Various studies have shown the involvement of SMEs in the invention arena: as a matter of fact, start-up companies, young entrepreneurs, university spin-off and small highly innovative firms have sometimes altered entire industries, producing incredible technological discoveries with a substantial impact which would normally be expected by larger global corporations (Ortega-Argilés et al., 2009). It has even been argued that to survive in the global competition and to tackle with technology development and product variety expansion in the new manufacturing environment, SMEs must continuously engage in product innovation (Laforet, 2008). In this way, SMEs will cope with the everyday more persisting pressure due to globalisation (Ortega-Argilés et al., 2009).

The relative relevance of SMEs in consideration of larger companies has not been neglected by the International Accounting Standard Board (IASB) that, since 2004, has been active in the creation of a global set of financial reporting standards functional to the needs of SMEs. The standpoint for this initiative is that full-IFRS (International Financial Reporting Standards) are too complex for SMEs, so simplified standards with different cost-benefit considerations were needed (IASB, 2015).

One of the most debated provisions contained in the IFRS for SMEs' booklet (2015) is, indeed, section 18.14, disciplining the accounting treatment of R&D investments. While treating research costs as expenses is a globally accepted accounting policy, because of their exploratory purview which may or may not lead to future benefits, the mandatory expense of development costs is more controversial. This emerges clearly by 2012's comment letters in response to IASB's Request for Information. The Request for Information was part of IASB's review of IFRS for SMEs concluded in 2015. The objective of the Request for Information was to seek the opinion of all the interested parties, such as those who have been applying the IFRS for SMEs, users, national standard-setters, professional bodies and regulators on whether amendments to current standards were necessary or not (IASB, 2012).

In total, IASB received 84 comment letters and 73 of them expressed an opinion on development costs. The question posed by IASB in its Request for Information was the following:

'Should the IFRS for SMEs be changed to require capitalisation of development costs meeting criteria for capitalisation (on the basis of on the criteria in IAS 38)?

(a) No—do not change the current requirements. Continue to charge all development costs to expense.

(b) Yes—revise the IFRS for SMEs to require capitalisation of development costs meeting the criteria for capitalisation (the approach in IAS 38).

(c) Other—please explain.

Please provide reasoning to support your choice of (a), (b) or (c)'

(IFRS Request for Information, 2012).

Option A was selected by 31 respondents, option B by 16 respondents and option C by 26 respondents.

Overall, no view has clearly prevailed and many notable institutions such as ACCA (2012) (the global Association of Chartered Certified Accountant), EFAA (2012) (European Federation of Accountants and Auditors for SMEs), EFRAG (2012) (European Financial Reporting Advisory Group), FRC (2012) (Financial Reporting Council, the accounting standard-setter in the UK), ICAEW (2012) (the Institute of Chartered Accountants in

England and Wales) and IFAC (2012) (International Federation of Accountants) proposed to allow at least an option for capitalization of development costs. These institutions motivated their stance pointing out the importance of development costs for many SMEs, having a major impact on financial statements. The inclusion of an option is even seen as beneficial for many jurisdictions, which may be incentivized to adopt IFRS for SMEs: several countries in Europe are indeed allowing the capitalization of development costs for SMEs at a national level. Moreover, advocates of the third option deemed that cost-effectiveness considerations are not marginalized: permitting a choice allows those entities that do not wish to incur the on-going costs of assessing the viability of a project to choose to expense development costs, while companies engaging in significant development activities are often able to assess the viability of projects and should, therefore, be allowed to capitalize. It is argued that, by allowing capitalization, the information value of the accounts will be increased: the mandatory requirement of expensing may fail to represent the story of the business. In general, requests to investigate the topic more closely have arisen, to understand whether the benefit of a mandatory expense (simplicity, increased comparability) outweighs its costs.

Even the opinion of the SME Implementation Group (SMEIG) has been ignored. SMEIG is an advisory body to IASB which supports and monitors the implementation of IFRS for SMEs; its members are appointed by trustees of the IFRS foundation and are selected for their knowledge of and experience in financial reporting for SMEs (SMEIG, 2014). In their Report Paper, issued in 2013, they stated the following: *'a slight majority of SMEIG members recommend allowing SMEs an option to either expense (current treatment) or capitalise development costs'* (SMEIG, 2013, p. 12).

1.2. Problematization

Described the relevance of R&D for SMEs and outlined the debate around the accounting treatment of development costs (see background), we argue that it is important to analyse the economic consequences of the current regulation issued by IASB, which mandatory requires the expensing of development costs.

Economic consequences of accounting have been firstly identified by Zeff (1978). We have already delineated that, in the case of IFRS for SMEs, several institutions submitted their comment letters to express an opinion on the standards promulgated by IASB. This is very

similar to what Zeff (1978) recognised almost 40 years ago: the active intervention of third parties in the standard-setting process. The interferences of managers, governments, investors and creditors in the regulatory arena are motivated by the economic consequences of the accounting pronouncements, which will have an impact on their well-being. Therefore, Zeff (1978) argues that standard-setters should not neglect the economic consequences because accounting absolves a social function that goes beyond pure technical considerations. In contrast, Ruland (1984), who differentiates two standard-setting approaches, neutral/faithful representation, and economic consequences, concludes that regulators should not make any decision based on those consequences. However, both Zeff (1978) and Ruland (1984) agree that accounting regulation will always have economic consequences, described by Ruland (1984) as '*social welfare effects of accounting*' (p. 226). A study that supports their common ground, digging into economic consequence issues, has been presented by Blake (1992). He differentiates three causes of economic consequences of accounting: compliance/analysis costs, mechanistic consequences and judgemental consequences. The similarity of these three causes is that they are triggered by the action of actors. Compliance/analysis costs are generated by managers' cost/benefit considerations, mechanistic consequences are prompted by regulatory bodies' enforcements and agreements of companies with third parties such as banks and lenders, and judgemental consequences are motivated by decisions taken by users of accounts.

When issuing accounting standards for SMEs, it appears that the main preoccupation of IASB has revolved around compliance/analysis costs. The standard-setting body argues that, allowing capitalization of development costs will increase policy option for managers, resulting in a more complex set of rules than full IFRS. Moreover, they found their decision on the consideration that SMEs will have difficulties to show whether the criteria for capitalization are met (IASB, 2015): this means that cost of compliance for companies will increase (IASB, 2015 and Blake, 1992). However, various commentators of this initiative, through their comment letters, highlighted additional economic consequences possibly arising by a mandatory imposition to expense development costs, going beyond compliance/analysis considerations. For example, Ernst & Young (2012) believes that SMEs that develop intangible assets find capitalisation of development costs useful when presenting financial information; additionally, the current treatment (expensing development costs) is viewed as a barrier to entry to smaller firms which are forced to lower

their profitability in contrast to larger counterparts allowed to defer the expense by applying full IFRS (University of the Witwatersrand, 2012). Several commentators are therefore concerned that the current rule will discourage SMEs to invest in research and innovation, and this can represent a real danger: Asheim (1996) argues that, nowadays, competition is played through innovativeness rather than productivity growth, so far that the economic advantage of local economies often depends upon the ability of SMEs to make innovation.

An important study, which attempted to show the economic consequences in our area of focus, i.e. R&D investments, has been performed by Cooper and Selto (1991). Investment decisions of managers are tested in a multiperiod laboratory experiment targeting MBA students, and findings suggest that standards allowing the capitalization of R&D are not only beneficial for managers but for the society as a whole, given the greater amount of R&D activities carried out when capitalization is taking place. However, we are of the opinion that one of Cooper and Selto's (1991) main assumptions is not always holding and could, therefore, circumscribe the validity of their conclusions: specifically, we contest Cooper and Selto's (1991) presupposition of self-interested managers, which seeks to maximise single period's net income to get a higher compensation, *even in start-up conditions*.

We dissociate ourselves from such a claim: it has been widely described that, compared to bigger companies, SMEs often present a governance structure dominated by owner/managers, which eliminates the borders among entrepreneur's innovativeness and ideas with that of the firm (North and Smallbone, 2000; Varis and Littunen, 2010). This is a feature that deeply differentiates SMEs from larger corporations, where managers often have a compensation package based on reported income, a practice which is implemented to overcome the stewardship problem (Beyer et al., 2010). So, while it is possible to affirm that, in bigger companies, capitalization will be preferred by managers, because income smoothing will maximise their current expected utility and personal return (Cooper and Selto, 1991), we believe that this will not be the case for SMEs. Small firms are often cash-limited, small entities managed by the owners (Nader et al., 2012). This feature of complementarity between owners and managers led us to believe that SMEs, *especially in start-up conditions*, will not present managers with a compensation package based on reported income.

Instead of worrying about their personal return, SMEs' managers will be more interested in company's survival and, especially, company's ability to get loans, a crucial element for

SMEs prosperity and innovation (European Commission, 2016). According to Aziz and Lawson (1989), companies have to sustain their income in order to survive. Relevant indicators that are presented by Aziz and Lawson (1989) regarding going concern of a company are strong operating cash flow, more investment in capital assets and high capability of fulfilling their debt obligations. Moreover, the same financial indicators are considered by lenders or financial creditors, who are the most important SME's stakeholder, because they act as loan providers (Deaconu et al., 2009). Specifically, Deaconu et al. (2009) describe liquidity, solvency and long term investment as variables considered by lenders when assessing creditworthiness. Accordingly, a study that is grounded on managers' compensation package (Cooper and Selto, 1991), is not really relevant for SMEs. As a matter of fact, basing studies on strong suppositions such as stewardship theory, as done by Cooper and Selto (1991), is typical of positivistic studies, which are always driven by an underlying theory, often agency theory (Artsberg, 2017).

A different approach has been followed by Godfrey and Warren (1995), who are basing their study on firms' contracting equilibrium. Indeed, they view accounting standards as an exogenous event which may affect company's relations with third parties. Their reasoning fits with Blake (1992) contractual consequences and, in the end, Godfrey and Warren (1995) are able to show the impact of accounting on firm's relations with relevant stakeholders. What we derive from Godfrey and Warren's (1995) study is the importance of external parties as consideration for managers' decisions, in contrast with Cooper and Selto (1991), who base managers' choices on self-interest in terms of their compensation package. Even in our case, following Godfrey and Warren (1995), relationships with stakeholders are likely to play a role. In particular, an influential position is occupied by financial creditors, who are SMEs' most important counterparties (Deaconu et al., 2009). Access to finance is a key concern for SMEs and is considered fundamental for their growth and innovation (European Commission, 2016). Managers' decision making, which comprehends R&D investments, will be therefore influenced by their possibility to get credit lines from external parties. Consequently, when accounting regulation mandates companies to expense development costs, they will have more trouble to maintain their financial performance. Their opportunities to get loans and, in turn, the amounts of R&D activities performed, will be hence affected.

All in all, the various studies we mentioned before show that accounting is never neutral (Arnold and Oakes, 1998) and that there will always be economic consequences because of certain accounting regulations (Ruland, 1984). However, as far as we know, there are no previous studies that specifically target small and medium companies and the effects of accounting on R&D for SMEs.

Nowadays, not only it has been widely ascertained that innovation is the *'elixir of life for firms regardless of their size or attributes [and that] growth, success and survival, all depend on the ability of firms' to innovate on continual basis'* (Varis and Littunen, 2010, p. 129). SMEs, in particular, are also believed to have a higher propensity to innovate than larger firms. It is because they are more dynamic, flexible, they present fast adaptability to new challenges and are more responsive to changes in customer demands and variations in economic conditions (North and Smallbone, 2010). It is, therefore, important to investigate the effects of the provision contained in section 18.14 of IFRS for SMEs, which prohibit the capitalization of development costs.

1.3. Research Purpose

The aim of our study is to investigate the impact of the prohibition to capitalise any development cost in SMEs, as mandated by IFRS for SMEs (section 18.14), on investment decisions in development activities. The effects of this imposition will be shown in comparison to whether companies were allowed to capitalise such costs.

The decision-making behaviour of SMEs' managers, rather than being dependent upon earning maximisation (Cooper and Selto, 1991) is ascribed to considerations about company's survival and possibility to get loans (Deaconu et al., 2009), an important driver for SMEs' growth and innovation activities (European Commission, 2016).

Therefore, our research will investigate the following question:

What are the economic consequences on investment decisions in development activities consequent the imposition to expense development costs for SMEs?

1.4. Research Structure

The balance of this paper is organised as follows. The next chapter, Theoretical Background, identifies previously conducted researches in the field of economic consequences of accounting; these prior studies are contextualised into our area of focus: the effects of the prohibition to capitalise development costs mandated by IFRS for SME on managers' decision making. Chapter 3, Method, describes the experiment we built to investigate our research question, and includes the formulation of our hypotheses. Chapter 4, Results and Discussion, presents the findings of our research determined by applying our chosen statistic model: two-way mixed ANOVA. Then Chapter 5, Summary and Conclusions, briefly sums up our research and points out our concluding remarks.

2. THEORETICAL BACKGROUND

The concept of economic consequences has been firstly introduced by Zeff (1978) and, specifically, economic consequences are defined as *'the impact of accounting reports on the decision-making behaviour of business, government, unions, investors and creditors'* (p.56). This article is extremely relevant because it gives a generally accepted definition of economic consequences subsequently employed by many researchers, and can thus be considered as crucial for the development of research in the field of economic consequences of accounting.

Zeff (1978) puts the accent on the external forces interfering in the standard-setting process, especially managements and government representatives. Their intervention in the standard-setting process is not related to traditional accounting questions of accounting measurement and fair presentation but is driven by their interest in the economic consequences of accounting pronouncements. Zeff (1978) recognizes various accounting topics in regards to which economic consequences have been invoked: issues such as leases, foreign currency fluctuations, domestic inflation and, indeed research and development costs have particularly been under the limelight and accounting academics *'busily investigates the empirical validity of claims that these or other accounting standards may be linked with the specified economic consequences'* (Zeff, 1978, p. 60).

Zeff (1978) concludes that standard-setters are faced with a dilemma. It is questioned whether their decisions should rest only on technical considerations or whether they should also listen to the concerns of third parties, which have to cope with the economic and social consequences of accounting pronouncements. At one point, Zeff (1978) states that: *'The issue of economic consequences has changed from one having only procedural implications for the standard-setting process to one which is now firmly part of the standard-setters' substantive policy work'* (p. 61), therefore suggesting that the FASB's (Financial Accounting Standards Board, the accounting standard-setter in the US) activity is not neglecting economic consequences.

This is surprisingly different than what Ruland (1984) argues. He differentiates between two opposite accounting policy making approaches, the former calling for neutrality and faithful representation, the latter more focused on the achievement of good economic consequences. While Zeff (1978) argues that FASB started to contemplate economic consequences, Ruland (1984) takes FASB as the most notable advocate of the faithful representation approach.

Given that Ruland (1984) considers the two approaches as opposites, one excludes the other. Notwithstanding, Ruland (1984) agrees that third parties lobby against standards perceived to negatively affect their interests, advocating that social welfare is influenced by accounting standards.

Going beyond the scope of our paper, we will not dig into standard-setting theories and will not attempt to explain how standard setting bodies operate and reach their decisions; however, a common observation raised by Zeff (1978) and Ruland (1984) which grounds our research is the conclusion that accounting standards will have an impact on various parties, implying that '*accounting representations, be they faithful or not, will have consequences*' (Ruland, 1984, p. 225).

An attempt to develop a system to comprehensively study the economic consequences of accounting regulation has been done by Blake (1992). In line with Zeff (1978) and Ruland (1984), he explains that economic consequences arise because accounting numbers '*trigger off a mechanism that affects the economic position of the reporting entity*' (Blake, 1992, p. 306)

The author classifies economic consequences referring to their *perceived causes*, and three major categories are identified: compliance/analysis costs, mechanistic consequences and judgemental consequences. The first category encompasses cost/benefit considerations carried out by managers because changes in accounting requirements will impact companies' costs of compliance with the new regulation. Mechanistic consequences and judgemental consequences go further and embrace other areas pertinent to determine economic consequences of accounting. Firstly, mechanistic consequences refer to those economic consequences issues arising because the figures showed in the company's accounts will affect the economic position of the reporting entity in its relation with other parties (Blake, 1992). They are of two kinds: regulatory, when the mechanism is imposed by a regulatory body, and contractual, when the mechanism is based on a contract between the company and some other parties, such as banks or lenders. Secondly, judgemental consequences regard economic consequences issues arising because of decisions that are taken by the users of accounts. They are distinguished between micro level (change of conducts of individual users of accounts) and macro level (when a consistent range of users is affected and therefore economic consequences will impact the political, economic and social climate (Blake, 1992)).

The beauty of this model is tested referring to twenty examples of economic consequences issues related to the accounting standard-setting activity of the Accounting Standard Committee (ASC) in the United Kingdom and the Republic of Ireland. Even if not all consequences are emerging in each single case, the usage of Blake's (1992) model should not be discouraged: indeed, the analysis of the author *'identifies the full range of potential causes and thereby sensitises interested parties to this rich variety of factors'* (p. 313). Blake's model can, therefore, constitute a reference to identify the economic consequences emerging in a specific context under examination, or even to draw the attention to certain economic consequences rather than others.

Arnold (1991), for example, concentrates her attention on regulatory consequences, specifically those originated by a government's initiative based on accounting numbers able to affect the *'economic position of the reporting entity'* (Blake, 1992, p. 306). A relation between government, industry and accounting policy has been examined in the U.S. hospital industry. The role of the state comes into play through Medicare, a programme established in 1965; this plan provides health insurance coverage to the aged, and the legislation introducing Medicare allowed a reimburse to hospitals in relation to *'all reasonable costs incurred in providing services to Medicare patients'* (p.122).

Arnold (1991) argues that the accounting methods used by hospitals to measure costs implicate relevant economic consequences, because the accounting calculations are the basis to determine *'the amount of Medicare's cash payments'* (flowing from the state to the hospital industry) *'and therefore the distribution of public monies to the private sector'* (p.122). While conducting her study, Arnold (1991) does not want to neglect government's action, which, as she describes, has been largely ignored by previous researchers. This implies that Arnold (1991) studies the economic consequences using a perspective that go further than the traditional classical economic theories exposed by Holthausen and Leftwich's (1983), which, as Tinker et al. (1982) explain, *'fail to examine the effects of accounting on the distribution of income and wealth within a broader social context'* (Arnold, 1991, p. 123). In the interest of reaching her goal to examine the effect of accounting in a more comprehensive way, Arnold (1991) combines statistical and historical methodologies, focusing on hospitals engaging in mergers and acquisitions. It is observed that this practice, by increasing the book value of assets, consequently rose the return-on-equity payments from Medicare. The economic consequences are then showed: stimulated

investment in the hospital industry and the development of a pattern of merger, acquisition and consolidation to continuously enhance the cash flow benefits of assets. The historical analysis conducted by the author, thus, shows that the development of hospital conglomerates has been stronger than ever in a period when cost-based reimbursement constituted a substantial portion of hospital revenues.

It is possible to conclude that the role of the state and, particularly, its use of accounting can have important economic consequences, as in the above-described case. More researches in industries, not only public such as Health Care but also private, are then *desirable*, given that *'the role of accounting in relation to the interaction between state and industry remains largely unstudied'* (Arnold, 1991, p. 137).

We believe that Arnold's (1991) strong contribution in the economic consequences research area is her departure from positive accounting theory. She criticizes positivistic studies, especially those based on agency theory, for too many apriori assumptions (Arnold, 1991), a problem that is recognizable in several papers focusing on the economic consequences of accounting: as suggested by Davis et al. (1982), the choice of the underlying theory will sway researchers' focus, and a strong standpoint such as the positive theory of accounting can dangerously impact researchers' findings. In other words, the authors make researchers aware that the chosen perspective of analysis will affect not only the solutions that will be found as accurate but also *which* aspects are studied.

The reliance on theories, such as agency theory, is a typical feature of the American research tradition (Artsberg, 2017). It is often shown in contraposition with the European tradition, characterised by a more open-minded approach. This second school of thought implies that observations from different perspectives will occur to step over the boundary between theory and practice (Artsberg, 2017).

We argue that positive accounting theory will not fit in every situation and ascribing managers' behaviour to self-maximisation interests would sometimes lead to distorted conclusions. For example, Cooper and Selto (1991) describe the economic consequences of capitalising or expensing R&D expenditures hypothesising utility maximizers managers, evaluated on the basis of periodic accounting net income. This means that managers will prefer to capitalise R&D costs rather than expensing them to reduce current R&D expenses, leading to higher current profits and, consequently, higher compensations.

Cooper and Selto (1991) conduct their analysis in a multiperiod laboratory experiment; the target of the experiments are MBA students, and they are divided into two categories: capitalising group and expensing group. The findings show that, in such a simplified experimental setting, the accounting treatment will influence the behaviours. More in detail, '[subjects] *in the capitalising groups chose relatively more R&D projects and spent more on R&D than those in the expensing groups*' (Cooper and Selto, 1991, p. 241). The paper shows that a certain accounting treatment can cause suboptimal decisions: when R&D costs are to be expensed, the investment in R&D projects will be reduced or excluded, meaning suboptimal long-run firm performance (Cooper and Selto, 1991). Even if the authors claim that '*the same effects could be present in natural settings*' (Cooper and Selto, 1991, p. 241), it should be pointed out that this conclusion cannot hold in every situation. As shown by Cooper and Selto (1991), this study could help, for example, to predict the effect of SFAS No. 2 promulgated in 1974 in the U.S., which '*mandated the expensing of R&D expenditures by U.S. firms*' (p. 227). In that case, an analogy between their assumption of profit maximisation motives driving management behaviours is likely to exist even in practice and, as a matter of fact, their prediction of declining R&D expenses has been confirmed by several studies, such as Horwitz and Kolodny (1980), Elliott et al. (1984) and Selto and Clouse (1985).

However, their assumption that managers, especially in start-up conditions, will prefer to capitalise R&D to increase their earning-based compensations, is contestable and is not relevant to our focus research in small medium enterprises (SMEs). To make it clearer, we believe that Cooper and Selto's (1991) study investigates behaviour of bigger companies, where separation between ownership and control is a common practice which may cause owners to link managers' compensation to companies' profits, in order to overcome the stewardship problem (Beyer et al., 2010). SMEs and start-ups, on the other hand, are often small entities without separation between management and ownership (North and Smallbone, 2000; Varis and Littunen, 2010) and we believe that the manager-owner decisions will be guided by considerations far from maximising single period personal return.

These other considerations are further explained by Deaconu et al. (2009). They identify SMEs' stakeholders by studying comment letters written by interested actors (accounting professions, academics, auditors and companies) for IFRS for SMEs in 2012. Their findings

lead to the conclusion that the most important stakeholders are financial creditors who provide loans to SMEs, followed by shareholders, public authorities and managers, respectively. Furthermore, Deaconu et al. (2009) identify the interests of each of these stakeholders. In the case of financial creditors, the most important stakeholders, the authors explain that their interests lie in the financial position of SMEs, which essentially is represented by companies' liquidity, solvency and long-term investment. Accordingly, instead of focusing on their compensation package, managers in SMEs will pay more attention to firm's financial performance in order to get funding. The relevance of lenders and the dependence of SMEs upon external financing has been highlighted even by the European Commission (2016), which states that access to finance is one of the most important concerns of most SMEs.

Another way for lenders to assess the financial health of companies who ask for loans is by considering their going concern. Aziz and Lawson (1989) describes several indications for potentially non-bankrupt companies. Companies that '*generates higher operating cash flows, invests more in capital assets, pays out more taxes and capable of carrying out more debt*' (p. 60-61) are deemed to be healthier and more able to meet their financial commitments. These aspects will become companies' considerations when making decisions and, of course, such decisions will be affected by the accounting regulation. In our study, relevance is assumed by development costs which, depending on their accounting treatment (capitalizing or expensing), will have a different impact on company's financial performance and, consequently, company's capability to get loans: loans that are essential drivers for SMEs' growth and innovation (European Commission, 2016).

This last point, i.e. the power of accounting to influence firms' relationships with third parties, has been clearly shown by Godfrey and Warren (1995). Their study takes place in Australia, and Firms' responses to the introduction of Australian Accounting Standard 17, *Accounting for Leases* (AAS 17, 1987) and Approved Accounting Standard ASRB 1008, *Accounting for Leases* (ASRB 1008, 1987) are the focus of the paper. Their content is likely to originate economic consequences: both standards make mandatory the capitalization of financial leases, '*thus bringing the finance leases of many firms on balance sheet and increasing reported leverage*' (p. 201). The empirical analysis conducted by the authors showed that '*firms reduced their reliance upon finance leases and increased their reliance*

upon non-lease debt and shareholders' funds' (Godfrey and Warren, 1995, p. 226). In this way, firms reorganised their debt structure by turning to other sources of finance.

The impact of accounting on firm's relations with its stakeholders is an important consideration relevant to our case, given SMEs' reliance on external financing (European Commission, 2016) and, thus, banks and financial creditors (Deaconu et al., 2009). These parties, when assessing company's creditworthiness, are interested in company's financial position in terms of net income and operating cash flow (Aziz and Lawson, 1989). An accounting rule such as section 18.14 of IFRS for SMEs which, by imposing the expensing of all development costs, influences the above-mentioned firm's financial position, is, therefore, likely to affect managers' decision making on investment in development activities.

3. METHOD

3.1. Overall research design and process

The aim of this paper is to investigate the effects of section 18.14 of IFRS for SMEs that forbids capitalization of development costs on development investment decisions in SMEs. Following Cooper and Selto (1991), we use a laboratory experimental approach carried out through a simulation to investigate our hypotheses. According to Krause et al (2014), an experimental study is an ideal method when examining the decision-making process which, in our case, is development investment decisions. Furthermore, this study provides a high level of internal validity that is needed in the causal relationship (Bryman and Bell, 2015). In this research, the causal relationship is between the prohibition of capitalising development costs for SMEs and, consequently, its effects on managers' decisions making in development investments. *Internal validity* means that we can control and limit the external factors that influence investment decisions hence we will be more than certain whether the prohibition of capitalising development is affecting manager's decisions (Bryman and Bell, 2015). Moreover, by adopting an experimental approach, our influence on the experimental structure is significant, and subjects can be easily divided into the categories composing the simulation (Bryman and Bell, 2015).

In contrast, *external validity* is believed to be limited when using an experimental method (Krause et al., 2004). External validity is relative to the concern of '*whether the results of a study can be generalised beyond the specific research context*' (Bryman and Bell, 2015, p. 43). A way to minimise this problem consists in the selection of the right sample of people.

In our case, subjects are Master's students in Accounting and Finance who are currently enrolled in the Accounting and Financial Communication program (track 1) and in the Management Control program (track 2) in Lund University School of Economics and Management (LUSEM). In order to qualify to the Master's Programme, students needed at least one complete course in accounting and corporate finance, plus a curriculum that includes financial accounting, management accounting and control, corporate finance and econometrics or statistics (LU Website, 2017). This means that all students have a deep accounting and managerial knowledge, implying that they will find no difficulties in understanding our simulation. We will propose them to act both as an owner and as a manager of a SME which contains no more than 20 employees, hence we believe that any work experience, although meritorious, is not a necessary criterion for our subjects. From

now on, the word 'subjects' is used to refer to the entire sample of people targeted for our experiment, while the word 'respondents' stands for those subjects who actually answered our simulation.

By submitting the simulation to Master's students with an ascertained education in the relevant field, we believe that, at least to some extent, partial knowledge about a specific accounting concern can be acquired (Hogarth, 1982). In our case, the accounting concern is represented by the IASB's decision to forbid capitalization of development costs for SMEs (IASB, 2015).

However, caution is always needed when interpreting data, because experimental models are never all-embracing: in our specific case, some external factors which normally would play a role in investment decision-making are ignored, and they will be discussed in the last chapter, Summary and Conclusions. Altogether, it can be said that, by adopting an experimental approach, a higher level of control is achieved. However, improved control goes to the detriment of the complexity of natural settings, characterised by copious external influences.

To start, we build our aim through theories conceptualization of economic consequences of accounting using literature review of academic journals that were mostly suggested by our supervisor. To get a deeper understanding, we combine these advised journals with our previous lecture materials and other academic journals available from our library website. We searched these journals by some keywords such as 'consequences', 'choice of accounting', 'R&D', and 'SMEs' because they well synthesise our area of interest.

Next, we build several hypotheses from theories that can be useful to answer our research question. From the hypotheses, we can determine our dependent variables and start to build a design and a setting for the experiment. Hypotheses are tested with a simulation and the results are interpreted through two-way mixed ANOVA model using SPSS.

3.2. Hypotheses

In line with Cooper and Selto (1991), we believe that there will be a different behaviour between expensers and capitalisers in choosing their strategy on R&D projects; expensers will spend less money while capitalizers will spend more on R&D projects. Several SMEs, especially when constituted as entrepreneurial start-ups with an international vocation from

their very beginning (Burgel and Murray, 2000), will be extremely penalised by an accounting treatment forbidding capitalization of development costs. Charging those amounts as expenses would have a considerable effect on their financial position, which could discourage enterprises from investing in innovation and research. Additionally, SMEs' capability to get loans is strictly linked to their financial performance (Deaconu et al., 2009), which is worsened when development costs have to be expensed for their entire amount. This aspect is especially influential, given that access to finance is a critical matter for most SMEs (European Commission, 2016).

These considerations drive us to build the following hypotheses:

H1: Amount of money spent on development projects will be lower for expensers than for capitalizers

The second hypothesis will be built from the cash flow perspective based on Aziz and Lawson' (1989) companies' survival indicators. They mention that operating cash flow is one of the most important variables for companies going concern, and this indicator is even used by lenders to assess company's creditworthiness (Deaconu et al., 2009).

The operating cash flow can be calculated in two ways, either directly or indirectly. Our second hypothesis will be better understood by considering the indirect method: starting from the net income, companies have to write off both depreciations and amortisations because they do not constitute an outflow of cash. This process takes place by adding back depreciations and amortisations to the net income (Figure 1).

It is now clear that, when companies expense development costs, their cash flow will be lower. It is because by expensing development costs, there will be no asset thus fewer amortisations that are recognised as an upward adjustment in the operating cash flow statement. To overcome this problem, we argue that managers who have to expense development costs will have a tendency to spend money on other long-term investments such as property, plant and equipment (PPE) (Cooper and Selto, 1991): capitalise them will, indeed, increase company's operating cash flow. Thus, the hypothesis that can be built is:

H2: Investment choice strategy will be different for expensers, preferring to invest more in PPE than capitalisers

XYZ Company
Cash Flow from Operating Activities
Indirect Method

Net income	\$ 66,800
Adjustments:	
Depreciation and amortization	2,000
Deferred taxes	50
Decrease in accounts receivable	200
Increase in inventories	(4,000)
Increase in accounts payable	1,150
Increase in accrued interest receivable	(350)
Increase in accrued interest payable	100
Gain on sale of property	(600)
Net cash flow from operating activities	65,350

Figure 1. Cash Flow Computations - Indirect Method. Investopedia (2017a).

As we investigate the economic consequences of a mandatory accounting regulation that forbids the capitalization of development costs, it is relevant to simulate the existence of two periods. One period depicts the current situation (mandatory expense of development costs) while the other is characterised by a new standard that allows the capitalization of development costs. By investigating these two different periods, we expect that there will be changes in the development investment strategy (Cooper and Selto, 1991). Therefore, our third hypothesis will be:

H3: Changes in development investment strategy will happen when regulation mandates a change of companies' accounting method

3.3. Dependent and Independent Variables

In our laboratory experiment, the dependent variable is managers' decision making in development activities: as a dependent variable, it is the one we aim to test and measure.

As suggested by its name, the dependent variable is *dependent* on the independent variable. The independent variable is, therefore, the variable that we control and change to observe

the effect on the dependent variable. In this research, the independent variable is the accounting treatment of development activities.

Our dependent variable is measured in a twofold way:

- The total amount of money spent on development investments. The first variable can be deduced by the total amount of resources put into the chosen development projects for each year. The difference will be shown if we compare means in the first (Y1) and second year (Y2). Coherently with H1, we expect a lower amount of money spent for development costs when capitalization is forbidden, because expensing all development costs will decrease company's net income more than a scenario where development costs are capitalised.
- Investment choice strategy (whether more money is spent on development activities or PPE projects). Pointedly, it will be relevant to look at the percentage of each project (development activities and PPE) on the total amount of investments. Therefore, for the second variable, we will:
 - A. Divide the total amount of money spent on development projects by the total amount of money used up for both development and PPE projects for each year, then compare the means of each project's percentage in Y1 and Y2;
 - B. Divide the total amount of money spent on PPE projects by the total amount of money used up for both development and PPE projects for each year, then compare the means of each project's percentage in Y1 and Y2.

Given that H2 is built on the assumption that operating cash flow is a crucial indicator for companies' survival and companies' capability to get loans, we anticipate that, when capitalization of development costs is forbidden, managers will prefer to invest in PPE because, through depreciation on PPE, they will increase company's operating cash flow.

By investigating any difference in those variables, we will be able to test our third hypothesis, i.e. whether changes in managers' investment decisions in development activities (in terms of amount of money spent on development activities (H1) and choice between development and PPE projects (H2)) will happen when regulation mandates a change in company's

accounting method. Since the accounting treatment of development activities is arbitrarily changed and managed by us, it represents our independent variable.

3.4. Design

Our hypotheses are built upon short-term performance indicators, which are: net income (H1) and operating cash flow (H2). This is the reason why we structured the experiment on a two years' timeline: not only it will capture decision-making based on short-term performance; in turn, having two years even allows us to put into effect H3, which suggests that variations in development investment strategy will occur when the accounting treatment of development activities is changed. Similarly to Cooper and Selto (1991), then, four scenarios are depicted, as outlined in Figure 2:

Accounting Treatment of R&D				
	Capitalize R&D		Expense R&D	
	Year 1	Year 2	Year 1	Year 2
No change in treatment	C	C	E	E
Change in treatment	C	E	E	C

Figure 2. Experimental design. Adoption from Cooper and Selto (1991).

The initial method of accounting for development costs could be either capitalize (C) or expense (E) and, during the second year, the accounting method would continue to be the same (no change in treatment) or, because of the intervention of a standard-setting body, a change will occur (change in treatment). In line with Cooper and Selto (1991) and H3, we expect to observe changes in development strategy when there are changes in regulation between Y1 and Y2.

The subjects are randomly assigned to each of the four groups: CC, EE, CE and EC. CC and EE, the control groups, retain the same accounting treatment in Y1 and Y2. CE and EC, the experimental groups, face a different accounting treatment among Y1 and Y2. Together, subjects' random assignment to one of the four categories and the presence of control groups, fulfil a specific function, which is to eliminate threats to internal validity (Bryman and Bell, 2015). The confidence in the causal relationship between our independent variable

(the accounting treatment of development investments) and our dependent variable (managers' decision making in development activities) is therefore enhanced because the effects of rival explanations of causal findings are eliminated (Bryman and Bell, 2015).

Pragmatically, if CC and EE (the control groups), that are characterized by an unvaried accounting treatment of development costs in Y1 and Y2, will not register significant alterations in subjects' investment strategy among the two periods, changes in investment strategy occurring in the experimental groups (CE and EC) among Y1 and Y2, can be more confidently attributed to manipulation of the independent variable (Bryman and Bell, 2015), which, in this research, is the accounting treatment of development activities.

3.5. Setting

Our simulations, realised in a Microsoft Excel document, were sent out by e-mail to the subjects of our experiment, previously divided into the four relevant groups composing our experiment: CC, EE, CE and EC (Figure 2). We preferred to use this approach rather than organising a session in a computer room because we considered really difficult to convince anyone to attend it.

As previously exposed in the method, subjects targeted for this research are Master's students in Accounting and Finance currently enrolled at LUSEM, following the financial communication and the management control majors. The total number of students enrolled in the programme is 81. In order to get impartial results, we exclude ourselves (author of the thesis), therefore the total number of students is adjusted to 79.

All of them have a relevant education in accounting, with some subjects having even work related experiences. Subjects were asked to pursue the experiment on their notebook and had three days available to complete the simulation. To stimulate the subjects' reply, we let everyone know in advance that two participants would have been randomly selected and awarded with an Espresso House voucher, which is a coffeehouse chain operating in Sweden and other Nordic Countries. The value of each voucher is of SEK 150.00.

Other strategies adopted to increase the number of answers have been the following: firstly, on the third available day to complete the simulation, a reminder has been sent out by e-mail to those subjects that still did not take part in the examination; secondly, visibility has been increased by posting on the Facebook group 'MSc in Accounting and Finance, Lund

2016-2017', with members most of the subjects targeted for our experiment, two memos asking to accomplish the simulation.

The simulation is structured in two parts, preliminary questions and role play. At first, subjects have to answer four introductory queries (the same for all groups) which are relevant to assess their understanding of the context. The aim is also to get subjects familiar with the problem before they have to make their investment choices, which is the core focus of the second part. For a more detailed look at the preliminary questions, see Appendix 1.

Then, the subsequent questions constitute the simulation itself, and they are adjusted to represent the four scenarios (CC, CE, EE, EC) in which subjects are divided into. Here subjects have to play the role of a manager and make investment choices in a SME with 20 employees. Subjects are aware that the company is in the process of getting a loan, meaning that net income and operating cash flow are important performance indicators which need to be sustained (Deaconu et al., 2009). Everyone is therefore acknowledged about the aspects they should care about, which should lead to informed decision-making. The numbers implied in the simulation are on purpose small, to make the completion of the experiment easier.

Question 1 tests hypothesis 1, and subjects have to decide, for each year, the amount of money to spend on development projects, which has to be comprised between € 700.00 and € 1300.00. While making their choice, subjects can at once observe the effects of their investment decision in the profit and loss statement, as it is immediately updated to include the chosen amount of development activities that are performed. When development costs are required to be expensed (EC in Year 1, CE in Year 2 and EE in both years), they are displayed in the profit and loss statement for the entire amount decided by the subject as a current expense of the year. When the accounting standard mandate capitalization (CE in Year 1, EC in Year 2 and CC in both years), instead, development activities are accounted in the profit and loss statement only for the quota calculated by applying the amortisation rate of the period. More information can be found in Appendix 2, where Question 1 (for CE group as an example) is shown.

Question 2 tests hypothesis 2, and subjects have to invest, with a budget constraint of € 2000.00, in development activities and PPE for both Year 1 and Year 2. In this second case, the effects of subjects' investment choices are shown in the cash flow statement: while PPE are always capitalised, the accounting treatment of development costs can either be

expensing or capitalization. When development costs are to be expensed (EC in Year 1, CE in Year 2 and EE in both years), the net income, which is the starting point to calculate the operating cash flow when using the indirect method, is reduced by the equivalent amount, and no upward adjustments in the cash flow statement takes place. When regulation imposes capitalization of development costs (CE in Year 1, EC in Year 2 and CC in both years), instead, the net income is adjusted only to capture the effect of the amortization (reduced), but the same amount is summed up, given that amortization is an upward variation of the operating cash flow. More information can be found in Appendix 3, where Question 2 (for CE group as an example) is shown.

To make it easier, all investments in PPE are characterised by 10 years, straight-line depreciation plan. The same amortisation plan is accorded for development costs, in those scenarios where they are to be capitalised either in Year 1 (CE), Year 2 (EC), or in both of them (CC).

Each subject is told about the relevant factors affecting managers' decision making in SMEs, which, as deducible by our hypotheses, are:

- The net income (H1). Nowadays, several SMEs operate internationally and have international financial statement users: supplier, customers and providers of capital; financial data that portray the company in a more attractive way will help to maintain these relationships in a long-term perspective. Moreover, net income is an important variable considered by banks when assessing clients' credit quality (Deaconu et al., 2009).
- The operating cash flow (H2). Companies' going concern is dependent upon different variables, one of which is their operating cash flow (Aziz and Lawson, 1989). The same indicator is even considered by lenders when deciding whether to give or not a loan to a certain company (Deaconu et al., 2009).

Finally, we put into action our independent variable (the accounting treatment of development initiatives) through H3, which is functional to observe whether investment strategy is more likely to change when the mandatory accounting treatment of development costs is modified by the standard-setter, as outlined by Cooper and Selto (1991).

As previously explained, the subjects are divided into the four groups, each group with its simulation to represent the four scenarios shown in Figure 2:

- CC, capitalising development costs both in Y1 and Y2;
- CE, capitalising development costs in Y1 and expensing development costs in Y2;
- EE, expensing development costs both in Y1 and Y2;
- EC, expensing development costs in Y1 and capitalising development costs in Y2.

As our experiment has a two years' time frame, subjects are required to make a choice twice, for Y1 and Y2, in order to represent the various situation above described (CC, CE, EE, EC).

3.6. Statistical Method

Statistical Package for Social Science (SPSS) is applied for interpreting the empirical data gathered from our simulations. Following our research design and setting, which are drawn to investigate the differences between four independent groups in two different years, two-way mixed ANOVA is the suitable statistical model (Laerd Statistics, 2015).

Two-way mixed ANOVA model is the extension of one-way ANOVA model; while the purpose of one-way ANOVA is either to examine group differences (*between-subjects factor*) or overtime differences in the same group (*within-subjects factor*), two-way mixed ANOVA goes further. Precisely, two-way mixed ANOVA model permits to investigate whether there is, simultaneously, a two-way interaction *between-subjects* and *within-subjects* factors (Laerd Statistics, 2015).

In two-way mixed ANOVA model, then, the null hypothesis consists of three sets. The first set is whether means between groups are equal, the second set is whether means assessed from different times are equal and the last set is whether there is no interaction between the first and second sets. Therefore, the peculiarity of two-way mixed ANOVA is the introduction of the third set, which examines the interaction between groups (first set), overtime (second set) (Laerd Statistics, 2015). When the third hypothesis is rejected, thus, the assumption of interaction exists. In other words, not only there will be differences between groups, these differences will be even spread over a different time. Applied to our case, a rejection of the null hypothesis would imply that our dependent variables (amount of money spent on development costs and investment choice strategy) will vary both among groups and, more importantly, among years. So, once the null hypothesis is rejected, we can look at our data more closely to find out whether these differences can be explained by a change in the accounting method, which is our independent variable.

Similarly to other statistical models, the *significance level* is an important factor that can be used to generalise the findings to populations. Common levels of significance are 10% (0.1), 5% (0.05) and 0.1% (0.01%) (CTI Reviews, 2016). Our chosen significance level is 10% (Alpha = 0.1) which means that we can be 90% confident that our hypothesis null (the third set) is excluded. As suggested by Lobovitz (1968), *'the power of a test varies directly with sample size'* (p. 220): while for large samples a small difference is likely to be significant, for small samples even large differences may not reach the predetermined level (Lobovitz, 1968). Given that our sample is composed of just 79 students, we deem that an Alpha level of 0.1 is appropriate for the scope of our analysis.

4. RESULTS AND DISCUSSION

4.1. Respondents

The original sample included 79 subjects. The simulation has been completed by 25 respondents, which represent 31,64% of the initial sample. All respondents completed the task in each part, therefore no simulations had to be excluded. Most respondents, 14, were from the Accounting and Financial Communication track (track 1). The rate of answer for track 1 has been 82,35%, given that the total number of people enrolled is 17 (excluding ourselves, the researchers). 11 respondents were from the Management and Control track (track 2): they represent 17,74% of the total number of people enrolled in track 2, which is 62. This disequilibrium in the rate of answers should not be interpreted as a systematic bias: firstly, regardless of which track students are enrolled, they all are about to graduate as accountants; secondly, as will be further explained in this paragraph, all respondents showed a good understanding of the problem when answering the introductory questions.

Respondents were well distributed among the four groups part of our experiment, composed by four different scenarios:

- CC, 6 respondents;
- CE, 6 respondents;
- EC, 7 respondents;
- EE, 6 respondents.

More than half of the respondents (64%) had work-related experiences in accounting/auditing. Lack of practical experience of 36% of respondents has not been perceived as a problem, given that all participants had a relevant education in the field and some introductory questions tested their understanding of the problem. Answers to these preliminary questions (Appendix 1) showed that all 25 respondents (100%) considered important for SMEs to get loans. Additionally, 24 respondents (96%) considered development costs to be relevant for SMEs. 21 respondents (84%) would have changed their investment strategy in development activities because of changes in the accounting method, and 23 respondents (92%) stated that capitalization of development costs would have incentivized their attitude to invest in such activities. Reasons given both pros and cons increased investment in development activities when capitalization being an accounting policy reflected good knowledge in accounting. People preferring capitalization of

development costs (the strong majority) generally motivated their position by asserting that company's profitability would rise, because the cost can be spread over a longer period; someone even argued that the increased amount of assets and the higher yearly profit subsequent to capitalization will make firm's financial performance look nicer and more convincing for banks to issue a loan for the company. On the other hand, those of the opinion that capitalization will not constitute an incentive to invest more argued that capitalization could lead to a misstatement of the financial information, because SMEs do not have the resources to assess the feasibility of development projects. Interestingly, opinions stated by the participants of our experiment are really similar to the points of view expressed through comment letters by those institutions that, when answering IASB's Request for Information (2012), had something to say about development costs. It has been abundantly described both in the background and in the problematization that institutions fostering capitalization viewed this alternative as beneficial because of the positive impact on companies' performance of such treatment. Inversely, the main argumentation supporting mandatory expense referred to the inability of SMEs to assess whether criteria for capitalization (such as showing company's capability to complete the development and demonstrating that the asset can generate future benefits) are met. The alignment of the way of thinking between respondents of our simulation and senders of comment letters to IASB enhances our confidence in the validity of our results because it shows that respondents were aware of the problem we are investigating with our research.

4.2. Test of hypotheses

H1: Amount of money spent on development projects will be lower for expensers than for capitalisers

The *first hypothesis* investigates whether the amount of money spent on development projects will be lower for expensers than capitalisers. It is tested with two-way mixed ANOVA model (evaluated at $\alpha = 0.1$), and dependent variables are, for each year, the amount of money spent on development activities. Sphericity assumption in test of within-subjects effects (see Appendix 4) resulted in $P = 0.000072$, which means there was a statistically significant interaction between groups over time. Furthermore, this significant interaction effect is even deductible from the plot of estimated marginal means (see Appendix 5) which formed non-parallel lines (Laerd Statistics, 2015).

Overall, it is observed that the accounting method (independent variable) substantially affects the amount of money spent for development investments (dependent variable). More in detail, the experimental groups (EC and CE), who experience a change in the accounting method, alter their tendency on spending money on development projects: in the second year, CE group lowers its tendency, while EC group increases its tendency to spend more money on development projects. This statistically significant difference can be deducted by Table 1, which provides the comparative means between groups. The same information is reorganised in a more intuitive graph (Figure 3), that is accompanied by a description of results.

Descriptive Statistics				
	Group	Mean	Std. Deviation	N
Y1	CC	883.33	285.774	6
	CE	1175.00	199.374	6
	EC	807.14	169.383	7
	EE	783.33	116.905	6
	Total	908.00	245.238	25
Y2	CC	816.67	240.139	6
	CE	800.00	154.919	6
	EC	1264.29	74.801	7
	EE	908.33	253.804	6
	Total	960.00	266.536	25

Table 1. Descriptive statistics of means of amounts of money spent on development projects.

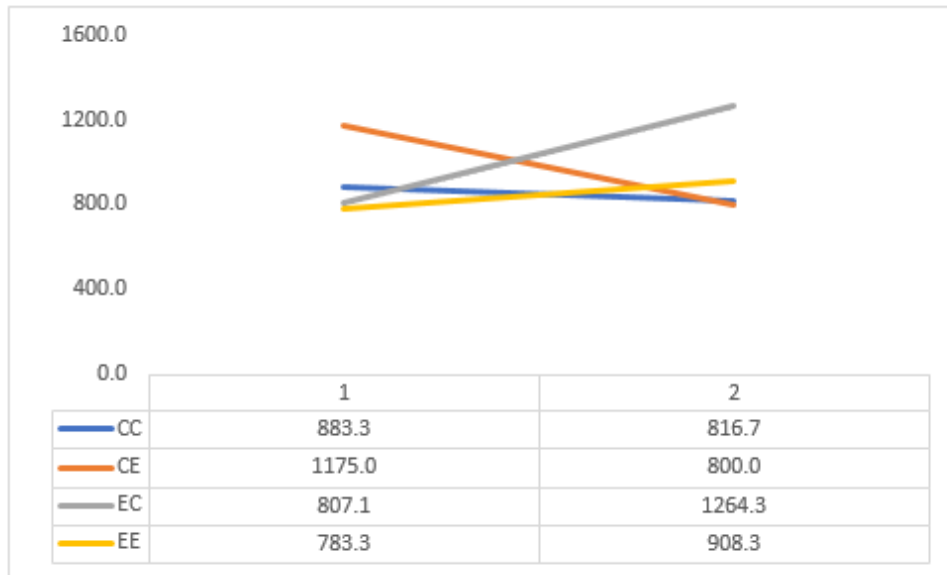


Figure 3. Means of amounts of money spent on development projects for each year.

Referring to Figure 3, the highest mean belongs to CE in the first year and to EC in the second year. While the lowest mean belongs to EE and CE group for the first and second year, respectively. It is a bit surprising to see that, in the second year, EE has a higher mean than CC. We believe that this result is due to the fact that respondents' focus was on company's net income, which ought to be maximised. Respondents part of this control group (CC) were probably not so willing to invest much in development activities because the bigger amount chosen for development projects, the bigger the amortisation expense, with a subsequent more pronounced negative effect on the net income.

However, since the results show that both CE and EC groups, who experience a change in the accounting method for development activities, have the highest means in the first and second year, respectively, it can be concluded that the first hypothesis for these groups is supported. Both CE and EC, the experimental groups, spend more money on development investments when they have to capitalise while lowering their spending on development investments when they have to expense development cost.

In relation to the result from this test, we can also refer to the *third hypothesis* that investigates whether there will be a change in development investment strategy when regulation mandates a change in the accounting method. In this case, there is a change in investment strategy in terms of money spent on development activities. The amount of money spent on development costs for both CC and EE, the control groups (which do not

experience any change in accounting method), is relatively the same between the first and second year, from € 883.3 to € 816.7 (-7.54 %) and from € 783.3 to € 908.3 (+13,76%) for CC and EE, respectively.

Meanwhile, for groups who experience a change in the accounting method (CE and EC), a significative change in the amount of money spent on development investments occurs. CE spent € 1175 on development cost in the first year and lowered the spending to € 800 for investing on development cost in the second year (-31,91%). In contrast, EC spent less money on development investments in the first year € 807.1 and increase them to € 1264.3 in the second year (+36,16%). Thus, the third hypothesis is relevant for all groups, and the confidence in the causal relationship between our independent variable (the accounting treatment of development investments) and our dependent variable (the amount of money spent on development activities) is enhanced, given that different behaviours in total amount of money spent on development initiatives are observed only when the accounting method mandated for development costs switches from capitalization to expensing (or vice-versa).

H2: *Investment choice strategy will be different for expensers, preferring to invest more in PPE than capitalisers*

The *second hypothesis* investigates whether investment choice strategy between development and PPE projects will be different among capitalisers and expensers. It is also tested using two-way mixed ANOVA model (evaluated at alpha = 0.1) with the percentage of development activities and PPE projects on the total amount of investments in each year as dependent variables. Sphericity assumption in test of within-subjects effects (see Appendix 6 and 7) for both development and PPE projects resulted in $P = 0.054448$, which means there was a statistically significant interaction between groups over time. Statistical result of non-parallel lines plot of estimated marginal means of each project (see Appendix 8 and 9) support this significant interaction.

Above all, it results that any change in the accounting method (independent variable), produce a consequence in managers' preferences of investment strategy: invest more on development or PPE projects (dependent variables). Further in details, groups who experience a change in the accounting method (EC and CE) alter their preferences of investment projects: in the second year, EC group chooses more development than PPE

projects, while CE group chooses more PPE than development projects. These statistically significant results can be observed by comparing means of the budget proportion spent on development projects (Table 2) and PPE (Table 3). For an easier understanding, Table 2 and Table 3 are broke down in several figures (Figure 4, Figure 5, Figure 6, Figure 7, Figure 8, Figure 9), accompanied by a description each.

Descriptive Statistics

	Group	Mean	Std. Deviation	N
Y1 Dev	CC	52.5000%	25.83602%	6
	CE	66.6667%	25.81989%	6
	EC	42.7143%	26.51864%	7
	EE	34.1667%	25.77143%	6
	Total	48.7600%	27.19724%	25
Y2 Dev	CC	45.0000%	15.49193%	6
	CE	25.0000%	27.38613%	6
	EC	61.0000%	22.99275%	7
	EE	27.5000%	18.90767%	6
	Total	40.4800%	25.35436%	25

Table 2. Descriptive statistics of the proportion of budget on development projects.

Descriptive Statistics

	Group	Mean	Std. Deviation	N
Y1 PPE	CC	47.5000%	25.83602%	6
	CE	33.3333%	25.81989%	6
	EC	57.2857%	26.51864%	7
	EE	65.8333%	25.77143%	6
	Total	51.2400%	27.19724%	25
Y2 PPE	CC	55.0000%	15.49193%	6
	CE	75.0000%	27.38613%	6
	EC	39.0000%	22.99275%	7
	EE	72.5000%	18.90767%	6
	Total	59.5200%	25.35436%	25

Table 3. Descriptive statistics of the proportion of budget on PPE projects.

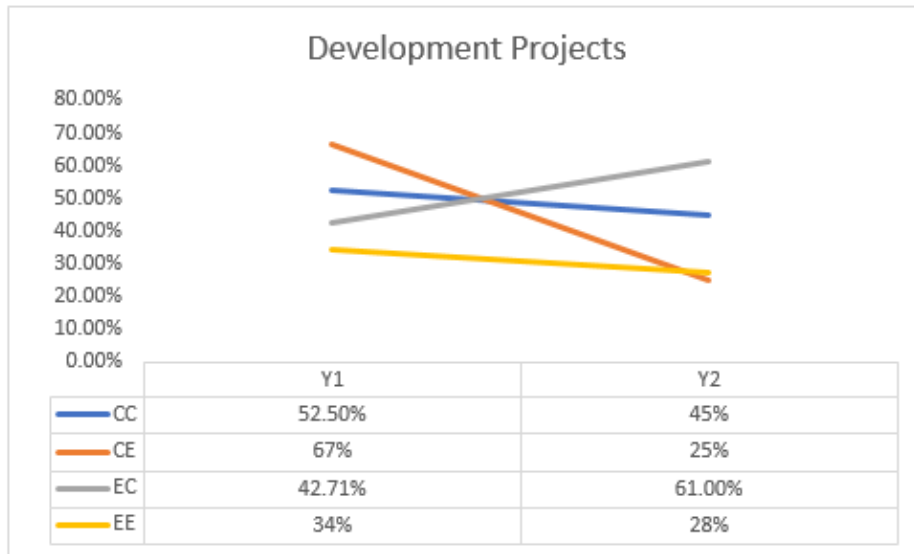


Figure 4. Budget proportion spent on development projects.

Relating to Figure 4, the highest mean belongs to CE in the first year and to EC in the second year. While the lowest mean belongs to EE in the first year and to CE in the second year. Interestingly, capitalizers are always investing more in development activities in all scenarios depicted by our model. More in details, both CE and CC, who capitalize development costs in the first year, spent proportionally more in development projects (67% and 52.5%) than EC and EE (42.71% and 34%). Even in the second year, the highest amount of resources spent on development projects was for groups who capitalized development costs: 45% and 61% for CC and EC, compared to 25% and 28% for CE and EE.

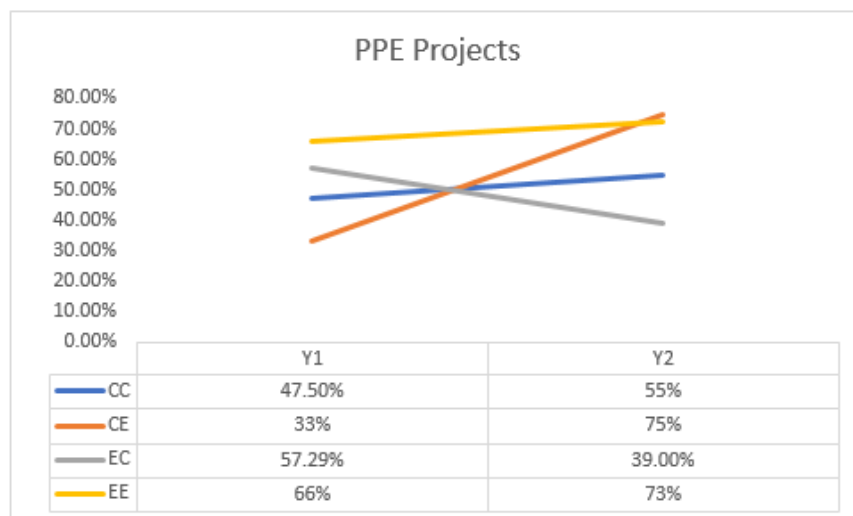


Figure 5. Budget proportion spent on PPE projects.

In contrast, PPE projects were preferred amongst groups who had to expense development costs (Figure 5). In the first year, the highest expensers on PPE projects were EE and EC with no notable difference in 66% and 57,29%, respectively. In the second year, the highest expensers on PPE projects were CE and EE with only 2% difference in 75% and 73%, respectively.

It will now be useful to look at the comparison of project preferences for each group to draw attention on where changes in development strategies were more significant.

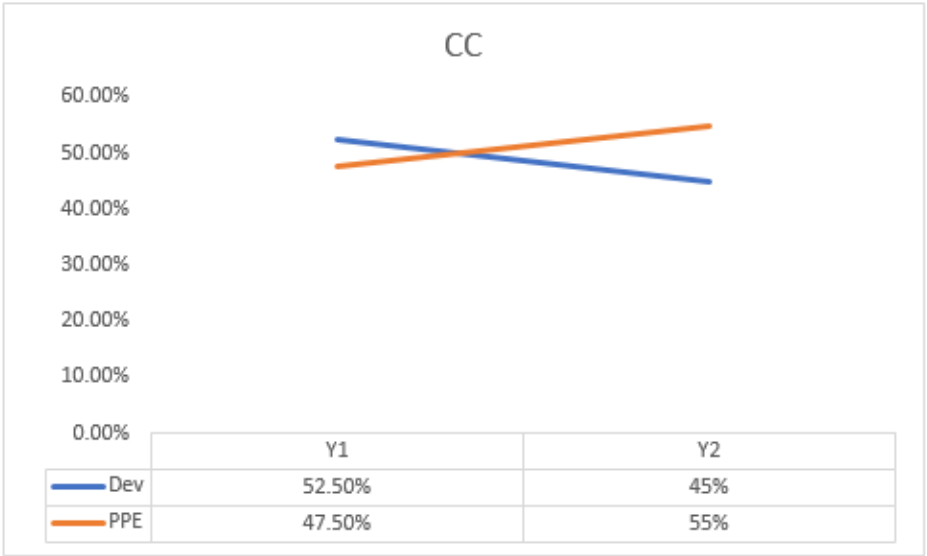


Figure 6. Budget proportion of combined projects (Development and PPE) for CC group.

According to Figure 6, CC group prefers each project in each year for an almost equal proportion. It can be explained by the fact that capitalising either development costs or PPE will have the same effects on the net income hence on the operating cash flow: both projects will determine depreciation and amortisation expenses which will decrease net income and increase operating cash flow. Therefore, managers perceive investments in development activities and PPE as interchangeable. It appears that respondents deemed relevant to achieve a desired mix of development and investments in PPE, considerations that are beyond the scope of our analysis.

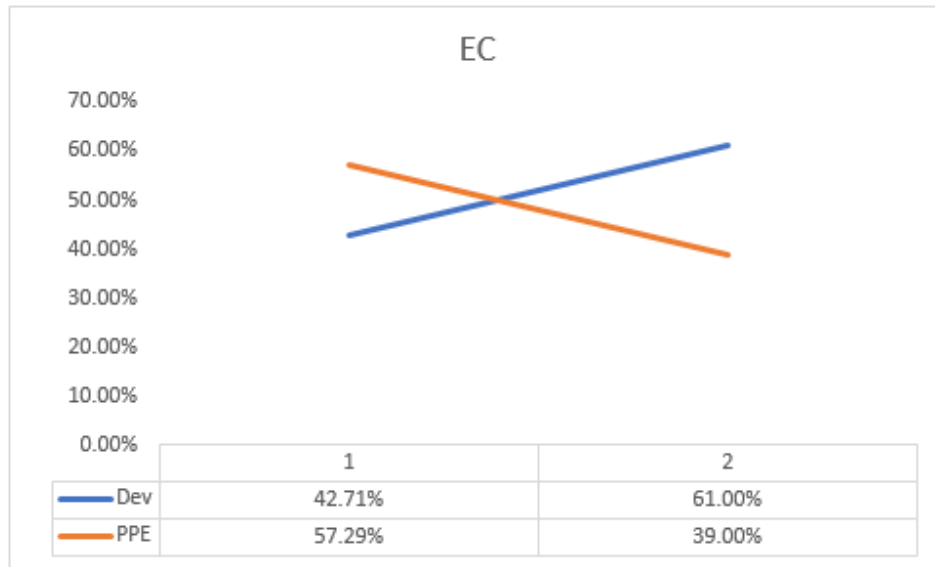


Figure 7. Budget proportion of combined projects (Development and PPE) for CE group.

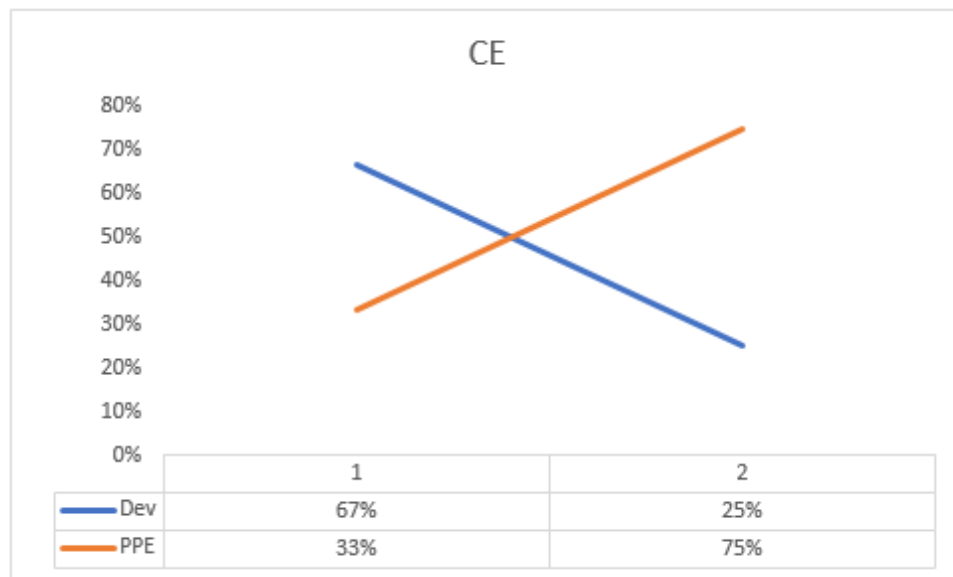


Figure 8. Budget proportion of combined projects (Development and PPE) for EC group.

According to Figure 7 and 8 above, both group CE and EC followed the same path: when they can capitalise development cost, they prefer to invest more in development projects and when they have to expense development cost, they prefer to invest more in PPE projects. These groups, which experience a change in accounting treatment among Year 1 and Year 2, are even those where development choice strategy registers the most pronounced variation between the two years.

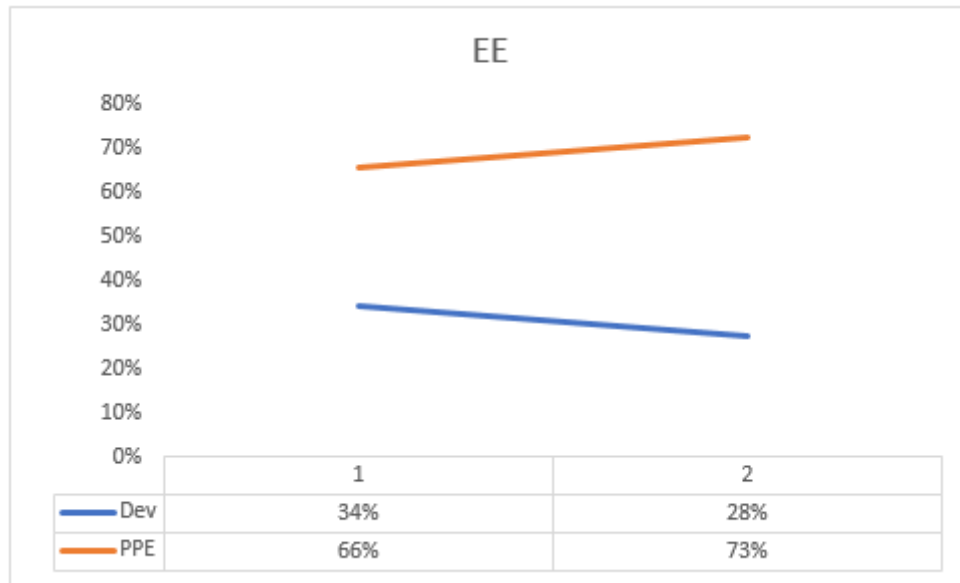


Figure 9. Budget proportion of combined projects (Development and PPE) for EE group.

At last, Figure 9 shows that respondents part of the EE group maintained their investment preferences in PPE projects in both years, with only a slightly increase in their PPE projects during the second year.

All in all, by considering the statistically significant results from Sphericity assumption and mean differences between each group, the second hypothesis works for all groups except CC, where investments in development activities and PPE are equally distributed in both years.

With regards to this test, we can also look at our *third hypothesis*, which investigates whether there will be any change in development investment strategy when the accounting method is altered. Not surprisingly, a modification in groups' investment preferences happened when the mandated accounting method for development costs was changed. As already explained above for each group (CC, CE, EC, EE), both groups who experienced a change in the accounting method, CE and EC, did alter their preferences of investments. Inversely, both groups who experience no difference of accounting method, EE and CC, relatively maintain the same preferences between the first and second year. In particular, CE lowered investments in development activities from 67% of total investments in development and PPE to 25% of total investments in development and PPE (-42%), and EC incremented investments in development activities from 42.61% of total investments in development and PPE to 61% of total investments in development and PPE (+18.39%). Instead, the difference in development investment choices for CC and EE between year one

and year two was only +7,5 and +7%, respectively. Again, we can affirm that the third hypothesis is relevant for all groups, and the confidence between our independent variable (the accounting treatment of development investments) and our dependent variable (development choice strategy) is enhanced, given that different behaviours in development choices strategy are observed only when the accounting method mandated for development costs switch from capitalization to expensing (or vice-versa).

H3: Changes in development investment strategy will happen when regulation mandates a change of companies' accounting method

The third hypothesis was tested together with the first and second hypotheses. As already discussed, in accordance with both the first and second hypotheses, the third hypothesis was accepted. It is because the amount of money spent on development projects (H1), and the development investment strategy (whether to choose more investments in development activities or PPE) (H2), statistically significant varied only for groups which experienced a change in the accounting method (CE and EC).

5. SUMMARY AND CONCLUSIONS

This study was motivated by the desire to understand the economic consequences of accounting. More in details, we were interested in the effects of section 18.14 of IFRS for SMEs, prohibiting the capitalization of development costs. The relevance of this topic, which made it worth investigating, can be ascribed to two main reasons: first of all, SMEs are very important in the innovation arena and, nowadays, in order to overcome pressures from globalization, they have to continuously engage in development activities to handle competition and survive (Laforet, 2008). Secondly, several organisations, including the SME Implementation Group (SMEIG), have expressed a very sceptical opinion about the standard: they generally argued that development costs can be extremely significant for many SMEs, with a consistent impact on financial statements. Requiring to expense them could consequently undermine companies' financial position.

The only English speaking country that mandatorily adopted IFRS for SMEs without any amendments is South Africa (IFRS Jurisdiction Profile, South Africa, 2016). The United Kingdom, for example, implemented FRS 102 which, being the British version of IFRS for SMEs (FRS 102, summary), contains some departures from IFRS for SMEs as issued by IASB.

While a study on the former country has been excluded because of the distance and subsequent difficultness to get contacts with local companies, SMEs located in the United Kingdom could not be tested for another reason. Indeed, when adopting IFRS for SMEs, the UK standard-setting body has considered an exception precisely for development activities, with capitalization being an accounting choice for development costs (FRS 102, 18.8H).

This is the reason why we implemented an experimental study, claimed to be ideal for decision-making processes, and easily conductible between Master's Students in Accounting and Finance. In contrast with Cooper and Selto (1991), we did not ascribe decision-making behaviour to personal return in terms of compensation, but we grounded managers' actions to other drivers. Namely, company's survival and ability to get loans. Such considerations are more fitting SMEs' conditions, often characterised by correspondence between ownership and control (North and Smallbone, 2000; Varis and Littunen, 2010), and therefore with no need to solve stewardship problems by aligning managers' compensation with firm's performance.

In this simplified experimental setting, students were required to act as managers-owners in SMEs, while subject to an investment budget constraint. The accounting treatment of development activities (independent variable) was imposed by us, either capitalise or expense. Change or no change in the accounting treatment occurred in Year 2.

Based on the statistical findings, our hypotheses that are derived from our research question: *'What are the economic consequences on investment decisions in development activities consequent the imposition to expense development costs for SMEs?'* can be verified.

The accounting regulation mandated for development investments is producing economic consequences, which can be observed in managers' investment decisions in development activities. When the accounting method was changing from capitalising to expensing, the amount of money put into development investments decreased and investment in PPE were preferred to investments in development activities. Similarly, when the accounting method was changing in the opposite direction, from expensing to capitalising, the amount of money put into development investments increased and investment in development activities were preferred to investment in PPE. The presence of control groups, where no variation in managers' behaviour took place, eliminated threats to internal validity of our simulation, implying that different investment decisions were driven by the accounting method imposed for development investments.

By observing these differences in our experimental groups, we can conclude that an accounting regulation that requires the expensing of development costs decreases the tendency of managers to spend money on development projects and causes them to prefer investment in PPE rather than in development activities. Therefore, section 18.14 of IFRS for SMEs, in those countries where this set of standards is adopted, may contribute to declining investments in development activities, especially in firms that are in the process of getting loans, consequently interested in sustaining their net income and operating cash flow.

Limitations

An experimental approach, such the one we adopted, always represents a simplification of reality and, at least to some extent, the setting of the laboratory can be unrelated to real

world circumstances (Bryman and Bell, 2015). In our specific case, not only we assumed all investments to be characterised by the same depreciation and amortisation schedules but, additionally, no tax implications were considered and no risk was involved. Globally, a wide variety of tax and fiscal policies are adopted by various governments to promote research and development activities: most countries offer favourable tax treatments to R&D expenditure, such as current deductions, credits or accelerated depreciation of R&D capital expenditure (Deloitte, 2015). Furthermore, Wang et al. (2016), describe that development activities can be uncertain in the future, causing companies to carefully consider financial risk issues when they invest in such activities: precisely, they state that development investments denote high risk and periodicity.

Therefore, we recognise that our experiment ignores any kind of tax considerations and, moreover, no risk evaluations are included. These external influences are sacrificed for the sake of internal validity so that any change in development activities can be explained only by modifications in the accounting treatment. Indeed, evidence gathered from the analysis of responses, was consistent with such a supposal: respondents' decision making in development activities, in the simplified environment we built, varied only when the accounting method mandated for development projects was not the same between Year 1 and Year 2.

Another limitation is identified with regards to our sample, which was not composed by 'real' R&D Managers, but Master's students in Accounting and Finance: it could be that some reasonings typical of the business role were ignored. However, all our respondents exhibited a good comprehension of the tasks they were assigned to perform in our experiment and, for the majority, reported relevant work experiences in the accounting/auditing field.

Future research

Overall, our findings sustain the arguments stated by those institutions that, when sending their comment letters relative to the Request for Information published by IASB in 2012, expressed an opinion on whether capitalization of development activities for SMEs should be allowed or not. So, together with the 16 institutions calling for mandatory capitalization of development activities and with the 24 institutions asking for at least an option, we believe that IASB should return on this topic for further considerations. However, since our research

was structured as a basic experimental approach, which makes it more difficult to generalise our outcomes, additional evidence about the (non)appropriateness of the current regulation which forbids capitalization of development costs for SMEs, should be gathered through future research.

First of all, an analogous study could be conducted with the same experimental method but with a more advanced simulation, comprehending a longer period, including choices among projects with different useful lives and different risk and return characteristics. By adding these additional features, the advanced simulation will better represent the environment where managers operate when making their investment decisions. Thus, the experimental setting will be more representative of natural settings.

Secondly, empirical studies could take place in those countries, currently 78 (IFRS, 2017), where IFRS for SMEs are permitted or required, in order to gain a more 'real world' evidence of economic consequences originating from section 18.14 of IFRS for SMEs. Combining qualitative research, perhaps via in-depth interviews with SMEs managers, and quantitative research, by looking at the resources companies subjected to IFRS for SMEs invest in development activities may provide a higher level of external validity. In other words, collecting evidence from a large sample of companies which are concretely subjected to the ban of capitalising development costs, would help to provide results about the economic consequences of mandatory expensing of development projects at least generalizable to the population of SMEs operating in the targeted country.

6. REFERENCE LIST

Artsberg, K. (2017). Introductory lecture about the development of accounting theory. BUSN75 - Frontiers in Accounting. Lecture held on January 16th, 2017. LUSEM, Lund University, Lund, Sweden.

Asheim, B. (1996). Industrial districts as 'learning regions': a condition of prosperity. *European Planning Studies*. 4(4), pp. 379–400.

(global) Association of Chartered Certified Accountant (ACCA). (2012). Comment Letter on comprehensive review of IFRS for SMEs.

(global) Association of Chartered Certified Accountants (ACCA). (2015). Research and Development. ACCA. Available at: <http://www.accaglobal.com/gb/en/student/exam-support-resources/fundamentals-exams-study-resources/f7/technical-articles/rd.html#> (Accessed 14 April 2017).

Arnold, P. (1991). Accounting and the state: consequences of merger and acquisition in the US hospital industry. *Accounting, Organizations, and Society*. 16(2), pp 121-140.

Arnold, P. J., and Oakes, L. S. (1998). Accounting as discursive construction: the relationship between statement of financial accounting standards no 106 and the dismantling of retiree health benefits. *Accounting, Organizations, and Society*. 23(2), pp 129-153.

Aziz, A., and Lawson, G.H. (1989). Cash flow reporting and financial distress models: testing of hypotheses. *Financial Management*. 18 (1), pp. 55-63.

Beyer, A., Cohen, D.A, Lys, T.Z., Walther, B.R. (2010). The financial reporting environment: Review of the recent literature. *Journal of Accounting and Economics*. 50, pp. 296-343.

Burchell, S., Clubb, C., Hopwood, A., Hughes, J., and Nahapiet, J. (1980). The roles of accounting in organization and society. *Accounting, Organizations, and Society*. 5 (1), pp 5-27.

Burgel, O., and Murray, G.C. (2000). The International Market Entry Choices of Start-Up Companies in High-Technology Industries. *Journal of International Marketing*. Vol. 8, No. 2 (2000), pp. 33-62.

Corpul Expertilor Contabili si Contabililor Autorizati din Romania (CECCAR). (2012). Comment Letter on the comprehensive review of the IFRS for SMEs.

Cooper, J.C. and Selto, F.H. (1991). An experimental examination of the effects of SFAS no 2 on R&D investment decisions. *Accounting, Organizations, and Society*, 1-6(3), pp 227-242.

CTI Reviews (2016). Statistical Reason for Everyday Life. Cram101 Textbook Reviews.

Davis, S.W, Menon, K and Morgan,G. (1982). The images that have shaped accounting theory. *Accounting, Organizations and Society*. 7 (4), pp 307-318.

Deaconu, A., Silvia, N.C., and Popa, I. (2009). Analysis of the stakeholders' needs and their inference upon financial reports of SMEs. *Journal of International Business and Economics*. 2009, pp 1-14.

Deloitte (2015). 2015 Global Survey of R&D Incentives. Deloitte Touche Tohmatsu Limited.

ec.europa.eu (2017). What is an SME?. European Commission. Available at: http://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition_en (Accessed 25 April 2017).

Elliott, J., G. Richardson, T. Dyckman & R. E. Dukes (1984). The Impact of SFAS No. 2 on Firm Expenditures on Research and Development: Replications and Extensions. *Journal of Accounting Research*. pp. 85-102.

European Commission (2016). Small and Medium Sized Enterprises' Access to Finance. European Semester Thematic Factsheet.

European Federation of Accountants and Auditors for SMEs (EFAA). (2012). Comment Letter on the comprehensive review of the IFRS for SMEs.

European Financial Reporting Advisory Group (EFRAG). (2012). Comment Letter on the comprehensive review of the IFRS for SMEs.

Financial Reporting Standard 102 (FRS 102) (2015). The Financial Reporting Standard applicable in the UK and Republic of Ireland. Financial Reporting Council. 2015 edition. Available at: <https://www.frc.org.uk/Our-Work/Publications/Accounting-and-Reporting-Policy/FRS-102-The-Financial-Reporting-Standard-applicab.pdf> (Accessed 25 March 2017).

Financial Reporting Council (FRC). (2012). Comment Letter on the comprehensive review of the IFRS for SMEs.

Ganapathy, V. (2014). Role & relevance of R&D in organization's growth. Available at: <https://www.linkedin.com/pulse/20141018170340-20365684-role-relevance-of-r-d-in-organization-s-growth> (Accessed 14 April 2017).

Godfrey, J. M. and Warren, S. M. (1995). Lessee Reactions to Regulation of Accounting for Leases. *Abacus*. 31(2), 201-228.

Hogarth, R. M (1982). Discussion of An Assessment of Laboratory Experiments in Accounting. *Journal of Accounting Research: Supplement*. pp. 108-116.

Hong, C. and Lee, J.D. (2016). Macroeconomic effects of R&D tax credits on small and medium enterprises. *Economic System Research*. 28 (4), pp 467-481.

Holthausen, R.W. and Leftwich, R.W. (1983). The economic consequences of accounting choice : implications of costly contracting and monitoring. *Journal of Accounting and Economics*. 5, pp 77-117.

Horwitz, B. and R Kolodny (1980). The Economic Consequences of Involuntary Uniformity in the Financial Reporting of R&D Expenditures. *Journal of Accounting Research: Supplement*. pp. 38-74.

IFRS Application Around the World: Jurisdiction Profile: South Africa. (2016). IFRS Foundation. Available at: <http://www.ifrs.org/Use-around-the-world/Documents/Jurisdictionprofiles/South-Africa-IFRS-Profile.pdf> (Accessed 25 March 2017).

Institute of Chartered Accountants in England and Wales (ICAEW). (2012). Comment Letter on the comprehensive review of the IFRS for SMEs.

International Accounting Standard Board (IASB). (2012). Comprehensive Review of the IFRS for SMEs. IFRS Foundation.

International Accounting Standard Board (IASB). (2015). 2015 Amendments to the IFRS for SMEs. Basis for Conclusions on 2015 Amendments to IFRS for SMEs. IFRS Foundation.

International Federation of Accountants (IFAC). (2012). Comment Letter on the comprehensive review of the IFRS for SMEs.

International Financial Reporting Standard (IFRS) for Small and Medium-sized Entities (SMEs). (2017). IFRS Foundation. 2017 edition.

IFRS. (2017). Analysis of the IFRS profiles for the IFRS for SMEs Standard. Available at: <http://www.ifrs.org/Use-around-the-world/Pages/Analysis-of-SME-profiles.aspx>

(Accessed 17 May 2017).

Investopedia (2017a). Cash Flow Computations - Indirect Method. Available at: <http://www.investopedia.com/exam-guide/cfa-level-1/financial-statements/cash-flow-indirect.asp>

(Accessed 2 May 2017).

Investopedia (2017b). Statistical Significance. Available at: <http://www.investopedia.com/terms/s/statistical-significance.asp>

(Accessed 12 May 2017).

Krause, R., Whitley, K.A., and Semadeni, M. (2014). Power to the principals! An experimental look at shareholder say-on-pay voting. *Academy of Management Journal*. 57(1), pp. 94-115.

Labovitz, S. (1968). Criteria for Selecting a Significance Level: A Note on the Sacredness of .05. *American Sociological Association*. Vol. 3, No. 3, pp. 220-222.

Laerd Statistics (2015). Two-way mixed ANOVA using SPSS Statistics. Statistical tutorials and software guides. Available at: <https://statistics.laerd.com/> (Accesses 16 May 2017).

Laforet, S. (2008). Size, strategic, and market orientation effects on innovation. *Journal of Business Research*, 61, pp. 753-764.

Lund University Website (LU Website). (2017). Entry Requirements, Accounting and Finance - Master's Programme (One Year). Available at: <http://www.lunduniversity.lu.se/lubas/i-uoh-lu-EAGAF#requirements> (Accessed 25 April 2017).

Nader A. E., Shamsuddin A., and Zahari T. (2010). SMEs; Virtual research and development (R&D) teams and new product development: A literature review. *International Journal of the Physical Sciences*. 5 (7), pp.916-930.

North, D. and Smallbone, D. (2000). Innovative activity in SMEs and rural economic development: some evidence from England. *European Planning Studies*. Vol. 8 No. 1, pp. 87-106.

Ortega-Argilés, R, Potters, L., and Voigt, P. (2009). R&D-intensive SMEs in Europe: What do we know about them? IPTS working paper on corporate R&D and innovation - No. 15/2009. European Commission, JRC Technical Notes.

Ruland, R.G. (1984). The pragmatic and ethical distinction between two approaches to accounting policy making. *Journal of Accounting and Policy*. 8, pp.69-80.

Selto, F. H. and M. L Clouse (1985). An Investigation of Managers Adaptations to SFAS No. 2: Accounting for R&D Costs. *Journal of Accounting Research*. pp. 700-717.

SME Implementation Group (SMEIG). (2013). Comprehensive review of the IFRS for Small and Medium sized Entities (IFRS for SMEs). Staff paper. Report of the SMEIG.

SME Implementation Group (SMEIG). (2014). Terms of Reference and Operating Procedures for the SME Implementation Group. IFRS Foundation.

Tinker, A.M., Merino, B.D., and Neimark, M. D. (1982). The Normative Origins of Positive Theories: Ideology and Accounting Thought. *Accounting Organizations and Society*. pp. 167-200.

Universitat Bayreuth. (2012). Comment Letter on the comprehensive review of the IFRS for SMEs.

University of the Witwatersrand (2012). Comment Letter on the comprehensive review of the IFRS for SMEs.

Varis, M. and Littunen, H. (2010). Types of innovation, sources of information and performance in entrepreneurial SMEs. *European Journal of Innovation Management*. Vol. 13 No. 2, pp. 128-154.

Wang, H., Liang, P., Li, H., and Yang, R. (2016). Financing Sources, R&D Investment and Enterprise Risk. *Procedia Computer Science*. 91, pp. 122-130.

Zeff, S. (1978). The rise of “economic consequences”. *The Journal of Accountancy*. December, pp. 56-63.

7. APPENDIX

Appendix 1: Preliminary Questions

The Understanding (please put "X" in the box)

1 Do you think that getting loans is important for small and medium companies?

- Yes
- No

2 Do you think that development costs (such as those related to the development of a new product) are relevant for small/startups companies?

- Yes
- No

3 When you can capitalize development costs (thus, record them as an ASSET instead of an EXPENSE), would you be incentivized to spend more money on the development projects?

- Yes
- No

for both answers, please state your argument, just a short sentence will do :)

4 If the accounting method mandated for development activities changes, will you change your investment strategy?

- Yes
- No

The following 2 questions will be now presented, please take a look and have fun to play the role of a manager! :)

Appendix 2: Question 1

Q1 YOUR FOCUS: NET INCOME (THE HIGHER, THE BETTER)

For both Year 1 and Year 2, please put the amount of money that you want to spend on development projects in **BOX 1, grey area**.

You can choose development projects of an amount between **EUR 700** and **EUR 1300** for each year.

When development projects are capitalized, they will be amortized over 10 years (straight line method)



Please REMEMBER!! You are supposed to manage your financial performance (**NET INCOME**), while using your budget!

Development Costs are **CAPITALIZED** for both **Year 1** and **Year 2**

BOX 1		
Your total amount project		
Development Projects	Development Costs:	Depreciation/year
Y1	Capitalized	-
Y2	Capitalized	-

*note: if the color turns into RED, then your investment is not in the range 700-1300
pls change the number between 700 and 1300*

EFFECT of YOUR CHOSEN PROJECT		
Profit and Loss Statement	Capitalizers	Capitalizers
	Y1	Y2
Revenues	9.000,0	9.000,0
Development Expense	-	-
Amortization of Capitalized Development Projects	-	-
Income	9.000,0	9.000,0

 effect from chosen project in Y1
 effect from chosen project in Y2

Appendix 3: Question 2

Q2 YOUR FOCUS: OPERATING CASH FLOW (THE HIGHER, THE BETTER)

For each year (Year 1 and Year 2), you have a budget constraint of **EUR 2000, to be used ENTIRELY.**

For each year (Year 1 and Year 2), you have to invest **both** in **Development activities** and **PPE** (Property, Plant & Equipment) projects.

PPE is always capitalized and depreciated in 10 years (Straight line method).

The Accounting treatment of Development costs is the following:

Development Costs are **CAPITALIZED** for **both Year 1 and Year 2** (10 years-straight line amortization).

Please REMEMBER!! You are supposed to manage your financial performance (**OPERATING CASH FLOW**) and use your **entire** budget (**EUR 2000**)!

As you can notice in the **CASH FLOW STATEMENT**, depreciations of PPE and amortizations of development activities will **INCREASE** your operating cash flow.

BOX 2				
Your total amount project				
	EUR		Depreciation/Year	
	Y1	Y2	Y1	Y2
Development Projects			-	-
PPE Projects			-	-
Total (max. EUR 2000)				

*note: if the color turns into GREEN, then you are on the right track! YEAY!
if the color turns into RED, then you exceeded the budget constraint :{*

EFFECT of YOUR CHOSEN PROJECT			
Cash Flow Statement	Capitalizers		
	Y1	Y2	
Net Profit	9.000,0	9.000,0	
OPERATING Activities			
Amortization of Capitalized Development Projects	-	-	
Depreciation of PPE	-	-	
Operating Cash Flow	9.000,0	9.000,0	

effect from chosen project in Y1
 effect from chosen project in Y2

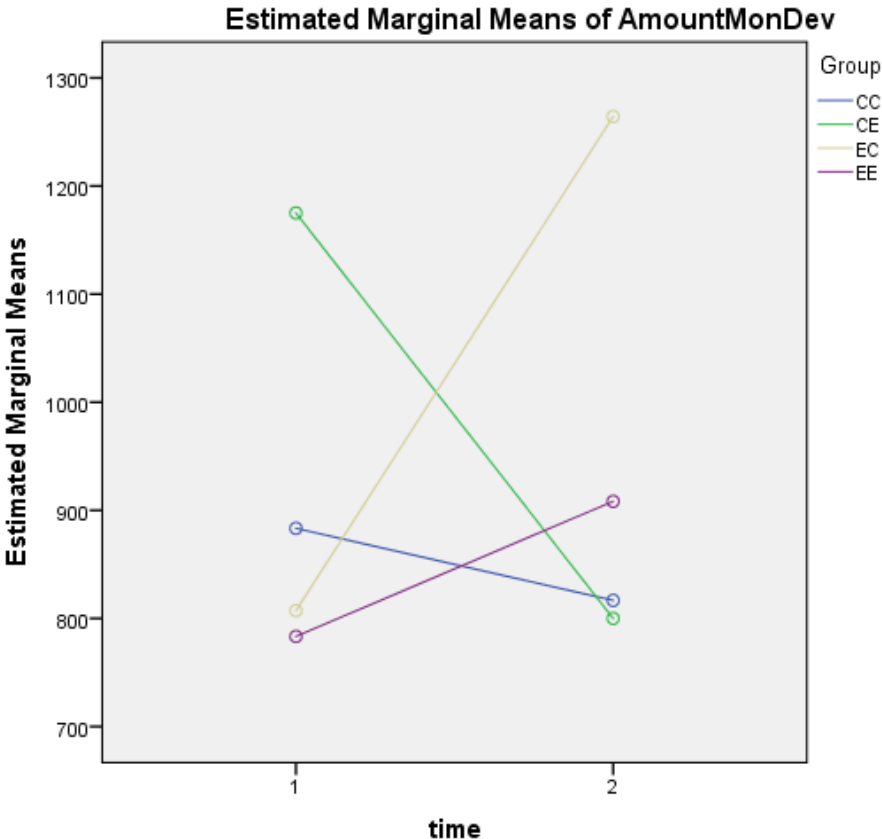
Appendix 4: Test of Within-Subjects Effects for amount of money spent on development projects (H1)

Tests of Within-Subjects Effects

Measure: AmountMoneyDev

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
time	Sphericity Assumed	15348.325	1	15348.325	.482	.495	.022
	Greenhouse-Geisser	15348.325	1.000	15348.325	.482	.495	.022
	Huynh-Feldt	15348.325	1.000	15348.325	.482	.495	.022
	Lower-bound	15348.325	1.000	15348.325	.482	.495	.022
time * Group	Sphericity Assumed	1179711.905	3	393237.302	12.344	.000	.638
	Greenhouse-Geisser	1179711.905	3.000	393237.302	12.344	.000	.638
	Huynh-Feldt	1179711.905	3.000	393237.302	12.344	.000	.638
	Lower-bound	1179711.905	3.000	393237.302	12.344	.000	.638
Error(time)	Sphericity Assumed	668988.095	21	31856.576			
	Greenhouse-Geisser	668988.095	21.000	31856.576			
	Huynh-Feldt	668988.095	21.000	31856.576			
	Lower-bound	668988.095	21.000	31856.576			

Appendix 5: Plot of Estimated Marginal Means of amount of money spent on development projects (H1)



Appendix 6: Tests of Within-Subjects Effects for chosen Development projects

Tests of Within-Subjects Effects

Measure: Development

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Time	Sphericity Assumed	1096.530	1	1096.530	1.685	.208	.074
	Greenhouse-Geisser	1096.530	1.000	1096.530	1.685	.208	.074
	Huynh-Feldt	1096.530	1.000	1096.530	1.685	.208	.074
	Lower-bound	1096.530	1.000	1096.530	1.685	.208	.074
Time * Group	Sphericity Assumed	5823.722	3	1941.241	2.984	.054	.299
	Greenhouse-Geisser	5823.722	3.000	1941.241	2.984	.054	.299
	Huynh-Feldt	5823.722	3.000	1941.241	2.984	.054	.299
	Lower-bound	5823.722	3.000	1941.241	2.984	.054	.299
Error(Time)	Sphericity Assumed	13663.798	21	650.657			
	Greenhouse-Geisser	13663.798	21.000	650.657			
	Huynh-Feldt	13663.798	21.000	650.657			
	Lower-bound	13663.798	21.000	650.657			

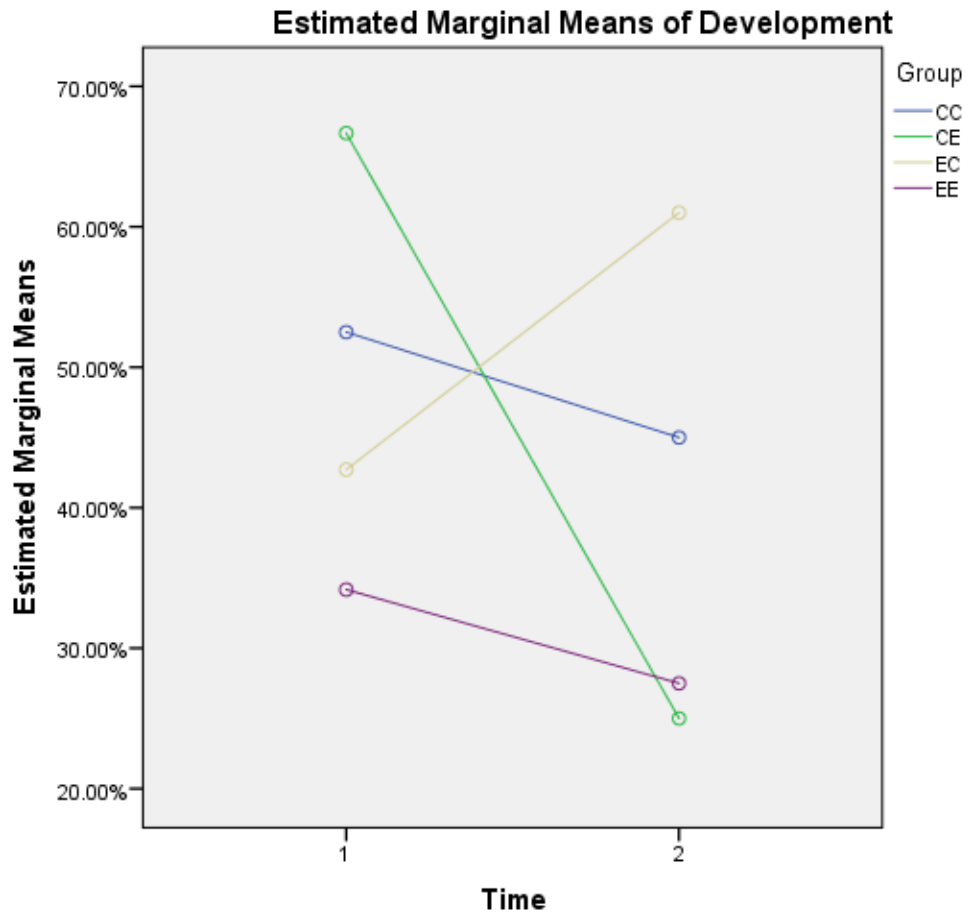
Appendix 7: Tests of Within-Subjects Effects for chosen PPE projects

Tests of Within-Subjects Effects

Measure: PPE

Source		Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
time	Sphericity Assumed	1096.530	1	1096.530	1.685	.208	.074
	Greenhouse-Geisser	1096.530	1.000	1096.530	1.685	.208	.074
	Huynh-Feldt	1096.530	1.000	1096.530	1.685	.208	.074
	Lower-bound	1096.530	1.000	1096.530	1.685	.208	.074
time * Group	Sphericity Assumed	5823.722	3	1941.241	2.984	.054	.299
	Greenhouse-Geisser	5823.722	3.000	1941.241	2.984	.054	.299
	Huynh-Feldt	5823.722	3.000	1941.241	2.984	.054	.299
	Lower-bound	5823.722	3.000	1941.241	2.984	.054	.299
Error(time)	Sphericity Assumed	13663.798	21	650.657			
	Greenhouse-Geisser	13663.798	21.000	650.657			
	Huynh-Feldt	13663.798	21.000	650.657			
	Lower-bound	13663.798	21.000	650.657			

Appendix 8: Plot of Estimated Marginal Means for chosen development projects (H2)



Appendix 9: Plot of Estimated Marginal Means for chosen PPE projects (H2)

