« Recuperación económica: confianza e inversión en Europa »

« Recuperação económica: confiança e investimento na Europa »

XVI Encuentro AECA

Leiria-Portugal, 25-26 Septiembre 2014

Programa

ORGANIZAN

aeca
Asociación Española de Contabilidad y Administración de Empresas

IPL
escola superior de tecnologia e gestão

IPL
centro de investigação em gestão para a sustentabilidade

ACCOUNTING AND TAX FRAUD THROUGH INVOICELESS SALES: ARE SHAREHOLDERS LOANS THE VISIBLE TRACE OF THE UNDERLYING MONEY LAUNDERING? A STUDY FOR THE PORTUGUESE CASE

Jorge Manuel Afonso Alves
UNIAG /OBEGEF/ Escola Superior de Tecnologia e Gestão do Instituto Politécnico de Bragança

José A. C. Moreira
CEF.UP / OBEGEF /Faculdade de Economia. Universidade do Porto

Abstract

The current study tests whether there was an empirical and positive relation between shareholders loans increases recorded in companies' books and the invoiceless sales they made, i.e. whether such loans were a vehicle adopted for "laundering" the proceeds of this accounting and tax fraud.

The empirical evidence supports the ex-ante expectation of such a positive relation. It suggests that at least a part of those loans is related to accounting and tax fraud, and these loans are the vehicle for "laundering" the proceeds of non recorded transactions and, simultaneously, keep the involved companies financially solvable.

The current study makes four main contributions to the literature. Firstly, it brings a novel perspective to the accounting and tax fraud scarce literature, that is not the usual context related to imports and exports activities; secondly, it shows that in the particular context described in the paper shareholders loans are used as a way of "laundering" the proceeds of invoiceless sales, and to keep companies solvable;thirdly, it connects the earnings management literature to the literature on fraud, also a novelty; fourthly, based on a sample of southern European unlisted companies, the study also makes a contribution to the yet scarce literature on these firms, namely by bringing information about the way tax evasion evolves in this region.

1- Introduction

In everyday lifeit may happen to Portuguese consumersto purchase a specific good or service and receive not from the seller the correspondent invoice. If the consumer requestsit the seller tends to adopt one out of two attitudes:he/shelooks the consumer with disfavor and issues the invoice; or tells the consumer that the issuance of the invoice implies tocharge him/herthe Value Added Tax (VAT). It is true that sometimes are consumers themselves that trigger invoicelesssales whenask the seller if it is possible notto invoicein order to avoid the VAT payment. This kind of behavior, either by consumers or by sellers, implies that a significant portion of goods and services traded in the economy is not invoiced.

These sales are a part of the so called "informal economy", that in Portugal represents around 23% of GDP (e.g. Afonso & Gonçalves, 2009; Anno, 2007). Among other consequences,invoiceless salesimply a significant decrease in tax collection, namely VAT and Corporate Income Tax (CIT).

The dimension of the problem worries every government. This is apparent in the attitude of the Portuguese TaxAuthority(PTA) that for a long time kept in the media and on its official site on the internet an advertising campaign subject to the theme "*Pleaseask the bill. The bill moves the country forward*", seeking to raise citizens' awareness for the social importance of always requestingthe invoice.

A report on the newspaper*Correio da Manhã*, onthe 2[nd]of April 2005,mentioned the intention of the PTA to inspect the accounting booksof companies that potentially make a part of their business in the informal economy. The report added that "…one of the factors the PTA willbe paying more attentionis to the account of 'shareholders loans'.[1] It is through this mechanism that the company can sell in the 'informal economy' and survive financially. Shareholders loans are the vehicle to introduce the cash in the company".

In fact, companies makinginvoicelesssaleshave their accounting earningsmanaged downward, and the income tax bill shrank. However, unless such companies are able to buy the inputs in the informal economy, and pay them with undeclared funds, invoicelesssales practice sooner or later will tend to lead the company into treasury management problems, and difficulties in honoring financial commitments. To prevent this constraint, the financial amounts collected frominvoicelesssales must be pumped into the company treasury. This can be done through shareholders financial loans,"laundering" the cash that was in the informal circuit and, at the same time, providing the funds that assure companies' financial stability.[2]Most Portuguese people know, or at least knew, one or more concrete situations of this type.

Under these circumstances, this paper aims to show whether there was an empirical connection between shareholders loans increases recorded in companies' books and the invoiceless sales they made, i.e. whether such loans are a vehicle adopted for "laundering" the proceeds of this accounting and tax fraud.

Two main factors motivate our study. Firstly, there is no evidence in the literature, at the national and international levels, shedding light on this type of fraud. The areas of fraudulent financial reporting and tax fraud "… have been somewhat

---

[1]For thesakeofsimplicity, throughoutthepaperwewilllabelthistypeofloans as "shareholdersloans". However, for entitiesthat take a legal structureof "limitedliabilitypartnership" a more precise definitionwouldbe "partnersloans".

[2]Throughoutthepaperwewilllabelcorporateentities as "companies", evenwhentheyhave a parnershipstructure.

neglected in the literature" (DeFond, 2010:406), although these types of phenomenaare costly for the society as a whole, a motive of strong inequality among citizens, and seems to be more widespread in the business world than one could expect. For DeFond(2010:406), "the relatively small number of papers that investigate [accounting] fraud may be due to difficulties in obtaining data on fraud other than those reported in AAER [Accounting and Auditing Enforcement Releases] …". Thus, the current paper is a contribution to this almost empty research area, taking advantage of a particular economic, legal and social context that allows us to overcome some of the difficulties other researchersface when intend to enter the area of accounting and tax fraud. Moreover, this research goes beyond this already important contribution and sheds light on a particular way of achieving the "money laundering" ofinvoiceless salesproceeds.

Secondly, as we explained above, there is a particular context, a temporary window of opportunity, thatmakes possible the design of the research in a way that avoids the access to privileged corporate information, or even to the mentioned AAER. Until2007,despite thePTA recurrent menaces, it was quite easy for Portuguese companies to introduce in their treasury the informal proceeds of invoiceless sales. They just needed to take these proceeds and record them in the books as shareholders loans. This implied thus that associated to increases in such loans one had a high probability of finding traces of invoiceless transactions. This is what we will be doing. It is a unique opportunity, namely because nowadays the legal and accounting mechanisms of control in place, namely more intense and regular audit inspections by the PTA when companies report increases in shareholders loans, and the bank system obligation to control the origin of all funds that enter a person or company account, even for small amounts, narrowed enormously companies window of opportunity for laundering the money related to the type of fraud activities we have mentioned.

This paper intendsthus to make a contribution to the literature, and offer a better and structured understanding of this type of accounting and fiscal fraud, and also of its connection with the "money laundering" through shareholders loans. It grounds on the earnings management literature (e.g. Roychowdhury, 2006), and extends it to take into account the extreme situation in which the operations are effective fraud, taking advantage of aparticular context whereanecdotal evidence shows the existence of the phenomenon.Moreover, our research also connects the earnings management literature to that of "money laundering" (e.g. Mitchell et al., 1998; Schneider & Windischbauer, 2008), making a contribution for a better understanding of phenomena that are usually treated in the literature as if they were independent.

The study adopts a relatively simple three-step methodology. Firstly, two subsamples of firms are assembled, one composed of companies with shareholders loans increases; the other, the *control sample* (e.g. Moreira, 2006), of companies with loans decreases. Gathering these subsamples, the global sample is composed of pairs of firms belonging to the same industry and year, and having identical size, but differentiating in the sign of the change in shareholders loans. Secondly, as we justify in detail later in the paper, invoiceless sales leave traces in the accounting numbers, not only in the cash flow that affects the treasury but also in companies' gross margin. Companies are classified according to their fraud behavior into groups of "fraudster" and "non fraudster", basedon predictions of their abnormal cash flow from operations (*CFO*) and cost of goods sold (*COGS*) (e.g. Cohen et al., 2008; Roychowdhury, 2006). Thirdly, a model is developed and regressed to test the relationship between companies' fraud behavior underlying invoiceless sales and the sign of shareholders loans change.

The empirical evidence supports the ex-ante expectation of a positive relation between shareholders loans increasesand tax fraud through invoicelesssales. Theevidence suggests that at least a part of thoseloans is related to accounting and tax fraud, and these loans are the vehicle for "laundering" the proceeds of informal transactions and, simultaneously, keepthe involved companies financially solvable.

The current study makes four main contributions. Firstly, it brings a novel perspective to the accounting and tax fraud scarce literature(e.g. DeFond, 2010), highlighting an economic and corporate context of under-invoicing sales, in the limit invoiceless sales, that is not the usual context related toimportsand exports activities and the attached use of transfer prices (e.g. Biswas & Marjit, 2005; Patnaik & Vasudevan, 2000). Secondly, it shows that in the particular context described in the paper shareholders loans are used as a way of "laundering" the proceedsof invoiceless sales, serving simultaneouslyto keep companies solvable. This double purpose of the "money laundering" vehicle is in itself also a novelty in the literature, contributing for a better understanding of what can be ineach moment and context the determinants underlying the choice of the vehicles adopted to reintroduce illicit money in the formal economy.Thirdly, adopting a design and research tools borrowed from the earnings management literature to study a fraud problem, the paper also brings a contribution by relating somewhat that literature to the one on fraud (e.g. DeFond, 2010). Fourthly, based on a sample of southern European unlisted companies,our study also makes a contribution to the yet scarce literature on these firms, namely by bringing information about the way tax evasion evolves in this region (e.g. Richardson, 2006).

On a more practical perspective, this study is of particular interest for the PTA, because of the contribution it makes to a better understanding of Portuguese business reality and the relation between companies, buyers and that Authority. Moreover, it is also of interest for similar authorities in other countries that face similar challenges in copping with tax evasion and "money laundering".

The study contains five additional sections. Section 2 comprises a literature review on incentives to earnings management, accounting and tax fraud and "money laundering,and displays a brief characterization of the Portuguese economic and legal context. In section 3, the research hypothesis is developed and discussed. Section 4 shows and justifies the methodology used. The empirical results are discussed in section 5, as well as those arising from robustness tests that have been carried out. Finally, a summary of the main conclusions and contributions is made available in section 6.

2- Literature review: from earnings management and accounting fraud practicesto "money laundering" in the Portuguese context

Healy and Wahlen(1999) defined earnings management asthe result of managers accounting choices in a way that generates a gain for themselves or for companies they work for. These choices are, at first, within the law and allowed by accounting standards flexibility. However, they can be of fraudulent nature, for example in the case of under-invoicing or of invoicelesssales, which go beyond the standards and the law. In the context of empirical studies, it isvery difficult, if not impossible, to distinguish the impact of legal from illegal actions. In the context of the currentstudy, as explained in the introduction, the specific time and context frame allows to define companies' actions as fraudulent. However, even in this case, we are unable to assure that the adopted research design is not picking up also legal (earnings management) actions. Thus, we ground our research on the earnings management literature, and adopt for thisterm a broader scope that goes beyond managers' mere use of

accounting standards flexibility (Ball, 2009).Beyond the illegality of fraud, empirically itsmain consequence is that it does not imply the "reversion of the earnings effects" as it tends to happen in legal earnings management actions.

2.1- Incentives to undertake earnings managementand tax fraud

2.1.1- Generic incentives

The literature on the empirical study of opportunistic earnings management through accruals date back to Healy(1985). The incentives managers face to undertake such kind of action are diverse, and the following are the most commonly discussed: toaffect their bonuses (e.g. Guidry et al., 1999; Healy & Wahlen, 1999) or the company's debt agreements (e.g. Dechow et al., 1996; Sweeney, 1994); to circumvent the regulations (Jones, 1991); to meet capital markets expectations(e.g. Burgstahler & Eames, 2003; Cheng & Warfield, 2005).Thus, accounting choices underlying earnings management tend to be influenced by political, contractual and agency costs (e.g. Ball & Shivakumar, 2008; Jensen & Meckling, 1976).

However, such incentives have been mainly studied for listed companies of Anglo-Saxon countries, thus avoiding a direct relation to the incentives faced by managers of unlisted companiesmanaged by their owners, where agency conflicts with shareholders have no place, and political costs tend to be nonexistent.

The research focused on earnings management incentives ofunlisted companies operating in economic and institutional contexts of "continental"type is more recent. Such incentives have been studied, among others, byBurgstahler et al. (2006), Garrod et al.(2008)and Moreira (2006). Thesestudiesofferempiricalevidencethat the mainearnings managementincentives, in contextswhereaccounting and taxation are closelylinked, tend to bethe minimization of the incometax, and to obtainbankfinancing in good conditions.Although such literature do not explicitly discuss the fraud issue, it is apparent that the economic and business environment underlying the activity of this type of firms, and in most cases the absence of auditors that control the quality of their accounting information, permits one to see fraud as a upper level of earnings management actions (e.g. Young, 2004). Moreover, in the context of these firms, where the manager most times is the owner, it is easier to see some of the determinants of tax evasion discussed by Richardson(2006), like low education, or a low rate of tax compliance.

2.1.2- Incentives to minimize the income tax

The economic and institutional context surrounding companies seems to be a determinant of the nature of their earnings management incentives. For example, in a study for countries of the European Union (EU)Burgstahler et al. (2006)found that the existence of a strong link between accounting and tax rules is associated with greater downward earnings management in order to minimize income tax. In the same way Garrod et al. (2008)for a similar context.

The Portuguese case does not seem to be different, and it is a fact that there is very close relation between accounting and taxation. However, companies tend not to avoid completely the payment of taxes. Instead, because the Tax Authority (PTA) audits companies disclosing losses, they pursue to disclose small positive earnings, minimizing the tax payment(Moreira, 2007), unless they adopt stronger actions deemed as fraud, like invoiceless sales.

The tax incentive, regardless the economic and institutional context,seems to have less impact on listed companies. Their professional management, andsophisticated tax planning strategies,instead ofdownward earnings management, are deemed as the main justifications for such a lower impact.

2.1.3–Incentives to obtain best financing conditions

Accounting research displays evidence that accounting information plays a major role in debt agreements, indirectly affecting the underlying interest rates(e.g. Asquith et al., 2005). According toAkerlof(1970), companies tend to manage earnings upwards in an attempt not to violate the accomplishment of contracts, thus avoidingincreases in their financing cost[3]. In the case of Portuguese Small and Medium-Sized Enterprises (SME), which depend on the bank system to obtain funds, the financial information that theyuse to support their financing requests not only can have an effect on the cost of such a financing butis also a basic condition to access it. In order to reduce the information asymmetry, and the effect of earnings management, financial institutions tend to support their decisions also in qualitative and complementary information like, for example, the quality of their management(e.g. Epps & Ismail, 2009).

Good corporate governance mechanisms tend to constrain fraud and earnings management attitudes, thusaffecting positively the level of financing costs.In the case of unlisted companies of small size, the agency problems will be lower or nonexistent, since the manager tends to be the owner. Thosehaving an earnings management incentive to obtain the best financing conditions tend to manage earningsupwards - or constrainmanipulation in the downward direction-, in order to better signal the quality of the company. The evidence in Moreira (2007)supports this intuition, and Huyghebaert et al. (2007)found similar evidence, for a set of Belgium start-ups, showing that such companies managed earnings upwards in the years previous to their first loan request to financial institutions.

Giving the evidence discussed in this and in the previous subsections,oneconcludes that the tax incentive and the incentive to optimize financing conditions push companies to undertake earnings management actions, and in the limit accounting and tax fraud.

2.2-Methods of earnings manipulation and money laundering

Earnings manipulation methodscan be classified into three groups: those based on the ability and flexibility of accounting choice; those based on the use of real earnings management activities; and those concerning the fraudulent manipulation of financial information or corporate transactions.

On concerning the first group, the manipulation tends to occur in the domain of the accounting estimates, likewise depreciations, provisions, impairments. These practices tend to be more common in Anglo-Saxon countries (e.g. Bowen et al., 1995; Christie & Zimmerman, 1994), because of the milder impact of tax rules on companies accounting decisions. Portuguese accounting standardshave such flexibilitybutit tends not to be much used for the purpose of manipulation, because companies use mainly fiscal rules in making their accounting choices. For example, they use the maximum rates of depreciation allowed for tax purposes, instead of the economic ones; or the percentage of losses for bad debts impairments allowed by the Corporate Tax Law.

---

[3]As refer Dechow et al. (1996), this goal cannot be achieved if the manipulation is made public.

On concerningreal practices of earnings management, the available evidence suggests that managers do temporaryreductions inthe sales price to increase the turnover, and discretionarily minimize expenses to increase disclosed margins (Roychowdhury, 2006). Other practices adopted include, for example, the increase of sales at the end of the period, accepting its return by customers in the beginning of the next(Penman, 2008). Both cases are situations that fall into the gray area that divides earningsmanagementfrom the mere business management, although thelatter case could even be considered as fraudulent.

In terms of fraudulent manipulation the solutions are more diverse and less easy to assemble in well-defined groups. Theinvoiceless of sales, discussed in the current paper, is one of the methods used for earnings reduction and tax evasion. The literature seldom discusses this type of manipulation(DeFond, 2010), due to the difficulty to systematize how itis practiced, and also of detecting and measuring itempirically. Nevertheless, there are studies that provide empirical evidence on the existence of fraud in financial statements(e.g. Kaminski et al., 2004; Persons, 1995;Skousen et al., 2009).

There is a link between accounting fraud and money laundering, and accounting professionals can play very important rolls in drawing it(e.g. Compin, 2008;Sikka & Hampton, 2005). For Mitchell et al. (1998), accountants and auditors may use their expertise to create complex webs of transactions with the purpose of "cleaning" illicit funds. According to Masciandaro(1999), money laundering has two key-characteristics: *illegality*, that implies the use of revenues originated illegally or in criminal activities, or revenues that haven't been reported to the tax authority (Sarigul, 2013); and *concealment*, because the first goal of money laundering is to hide the illegal source of such revenues.

Shareholders loans related to invoiceless sales fit Masciandaro(1999)definition. They use illegal money, that haven't been reported for tax purposes, and conceal the origin of the funds, taking advantage of existing soft bank and tax rules. Moreover, as mentioned previously, such loans were more than the adoption of a mere money laundering technique, because they were a basic way of keeping solvable companies making invoiceless sales.

Shareholders loans can thus be seen as a technique adding to the common lists of methods and techniques for money laundering (e.g. Quirk, 1997; Sarigul, 2013), where the most common is *smurfing*, i.e. the use of multiple cash deposits in multiple bank accounts for amounts below the minimum cash reporting requirement.

2.3- *Economic, institutional and social Portuguese context*

As previously mentioned, the incentives to undertakeearnings management seem to be closely related to the economic, institutional and social context in which the firmsare embedded. This justifies a brief summary of the main factors that characterize thePortuguesecase. Fourmain characteristics (Moreira, 2007): *i)* a strong alignment between ownership and management, which means that most companies are managed by their owners and thus there are no related agency conflicts; *ii)* business financing is obtained essentially through banks; *iii)* the current legal system is of code-law type, in the sense that it is described by Ball et al. (2000),and there is a very close relationship between the accounting and tax systems; *iv)*the "tax morale" (Richardson, 2006) tends to be low, i.e. the moral principles or values individuals hold about paying taxes tend to be weak, mainly because citizens do not have a good relationship with the State. This explains, at least partly, the high level of Portuguese tax evasion.

Companies in Portugal are generally SME, wherein, in addition to being managed by the owners, their corporate structure is mostly familiar. This implies that the company's interests match exactly those of the manager/shareholder, justifying that one of the earnings management main incentives is the minimization of corporate taxes, conditional on the need to obtain bankfinancing.

The academic and financial qualificationsof SME entrepreneurs/managers tend to be low, and they tend not to use accounting as a management tool. Therefore, the main function of these companies' accounting is to fulfill a legal request and to support the estimation of the income tax. This specific context explains why companies financial reporting tends to be based on fiscal rather thanon economic criteria.

3- Discussion of the research hypothesis

Let's remind that the aim of this study is todiscuss whetherthere is an empirical connection in between shareholders loans increases recorded in companies' books and the invoiceless sales they make, i.e. that such loans are a vehicle adopted by some companies for "laundering" the proceeds of this fraud.

Anecdotal evidence of companies' daily life, and of known results of upward tax corrections applied by the PTA, allow expectingthat accounting and tax fraud occurs, at least partly, through invoiceless sales. It is also informally known that companies tend to acquire in the formal circuit, and record in their books,the inputs underlying invoiceless sales, implying that their costs will not suffer the same downward impact as their revenues, making the gross margin decline. Earnings are negatively affected, as intended, and companies' treasurywill suffer the grip resulting from the asymmetric evolution of costs and receipts. It will be difficult for the company to ensure payments to suppliers and other creditors unless the proceeds of invoiceless salesare reintroduced in the treasury. In such a context, shareholders loans are adopted as a vehicle that has the double purpose of "laundering" those proceeds, reintroducing them in the formal economy, and keep the company financially solvable.

Thus, in sum, this fraud process hastwo main consequences. Firstly, there is a negative impact on companies' recordedturnover, and on the gross margin because they tend to record in their accounting all purchased inputs.Secondly, the treasury is negatively affected, constraining companies in solving timely their financial commitments, unless the proceeds of the invoiceless sales are "laundered" and enter companies' accounting books. This is expected to be accomplished through shareholders loans.

This general intuitionis synthesized in the following hypothesis:

H1- Shareholders loans increases arerelated to accounting and tax fraud through invoiceless sales.

The next subsection introduces the methodology and statistical sample adopted to test this hypothesis.

4- Methodology and sample selection

4.1-The use of a control subsample

The current research aims to test whethershareholders loans increasesare positively related to invoiceless sales. To this end, two subsamples were created:

9

onecomposed of companies with positive changes (increases) in thoseloans; another, deemed as acontrol sample, gatheringcompanies with negative changes. These subsamples were built in a way that each company of the control subsample finds a pair in the first one in terms of size, year and industry. For companies' size purpose we adopted the natural logarithm of total assets. The industries were defined as a two-digit code of the Portuguese industry classification (v.3).[4]

4.2–Classification of invoiceless sales companies

As previously explained, it is expected that invoiceless sales influence negatively the gross margin[5], because the salesrecorded arelower than actual sales and at least a part of the inputs underlying the invoiceless sales tend to be recorded in the books. This asymmetric movementimplies two consequences: the *COGS*increase relatively to the volume of invoiced sales;the *CFO* deteriorates beyond the effect of the invoiceless sales.

The assumption that the cost of all inputs tends to be recorded as a cost, regardless of the sales invoicing nature,is based on anecdotal concrete evidence. It permits us to classify the companies regarding their invoiceless sales behavior based on two models available in the literature to detect earnings management through real activities(e.g. Cohen et al., 2008; Ge & Kim, 2014; Gunny, 2010; Roychowdhury, 2006).

The first model, adaptedfrom Roychowdhury(2006) and Cohen et al. (2008),allows the estimation of the normal level of *COGS*based on companies' revenue:

$$\frac{COGS_t}{TA_{t-1}} = \alpha_1 + \alpha_2 \frac{1}{TA_{t-1}} + \alpha_3 \frac{REV_t}{TA_{t-1}} + \xi_t \tag{1}$$

where,

$COGS_t$- Cost of goods soldof year $_t$
REV_t - Revenues of year $_t$;
TA_{t-1} - Total assets at the end of year $_{t-1}$;
ξ_t–The model residuals.

Because the intercept " (α_1)absorbs the average effect of the uncorrelated omitted variables of the model, in this particular case at least the control for the impact of invoiceless sales on the *COGS*, it is expect that coefficient to be higher for firms havinginvoiceless sales (*YIS*) than for firms withno invoiceless sales (*NIS*). As suggested by Moreira (2006), when the model is estimated cross-sectionally by industry with no control forinvoiceless sales, one may expect that the size of the intercept will lie somewhere in between the extreme cases characterised by having only one type of sales (*NIS* or *YIS*). Let us call it the "average intercept" (α_{1m}). Given the higher impact of REV on *COGS* for invoiceless sales companies, it is expected that this intercept is understated for *YIS* firms, and overstated for *NIS* firms, i.e. $\widehat{\alpha_1} YIS > \widehat{\alpha_{1m}} > \widehat{\alpha_1} NIS$.The consequence is the existence of a measurement error (*ERR*) that translates into theestimation of$\widehat{COGS}$ and is defined as $ERR1 = COGS_t - \widehat{COGS}_t$. It follows the following expectation:$ERR1_{YIS} > 0$ and $ERR1_{NIS} < 0$.

The second model, adapted from Ge and Kim (2014), is used to estimate the normal level *CFO*(Cohen et al., 2008; Roychowdhury, 2006):

$$\frac{CFO_t}{TA_{t-1}} = \beta_1 + \beta_2 \frac{1}{TA_{t-1}} + \beta_3 \frac{REV_t}{TA_{t-1}} + \beta_4 \frac{\Delta REV_t}{TA_{t-1}} + \varepsilon_t \qquad (2)$$

where*CFO$_t$*is the cash flows from operations and ΔREV_t is the change in revenues, both in year$_t$. The other variables are defined as per equation (1).[6]

To discuss the impact of invoiceless sales on the estimation of *CFO* we adopt a deductive reasoning similar to the one used in model (1). For a given amount of recorded revenue, the impact on *CFO* of the cost of the inputs underlying the sales tends to be higher for *YIS* than for *NIS* companies. This means that it is expected the *CFO* will be smaller for a company classified as a *YIS*, because the cost of the inputs that impact *CFO* is higher than for a *NIS* company, given that such a cost is expected to be related to an amount of sales higher than that recorded in the books. This implies that the "average intercept"(β_{1m}) is expected to follow this hierarchy: $\widetilde{\beta_1} NIS > \widetilde{\beta_{1m}} > \widetilde{\beta_1} YIS$. Defining$ERR2 = CFO_t - \widehat{CFO_t}$, then it is expected that: $ERR2_{YIS} < 0$ and $ERR2_{NIS} > 0$.

Based on the above models, and on the economic intuition underlying each of them, we define a variable to classify fraudster companies based on the methodology proposed by Gunny (2010), the "invoiceless sales companies" variable (*ISC*).

Companies having an estimated *ERR2* less than or equal to the 1st quartile of the distribution of such measurement errors, i.e. that have *CFO* quite below the normal expectation, are more likely to have undertook invoiceless sales. The same is true for companies that have an estimated *ERR1* greater than or equal to the 3rd quartile of the distribution of this type of measurement error, i.e. having *COGS* above the normal expectation. Thus, companies that most likely made invoiceless sales are those that fill simultaneously both conditions.

According to Gunny (2010), there is a simple way of combining both criteria and define a unique classifying variable. Firstly, both error variables distributions are sorted in ascending or descending order. Secondly, the distribution of one of these variables is multiplied by minus one, in order to get its symmetric. We have chosen the *ERR1* variable, and named it *SERR1*. Thirdly, each observation of *SERR1* is summed with its counterpart in the *ERR2* sorted distribution, creating the variable *ΣERR*. In this new distribution companies that most likely made invoiceless sales are those with the lowest *ΣERR* values. Thus, finally, the *ISC* variable is defined as a dummy variable that takes value 1 if the value of *ΣERR* for particular observation is less than or equal to the 1st quartile of its distribution, 0 otherwise.

4.3- The model

The aim of the current research is to test whether shareholders loans are related to accounting and tax fraud by invoiceless sales. As the working hypothesis states, we predict a positive relationship between increases of such debts and the existence of this type of manipulation. The global model, estimated by Ordinary Least Squares (OLS), is the following:

---

[6]The models (1) and (2) are estimated cross-sectionally by year and industry whenever this has at least 15 observations (Roychowdhury, 2006) in the sample-base defined in subsection 4.4 above.

$$\Delta LOA_{it} = \alpha_1 + \alpha_2\ ISC_{it} + \alpha_3\ D_{it} + \alpha_4\ D_{it} * ISC_{it} + \alpha_5\ \Delta WC_{it} + \alpha_6\ \Delta FIXA_{it} + \alpha_7\ \Delta DCI_{it} + \alpha_8\ SIZE_{it} + \alpha_9\ A$$

(3)

The dependent variable of the model is the change in shareholders loans (ΔLOA), using *ISC* as the main variable that qualifies companies as fraudster byinvoiceless sales. The other arecontrol variables. The complete set of variables is defined as follows:

ΔLOA_{it} - Changes in shareholders loans of company$_i$ and year$_t$, deflated by lagged total assets;

ISC_{it} – Dummy variable that takes the value 1 if company$_i$ in year$_t$ is classified as a fraudster byinvoicelesssales, 0 otherwise. Given the above discussion, we expect its coefficient to be positive;

D_{it} - Dummy variable that characterizes the sign of the change in shareholders loans, taking value 1 if the observation belongs to the subsample of companies with $\Delta LOA > 0$, 0 if the observation belongs to the subsample of companies with $\Delta LOA < 0$;

$D*ISC_{it}$ - Interactive variable defined as the product of variables *D* and *ISC*, intended to control for potential differences in companies behavior towards invoicelesssales. Its coefficient is predicted to be positive;

ΔWC_{it} - Change in working capital ofcompany$_i$ in year$_t$ deflated by lagged total assets. Given that shareholders loans can be used to increase companies working capital, we predict its coefficient to be positive;

$\Delta FIXA_{it}$ - Changeof fixed assetsofcompany$_i$ in year$_t$, deflated by lagged total assets. Since one of the potential uses of shareholders loans is the acquisition of fixed assets, we predict its coefficient to be positive;

ΔDCI_{it} - Changes of debts to financial institutions ofcompany$_i$ in year$_t$, deflated by lagged total assets. This variable intends to control whether the use of shareholders loans and the bank loans are substitutes. We expect its coefficient to be negative;

$SIZE_{it}$ - Size of company$_i$ in year$_t$, proxied by total assets natural logarithm. It is assumed that small companies are more likely tomakeinvoiceless transactions, and thus we predict its coefficient to be negative;

$AUDIT_{it}$ - Dummy variable that controls forthe existence of an auditor in year$_t$, a way of constraining the occurrence of invoicelesssales and thus the use of shareholders loans. It takes 1 if there is an auditor, 0 otherwise, and the expected sign of its coefficient is negative;

LF_{it} - Dummy variable taking value 1 if the legal structure of the company is a limited company, 0 if it is a limited liability partnership. It is assumed that the use of shareholders loans arising from invoicelesssales is easierfor the latter given their smaller number of partnersthat makes less difficult to get an agreement on such a matter. Thus, it is expected its coefficient to be negative;

$IMPEXP_{it}$ - Dummy variable taking value 1 if the company has import/export activity, 0 otherwise. Due to existence of control procedures and extra documentation, it is assumed that companies with this type ofactivity may have additional difficulties to makeinvoicelesssales, and therefore to have related shareholders loans. Thus, it is expected its coefficient to be negative;

SUB_{it} - Dummy variable that takes value 1 if the company is deemed as an affiliate/ subsidiary of another company, 0 otherwise. In affiliates/subsidiary companies shareholders loans can be the visible effect of the financial relations in the group. Thus, we predict its coefficient to be positive;

$$\sum_{n=1}^{46} \square \alpha_t \ IND_n$$
 - Set of dummy variables that take value 1 if the observation belongs to a particular industry$n$, 0 otherwise. We do not issueaprediction about the sign of these variables;

$$\sum_{r=2000}^{2007} \square \alpha_f \ YEAR_t$$
 - Set of dummy variables that take value 1 if the observation belongs to year$_t$, 0 otherwise. Also in this case we do not issue a prediction about the sign of their coefficients;

$\varepsilon_{it.}$ - Estimation error which complies with the classical assumptions of the models estimated by OLS.

The continuous variables are deflated by lagged total assets. This procedure is intended to circumventheteroscedasticity problems(e.g. García-Teruel et al., 2009; Jones, 1991).

4.4- Selection of the sample and descriptive statistics[7]

The sample includes limited companies (hereafter LTD)and limited liability partnerships (hereafter LLP) available in the Iberian Balance Sheet Analysis System (SABI), database of Bureau van Dijk,with data for the years 1998-2007.[8] As already discussed, the global sample is composed of two subsamples and each of themmatches the other by size, year and industry. The main difference in betweenthem lies on the sign of the change in shareholders loans.

Table 1 describes the sample selection. Listed, financial and companies belonging to the public sector were deleted in the selection process because they are expected to have distinct incentivesand freedom to makeinvoiceless sales(e.g. Coppens & Peek, 2005).

Table 1-Sample selection

Description	N. Obs.
SABI data base (2009). The number of companies and partnerships reachs28814, for the period 1998-2007	288140
After removal of listed, financial sector, and public sector companies	243072
After deletion of missing data and lagging of variables.	102181
After imposing a minimum of 15 observations per industry and year	101389
After elimination of observations with ΔLOA null or missing, and outliers (1% +1%) of this and other variables	8416
After the matching process, observations in each subsample	2327
Global sample	4654

To estimate models (1) and (2) we eliminated all industries with less than 15 observations per year (e.g. Roychowdhury, 2006). To estimate model (3), we considered only observations with ΔLOA positive or negative. After deletion of outliers (1% +1%) for variables ΔLOA, ΔWC, $\Delta FIXA$and ΔDCI, by year and industry, the number of observations reduced to 8416. This was the basis to define two (mirrored) subsamples having 2327 observations each.

---

[7]All statistical treatment is carried out using the Statistical Analysis System (SAS) software.
[8]Since 2007 changes in thetax rules circumventenormouslycompanies' windowofopportunity to use shareholdersloans as a moneylaunderingtechnique.

After regressing models (1) and (2), basic descriptive statistics were estimated in order to describe the subsamples. Table 2-Panel A displays such statistics.

Table 2-Descriptive statistics

Panel A: Characterization of the subsamples

	Mean			Median		
Variables	ΔLOA>0	ΔLOA<0	Pr>|t|	ΔLOA>0	ΔLOA<0	Pr>|Z|
Abnormal *CFO*	-0.241	-0.168	*0.107*	-0.027	0.008	*0.000*
Abnormal *COGS*	0.021	0.015	*0.784*	0.029	0.017	*0.006*
Returnonassets	0.025	0.041	*0.000*	0.029	0.036	*0.000*
Financial leverage	0.227	0.288	*0.000*	0.228	0.274	*0.000*
Loans/Liabilities	0.221	0.159	*0.000*	0.150	0.086	*0.000*
Bankloans/Liabilities	0.250	0.270	*0.001*	0.217	0.236	*0.013*
Assetturnover	1.292	1.373	*0.036*	1.002	1.093	*0.000*

Notes:
1) "Abnormal *COGS*" are the residuals of model (1), also labeled *ERR1*, and "abnormal *CFO*" are the residuals of model (2),*ERR2*. "Return on Assets"is the ratio of operating earningsto total assets."Financial leverage"is the ratio of equity to total assets. "Assetturnover" is the ratio of total revenuesto total assets.*ΔLOA>0* (*ΔLOA<0*)is the subsample of companies with positive (negative)change in loans.
2) *Pr>|t|* (Pr>|Z |)is the level of significance for the difference of means (medians) in between subsamples [t-Test (Wilcoxon Test)];
3) The number of observations per subsample is 2327.

The table shows that the value of the statistics for the Δ*LOA*>0 subsample are consistently and significantly lower, for the mean and median, with the exception of abnormal *COGS* and the ratioLoans/Liabilities for the mean.As expected, althoughthe difference is significant only at the median level, abnormal *CFO* that proxies forinvoicelesssalesis negative and lower in companies with Δ*LOA*>0 (-0.241 vs. -0.168), as discussed in subsection 4.2.Another sign of this behavior is the abnormal*COGS*that is positive and higher for companies in the Δ*LOA*>0 subsample, also consistent with the previous discussion, although the difference to Δ*LOA*<0 is statistically significant only at median level. Thus, Δ*LOA*>0 companies show lower*CFO* than should record (justifying the negative sign) and higher *COGS* than it would be normal given the actual sales volume. This evidence is in line with the expectations underlying the research hypothesis (H1).

Since the subsamples are mirrored by size, industry and year, as already mentioned, the difference for the return on assetsseems to be the outcome of lower sales volume and lower gross margin recordedby Δ*LOA*>0 companies. This evidence and potential explanation is also consistent with the expectation underlying the research hypothesis (H1), which assumes that Δ*LOA*>0companies manage earnings downwards by makinginvoicelesssales, and record the cost of the inputs underlying such sales, thus increasing the *COGS.* This predicted behavior for Δ*LOA*>0 companies may also explain their lower financial leverage (Equity/Total assets), given the impact

that invoicelesssales have on the financial structure, deteriorating it over time. Moreover, a low financial leverage makes more difficult to get bank funding and puts pressure on shareholders to lend money to these companies.

Panel B: Analysis of the model (3) variables by subsample

	Mean			**Median**		
Variables	*ΔLOA>0*	*ΔLOA<0*	*Pr>|t|*	*ΔLOA>0*	*ΔLOA<0*	*Pr>|Z|*
ΔLOA	0.055	-0.046	*0.000*	0.024	-0.019	*0.000*
ΔWC	0.052	0.022	*0.000*	0.028	0.009	*0.000*
ΔFIXA	0.034	0.047	*0.619*	-0.001	-0.005	*0.000*
ΔDCI	0.020	0.047	*0.046*	0.000	0.000	*0.000*
SIZE	15.055	15.065	*0.763*	14.923	14.944	*0.817*

Notes:

1) Variables definition: ΔLOA- Change in loans; ΔWC- Change in working capital; $\Delta FIXA$- Change in fixed assets; ΔDCI-Changein debt to financial institutions, all the previous variables deflated by lagged total assets.*SIZE*-Companysize defined as the natural logarithm oftotal assets;

2) *Pr>|t|* (Pr>|Z |)is the level of significance for the difference of means (medians) in between the subsamples [t-Test (Wilcoxon Test)];

3) The proportion of LLP companies in the subsamples is 65.5% (63.9%) for $\Delta LOA>0$ ($\Delta LOA<0$). The weight of companies with audited accounts is 44% in both subsamples. Companies classified as IMP/EXP are 44% (45.2%) for subsample$\Delta LOA>0$ ($\Delta LOA<0$). The proportion of companies that are subsidiaries of other companies is approximately 2% in both subsamples. Therefore, the subsamples are balanced concerning these variables.

4) The number of observations per subsample is 2327.

The statistics displayed in Table 2- Panel B tend to be consistent with our expectations, and for most variables the subsamples show significant differences. Also as expected, undisclosed evidence shows that the percentage of observations classified as belonging to invoicelesssales companies (variable *ISC*takes value 1) is larger in subsample $\Delta LOA>0$ (30.08%) than in subsample $\Delta LOA<0$ (21.66%).

In the next subsection we discuss the empirical results of model (3).

5- Empirical results

In the previous subsections we discussed the research hypothesis (H1), the model (3) to test it, and the data. Now we analysethe empirical evidence available from its estimation.

5.1- Relation of shareholders loans with invoiceless transactions fraud

Table 3 displays the estimated coefficients. We remind that the main objective of the test is to check whether the increase in shareholders loans is related to the invoicelesssales.

Table 3- Change in shareholdersloans andinvoiceless transactions

IndependentVariables	Expected Sign			Coefficient (P-value)	P-Value
ISC	+	Subsample	ΔLOA>0	0.027	*(0.000)*
			ΔLOA<0	0.002	*(0.698)*
ΔWC	+			0.047	*(0.000)*
ΔFIXA	+			0.059	*(0.000)*
ΔDCI	-			-0.128	*(0.000)*
SIZE	-			0.000	*(0.855)*
AUDIT	-			0.000	*(0.935)*
LF	-			0.007	*(0.134)*
IMPEXP	-			0.000	*(0.961)*
SUB	+			0.024	*(0.004)*
R^2 (%)				33.25	
AJUST. R^2(%)				32.35	

Notes:
1) Variables definition: *ISC* - dummy variable that takes value 1 if the companyis classified as fraudster byinvoiceless transactions, 0 otherwise;*AUDIT* - dummy variable that takes value 1 if the company report is audited, 0 otherwise; *LF*- dummy variable that takes value 1 if the legal structure is a limited company, 0 if it is a limited liability partnership; *IMPEXP*- dummy variable that takes value 1 if the company has importing/exporting activity, 0 otherwise;*SUB*-dummy variable that takes value 1 if the company is deemed an affiliate/ subsidiary of another company, 0 otherwise. The remaining variables are as per Table2-Painel B;
2) The model was regressed with a set of control variables for year and industry. For the sake of parsimony their coefficients were not displayed. Observations per subsample, 2327.

The model is globally significant and its explanatory power has an Adjusted $R^2$of 32.35%. The coefficients of the variables tend to show the expected sign, and the relationship between the increase in shareholders loans and the variable that classifies companies as fraudster by invoicelesssales (*ISC*) is positive and significantfor the subsample ΔLOA>0 (0.027), and is not significant for the subsampleΔLOA<0 (0.002). This evidence supports hypothesis H1, showing that such a relation exists and is significant at the conventional degree of statistical confidence.[9]

The positive and significant coefficient of Δ*FIXA*suggests that a part of the increase in shareholders loans may be motivated by the need to finance fixed assets investment. However, even after controlling for this effect, and for a similar effect on the

---

[9]The multiplicative variable *D*ISC* allows to test whether the relation is the same for both subsamples. The aggregate coefficient for the ΔLOA<0 subsample is given by the coefficient of *ISC*, and for ΔLOA>0 by the sum of coefficients *ISC+ D*ISC.*

change in working capital (ΔWC),the coefficient on*ISC* is significant. This means that at least partly shareholders loans are related to invoicelesssales. In the next subsection we will return to this relationship.

Unexpectedly, the *AUDIT* variable shows a no significant coefficient, suggesting that auditors are unable to control the deep source of (at least part of) shareholders loans. A potential explanation for this result may be the fact that auditors' role is not to control the existence of fraud, rather to assure companies' compliance with accounting standards. On concerning the change in debt to financial institutions (Δ*DCI*), the coefficient is as expected and suggests that shareholders loans may act as a substitute for bank loans.

The variable *SIZE*unexpectedly shows a no significant coefficient, suggesting that shareholders loans are not driven by company size. Contrastingly, shareholders loans in companies that have a group relationship (*SUB*) are at least partly driven by such group connections. Companies' legal structure (*LF*) and the IMP/EXP activity (*IMPEXP*) do not seem to affect shareholders loans, showing not significant coefficients.

Table 4 displays additional evidence that give extra support to our hypothesis, displaying a set of positive and significant coefficients for the *IND* control variables. Among the 46 industries controlled in the analysis, only 7 (15.22%) shows this type of coefficient. Most of these industries were often mentioned in the media asbeing fraudster by invoicelesssales.

Thus, the collected evidence suggests that at least a part of shareholders loans is related to fraud activity. This relationship occurs even after controlling for various determinants that may affect the existence of positive changes in shareholders loans.

Table 4- Coefficients of dummy variables that identify industries

IND	Description	Coefficient	*(P-value)*
1	Agriculture, animal production, huntingandrelated serviceactivities	0.032	*(0.015)*
18	Printing and reproductionof media	0.048	*(0.003)*
26	Manufacturing equipment, communications equipment, and electronic and optical products	0.077	*(0.010)*
38	Collection, treatment anddisposal activities;materials recovery	0.036	*(0.097)*
42	Civil engineering	0.027	*(0.031)*
55	Accommodation	0.042	*(0.001)*
56	Restaurantsand similar	0.033	*(0.072)*

Notes:IND - Two-digit codes of the Portuguese industry classification (CAE v.3); this Tabledisplays only the positive and statistically significant (at less than 10%) coefficients.

In the next subsection we develop some robustness tests in order to assess the strength of the results discussed so far.

5.2- Robustnesstests

Additional tests were performed. The first one tested two aspects already discussed above:the relationship between changesinshareholders loans and changesin the investment in fixed assets; the possibility of changes in shareholders loans being mere loans between the mother company and its subsidiaries.

Using the previous methodology, we began by subtracting to the positive change in shareholders loans the positive changes in fixed asset, neutralizing this way the impact of investment. Then we eliminatedfrom the samples companies classified as subsidiaries of other companies, implying to remove larger companies where shareholders loans may not be related to invoicelesssales.Given these adjustments, variables $FIXA$ and ΔSUBwere removed from the original model. The results are displayed in Table 5.

Table 5-Changes in shareholdersloansafter controlling for fixed assets investment and group relations

IndependentVariables	Expected Sign			Coefficient (P-value)	P-Value
ISC	+	Subsample	$\Delta LOA>0$	0.025	(0.000)
			$\Delta LOA<0$	0.004	(0.428)
ΔWC	+			0.006	(0.269)
ΔDCI	-			-0.025	(0.000)
SIZE	-			0.000	(0.814)
AUDIT	-			0.008	(0.167)
LF	-			-0.001	(0.855)
IMPEXP	-			0.001	(0.867)
R^2 (%)				33.99	
AJUST. R^2 (%)				32.93	

*Notes:*The variables definition isas perTable 2-Panel B and Table 3. Each subsample has 1850 obs.

The evidence in this table is qualitatively similar to that in Table 3. Thus, after having controlled for the effect of positive changes in fixed asset and group relations, the evidence still supports the intuition underlying the research hypothesis: changes in shareholders loans are related to fraud by invoicelesssales.

Other tests were performed:i) the modelwas regressed forlimited companies only, and the results were qualitatively the same as before; ii) the model was regressed for subsidiaries only, and in this case the relationship ceases to exist, suggesting that for these companies shareholders loans are not significantly related to invoicelesssales. A potential reason for this resultmay be the size ofcompanies belonging to groups that could constrain somehow invoicelesssales fraud; iii) based on the evidence in Table 2– Panel A, we also controlled for companies profitability in order to assess whether it is related to fraud behavior. Companies were divided into two groups based on their profitability: the more and the less profitable. The evidence shows that such behavior is related to changes in shareholders loans in both groups, discharging the idea that such loanscould occur only on less profitable companies as a way shareholdersused toovercome theimpact on the cash flowarising from lack of

profitability; iv) we then controlled for the type of industry,in order to assess whether companies behavior is homogeneous across industries. The model was regressed only for a set of industries that were expected not to make invoiceless sales[10], and the *ISC*coefficient for the subsample $\Delta LOA>0$was no longer statistically significant, and the relation to shareholders loans had disappeared. Thisevidence adds robustness to our results, and shows that the characteristics of the industry on concerning invoicelesssales is a key factor in explaining shareholders loans; v) we adopted different dependent variables, by adding to these loans, one at a time, equity increases and other changes in equity. The overall evidence is qualitatively similar to the one discussed above; vi) we also controlled for the nature of companies' activity (industrial, commercial or service). Also in this case, the results are robust and supportive of our hypothesis.

In summary, the empirical evidence collected in these tests supports the findings discussed in the previous subsection, i.e. it supports the hypothesis that companiesmaking alleged invoicelesssales fraud useshareholders loans as a vehicle to introduce in their treasury themoney that were generated in the informal economy.

6- Conclusion

The currentstudy testedwhether there was an empirical and positive relation between shareholders loans increases recorded in companies' books and the invoiceless sales they made, i.e. whether such loans were a vehicle adopted for "laundering" the proceeds of this fraud.

The existence of a particular context, a temporary window of opportunity, made possible the design of the research in a way that avoids the access to privileged corporate information. The study adopted a relatively simple three-step methodology. Firstly, two subsamples of companies are assembled, one composed of companies with shareholders loans increases; the other, the *control sample*, companies with loans decreases. The global sample is the sum of the two subsamples and composed of pairs of firms belonging to the same industry and year, and having identical size, but differentiating in the sign of the change in shareholders loans. Secondly, based on the traces invoiceless sales leave in the accounting numbers companies are classified according their fraud behavior, into groups of "fraudster" and "non fraudster", based on predictions of their abnormal cash flow from operations and cost of goods sold.Thirdly, a model is built and regressed to test the relationship between companies' fraud behavior underlying invoiceless sales and the sign of shareholders loans change.

The empirical evidence supports the ex-ante expectation of a positive relationship between shareholders loans increases and accounting and tax fraud through invoiceless sales. The evidence suggests that at least a part of those loans is related to this fraud, and they are the vehicle for "laundering" the proceeds of informal transactions and, simultaneously, for keeping financially solvable the involved companies.

The current study makes four main contributions to the literature. Firstly, it brings a novel perspective to the accounting and tax fraud scarce literature (e.g. DeFond, 2010), highlighting an economic and corporate context of under-invoicing sales, in the limit invoiceless sales, that is not the usual context related to imports and

---

[10]Two-digit codes of industry classification (CAE v.3): 27 - Manufacture of electrical equipment; 28 - Manufacture of machinery and equipment; 35 - Electricity, gas, steam, hot and cold water and cold air; 36 - Collection, purification and distribution of water; 51 - Air transport; 53 - Postal and courier activities; 61 – Telecommunications; and 92 - Lotteries and other betting games.

exports activities and the attached use of transfer prices (e.g. Biswas & Marjit, 2005; Patnaik & Vasudevan, 2000). Secondly, it shows that in the particular context described in the paper shareholders loans are used as a way of "laundering" the proceeds of invoiceless sales, serving simultaneously to keep companies solvable. This double purpose of the technique usage is in itself also a novelty in the literature, contributing for a better perception of what can be in this particular context the determinants underlying the choice of the vehicles to reintroduce illicit money in the formal economy. Thirdly, adopting a design and research tools borrowed from the earnings management literature to study a fraud problem, our paper also brings a contribution by relating somewhat that literature to the one on fraud (e.g. DeFond, 2010). Fourthly, based on a sample of southern European unlisted companies, our study also makes a contribution to the yet scarce literature on these firms, namely in the way tax evasion evolves in this region (e.g. Richardson, 2006).

This study is of particular interest for the Portuguese Tax Authority, because of the contribution it makes to a better understanding of Portuguese business reality and the relation between companies, buyers and that Authority. However, its interest is geographically broader because it may be helpful for similar authorities in other countries facing similar challenges in copping with tax evasion and "money laundering".

Nevertheless, the current research is not exempt of limitations. The most prominent is the way companies are classified as fraudster by invoiceless sales. Although the economic intuition is strong and there is anecdotal evidence on the issue, we recognizethere is space for using newand more elaborated proxies to do such classification. This is left as a path for future research.

References

Afonso, Ó., & Gonçalves, N. (2009). *Economia não Registada em Portugal*. Porto: Edições Húmus.

Akerlof, G. A. (1970). The Market for "Limons": Quality Uncertainty and the Market Mechanism. *Quartly Journal of Economics*, 84(3): 488-500.

Anno, R. D. (2007). The Shadow Economy in Portugal: An Analysis with the MIMIC Approach. *Journal of Applied Economics*, X(2): 253-277.

Asquith, P., Beatty, A., & Weber, J. (2005). Performance pricing in bank debt contracts. *Journal of Accounting and Economics*, 40(1–3): 101-128.

Ball, R. (2009). Market and Political/Regulatory Perspectives on the Recent Accounting Scandals. *Journal of Accounting Research*, 47(2): 227-323.

Ball, R., Kothari, S. P., & Robin, A. (2000). The Effect of International Institution Factors on Properties of Accounting Earnings. *Journal of Accounting & Economics*, 29: 1-51.

Ball, R., & Shivakumar, L. (2008). Earnings Quality at Initial Public Offerings. *Journal of Accounting and Economics*, 45(2-3): 324-349.

Biswas, A. K., & Marjit, S. (2005). Mis-invoicing and Trade Policy. *Journal of Policy Reform*, 8(3): 189-205.

Bowen, R. M., DuCharme, L., & Shores, D. (1995). Stakeholders' Implicit Claims and Accounting Method Choice. *Journal of Accounting & Economics*, 20: 255-295.

Burghstahler, D. C., Hail, L., & Leuz, C. (2006). The Importance of Reporting Incentives: Earnings Management in European Private and Public Firms. *Accounting Review*, 81(5): 983-1016.

Burgstahler, D. C., & Eames, M. J. (2003). Earnings Management to Avoid Losses and Earnings Decreases: Are Analysts Fooled? *Contemporary Accounting Research*, 20: 253-276.

Cheng, Q., & Warfield, T. D. (2005). Equity Incentives and Earnings Management. *Accounting Review*, 80: 441-476.

Christie, A. A., & Zimmerman, J. L. (1994). Efficient and Opportunistic Choices of Accounting Procedures: Corporate Control Contests. *The Accounting Review*, 80: 441-476.

Cohen, D. A., Dey, A., & Lys, T. Z. (2008). Real and Accrual-Based Earnings Management in the Pre- and Post-Sarbanes-Oxley Periods. *Accounting Review*, 83(3): 757-787.

Compin, F. (2008). The Role of Accounting in Money Laundering and Money Dirtying. *Critical Perspectives on Accounting*, 19(5): 591-602.

Coppens, L., & Peek, E. (2005). An Analysis of Earnings Management by European Private Firms. *Journal of International Accounting, Auditing and Taxation*, 14: 1-17.

Dechow, P. M., Sloan, R. G., & P.Sweeney, A. (1996). Causes and Consequences of Earnings Manipulation: An Analisis of Firms Subject to Enforcement Actions by the SEC. *Contemporary Accounting Research*, 13: 1-36.

DeFond, M. L. (2010). Earnings Quality Research: Advances, Challenges and Future Research. *Journal of Accounting and Economics*, 50(2–3): 402-409.

Epps, R. W., & Ismail, T. H. (2009). Board of Directors' Governance Challenges and Earnings Management. *Journal of Accounting & Economics Organizational Change*, 5(3): 390-416.

García-Teruel, P. J., Martínez-Solano, P., & Sánchez-Ballesta, J. P. (2009). Accruals Quality and Corporate Cash Holdings. *Accounting & Finance*, 49: 95-115.

Garrod, N., Kosi, U., & Valentincic, A. (2008). Asset Write-Offs in the Absence of Agency Problems. *Journal of Business Finance & Accounting*, 35(3-4): 307-330.

Ge, W., & Kim, J.-B. (2014). Real Earnings Management and the Cost of New Corporate Bonds. *Journal of Business Research*, 67(4): 641-647.

Guidry, F., Leone, A. J., & Rocks, S. (1999). Earnings-Based Bonus Plans and Earnings Management by Business-Unit Managers. *Journal of Accounting & Economics*, 26: 113-142.

Gunny, K. A. (2010). The Relation Between Earnings Management Using Real Activities Manipulation and Future Performance: Evidence from Meeting Earnings Benchmarks*. *Contemporary Accounting Research*, 27(3): 855-888.

Healy, P. M. (1985). The Effect of Bonus Schemes on Accounting Decisions *Journal of Accounting & Economics*, 26: 75-107.

Healy, P. M., & Wahlen, J. M. (1999). A Review of the Earnings Management Literature and Its Implications for Standard Setting. *Accounting Horizons*, 13(4): 365-383.

Huyghebaert, N., Bauwhede, H. V., & Willekens, M. (2007). Bank Financing as an Incentive for Earnings Management in Business *Start-ups* http://ssrn.com/paper=967386, acessed on May 25, 2007.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics*, 3: 305-360.

Jones, J. F. (1991). Earnings Management During Important Relief Investigations. *Journal of Accounting Research*, 29(2): 193-228.

Kaminski, K. A., Wetzel, T. S., & Guan, L. (2004). Can Financial Ratios Detect Fraudulent Financial Reporting? *Managerial Auditing Journal*, 19(1): 15-28.

Masciandaro, D. (1999). Money Laundering: the Economics of Regulation. *European Journal of Law and Economics*, 7(3): 225-240.

Mitchell, A., Sikka, P., & Willmott, H. (1998). Sweeping it Under the Carpet: The Role of Accountancy Firms in Moneylaundering. *Accounting, Organizations and Society*, 23(5–6): 589-607.

Moreira, J. A. (2006). Manipulação para Evitar Perdas: O Erro do Conservantismo. *Portuguese Journal of Accounting and Management*, 3: 33-66.

Moreira, J. A. (2007). Are Financing Needs a Constraint to Earnings Management? Evidence from Private Portuguese Firms. In E. A. Association (Ed.). Lisbon.

Patnaik, I., & Vasudevan, D. (2000). Trade Misinvoicing and Capital Flight from India. *JOURNAL OF INTERNATIONAL ECONOMIC STUDIES-TOKYO-*: 99-108.

Penman, S. H. (2008). *Financial Statement Analysis and Security Valuation* (Third Edition ed.). New Delhi: McGraw-Hill.

Persons, O. S. (1995). Using Financial Statement Data to Identify Factors Associated with Fraudulent Financial Reporting. *Journal of Applied Business Research*, 11(3): 38.

Quirk, P. J. (1997). Money Laundering: Muddying the Macroeconomy. *Finance & Development*, March: 7-9.

Richardson, G. (2006). Determinants of Tax Evasion: A Cross-Country Investigation. *Journal of International Accounting, Auditing and Taxation*, 15(2): 150-169.

Roychowdhury, S. (2006). Earnings Management Through Real Activities Manipulation. *Journal of Accounting and Economics*, 42(3): 335-370.

Sarigul, H. (2013). Money Laundering and Abuse of the Financial System. *International Journal of Business and Management Studies*, 2(1): 287-301.

Schneider, F., & Windischbauer, U. (2008). Money Laundering: Some Facts. *European Journal of Law and Economics*, 26: 387-404.

Sikka, P., & Hampton, M. P. (2005). The Role of Accountancy Firms in Tax Avoidance: Some Evidence and Issues. *Accounting Forum*, 29(3): 325-343.

Skousen, C. J., Smith, K. R., & Wright, C. J. (2009). Detecting and Predicting Financial Statement Fraud: The Effectiveness of the Fraud Triangle and SAS No. 99. *Advances in Financial Economics*, 13: 53-81.

Sweeney, A. P. (1994). Debt-Covenant Violations and Managers' Accounting Responses. *Journal of Accounting and Economics*, 17(3): 281-308.

Young, M. R. (2004). The Origin of Financial Fraud. In M. R. Young (Ed.), *Accounting Irregularities and Financial Fraud: A Corporate Governance Guide*, Secon Edition ed. Chicago: CCH Incorporate