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**"COOPERATIVE TAX COMPLIANCE: AN ANALYSIS ON THE EFFECTS
OF THE ITALIAN REGIME "**

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A handwritten signature in black ink, appearing to read 'Vincenzo De Luca', is written over a dotted line.

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Introduction

The study of taxes in accounting presents a complex and multifaceted topic that has long intrigued researchers and practitioners alike. Unlike other studies related to business and economics, which tend to exhibit a certain degree of universality across countries, tax matters diverge substantially from one jurisdiction to another, and tax regulations are known to undergo frequent revisions. Thus, comprehending fully the field of taxes demands an extensive knowledge base encompassing diverse disciplines encountered during a business course, including corporate finance, tax law, and financial accounting.

When dealing with taxes, two topics are the most discussed in the literature: tax evasion and tax avoidance, while the former is straight forward to define and understand (The unlawful non-payment or underpayment of a tax obligation) the latter is a little more complicated, and therefore interesting to study.

Tax avoidance can be defined in different ways, but essentially, it concerns some actions that complies with the letter of tax regulations, but do not follow their spirit, therefore damaging the tax administration collection of revenues, and consequently, the entire community.

While countries around the world have tried and implemented different regulations in order to mitigate tax avoidance, in this work we will focus on one: the creation and implementation of a cooperative tax compliance system, that represents an important change in the logic of dealing with tax compliance.

Traditionally, tax compliance has been perceived as an adversarial relationship between taxpayers and revenue services, with the former often seeking ways to minimize tax burdens, and the latter diligently enforcing compliance. The cooperative tax compliance system, on the other hand, tries to create a synergistic alliance that fosters cooperation between taxpayers and tax authorities. This collaboration seeks to facilitate the voluntary adherence to tax regulations while simultaneously enhancing tax administration efficiency and effectiveness. By nurturing a climate of mutual trust and understanding, the cooperative tax compliance system aims to promote tax compliance not solely based on the fear of penalties but through a sense of shared responsibility and a commitment to the broader welfare of society.

The first chapters will broadly define tax avoidance, going through the relevant literature on the matter, defining what it is, its main measures, determinants, and effects.

The second chapter will explain the concept of cooperative tax compliance, how it is born and some international examples.

The third will outline in the detail the Italian system, implemented in 2015, analyzing the main sources of law on which it is based. The last chapter will layout an empirical analysis on the effects of the Italian system, presented using a DID analysis in a panel data settings.

Once taking into account cross sectional and longitudinal fixed effects, the analysis presented in this work do not find any statically significant relationship between the participation to the program and tax compliance measures, this could be due to different factors, like a self-selection bias or a time period not sufficient in order to fully capture the effects of this program. Anyway, overall this work gives useful insights in the effects that the compliance program is having up until now.

Chapter 1: Definition of tax avoidance, review on studies

Chapter 1.1: Definition of tax avoidance

In order to correctly define tax avoidance, it's important to display two other similar, yet not identical, concepts: Tax evasion and tax planning.

Tax evasion is defined as the unlawful nonpayment or underpayment of a tax obligation, while tax planning can be defined as the ability of the taxpayer to arrange his financial activity in a way that that minimize the expenditure of taxes (Hoffman, 1961).

Even if the result can appear to be the same, these two practices are radically different, while tax evasion is unlawful, tax planning is perfectly legal.

Tax avoidance is a concept that navigates in the middle of these two practices. A first definition that we report is the definition given in the Italian law, in the statute of taxpayer's rights (Statuto dei diritti del contribuente), tax avoidance is defined as one or more transactions lacking economic substance that, while formally complying with tax rules, essentially realize undue tax advantages. (Legge del 27/07/2000 n. 212)

When we move to academic research, we can find multiple definitions of tax avoidance, we take the one of Hanlon and Heitzman, that define tax avoidance as a continuum of tax strategies that goes from perfectly legal activities, e.g the purchase of government bonds to abusive tax practices, e.g tax sheltering (Hanlon & Heitzman, 2010).

In order to better understand the width of this phenomenon, it's better to layout some examples of very different tax practices that falls under the definition of Hanlon and Heitzman.

1.1.1 Debt tax shield

If a firm finance itself using debt instead of equity, the cost of the debt (i.e the interest rate) is tax deductible, therefore lower the tax burden of the firm, this is commonly called debt tax shield.

A lot of countries try to limit the amount of tax shield recognized at a fiscal level, this is reached via the so called "thin cap" rules, that have the purpose of limiting the deductible interest expenses, in Italy for example, this is tackled by art 96 of the tax code (DPR 22/12/1986 nr 917)

1.1.2 Transfert pricing

Transfer pricing is a technique, that is used by multinational corporation in which assets are sold among different companies inside a group at a price fixed by the holding in order to shift the profits to the lower tax jurisdiction (Graham & Tucker, 2006).

The majority of the states tackle this issue via the arm's length principle, meaning that, when a transaction between parties that are under the same influence (i.e, part of the same group)

the price recognized at a fiscal level is the one that would have occurred between unrelated parties in an arm's length transaction.

An example of this type of rule can be found in the Italian tax code at art 110 (DPR 22/12/1986 nr 917)

1.1.3 Tax deferral via Controlled foreign corporations

Another means commonly used is the tax deferral using controlled foreign corporations (CFC) (Prebble, 1986). In this instance, a company establishes a new entity in a low tax jurisdiction, with the goal of parking the income there in order to decide when to receive the income, and therefore when to pay taxes.

The solution adopted by various countries is the so called "look through approach", meaning, that a CFC resident in a tax heavens is disregarded in terms of tax purposes.

The Italian legislation addresses the matter in art 167 of the Italian tax code (DPR 22/12/1986 nr 917)

By this simple examples of tax avoidance practises, it is easy to glimpse the extension of the phenomenon, how many instances can fall under it's scope, and therefore the complexity of analyzing it.

In the remaining part of this chapter, we summarize some of the areas in which recent research has focused on analyzing tax avoidance, in particular: the main measures that we can use in order to determine tax avoidance is present, the main effect that this has on the firms and its determinants

Chapter 1.2 Review of studies: some measures of tax avoidance

Measuring tax avoidance could seem a simple and straightforward process, unfortunately, that is not the case, in order to measure this practice, we need to rely on the financial statements that companies produce, that is a first important limitation in order to properly measure tax avoidance.

Contrary to what most people think, the income that is subject to taxation (i.e. the income on which taxes are calculated) is not equal to the earning before taxes reported in the financial statements, that is because tax authorities impose different rules to derive the taxable income with respect to the IFRS standards that regulate the financial statements drafting. One common example: while from an IFRS prospective firms have discretion over the determination of the depreciation amount, for tax authorities there are stronger limitations. For instance, in Italy, in order to determine the taxable income, asset may be depreciated every year up to certain amount according to the type to which they belong (DPR 22/12/1986 nr 917).

In essence, taxable income is reported only in the tax returns of the companies, which is not public, therefore researchers have concentrated their efforts in order to derive, from financial statements data only, some indicators that could help measure tax avoidance.

The most common type of tax avoidance measures are the effective tax rate measures (Hanlon & Heitzman, 2010), these measures derive a proxy of the tax liability by a proxy of the taxable income. These figures try to determine the tax rate per dollar of taxable income. A first measure to define is the GAAP effective tax rate, defined as total income tax expenses over pre tax accounting income.

$$GAAP\ ETR = \frac{Total\ income\ tax\ expenses}{Pre\ tax\ accounting\ income}$$

Understanding correctly this measure is essential, under SFAS N.109, the income tax expense must include, in addition to the current tax expenses, also the deferred tax effect, meaning: taxes that will be paid, or reimbursed, in the future due to accounting – tax difference (FASB, 1992). Therefore, any strategy that defers or anticipates taxes payment will not change the ETR value.

Another figure that we can use is the current ETR, which keeps the same denominator but uses only current tax expenses in the numerator:

$$Current\ ETR = \frac{Current\ income\ tax\ expenses}{Pre\ tax\ accounting\ income}$$

In this case, practices that defer taxes (e.g. accelerated depreciation) would be captured.

Another measure that we analyze is the cash ETR, while the denominator stays the same, we find the cash paid in the numerator, as we can understand, also in this case deferral strategy will influence the figure.

$$Cash\ ETR = \frac{Cash\ taxes\ paid}{Pre\ tax\ accounting\ income}$$

While these two measures are already effective and mostly used in the literature they have one big problem, they capture tax avoidance only for one year, in order to solve this, (Dyreng, et al., 2007) propose a long run measure, that captures long term practices of tax avoidance. This measure is derived by summing cash taxes paid over 10 years and dividing them by the sum over 10 years of the pre tax income.

$$\sum_{i=1}^{10} \frac{Cash\ taxes\ paid\ i}{Pre\ tax\ accounting\ income\ i}$$

Another measure that we analyze is the Book - Tax difference, defined as the difference between the book and the taxable income. While this could appear to be a good measure of tax avoidance given what has been said thus far, it is also true that, as Mills demonstrated (Mills, 1998), great Book tax difference yields to more tax audits and therefore adjustments,

we can assume that firms will try not to increase this difference too much, thus the indicator will lose efficacy.

Chapter 1.3 Review of studies: Effects of tax avoidance on firms

Tax avoidance brings with itself a variety of effect not only for the public, but also for the company.

In addition to the obvious effect of increasing cash flow, researchers have demonstrated that other indirect effect arise.

As we said before, the debt tax shield it's an advantage that reduces taxes for company who chose to finance themselves via debt. From this, we can derive that tax shelter practices will, in some way, substitute this tax shield effect. Indeed, Graham and Tucker demonstrated that firms that engage in tax shelter activity have significantly less debt to asset ratio with respect to other firms (Graham & Tucker, 2006).

Since tax avoidance practices lead to higher cash flows and to lower leverage, one would think that the cost of debt could be reduced by the use of these methods. Unfortunately, that is not the case, indeed researchers have found evidence that tax avoidance practices lead to higher cost of debt (Hasan, et al., 2014). The reason is that, while tax avoidance brings some advantages, it also brings a lot of risks: informational risks, in order to perform these practices the transparency of company reporting is affected (Balakrishnan, et al., 2019) and being audited and be subject to sanctions by the tax authorities (Mills, 1998).

If we change prospective and we look at the investors, Goh et al find that tax avoidance brings a reduction in the cost of equity, we can assume therefore that, in the eyes of the investors, the cash advantages of tax avoidance outweigh the risks. (Goh, et al., 2016)

It is worth mentioning that, this relation is found if we take into account a broad measure (and therefore definition) of tax avoidance, when we shift to more aggressive practices,(e.g tax sheltering) that maximize the risks described before, we find evidence that the investors could actually have an opposite reaction (Hanlon & Slemrod, 2009).

Furthermore, researchers also found that the uncertainty that comes with tax avoidance brings firms to increase the amount of cash holdings (Hanlon, et al., 2017).

Chapter 1.4 Review of studies: Determinants of tax avoidance

Another aspect on which researchers have focused are the determinants of tax avoidance (i.e. which characteristics make a firm more likely to engage in tax avoidance practices).

Gupta and Newberry have been among the first to analyze the relationship between firms' ETR and different firm features, such as size, profitability, leverage, capital intensity. (Gupta & Newberry, 1997)

If we look at leverage, we find a negative relationship between leverage and ETR, consistently with the idea that the interest tax shield leads to lower ETR (Gupta & Newberry, 1997)

Regarding profitability, Gupta and Newberry find a positive and significant correlation between ROA and ETR.

If we look at capital intensity, we find a negative association with ETR, that is because firms with high level of fixed assets have more opportunities to exploit tax advantages, this is also confirmed by McGee and Stickney (McGee & Stickney, 1982)

Regarding size, we could make arguments sustaining both a positive effect on ETR and a negative one. Indeed, one could say that larger companies have more resources and opportunities to engage in such practices, while on the other side, larger companies are also more under observation and face more reputational costs.

Indeed, researcher have found different results. Gupta and Newberry find no significant association between ETR and size (Gupta & Newberry, 1997), on the other end, Rego find a significant positive relationship between ETR and size, in line with the reputational costs argument (Rego, 2003); Richardson and Lanis instead find a significant negative association between ETR and size in an Austrian setting. (Richardson & Lanis, 2007)

Rego then demonstrates that, controlling for size, pretax income is negatively associated with ETR, this could be due to the fact that if a firm has higher pretax income, has more resources to bear the costs of lower the tax burden. In the same paper, it is also demonstrated that multinational corporation tends to have lower ETR, and, among multinational corporation, not surprisingly, extensive foreign operations lead to again lower ETR (Rego, 2003)

If we look at ownership characteristic, Chen et al find that family firms are less tax aggressive than other firms. This result is consistent with the idea that, the long term and reputational costs of tax avoidance prevails over the immediate cash flow advantage (Chen, et al., 2010). Another aspect worth mentioning regarding the ownership is the difference between private and public firms.

Hanlon et al demonstrate that tax deficiencies opposed by the IRS are higher for privately held firms (Hanlon, et al., 2005).

After defining tax avoidance and its main measures and determinants, in the next chapter, we'll focus on the cooperative compliance program, when the concepts was born and how it has been practically developed, analyzing also a case study and a research on the effectiveness of the Austrian CC program.

Chapter 2 Cooperative tax compliance regime

Chapter 2.1: General definition and global adoption

When we talk about taxes, the relationship between the tax authority and the tax payers is usually seen as conflictual. The two parties, limit to do what both are required to do by law, meaning, the tax payer limits to file the tax return with usually the strictly required information, and the tax authority examine the tax returns in order to find any wrongdoing. In this framework, it is only natural that tax administrations have tackled aggressive tax practices with audits and sanctions.

In the end, the goal of tax authorities is not to punish the taxpayer, but to collect the taxes that finance indispensable services for the society, that is the reason why, from the start of the current century, the OECD, and then OECD countries started rethinking the relationship between tax authorities and tax payers.

The first sign of this rethinking can be found in a report of the OECD published in 2008 (OECD, 2008). In this paper, the OECD draw some feature of a correct, and mutually beneficial relationship between revenue authorities and tax payers, which in the report is called “enhanced relationship”, it will become cooperative compliance only later.

In particular: when dealing with taxpayers, tax administrations should demonstrate " understanding, based on commercial awareness, proportionality, openness trough disclosure and transparency”. While tax payers should relate with administrations providing disclosure and transparency (OECD, 2008). In the following parts of this work, we’ll see how this concept will be recalled by both the OECD itself and other countries when drafting their own compliance regime.

The concept of cooperative compliance appears, in a report of 2013, where the concept of enhanced relationship is updated into “Cooperative compliance”, which can be described as “transparency in exchange for certainty”, in other words, the tax payer commits to the totally transparent in exchange for certainty in the tax treatment of the operation it will conduct.

When we say that the taxpayer will be transparent, it means that the taxpayer should not only disclose the information required by the legislation, but also all the information that the tax administrations could find useful to assess completely the situations related to the tax payer.

The name cooperative compliance is intended to state that the approach is based on cooperation, but without losing the focus on the compliance, meaning collect the right amount of taxes at the right time, required by the law (OECD, 2013).

The benefit of this type of relationship, if compared to the conflictual one could be many, both for the taxpayers and the tax authorities.

For the former, the tax risk management process will be less concerning, and, in the long run, for sure the benefit of the reduction in uncertainty and compliance costs will be palpable.

For the latter, the transparency guaranteed by the tax payers, will allow to identify immediately the more risky and complicated areas in which to concentrate the effort of the tax auditors, and it will speed up the response process.

To better understand how these principles are then translated into practice, here we report two examples, the Australian model and the one adopted by Singapore.

2.1.1 Australian model

It is worth mentioning that Australia has been the first country in the world to adopt this type of logic in its legislation, indeed the first acts are formed in 2000-2001 (OECD, 2013).

The Australian model is based on 7 key pillars, which are coherent with the logic of cooperative compliance that we discussed thus far (Braithwaite & Wirth, 2001):

1. Understanding tax payers: The tax administration should try to understand the behavior of the tax payer, keeping in mind the economic and entrepreneurial logic
2. Building partnerships: Building a mutually beneficial cooperation between ATO and taxpayers, even the model itself it's a product of cooperation between the ATO and the Queensland chambers of commerce.
3. Increasing flexibility: Meaning the rapid adapt of the ATO to changes in the economic environment in which the taxpayers are involved. A good example is the drafting of Advance priced arrangements. Which, in a nutshell, are binding agreements made by tax authorities and taxpayers to tackle transfer pricing situations.
4. Escalating option to enforce compliance, in this regard, the ATO has created a model in which the attitudes towards the taxpayer changes accordingly to its way of acting they represent 4 cases of taxpayer attitudes, to which they link a specific response:
 - a. Taxpayers who have decided to comply: In this case the attitude they set is to use the full extent of the law in order to resolve the tax position.
 - b. Taxpayers who do not want to comply: the attitude encouraged is the one of deterrent of committing wrong actions by early detection.
 - c. Taxpayers who want to comply but commit mistakes: The attitude that is encouraged in this case is to help the taxpayer with the difficulties they are facing.
 - d. Taxpayers who want to do the right thing: the attitude recommended is making the life of this customers easy

As we can see, the main idea behind the model is to cooperate and help the "good" taxpayers, i.e, the one willing to do the right thing, while concentrate

the major efforts (and grave actions) to the “bad” taxpayer. This is a different situation than the standard conflictual relationship cited before.

5. Continuously enhancing the law: A problem that taxpayers face when dealing with taxes is the uncertainty of interpretation of some provisions, which could become problematic and results in audit or sanctions. Therefore its improvement is a key in order to be able to build a better relationship between tax authorities and taxpayers
6. Dialogue with the judiciary: This is linked to the previous pillar, since it’s obvious that the provision in the end are applied by a judge, which has its own interpretation of the provision.
7. Responding to internationalization of business: Globalization has brought a lot of advantages to companies and to the economic system. However, as one can imagine, from a tax perspective the increase in foreign relationship can be an issue in terms of compliance, for this reason, companies could indeed be valuable in helping the tax authority better understand some complex tax issued, and this cooperation could result in more clear rules for the companies, which will comply more willingly.

Another intriguing risk management instruments that the Australian tax office use is the so-called risk differentiation framework (OECD, 2013).

In this framework, tax payers are categorized on the basis of: consequence of noncompliance, likelihood of noncompliance. With this two features it has developed a matrix:

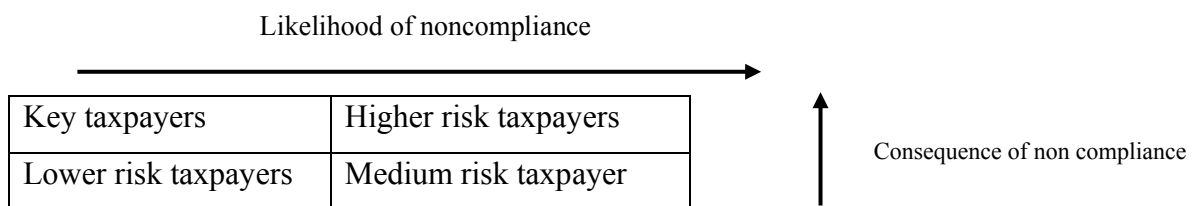


Table 1: Risk differentiation framework

This matrix is laid out in a document published by Stuart Hamilton, assistant deputy commissioner of the ATO in 2012 (Hamilton, 2012).

- Key taxpayers: in this category falls large taxpayers, who did not however show aggressive tax practice, in this case the best course of action a period review, with audits if necessary.
- Higher risk taxpayers: These taxpayers are large taxpayers who showed aggressive tax practice, in this case continuous reviews are necessary, together with audits, investigations and prosecutions.

- Lower risk taxpayers: This category include the majority of taxpayers, in this case the best course of action is the monitoring periodically, for example via checks of the tax authorities.
- Medium risk taxpayers: These taxpayers show declining tax performance, or large transactions that deserves a better focus. In this case the tax authority performs specific tax audits and reviews.

In this context, the ATO ideated the first compliance agreement, reserved to key taxpayers (low likelihood of noncompliance, high consequence).

This agreement is formally called Annual Compliance Agreement (ACA) (OECD, 2013) and it's strictly voluntary, it is based on two essential pillars: the business has a good governance process, the willingness to enter into an open and transparent relationship with the tax authority, fully disclosing the most risky tax issues of its business.

The ACA adoption has this consequence:

- A fastest resolution of technical issues
- Administrative solution to resolve compliance issues
- Centralized points of contact and ongoing dialogue with the tax authority on technical matters
- Concessional treatment of penalties and interests
- A plan detailing process and timeline
- The possibility of extension of thresholds for correcting GST(goods and service tax) mistakes for a GST ACA
- Not being subject to post-lodgment risk reviews or audits for periods and income years covered by an ACA
- Not needing to complete the Reportable Tax Position schedule for income years covered by an ACA;
- Not being subject to a pre-lodgment compliance review.

It is worth mentioning that, as we can see, even if this agreement was ideated in 2001, it already embed some key concepts that will be defined by the OECD only some years later (OECD, 2013) (OECD, 2008).

2.1.2 Model of Singapore

Among the first model that have been implemented it is worth to have a look also at Singapore.

The Inland Revenue Authority of Singapore (IRAS from now on) ideated a model called “strategic compliance framework” (OECD, 2013) (Inland Revenue Authority in Singapore, 2015).

This model is coherent with the mission of the IRAS, which consists in:

- Being the leading revenue authority in the world
- A partner to the community in national building and inclusive growth
- A dynamic team of competent people

The second point can be referred to the cooperative compliance logic, since in the end taxpayers and tax authority partner up, in some way, in order to increase the tax compliance and so for the good of the society and economic growth.

The IRAS divides the taxpayers into 4 categories (see figure 1)¹:

- Voluntarily compliant: the IRAS believes that the majority of the taxpayer falls in this category. The strategy in this case is to provide the assistance needed to the taxpayer
- Unaware: Some taxpayer may lack the necessary knowledge to comply properly, in this case efforts should be made in order to raise the level of knowledge.
- Negligent: Taxpayers who committed errors due to lack of necessary attention, in this case the IRAS should detect and prevent the recurring of these mistakes
- Errant: Taxpayers who willingly do not want to pay taxes. In this case the IRAS will act swiftly with the full force of the law in order to assure a proper collection of taxes.

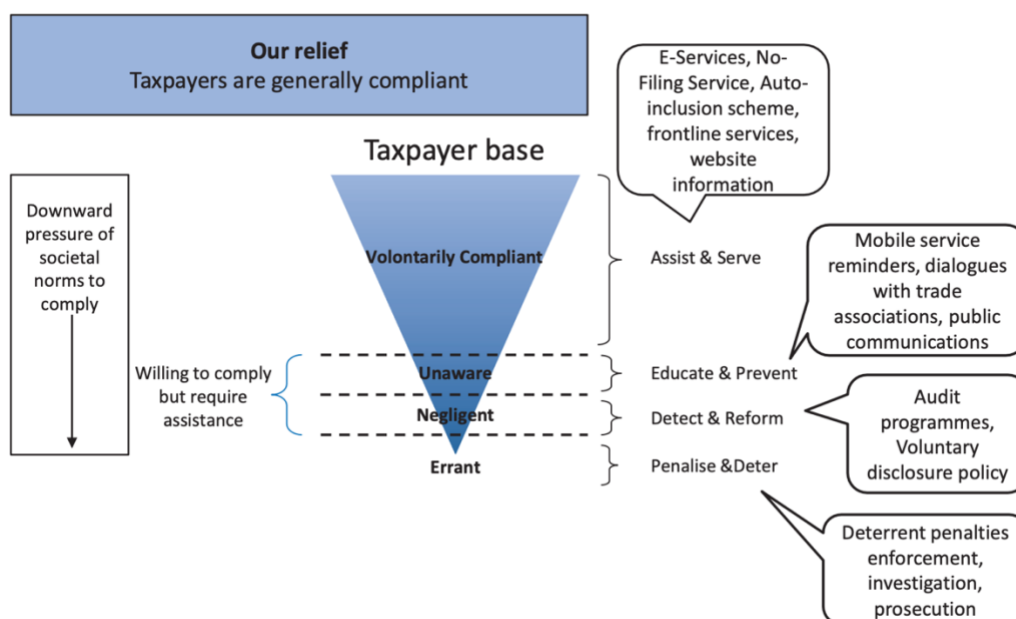


Table 2: IRAS strategic compliance framework

The vision of the IRAS is then translated into its corporate goal, which include “Maximize voluntary compliance.”

¹ From (OECD, 2013)

This model is based on 4 key pillars:

- Simple tax system: Which consists in reduce the complexity of compliance, via a continuous review of the provisions and try, when possible, to minimize compliance cost.
- Informed tax payers: Which consist in informing taxpayers and educate them on how to comply in a proper way with the tax obligations.
- Credible tax administration: Swiftly identify and act on non-compliance instances. Indeed, as we already said, while it is true that a more cooperative relationship with the taxpayers is necessary, this does not mean that the tax authority should not use the full force of the law in case of taxpayers who do not want to comply (The taxpayers defined as “errant”, as explained above). We must never forget that the first goal is to collect taxes, therefore the compliance must in the end be ensured using more traditional instruments, i.e. audits and sanctions. Otherwise the tax authority would just lose its credibility and there would be no benefit in terms of collection of taxes.
- Engaged community: Which consists in working with the taxpayers in order to improve the overall compliance, and the desire to build a community that believes in taxpaying.

These concepts and principles have been actualized in 2008 with the launch of a pilot program, called “Enhanced Taxpayer relationship program” (OECD, 2013). Which aimed at building profitable and cooperating relationships with the large taxpayers, who usually conduct complicated tax operations and, at the same time, are responsible for an important share of the tax revenues. The program can be accessed via invitation, this is interesting since the majority of the systems included, as we will see in the next chapter, the Italian one is opened and provide an application procedure.

Chapter 2.2 Tax control framework definition

Another important definition that the OECD has laid out, is the one of tax control frameworks (TCF).

A tax control framework is the part of the internal control system that ensures the accuracy and completeness of tax returns and disclosures made by and enterprise (OECD, 2016).

Even if full disclosure is required by law, it is true that co-operative compliance regimes require a greater level than the obligation towards the tax authority.

The OECD lays out 6 key building blocks:

- Tax strategy established: A TCF should document the tax strategy of a business, which should be defined by the top-level management of the company. This strategy should also entail a plan that display the overall tax actions that the company will

undertake, from the higher level (strategy) to the lower level (operational).

Furthermore, the strategy must display the attitude of the company towards risk.

- Applied comprehensively: a TCF should make sure that all the relevant taxes adopt the same principles and rules.
- Responsibility assigned: The development of the TCF is a responsibility of the senior management. Furthermore, the execution of the tax strategy should be assigned to people with the right risk management skills and expertise.
- Governance documented: The company's corporate governance strategy should also embed the tax strategy. Corporate governance can be defined as "the combination of mechanism which ensures that the management runs the firms for the benefit of one or several stakeholders (Kovermann & Velte, 2019). In the co-operative framework, it is natural that tax strategy must be coherent with this logic. The first step is the definition of written tax governance practices, like, for example, the responsibilities and KPI of all the tax related tasks that the company needs to perform.
- Testing performed: Once the TCF has been set out and put in action. Its work should also be verified, and feedback mechanism should also be put into place.
- Assurance provided: A proper TCF should ensure the relevant stakeholders that the tax risk has been managed properly and therefore information published are indeed true and correct. This last building block can be seen as a consequence of the others, if they have been put in place, the assurance will be a natural consequence.

As we will see, laying out a tax control framework is a requisite in almost all the co-operative compliance models implemented thus far, like in both the Austrian regime and the Italian one.

Chapter 2.3 Case study, Austria (Eberhartinger & Zieser, 2021)

We now look to another compliance system, which has been analyzed not only from a legal point of view, but also using a quantitative approach, in its effects, regarding perception of tax risk, quality of tax risk management and compliance costs (Eberhartinger & Zieser, 2021), in particular, the authors have tried to understand if, cooperative compliance reaches its goal on these variables, i.e, lower tax risk and compliance costs and improve tax management systems.

We will go quickly through the research design, hypothesis, and results. It is important since this analysis has been the main reference for the research that will be laid out in chapter 4.

It is important to understand that this type of relationship is not one directional, that is because, while cooperative compliance firms will influence these variables, it is also true that these variables will likely influence the selection by these firms of adopting cooperative compliance agreement with the revenue services.

Thus, the authors hypothesize that, firms with low tax risk and good tax risk management are more prone to participate in cooperative compliance programs and, at the same time, these programs will further decrease tax risk and improve tax management.

In order to test these hypotheses, the authors analyze a pilot project that was developed by the Austrian tax administration from 2011 to 2018, this program was called Horizontal Monitoring (Abbreviated as HM in the following sections), in which 13 large companies participated, the analysis consisted in a survey.

The answers of the survey of the treatment group (i.e. companies which participated in the program) were compared to a control group of 92 large comparable companies.

2.3.1 Main hypothesis

We now move to an analysis of the main hypothesis the authors tried to verify on this research, the reason is that we want to clarify, in practical terms, what the cooperative compliance could indeed accomplish, using this paper as an example.

The author analyzed deeply how the participation to the HM program will affect certain variables, and, subsequently, they tried to disentangle the complicated bidirectional relationship between the participation to the program and the variable analyzed.

Since the participation to the horizontal monitoring program requires companies to be more transparent, and since it assures a timely classification of difficult tax issues, the authors hypothesize that the participation to the HM program will guarantee a reduction in perceived tax risk.

H1: Compared to non HM firms, HM firms report a larger reduction (or a smaller increase) in perceived tax risks

H1a: The negative association between HM and changes in tax risk is mediated by the increased perceived tax certainty.

Furthermore, the authors expect that the current tax risk is associated with the likelihood of entering the HM program.

H2: Compared to non HM firms, HM firms report a smaller perceived current tax risk.

To understand if the lower level of current tax risk in HM firms is associated with HM only via the improvement in tax risks (found in H1), the authors expect H2 with this mediation effect:

H2a: The association between HM and lower perceived current tax risk is mediated by reduction in perceived tax risk.

Since one of the requisites in order to enter into the HM program is a tax control framework (defined above), it is only natural to formulate the hypothesis that HM firms will report an higher Tax risk management (TRM) quality.

H3: Compared to non-HM firms, HM firms report a higher perceived current TRM quality.

H4: Compared to non-HM firms, HM firms report a larger improvement in perceived TRM quality.

Similarly to before, in order to understand if the perceived TRM quality is due only to the improvements in H3, the authors formulate this mediation effect:

H3a The association between HM and higher perceived current TRM quality is mediated by the perceived improvements in TRM quality.

Lastly, the authors looked at the compliance costs, in this case, we could indeed have a direct effect of the HM program, since it could allow early identification of problematic cases and therefore lower the costs. But it is also likely that the variable mentioned thus far will also influence the compliance cost, e.g a good TRM system will in all likelihood reduce compliance costs. The adoption of the program could therefore have also an indirect effect.

H5: Compared to non-HM firms, HM firms report a larger perceived reduction in compliance costs.

H5a The association between HM and lower perceived compliance costs is mediated by the increase in perceived tax certainty (relative to non hm firms)

H5b The association between HM and lower perceived compliance costs is mediated by the reduction in perceived tax risk (relative to non hm firms)

H5c The association between HM and lower perceived compliance costs is mediated by an improvement in perceived TRM quality (relative to non hm firms).

As we said before, the analysis consisted in a survey, which was addressed to the responsible of the HM program for the treatment group, and to the tax head for the control group.

Of the 13 participants, 9 responded to the survey (69%), regarding the control group, 31 of the 92 companies responded to the survey (34%).

As first thing, the researchers verified if there was a significant difference regarding companies and individual respondent in the two groups, using chi squared test and U-tests not significant difference were found.

2.3.2 Main variables

In order to verify the hypothesis displayed before, the authors ideated single item values, as well as scale values, which consists in the mean of multiple single item value.

The first variable is a dummy HM, that takes value 1 if the company participates in the HM program and 0 otherwise.

Subsequently, researchers ideated a single item variable, in order to define the tax risk profile of the company, the question was formulated as: "How would you describe your company's risk profile?". The answers could range from 1 (very low tax risk) to 7 (very high tax risk).

In order to evaluate the tax risk management (TRM) the variable was a scale value, composed of three single item values, the questions were: “Is the identification and management of tax risk in your company part of the overall risk management system”, “Is your tax risk management system well documented”, “Is your tax risk management system operationalized in daily business”. Also, in this case the answers could go from 1 (not at all) to 7 (to a great extent).

To evaluate the changes in key variable following the program adoption, the researchers ideated three single item variables and 1 scale variable with 3 single item variables, for all of the variables reported hereunder, the answer could range from -3(strong decrease) to + 3 (strong increase).

The three single item values are: Δ TaxRisk (“Tax risk for your company”), Δ Certainty (“Tax Certainty for your company”), Δ Costs (“Compliance costs of your company”). The 3- item scale value is Δ TRM, which is composed by:” Quality of tax risk management system”, “degree to which the tax risk management system is formalized”, “Degree to which tax risk in included in the general risk management system”.

Lastly, the researchers have ideated a control variable “year”, the reason is that the time frame from which companies entered the pilot program could affect the magnitude of the changes in variables. For the treatment group, the variable years is computed as the number of years passed from entering the HM program. For the control group, the changes were asked about changes whether in the past 5 years, or 10 years.

2.3.3 Main results

The researchers find evidence that HM leads to a statistically significant difference in current tax risk and in a reduction in tax risk (Δ Tax Risk), bringing evidence to support H1 and H2. Regarding Tax risk management, HM appears to be correlated with the current level of TRM, but not with a statically significant improvement, therefore, H3 is supported, while H4 is not. Regarding compliance costs, (Δ Costs) HM companies reported a greater reduction in compliance costs, leading to support H5.

As regard the indirect effect, that are cited in hypothesis H1a, H2a, H3a and H5a-c, the authors used the SEM function in STATA, combined with the nlcom command in order to calculate indirect effects.

SEM stands for structural equation modelling, (StataCorp, 2021), it helps capture complex and dynamic relationship between variables (Gunzler, et al., 2013). Even if it could appear to be similar to regressions, SEM modelling is radically different. In simple regression models (like OLS) there is always a clear view of which are the dependent and independent variables.

As we already explained before, this is not the case in our analysis, since there could be variables that play both the role of dependent and independent.

In a mediation analysis, we have an independent variable X , that influence an independent variable Y , with a direct effect. At the same time, the variable X affects the variable M , which affects Y , so the X variable has also an indirect effect on Y (see figure 2)².

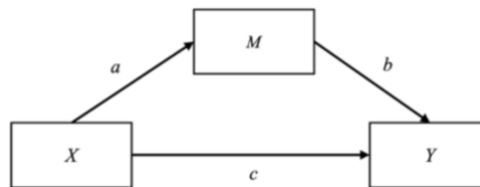


Table 3: Mediation analysis setting

The researchers have performed this type of analysis on Δ TaxRisk, Current tax risk, Current TRM and Δ costs.

For the Δ TaxRisk variable, they tried to verify if there was a mediation effect via Δ Certainty (hypothesis H1a). Indeed, the total effect on HM resulted to be significant and notably large (roughly .1,5 on a 7 point scale), thus H1 still holds. Hypothesis H1a is also supported since a significant part of the difference in tax risk appears to be mediated by the increase in certainty, leaving the direct effect of HM on Δ TaxRisk non-significant.

Regarding the Current tax risk variable, the researchers analyzed the mediation effect of Δ TaxRisk (hypothesis H2a), in this case, while a total effect on HM on Current tax risk remains, the mediation effect does not appear to be significant.

As the authors point out, this result fuels the hypothesis that the difference in tax risk already existed, and therefore, there could be a self selection issue (Eberhartinger & Zieser, 2021)

Regarding H3, HM is found to be significantly associated with the current level of TRM, but not with the change in its level Δ TRM (H4 is not supported), since there is no effect on HM on Δ TRM, it is obvious that there is no mediated effect on the current level of TRM either.

If we look at the compliance costs dynamic (Δ Costs), no significant direct relationship between HM and compliance costs has been found, however, significant mediations were found via Δ Certainty and Δ TaxRisk, but not via Δ TRM. Therefore, H5a,b are supported, while H5c is not.

In conclusion, even though the authors do not find a significant relationship with all the variables they hypothesized, significant and important hypothesis on the effectiveness on the compliance program have been demonstrated.

² From (Eberhartinger & Zieser, 2021)

In the next chapter, we will dive in the Italian CC system, before discussing the research, similar, yet not identical, to the one just described, performed on an Italian setting.

Chapter 3: Description about Italian regime and current setting

If it's true that the relationship between tax payers and revenue authorities are usually conflictual, as we said before, it is also true that this rivalry is particularly perceived in Italy. In 2017, the Italian ministry of economy estimated the level of fiscal evasion to be roughly 107 billions of euro (MEF, 2022), to put this in prospective, the public expenditure for education in the same year was 66 billions of euros. (Caiumi, 2019).

Indeed, the topic touches the media coverage almost daily, and the “fight to evasion” is often used as a political motto by our politicians.

Needless to say, in this framework, a widespread healthy relationship between taxpayers and tax authority could bring advantages not only to the extent of the collection of taxes, but also for the economic system in general. It is therefore only natural that Italy has tried, although not as rapidly as other instances that we analyzed above, to adopt and implement a regime of cooperative compliance, with the goal to indeed create this “enhanced relationship” that is mentioned above.

We now move to analyze this regime, its regulatory references, and main characteristics.

Chapter 3.1: Relationship between taxpayers and tax administration in Italy, some mentions

Before analyzing the actual compliance regime launched in 2015 (Dlgs.5.08.15.n128, 2015), it is worth to mention some key measures that touches the relationship between taxpayers and tax authorities.

The most important reference on the relationship between state and taxpayers is indicated in our Constitution. Please note that the Constitution is the highest ranking source of right in our legal system, this means than any and all laws, enacted by either parliament, government or local entities must abide it, indeed our system provides for specific institutions, like the Constitutional Court, the duty of making sure that the Constitution is always respected in our system.

Article 2 of the Italian Constitutions states: “The Republic [...] requires the fulfillment of the duties of political, economic and social solidarity”. For our purpose the key word here is economic, indeed, what is intended is that above all, every citizen and taxpayers have an obligation to the state to pay taxes in order to allow the latter to provide all the key services, which are essential to our society.

Immediately after, in article 3, the Constitution also states “[...] It is a duty of the Republic the removal of all economic and social obstacles which, by effectively restricting the freedom

and equality of citizens, prevent the full development of the human person and the effective participation of all workers in the political, economic and social organization of the country”. If we read between the lines we can find already, in some way at least, some concepts that are adherent to the cooperative compliance framework, indeed, by cooperating with tax payer, E.g. by being clear and transparent in advance with some key difficult tax issues, the tax authority ,(which represents the Republic in the relationship), would indeed be removing an obstacle that prevent the participation to the economic duties of the taxpayer, which are required in article 2.

The last article that we mention regarding the relationship with the tax payers is article 23, which states: “No personal or patrimonial obligation may be imposed except under the law”. This is another example of a protection put in place to the taxpayer, indeed, the meaning of this article is that the only case in which an obligation may be levied, is in virtue of a law, or acts having the same force (in our system: government decrees), in all cases however, the enforcing of all this acts requires the approval of parliament, which is the body that represent the citizen. In practical terms of course this limits the power of the Italian revenue service, which is not entitled, for example, to institute a new tax obligation to the taxpayers.

So also in this case we can see a trace of a different conception of the relationship between taxpayers and tax authorities.

Another important source that touches the relationship between taxpayers and tax authority is the, already mentioned, statute of taxpayer rights (Legge.27.07.2000, s.d.), this document try to wrap up the principles and laws that define the relationship with the taxpayers, we’ll mention some of its most important articles that more refers to the subject of this work.

The first article that we look at is article 5 of the statute, which states: “The tax administration must take appropriate initiatives to enable complete and easy knowledge of the current legislative and administrative provisions on tax matters, including taking care of the preparation of coordinated texts and making them available to taxpayers at each tax office.

The tax administration must also take appropriate electronic information initiatives, such as to allow for real-time updates, making it available free of charge to taxpayers. [...]”, along the same lines, article 6 first comma states that the tax administration must “assure the effective knowledge of the taxpayer of its pending proceedings.

This are all rules that protect the taxpayer, and, even if the statute was enacted in the year 2000, it is clear that it embodies already the principle that the tax administration must provide certainty to the tax payer, (recall “transparency in exchange for certainty”, cited above by the OECD as an alternative definition of cooperative compliance).

To conclude this introduction to the cooperative compliance system in Italy, we can say that although the regime is quietly recent, its roots are deep as they can be, since we can find some reference even in our constitution, which is the foundation of our entire legal system and, needless to say, was written well before cooperative compliance concepts were defined.

Chapter 3.2: Introduction about the regime, regulatory references

The first time that the cooperative compliance framework officially enters our legal system is in 2014, with the approval of an enabling law (“Legge delega” in Italian) (LEGGE 11 marzo 2014, s.d.), in a nutshell, an enabling law in our legal system is an act with which the parliament authorizes the government to approve and issue a decree (in Italian “Decreto legislativo”) regarding a particular matter.

This enabling law is titled “Delegation to the government regarding measures for a more just, transparent and growth-oriented tax system”. In order to better understand why this relate closely to the scope of this work it is worth analyzing one article of this law. At art 6 it states: “The government is delegated to introduce legislative decrees that entail forms of communication and enhanced cooperation between taxpayers and the Italian tax authority and, for the larger companies, structural systems that will manage and control the tax risk [...]”

After reviewing some general reference vaguely adherent to the cooperative compliance framework, we can see how these concepts, which clearly remark the more general principles that the OECD tried to underline (OECD, 2008) (OECD, 2013), have manifested themselves inside our legal system. Furthermore, the last part of the article is clearly referring to the Tax Control Framework, defined above, that will be underlined by the OECD only later (OECD, 2016).

Following the parliament authorization, the government issued a decree in 2015 (Dlgs.5.08.15.n128, 2015), which contains and officially institutes the cooperative compliance regime in Italy.

It is worth mentioning that the very first article of this decree is an extension of the status of taxpayer rights: the definition of tax avoidance that we cited at the very beginning of this work. This is a proof of how the concept of tax avoidance and cooperative compliance are indissolubly linked to one another.

The system is officially defined in article 3: “In order to promote the adoption of enhanced forms of communication and cooperation based on mutual reliance between the tax administration and taxpayers, as well as to foster in the common interest the prevention and resolution of disputes in tax matters, the collaborative compliance regime is established

between the Italian revenue service and taxpayers, which are equipped with a system for the detection, measurement, management and control of tax risk, which can be defined as the risk of operating in violation of rules of a tax nature or contrary to the principles or purposes of the tax system”

We can see how the cooperative compliance framework fully enters our system with this article, with the keyword that define the relationship between taxpayers and tax authority is not conflict anymore but “mutual reliance”, which, as we already mentioned multiple times, can bring nothing but benefits to both parties. In the second part of the article then we can see again a definition of tax control framework, this time complete and more similar to the one defined by the OECD (OECD, 2016).

The decree also open the possibility to the Minister of economy and to the Italian tax authority to issue specific decrees and provisions regulating the application procedures, the requirements for participation and the rights of obligation of both parties

(Decreto.15/06.2016, MEF) (Provvedimento.N.54749.14.04.16, Agenzia Delle Entrate)

(Provvedimento.N.101573.5/08/2015, Agenzia delle Entrate)

In the next paragraphs we’ll proceed by analyzing in the detail the following part of this decree, and the linked decrees that we just mentioned, that fall under the scope of this work. In particular, the definitions of the requirements for the participation to the regime (art 4), the duties of both parties in the agreement (art 5) and the main effects of the adoption (art 6).

Chapter 3.3 Participants requirements, application, and selection procedure

The requirements that a company needs to fulfill in order to participate in the compliance program are defined both by the decree of 2015 and by a provision of the Italian tax authority. In particular, art 4 of the 2015 decree requires that the companies willing to participate in the program shall be equipped with a “Effective fiscal risk detection, measurement, management and control system” (Dlgs.5.08.15.n128, 2015), in other words, a tax control framework. This provisions demonstrate how important it is to a correct tax relationship, that the companies invests some resources in creating a proper system of tax governance that can help mitigating the tax risk connected to the company’s operations.

While the decree just mention the system, the provision of the Italian Tax authority of 2016 (Provvedimento.N.54749.14.04.16, Agenzia Delle Entrate) lays out the requirements that this tax control framework shall have in order for it to be considered: First, the provision mention that the culture inside the company shall promote honesty, fairness and respect of the tax legislation, furthermore, the system should present this key requirements:

1. Tax strategy: The tax strategy shall be well documented and should reflect the risk preferences of the company, the level of involvement of the management in the tax decision.
2. Key roles and responsibilities: The system shall ensure a correct and clear division of roles and responsibilities, according to sound criteria. The main responsibilities and roles connected to the tax risk management shall also be disclosed.
3. Procedures: The system shall provide for effective procedure to highlight, measure, and manage the tax risks.
4. Monitoring: They system shall provide for a feedback mechanism that should control the proper functioning of the Tax Control Framework.
5. Adjustability to the internal and external environment: The system should be able to adapt to change of both the company and the external environment, like .macroeconomic trends, tax legislation and so on.
6. Report to the management bodies: The system shall provide for an annual report to the management bodies of the company.

Lastly, the provision mentions the fact that the company should have an effective informative system.

Inside the provision of 2016, we can find other requirements, referring to company attributes, that every company shall meet, alternatively:

1. Companies residents and non residents which realize revenue for at least 10 billions of euros.
2. Companies residents and non residents which realize revenue for at least 1 billions of euros and have made application for the pilot project.
3. Companies that would like to reply to the tax administration regarding a public inquiry regarding new investment, dependent less from the revenue amount.

We do not enter into the detail of the third requirement, which falls out the scope of this work. Regarding the first and the second requirement, the provision states that revenues for 3 years must be considered, and the highest value is taken as reference.

The reason why we need these requirements is to assure that the companies who participate in this program have the resources necessary to engage in such a program.

The pilot project cited in the second point was launched in 2013, which was a way to test the cooperative compliance framework before introducing changes into the tax system.

Regarding the application procedure, it must be sent online via a certified email address.

This application should include, among others:

1. The name of the company and all the relevant identity data.

2. A statement of possession of one of the requisites that we mentioned above.
3. A statement of possession of a proper tax control framework.
4. Furthermore, a description of:
 - a. The activity that the company undertakes.
 - b. Its tax strategy.
 - c. Its Tax control framework.
 - d. A map of the company's processes.
 - e. A map of the tax risks that the tax control framework has been able to identify in the period in which it has been active.

The tax administration verifies the meet of the requirements using criteria of business comprehension, proportionality, transparency and, when necessary, proposing the proper adjustments in order to meet the criteria.

During this process, tax officers may visit the company' facilities in order to verify the actual coherence of the informational and control system of the company with the participation to the cooperative compliance program.

If the company meets all the required criteria mentioned above, it becomes a participant of the program and its name it's published online.

If, following the admission to the program, the tax authority should encounter some tax risks not disclosed during the application procedure, with a motivated provision it can exclude the participants from the program, with the exception of the dimension requirements, which should be lost following an M&A transaction.

Chapter 3.4 Right and obligation of companies and Italian tax authority

The rights and obligation that characterize both parties in the relationship between the tax authority and the participants to the compliance regime, are indicated in both the decree of 2015 and a provision published by the tax authority (Provvedimento.N.101573.5/08/2015, Agenzia delle Entrate; Dlgs.5.08.15.n128, 2015)

In these regulations we can find the full expression of the cooperative compliance logic that we laid out in the previous chapters.

We'll quickly analyze the obligations that the two parties commit by virtue of this program.

3.4.1 Tax administration obligations

In particular, the tax administration should operate in a cooperative, transparent, and correct way towards the participants. The tax administration should be mindful of the entrepreneurial and economic logic behind the taxpayer choices and being objective while valuating them.

Furthermore, the tax administration shall be prone to the participants requests and needs and should respond in a timely manner, in the spirit of a profitable cooperation. Furthermore, the

provisions requires that the information that the tax authority acquires during the selection and application process shall be used only within the framework of the checks and activities of the compliance program, and only with reference to the fiscal years in which the system can be applied. And, under no circumstances shall this information acquired during the application process, or the activities of the program be used to trigger a tax audit.

This provision stands also in the case in which the application procedure is failed, or the participant withdraw from the program.

As we can clearly understand, this is a proof of trust from the tax authority towards the taxpayers that chose to participate in this program.

Furthermore, the positions that the tax authority takes on particular tax situations are binding, and the treatment of the tax issues shall remain identical, if the situation doesn't change.

The tax administration also commits to publish periodically the tax schemes and operation that violates the current legislation, including the tax avoidance rules.

These rules are a clear reference to the transparency principle, that the tax administration must respect for all of this to have a sense and produce valid results for the society and the tax system.

The expressed mention of the tax avoidance rules once again marks the relationship between tax avoidance practices and cooperative compliance regimes.

Furthermore, even if the implementation and monitoring of the tax control frameworks is a duty of the taxpayer, the tax administration commits not only to monitor too the system, given its point of view on its architecture and effectiveness, but commits also in helping and cooperating with the taxpayer in any implementation and change should results necessary in order to improve said regime.

With the expressly required cooperation between tax administration and taxpayer on the creation of a control system, once again we find another example of the change of paradigm that this system entails.

3.4.2 Tax payer obligations

We shift now to the taxpayer prospective, as first thing, the provision (Provvedimento.N.101573.5/08/2015, Agenzia delle Entrate) mention that the participants shall at all time maintain a proper functioning tax control framework, which should be updated following internal or external changes, like a change in fiscal regulation, or an enlargement of the company.

In addition, the taxpayers are required to collaborate actively with the tax authority and to timely implement any changes that the latter thinks are appropriate.

Furthermore, the tax payer is required to communicate to the tax administrations any issues that could generate significant tax risks and operations that could result in tax aggressive practices and the structure of its own tax control framework. This is a clear reference to the transparency principle, (recall, “transparency in exchange for certainty) (OECD, 2013).

This information shall be disclosed only with reference to the fiscal years that regards the compliance program, i.e the fiscal year in which the application is requested and the year in which the program is active.

It is also worth to mention that the taxpayer should promote a culture of “honesty, cooperation and respect of the tax legislation” (Provvedimento.N.101573.5/08/2015, Agenzia delle Entrate), this promotion should be demonstrated by the implementation of ethical codes, conduct guidelines and other official documents that will be known to all the company’s workforce.

Chapter 3.5 Exclusion from the program

Exclusion from the program is disciplined in a provision of the Italian tax authority (Provvedimento.N.101573.5/08/2015, Agenzia delle Entrate), in particular, it is provided that the Italian tax authority may, with a motivated act, exclude a participant from the program.

The reason of the exclusion from the program could be the non-respect of the obligation that the participants must respect (cited above) or the losing of the participants requirements, (cited above).

It is worth mentioning that the losing of the size requirement rule is not that strict, indeed, it is not sufficient to just go below the requirements for a fiscal year, it is necessary to reach level of revenues “significantly” lower than the requirements cited above for three consecutive fiscal years.

On the other hand, the non-respect of the participants obligation is far more strictly tackled. Indeed, the non-communication or even non-identification of a relevant tax risk triggers the exclusion from the program.

Also, the occurrence of an episode of non collaboration or transparency, that could “effectively disrupt the trust between the parties” immediately triggers the exclusion from the program.

The reason why, the size requirements are treated more softly than the obligation is clear. Indeed, the non reaching of a certain level of revenues does not necessary undermine the positive effect of the program or its meaning, while, on the other hand, the non-compliance to the participant’s transparency and collaboration duties de facto undermine the all meaning of the program and, more in general, goes against the cooperative compliance logic that we

underline thus far, since it resets the relationship between taxpayer and tax authority to a conflict.

Despite this, it is worth mentioning that the tax authority has clarified (Provvedimento.N.101573.5/08/2015, Agenzia delle Entrate) that the information acquired during the program activeness cannot be used in any case as a reason to start futures tax audits once the taxpayer has exited the program. This is another act of good faith from the tax authority, which perfectly reflect the cooperative compliance idea and framework. The exclusion can of course happen for direct desire of the participants, which can at any time withdraw from the program, communicating it to the tax authority via proper channels.

Chapter 3.6: Main outcomes of adoption

The outcomes of the compliance regime are indicated in article 6 of the decree of 2015, and further deepened by a provision of the Italian revenue authority (Circolare.N.38/E, Agenzia Delle entrate). The first important effect is the possibility to dialog and to arrive, before the filing of the participants' tax returns at a commonly agreed valuation of some difficult tax issues, that could trigger risky situations.

This could result in an enormous advantage for the participants in the compliance program, a company which deals everyday with complicated tax situations (e.g transfer pricing, extra EU operations) could avoid unpleasant surprises after filing their tax returns due to the a difference of views with the revenue service on tax laws.

Another very important and useful tool that the regime provides to its participants is the possibility to an expedite inquiry process. In particular, the participants can inquire the revue authority on concrete situations that the company could encounter its activity, the revue authority must assess the adequacy of the inquiry withing 15 days, requiring additional documentation if necessary. The revenue authority shall give a clarification on the matter within 45 days from the receiving of the request or, the additional documentation required. The provision of the revue authority further details the requests requirements and procedure (Circolare.N.38/E, Agenzia Delle entrate), however, we will not deepen the point since it would fall out the scope of this work.

It is worth mention that this instrument alone could indeed put the basics for a more cooperative relationship between tax payer the tax authority, since it allows the former to have a close link and exchange of opinions with the latter and significantly decreases the possibility of misinterpretation and difference of opinions on tax issues which are relevant to the tax payer.

Another important and significant advantage that the participants can experience is a reduction on tax sanctions. Indeed, art 6 of the decree of 2015 (Dlgs.5.08.15.n128, 2015) states that: “For tax-related risks promptly and comprehensively communicated to the Revenue Agency [...], if the Agency disagrees with the enterprise's position, the applicable administrative penalties shall be reduced by half and in any case may not be applied to an extent exceeding the minimum amount[...]”. This means, that even if there is a disagree between the tax authority and the taxpayer, still the participation in this program will allow the latter to save money by effectively decreasing the sanctions.

Another advantage that the participants in this program can enjoy is the exemption from presenting collateral to the tax authority with respect to reimbursement paid regarding direct and indirect taxes. In a nutshell, in our system sometime, when the tax authority have to reimburse a tax amount following a court decision, it can require a collateral from the tax payer, with the idea that the decision could be overturned in appeal, this obligation is levied for the participants to the program.

It appears to be clear that the compliance program brings a lot of advantages and savings to its participants. It is worth to remember that the participation to the program do not comes without any costs, for example, the implementation of a proper Tax Control Framework could be costly, therefore it is only natural that the participation is incentive with the methods we just mentioned. Nevertheless, remember that also the revenue authority could be advantaged thanks to the great level of transparency that the participants are required to maintain.

Chapter 4: Empirical analysis

Chapter 4.1: Research hypothesis, sample, and variable description

Until this point, we focused our attention on cooperative tax compliance regime from a theoretical point of view. We shift now to an empirical analysis that aims at giving some insights about the actual contribution of the Italian regime in mitigating tax avoidance.

We need specifically to verify if the cooperative regime implemented in Italy, and explained in the third chapter, is indeed producing some positive effects, or not.

Our main hypothesis is therefore constructed as such:

H1: Compared to the control group, participants in the program have experienced an improvement in the tax compliance process, leading to a higher gaap_etr in the years after the adoption of the regime.

Arguments could be made to both the verification and non-verification of this hypothesis:

From one side, it is likely that the compliance regime will indeed provide the right incentives for the taxpayers to be more compliant to the tax regulations, and to the tax administration to be more cooperative and assist the tax payer in the compliance process. Furthermore, the regime also requires additional level of transparency, as we saw in chapter 3. These are valid reason to believe that H1 will indeed be verified.

From the other side, someone could also argue that the regime fails to produce the positive effects described above, leading to no material effects in the gaap_etr. This could be due to different reason, first, a self-selection bias, as we explained in chapter 3, the participation in this program is strictly voluntarily, therefore, it could be that participants in the program are already behaving correctly and the adoption of the regime will not result in an increase in tax compliance. Moreover, it could be that the timeframe of observation do not capture the effect of the regime fully, since it may need more time to produce its effects.

Chapter 4.1.1: Sample description

We try to answer this question, that we posed in the previous paragraph, by analyzing a panel data setting, that contains data from 75 thousand Italian companies, with data that covers the years from 2014 to 2021.

We used panel data since this approach permits to capture both longitudinal and cross-sectional variations, i.e. how things change across different firms and, within the same firm, across different years. This allowed us to have a completer and more comprehensive picture of trends and relationships among variables, ultimately making this analysis more insightful. A peculiar characteristic of the Italian compliance regime lies in the staggered enrollment of participants. This chronological variation allows us to exclude potential year fixed effects,

which could have posed challenges had all companies commenced participation in the same year. By doing so, we mitigate the risk of erroneously attributing effects to the regime that could have been influenced by external events occurring in the same year.

In order to properly compose the dataset, we took the list of Italian firms who chose to participate in the Cooperative compliance program (i.e our treatment group), this firms are 88 in total, from this we removed the financial firms, i.e. banks and insurance companies, we remained with 45 firms, which we compared to a set of Italian firms taken from the AIDA database(i.e the control group).

Since taking all the companies reported inside the AIDA database would have being too troublesome, we chose to select the control group using the following strategy: we looked at the treated companies and we analyzed some key financial figures, in particular: Revenues, EBITDA, Total Assets, Earning before taxes, ROA, Total equity.

Regarding these variables, we analyzed the minimum and the maximum value that the treatment group companies reported in their financial statements (Please note that negative values are between parentheses :

- Revenues: In the treatment group the minimum amount of revenues reported was 3.090 thousand euros, while the maximum was 23.333.336 thousands euros
- EBITDA: In the treatment group the minimum amount of EBITDA reported was (1.616.494) thousands of euros, while the maximum was 3.523.331 thousands euros
- Total Assets: In the treatment group the minimum amount of Total Assets reported was 1.544 thousand euros, while the maximum was 74.271.932 thousands euros
- Earnings before taxes In the treatment group the minimum amount of Earnings before taxes reported was (4.595.617) thousands euros, while the maximum was 4.648.269 thousands euros
- ROA In the treatment group the minimum amount of ROA reported was negative 14 percent, while the maximum was 22 percent
- Total equity In the treatment group the minimum amount of Total Equity reported was (583.233) thousands euros, while the maximum was 39.899.757 thousands euros

We conducted a Boolean search on the AIDA database, wherein we retrieved companies that exhibited financial variables falling within the range previously outlined. This search yielded approximately 75,000 companies, forming the basis of our dataset. Subsequently, we employed the Propensity Score Matching (PSM) technique to harmonize and prepare this dataset for our analysis, more details will be explained in subsequent sections.

As previously mentioned, the dataset employed in our study constitutes panel data, encompassing a wide array of variables spanning the years 2014 to 2021.

Chapter 4.1.2: Variable description

The pertinent variables considered in this dataset encompass:

- Revenues: Total revenues reported in the income statement, it gives insights about company's size
- Size: Defined as the natural logarithm of revenues.
- ROA: Return on asset, defined as: $\frac{\text{Operating profit}}{\text{Total asset}}$, it is one of the most popular indicator of profitability used in financial statement analysis, it indicates how much profit a company can generate from its assets.
- Sd_roa3: This variable is constructed taking the standard deviation of the ROA of the current year and the one of the two previous periods.
- EQ value: Equity value reported in the balance sheet.
- St debt: Short term financial debt: indicates the debt that expire within the next 12 months.
- Lt debt: Long term financial debt: indicates the debt that expire after the next 12 months
- G_sales: Calculated as: $\frac{(\text{Revenues} - \text{Lagged revenues})}{\text{Lagged revenues}}$ where lagged revenues indicate the revenues reported in the previous financial year
- TA: Total asset reported in the financial statements, this is another figures used to determine the size of the company
- Intangibles: The amount of intangibles reported in the balance sheet.
- Leverage: Defines as: $\frac{TA}{Lt\ debt}$, this ratio is useful to understand how much debt the company has in its balance sheet.
- Earnings before taxes: Earning before taxes reported in the income statements, this variable will be used to determine the main ETR measures.
- EBITDA: Earning before interest, taxes, depreciation and amortization, this is one of the most important figures in financial statement analysis, since it indicated the profits generated by its core operating activities. Furthermore, this figures is often used as a proxy of cash flow.
- Age: Indicates the number of years since the company has been founded.
- Taxes: Amount of income taxes reported in the income statement for the year.
- Current taxes: Amount of current taxes reported in the income statement for the year.
- R&D: This variable is constructed by the R&D expenses reported in the income statement, scaled by the lagged total assets (i.e. the assets of the previous financial

years). Please note that for this variable we assumed that if the value is missing, we assumed it to be equal to 0.

- Sic: Indicates the sic code of the company, which identifies the sector in which it operates (i.e. “Codice Ateco” in Italian)
- Listed: Is a dummy equal to 1 if the company is listed in the traded market and 0 otherwise.
- Treatyear: This variable indicates, if the company is in the treatment group, the year in which the participation to the program has started, this is useful since it allow us to understand when the effect due to the compliance program have begun
- Gaap_Etr: This variable has been defined as: $\frac{Taxes}{Earnings\ before\ taxes}$, as we said in the first chapter, this is a key variable to analyze in terms of determining the level of tax avoidance.
- Treatment: This is a dummy variable equals to 0 if the company does not participate in the compliance program, and 1 otherwise. For all of the years under analysis.
- Post: This is a dummy equal to 1 only in the years in which a company participated in the compliance program, and 0 otherwise. For example, a company who is in the treatment group but started participating in the year 2018, will have this dummy equal to 0 for the years going from 2014 to 2018, and 1 form the succeeding years. This variable will be the key to our analysis in the following paragraphs.
- Year: This variable comes from the panel data setting, it indicates the year to which the data refers to, for every firm there will be 8 rows corresponding to the 8 years

Hereunder in table 4 is reported a general summary of the variable under analysis:

Table 4: Summary of key variables for whole dataset

VARIABLES	N	mean	sd	min	max
Age	568,446	29.22	16.07	1	167
Size	568,446	8.79	1.29	-6.9	18.12
Rev (/000)	568,446	23,203	157,308	-0.307	2.33e+07
TA (/000)	568,446	29,549.67	472365.4	0.00100	7.427e+07
EBITDA (/000)	568,446	2,278	31,430	-1,616,494	6,866,568
Taxes (/000)	568,446	373.76	9,438.48	-5,994,990	1,179,379
Gaap_etr	568,446	0.399	0.238	0	1
Lev	568,446	0.279	45.52	-1.231	25,394
ROA (%)	568,446	6.77	6.79	-362.57	942.91
Sd_Roa3	504,998	2.960	5.2	0	577.6
R&D (%)	568,446	0.005219	2.56	-0.290	1,929
Intangibles (/000)	568,446	2,046	106,301	-557	3.24e+07
Gsales	568,446	77.24	28911	-8,934,083	1.29e+07

The mean age of the companies in the dataset is 29.22 years, with a standard deviation of 16.07. The size variable has a mean of 8.79 and a standard deviation of 1.29. Revenues have an average value of 23,203 with a considerable standard deviation of 157,308. Similarly, total assets have a mean of 29,549 and a substantial standard deviation of 472,365. EBITDA exhibits an average value of 2,278, but it also has a high standard deviation of 31,430, indicating significant variability across the companies. Taxes show an average value of 373.76 with a standard deviation of 9,438.

Moreover, the dataset includes variables related to financial performance ratios. The GAAP effective tax rate (gaap_etr) has an average value of 0.399 and a standard deviation of 0.238, indicating variations in tax rates across companies. With respect to leverage we find a mean of 0.279 and a substantial standard deviation of 45.52. Return on assets (ROA), a measure of profitability, exhibits an average value of 6.77 per cent with a standard deviation of 6.79.

Table 5: Summary of key variables for treatment group

VARIABLES	N	mean	sd	min	max
Age	268	43.21	37.24	15	167
Size	268	14.66	2.08	7.89	18.12
Rev	268	2,516,775	3,759,364	0	2.33e+07
Ta	268	1.03e+07	1.66e+07	2677.12	7.43e+07
Ebitda	268	526168.1	1,096,846	-1,616,494	6,866,568
Taxes	268	51,988.57	410,000	-5,994,990	1,162,657
Gaap_etr	268	0.25	0.199	0	1
Lev	268	0.168	0.184	0	0.611
Roa	268	7.50	7.47	-3.64	54.45
Sd_roa3	235	2.12	4.99	0	50.21
Rnd	268	0.00024	0.0017	0	0.0163
Intangibles	268	912,950.6	4,206,404	0	3.24e+07
Gsales	268	0.644	0.364	-1	4.482

Table 6: Summary of key variable for control group

VARIABLES	N	mean	sd	min	max
Age	548,446	29.22	16.05	1	158
Size	548,446	8.79	1.29	-6.9	17.53
Rev (/000)	548,446	22,006	123,125	-0.307	1.92e+07
TA (/000)	548,446	24,661.84	211,197	0.00100	4.11e+07
EBITDA (/000)	548,446	2,029	17,126.27	-10,56,387	3,273,220
Taxes (/000)	548,446	349.33	2,979.63	-203,935	1,179,379
Gaap_etr	548,446	0.399	0.238	0	1
Lev	548,446	0.279	45.52	-1.231	25,394
ROA (%)	548,446	6.77	6.79	-362.57	942.91
Sd_Roa3	504,746	2.961	5.2	0	577.6
R&D (%)	548,446	0.005219	2.56	-0.290	1,929
Intangibles (/000)	548,446	1616.637	50,982.06	-557	3.24e+07
Gsales	548,446	77.28	28918	-8,934,083	1.29e+07

Furthermore, in table 5 and 6 we report the same statistics but divided among treatment group and control group.

The treatment group displays higher mean values for revenue and total assets compared to the control group. For instance, the mean revenue in the control group is 22,006, whereas in the treatment group, it is much higher at 2,516,775. Similarly, the control group exhibits a mean total assets value of 24,661, whereas the treatment group has a substantially higher mean of 10,300,000.

Regarding earnings before interest, taxes, depreciation, and amortization (EBITDA), the mean in the control group 2,029 is lower than in the one of the treatment group 526,168.

Regarding tax-related metrics, the treatment group shows a higher mean value for gaap_etr 0.399 compared to the control group 0.25.

Table 7: Pairwise correlation indexes

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) age	1.000												
(2) size	0.323 (0.000)	1.000											
(3) rev	0.042 (0.000)	0.256 (0.000)	1.000										
(4) ta	0.021 (0.000)	0.197 (0.000)	0.461 (0.000)	1.000									
(5) ebitda	0.016 (0.000)	0.156 (0.000)	0.449 (0.000)	0.569 (0.000)	1.000								
(6) taxes	0.012 (0.000)	0.066 (0.000)	0.130 (0.000)	0.087 (0.000)	0.264 (0.000)	1.000							
(7) gaap_etr	-0.008 (0.000)	-0.126 (0.000)	-0.029 (0.000)	-0.029 (0.000)	-0.025 (0.000)	-0.002 (0.084)	1.000						
(8) lev	-0.002 (0.083)	0.000 (0.741)	0.000 (0.933)	0.000 (0.828)	0.000 (0.982)	0.000 (0.983)	0.003 (0.051)	1.000					
(9) roa	-0.034 (0.000)	-0.022 (0.000)	-0.006 (0.000)	-0.013 (0.000)	0.028 (0.000)	0.023 (0.000)	-0.230 (0.000)	-0.001 (0.524)	1.000				
(10) sd_roa3	-0.101 (0.000)	-0.116 (0.000)	-0.004 (0.008)	-0.008 (0.000)	-0.001 (0.675)	0.002 (0.229)	-0.094 (0.000)	0.022 (0.000)	-0.070 (0.000)	1.000			
(11) rnd	0.000 (0.909)	0.005 (0.000)	0.003 (0.039)	0.001 (0.242)	0.001 (0.348)	0.000 (0.720)	0.000 (0.848)	0.022 (0.000)	-0.001 (0.534)	0.003 (0.027)	1.000		
(12) intangibles	0.003 (0.020)	0.079 (0.000)	0.322 (0.000)	0.536 (0.000)	0.709 (0.000)	0.043 (0.000)	-0.008 (0.000)	0.000 (0.830)	-0.005 (0.000)	0.002 (0.061)	0.001 (0.493)	1.000	
(13) gsales	-0.005 (0.000)	-0.001 (0.550)	0.000 (0.834)	0.000 (0.915)	0.000 (0.895)	0.000 (0.927)	-0.002 (0.136)	0.171 (0.000)	0.000 (0.991)	0.010 (0.000)	0.000 (0.997)	0.000 (0.965)	1.000

Table 7 represents the pairwise correlation index, we see that gaap_etr has a strong correlation with size, ROA and also the participation to the program (Treatment variable), again, this is

due to the strong relationship between the participation to the program and other variables, like size and ROA, which influence the *gaap_etr* measure, in order to draw a proper conclusion we need to perform a regression analysis, that will be detailed out in the next paragraphs.

While these first look at general statistics among the data has given already some interesting input, we also notice that we have a total of roughly 400 observation for the treatment group, while we have more than 700 thousands observation for the control group, this configuration would not be effective and suited for a proper analysis, that is why we opted for a propensity score matching, in order to adjust the control group size.

4.1.2 Research model and equation

In order to properly verify the hypothesis under consideration, we could perform a normal linear regression, which would look like this:

$$GAAP_ETR_{it} = \beta_0 + \beta_1 POST_{it} + \beta_2 X_{it} + \varepsilon_i$$

where POST is a dummy indicating the participation to the compliance program, X represent a vector containing the control variable, "i" represents a unique firm, and "t" signifies the time under examination. In this model, B1 is interpreted as the effect of participating in the compliance program on the *gaap_etr* measure, on average. For example, a B1=0.01 would signify an average increase of 1% in *gaap_etr* when participating to the program.

However, even if this seems like a proper model for answering our hypothesis, a normal linear regression model would not appropriate in a panel data setting like the one we are analyzing. The reason lies in its inability to account for the inherent complexities arising from year and firm fixed effects present in our dataset. Consequently, we have opted to employ an alternative linear regression model that accommodates the substantial fixed effects intrinsic to our panel data:

$$GAAP_ETR_{it} = \beta_0 + \beta_1 POST_{it} + \beta_2 X_{it} + \alpha_i + \gamma_t + \varepsilon_{it}$$

In this model, the notation "i" represents a unique firm, and "t" signifies the time period under examination, POST is a dummy indicating the participation to the compliance program and "X" denotes a vector incorporating the control variables. Furthermore, we can find items that were not present in the previous model: " α_i ", which represents the firm-specific fixed effect, " γ_t " pertains to the time fixed effects, and " ε_{it} " accounts for the error term, which captures the factors unique to a specific firm at a given time point that remain unaccounted for by the model.

By employing this model, we ensure that our analysis will be robust and will incorporate the significant fixed effects present in our dataset, improving the reliability of our results.

The control variable that we chose in order to construct our model are the following:

- Size: Often this variable is included as control, since it has an important effect on a firm's tax behavior. Larger firms may have more resources and opportunities to engage in tax planning initiatives. Or, on the other hand, they could be more scrutinized by revenue services and therefore be more compliant, in both cases, having this variable as a control seems necessary, so that the effect of the compliance program is properly isolated
- Revenues: Another essential variable for which we control. Revenues can, like size, indicate the scale of a firm's business, which could offer interesting opportunities for tax planning strategies
- Leverage, which measures a firm's level of debt relative to equity, can influence tax decisions. Highly leveraged firms may have interest expense deductions, affecting their GAAP ETR. Firms with different levels of leverage might also face varying financial constraints, impacting their tax planning strategies. By including leverage as a control variable, we can account for the potential influence of capital structure on tax compliance, helping to isolate the impact of the cooperative compliance program.
- Return on Assets (ROA) is a measure of a firm's profitability and efficiency in utilizing its assets to generate earnings. This could affect tax behavior in different ways.
- Research and Development (R&D) expenditures can have implications for tax planning. Some countries offer tax incentives or deductions for R&D expenses, which could affect a firm's GAAP ETR. Firms with higher R&D spending might engage in tax planning to optimize the benefits of these incentives. By including R&D as a control variable, we can account for the potential influence of R&D-related tax considerations on the GAAP ETR, helping to identify the program's specific effect.
- Intangible assets, such as patents, trademarks, and intellectual property, can affect tax outcomes. Different tax rules and regulations may apply to the valuation and taxation of intangible assets. Firms with significant intangible assets might have unique tax planning opportunities and challenges. By controlling for intangibles, we can disentangle the impact of the cooperative compliance program on tax behavior from the influence of intangible asset-related tax considerations.

Chapter 4.2 Data sample adaptation: Propensity score matching

As we anticipated in the previous paragraph, in order to properly conduct some analysis that could indeed provide some clarity in whether the Italian cooperative compliance model is being effective, we need first to perform some adjustments to our data.

In particular, we now have roughly 400 observations for the treatment group and almost 700 thousand for the control group, that is of course not a proper proportion between treatment group and control group. For this reason, we decided to implement a propensity score matching technique, which allowed us to match three firms from the control group for every firm in the treatment group.

In general, propensity score matching is heavily used in studies with observational data and difference in difference design (Shipman, et al., 2017) the reasons is that it allows to mitigate the influence of other variables on the treatment variable. The reasoning behind this technique is the following: we have a dummy variable which indicates participation to the compliance program, let's call it D_i . What propensity score matching does is forecasting the probability of a subject to the treated (i.e. having $D_i=1$) based on other variables that may influence the participation to the program:

$$D_i = \beta_0 + \beta_1 X_i + \epsilon_{it}$$

where X_i represents a vector of variable that influenced the participation in the program. The propensity score, determined with this equation allows to match observation from the treatment group to the ones that have the propensity score more similar among the control group.

In our study, we implemented the `psmatch2` code, matching the observation of the treatment group and the one of the control group against this variables:

- Size: As already explained, size has an important impact on the participation to the program
- Sales growth: Firms which are experiencing growth could be more prone to comply to tax regulation and to cooperate with tax authority
- Leverage: The level of debt of a firm is an indicator of its risk preference, a less risk oriented firm may consider the participation in the program in order to lower its tax risk
- ROA: Similar to the sales growth argument, firms which are performing well in terms of profitability may be more inclined to comply with tax regulations.
- Listed: Listed companies are already under greater scrutiny when compared to their private peers, therefore they would have to bear less costs to meet the tax transparency obligations of the program.

- SIC code: The industry classification could impact a firm's incentive to participate, as complex or regulated industries may see more value in compliance.
- Sd_roa3: Stability of profitability measures, as indicated by lower standard deviation of ROA over three years, may positively correlate with cooperative tax compliance.
- Intangibles: Intangibles assets are more complicated than tangible assets in term of accounting treatment, producing some risks in terms of scrutiny and sanctions, therefore companies which have to deal with them more heavily may be more inclined to join the program

We matched using the year 2014, and we implemented the neighbor option that allowed us to match three control group firm for every treatment group firm.

As a result, hereunder are reported the general statistics tables, with the new settings, that now contains roughly 25% of treatment group observations. As expected, the data now are more similar from the control group to the treatment group, for example: size reported an average of 8.74 in table 4, now the control group reports an average size of 13.55. It is worth noticing, that an important difference between gaap_etr measure it's still present: from 0.3 in the control group to 0.25 in the treatment group, even if this difference is consistently smaller than the one before matching (gaap_etr had an average of 0.39 in table 4) the difference is still there.

Overall, the process described in this paragraph will make the analysis reported in this work more meaningful and reliable.

Table 8: Summary of key statistics of control group, after matching

VARIABLES	N	Mean	Sd	Min	Max
Age	497	38.74	23.55	12	132
Size	497	13.55	1.83	7.58	17.53
Rev	497	989,549.9	1,650,122	1,600.51	1.92e+07
Ta	497	2,500,059	4,723,405	1,954.31	4.11e+07
Ebitda	497	157,274.4	328,753.7	-1,056,387	2,970,000
Taxes	497	23,411.15	48,023.56	-156,307	369,741
Gaap_etr	497	0.301	.205	0	1
Lev	497	0.134	0.188	0	.801
Roa	497	6.41	7.65	-10.82	65.86
Sd_roa3	436	1.74	2.92	0	32.65
Rnd	497	0.00049	0.00273	0	0.026
Intangibles	497	183,618	762,019.6	0	9,077,000
Gsales	497	0.069	0.335	-0.764	4.0538

Table 9: Summary of key statistics of treatment group, after matching

VARIABLES	N	Mean	Sd	Min	Max
Age	268	43.21	37.24	15	167
Size	268	14.66	2.08	7.89	18.12
Rev	268	2,516,775	3,759,364	0	2.33e+07
Ta	268	1.03e+07	1.66e+07	2677.12	7.43e+07
Ebitda	268	526168.1	1,096,846	-1,616,494	6,866,568
Taxes	268	51,988.57	410,000	-5,994,990	1,162,657
Gaap_etr	268	0.25	0.199	0	1
Lev	268	0.168	0.184	0	0.611
Roa	268	7.50	7.47	-3.64	54.45
Sd_roa3	235	2.12	4.99	0	50.21
Rnd	268	0.00024	0.0017	0	0.0163
Intangibles	268	912,950.6	4,206,404	0	3.24e+07
Gsales	268	0.644	0.364	-1	4.482

Chapter 4.4 Main findings

Before conducting the fixed effect model as described earlier, we initially performed a simple Ordinary Least Squares (OLS) regression to explore the relationship between the variables of interest and the GAAP Effective Tax Rate (GAAP ETR). The model included the control variables described above as well as a control for the year to partially account for year fixed effects. The empirical results are presented in Table 10.

In the OLS regression, we observed several statistically significant effects. Notably, the variables "Size," "Lev" (leverage), and "Rnd" (Research and Development) displayed negative significant coefficients, with values of -0.0273, -0.126, and -7.212, respectively. This suggests that firms with larger sizes, higher leverage, and greater spending on research and development tend to exhibit lower GAAP ETRs. Additionally, the variable "Year" demonstrated a negative significant coefficient, indicating the presence of certain year fixed effects that led to a reduction in the GAAP ETR levels over time.

The variable of primary interest, "Post," representing participation in the cooperative compliance program, also yielded a statistically significant negative effect on GAAP ETR. The coefficient for "Post" was -0.0551 with a standard deviation of 0.0186, leading to a significance level of 1% confidence. This finding suggests that, on average, firms participating in the cooperative compliance program experienced a decrease in their GAAP ETR by approximately 5%.

The comprehensive model accounts for various factors that influence the GAAP ETR, including firm size, revenue, leverage, return on assets, research and development expenditures, intangibles, and year-specific effects. However, the model's R-squared value of 0.199 indicates that approximately only 19.9% of the variation in the GAAP ETR can be explained by the included variables.

It is essential to interpret these findings with caution and in light of potential limitations. While the OLS regression provides valuable insights, the inclusion of year fixed effects only partially controls for potential time-related confounders. The fixed effect model to be applied subsequently will more comprehensively address these unobservable time-invariant factors.

Table 10: OLS preliminary results

VARIABLES	Gaap_etr
Post	-0.0551*** (0.0186)
Size	-0.0273*** (0.00404)
Rev	1.76e-08*** (2.64e-09)
Lev	-0.126*** (0.0367)
Roa	0.00220** (0.000968)
Rnd	-7.212** (2.941)
Intangibles	-2.03e-09 (2.37e-09)
Year	-0.0109*** (0.00286)
Constant	22.66*** (5.772)
Observations	765
R-squared	0.199
F (8 756)	23,44
Prob >F	0.000

The coefficients reported have been calculated using the reg command in stata, including the control variables described in section 4.3 and year.

*The coefficient are reported besides the variable name, between parenthesis we find robust standard error and the * symbols signify the confidence levels *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$*

After incorporating longitudinal and cross-sectional fixed effects into the analysis, as detailed in the second model described in Section 4.3, the findings in Table 11 diverge notably from those reported in Table 10, which pertained to a simple OLS regression. The signs of the coefficients remain consistent. However, the coefficients no longer demonstrate statistical significance. Only the variable "rev" (Revenues) appears to exert a statistically significant effect on the GAAP ETR, but, even in this case, with a confidence level of no more than 10%. The R-squared value of 0.603, which is far superior to the one reported signifies that approximately 60% of the variability in the GAAP ETR is accounted for by the model. Additionally, the F-test, which examines the joint significance of all coefficients, rejects the null hypothesis that all coefficients are simultaneously equal to zero. This result confirms that the model remains a suitable fit for explaining the variability in the GAAP ETR, despite the coefficients' lack of individual statistical significance.

The discrepancy between the current model's non-significant coefficients and the previous model's significant results implies that a substantial portion of the GAAP ETR variability can be attributed to firm-specific and time-specific fixed effects. These fixed effects capture unobservable factors that are unique to each firm and vary across time periods. Consequently, the influence of the compliance program on the GAAP ETR appears to be overshadowed and rendered statistically insignificant in the presence of these fixed effects.

Regrettably, the empirical data does not verify Hypothesis 1 (H1), thereby warranting further examination. Possible explanations for the non-verification of H1 could include the presence of a self-selection bias among program participants or an insufficient timeframe to capture the program's full impact on the GAAP ETR.

These findings contribute valuable insights to the ongoing research and discussion on cooperative tax compliance and its efficacy in improving tax compliance behavior. The integration of fixed effects in the analysis strengthens the credibility of the results, allowing for a more robust investigation of the factors influencing the GAAP ETR. Nonetheless, the non-verification of H1 urges the consideration of potential alternative factors that may contribute to the observed outcomes.

While the program's immediate effects on the GAAP ETR may not be statistically significant, the comprehensive analysis provided in this study remains an essential step in comprehending the broader implications of cooperative tax compliance initiatives. Further research, incorporating extended timeframes and addressing potential selection biases, is indispensable to ascertain the long-term impacts of the program and its potential in fostering a more cooperative tax environment between taxpayers and tax administrations.

Table 11: Fixed effect regression results

VARIABLES	Gaap_etr
post	-0.0144 (0.0234)
size	-0.00982 (0.0385)
rev	2.54e-08* (1.50e-08)
lev	-0.0631 (0.0838)
roa	-0.00207 (0.00191)
rnd	5.505 (4.042)
intangibles	-2.65e-08 (3.99e-08)
Constant	0.411 (0.553)
Observations	764
R-squared	0.603
F (7 98)	7.83
Prob >F	0.000

The coefficients reported have been calculated using the `rehdfe` command in stata, clustering by year and ID including the control variables described in section 4.3.

*The coefficient are reported besides the variable name, between parenthesis we find robust standard error and the * symbols signify the confidence levels *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$*

Conclusions

In conclusion, this work has delved into the subject of tax avoidance and explored the concept of the cooperative tax compliance framework as a potential solution to address this issue. We reviewed the definition and key characteristics of tax avoidance, and of the cooperative compliance regime, which represents a global shift in the dynamics between tax payers and tax administrations. From a conflictual logic to a cooperative, mutually beneficial one.

On this matter, the empirical research conducted by Eberhartinger and Zieser (Eberhartinger & Zieser, 2021) using Austrian data has shown promising results in terms of the effectiveness of the cooperative compliance program in mitigating tax avoidance.

However, our focus primarily laid on the Italian regime, which was detailed extensively, detailing the participant selection process and requirements, the main outcomes of the adoption of regime and the obligations arising for both parties (i.e. the tax administration and the taxpayers). We also analyzed the relevant laws and regulations related to the program, which provided valuable insights into the program's functioning.

Exploiting a unique feature of the Italian regime, namely the staggered participation of different firms over time, which allowed us to exclude possible time specific confounding factors, we attempt to estimate the effects of the program on tax avoidance. Employing a Difference-in-Differences (DID) approach with a penal data setting and a dataset comprising approximately 70 thousand Italian firms, we sought to verify whether the model indeed has been having a significant impact.

Regrettably, after accounting for longitudinal and cross-sectional fixed effects, we did not find a statistically significant relationship between participation in the cooperative compliance program and the effective tax rate (etr) measured. Nevertheless, despite this outcome, the sound theoretical framework and rationale behind the implementation of the cooperative compliance framework warrant further investigation, particularly with an expanded time frame.

It is important to acknowledge that this study's limitations and its inability to establish a significant relationship should not overshadow the comprehensive overview it has provided of the cooperative compliance framework. By presenting a thorough account of the program and its core aspects, this research establishes a solid foundation for future studies seeking to explore the efficacy of the Italian regime or investigate related topics in tax compliance.

In conclusion, this work contributes to the existing literature on tax avoidance and cooperative tax compliance by detailing an historical shift in the taxpayer-tax administration relationship and presenting a detailed analysis of the Italian regime. Despite the absence of a significant effect found in our specific setting, the cooperative compliance concept remains a relevant

and promising avenue for future research and policy discussions. As tax systems continue to evolve, further studies may uncover additional insights and potentially reveal the true impact of such cooperative initiatives on tax avoidance behavior, and therefore on the entire community.

Bibliography

- Eberhartinger, E. & Zieser, M., 2021. The Effects of Cooperative Compliance on Firms' Tax Risk, Tax Risk Management and Compliance Costs. *Schmalenbach Journal of Business Research*.
- Hanlon, M. & Heitzman, S., 2010. A review of tax research. *Journal of accounting and economics*.
- Hoffman, 1961. Theory of tax planning. *The accounting review*.
- Dyreng, Hanlon & Maydew, 2007. Long run corporate tax avoidance. *Review of accounting studies*.
- Baylock, Gaertner & Shevlin, 2017. Book tax conformity and capital structure. *Review of accounting studies*.
- Hasan, Hoi, Wu & Zhang, 2014. Beauty in the eye of beholder: The effect of corporate tax avoidance on the cost of bank loans. *Journal of financial economics*.
- Brito & Honh, 2002. Leverage and growth opportunities: Risk-Avoidance induced by risky debt.
- Hanlon, Maydew & Saavedra, 2017. Taxman cometh, Does tax uncertainty affect corporate cash holdings?. *Review of accounting studies*.
- Graham & Tucker, 2006. Tax shelters and corporate debt policy. *Journal of financial economics*.
- Prebble, J., 1986. *The taxation of controlled foreign corporation*. s.l.:s.n.
- FASB, 1992. SFAS N109.
- Mills, 1998. Book-Tax Differences and Internal Revenue Service Adjustments. *Journal of accounting research*.
- Baylock, B., Gaertner, F. & Terry, S., 2017. Book-tax conformity and capital structure. *Review of accounting studies*.
- Goh, Lee & Lim, 2016. The Effect of Corporate Tax Avoidance on the Cost of Equity. *Accounting review*.
- Hoi, Wu & Zhang, 2013. Is CSR associated with tax avoidance? Evidence from Irresponsible CSR activities. *Open Journal of business management*.
- Balakrishnan, K., Blouin, J. & Guay, W., 2019. Tax Aggressiveness and Corporate Transparency. *Accounting review*.
- Hanlon & Slemrod, 2009. What does tax aggressiveness signal? Evidence from stock price reactions to news about tax shelter involvement☆. *Journal of public economics*.
- Wilson, 2009. An examination of corporate tax shelter participants. *The accounting review*.

Rego, 2003. Tax avoidance activities of U.S multinational corporations. *Contemporary accounting research* .

Chen, Cheng & Shevlin, 2010. Are family firms more tax aggressive than non-family firms?. *Journal of financial economics*.

Leitz, 2013. Determinants and consequence of tax avoidance.

Richardson, G. & Lanis, R., 2007. Determinants of the variability in corporate effective tax rates and tax reform: Evidence from Australia. *Journal of accounting and public policy*.

Gupta & Newberry, 1997. Determinants of the Variability in Corporate Effective Tax Rates: Evidence from Longitudinal Data. *Journal of accounting and public policy*.

McGee & Stickney, 1982. Effective corporate tax rates the effect of size, capital intensity, leverage, and other factors. *Journal of accounting and public policy*.

Hanlon, Mills & Slemrod, 2005. An empirical examination of corporate tax non compliance. *Ross school of business*.

OECD, 2008. *Study into the role of tax intermediaries*. s.l.:s.n.

OECD, 2013. *Co-operative Compliance: A Framework: From Enhanced Relationship to Co-operative Compliance*. s.l.:s.n.

OECD, 2016. Co-operative tax compliance, building better tax control frameworks.

Kovermann & Velte, 2019. The impact of corporate governance on corporate tax avoidance—A literature review. *Journal of International Accounting, Auditing and Taxation*.

StataCorp, 2021. *Stata: Release 17. Statistical Software*. College Station, TX: StataCorp LLC.. s.l.:s.n.

Gunzler, Chen, Wu & Zhang, 2013. Introduction to mediation analysis with structural equation modeling. *Shanghai Archives of Psychiatry*.

Caiumi, A., 2019. La spesa per la pubblica istruzione. *Osservatorio sui conti pubblici italiani*.

MEF, 2022. Nota di aggiornamento NADEF 2022.

Dlgs.5.08.15.n128, 2015.

Legge.27.07.2000, n.d.

LEGGE 11 marzo 2014, n. 2., n.d.

Decreto.15/06.2016, MEF.

Provvedimento.N.54749.14.04.16, Agenzia Delle Entrate.

Provvedimento.N.101573.5/08/2015, Agenzia delle Entrate.

Braithwaite, J. & Wirth, A., 2001. TOWARDS A FRAMEWORK FOR LARGE BUSINESS TAX COMPLIANCE. *Centre for Tax System Integrity Research School of Social Sciences Australian National University Canberra, ACT, 0200*.

Braithwaite, J. & Wirth, A., 2001. TOWARDS A FRAMEWORK FOR LARGE BUSINESS TAX COMPLIANCE. *Centre for Tax System Integrity Research School of Social Sciences Australian National University Canberra, ACT, 0200.*

Circolare.N.38/E, Agenzia Delle entrate.

Hamilton, S., 2012. New dimensions in regulatory compliance – building the bridge to better compliance.

Inland Revenue Authority in Singapore, 2015. *IMF*. [Online]

Available at: <https://www.imf.org/external/np/seminars/eng/2015/asiatax/pdf/kiang.pdf>

[Accessed 30 March 2023].

Shipman, Swanquist & Whited, 2017. Propensity Score Matching in Accounting Research. *The Accounting Review*.

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