Preliminary draft

WHAT DO EXTERNAL STATISTICS TELL US ABOUT UNDECLARED ASSETS HELD ABROAD AND TAX EVASION?

Valeria Pellegrini*, Alessandra Sanelli**, Enrico Tosti*

Abstract

The analysis of the international investment position and balance of payments statistics suggests that foreign assets held abroad are greatly underestimated, in particular for portfolio investments and bank deposits. This paper has three main goals. The first is the analysis of the role played by tax havens and offshore financial centers with reference to tax evasion starting from asymmetries, anomalies or peculiar geographical breakdowns observed in external statistics. The second goal is to estimate the magnitude of underreported capital on the basis of mirror statistics on portfolio assets and liabilities and of BIS statistics on cross-border deposits of non-banks. The global stocks of unreported foreign assets at end-2013 are estimated to range between $6 and $7 trillion. Third, the paper calculates a plausible order of magnitude of the tax evasion linked to undeclared foreign assets. Over the period 2001-2013 annual capital income tax evasion is calculated to be on average between $19 and $38 billion; assuming that the overall stock of unreported assets outstanding at end-2013 refers to earned income that escaped personal income taxes, the evaded personal income tax can be estimated between $2.0 and $2.6 trillion. Finally, the assessment of the strengths and weaknesses of the recent policy responses to international tax evasion leads to an overall positive evaluation, even though some critical aspects might jeopardize the results.

JEL Classification: H26, F21, F23.
Keywords: external assets, under-reporting, international tax evasion, tax havens, offshore countries, profit shifting, portfolio securities, cross-border bank deposits.

Index

* Bank of Italy, Statistical Analysis Directorate, Rome
** Bank of Italy, Tax Directorate, Rome

1. Introduction[1]

All over the world individual investors and business entities escape or reduce domestic taxes by hiding or shifting their income and wealth abroad, particularly in offshore financial centers and tax havens. The adverse consequences of international tax evasion and avoidance have been widely recognized, both for developed and developing countries. Over the last few years, and namely after the global financial crisis of 2008-2009, governments' determination to fill the "international tax gap" arose in response to the deterioration in budget deficits. Policy-makers' attention on this phenomenon grew remarkably: enhancing information exchange between national tax authorities, seen as the best policy option to counter international tax evasion, became a high priority in policy makers' agendas.

Anecdotal evidence and results of national offshore compliance initiatives reveal that the amount of undeclared assets held offshore and of the related international tax gap is significant. In 2007, the OECD estimated the value of assets held offshore between in a $5-$7 trillion range (Owens, 2007). However, because of the very nature of international tax evasion, which is based on non-reporting and concealment, there is a lack of relevant data on the phenomenon. Consequently, till now only a few attempts to quantify its actual dimension have been made, the most recent and well known being that of Zucman (2015).

Detailed information on the potential magnitude of the international tax gap and on the role played by offshore financial centers and tax havens in this respect would help policy makers to evaluate the impact of international tax cheating on domestic tax systems of both developed and developing countries, and hence to assess the potential impact of measures aimed at reinforcing international tax audit activities. More importantly, it could also help evaluating the feasibility of international agreements which introduce incentives or sanctions aimed at convincing offshore financial centers and tax havens to adopt a cooperative approach in the fight to tax cheating.

This work aims to contribute to the knowledge of the phenomenon using balance of payments statistics and a wide range of other external statistics at a global level. It has three main goals: analyzing the role played by tax havens on the basis of the external statistics, estimating the magnitude of underreported foreign assets, calculating a plausible order of magnitude of the tax evasion linked to these undeclared assets. Finally, we summarize strengths and weaknesses of the recent policy responses to international tax evasion due to unreported capital held abroad.

Starting from asymmetries, anomalies or peculiar geographical breakdowns observed in external statistics, in Section 2 we analyze the role played by tax havens and offshore financial centers with reference both to tax avoidance by multinational corporations and tax evasion by individual investors and small businesses. With reference to the first aspect, we first analyze the signals coming from available data. In Section 3 we start by illustrating statistical signals about the existence of undeclared external assets, based on the global discrepancies in balance of payments statistics and on the inconsistencies observed for several countries between the net international investment position and the cumulated current and capital account, which are generally due to under-recording of investments abroad.

Then, in Section 4 we estimate the amount of undeclared assets held abroad for both portfolio investments and cross-border deposits. The estimate of the undeclared assets is mainly based on the comparison of mirror statistics on portfolio assets and liabilities coming from the Coordinated Portfolio Investment Survey (CPIS) conducted by the IMF and on the analysis of further information derived from several international databases (for example, BIS locational statistical on cross border bank deposits of non-banks). The methods adopted refine and update the approaches previously applied by the authors: Pellegrini and Tosti (2011, 2012) and, for bank deposits, Sanelli (2008).

In Section 5 we estimate a potential range of capital income tax evasion linked to undeclared financial assets held offshore by individual investors (both directly or through intermediate controlled entities, such as trusts, foundations, shell companies, etc.). We also provide an estimate of the potential

[1] The authors wish to thank Gian Maria Milesi-Ferretti for the provision of the Extended Wealth of Nations II database (EWN II). A special thanks to Riccardo De Bonis for helpful suggestions. The authors are solely responsible for any errors. The views expressed are personal and are not the responsibility of the Bank of Italy.

scale of the tax evasion affecting the undeclared capital held abroad by assuming that it wholly represents income that escaped personal income taxes in the investor's residence country when originally earned. The estimate of tax evasion builds on a methodology already used in previous unpublished papers (Sanelli, 2004 and 2008) and is made first on a global level, distinguishing between the two sets of OECD and non-OECD countries, and then with a specific focus on the Italian case.

Section 6 provides a critical assessment of the recent policy initiatives undertaken at global level to fight tax evasion. In this respect, in spite of the impressive progress towards information exchange, areas of opacity still remain: persisting difficulties in the identification of ultimate owners, non-reciprocity ad non-automaticity of some agreements of information exchange, problems of timeliness in the implementation, and possible loopholes in the information reporting provisions.

Finally, Section 7 concludes; an Appendix contains in-depth analyses of some specific technical issues.

2. Undeclared capital held abroad and the role of tax havens in tax evasion and avoidance: signals from external statistics

In this section we deal with the role played by tax havens and offshore financial centers (OFCs) with respect to international flows of financial and real investment. As previously done by several authors − see, for example, Gravelle (2015) and Zucman (2015) − we analyse the geographical breakdown of various statistics on cross-border positions and transactions in order to find evidence on how OFCs may help individuals and corporations to channel capital abroad and evade or avoid taxes, thereby leading to revenue losses in their home countries.

Under the commonly shared definitions, tax evasion refers to illegal behaviours, i.e. illegal non-payment or underpayment of taxes, usually resulting from the making of a false declaration or no declaration at all, or a false claim for inexistent expenses or offset against income legally declared to a tax authority. On the other hand, tax avoidance consists of seeking to minimize a tax bill without deliberate deception (which would be tax evasion) but contrary to the spirit of the law. It involves the exploitation of loopholes and gaps in tax and other legislation in ways not anticipated by the law. A great deal of tax avoidance activity involves cross-border transactions.

As underlined by Gravelle (2015), the dividing line between the two types of tax cheating activities is not always clear. Generally, tax evasion is more common among individual investors, professionals and small business entities and is often linked to the use of narrowly defined tax havens, while tax avoidance is typically carried out by large business entities, often with significant cross-border activities, and may entail the use of narrowly and broadly defined tax havens; on the other hand, the two phenomena often overlap, as we describe in par. 2.1.

The actual scale of the revenue losses arising from both types of tax cheating activities is very difficult to estimate. In the following sections we concentrate on a possible estimate of undeclared financial assets held abroad – either directly or through interposed entities – by individuals and of the related revenue losses arising from personal and capital income tax evasion (par. 5.2).[2]

In this section, we analyse the main channels for the creation of unreported capital abroad, namely in OFCs, looking at the statistical evidence of their use by multinational companies and describe how this phenomenon may interact and contribute to increase the amount of unreported capital that originates tax evasion by individuals. As a necessary preliminary step, we define tax havens and OFCs and explain how we identify different lists of countries (par. 2.1) with reference to tax evasion and tax avoidance, given the different factors that may be relevant for the two phenomena.

2.1 Tax havens and offshore financial centers: definitions and main features

Tax havens are usually defined as countries or territories that try to attract foreign capital through a combination of low or no taxation, advanced communication facilities, stable political

[2] Although recognizing the relevance of the phenomenon, we do not provide any estimate of tax avoidance. A few authors have tried to estimate this latter stream of tax cheating; for example, see Gravelle (2015), Zucman (2014) and OECD (2015b).

environment, reliable legal systems and a high degree of confidentiality for financial data, namely those on beneficial ownership of bank accounts, company shares, trusts and other interposed entities. Another recurrent character of tax havens is the lack of information exchange with tax administrations of other countries and the possibility to establish legal entities with little or no economic activity.

The high financial secrecy, enhanced by the possibility to establish different types of legal entities that can be used as interposed vehicles to further protect the confidentiality of financial data, is particularly relevant when looking at the use of tax havens for tax evasion purposes by individual investors. For this reason, starting from this definition, we identify a list of tax havens (see column A.1 in Table A in Appendix A) as a reference for the estimate of personal and capital income tax evasion by individual investors (section 5). The list consists of 60 countries and is obtained by combining information derived by various existing lists;[3] if there is convergence in classifying a country as a tax haven, this country is included in this list.

Economists often use broader definitions of tax havens, that include any low-tax country with a goal of attracting capital, or simply any country that has low or non-existent taxes. In this latter respect, tax haven features may be found even in high tax countries, for example when they provide selective tax reductions, namely for foreign companies or companies dealing mostly with cross-border activities. Cases of this selective tax reductions can be found also in the euro area, e.g. in Luxembourg, the Netherlands, Ireland, Cyprus and Malta. In the United States, Delaware and Nevada provide specific company structures that allow anonymity of shareholders and often no taxation at the company level.

This broad definition of tax havens seems especially relevant when looking at tax avoidance schemes, which often make use of gaps and inconsistencies arising from the interaction of different countries tax systems to exploit tax reduction possibilities. On the basis of this broader definition, and building on existing lists as in the case of tax evasion, we have identified a separate list of 54 tax havens for the purposes of analyzing their role in FDI flows and tax avoidance behaviors[4] (the list is reported in column A.2 in Table A in Appendix A).

The tax haven characters identified above can often be found in OFCs. According to the most common definition, OFCs are jurisdictions that attract a high level of financial activity with non-residents, often in currencies different from that having legal tender in the jurisdiction. Usually, banks and other financial institutions operating "offshore" enjoy exemption from a wide range of regulations normally imposed on "onshore" institutions. Not all OFCs are tax havens. However, quite often tax haven features, such as strict bank and financial confidentiality and low or no taxation, are used by OFCs to attract foreign investors, and particularly to promote their private asset management industry. For this reason, and considering that official statistics often make reference to OFCs rather than to tax havens, in the rest of the paper we will refer to tax havens as offshore financial centers.

2.2 Channels for the transfer of capital to offshore financial centers

Transfers of financial capital to OFCs are often unreported. Therefore, they give rise to anomalies in external statistics. In most cases, the financial wealth booked in OFCs ultimately belongs – either directly or through a chain of interposed entities (such as trusts, foundations, shell companies, etc.) – to individual investors, often high net worth individuals. The methods used to transfer financial capital in OFCs may vary; the most common channels, among others, are:

[3] Namely, we consider the following lists: Gravelle (2015); the first tax haven list released by the OECD in 2000, that identified non-OECD tax havens on the basis of lack of an effective exchange of information on request, low or zero rate of taxation on mobile income, absence of a requirement that the activity performed in the jurisdiction by foreign investors be substantial; lack of transparency; the OECD list of April 2009, that identified countries not committed to the standard of exchange of information on request or that had not yet implemented the standard; the subsequent update of 2015 of the OECD list, always referring to countries non- compliant or partially compliant with the exchange of information on request; the IMF lists of countries classified as offshore financial centers in 2000 and 2007; the Financial Secrecy Index list of countries from Tax Justice Network; the EU list of tax havens, that reports countries and jurisdictions included in the tax haven lists of EU countries at December 2014.

[4] In addition to the lists reported in the previous note, for this second list of tax havens we have considered also the ordinary rate of corporate tax rate applied by each country or jurisdiction.

- **cash transfers**: the archetypal case of undeclared foreign asset creation is the transfer of cash across the national borders (i.e. smugglers crossing the border physically); these transfers, that mostly take place between countries that are geographically close to each other, are never declared in statistics;
- **misinvoicing of services and goods**: misinvoicing involves manipulating the price, quantity, or quality of service or goods on an invoice so as to shift capital illicitly across borders (for example acquisition of fictitious consultancy services from a colluding counterpart or overpricing of actual service provisions). These transactions generally involve the use of entities based in foreign countries which impose only limited restrictions on business activities within their jurisdiction, and little or no income tax;
- **transfer of funds or direct payments to offshore entities or bank accounts**: in some cases individuals who run small businesses or provide professional services may ask clients to make payments directly on offshore bank accounts.[5]

Exports of capital carried out directly by individuals and linked to tax cheating are probably more frequent than those carried out by corporations and other business entities with cross-border activities. Since corporations are subject to more regulatory checks (accounting standards, etc.) than individuals, corporate tax evasion would often entail falsification of documents, and hence be classified as tax fraud in most countries. Therefore, it is likely that outright tax evasion by corporations is less common than for individuals, even though when it takes place the amounts may be much greater.

At the same time, corporations and other large business entities make large use of profit shifting towards low-tax countries and other techniques for tax avoidance purposes. Profit shifting may take place in different ways, including mispricing of intra-firm trade in goods and services, location of intellectual properties in tax havens as well as debt shifting activities towards high-tax countries; for further details, see Gravelle (2015).

In our view, even if tax avoidance by large corporations is not directly linked to unreported capital held offshore, given the relevance in quantitative terms, the complex structures designed for shifting profits over the border may significantly contribute to the accumulation of low-taxed profits in offshore jurisdictions. These profits may then further feed unreported capital and the consequent tax evasion by individual investors. In fact, the profits accumulated offshore can be directly credited to offshore accounts of individual shareholders (for example subsequently invested in portfolio assets), so that adding to the overall amount of undeclared capital.

Furthermore, to the extent that these profits are neither distributed to shareholders nor reinvested in real activities, and that subsidiaries resident in offshore jurisdictions are not subject to strict accounting and reporting rules, the profits can be easily transformed into unreported capital of the same multinational enterprises, often with the use of additional layers of opaque vehicles to increase the level of confidentiality.

Regardless of the ways chosen to move funds abroad, nowadays individuals can easily manage their undeclared assets held abroad. The Internet allows individuals to easily open a bank account in the name of a fictitious company located in a tax haven, transfer funds on the accounts and invest them in securities. If the tax haven does not have an agreement to exchange information on an automatic basis or follows a strict banking secrecy policy, the tax administration of the investor's country of residence has no way to get any information. In many cases, the use of multiple layers of entities and complex schemes (including fiduciary accounts and other off-balance sheet transactions, or opaque investment structures, such as trusts, shell companies, foundations, etc.) can further reinforce the level of secrecy and opacity, allowing investors to disguise their beneficial ownership behind third persons' names and making it very difficult for domestic revenue agencies to discover the tax evasion. Another source of unreported capital held offshore can be the various types of illicit activities in the global underground economy, such as drug and arm trafficking, corruption, fraud, etc. Tax havens and offshore financial centers often provide the level of secrecy needed to conveniently hide and launder the proceeds of

[5] Recent studies by the Financial Intelligence Unit (FIU) of the Bank of Italy analyse the relevance and determinants of wire transfers between Italy and tax havens: see Cassetta *et al* (2014) and Gara and De Franceschis (2015).

these activities. However, for the purposes of our analysis, we do not consider this source, since in most countries the related proceeds would be untaxed anyhow.

2.3 FDI statistics: signals of the accumulation of capital in offshore jurisdictions

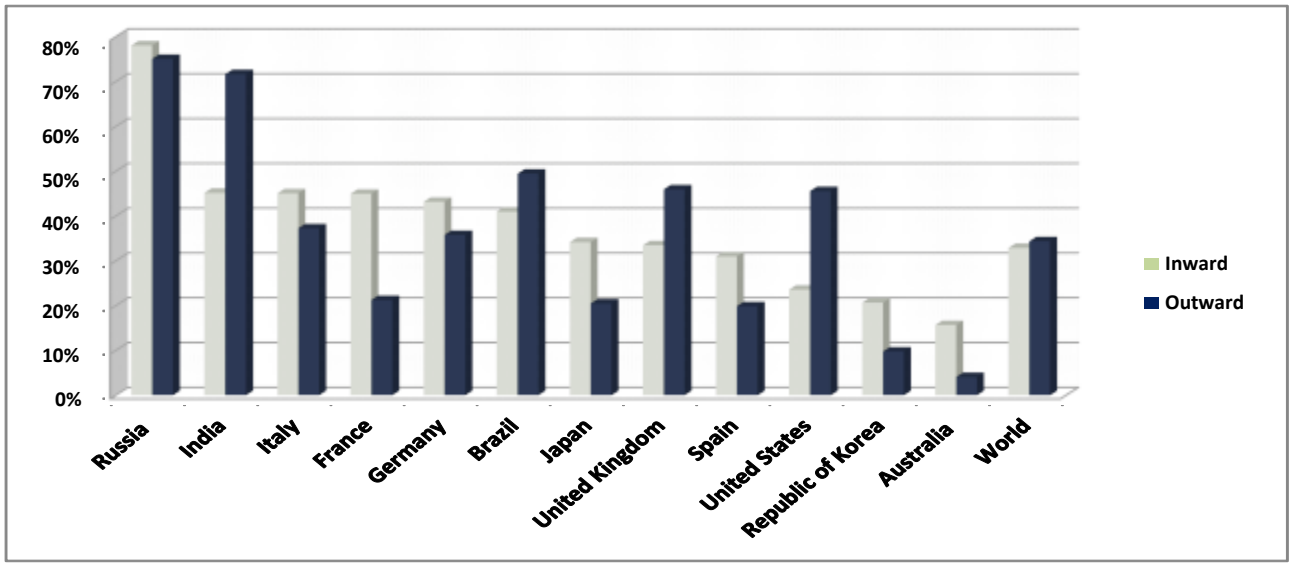
A first signal of the widespread use of OFCs that can be drawn from external statistics is the relevant share of foreign direct investments (FDI) stocks held vis-à-vis tax havens.

Chart 2.1 shows the distribution of these percentage shares by main reporting countries for both inward and outward FDI vis-à-vis partner countries located in tax havens (included in list A.2 in in Appendix A). Data are derived from the Coordinated Direct Investment Survey (CDIS) conducted by the IMF, which collects data on inward and outward direct investment positions broken down by counterpart economy. The percentage shares have been calculated for twelve major countries.[6]

Globally, almost one third of the FDI stock data (inward and outward) refers to partners located in tax havens. Such incidence is significantly high if it is compared with tax havens' GDP and varies quite significantly from country to country. For Russia over two thirds of the FDI stocks are vis-à-vis tax havens, for India more than 40 per cent in the case of inward FDI and more than 70 percent in the case of outward FDI. On the other hand, for Australia and South Korea we can observe lower values, significantly below one fourth; Italy is the third country in terms of percentage share of inward FDI held by tax havens.

For euro area countries the share is higher for inward than for outward FDI, probably indicating a propensity to use these tax havens to locate holding companies. Conversely, for India, United States, United Kingdom and Brazil the incidence is higher in outward FDI; the likely reason being the use to accumulate profits to be repatriated at a later stage in affiliated offshore companies.

Chart 2.1. Percentage shares of FDI stock data in equity capital vis-à-vis tax havens broken down by reporting country (average data 2009-2013)



Source: IMF (CDIS).

The choice among different tax havens in FDI allocation may depend on several factors related, among others, to distance or cultural proximity as well as to regulation and tax regimes. Consequently, we observe different geographical distributions for the reporting countries; Table 2.1 shows the ranking of tax haven partners for both inward and outward FDI.

The Netherlands, Luxembourg and Switzerland seem to be the main counterparts for many countries, such as Italy, France and Germany which show similar choices of tax haven partners.

[6] China and Canada have been excluded as data or required breakdown were not available; for the United Kingdom, data referring to 2013 have not been considered due to the large volume of amounts not allocated by counterpart country.

However, it should be taken into account that a significant share of positions vis-à-vis the Netherlands and Switzerland may be "genuine" FDI. Russia's main partner is Cyprus, followed by the Caribbean tax havens. Similarly Caribbean partners are relevant for the United States and Brazil. For India, Singapore is the most relevant tax haven destination for outward FDI, Mauritius for inward FDI.

Since the geographical distribution reported in CDIS is based on the immediate counterpart country, the reported tax havens may be a first "exit point" towards different final destinations.

In conclusion, high shares of FDI positions vis-à-vis tax havens may indicate loopholes which allow export of large volume of capitals as well as a widespread use of tax avoidance strategies to a certain extent linked to the accumulation of undeclared capital held abroad; for an in-depth analysis, see Haberly and Wòjcik (2013) and UNCTAD (2015).

Table 2.1: Ranking of tax haven partners in FDI for the major countries

2013 FDI Inward stock data - equity component									
Reporting country	**Total inward FDI vis-à-vis tax havens (millions of dollars)**	**Total share invested by tax havens**	**Share invested by the 1° country**		**Share invested by the 2° country**		**Share invested by the 3° country**		**Share invested by other tax havens**
United States	544,210	24%	Netherlands	42%	Luxembourg	22%	Cayman Islands	13%	24%
United Kingdom (*)	345,268	34%	Netherlands	45%	Luxembourg	18%	Switzerland	13%	25%
France	308,796	45%	Luxembourg	36%	Netherlands	36%	Switzerland	23%	5%
Russia	301,621	78%	Cyprus	53%	Netherlands	14%	Bahamas	11%	22%
Germany	290,565	43%	Netherlands	44%	Luxembourg	31%	Switzerland	17%	8%
Brazil	245,828	41%	Netherlands	66%	Luxembourg	16%	Bermuda	3%	15%
Italy	136,810	45%	Netherlands	44%	Luxembourg	42%	Switzerland	10%	3%
India	108,389	45%	Mauritius	57%	Singapore	18%	Switzerland	11%	14%
2013 FDI Outward stock data - equity component									
Reporting country	**Total outward FDI vis-à-vis tax havens (millions of dollars)**	**Total share invested in tax havens**	**Share invested in the 1° country**		**Share invested in the 2° country**		**Share invested in the 3° country**		**Share invested in other tax havens**
United States	2,146,736	46%	Netherlands	32%	Luxembourg	17%	Bermuda	15%	36%
United Kingdom (*)	762,816	46%	Luxembourg	32%	Netherlands	31%	Ireland	9%	28%
Germany	552,142	43%	Netherlands	55%	Luxembourg	25%	Switzerland	9%	11%
Russia	289,872	75%	Cyprus	45%	Virgin Islands	26%	Netherlands	16%	13%
France	285,639	21%	Netherlands	48%	Luxembourg	19%	Switzerland	17%	16%
Italy	183,195	37%	Netherlands	59%	Luxembourg	25%	Switzerland	6%	10%
Brazil	142,653	41%	Cayman Islands	30%	Netherlands	22%	Virgin Islands	19%	30%
India	50,428	72%	Singapore	38%	Netherlands	21%	Mauritius	18%	24%

Data are based on 2013 CDIS stock data with the exception of the United Kingdom which records for this year a high share of amounts vis-à-vis not allocated countries, therefore 2012 CDIS data have been taken into account for this country.

2.4 Signals from international trade in services statistics

As mentioned before, international transactions in goods and services may be used to move capital abroad. If trade in goods may be a major contributor because of higher values, on the other hand services and intangible assets may be more appealing due to their pricing and delivering process which is more opaque. In any case, these types of transfers should leave some evidence in external statistical data; anomalies should be observed in the geographical distribution, since in case of capital export a colluding counterpart, probably located in a tax haven, would be involved.

In this paragraph we will focus on the geographical breakdown by foreign contractual counterparty of trade in business services to assess the role of tax havens in this context. We don't extend this analysis to the geographical breakdown of goods because it may be distorted and less meaningful. As a matter of fact, the geographical breakdown for trade in goods is based on the country of origin/destination of goods which may differ from the contractual counterparty.

In fact, on the basis of OECD data (34 countries for goods and 26 for services, year 2011), Hebous and Johannesen (2015) – to the best of our knowledge, the only paper that analyses the role of tax havens in the international trade in business services – find that "tax havens play a more prominent role in service trade than in goods trade" (page 6), but the difference in partner country definition

might be crucial. To assess the relevance of the discrepancies in geographical distributions based on different criteria, we report in Appendix B a comparison exercise based on old Italian data on merchandise settlements;[7] the results confirm the relevance of this difference for Italy.

We take into account international trade in business services as it is likely to be most affected by misinvoicing. In detail, four categories of business services are considered: 1) charges for the use of intellectual properties (royalties and licenses fees); 2) financial services; 3) telecommunication, computer and information services; 4) other business services (which include research and development, professional and management consulting, technical, trade-related and other business services).

For Italy the source is the national balance of payments; for OECD countries we use the international trade in services database (collected on the basis of the 6th Manual on balance of payments), which includes annual bilateral data about 32 countries[8] broken down by type of service and partner country (up to 182 countries). The available reference period is different from country to country; in order to make comparisons with the Italian data, we focused on the period 2008-2013.

Moreover, the World Bank publishes a database that provides a consolidated and reconciled version of multiple sources[9] of bilateral trade data (symmetrized annual data according to 5th Manual); data are currently available until 2011 regarding more than 170 countries (both reporting and partner).

Looking at Table 2.2, we can observe that in Italian trade in business services the incidence of tax havens (using the same list used for FDI data) is higher than OECD and world average, nearly 30 per cent against 20-22 per cent; the main differences regard financial services (nearly 50 per cent) and royalties and licenses fees.

Table 2.2: Incidence of tax haven countries on international trade in business services

	ITALY (average 2008-2013)	**OECD data** (average 2008-2013)	**World Bank data** (imports 2001-2011)
Royalties and licenses	34%	26%	31%
Financial services	49%	24%	18%
Other business services	23%	21%	21%
Telecommunications, computer and information	27%	19%	18%
Total	29%	22%	20%

Sources: World Bank, OECD, national source for Italy.
Note: the list of tax havens is reported in Appendix A.

The gravity model for international trade in business statistics

Similarly to Hebous and Johannesen (2015), we analyse the relevance of OFCs in exports and imports of business services also by applying a gravity model to control such relevance with the usual gravity variables augmented with a simple index of financialization to take into account the level of financial importance of a country (aside from being a tax haven or not).

Equation (1) regresses the log of trade (imports and exports) of country *j* in business services with the partner country *i* on the logs of the usual gravity variables – GDP of the partner country *i* and geographical distance between *j* and *i* – and on two other variables, the first (log of F) representing the degree of financialization of the partner country and the second (O) indicating if the partner country *i* is a "tax haven":

$$1)\ ln(TS_{ji}) = \alpha + \beta 1 ln(D_i) + \beta 2 ln(GDP_i) + \beta 3 ln(F_i) + +\beta 4(O_i) + \epsilon_i$$

[7] This information was only available in the old Italian balance of payments data collection system based on settlements.
[8] Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany Greece, Hong Kong, Hungary, Ireland, Israel, Italy, Japan, Korea, Latvia, Luxembourg, Netherlands, New Zealand, Poland, Portugal, Russia, Slovak Republic, Slovenia, Spain, Sweden, United Kingdom, United States; see http://stats.oecd.org/(EBOPS 2010 - Trade in services by partner country).
[9] Data from the OECD, Eurostat, UN, and IMF data (the latter data are only on trade with the World as a partner) have been collected; data are reported in million US dollars for 1981 – 2011 and include more than 20 economic activities according to the BOP classification (BPM5), see http://data.worldbank.org/data-catalog/trade-in-services.

GDP_i controls for market size and D_i (distance) captures information costs related to the cultural, linguistic or legal distance (as there are no physical transportation costs for trade in services). The index of financialisation (F_i) is calculated as the sum of portfolio external liabilities scaled by national GDP and controls for the attractiveness of country *j* as a "financial center" (quite important in the case of trade in financial services). The dummy variable O_i indicates if the country *j* is a "tax haven".

We regressed Eq. 1 with OLS. In recent years, the literature has increasingly sought to address the problem that the level of trade between countries is frequently zero. Small countries may not have trade relations with all possible trading partners or statistical offices do not report trade flows below a certain threshold. This may be undesirable because the omitted observations contain information as to why low levels of trade flow are observed, or why some countries trade while others do not. In order to face this problem, following recent trends in literature we tested a Poisson regression to Eq. 1 (the dependent variable is in level instead of logs) to take into account this problem, increasing with zero flows the number of rows of the database (by reporting and partner country, type of services, year and direction of flow); a regression conducted with a zero inflated Poisson (zip model) gave almost identical results.[10]

Table 2.3 reports the results of regressions on OECD data for the set of reporting countries (import flows). Generally, we find that international trade in business services is positively correlated with GDP, financial development, and tax haven features of the counterpart country, and negatively correlated with distance.

Table 2.3: Gravity model for OECD imports of international business services

Variables	Charges for the use of intellectual properties		Financial services		Telecom., computer and information services		Other business services	
	OLS	POISSON	OLS	POISSON	OLS	POISSON	OLS	POISSON
Ln(GDP)	0.922***	1.243***	0.874***	0.986***	0.776***	0.853***	0.805***	1.078***
	-0.09	*-0.063*	*-0.054*	*-0.05*	*-0.051*	*-0.04*	*-0.056*	*-0.046*
Ln(Distance)	-0.325***	-0.115	-0.575***	-0.502***	-0.799***	-0.447***	-0.823***	-0.632***
	-0.075	*-0.116*	*-0.061*	*-0.07*	*-0.063*	*-0.085*	*-0.057*	*-0.069*
Ln(Financialisation)	0.461***	0.582***	0.476***	0.780***	0.317***	0.452***	0.237***	0.410***
	-0.1	*-0.166*	*-0.066*	*-0.133*	*-0.063*	*-0.122*	*-0.066*	*-0.076*
Offshore	1.402***	1.497***	0.999***	0.41	0.894***	0.507*	1.140***	0.729***
	-0.352	*-0.555*	*-0.345*	*-0.563*	*-0.279*	*-0.289*	*-0.262*	*-0.242*
Observations	3488	27232	3526	27459	4713	27247	5314	27726
Adj. (or pseudo) R^2	0.394	0.608	0.349	0.611	0.452	0.541	0.453	0.700
Clusters	117	181	131	181	170	181	169	181

The table reports OLS and Poisson estimates of Eq. 1, where the dependent variable is (in log for OLS) imports of business services of country *i* vis-à-vis country *i*, separately by type of services. Data on distances are taken by CEPII, data on GDP by IMF and World Bank, data on index of financialisation from CPIS. Robust standard errors clusterised by country of origin. T-statistics shown in italics. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

As found in several works (Sheperd, 2013), in Poisson models the coefficient of distance tends to be somewhat smaller than in OLS regression; it "largely reflects the impact of heteroskedasticity on the original OLS estimates (Santos Silva and Tenreyro, 2006). The main difference between the two models concerns the coefficient of the dummy "offshore" in case of financial services; in OLS it has a large positive value (0.999) and it is statistically significant while in Poisson it has a smaller value (0.41) and is not statistically significant. Conversely, the coefficient of "financialization" appears higher in Poisson regression; it seems to imply that the level of financialization of the partner country is overwhelming in respect to the "offshore" characteristics. For telecommunications and other business

[10] Martin and Pham (2008), and Burger et al. (2009) have proposed the zero-inflated extension of the Poisson gravity model for situations where the data generating process results into too many zeroes; for a discussion, Krisztin and Fischer (2014).

services the Poisson estimates increase, with respect to OLS models, the value of the coefficient of "financialisation" and reduce those relative to the coefficients of "offshore", whose values remain however considerable and statistically significant.

We may conclude that the empirical analysis confirms the relevance of offshore countries in the international trade of business services, as already pointed out by Hebous and Johannesen (2015), who found an even greater coefficient for the tax haven dummy (1.79) in the global trade in services: "the rise in international service trade cannot be fully understood without accounting for the role of tax havens".

Particularly, they found evidence of transfer mispricing "in four major service categories: intellectual property (such as services related to patents and trademarks), headquarter services (such as administration and management), information services and sea transport" (page 4). They conclude that mispricing in trade of international services generates a limited loss in government revenue;[11] this result should not be taken as a general conclusion as many other ways (included trade in goods) are available to reduce the fiscal burden by using transactions with tax havens.

2.5 Unreported capital held in OFCs by Italian residents: signals from the outcomes of the 2009-2010 voluntary disclosure scheme

This section describes the outcomes of the 2009-2010 voluntary disclosure (VD) scheme which allowed Italian taxpayers to disclose financial assets and real properties held abroad before December 2008 and not declared to the tax administration.

Under the scheme (launched in September 2009) taxpayers were allowed to disclose foreign assets by either repatriating or regularizing them. The first case involved the transfer to Italy of the assets or the capital arising from their liquidation. In the second case the assets were declared but remained abroad or were repatriated without liquidation. Upon declaration of the foreign assets, taxpayers were required to pay a substitute tax equal to 5 per cent of the asset value,[12] but no further tax, interest or penalty were due, and the criminal prosecution of tax fraud and tax evasion was excluded; furthermore, taxpayers could keep their full anonymity towards the tax administration. Finally, taxpayers were "shielded" from future tax assessments on the same assets. As a consequence of these favorable conditions, the 2009-10 VD led to the disclosure of a very high amount of undeclared foreign assets, about €100 billion, with consequent statistical revisions in the Italian balance of payments and international investment position.

Table 2.4 illustrates the distribution of the repatriated and regularized assets both by type of assets and by location country.

Data on column A show that repatriations with liquidation generally involved bank deposits; in fact, in many cases financial assets were liquidated and transformed in deposits before the disclosure. Consequently, data on column B regarding regularizations and repatriation without liquidation reflect more accurately the real distribution of the undeclared assets, showing that they were mainly invested in debt and equity securities. Therefore the real distribution of the undeclared assets has been estimated (column E of Table 2.4) under the assumption that column A data were broken down like column B data; the final results show that undeclared assets were mainly invested in portfolio securities (approximately €60 billion) and in bank deposits (€13 billion).

The distribution by country of location of repatriated and regularized capital shows that assets were mainly deposited in Switzerland (68.8 per cent) and to a lower extent in Luxembourg. It should be noticed that the location country does not necessary reflect the debtor country, i.e. the country which issued the securities, but rather the country where the securities were held in custody.

[11] "Even under the extreme assumption that all service imports from tax haven affiliates are purely fictitious transactions [..] the implied revenue loss would be around €3 billion or around 7% of the total German corporate tax revenue".

[12] The tax rate rose to 6 per cent for assets declared up to 28 February 2010, and to 7 per cent for assets declared from the 1st of March to 30 April 2010.

Table 2.4: Distribution of Italian 2009-10 voluntary disclosure (billions of euros or percentages)

Type of asset	A) Repatriations with liquidation	B) Repatriations without liquidation and regularizations	Total C=A+B	D) Percentage of the total	E) Estimate of the original composition by type of asset
Cash	-	5.2	5.2	5.4%	8.8
Bank deposits	38.1	7.7	45.8	47.2%	13.0
Equity securities	0.1	14.1	14.2	14.6%	23.7
Debt securities	1.1	21.2	22.3	23.0%	35.7
Financial derivatives	-	-	-	-	0.0
Other financial assets	-	8.1	8.1	8.4%	13.6
Real estate and properties	-	1.4	1.4	1.4%	2.4
Total	**39.4**	**57.6**	**97.0**	**100.0**	**97.0**
Country of location	**A)Repatriations with liquidation**	**B) Repatriations without liquidation and regularizations**	**Total C=A+B**	**D) Percentage of the total**	
Switzerland	27.7	39.1	66.8	68.8%	
Luxembourg	1.4	6.2	7.6	7.9%	
San Marino	2.4	2.2	4.6	4.8%	
Monaco	2.9	1.5	4.4	4.5%	
Austria	0.9	0.6	1.5	1.6%	
Liechtenstein	0.4	1.1	1.5	1.6%	
Jersey	0.0	1.2	1.2	1.3%	
France	0.5	0.7	1.2	1.2%	
United Kingdom	0.6	0.5	1.2	1.2%	
Ireland	0.0	0.9	0.9	1.0%	
Germany	0.7	0.1	0.8	0.9%	
United States	0.4	0.4	0.8	0.8%	
Singapore	0.4	0.1	0.5	0.5%	
Other countries	1.0	3.0	4.0	4.1%	
Total	**39.4**	**57.6**	**97.0**	**100.0**	

Sources: data on voluntary disclosure scheme reported by banks to the Bank of Italy for balance of payments.

3. Global statistical discrepancies in balance of payments and international investment position statistics

In this section we illustrate some statistical discrepancies in the balance of payments and international investment position (IIP) statistics, which may be considered as evidence of the presence of undeclared capital held abroad. We start by analyzing the consistency between external financial stocks (net IIP) and balance of payments (BP) flows; then we illustrate the statistical discrepancies existing at a global level in balance of payments data.

Evidence of discrepancy: comparison between net IIP and the cumulated current and capital account

An evidence of discrepancy in national BP and IIP statistics is the comparison between net IIP with both the cumulated current and capital account balance and the cumulated financial account balance. We know that, in the theoretical case where errors and omissions in BP are equal to zero, the relation among the main BP balances can be expressed as follows:

$$current\ account\ balance + capital\ account\ balance = financial\ account\ balance$$

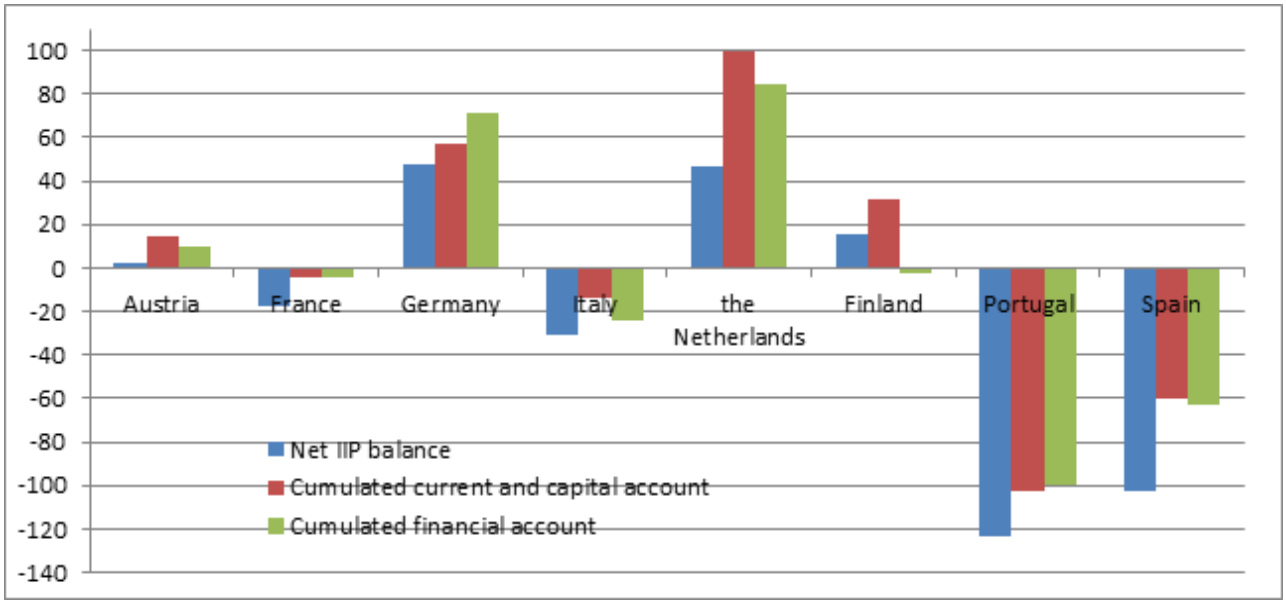
Consequently, apart from valuation adjustments, the cumulated current and capital account balance should be closely tracking the net IIP. For most of the major euro area countries, we may assume that in the long run valuation adjustments to assets and liabilities grow on average at a similar pace and, therefore, they would roughly offset each other, so that we just cumulated the annual flows of BP.

Chart 3.1 shows data in percentage of national GDP: inconsistencies between BP and IIP are quite widespread. The figure reports the net IIP at the end of 2013 and the cumulated balance since 1975 of both current plus capital account and the financial account; the difference between the two cumulated balances is the amount of cumulated errors and omissions.

All countries have an official net IIP worse than what would be warranted on the basis of the sequence of current and capital account balances. In some cases it is unlikely that valuation adjustments may explain these differences. This discrepancy leads to the dilemma about the overestimation of liabilities versus underestimation of assets. In the case of Italy, the results of the quality and consistency analysis and the outcomes of the control on mirror data made on BP and IIP aggregates do not seem to reveal the presence of significant biases in the current account time series or in IIP components other than portfolio stocks.

Furthermore, a significant amount of negative cumulated error and omissions can be observed for Italy and a group of countries (Austria, Finland, the Netherlands and Spain), which is consistent with the hypothesis of external undeclared assets. Germany and Portugal show positive cumulated errors and omissions, but their net IIPs are in any case worse than their cumulated current and capital accounts; the difference unexplained by errors and omissions may depend on valuation adjustments or on unreconciled BP and IIP time series, for example when BP and IIP statistics derive from different data sources and/or are not backward revised.

Chart 3.1: Net IIP (end-2013) and cumulated (since 1975*) balances of current and capital account and financial account as a percentage of national GDP



Sources: Extended Wealth of Nations II (January 2015 release; see Lane and Milesi-Ferretti, 2001 and 2007), Eurostat.
Note (*): data on the capital account balance are not available for all countries as from 1975, but this should have a negligible impact.

In conclusion, the hypothesis that the net position reported in official statistics of the main euro area countries is worse than the real one due to undeclared assets seems confirmed by the prevailing patterns of the observed discrepancies between IIP and BP aggregates. On the contrary, for the United Kingdom and the United States,[13] the cumulated current and capital accounts would indicate a net position significantly worse than the one reported by official statistics.

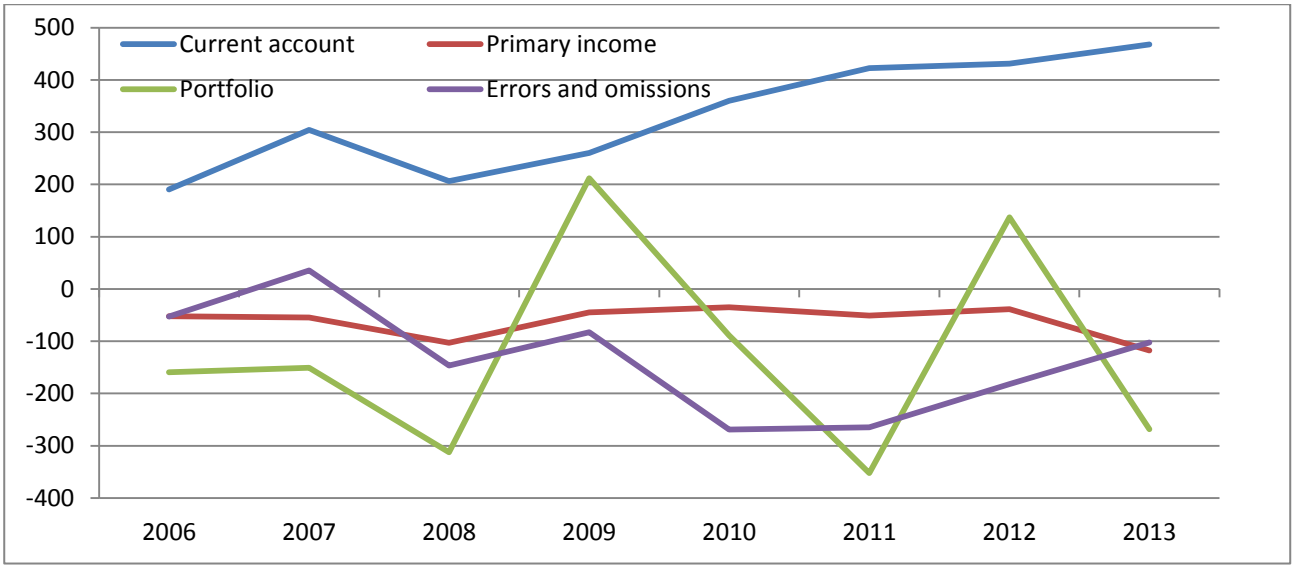
[13] In the case of the United States, several papers (for example, Eichengreen (2011), Habib (2010) and Lane and Milesi-Ferretti (2009)) try to explain this phenomenon (frequently called the "exorbitant privilege"). According to Habib (2010), "one third of this excess return is accounted for by a positive yield differential from investment income and two thirds by capital gains. At least as regards yields from the investment income, other major issuers of international currencies, such as Japan and Switzerland, enjoy positive differential returns almost similar to those of the United States. The euro area

Evidence of discrepancy: global balance of payments asymmetries

Global balance of payments statistics published by the IMF (according to the 6th Manual) show discrepancies in the direction of negative errors and omissions (Chart 3.2), together with a positive current account balance and negative balances of primary income and (as an average in the period) portfolio investment. Theoretically, in case of correct compilation by all countries, the overall balance should instead be zero for each item.

Negative errors and omissions are generally associated with an underestimation of capital outflows; countries tend to overestimate their external liabilities and/or to underestimate their external assets. In the first case, the overestimation of the external liabilities can be due to an erroneous attribution to foreign investors of, e.g. securities, issued by residents and held abroad (and not declared) by resident investors. The second case, the **underestimation of foreign assets**, seems more plausible as far as systematic under-reporting of assets held abroad is concerned; it may be a major cause of the discrepancies observed between global assets and liabilities.

Chart 3.2. Global discrepancies in balance of payments: balances of current account, capital account and portfolio investments and errors and omissions (billions of dollars)



Sources: International Monetary Fund (global statistics).

4. The estimation of the undeclared capital held abroad

"One coincidence is just a coincidence. Two coincidences are a clue. Three coincidences are a proof" wrote Agata Christie.

The signals from external statistics, such as FDI and services, the outcomes of the VD, the comparison between IIP stocks and BP flows and the global asymmetries suggest that the amounts of undeclared external financial assets may be quite significant and should be mainly invested in portfolio securities and bank deposits. This section presents the methodology to estimate them; for portfolio securities, we built on Pellegrini and Tosti (2011, 2012); with reference to bank deposits, we use an updated and revised version of the methodology used in Sanelli (2008).

however does not enjoy a yield privilege similar to other issuers of international currencies" (page 31). Lane and Milesi-Ferretti (2009) focus their attention on residual adjustments (i.e. unrecorded financial flows, mis-measured stock positions, or mis-measured capital gains): "a good proportion of the residual adjustment could well reflect unrecorded financial flows, especially in the portfolio category" (page 197).

4.1 The undeclared foreign portfolio assets

As for the under-reporting of foreign portfolio assets our approach is based mainly on mirror statistics. In detail, we analyze the discrepancies between assets and liabilities at the level of issuer country and type of financial instruments, and assume that such discrepancies are a good proxy of the underestimation of external portfolio assets. In other words, we assume that data on external liabilities are more reliable than those on foreign assets.

Our approach is independent from any specific mode of capital export; it shifts the focus to the stocks of final financial investments, which can also be constituted by assets different from portfolio securities, although their amounts are likely to be significantly lower. The approach is similar to Zucman (2013); differences concern mainly the criteria of breaking down, by issuer country and financial instruments, the portfolio assets held by countries that do not publish (reliable and detailed) statistics on their external assets (mainly OFCs).

The estimation is based on the analysis of mirror data published by IMF integrated with other statistical sources in order to increase the coverage.

The primary source is the IMF Coordinated Portfolio Investment Survey (CPIS): starting from 2001, member countries (with the exception of China, Saudi Arabia and some other oil-exporting countries and several OFCs) provide information on the stock of portfolio assets by issuing (debtor) country.[14] As part of the CPIS, two additional surveys regarding securities held as official reserve assets and securities held by international bodies are conducted.[15] The CPIS reports the bilateral positions between investor and issuing countries; the geographical breakdown by issuing country allows us to derive data on liabilities (*derived liabilities*) by country. In formal terms, we define:

A=assets, L=liabilities, P=derived liabilities.

Underscripts: i=issuing country; j=investor country, t=year (from 2001 to 2013).

Overscripts: E = equities, D = debt.

By aggregating assets declared by all investor countries j in a single issuing country i, we obtain the *derived liabilities* of country i in year t for a type of financial instrument (E or D) as:

$$1) \quad {}_tP_i^E = \sum_j {}_tA_{ji}^E \quad \text{e} \quad {}_tP_i^D = \sum_j {}_tA_{ji}^D$$

The second benchmark for the comparison is the IIP data of countries reporting to the IMF,[16] which are published on the basis of the same BPM6 rules. Portfolio stocks are broken down by type of financial instrument but not by partner country (investor for liabilities or issuer for assets). In the absence of reporting errors, *derived liabilities* from the CPIS should be less (if coverage is incomplete) than or equal to the liabilities declared in IIP statistics. Asset data have been used in this paper to check total declared assets in the CPIS.

The External Wealth of Nations II (EWN II) is a database developed by Lane and Milesi-Ferretti.[17] It marks an improvement on the official data published by the IMF (CPIS and IIP), as it extends coverage by integrating other sources and estimates. The stock of assets and liabilities for 211 countries is made available (with different time ranges). Data are broken down by major component of IIP, but due to the dependence on IIP data, unlike the CPIS, it provides no information on the geographical breakdown. In this work, EWN II is used to fill information gaps about countries that do not publish their IIP and/or do not participate in the CPIS.

Merging the three main databases (CPIS, IIP and EWN II). Our database integrates the existing ones so as to increase coverage of data on portfolio assets and liabilities as much as possible.

---

[14] Assets are broken down by (at least) equity securities (including shares and investment funds) and debt securities (money market instruments and bonds and notes). Assets are valued at market price at the end of the period; CPIS is aligned with the IMF Balance of Payments and International Investment Position Manual, sixth edition (BPM6).

[15] These statistics are published only at an aggregate level as data are confidential.

[16] Downloadable at: http://data.imf.org/?sk=7A51304B-6426-40C0-83DD-CA473CA1FD52&ss=1440014571113.

[17] For further details, see Lane and Milesi-Ferretti (2001, 2007).

The starting point is the CPIS data on asset stocks (with the breakdown by issuer country),[18] which have been matched with the corresponding portfolio liabilities (with no breakdown by investor country), using the IIP, CPIS (in this case as *derived liabilities*) and EWN II. For each issuing country i and year t we can calculate the difference between total liabilities (available with no breakdown by investor country) and the sum of the assets that investor countries j declare they are holding in securities issued by country i:

2) $\forall i,t \quad {}_tU_i^E = {}_tL_i^E - \sum_j {}_tA_{ji}^E$ and the global discrepancy on equity securities is given by: ${}_tU^E = \sum_i {}_tU_i^E$

3) $\forall i,t \quad {}_tU_i^D = {}_tL_i^D - \sum_j {}_tA_{ji}^D$ and the global discrepancy on debt securities is given by: ${}_tU^D = \sum_i {}_tU_i^D$

($i \neq j$; $i,j=1,\ldots,n$; $t=2001,\ldots,2013$).

If available, official IIP data are used to determine portfolio liabilities of each county; secondly, EWN II[19] is used. If neither source provides any reliable information, the liabilities of the issuing country are assumed to be equal to the derived liabilities (from the CPIS), namely:

4) ${}_tL_i^E = {}_tP_i^E = \sum_j {}_tA_{ji}^E$ and, by definition, the total discrepancy for that country is zero: ${}_tU_i^E = 0$

5) ${}_tL_i^D = {}_tP_i^D = \sum_j {}_tA_{ji}^D$ and, by definition, the total discrepancy for that country is zero: ${}_tU_i^D = 0$.

At the initial stage of the construction of the database the discrepancy amount to $11.5 trillion (Table 4.1).

Table 4.1: Initial stage: comparison between global portfolio assets and liabilities
(billions of US dollars or percentages)

		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
(A) Assets (incl. official reserves declared in CPIS)	Equity	5,503	5,071	7,390	9,235	11,097	14,926	18,061	10,410	14,484	16,446	15,186	17,881	21,782
	Debt	7,592	9,411	12,360	14,949	15,721	19,285	22,673	21,760	24,451	25,731	25,682	27,492	28,240
	Total	**13,096**	**14,482**	**19,749**	**24,183**	**26,818**	**34,211**	**40,734**	**32,169**	**38,935**	**42,178**	**40,867**	**45,373**	**50,022**
(L) Liabilities	Equity	6,853	6,365	9,011	11,214	13,456	17,560	21,501	12,896	17,694	20,196	18,979	22,335	26,913
	Debt	9,074	11,113	13,977	16,989	18,156	22,121	26,463	26,101	28,852	30,164	31,132	33,607	34,614
	Total	**15,927**	**17,478**	**22,988**	**28,203**	**31,612**	**39,681**	**47,963**	**38,997**	**46,546**	**50,360**	**50,111**	**55,942**	**61,527**
Global discrepancy	Equity	-1,350	-1,294	-1,621	-1,979	-2,359	-2,634	-3,440	-2,486	-3,210	-3,750	-3,794	-4,454	-5,131
	Debt	-1,481	-1,702	-1,618	-2,041	-2,435	-2,836	-3,790	-4,342	-4,401	-4,432	-5,450	-6,115	-6,374
	Total	**-2,831**	**-2,996**	**-3,239**	**-4,020**	**-4,794**	**-5,470**	**-7,229**	**-6,828**	**-7,611**	**-8,182**	**-9,244**	**-10,569**	**-11,505**
Global discrepancy as a share of assets	Equity	-24.5%	-25.5%	-21.9%	-21.4%	-21.3%	-17.6%	-19.0%	-23.9%	-22.2%	-22.8%	-25.0%	-24.9%	-23.6%
	Debt	-19.5%	-18.1%	-13.1%	-13.7%	-15.5%	-14.7%	-16.7%	-20.0%	-18.0%	-17.2%	-21.2%	-22.2%	-22.6%
	Total	**-21.6%**	**-20.7%**	**-16.4%**	**-16.6%**	**-17.9%**	**-16.0%**	**-17.7%**	**-21.2%**	**-19.5%**	**-19.4%**	**-22.6%**	**-23.3%**	**-23.0%**

Sources: IMF (CPIS and IIP) and EWN II.

The estimation of the global amount of undeclared portfolio assets

The second step in our process of building the database consists of identifying the critical aspects regarding data coverage and availability.

The addition of further data sources has allowed us to fill a substantial share of the gaps, especially on the assets side. In a few cases corrections have been made for both assets and liabilities; in

[18] For some countries, namely Bahrain, India, Kuwait, Latvia, Mexico and Pakistan, some missing data need to be estimated.
[19] In the Appendix C the methodological note describes the few cases in which the *derived liabilities* (from CPIS) are greater than the officially declared liabilities (from the IIP).

the latter case this is a consequence of adjustments made to eliminate some inconsistencies derived from the comparison of official data.

The work of progressively increasing the level of coverage and the consistency of the database has regarded the following countries (or groups of countries): the United States, Japan, Ireland, Germany, China, International Organizations, the Netherlands, the Arab oil-exporting countries and major OFCs (like Cayman Islands, British Virgin islands, Guernsey and Jersey). Appendix C contains a detailed description of both the additions and the corrections made and the additional data sources found.

In the remaining cases (mainly OFCs, e.g. the former Netherlands Antilles), where portfolio liabilities are not available, they have been assumed to be equal to the corresponding CPIS *derived liabilities*. As a result, no discrepancy referring to the securities issued by these countries can be shown in our data by construction and the global discrepancy tends to be underestimated as far as these countries are concerned.

In Table 4.2 we summarize the final results of the adjustment and integration process. The difference between assets and liabilities is still large – lower than the one reported in Table 3.1 – and on average equal to 10.2 per cent of total assets in the period.

The discrepancies for both equity and debt securities show an upward trend with the exceptions of single periods. In 2013 the global discrepancy amounts to $4.909 trillion (equal to 6.6 per cent of world GDP). The ratio between global discrepancy and global GDP has a stable trend.

Table 4.2: Final stage: comparison between global portfolio assets and liabilities
(billions of US dollars or percentages)

		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Assets	Equity securities	5,906	5,457	7,954	9,964	12,057	16,274	20,070	12,061	16,334	18,763	17,491	20,625	24,986
	Debt secuities	8.,140	10,080	13,146	16,035	17,158	21,215	25,231	24,603	27,715	29,415	29,418	31,477	32,487
	Total	**14,047**	**15,537**	**21,099**	**25,999**	**29,215**	**37,488**	**45,300**	**36,665**	**44,050**	**48,179**	**46,909**	**52,102**	**57,472**
Liabilities	Equity securities	7,048	6,617	9,425	11,766	14,165	18,781	23,493	14,478	18,901	21,474	20,060	23,480	28,000
	Debt securities	9,072	11,156	14,037	17,086	18,140	22,121	26,366	25,884	28,791	29,868	30,971	33,483	34,381
	Total	**16,120**	**17,773**	**23,461**	**28,852**	**32,305**	**40,901**	**49,859**	**40,362**	**47,692**	**51,341**	**51,031**	**56,963**	**62,381**
Global discrepancy	Equity securities	1,142	1,160	1,471	1,802	2,108	2,507	3,424	2.,417	2,567	2,710	2,569	2,856	3,014
	Debt securities	932	1,076	891	1,051	982	906	1,135	1,280	1,.076	453	1,553	2,006	1,895
	Total	**2,074**	**2,236**	**2,362**	**2,853**	**3,089**	**3,413**	**4,558**	**3,697**	**3,643**	**3,163**	**4,122**	**4,862**	**4,909**
Global discrepancy as share of assets	Equity securities	19.3%	21.3%	18.5%	18.1%	17.5%	15.4%	17.1%	20.0%	15.7%	14.4%	14.7%	13.8%	12.1%
	Debt securities	11.5%	10.7%	6.8%	6.6%	5.7%	4.3%	4.5%	5.2%	3.9%	1.5%	5.3%	6.4%	5.8%
	Total	**14.8%**	**14.4%**	**11.2%**	**11.0%**	**10.6%**	**9.1%**	**10.1%**	**10.1%**	**8.3%**	**6.6%**	**8.8%**	**9.3%**	**8.5%**
Global discrepancy as share of world GDP	Equity securities	3.5%	3.4%	3.9%	4.2%	4.5%	5.0%	6.0%	3.9%	4.3%	4.2%	3.6%	3.9%	4.0%
	Debt secuities	2.9%	3.2%	2.3%	2.4%	2.1%	1.8%	2.0%	2.1%	1.8%	0.7%	2.2%	2.8%	2.5%
	Totale	**6.3%**	**6.6%**	**6.2%**	**6.6%**	**6.6%**	**6.8%**	**8.0%**	**5.9%**	**6.2%**	**4.9%**	**5.8%**	**6.7%**	**6.6%**

Sources: IMF (CPIS and IIP), EWN II, national sources.

Table 4.3 shows the breakdown by issuer country and by instruments of the global discrepancies.

As for equity securities, which includes investment fund shares, the top five issuing countries (Luxembourg, Cayman Islands, the United States, Ireland, Guernsey) generate on average approximately 70 per cent of the global discrepancy in the period 2001-2013. The relevance of these discrepancies is consistent with the role played by almost all of these countries, as they are frequently the location of investment funds and tend to attract capital from foreign investors. The shares of global discrepancy related to developed countries appear to be erratic in some cases (e.g. the United States), the shares related to OFCs are generally more stable. The observed trends support the hypothesis of discrepancy due to deliberate under-reporting of assets rather than statistical errors.

As for debt securities, the global discrepancy is less concentrated; the top six issuing countries – the United States, France, United Kingdom, the Netherlands, Japan and Australia – sum up on average to more than half of the global difference between liabilities and assets: all of them are developed

countries and their significance in the global discrepancy is consistent with their role as issuer of debt securities (mainly public sector bonds). The volatility is higher for debt than for equity securities; probably in the case of debt securities statistical errors might explain a non-negligible share of the observed discrepancies.

The last column of Table 4.3 shows the effects of discrepancies on a country's own liabilities (declared or estimated). Especially for equity securities, as is to be expected, the impact is much smaller for developed countries (the United States, Switzerland, the Netherlands and Ireland) than for offshore countries for which in some cases the discrepancies exceed 40 per cent of the liabilities; it seems that the higher the indicator, the higher the propensity of a country to act as a tax haven. As for debt securities, the percentage weight of discrepancies is generally less than 10 per cent.

Table 4.3 – Major portfolio discrepancy by issuing country (billions of US dollars or percentages)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Average share in global discrepancy	Average share in country's liabilities
	EQUITY SECURITIES														
Luxembourg	230	276	357	431	552	609	720	604	716	744	719	771	762	25.2%	27.5%
Cayman Islands	100	122	192	287	367	601	985	797	571	597	504	537	571	21.0%	36.1%
United States	291	213	259	274	181	103	165	46	252	275	337	394	569	11.3%	8.8%
Ireland	37	49	66	81	94	56	113	179	162	180	208	204	203	5.5%	12.2%
Guernsey	28	31	45	65	80	112	157	121	110	119	127	134	125	4.2%	50.7%
Netherlands	3	25	2	3	131	163	175	91	98	90	107	90	48	3.4%	16.8%
Switzerland	83	80	85	94	91	87	75	68	36	57	40	78	48	3.1%	12.2%
Brititish Virgin Is.	15	31	45	50	60	81	110	89	79	81	71	75	87	2.9%	44.0%
Jersey	53	62	63	66	69	107	144	101	58	49	39	30	9	2.9%	42.5%
Japan	18	18	30	39	85	69	77	37	42	48	40	56	112	2.3%	5.9%
Hong Kong	16	14	12	24	27	20	76	36	58	57	47	81	84	1.9%	15.8%
Other countries	267	239	314	387	372	498	625	248	385	413	329	406	395	16.4%	-
Total	**1,142**	**1,160**	**1,471**	**1,802**	**2,108**	**2,507**	**3,424**	**2,417**	**2,567**	**2,710**	**2,569**	**2,856**	**3,014**	**100.0%**	**13.7%**
	DEBT SECURITIES														
United States	253	317	203	296	178	184	142	159	0	0	63	293	379	16.2%	2.9%
France	127	136	116	163	215	120	172	214	186	63	144	196	218	13.6%	8.7%
United Kingdom	29	41	0	4	79	51	83	47	145	68	251	263	180	8.3%	5.4%
Netherlands	24	52	101	111	63	96	85	79	45	25	54	49	39	5.4%	4.8%
Japan	37	25	29	55	26	50	87	93	67	23	90	61	74	4.7%	8.4%
Australia	40	50	44	44	50	55	58	56	47	29	81	77	73	4.6%	10.2%
Italy	26	27	15	10	19	66	114	97	75	29	74	90	50	4.5%	4.6%
Internation. Og.	68	66	63	25	21	0	0	-0	40	4	47	173	159	4.4%	6.7%
Spain	0	13	5	16	16	39	57	63	68	32	69	63	57	3.3%	5.0%
Austria	32	40	35	43	39	33	44	43	35	12	38	45	24	3.0%	9.8%
Germany	0	0	0	0	0	0	9	68	43	21	124	132	53	3.0%	1.7%
Other countries	296	309	281	282	277	213	284	362	324	147	518	564	587	29.0%	-
Total	**932**	**1,076**	**891**	**1,051**	**982**	**906**	**1,135**	**1,280**	**1,076**	**453**	**1,553**	**2,006**	**1,895**	**100.0%**	**5.1%**

Sources: IMF (CPIS and IIP), EWN II, national sources.

An estimation of the undeclared assets for the Italian investors

Once a global estimation of the under-reported assets has been calculated, the final step is to quantify the undeclared amounts for each investor country. In detail, our exercise focuses on the assessment of the under-reporting for Italy by assigning to it a share of the global discrepancy. In order to obtain a geographical breakdown of the global discrepancy by investor country, we make the simple assumption that the amount of the undeclared assets may be proportional to the financial "weight" of each country.

Each country-unallocated liabilities are attributed in proportion to the share by the investing country in the allocated liabilities, as declared in the CPIS data. Such a share is calculated for each combination of issuer country, type of financial instrument (equity and debt) and reference year. In general, we define the under-reporting to be attributed to an investor country *j* in the year *t* as follows:

6) $ {}_t^jU = (\sum_i {}_tK_{ji}^E \cdot {}_tU_i^E + \sum_i {}_tK_{ji}^D \cdot {}_tU_i^D)$ ($0 \le K \le 1$; $i \neq j$; i,j=1,….,n; t=2001,...,2013).

On the basis of the mirror data (CPIS) criterion, the shares ${}_tK_{ji}^E$ and ${}_tK_{ji}^D$ are calculated as follows:

C1) $\forall i,t \quad {}_tK_{ji}^E = \frac{{}_tA_{ji}^E}{\sum_j {}_tA_{ji}^E}$ and $ {}_tK_{ji}^D = \frac{{}_tA_{ji}^D}{\sum_j {}_tA_{ji}^D}$ for $j \in \{CPIS\}$.

This approach uses all the detailed information provided by the CPIS: in other words, the basic hypothesis is that under-reporting should be proportional to the amounts reported officially by investor countries. This criterion takes into account the level of foreign portfolio assets (and thus it properly weights the financial openness of the investor country), as well as the preference of each investor country for a specific combination of issuer country/financial instrument.

Accordingly, it attributes a higher propensity to under-report portfolio assets to the major investors in securities issued by countries for which high discrepancies between declared and derived liabilities are observed (Luxembourg, the Cayman Islands, etc.). As a consequence, no under-reporting is attributed to the countries (e.g. China and Arab oil exporters) which do not participate in the CPIS and for which assets have been estimated.

As a robustness test, we compare this estimate with an alternative one that is simply obtained dividing the world discrepancy by the country share of world GDP (an economic variable available for almost all countries). Formally, we have:

C2) $\forall i,t \quad {}_tK_{ji}^E = {}_tK_{ji}^D = \frac{{}_tGDP_j}{\sum_r {}_tGDP_r}$ (r,i=1,….,n; t=2001,...,2013).

This criterion concentrates the allocation of undeclared assets according to the size of "real" economic activities rather than the relevance of financial investments. Moreover, it does not take into account differences across countries in terms of saving propensity, level of financial openness and preference in terms of issuing country/instrument.

The table contained in Appendix D reports a geographical breakdown of the global discrepancy by investor (for the major European countries) calculated with the same methods. The estimation is critical for Italy as it is necessary to take into account the relevant impact of the repatriation of capital due to the voluntary disclosure (VD) in 2009 and 2010. The effects of such VD weaken the assumptions of proportionality underlying the two attribution criteria before mentioned, so we started from the stock of undeclared assets estimated by the end of 2008 before the repatriation of capital; at end-2008 the average of criteria C1 and C2 amounted to €133 billion (Pellegrini and Tosti, 2011).[20]

This amount was reduced by the (estimated) portfolio securities disclosed by the VD (€56 billion); the remaining stocks have been revaluated for changes in prices and exchange rates and increased to take into account the outflows of undeclared capital which took place in the following years.

The estimation of these outflows is based on the persistent negative errors and omissions recorded in the Italian balance of payments, which are generally linked to unrecorded investments in foreign assets. A share of the cumulated errors and omission in the four years following the VD (2010-

[20] This estimate, calculated by Pellegrini and Tosti in their previous work, was based on the CPIS data which did not include the statistical revisions on the time series subsequently introduced to take into account the amounts brought to light with the VD; the statistical data before the revisions reflected the original situation at end 2008 and hence might be a better basis for the estimates. For this reason the estimated amounts of undeclared assets at end 2008 indicated in this paragraph slightly differ from those reported in table D1 in Appendix (calculated on the basis of the updated time series).

2013) has been taken as a proxy of external portfolio undeclared assets. The percentage share applied reflects the weight of portfolio assets in the Italian IIP, on average about 38 per cent of the total for the non-banking sector. Errors and omissions in the same period amounted to €-60 billion, so that about 23 billion (38 per cent of €60 billion) could be considered as an estimate of "new" acquisition of undeclared external portfolio securities. All these calculations lead to an estimation of undeclared portfolio assets at end-2013 amounting to €124 billion.

As a term of comparison we also estimated the amount of undeclared portfolio assets at end-2013 with an alternative method. In this case we assume that after four years the effects of the VD may be neglected; consequently, we consider that the amount of the undeclared assets by Italian investors is proportional to the relative financial/economic weight of Italy. If we apply the criteria C1 and C2 to the global discrepancy at end-2013 as reported in Table 3.2 ($4.9 trillion), an average of them amounts to €136 billion at end-2013. This alternative estimation is higher but not so different from that above mentioned (€124 billion). Table 4.4 shows the breakdown by financial instrument of the two. In par. 4 the more conservative estimate has been taken into account as a basis to calculate tax evasion on undeclared capital held abroad.

Table 4.4: Estimate of undeclared portfolio foreign assets broken down by financial instrument held at end-2013 by Italian investors (billions of euro)

Method used for the estimation	Type of financial instrument		
	Equity securities	Debt securities	Total
Adopted method	102	22	124
Alternative method as a term of comparison	96	40	136

Sources: IMF (CPIS and IIP), EWN II, national sources.

4.2 Undisclosed assets held abroad: cross-border deposits of non-banks

As for cross-border bank deposits, the analysis of BIS Banking Locational Statistics provides interesting indications on the potential existence of large amounts of undeclared assets.

The BIS publishes on a quarterly basis the cross-border deposit liabilities of banks established in the main countries (45 reporting countries), broken down by sector (banks and non-banks) and residence country of the foreign holders. Since under-reporting of assets by the banking sector is expected to be a marginal phenomenon, the analysis focuses on cross-border deposits of the non-banking sector.

As we know, investors take advantage of tax havens to hide capital abroad and frequently register their foreign deposits in the name of fictitious holding companies (or through complex chains of intermediate entities) located in tax havens which guarantee opacity on the ownership structures. In such cases the BIS statistics record deposits of the non-banking sector held in all reporting countries by residents of OFCs. In other cases, when investors prefer to locate undeclared bank deposits directly in tax havens, which guarantee bank secrecy, BIS statistics record deposits of the non-banking sector held by residents of non-OFCs in banks located in OFCs.[21]

Table 4.5 shows the geographical breakdown of cross-border deposits of non-banks by both investor and reporting country; the percentages observed for OFCs (at end-2014, respectively, around 22 per cent and 27 per cent) are much higher than OFCs' incidence on world GDP and even higher

[21] This latter circumstance may also reflect the use of trusts, shell companies, or other interposed entities established in non-offshore countries (e.g. the State of Delaware in the US).

than those of major countries; consequently, they are consistent with the hypothesis of the existence of large amounts of undeclared bank deposits held by investors who benefit from tax havens.

Anyway, it is difficult to estimate to what extent these stocks are really related to under-reporting of assets and tax evasion, as a large part of them might be generated by the real economic activities of OFCs (insurances companies, collective investment funds etc.).

In order to obtain a more comprehensive picture of the external financial wealth not reported in the statistics of the investors' countries, we add to the amount of unreported portfolio assets, as estimated in par. 4.1, a share of cross-border bank deposits held by non-banks, as reported in BIS Locational Statistics.

Combining the methodologies used by Sanelli (2008) and by Pellegrini and Tosti (2011, 2012), we include both a share of the cross-border deposits held in OFCs by non-banks (no matter where they are resident) and a share of the cross-border deposits held in non-OFC countries by the non-banks resident in OFCs.

Table 4.5: Distribution of cross border deposits vis-a-vis non-banks (billions of US dollars)

By country of the investor

Year	Offshore countries*		United States		United Kingdom		Germany		France		Italy	
	amount	%	amount	%	amount	%	amount	%	amount	%	amount	%
2001	511	19.4%	631	24.0%	240	9.1%	129	4.9%	66	2.5%	44	1.7%
2002	604	19.9%	794	26.1%	294	9.7%	149	4.9%	74	2.4%	48	1.6%
2003	765	20.1%	913	24.0%	435	11.4%	214	5.6%	106	2.8%	55	1.4%
2004	935	20.8%	1,045	23.2%	590	13.1%	246	5.5%	137	3.0%	65	1.5%
2005	966	20.9%	1,108	24.0%	644	13.9%	243	5.3%	122	2.6%	49	1.1%
2006	1,220	20.8%	1,336	22.8%	959	16.4%	287	4.9%	130	2.2%	57	1.0%
2007	1,440	19.6%	1,766	24.1%	1,106	15.1%	324	4.4%	171	2.3%	59	0.8%
2008	1,369	19.9%	1,798	26.2%	876	12.7%	304	4.4%	170	2.5%	58	0.8%
2009	1,314	20.3%	1,677	25.8%	792	12.2%	312	4.8%	168	2.6%	66	1.0%
2010	1,273	18.5%	1,939	28.1%	883	12.8%	367	5.3%	162	2.4%	48	0.7%
2011	1,251	18.2%	1,660	24.2%	964	14.0%	361	5.3%	205	3.0%	49	0.7%
2012	1,425	19.8%	1,608	22.3%	954	13.2%	412	5.7%	218	3.0%	72	1.0%
2013	1,405	18.7%	1,646	21.9%	1,038	13.8%	420	5.6%	212	2.8%	72	1.0%
2014	1,539	21.7%	1,436	20.2%	887	12.5%	323	4.5%	163	2.3%	63	0.9%

By country of location of the reporting bank

Year	Offshore countries*		United Kingdom		United States		France		Germany		Italy	
	amount	%	amount	%	amount	%	amount	%	amount	%	amount	%
2001	1,155	43.9%	459	17.4%	183	7.0%	63	2.4%	307	11.6%	15	0.6%
2002	1,307	43.0%	554	18.2%	210	6.9%	73	2.4%	334	11.0%	23	0.8%
2003	1,493	39.3%	751	19.7%	406	10.7%	88	2.3%	387	10.2%	28	0.7%
2004	1,585	35.2%	963	21.4%	598	13.3%	101	2.2%	423	9.4%	36	0.8%
2005	1,642	35.5%	1,025	22.2%	557	12.1%	110	2.4%	373	8.1%	40	0.9%
2006	2,003	34.2%	1,259	21.5%	841	14.4%	139	2.4%	407	7.0%	47	0.8%
2007	2,545	34.7%	1,686	23.0%	972	13.2%	176	2.4%	445	6.1%	46	0.6%
2008	2,554	37.1%	1,412	20.5%	928	13.5%	147	2.1%	397	5.8%	57	0.8%
2009	2,375	36.6%	1,418	21.9%	792	12.2%	139	2.1%	311	4.8%	63	1.0%
2010	2,373	34.4%	1,592	23.1%	812	11.8%	141	2.0%	302	4.4%	58	0.8%
2011	2,084	30.4%	1,602	23.3%	935	13.6%	144	2.1%	290	4.2%	60	0.9%
2012	2,011	27.9%	1,676	23.3%	1,026	14.2%	444	6.2%	311	4.3%	52	0.7%
2013	1,972	26.2%	1,652	21.9%	1,173	15.6%	479	6.4%	353	4.7%	94	1.2%
2014	1,903	26.8%	1,588	22.3%	1,273	17.9%	507	7.1%	266	3.7%	74	1.0%

Source: BIS Locational Banking Statistics.

Note (*) the list of offshore countries is that defined by BIS (see Appendix A).

We assume that the share of those bank deposits (hereafter, SI), which refer – either directly or through any type of intermediate vehicle – to *households*, i.e. to *individual investors* is between 1/3 and 2/3 of the total. This assumption is necessary to exclude from the estimate cross-border deposits of non-banks that belong to other sectors, such as non-financial companies or non-bank financial entities (insurance companies, securities brokers, other financial intermediaries) and that are made for business reasons.

In order to define this range, in the absence of direct information on the sectorial breakdown in BIS statistics,[22] we make reference to available data on the distribution of bank deposits among different categories of owners, as reported in a number of public sources, as follows:

- The Bank of England publishes data on bank deposits held in Jersey, Guernsey and the Isle of Man: according to these data, on average 65 per cent of bank deposits of non-banks held in these three OFCs belongs to individuals.[23] Consequently, assuming 2/3 as a maximum value for SI may be realistic;
- The Swiss National Bank publishes data on the sectorial breakdown of domestic bank liabilities. The data – which include liabilities of banks established in Liechtenstein − show that more than 57 per cent of the bank deposits of non-banks belongs to individuals;[24]
- Similarly, the ECB monetary statistics show that in the Euro area over the last decade individuals held on average 55-60 per cent of the overall amount of bank deposits of non-banks[25]. Since these data mainly refer to domestic deposits, they may overestimate the value of SI. For all these reasons we consider as a lower-bound equal to 1/3 for the value of SI.
- The defined range for SI seems to be consistent also with the data published by the Banque Centrale du Luxembourg on the sectorial breakdown of bank deposits held by non-residents in Luxembourg: over the period 2001-2015, the share of deposits held by individuals is between 24 and 40 per cent for euro area residents and between 25 and 33 per cent for residents in other countries.[26]

Table 4.6 shows the estimates of undeclared assets in cross-border bank deposits held by individuals.

Table 4.6: Share of cross-border deposits of individuals (billions of US dollars)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Deposits held in OFCs	1,155	1,307	1,493	1,585	1,642	2,003	2,545	2,554	2,375	2,373	2,084	2,011	1,972	1,903
Deposits held in non-OFCs by OFC residents	385	471	654	818	797	1,019	1,265	1,219	1,155	1,104	1,148	1,371	1,490	1,502
Total	*1,540*	*1,779*	*2,147*	*2,403*	*2,439*	*3,022*	*3,810*	*3,774*	*3,530*	*3,477*	*3,233*	*3,382*	*3,462*	*3,406*
Estimation of deposits held by individuals														
Minimum: total*(1/3)	513	593	716	801	813	1,007	1,270	1,258	1,177	1,159	1,078	1,127	1,154	1,135
Maximum: total*(2/3)	1,027	1,186	1,431	1,602	1,626	2,015	2,540	2,516	2,353	2,318	2,155	2,254	2,308	2,270

Source: calculations on BIS data (Locational banking statistics).

[22] The BIS only provides, since 2013, a breakdown of cross-border liabilities vis-à-vis non-banks between non-financial entities (which include households, non-financial companies, central and local governments, insurance and pension funds) and non-bank financial entities. However, since many reporting countries do not give this breakdown yet, the share of unallocated liabilities is quite high, making the data useless for the purpose of our estimate.

[23] Table C5.1 of the Bank of England Monetary and Financial Statistics, August 2015. The data include bank deposits held by residents of the three OFCs in domestic banks. However, since these deposits amount to a significant share of the total, it is likely that they are actually deposits by non-residents made through vehicles established in the same OFCs. For this reason, we include these deposits in the calculation.

[24] Table 1J of the Swiss National Bank Monthly Bulletin of Banking Statistics, September 2015.

[25] Table 3.1 of the Monthly ECB Statistical Bulletin, September 2015. The other categories of holders are non-financial corporations, non-bank financial institutions, insurance and pension funds, central government.

[26] Table 11.12 of the Monetary Policy Statistics, Banque Centrale du Luxembourg, September 2015.

5. Estimate of international tax evasion on undeclared portfolio assets and cross-border bank deposits

5.1 Previous estimates of international tax evasion or offshore financial assets

In spite of the abundant anecdotal evidence on cases of tax evasion connected with offshore investments, to the best of our knowledge only a few authors have attempted to estimate the possible order of magnitude of the phenomenon.

Given the hidden nature of tax evasion linked to unreported external assets, statistics on international financial flows (and stocks) often suffer from under-reporting or misreporting of transactions. As a consequence, any attempt to estimate its potential magnitude, both on a global and a national basis, faces severe data limitations and relies on strong and sometimes unrealistic assumptions.

In his recent book, Zucman (2015) estimates at a global level the amount of annual capital income tax evasion together with wealth and inheritance tax evasion, giving an overall amount of $190 billion, calculated on the basis of the stock of financial assets held offshore by residents of all countries at the end of 2013.

Gravelle (2015) reports that for the US international capital income tax evasion by individuals estimated by the US Senate Subcommittee on Investigations ranges between $40 and $70 billion a year.[27] Always with reference to the US, Avi-Yonah (2007) presented an assessment of international tax evasion by US residents in a Hearing at the US Senate Finance Committee. Starting with a rough estimate of $1.5 trillion of offshore assets held by US residents and assuming an average rate of return of 10 per cent and a tax rate of 33.3 per cent, he estimated an annual amount of tax revenue losses equal to $50 billion.

In 2005 the non-governmental organization Tax Justice Network (TJN) published a briefing paper (Tax Justice Network, 2005) estimating that on a global basis the annual capital income tax evasion on funds held offshore by high net worth individuals equalled about $250 billion. The estimate was based on an evaluation of the assets held offshore by such individuals, which were found to be approximately $11.5 trillion by crossing BIS data on cross-border bank deposits with data on offshore wealth from other sources. Then, international tax evasion was calculated applying to the amount of offshore assets a rate of return of 7.5 per cent, and an average tax rate of 30 per cent on the resulting income of $860 billion. The TJN estimate was revised and updated in 2012, with more conservative assumptions: starting from an amount of offshore financial wealth of $21 trillion and assuming an annual return of 3 per cent and the same average tax rate of 30 per cent, the amount of capital income tax evasion was calculated at a global level at $189 billion per year (Tax Justice Network, 2012).

5.2 Estimate of international tax evasion by individuals: methodology and results

Starting from our estimate of undeclared external assets (portfolio securities and bank deposits) belonging to households, we attempt to calculate a possible range of values for annual capital income tax evasion.

Then we also consider a different hypothesis, i.e. that the stock of unreported financial assets at the end of 2013 is wholly made up of income that escaped personal income taxes when originally earned. On the basis of this latter hypothesis, we calculate a possible range of personal income tax evasion linked to the undeclared assets. Given the lack of detailed data and qualitative information on the most relevant aspects of the phenomenon, the estimate is necessarily based on a number of assumptions and simplifications, as described below.

Hypothesis 1 – Undeclared assets held abroad mostly belong to individual investors.

For the purposes of our estimate, we assume that most *undeclared assets held abroad belong to individuals*, either directly or through different types of vehicles.

[27] U.S. Senate Subcommittee on Investigations, *Staff Report on Dividend Tax Abuse*, September 11, 2008, quoted in Gravelle (2015).

While corporate tax evasion certainly exists, corporations and other large business entities are much more prone to resort to international tax avoidance than to tax evasion (section 2).

The assumption that tax evasion linked to unreported assets held abroad is entirely due to individuals, which might appear unrealistic at first sight, looks more likely if one considers that, even when the taxes evaded in the first instance relate to closely held corporations, the profits should be distributed – sooner or later, either directly or through a chain of intermediate entities – to individual investors.[28] Hence, one can assume that our estimate also includes a share of unreported capital that initially arose as business profits earned through closely held corporations and were subsequently distributed to individual shareholders.[29]

As far as the two datasets that we use as a basis for the estimate of tax evasion are concerned, we assume that:

- all undeclared portfolio assets are ultimately held by individuals. As for the estimation of the geographical breakdown of such undeclared assets, we use the two criteria above mentioned (allocation according to the criteria C1 and C2 ; see par. 4.2), and a third one based simply on the mean of the two;
- in the case of cross-border bank deposits of non-banks, the *share held abroad by individuals* (either directly or through all kinds of vehicles) is comprised, on average, *between 1/3 and 2/3* as underlined above (par. 4.2). As for the estimation of the geographical breakdown, it is based on country's incidence on world GDP (criterion C2).

Hypothesis 2 – Tax evasion is estimated with reference to annual capital income taxes over the period 2001-2013 and personal income taxes at the end of 2013.

We assume that the *unreported assets held abroad by individuals* – as calculated above – give rise to*:*

- tax evasion on the yearly return in the investors' residence countries;
- evasion of personal income taxes in the investors' residence countries when the unreported capital originally arose (tax evasion on the "principal").

Capital income tax evasion. We assume that over the period considered (2001-2013) the annual return of the unreported financial assets held by individual investors consistently escapes taxation in investors' residence countries. In fact, since assets have not been declared, the probability of detection of tax evasion on the annual yield are close to nil. Consequently, investors face no or very low risks in not declaring and not paying taxes on the capital income. At the same time, they have an incentive to evade, since declaring the income could lead to possible assessments on the underlying assets by the tax administration of their country of residence. For the calculation of the annual capital income, we consider effective rates of return for each category of assets (i.e. shares, bonds and bank deposits).

Once determined the capital income, we calculate the amount of capital income tax evasion by applying the correspondent top tax rates (for deposit interest, bond interest and dividends). Namely, we consider the top rates applicable on each of the three categories of proceeds in three sets of countries (Italy, OECD, non-OECD), either in the form of final withholding taxes or as personal income taxes (Table 5.1). The choice of top rates arises from the assumption that the proceeds of unreported capital held abroad represent the top slide of taxpayers' income, and that all the possible exemptions and tax reliefs have been already exploited. As to the choice of tax rates for the three groups of countries, we use the statutory tax rates in the case of Italy, while for the rest of the world we use unweighted average tax rates, separately for the OECD and a set of non-OECD (mostly developing) countries.[30]

---

[28] Since closely held corporations are normally under the control of one or a few shareholders, from a tax standpoint they simply represent a shield for the shareholders, who often use the corporation to reduce or differ personal taxes.

[29] Additional reasons that justify our assumption to consider undeclared assets mostly belonging to individual investors are that in the case of individuals non-tax reasons to hold foreign bank accounts are usually less relevant than in the case of corporations that operate in an international context, and that only a few countries (among others, France, USA and Italy) impose requirements for the reporting of foreign bank deposits by individuals and hence it can be easier for this type of subjects to hide capital abroad.

[30] Since historical data on tax rates are not available for deposit and bond interest, for these categories we use a proxy of the average tax rate calculated on the basis of available data, mostly referred to the years 2012-2015.

Table 5.1: Tax rates (percentage points)

		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Bank deposits	Italy	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	27.0	20.0	20.0
	OECD	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2	28.3
	Rest of the world	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5
Equity securities	Italy	29.2	29.3	29.3	29.3	28.3	28.6	28.7	28.7	28.7	28.9	30.6	34.3	34.3
	OECD	33.5	33.5	32.4	30.4	29.6	27.9	27.0	25.9	25.8	26.3	26.8	28.1	28.3
	Rest of the world	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8
Debt securities	Italy	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	16.3	16.3
	OECD	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2	28.3
	Rest of the world	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4

Source: authors' calculations on data from OECD tax database, IBFD Tax Research Platform, national tax administrations websites.

Personal income tax evasion. Although the annual capital income earned on offshore wealth and not repatriated may explain a significant percentage of the overall amount of the same wealth (Tax Justice Network, 2012) in most cases it is likely that the lion's share of the offshore assets value consists of income that escaped personal income taxes in the hands of the individual taxpayers before (or at the moment when) it was originally transferred abroad. In fact, to the extent that the capital shielded offshore comes from earned income, personal income tax evasion is almost always embedded in the process.

When looking at the stock of undeclared assets held offshore at the end of a given year we can only make arbitrary and general assumptions on how this amounts have been generated over time (new personal earnings that escaped personal income tax when originally earned, inherited wealth, accumulated capital income, capital gains etc.). Depending on these assumptions, the results of the estimate of offshore tax evasion can vary.

In order to give a possible scale of the phenomenon, we assume that the whole amount of the undeclared assets held offshore at the end of 2013 represents earned income that escaped personal income tax when originally earned (instead of capital income taxes, inheritance or gift taxes, etc.).

Therefore, here we do not consider the fact that the outstanding stocks may be higher than the amounts that originally generated tax evasion because they have been growing year by year with accumulation of accrued capital income (included in the above estimate) and, in some cases, with realized capital gains (almost always taxed with lower rates compared to those applied on earned income) or unrealized capital gains (often not taxed at all). On the other hand, we do not consider either that the stocks of unreported assets at the end of 2013 do not include the amounts illegally repatriated, consumed or transformed in non-financial investments; originally also these amounts escaped personal income tax and therefore should have been included in the estimate of tax evasion. Since the effects of such factors cannot be easily quantified, here we assume that they substantially counterbalance each other and, consequently, we do not take them into account.

We focus on personal income taxes since we consider offshore assets held by individual investors. We are aware of the fact that other taxes and contributions can be due, both when the income is earned (e.g. VAT, social security contributions, etc.) or afterwards (on a yearly basis for wealth taxes).[31] Furthermore, other taxes and duties can be due on transfer of the capital from one beneficiary to another (inheritance and gift taxes, registration taxes, stamp duties, etc.).

However, since making assumptions on these other taxes would simply add uncertainty to the estimate, we have chosen to focus exclusively on personal income tax evasion. Even when the assets held abroad derive from inherited wealth or gifts, they might have escaped personal income taxes in the hands of the deceased or donor. In this respect, our hypothesis looks plausible, since it aims to estimate the potential amount of personal income tax evasion that could be linked to the stock of unreported capital in a given point in time, irrespectively from when the evasion took place. The fact that we do

[31] Wealth taxes are not applied by most countries; therefore, adding them in an estimation exercise would have negligible effects on the final result.

not consider other taxes that could be due, as highlighted above, means that our estimate is rather conservative.

As in the case of capital income tax evasion, also for the estimate of personal income tax evasion we assume that the undeclared income that has been transformed into unreported assets represents the top slice of investors' income, and that it belongs to high income individuals, normally subject to the top personal income tax rates. This assumption allows us to use top personal income tax rates (unweighted averages), referred to OECD countries and a set of non-OECD countries, as in the case of capital income tax evasion. For Italy, we use the top personal income tax rate for 2013. Since over the period 2001-2013 average top tax rates have been quite stable for the different sets of countries considered , applying the 2013 tax rates for the calculation of personal income tax evasion should not bias significantly our estimate compared to the hypothesis of assuming that the offshore assets were originally transferred abroad and escaped taxes at the rates prevailing in a given year of the same period.

Hypothesis 3 – Rate of "non-compliance".

We make a further assumption with reference to the possible rate of "non-compliance", i.e. the share of unreported financial assets belonging to individuals that give rise to tax evasion.

Capital income tax evasion. For the purposes of estimating the annual *capital income tax evasion* , we assume two different measures of "non-compliance" for the two groups of foreign assets (portfolio securities and bank deposits) identified above.

In the case of undeclared *portfolio assets* we assume a rate of "non-compliance" of 90 per cent (factor "B" in Table 5.2). In this case, as stocks represent only unreported assets, it is quite likely that the full capital income arising from the same assets escapes taxation in the investors' residence countries. However, given that tax declarations are not always used to fill gaps in financial and balance of payments statistics, we allow for a small share of capital income on the unreported assets being declared to tax authorities and subject to taxes.

With reference to *cross-border deposits* held by households, given that they may represent both reported and unreported assets, we assume a lower rate of "non-compliance", comprised in a range between 60 and 80 per cent, which seems reasonable on a judgmental basis given our focus on deposits held in OFCs or by OFC entities (section 4.2). This range seems consistent with the data published by the Swiss tax administration with reference to the application of the Agreement with the EU on the taxation of savings income.[32]

According to the agreement, Switzerland applies a withholding tax on interest paid to EU residents. However, investors have the option to authorize the bank or other financial institution to provide the information regarding the savings income to the tax authorities of their home countries, instead of accepting the withholding tax. Data on the amount of interest reported to EU tax authorities by the Swiss tax administration show that over the period 2005-2014 the percentage of interest for which investors chose information reporting instead of the withholding tax went from around 20 per cent between 2005 and 2009 up to 55-70 per cent in 2013 and 2014. It is likely that over the last few years EU investors holding assets in Switzerland may have re-arranged their investments in ways that allow them to escape the application of the Savings Agreement altogether (for instance by using interposed shell companies or trusts based in OFCs, not subject to the provisions of the Agreement). Therefore, it seems reasonable to assume a range of "non-compliance" that goes from a minimum of 60 per cent to a maximum of 80 per cent, close to that implicit in the data for the early period of application of the Savings Agreement, when the re-arrangement process had not fully taken place.[33]

Personal income tax evasion. For the estimate of personal income tax evasion on the *unreported assets of individual investors*, i.e. tax evasion "on the principal", we consider the stocks held at the end of 2013

[32] The data can be retrieved on the website of the Swiss Federal Tax Administration at: https://www.estv.admin.ch/estv.

[33] The Swiss data show that the rate of income declaration varies greatly from one country to another. For instance, while in the case of Germany and the UK it increased respectively from 22-29% in 2005 to 82-86% in 2014, for Italy and France it was always quite low, going respectively from 1-2% in 2005 to 22-42% in 2014.

and apply to these stocks the same rates of "non-compliance" indicated above for the calculation of capital income tax evasion(factor "B" in Table 5.2).

Table 5.2: Synthesis of the estimation hypothesis

Type of foreign asset	A) Stocks of unreported assets held abroad by individual investors		B) Share for the estimate of capital income tax evasion
Portfolio securities	Unreported assets estimate (100%)	X	90%
Cross-border bank deposits	A range between 33.3% and 66.6% of: deposits held by OFCs in all BIS reporting countries + deposits hold by residents in non-OFCs in BIS reporting OFCs	X	60%-80%

Hypothesis 4. Capital income is calculated on the basis of average rates of return for each asset class.

In order to determine the annual amount of capital income arising from the stock of undeclared capital we consider average annual returns for each category of assets − bank deposits, debt securities and equity securities (including mutual funds). We estimate yearly interest rates on bank deposits by gathering IMF (deposit rate per annum) and ECB data (for European countries)[34] and calculating weighted averages by using BIS data on stocks; we consider not only the weighted averages but also a range between the first and the third quartile (Table 5.3).

Table 5.3: Interest rates and dividends (percentage points)

		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Bank deposits	Mean	2,7	1,9	1,6	1,4	1,5	2,3	2,9	2,6	1,4	1,2	1,4	1,2	1,0
	p25	1,7	0,4	0,5	0,2	0,5	1,4	2,1	0,4	0,1	0,2	0,2	0,1	0,5
	p75	3,6	2,7	2,2	2,0	2,0	2,8	3,7	3,9	2,0	2,3	2,6	2,3	1,6
Equity securities	Mean	1,9	1,9	1,9	1,9	2,0	2,1	3,0	3,0	3,0	2,5	2,7	2,8	2,6
	p25	1,3	1,3	1,4	1,6	1,7	1,9	2,5	2,3	2,2	1,7	2,0	2,1	2,0
	p75	2,3	2,2	2,2	2,1	2,2	2,4	3,4	3,5	3,4	2,8	2,9	3,0	2,9
Debt securities	Mean	4,6	4,3	3,8	3,8	3,9	4,2	4,6	4,4	4,0	3,6	3,4	3,3	3,1
	p25	3,3	3,1	2,8	2,9	3,2	3,7	4,0	3,8	3,4	3,2	3,1	3,0	2,8
	p75	5,2	4,8	4,4	4,2	4,4	4,7	5,0	4,8	4,4	3,9	3,7	3,6	3,3

Source: authors' calculations on IMF and ECB data.

As for the proceeds of portfolio securities, we estimate, from balance of payments and international investment position data taken by IMF, an average rate of return R^i_{jt} from external portfolio assets, separately for equity (consisting mainly of shares of collective investment funds) and debt securities (*i*); the portfolio investment income (credits, not including capital gains) in year *t* of country *j*, F^i_{jt}, are divided by the corresponding portfolio external asset stocks (average of year *t*) $(S^i_{jt-1} + S^i_{jt})/2$, according to the following formula:

$$R^i_{jt} = \frac{F^i_{jt}}{(S^i_{jt-1} + S^i_{jt})/2} \qquad (i\text{=equity or debt},\ t\text{=2001,…2013},\ j\text{=1……n})$$

In the calculations we use three-term moving averages of such rates of returns to face the variability of stocks (the denominator) that are end-year values. This estimates of the average rate may be biased by the effects of the fluctuations of market prices which affect the values of external stock assets at the denominator of the ratio, as international investment position data are valued at the market

[34] Downloadable, respectively, from http://data.imf.org and http://webdiss.bancaditalia.it/sabc/. For IMF data, deposit interest rate is the rate paid by commercial or similar banks for demand, time, or savings deposits, but the terms and conditions differ by country. As for ECB data, we took into account interest rates on deposits held by households and non-financial corporations with agreed maturity up to 1 year or redeemable at notice up to 3 months; the choice was based on the similarity with IMF interest rates relative to European countries.

price; the moving averages partially reduce these effects. Similarly to cross-border bank deposits, we consider not only weighted averages but also a range between the first and the third quartile.

It should be noticed that the interest rates and dividends that we consider are based on conservative estimates and might underestimate the capital income earned on undeclared capital, namely for portfolio assets. In fact, undeclared capital held abroad is generally invested in long term assets and consequently the average income earned by tax evaders may be higher than those earned by the majority of other investors. As a result, the tax evasion estimates obtained by using the maximum values for interest rates and dividends are probably the most likely.

The estimation results

Capital income tax evasion. We obtain a set of estimates of the annual capital income tax evasion over the period 2001-2013 depending on the rates of non-compliance and the rates of return above mentioned. For the sake of simplicity, we report only three of them in Table 5.4 − the lowest, the highest and the medium – separately for OECD and non-OECD countries and at a global level.

Table 5.4: Estimates of international tax evasion on capital income (billions of US dollars)

			2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Mean
OECD (incl. Italy)	Bank deposits	High	6.8	6.1	6.0	6.3	6.1	10.4	17.5	18.5	9.0	10.0	10.0	8.7	6.6	*9.4*
		Medium	3.3	2.5	2.5	2.4	2.7	5.3	8.9	7.1	3.3	3.5	3.4	3.0	2.7	*3.9*
		Low	1.2	0.4	0.5	0.2	0.6	1.9	3.7	0.7	0.2	0.3	0.2	0.2	0.7	*0.8*
	Equity securities	High	7.5	7.4	8.9	9.6	11.3	13.5	24.5	17.3	17.8	15.5	16.4	19.9	20.0	*14.6*
		Medium	5.7	5.6	7.0	8.2	9.9	11.9	21.2	14.3	14.6	12.6	13.4	16.4	16.5	*12.1*
		Low	3.7	3.8	5.0	6.6	8.4	10.3	17.9	11.1	10.9	9.1	9.9	12.3	12.4	*9.3*
	Debt securities	High	10.6	11.4	8.5	9.3	9.1	8.9	11.7	12.5	9.5	3.5	11.1	13.9	12.8	*10.2*
		Medium	7.9	8.6	6.5	7.4	7.5	7.6	10.2	10.9	8.4	3.1	10.1	12.6	11.5	*8.6*
		Low	5.2	5.7	4.4	5.4	5.8	6.4	8.8	9.2	7.3	2.7	9.1	11.5	10.3	*7.1*
	Total	**High**	**24.9**	**24.9**	**23.5**	**25.2**	**26.5**	**32.8**	**53.7**	**48.2**	**36.4**	**29.1**	**37.5**	**42.4**	**39.4**	***34.2***
		Medium	**16.9**	**16.7**	**16.1**	**18.0**	**20.0**	**24.8**	**40.3**	**32.2**	**26.4**	**19.2**	**26.9**	**32.0**	**30.7**	***24.6***
		Low	**10.1**	**9.9**	**9.9**	**12.2**	**14.8**	**18.7**	**30.3**	**21.0**	**18.3**	**12.1**	**19.2**	**23.9**	**23.4**	***17.2***
NON-OECD	Bank deposits	High	0.5	0.4	0.4	0.4	0.4	0.8	1.4	1.5	0.7	0.9	1.1	1.0	0.8	*0.8*
		Medium	0.3	0.2	0.2	0.2	0.2	0.4	0.7	0.6	0.3	0.3	0.4	0.4	0.3	*0.3*
		Low	0.1	0.0	0.0	0.0	0.0	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.1	*0.1*
	Equity securities	High	0.3	0.3	0.4	0.5	0.6	0.9	2.0	1.6	1.6	1.6	1.7	2.0	2.0	*1.2*
		Medium	0.2	0.2	0.3	0.4	0.5	0.7	1.6	1.2	1.3	1.2	1.1	1.3	1.4	*0.9*
		Low	0.2	0.1	0.2	0.3	0.4	0.6	1.3	0.9	0.9	0.7	0.6	0.7	0.8	*0.6*
	Debt securities	High	1.7	1.8	1.3	1.4	1.2	1.1	1.5	1.8	1.2	0.4	1.5	2.0	1.9	*1.4*
		Medium	1.0	1.0	0.7	0.9	0.8	0.8	1.1	1.4	1.0	0.4	1.4	1.8	1.6	*1.1*
		Low	0.4	0.4	0.3	0.4	0.5	0.6	0.9	1.0	0.8	0.3	1.2	1.6	1.4	*0.7*
	Total	**High**	**2.5**	**2.5**	**2.1**	**2.2**	**2.3**	**2.9**	**4.8**	**4.8**	**3.6**	**2.9**	**4.3**	**5.1**	**4.6**	***3.4***
		Medium	**1.4**	**1.4**	**1.2**	**1.4**	**1.5**	**2.0**	**3.5**	**3.2**	**2.5**	**1.9**	**2.9**	**3.5**	**3.3**	***2.3***
		Low	**0.6**	**0.5**	**0.5**	**0.8**	**0.9**	**1.3**	**2.5**	**2.0**	**1.7**	**1.1**	**1.8**	**2.3**	**2.3**	***1.4***
TOTAL	Bank deposits	High	7.3	6.5	6.4	6.7	6.6	11.3	18.9	20.0	9.7	10.9	11.1	9.7	7.4	*10.2*
		Medium	3.6	2.6	2.7	2.6	2.9	5.7	9.7	7.7	3.6	3.8	3.8	3.4	3.1	*4.2*
		Low	1.3	0.4	0.5	0.3	0.6	2.1	4.0	0.8	0.2	0.3	0.3	0.2	0.8	*0.9*
	Equity securities	High	7.8	7.7	9.4	10.1	12.0	14.4	26.5	18.8	19.5	17.2	18.1	21.9	22.0	*15.8*
		Medium	5.9	5.9	7.3	8.6	10.4	12.6	22.8	15.5	15.9	13.8	14.5	17.7	17.8	*13.0*
		Low	3.9	3.9	5.2	6.9	8.8	10.9	19.2	12.0	11.8	9.8	10.5	13.0	13.2	*9.9*
	Debt securities	High	12.2	13.2	9.8	10.7	10.3	10.0	13.1	14.2	10.7	3.9	12.6	15.9	14.6	*11.7*
		Medium	8.9	9.6	7.2	8.3	8.3	8.4	11.4	12.2	9.4	3.5	11.5	14.4	13.1	*9.7*
		Low	5.6	6.0	4.7	5.8	6.3	6.9	9.6	10.2	8.0	3.0	10.3	13.1	11.7	*7.8*
	Total	**High**	**27.4**	**27.4**	**25.6**	**27.5**	**28.8**	**35.7**	**58.5**	**53.1**	**39.9**	**32.0**	**41.8**	**47.5**	**44.0**	***37.6***
		Medium	**18.3**	**18.1**	**17.2**	**19.5**	**21.6**	**26.8**	**43.8**	**35.4**	**28.9**	**21.1**	**29.8**	**35.5**	**34.0**	***26.9***
		Low	**10.7**	**10.4**	**10.4**	**13.0**	**15.8**	**19.9**	**32.8**	**23.0**	**20.0**	**13.2**	**21.1**	**26.2**	**25.7**	***18.6***

Source: calculations by the authors (see text).

Based on the hypotheses highlighted above, we find that at the global level the annual amount of capital income tax evasion ranges, on average over the period 2001-2013, between $19 and $38 billion).

Compared to the $127 billion obtained by Zucman (2015) for 2013, even our highest value for the amount of capital income tax evasion for the same year ($44 billion) is much lower (about 35 per cent), in spite of a similar amount of unreported financial assets used as the starting point for the estimate (between $6,100 and 7,100 billion in our case; $7,600 billion for Zucman). The difference between the two estimates is almost exclusively due to the use of quite different rates of return: Zucman uses a single rate of return equal to 8 per cent, whereas we use significantly lower rates, in the range of 0.5-3.3 per cent.[35]

Personal income tax evasion. Also for the estimate of the tax evasion "on the principal" (based on end-2013 stocks) we obtain a set of values depending on the different ranges of the above mentioned hypothesis. Again, for the sake of simplicity we report only three of them in Table 5.5 − the lowest, the highest and the medium. We also report the average top PIT rates relating to 2013 that we used in the calculations.

Table 5.5: Estimates of international personal income tax evasion on the stock of unreported assets at the end of 2013

(billions of US dollars or percentages)

		Tax evasion (min)	Tax evasion (max)	Tax evasion (average)	A) End-2013 stocks	B) Held by households	C) Unreported	Min/ max
OECD (incl.Italy) **2013 tax rate: 43.3%**	Equity	945	1,049	997	2,543	2,543	2,289	
	Debt	570	590	580	1,486	1,486	1,337	
	Deposits	234	643	416	2,692	907	544	min
						1,816	1,453	max
	Total	1,749	2,282	1,993	6,721	4,936	4,171	min
						5,845	5,079	max
	Total in % of OECD GDP	3.7%	4.8%	4.2%				
NON-OECD **2013 tax rate: 26.1%**	Equity	80	141	111	471	471	424	
	Debt	90	101	96	409	409	368	
	Deposits	40	107	70	770	257	154	min
						513	411	max
	Total	210	350	277	1,650	1,137	946	min
						1,393	1,203	max
	Total in % of non-OECD GDP	*0.8%*	*1.3%*	*1.0%*				
TOTAL	Equity	1,024	1,190	1,107	3,014	3,014	2,713	
	Debt	661	691	676	1895	1,895	1,705	
	Deposits	275	750	486	3462	1,164	698	min
						2,329	1,863	max
	Total	1,960	2,632	2,270	8,371	6,073	5,117	min
						7,238	6,281	max
	Total in % of world GDP	*2.6%*	*3.5%*	*3.0%*	*11.2%*	*8.1%*	*6.8%*	*min*
						9.7%	*8.4%*	*max*

Source: calculations by the authors (see text).

At global level, the amount of personal income tax evasion on the stock of unreported capital at the end of 2013 ranges from $2.0 to $2.6 trillion; the average is about $2.3 trillion and represents about 3 per cent of world GDP. Both in terms of absolute values and with respect to the incidence on GDP, our estimate shows that tax revenues lost because of offshore tax evasion is higher in the OECD area than in non-OECD countries. This is partly a direct consequence of the criteria that we have used for

[35] The same reason, i.e. the use of lower rates of return, also explains part of the difference of our estimate from those made by other authors, recalled in par. 5.1.

the attribution of unreported capital to the different countries, that combine GDP and, for portfolio assets, financial wealth indexes. However, the difference is also due to the fact that top PIT rates are generally higher in OECD countries than in developing countries.

Estimate of international tax evasion for Italy

In the case of Italy, on average over the period 2001-2013 annual capital income tax evasion ranges between €0.40 and €1.4 billion, with an average value of €0.8 billion (Table 5.6); these values compare with an average amount of annual tax revenues from the taxation of financial proceeds of around €11.8 billion. In practice, this means that if all the tax evasion on financial income earned on assets held abroad were eliminated, Italy could increase the related tax revenues by 3.4-12 per cent. In terms of incidence on GDP, capital income tax evasion represents between 0.03 and 0.08 per cent.

Table 5.6: Estimates of international tax evasion on capital income for Italy (billions of euro)

			2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Mean
ITALY	Bank deposits	High	0.4	0.3	0.3	0.3	0.3	0.5	0.7	0.8	0.4	0.4	0.5	0.3	0.2	0.4
		Medium	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1
		Low	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Equity securities	High	0.6	0.6	0.6	0.6	0.8	0.9	1.2	0.7	0.7	0.7	0.8	1.1	1.1	0.8
		Medium	0.3	0.3	0.4	0.4	0.6	0.6	0.9	0.5	0.5	0.5	0.6	0.8	0.8	0.5
		Low	0.2	0.1	0.2	0.2	0.3	0.4	0.6	0.3	0.3	0.3	0.4	0.5	0.5	0.3
	Debt securities	High	0.3	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.2
		Medium	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		Low	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	Total	**High**	1.3	1.1	1.0	1.0	1.3	1.5	2.1	1.6	1.2	1.3	1.4	1.6	1.5	1.4
		Medium	0.7	0.6	0.6	0.6	0.8	0.9	1.3	0.8	0.7	0.7	0.8	1.0	1.0	0.8
		Low	0.3	0.3	0.3	0.3	0.5	0.5	0.8	0.3	0.3	0.3	0.4	0.6	0.6	0.4

Source: calculations by the authors (see text).

As for personal income tax evasion calculated on the stocks at end 2013, we find that it ranges from €49 to €99 billion, with an average value of €71 billion (Table 5.7). The average annual amount of PIT tax revenues for Italy over the period 2002-2014 was €148 billion.

Interestingly enough, this means that if all the tax evasion related to unreported assets held abroad could be recovered in a given year, PIT tax revenues in the same year would increase on average by 48 per cent. In percentage of GDP, for Italy the estimate of personal income tax evasion appears slightly higher than for the overall group of OECD countries, namely with reference to the maximum value. The difference can be explained by the higher top PIT rate.

Table 5.7: Estimates of international personal income tax evasion for Italy
(billions of euros or percentages)

		Tax evasion (min)	Tax evasion (max)	Tax evasion (average)	A) End-2013 stocks	B) Held by households	C) Unreported	Min/ max
ITALY	Equity	35.2	53.9	44.6	102	102	92	
	Debt	6.9	12.7	9.8	22	22	20	
2013 tax rate: 48.6%	Deposits	7.3	32.6	17.1	75	25	15	min
					124	83	66	max
	Total	49.4	99.2	71.5	199	149	127	min
					248	207	178	max
	Total in % of Italian GDP	3.1%	6.2%	4.4%				

Source: calculations by the authors (see text).

5.3 Putting international tax evasion in context

In order to shed light on the results of our estimate of international tax evasion on capital and personal income, it can be useful to compare them with some relevant variables.

On a global level, we find that capital income tax evasion amounts may plausibly range between $19 and $38 billion a year, around 0.02/0.05 per cent of world GDP.

Personal income tax evasion estimated with reference to the stock of unreported capital at the end of 2013 ranges between $2 and $2.6 trillion, i.e. between 2.6 and 3.5 per cent of world GDP.

As to the distribution of personal income tax evasion due to offshore undeclared assets, we find that in terms of incidence on GDP the lost revenues are higher in OECD than in non-OECD countries, again due to the attribution criteria we used for the unreported capital held offshore and the lower PIT rates normally applied in non-OECD or developing countries.

However, if we consider that the distribution of unreported offshore assets can differ from that obtained on the basis of our index of financial wealth and GDP, the effects in terms of lost tax revenue for developing countries could be much more significant. For instance, according to the 2015 Global Wealth Report of the Boston Consulting Group, the highest shares of offshore wealth are held by residents of the so called "new world": Middle East and Africa region (31 percent), Latin America (28 percent), and Eastern Europe (19 percent). Differently, countries in the "old world" and in the Asia-Pacific region have low shares of offshore wealth (7 per cent for Western Europe, 2 per cent for North America, 1 per cent for Japan (1 percent).[36] The higher effects that could arise on the basis of this different distribution of offshore assets are even more relevant in terms of impact on the equity of the tax system of developing countries, where the personal income tax usually affects small elites made by higher income taxpayers, who are often able to avail themselves of the offshore facilities.

From a different standpoint, it can be interesting to compare our estimates with the outcomes of policy initiatives undertaken at national and international level over the last decade (see below, section 6). In this respect, a first term of comparison can be represented by the data on the application of the EU Savings Directive (EUSD). Since July 2005, fourteen of the offshore jurisdictions listed in column A.1 of Table A in Appendix A apply the withholding tax provided in the Directive or in the related agreements as a substitute of automatic information exchange.[37] The same OFCs transfer 75 per cent of the withholding tax revenue to the investors' residence countries. Investors holding assets in countries that had chosen to apply the withholding tax can avoid retention at source if they accept that data on their foreign account interest income are exchanged with their country of residence tax administration. Given this framework, it is quite likely that the interest subject to withholding tax relates to undeclared capital.

Data published by the European Commission show that over the period 2005-2010 EU member states recovered an average amount of tax revenues equal to €560 million a year thanks to the revenue sharing mechanism. Considering the level of the withholding tax, which grew from 15 per cent in 2005 to 20 per cent in 2008,[38] these tax revenues correspond to an average amount of interest income equal to €4.4 billion a year. When compared to our very conservative estimate of the annual amount of capital income tax evasion on unreported financial assets, these data seem to confirm that the Directive covered a very limited amount of capital income tax evasion, both for its limited geographical scope and its application only on capital income arising from debt instruments. But it is very likely that the Directive and the related Agreements were widely circumvented through the use of interposed entities based in other OFCs, which were not subject to the provisions.

---

[36] The Report contains data on the overall financial wealth of households across 62 countries accounting for more than 94 percent of global GDP in 2014. It estimates that in 2014 the global amount of wealth held offshore equalled $10 trillion and represented 5.8 percent of total wealth.

[37] Some of these OFCs have subsequently decided to exchange information: Belgium (since 1 January 2010); Luxembourg (since 1 January 2015); Guernsey (as from 1 July 2011); Isle of Man (as from 1 July 2011); the British Virgin Islands (as from 1 January 2012), Turks and Caicos (as from 1 July 2012); Jersey (as from 1 January 2015).

[38] The tax rate rose further to 35 per cent as from 1 July 2011. Unfortunately, data for 2011 and subsequent years have not been published by the European Commission.

Other possible terms of comparison can be found in the results of the offshore voluntary disclosure programs that have been launched by many countries over the last years, under the auspices of the OECD (see Appendix E). According to the Organization, over the period 2009-2014 the voluntary disclosure schemes led to the collection of more than €37 billion of tax.[39]

Table 5.8 reports a sample of offshore VD schemes in a number of countries, with data on the amount of disclosed assets (if available) and of the recovered tax revenue. It also reports the taxes recovered by the UK under the "regularization of the past" part of the Rubik Agreement with Switzerland (see below, section 6).

When comparing the results of VD schemes to the amount of undeclared assets held offshore by residents of a given country or the potential amount of the related tax evasion it must be borne in mind that investors holding assets offshore are only interested in disclosing assets that are still at risk of being assessed by their residence country tax administration. So, for instance, if the maximum assessment period in a given country is ten years, only investors resident in that country that have held offshore assets for less than ten years will be interested in considering the possibility to come forward. In other cases, investors could not consider the scheme, or could use it only for the declaration of the capital income accrued in recent years and not declared before.

Table 5.8: Results of recent Offshore Voluntary Disclosure Schemes

Country	VD initiative	Reported assets		Tax revenue	
		Local currency	% of GDP	Local currency	% of GDP
ITALY	2001-2003	€ 79 bn	5.68%	€ 2.1 bn	0.15%
	2009-10	€ 104.5 bn	6.51%	€ 5.6 bn	0.35%
UNITED KINGDOM	April – June 2007 (Offshore Disclosure Facility)	n.a.	n.a.	£ 509 mn	0.03%
	September 2009 – March 2010 (New Disclosure Facility)	n.a.	n.a.	£ 124 mn	0.01%
	September 2009 - April 2016 (Liechtenstein Disclosure Facility)	n.a.	n.a.	£ 1.1 bn	0.01%
	April 2013 - December 2015 (Special Disclosure Facility for Guernsey, Jersey, and the Isle of Man)	n.a.	n.a.	£ 2.2 mn	0.00%
	Rubik Agreement with Switzerland	n.a.	n.a.	£ 868 mn	0.05%
SPAIN	April – November 2012	n.a.	n.a.	€ 1.2 bn	0.12%
GERMANY	January 2004 – March 2005	n.a.	n.a.	€ 1.4 bn	0.06%
FRANCE	April – December 2009 (Régularisation Woerth)	€ 7 bn	0.36%	€ 1.2 bn	0.06%
	2013 (Régularisation Cazeneuve)	n.a.	n.a.	€ 1.85 bn	0.09%
UNITED STATES	2009, 2011, 2012, 2014 Offshore Voluntary Disclosure Programs	n.a.	n.a.	$ 6.5 bn	0.05%
AUSTRALIA	2014 (Project DO IT 4)	Aus$ 4 bn	0.25%	Aus$ 600 mn	0.04%

Source: National Revenue Services and authors' calculations.

[39] *OECD releases full version of global standard for automatic exchange of information*, Press release, retrievable at: http://www.oecd.org/tax/oecd-releases-full-version-of-global-standard-for-automatic-exchange-of-information.htm.

Given this circumstance, the assets declared under VD schemes can only represent a small share of previously undisclosed offshore funds. Furthermore, the actual success of VD schemes also depends on their specific design and on external circumstances that may influence the risk perception of being caught for tax evaders. In recent years this latter risk might have been perceived as increased by investors, due to the changing international context.

When looking at the actual available data, VD schemes do not appear to have led to significant results in terms of assets declared or tax revenue recovered, exception made for the Italian VD schemes that were quite successful due to the extremely favorable conditions offered to taxpayers (section 2.5). Namely, the amount of taxes recovered through VDs, ranging between 0.04 and 0.35 per cent of each country GDP, appears to be a small fraction of the potential amount of personal tax evasion linked to assets held offshore, that we have estimated in a range between 2.6 and 3.5 per cent of GDP at a global level with reference to stocks held at the end of 2013.

A further element supporting the idea that VD schemes allowed to recover a very small share of offshore tax evasion is the fact that the amounts of tax revenues recovered referred not only to the personal income tax, but also to possible other taxes due, such as wealth and inheritance taxes, VAT or sales taxes, etc.[40] In addition, they could also include penalties for the non-declaration of offshore accounts and financial assets, particularly in countries (such as the US and Italy) where such declaration was compulsory either for tax or other purposes.[41]

As far as Italy is concerned, the apparent success of the past VD schemes was mainly due to the fact that taxpayers were allowed to repatriate or simply declare foreign assets by paying only a small substitute tax instead of the actual taxes due at statutory rates, and no fines at all.

The new VD scheme launched at the beginning of 2015 (see Appendix E) is more comparable with those launched by other countries over recent years. It provides for the payment of all taxes due and interest for late payment, but allows a significant reduction of administrative fines and the exclusion from criminal persecution (except in the case of tax fraud). As of the beginning of November, 2015, according to data released by the Ministry of Finance the amount of tax revenue recovered reached €2.5 billion, with a forecast to reach €4 billion by the end of the year.[42] Should these data be confirmed, the tax revenue recovered through the Italian VD would amount to 0.25% of GDP, confirming a higher propensity of Italian taxpayers to make use of offshore VD schemes compared to residents of other countries.

6. Policy responses to international tax evasion: are they effective?

Growing concerns about the widening "global tax gap" triggered several policy initiatives since the mid-nineties, mostly led by the OECD and the European Commission. At the same time, the issue attracted the attention of several non-governmental entities, that were mostly concerned about the negative effects of revenue losses on developing countries.

Both the OECD and the European Commission adopted a two-tiered focus: on one hand, they underlined the need to introduce systems aimed at fighting tax evasion linked to the transfer of capital abroad for both individuals and firms; on the other hand, they tried to get member countries to agree on criteria aimed at defining the borders of what constitutes "acceptable" or "fair" tax competition and what tax rules are, instead, harmful and unfairly eroding other countries' tax bases.

---

[40] When looking at the comparison, it has to be borne in mind that it can only give a rough idea of the potential scale of the phenomenon of offshore tax evasion, given that the two amounts reflect different things: while we have estimated the potential amount of personal income tax evasion embedded in the stock of financial assets held offshore at the end of a given year, the tax revenue recovered under offshore VD schemes reflect the specific terms and conditions provided by each scheme, both in terms of periods covered, taxes due, reduction in penalties, etc..

[41] For instance, with reference to the US, a report of the Permanent Subcommittee of Investigations on tax evasion found that the vast majority of revenue recovered under the 2009, 2011 and 2012 offshore voluntary disclosure initiatives related to penalties assessed for not reporting foreign accounts under the FBAR (Foreign Bank and Financial Accounts) regulations aimed to combat financial crime and money laundering.

[42] Source: A. Galimberti, "La Voluntary incassa 3,2 miliardi. Il gettito è sempre più vicino all'obiettivo di 4 miliardi fissato dall'Economia", Il Sole 24 Ore of 12 November 2015.

With reference to tax evasion related to undeclared capital held offshore, both the OECD and the EU promoted an enhancement of the exchange of tax information between tax administrations, considering this solution as the best policy option. Through the Savings Directive (and the related agreements with Switzerland and other OFCs), starting from 2005 the EU tried to achieve automatic information exchange, considering this the only effective way to fight tax evasion, but had to compromise both in terms of type of income covered – i.e. only interest – and in terms of geographical extension. In the OECD context it was only possible to reach an agreement on information exchange on request as well as the abolition of bank secrecy provisions; the OECD managed to involve in the process many non-member countries – and most OFCs among them – through the Global Forum on Transparency and Exchange of Information, but a shared agreement on information exchange on request was only reached in 2009.

In 2008 the Commission launched a proposal to extend the scope of the Savings Directive and eliminate its main loopholes, mainly linked to the use of structured financial products and offshore interposed entities; it also made pressure on external countries such as Switzerland, Liechtenstein, Monaco, Andorra and San Marino to review the respective agreements containing provisions equivalent to the Directive. However, due to the opposition of several EU member states, the new proposal was never approved.

More or less in the same period, other initiatives to counter international tax evasion were taken at national level. The United States, France, Germany and other European countries started to persecute offshore tax evaders in an unprecedented manner and often with new and "unconventional" tools: the UBS case and other similar events put Swiss banks at the core of the US tax and justice authorities' action; Germany paid to acquire a lists of clients of banks in Switzerland and Liechtenstein that had allegedly evaded German taxes; the "Falciani list" released to the French authorities by a former employee of HSBC's Swiss subsidiary and then passed on to the tax authorities of other States allowed fiscal authorities to recover significant amounts of uncollected taxes.

All this pressure gradually led Switzerland, the largest bank secrecy jurisdiction, to adhere to the OECD standard of information exchange on request in 2009 and to review the network of its double tax treaties in this direction. At the same time, faced with a growing pressure to release information on an automatic basis, in 2011 Switzerland launched the so called "Rubik" approach. It was an attempt to keep protecting the privacy of bank clients that had always been the pillar of the Swiss financial industry competitive advantage. Under this approach Swiss banks were meant to act as withholding agents for foreign tax administrations on financial income earned on assets held in Switzerland by their taxpayers. This eliminated the need to provide detailed information to the same tax administrations.[43] Furthermore, countries that accepted to stipulate the agreement could get a "one-off" amount of revenue as a settlement for past evasion on capital held in Switzerland by their residents before the entry into force of the agreement.

The Rubik approach had undoubted advantages for Switzerland, but big disadvantages for the tax administration of the partner countries, that gave up any chance to access information on the assets held in Switzerland by their residents, who could keep their anonymity, and therefore tax authorities could not get any indices of the potential tax evasion on the capital deposited in Switzerland. This drawback was probably among the reasons that jeopardized the success of the Rubik approach: Switzerland managed to negotiate agreements only with three countries, Germany, Austria and the UK, but only two of them (those with Austria and the UK) were actually ratified and entered into force on January 1, 2013.

The other main driver that led to quickly dismissing the Rubik approach by Swiss partner countries was the shift in the general political attitude towards international tax evasion that saw the light after the 2007-2008 financial crisis. The crisis led policy makers to put great political impetus and

[43] The withholding taxes, applied with the rates provided by the tax laws of the client's State of residence, were final taxes, so that no need for information exchange arose for the Swiss-source financial income. The resulting revenue would have been paid back to investors' residence countries. Swiss banks engaged to accept only capital "regularly declared to tax authorities" and in exchange for their tax services obtained an easier access to foreign financial markets.

support on the implementation of national and international transparency rules aimed at reinforcing financial systems and national tax coffers alike.

The first sign of this new attitude was the approval in 2010 of the US Foreign Account Tax Compliance Act (FATCA), which since 2014 requires foreign financial intermediaries to identify beneficial owners of US securities and, starting from 2019, will require the same intermediaries to report information on financial income of US citizens to the IRS or withhold a 30 per cent tax if information is not provided.[44] But even more important was the subsequent initiative taken by five European countries (Italy, Germany, UK, Spain and France) to negotiate bilateral intergovernmental agreements (IGAs) with the US: the agreements provide for a reciprocal exchange of information on the financial income earned by their own residents in the other country. The IGAs set the basis for the subsequent Common Reporting Standard on Automatic Exchange of Information (CRS on AEOI) approved at OECD level in 2014 under the auspices of the G20, an unconceivable result till just a few years before.

The AEOI calls on governments to obtain detailed account information from their financial institutions and exchange information automatically with other jurisdictions on an annual basis.[45] In line with FATCA, relevant account holders will be identified through *due diligence* procedures aimed at assessing not only the actual beneficial owners, but also their tax residence; in cases of accounts held by entities, a "*look-through*" approach will be applied to identify the relevant "controlling persons". This means that in case of accounts held by entities, financial intermediaries will be required to identify the natural person who exercises control over the entity, if necessary going through the whole chain of possible vehicles and intermediate structures, in a manner consistent with the identification of "beneficial owners" as provided by the Recommendations of the Financial Action Task Force (FATF) on anti-money laundering.

By October 2015, 96 jurisdictions, including almost all financial centers, had committed to implement, by 2018, the Common Reporting Standard (CRS) for automatic exchange of tax information (AEOI); 56 of them – the so-called "*early adopters*" – had signed a "*Multilateral Competent Authority Agreement*" that will activate automatic exchange of information by September 2017. The other countries and jurisdictions are expected to follow in 2018. Three jurisdictions with OFCs (Bahrain, Nauru, Vanuatu) have not committed or not indicated a timeline to join the standard. Developing countries have been invited to join the standard and a series of pilot projects will offer technical assistance to facilitate the move.[46] A new Directive, known as "DAC 2"[47], transposes the OECD standard on AEOI into EU law; its implementation by EU Member States will ensure that the same States will start exchanging tax information from September 2017 (Austria will start a year later). In parallel, the EU started to review its agreements with some offshore financial centers in order to make them in line with the new AEOI standard.[48]

Finally, also the voluntary compliance schemes that have been launched by many countries over the last few years (see above, par. 5.2, and Appendix E) reflect the strong international momentum towards fighting offshore tax evasion.

---

[44] The start of information exchange under FATCA, originally set for 2017, has been postponed to 2019 in September 2015.

[45] Information exchanged will be all relevant financial information, including account balances, interest, dividends, and sales proceeds from financial assets, taken from accounts held by individuals and entities, including trusts and other arrangements (*look-through approach*). Information will be gathered not only from banks, but also from other financial intermediaries, including insurance companies, certain collective investment vehicles and brokers.

[46] With regard to developing countries that do not have financial centers, or that have not already indicated their commitment to the standard, it was widely recognized that for the time being it may not be feasible to commit to the new standard due to capacity constraints. Countries included in the 2013 OECD Development Assistance Committee list, but not categorized as financial centres in the IMF 2000 and 2007 lists are: Albania, Azerbaijan, Botswana, Burkina Faso, Cameroon, Dominican Republic, El Salvador, Macedonia, Gabon, Georgia, Ghana, Guatemala, Jamaica, Kazakhstan, Kenya, Lesotho, Liberia, Mauritania, Morocco, Nigeria, Pakistan, Philippines, Senegal, Tunisia, Uganda, Ukraine.

[47] Council Directive 2014/107/EU of 9 December 2014 amending Directive 2011/16/EU as regards mandatory automatic exchange of information in the field of taxation.

[48] The agreement with Switzerland was signed on May 27th 2015, and is to be enforced in 2018 after ratification in Switzerland. Similar agreements are under negotiations with Liechtenstein, Monaco, Andorra and San Marino, and should be enforced by the end of 2015.

A crucial question is whether all these initiatives will be effective in curbing tax evasion generated by offshore assets.

If we look for instance at the results of offshore VD schemes as a possible indicator of the success of recent crackdown initiatives on international tax evasion, we cannot draw clear conclusions. In very general terms, and taking into account the intrinsic limits of such a comparison (par. 5.2), their results appear negligible if compared even to very conservative estimates of the various components of international tax evasion. More importantly, the results of VD schemes do not give any hint about the future behavior of taxpayers, i.e. whether future tax evasion could be reduced (because taxpayers estimate a higher probability of being detected), or will instead increase (because taxpayers think that VD schemes could be repeated in the future and hence find an incentive to continue evading taxes). This latter view is held in a recent paper by Langermayr (2015).

As to the EU Savings Directive, a few studies found that it seems to have acted as a deterrent of tax evasion - both on interest income and on the principal - with reference to capital flows directed towards countries included in its geographical scope. Taxpayers seem to be aware of the fact that their domestic tax administrations are now in possession of information on their financial investments in other EU countries and in certain third countries or jurisdictions. At the same time, however, given the limited geographical scope of the Directive, and its application only to interest income, there is evidence of reallocation from debt to equity instruments within the same country, of wide use of intermediate vehicles based in offshore jurisdictions outside the scope of the Directive, which allow avoiding the reporting provisions, and of investors shifting portfolio capital out of countries subject to the Directive to third countries (Johanessen, 2012; Rixen and Schwarz, 2012; European Commission, 2012).

Coming to the current perspective of automatic information exchange, in order to make it an effective tool to counter offshore tax evasion, the implementation process needs to be completed in the larger number of countries in the shortest possible time. Only a truly global and coeval implementation of automatic information exchange can assure that tax evaders do not find any jurisdiction ready to shield their assets. As highlighted by Zucman (2014), if not all countries implement the standard, the incentives for the remaining ones not to do so become bigger. In spite of the great effort that the OECD is putting into this direction, also with the cooperation of national tax authorities and other international organizations, it seems unlikely that a uniform and truly comprehensive framework may arise very soon. In addition to the risks stemming from the few jurisdictions with offshore financial centers that have not yet committed to implement automatic exchange, in the longer run there is the possibility that other countries (mostly developing ones), currently outside the net of information exchange, introduce offshore financial centers in their jurisdictions and offer new safe harbors to tax dodgers around the world.

In terms of actual implementation, the OECD standard on automatic exchange of information relies on anti-money laundering rules for the identification of actual beneficial owners and for the application of the "*look-through*" approach in the case of assets held through entities. In the OECD view, this approach should ensure uniformity, since all countries should implement anti-money laundering criteria according to the Recommendations of the Financial Action Task Force. However, in practice it can be observed that many countries, both in the OECD and non-OECD area, are not compliant with the most recent FATF rules, and still lag well behind in their actual implementation. This could seriously undermine the effectiveness of automatic exchange, especially in the case of assets held through entities.

Other possible risks stem from the fact that the OECD standard leaves to national legislators wide margins of freedom in the actual implementation of the provisions, for instance regarding possible measures aimed at ensuring their effectiveness (such as penalties, etc.). Differences in the national provisions and practices implementing the standard could, at least temporarily, jeopardize the level

playing field. In all these respects, the peer review process that is being established within the Global Forum on Information Exchange will be of utmost relevance.[49]

Another possible source of ineffectiveness of the whole net of automatic information exchange is represented by the loopholes affecting the US FATCA. For instance, under FATCA's implementing regulations, financial accounts can be optionally excluded from disclosure if their balance at the end of the year is lower than given thresholds. These thresholds - that can be as high as $200.000 for US citizens living outside the United States or $250.000 in the case of accounts belonging to entities - may induce investors to try to avoid the provisions regarding information reporting by splitting their offshore capital among different banks or financial intermediaries. In addition, due diligence procedures are less stringent for accounts of less than $1 million that pre-exist the entry into force of FATCA.

Also the non-reciprocity of information exchange agreements may weaken the effectiveness of information exchange. Once again, the US FATCA is on the stage. The intergovernmental agreements (IGAs) negotiated by the US under FATCA, can follow two possible models: Model IGA-A, under which the United States agrees not only to receive, but also to provide financial information to the partner country; Model IGA-B, under which it is only the partner country that provides information to the US, but not the other way round. Most Model IGA-B have been negotiated with small jurisdictions or with countries that lack the technical capacity to effectively analyze and use the data for tax assessment purposes. This is often the case in small developing countries, many of which have not committed to implement the AEOI standard; they could have a strong incentive to act as hubs for offshore assets that could be subsequently transferred and invested through US financial intermediaries without any risk of detection. In other terms, the crackdown on offshore financial centers could produce the paradoxical effect of leaving tax dodgers free to hide assets in non-offshore jurisdictions without almost any risk of being detected.

But even under the reciprocal Model IGA-A, the United States will provide to the partner country information only on US financial assets held by residents of the same partner country. Therefore, opening a custody account in Florida to invest in assets other than US securities can be the easiest way to overcome the information exchange provisions altogether.

More generally, in spite of the impressive progress towards automatic information exchange, areas of opacity still remain, namely in the field of company registries. Even though the AEOI standard is based on a *look-through approach*, and therefore requires the identification of the ultimate beneficial owner of the assets held with financial intermediaries, to the extent that many offshore financial centers still keep strict confidentiality about (or do not even ask the identity of) the real owners of assets held by shell companies, trusts and other types of entities that can be used as interposed vehicles, even the full automatic exchange of financial information will not allow identification of assets held offshore in all cases.

Definitely, as underlined by Zucman (2014), the implementation of automatic information exchange will probably be effective in limiting tax evasion by the less sophisticated investors, but could not be equally effective for those who are able to use more complex administrative structures, such as shell companies, trusts, etc. And the number of these latter investors seems to be growing fast.

On the other hand, given the relevance that tax avoidance by multinational enterprises may have as a possible source of funds flowing to offshore jurisdictions (section 2.2), a reduction of the amount of undisclosed assets held offshore could be obtained as an indirect consequence of the success of the OECD and EU action against tax avoidance (see Box in Appendix F). However, given that most of these latter measures will need to be implemented at national level, a process that will probably require years, their full effects will only be seen in the medium term, and provided that in the meantime multinational enterprises do not find other ways to reduce their overall tax bill.

[49] The Global Forum on Exchange of Information is establishing a peer review process to monitor the effective implementation of the automatic reporting standard.

7. Conclusions

The growing volume of international financial transactions over the last two decades has allowed more and more taxpayers to easily escape domestic taxes by hiding their income and wealth abroad, particularly in offshore financial centers with strict banking and financial secrecy rules.

Links and transactions with counterparts and subsidiaries located in tax havens – whose role is our first aim of research − provide enterprises with channels to avoid or evade taxes or to transfer funds abroad. Several signals and statistical evidences lead us to investigate in this direction.

Firstly, statistics on foreign direct investment show that globally almost one third of the FDI stock (inward and outward) refers to partners located in tax havens (UNCTAD, 2015). The choice among different tax havens for FDI depends on several factors related, among others, to distance or cultural proximity as well as to regulation and tax regimes.

Secondly, as far as trade in services is concerned, statistical analyses confirm that tax advantages offered by offshore countries have a significant impact on the geographical distribution of international trade, especially in the case of business services (Hebous and Johannesen, 2015).

Thirdly, the results of the most favorable voluntary disclosure schemes (such as those implemented in Italy) confirm that there are significant amounts of undeclared external assets. The analysis of global data on balance of payments and international investment position reveals significant discrepancies going in the same direction.

External statistics provide useful information to estimate a plausible order of magnitude of under-reporting of assets held abroad. This quantification is the second aim of the paper. As a matter of fact, portfolio mirror statistics can give information about undeclared external assets, even if it is necessary to fill the informative gaps estimating data for the countries (i.e., some important OFCs and China) that are not compliant with international statistical requirements (Pellegrini and Tosti, 2011 and 2012). For the years from 2001 to 2013 the global discrepancy between portfolio liabilities and assets (underreporting of assets) declared by the countries is estimated to be equal, on average, to 6.4 per cent of world GDP.

In order to get a more comprehensive view of the potential amount of unreported financial assets held abroad, we also consider a share of cross-border bank deposits, using a methodology based on BIS banking statistics (Sanelli, 2008); overall, we find that undeclared foreign bank deposits may range between $1.1 and $2.3 trillion at end-2013.

The third aim of the paper is to estimate the potential amount of international tax evasion linked to the unreported assets, on the basis of a methodology developed in authors' previous works (Sanelli, 2004 and 2008). We attempt to estimate tax evasion by individuals, either directly or through intermediate controlled entities, assuming that the unreported assets give rise both to annual capital income tax evasion on the return and to personal income tax evasion, which refers to the income from which unreported assets originally arose. The two estimation exercises are made both on a global level, distinguishing among OECD and non-OECD countries, and with regard to the Italian case.

According to our estimates, at global level international tax evasion on capital income might range between $19 and $38 billion a year, or between 0.02-0.05 per cent of world GDP. Personal income tax evasion estimated with reference to the stock of unreported capital at the end of 2013 ranges between $2 and $2.6 trillion, i.e. between 2.6 and 3.5 per cent of world GDP.

With reference to the specific case of Italy, we find that the amount of annual capital income tax evasion, ranging from €0.4 and €1.4 billion, represents between 3.6 and 11.5 per cent of the average annual revenues from the taxation of financial proceeds (around €11.8 billion) and between 0.03 and 0.08 per cent of GDP. Personal income tax evasion estimated with reference to the stock of unreported capital held abroad at the end of 2013 ranges from €49 to €99 billion, representing between 33 and 67 per cent of the actual annual revenues from the personal income tax; in terms of national GDP, it ranges from 3.1 to 6.2 per cent.

A comparison might be made with the results of the offshore voluntary compliance initiatives that many countries launched over the recent few years in the wake of the new "transparency" era. According to the OECD, over the period 2009-2014 these led to the collection of more than €37

billion of taxes. However, this amount is not directly comparable with the results of our estimates, given that the assets declared under voluntary disclosure schemes usually represent a small share of previously undisclosed offshore funds, since investors are only interested in disclosing assets that are still at risk of being assessed, and that a significant share of the tax revenue recovered consists of the fines due in addition to previously unpaid taxes.

Furthermore, the outcome of voluntary disclosure schemes also depends on their specific design (more or less advantageous conditions) and on to what extent taxpayers had the perception of an increase in the risk of being caught due to the changing international context. The perception and assessment of this risk by tax evaders is a core issue in the fight against evasion and it is strictly related to the overall evaluation about the effectiveness and reliability of the measures undertaken at an international level.

Finally, our work summarizes strengths and weaknesses of the recent policy responses to international tax evasion. In our view, even if the current progress towards the implementation of automatic information exchange represents an unprecedented positive result, unthinkable only till a few years ago, tax administrations worldwide still face several risks when dealing with offshore tax evasion.

The automatic information exchange can be an effective tool to fight against international tax evasion involving tax havens only if it is fully and consistently implemented at a global level for all types of financial information. A partial ad unsynchronized implementation of these measures may generate advantages for uncooperative countries that could become tax shelters for major investors. Corrective measures should be adopted in order to eliminate these distortive effects. Namely, the fact that there are still many jurisdictions in which it is possible to open shell companies and other opaque vehicles without providing the identity of the shareholders can jeopardize the effectiveness of information exchange.

Special attention must be paid to the possible shift of tax evasion linked to unreported capital from offshore to onshore countries, due to inconsistencies in the current net of information exchange agreements, such as lack of reciprocity, etc. Furthermore, even more important is the use of data that tax administration of countries receiving the information are willing and able to make.

Briefly, the new measures will limit tax evasion for small investors, but could not be equally effective for the bigger and more sophisticated ones who will be able to use more complex structure in order to conceal their wealth. This issue may be a challenge in terms of both horizontal and vertical equity of national tax systems.

The effectiveness of recent international initiatives against tax evasion would also benefit from actions aimed to drastically reduce statistical opacity of tax havens and other countries. Statistical data would help in monitoring the effects of the recent policy measures against tax evasion in tax havens.

Bibliography

Alworth, J. and Andresen, S. (1992), *The determinants of cross-border non-bank deposits and the competitiveness of financial market centres*, Money Affairs 5, pp. 105-133.

Avi-Yonah, R. (2007), *Testimony for Hearing on Offshore Tax Evasion*, US Senate Finance Committee, May 3.

Bertaut, C., Griever, W. and Tryon, R. (2006), *Understanding U.S. Cross-Border Securities Data*, http://www.federalreserve.gov/pubs/bulletin/2006/crossbordersecurities/default.htm, Federal Reserve Bulletin.

Boston Consulting Group (2015), *Global Wealth 2015: Winning the Growth Game*, June.

Burger, M., van Oort F. and Linders, G. (2009) *On the Specification of the Gravity Model of Trade: Zeros, Excess Zeros and Zero-inflated Estimation*, Spatial Economic Analysis, 4:2, 167-190, DOI: 10.1080/17421770902834327.

Cassetta, A., Pauselli, C., Rizzica, L. and Tonello, M. (2014), *Financial flows to tax havens: Determinants and anomalies*. Quaderni dell'antiriciclaggio n.1, Bank of Italy, March.

Dischinger M. and Riedel, N. (2011), *Corporate taxes and the location of intangible assets within multinational firms*, Journal of Public Economics, Volume 95, Issues 7–8, August 2011, Pages 691–707.

Eichengreen, B.J. (2011), *Exorbitant privilege: the rise and fall of the dollar and the future of the International Monetary System*, New York, Oxford University Press

European Commission (1998), *Communications of the Commission on undeclared work*, Brussels, COM(98) – 219.

European Commission (2008), *Commission Proposal for a Council Directive amending Directive 2003/48/EC on taxation of savings income in the form of interest payments*, COM (2008) 727 final of 13.11.2008

European Commission (2012), *Report from the Commission to the Council in accordance with Article 18 of Council Directive 2003/48/EC on taxation of savings income in the form of interest payments,* COM(2012) 65 final, Brussels, March, 2

European Commission (2015a), *Communication from the Commission to the European Parliament and the Council on tax transparency to fight tax evasion and avoidance*, COM (2015) 136 final.

European Commission (2015b), *Communication from the Commission to the European Parliament and the Council. A Fair and Efficient Corporate Tax System in the European Union: 5 Key Areas for Action*, COM(2015) 302 final.

Gara, M. and De Franceshis, P. (2015), *Financial flows to tax havens: Determinants and anomalies*. Quaderni dell'antiriciclaggio n.1, Bank of Italy, August.

Gravelle, J.G. (2015) *Tax Havens: International Tax Avoidance and Evasion*, Congressional Research Service 7-5700, www.crs.gov, R40623.

Haberly, D. and Wojcik, D. (2014), *Tax Havens and the Production of Offshore FDI: An Empirical Analysis*, Journal of Economic Geography (2014) pp. 1–27 doi:10.1093/jeg/lbu003.

Habib, M. M. (2009) *Excess Returns on Net Foreign Assets: The Exorbitant Privilege from a Global Perspective*, http://www.bancaditalia.it/studiricerche/seminari/2010/excess-returns/habib.pdf.

Hebous, S. and N. Johannesen (2015), *At Your Service! The Role of Tax Havens in International Trade with Services*, CESifo Working Paper n° 5414, June.

IMF (2002), *Coordinated Portfolio Investment Survey Guide*, 2nd Edition.

IMF (2013), *Balance of Payments and International Investment Position Manual*, downloadable at: http://www.imf.org/external/pubs/ft/bop/2007/bopman6.htm.

Johannesen, N. (2012), *Tax Evasion and Swiss Bank Deposits*, University of Copenhagen, Department of Economics, 22 October.

Johannesen, N. and Zucman, G. (2014), *The end of bank secrecy: An Evaluation of the G20 Tax Haven Crackdown*, American Economic Journal: Economic Policy 2014, 6(1): 65–91 http://dx.doi.org/10.1257/pol.6.1.65.

Krisztin, T. and Fischer, M. M. (2014), *The gravity model for international trade: Specification and estimation issues in the prevalence of zero flows*, Working Papers in Regional Science, 2014/01, Vienna: http://epub.wu.ac.at/4453/.

Lane, P. R. and Milesi-Ferretti, G.M. (2001), *The External Wealth of Nations: Measures of Foreign Assets and Liabilities for Industrial and Developing Countries*, Journal of International Economics, Vol. 55, pp. 263–94, November.

Lane, P.R. and Milesi-Ferretti, G.M. (2007), *The External Wealth of Nations Mark II*, Journal of International Economics, 73, No. 2 (November), pp. 223-50.

Lane, P.R. and Milesi-Ferretti, G.M. (2010), *Cross-Border Investment in Small International Financial Centers*, IMF Working Papers, WP/10/38.

Langermayr, D. (2015), *Voluntary Disclosure of Evaded Taxes – Increasing Revenues, or Increasing Incentives to Evade?,* CESIFO Working Paper No. 5349, May

Martin, W. and Pham, C.S. (2008), *Estimating the gravity equation when zero trade flows are frequent*, Working Paper No.2008_03, Deakin University, School of Accounting, Economics and Finance.

Milesi-Ferretti, G.M. (2009), *The financial crisis and its international transmission: some tentative lessons*, mimeo, September.

Nitsch, V. (2009) *Trade Mispricing and Illicit Flows*, presented at the World Bank Conference: "The Dynamics of Illicit Flows from Developing Countries", 14-15 September.

OECD (1998), *Harmful Tax Competition: An Emerging Global Issue*, Paris.

OECD (2000), *Improving Access to Bank Information for Tax Purposes*, Paris.

OECD (2010), Offshore Voluntary Disclosure. Comparative Analysis, Guidance and Policy Advice, September.

OECD (2013), *Action Plan on Base Erosion and Profit Shifting*, OECD Publishing, Paris. DOI: http://dx.doi.org/10.1787/9789264202719-en.

OECD (2015a), *Update on Voluntary Disclosure Programmes: A pathway to tax compliance*, August.

OECD (2015b), *OECD presents outputs of OECD/G20 BEPS Project for discussion at G20 Finance Ministers meeting*, October, 5, at http://www.oecd.org/tax/oecd-presents-outputs-of-oecd-g20-beps-project-for-discussion-at-g20-finance-ministers-meeting.htm

Owens, J. (2007), *Offshore Tax Evasion. The Role of Exchange of Information,* Written Testimony before Senate Finance Committee on Offshore Tax Evasion, May, 3

OXFAM (2000), *Tax Havens: Releasing the Hidden Billions for Poverty Eradication.*

Pellegrini, V. and Tosti, E. (2011), *Alla ricerca dei capitali perduti: una stima delle attività all'estero non dichiarate dagli italiani*, Bank of Italy, Occasional Papers, No. 97, July.

Pellegrini, V. and Tosti, E. (2012), *In search of lost capitals: an estimation of undeclared portfolio assets*, Bank of Italy, Occasional Papers, No. 131, September.

Riedel, N. (2014), *Quantifying International Tax Avoidance: A Review of the Academic Literature*, Paper Prepared for the European Tax Policy Forum, http://www.wiwi.ruhr-uni-bochum.de/fiwipo/mam/content/profitshift.pdf.

Rixen, T. and Schwarz, P. (2012), *How Effective is the European Union's Savings Tax Directive? Evidence from Four EU Member States*, Journal of Common Market Studies, 50: 151–168. doi: 10.1111/j.1468-5965.2011.02213.x

Sanelli, A. (2004), *The Economics of Bank Secrecy*, OECD – Centre for Tax Policy and Administration, mimeo.

Sanelli, A. (2008), *Bank Secrecy, Information Exchange and International Tax Evasion: A Tentative Estimate*, mimeo.

Santos Silva, J.M.C. and Tenreyro, S. (2006), *The log of gravity*, The Review of Economics and Statistics, MIT Press, vol. 88(4), pages 641-658, November http://personal.lse.ac.uk/tenreyro/jensen08k.pdf

Sheperd B. (2013), *The gravity model of international trade: a user guide*, United Nations ESCAP-ARTNeT, http://www.unescap.org/sites/default/files/tipub2645.pdf

Sullivan, M. (2007a), *Tax Analysts Offshore Project*, Tax Notes International, October, 15.

Sullivan, M. (2007b), *Offshore Explorations: Guernsey*, Tax Notes International, October, 15.

Sullivan, M. (2007c), *Offshore Explorations: Jersey*, Tax Notes International, November 5.

Sullivan, M. (2007d), *Offshore Explorations: Isle of Man*, Tax Notes International, November 19.

Sullivan, M. (2007e), *Offshore Explorations: Switzerland*, Tax Notes International, December 17.

Sullivan, M. and Sheppard, L.A. (2008), *Offshore Explorations: Caribbean Hedge Funds, Part 1*, Tax Notes International, January 14

Sullivan, M. (2008), *Offshore Explorations: Caribbean Hedge Funds, Part 2*, Tax Notes International, January 21

Tax Justice Network (2005), *The Price of Offshore*. Briefing Paper, March.

Tax Justice Network (2012), *The Price of Offshore Revisited*. Briefing Paper, July

UNCTAD (2015), *World Investment Report*, http://unctad.org/en/PublicationsLibrary/wir2015_en.pdf

Wooldridge, P.D. (2006), *The changing composition of official reserves*, BIS Quarterly Review, September.

Zucman, G. (2013), *The Missing Wealth of Nations. Are Europe and the U.S. net Debtors or net Creditors?*, Quarterly Journal of Economics

Zucman, G. (2014), *Taxing across Borders: Tracking Personal Wealth and Corporate Profits*, Journal of Economic Perspectives, Vol. 28, No. 4 – Fall 2014

Zucman, G. (2015), *The Hidden Wealth of Nations. The Scourge of Tax Havens*, University of Chicago Press, September; Technical Appendix at http://gabriel-zucman.eu/hidden-wealth/.

Appendix A

Table A: List of tax havens

A.1 – Tax havens used by individuals for tax evasion purposes	A.2 - Tax havens used by corporations for tax avoidance purposes	A.3 - List of tax havens used for analysis of BIS data on cross-border deposits*
Andorra	Andorra	**Andorra**
Anguilla	Anguilla	**Anguilla**
Antigua & Barbuda	Antigua & Barbuda	**Antigua & Barbuda**
Aruba	Aruba	**Aruba**
Austria	Bahamas	Austria
Bahamas	Barbados	**Bahamas**
Barbados	Bahrain	**Barbados**
Barhain	Belize	Belgium
Belgium	Bermuda	**Belize**
Belize	British Virgin Islands	**Bermuda**
Bermuda	Cayman Islands	**British Virgin Islands**
British Virgin Islands	Cook Islands	**Cayman Islands**
Brunei	Costa Rica	Chile
Cayman Islands	Cyprus	**Cook Islands**
Chile	Dominica	**Guernsey**
Cook Islands	Gibraltar	**Ireland**
Costa Rica	Grenada	**Jersey**
Cyprus	Guernsey	**Jordan**
Dominica	Hong Kong	**Liberia**
Gibraltar	Ireland	**Macao**
Grenada	Isle of Man	Malaysia
Guatemala	Jersey	**Mashall Islands**
Guernsey	Jordan	**Monaco**
Hong Kong	Lebanon	**Netherlands**
Hungary	Liberia	**Niue**
India	Liechtenstein	**Panama**
Indonesia	Luxembourg	**San Marino**
Ireland	Macao	**Seychelles**
Isle of Man	Malaysia (Labuan)	**Singapore**
Jersey	Maldives	**St. Vincent & the Grenadines**
Lebanon	Malta	**United Arab Emirates**
Liberia	Marshall Islands	**US Virgin Islands**
Liechtenstein	Mauritius	
Luxembourg	Monaco	
Macao	Montserrat	
Malaysia (Labuan)	Nauru	
Maldives	Netherlands	
Malta	Netherlands Antilles	
Mashall Islands	Niue	
Mauritius	Panama	
Monaco	Portugal (Madeira)	
Montserrat	Samoa	
Nauru	San Marino	
Netherlands Antilles	Seychelles	
Niue	Singapore	
Panama	St. Kitts & Nevis	
Philippines	St. Lucia	
Samoa	St. Vincent & the Grenadines	
San Marino	Switzerland	
Seychelles	Tonga	
Singapore	Turks & Caicos	

St. Kitts & Nevis	United Arab Emirates	
St. Lucia	US Virgin Islands	
St. Vincent & the Grenadines	Vanuatu	
Switzerland		
Trinidad & Tobago		
Turks & Caicos		
US Virgin Islands		
Uruguay		
Vanuatu		

Note (*): countries in bold character are those classified as offshore in BIS statistics.

Appendix B

Comparison between external trade and settlement data on the relevance of offshore countries as counterpart in Italian merchandise trade

For Italy there is a possibility of verifying the difference between external trade data and settlement using old data collected by Bank of Italy, which reported the residence of foreign contractual counterparty instead of the country of origin/destination of the goods. Until 2007 the collection data system for BP purpose was based mainly on settlements, whose data on merchandise trade were collected and used to estimate trade credits (for the item goods the data source was always based on external trade). Table A.1 reports, for the last two years available (2006-2007), the incidence of offshore countries both in external trade data and in settlements data; on average, the incidence is significantly greater, 18.3% against 10.2%, especially on the import side, consistently with the hypothesis of over-invoicing. Such result seems to confirm that external trade data are barely appropriate to check for the role of offshore countries and misinvoicing practices.

Table B.1: Incidence of tax haven countries on Italian merchandise trade: external trade and settlements (percentage values, 2006-2007)

		2006	2007	Average
Export	A) External trade	10.1%	9.7%	9.9%
	B) Settlements	13.9%	13.8%	13.9%
	difference (B-A)	*3.8%*	*4.1%*	*4.0%*
Import	A) External trade	10.5%	10.3%	10.4%
	B) Settlements	23.4%	22.2%	22.8%
	difference (B-A)	*12.9%*	*11.9%*	*12.4%*
Average	A) External trade	10.3%	10.0%	10.2%
	B) Settlements	18.6%	17.9%	18.3%
	difference (B-A)	*8.3%*	*7.9%*	*8.1%*

Source: Bank of Italy.

Appendix C

Integration of official data on external portfolio stocks

Only in a few cases the derived liabilities from the CPIS were higher than those reported by the other sources (IIP and EWN II). Even though in some cases the discrepancy was far from being negligible, the overall impact on global amounts and on final results was quite moderate; particularly, this is the case for the Netherlands and Luxembourg for debt instruments.

For Luxembourg and the Netherlands the exclusion from portfolio liabilities of the securities issued by special purpose entities (SPEs) has been identified as the main cause of the observed over-reporting. SPEs are frequently created in specific countries by multinational enterprises in order to achieve benefits in terms of legal and tax advantages and of privacy. Securities issued by SPEs are generally declared by investors as an asset vis-à-vis the countries hosting the SPEs. An adjustment has been made to the declared liabilities whenever data on the amount of SPEs issuance are available. For the Netherlands, official data including the positions referring to SPEs are available.[50]

In the other cases, the information available is not enough complete to assess whether the discrepancy is due to an over-reporting of assets vis-à-vis these countries or to statistical distortions implying a systematic underestimation of portfolio liabilities. Accordingly, the CPIS derived liabilities have been generally taken into account as the most realistic proxy. The choice of using derived liabilities in the case of over-reporting made the global amount of liabilities increase, but the impact of these adjustments on the total amount was quite low (less than 0.5 per cent of total liabilities); moreover, it has not inflated the amount of the discrepancy between assets and liabilities, as in these cases it is by definition equal to zero.

This appendix describes the integrations and the adjustments made and illustrates the contents of the supplementary data source which we have taken into account in order to improve the level of coverage and consistency of the database (par. 4.1).

United States – liabilities broken down by investor country

The US Department of the Treasury collects information on transactions and positions referring to foreign portfolio securities through the Treasury International Capital (TIC) reporting system.[51] Data are collected from banks and brokers. Once a year, a detailed investigation is conducted on the stocks of portfolio securities, broken down by issuer and investor country, also collecting data from importers, exporters and financial institutions other than banks. Data on liabilities broken down by investor country are regularly disseminated.

However, some difficulties in correctly identifying the country of residence of the final investor exist. As a matter of fact, these statistics tend to overestimate the assets of the countries in which securities are traded and held (custodial bias)[52] and to underestimate the assets of final investors. The information on the geographical detail of the liabilities of the United States has been used in any case to quantify the assets in US securities held by some major countries which do not report CPIS data, namely China, Taiwan and the Arab oil-exporting countries. For these countries the custodial bias is not expected to affect the figures significantly.

Japan – liabilities broken down by investor country

The Central bank of Japan publishes on its website[53] portfolio liabilities broken down by investor country at the end of each year. This information on transactions and positions regarding

[50] De Nederlandsche Bank, http://www.dnb.nl/en/statistics/statistics-dnb/balance-of-payments-and-international-investment-position/index.jsp.

[51] US Department of the Treasury: http://www.treasury.gov/resource-center/data-chart-center/tic/Pages/index.aspx.

[52] In case of long and complex chains of deposits and intermediaries, the residence of the final investor cannot be easily identified; in particular, according to the US Department of the Treasury, this "custodial bias" can lead to an overestimation of the liabilities to the Cayman Islands, Switzerland, the United Kingdom and Luxembourg, and to an underestimation of liabilities to all other countries (Bertaut *et al*, 2006).

[53] Bank of Japan, http://www.boj.or.jp/en/statistics/br/bop/index.htm/.

foreign investments in domestic securities was collected through sample surveys. Data on liabilities broken down by investor country have been used in the same way as the TIC data for the United States in order to quantify the portfolio assets vis-à-vis Japan held by some of the major countries not reporting in the CPIS.

Ireland – liabilities in equity securities (shares and funds)

As regards Irish equities and investment fund shares, there is a considerable discrepancy between the official and derived liabilities, presumably related to the presence of SPEs, especially in the financial sector.[54] A significant proportion of debtor positions are declared by Ireland but they are not reported by investor countries. On the basis of specific and confidential information, it has been possible to make a reduction in this discrepancy, attributing some of it to certain countries.

United States and Germany – adjustment on portfolio assets

It has been necessary to make a correction on CPIS asset data reported by the United States and Germany, since for some years there have been significant differences from the portfolio assets reported in their IIPs. The geographical percentage distribution deriving from the CPIS has been applied to the value of total portfolio assets as reported in these countries' IIPs.

China – assets (official reserves)

The foreign assets held by China - a country not reporting to the CPIS - are largely constituted by official reserves; the total amount is known thanks to official Chinese statistics (State Administration of Foreign Exchange) and EWN II. As assets held vis-à-vis United States and Japan have been already calculated (see above), the further step consists in estimating the shares held vis-à-vis the remaining countries.

On the basis of a study conducted by the Bank of International Settlements (Wooldridge, 2006)[55], we assumed that 80 per cent of reserve assets was invested in debt securities. The breakdown by issuer country has been estimated on the basis of the geographical distribution of the global reserve assets in debt securities reported by all countries in the CPIS (Survey of Securities held as Foreign Exchange Reserves, SEFER).

International organizations – liabilities (debt securities)

International organizations (for example, the European Investment Bank) issue debt instruments, but statistics on their international investment position are not published. Assets held in debt securities issued by international organizations are instead included in stocks declared by investor countries, causing a discrepancy between global assets and liabilities.

In order to reduce these inconsistencies, international organizations' portfolio liabilities have been estimated on the basis of data on the outstanding amount of international bonds periodically published by the Bank for International Settlements. It should be noted that the valuation of these stocks is based on nominal values, whereas the assets reported by the investor countries in the CPIS are based on market ones. The different valuation criteria may generate discrepancies.

The Netherlands – adjustments on portfolio liabilities

As already mentioned, for the Netherlands portfolio debt liabilities have been increased by adding the amount of liabilities issued by SPEs, which are excluded from the official IIP (liabilities are lower than total assets vis-à-vis the Netherlands reported in the CPIS). Data on SPEs' portfolio liabilities are published by the Dutch central bank, as already mentioned. After the correction, portfolio liabilities ended up higher than declared assets.

[54] The International Financial Services Centre (IFSC) is located in Dublin, hosting more than half of the world's top 50 financial groups.

[55] It is higher than the average estimated (70 per cent; Wooldridge, 2006, p. 32) for the developed countries, as there are reasons to believe that the Chinese monetary authorities have a lower propensity for other types of financial instrument than other central banks.

Offshore centres – assets and liabilities

The Cayman Islands and British Virgin Islands are the two most relevant offshore centres as regards portfolio investments, particularly investment funds.[56] These two countries do not report complete portfolio statistics: the Virgin Islands do not publish IIP and do not participate in the CPIS, while the Cayman Islands only report the assets held by banks to the CPIS. Consequently, for these countries estimations and adjustments on both assets and liabilities have been made.

For the Cayman Islands, estimates are based on data published by the Cayman Islands Monetary Authority[57] (CIMA), which is the authority in charge of monitoring resident investment funds. The net asset values declared by Cayman funds have been considered as a proxy for equity liabilities to foreign investors. As for debt, the derived liabilities calculated on the basis of CPIS data have been considered as a proxy because of the lack of specific and reliable information. Furthermore, in order to estimate portfolio assets (except those held vis-à-vis the US and Japan, see above) statistics from CIMA have been used as well.

As for the British Virgin Islands, Lane and Milesi-Ferretti (2010) tried to quantify total external assets and liabilities. For two other major offshore centers, Guernsey and Jersey, the integration to the database only relates to the external liabilities in equity investment funds issued. Both countries do not publish IIP but they do report portfolio assets in the CPIS. The integration is based on data on collective investment funds published respectively by the Guernsey Financial Services Commission[58] and the Jersey Financial Services Commission.[59] Also in this case we used the net asset value of the investment funds issued in these countries to approximate the amount of their external equity liabilities.

Whenever we have used data on fund net asset value, we have assumed that: a) all equity funds are held by foreign investors; b) the fund invests all its assets in foreign securities. We expect that these assumptions do not have an important impact on the estimation of global discrepancy, as the effects on assets and liabilities should balance each other. However, such assumptions may influence the country and financial instrument breakdown of the global discrepancy.

As regards the breakdown by debtor country and by financial instrument of the assets held by the Cayman Islands and British Virgin Islands, we have estimated it by adopting the hypothesis that it reflects the distribution related to the subset of offshore and small financial centres[60] declaring in the CPIS.

Arab oil exporters – assets (Sovereign Wealth Funds)

The estimates of portfolio assets held by Arab oil exporters (again with the exception of those vis-à-vis the US and Japan) have been mainly based on published data on the net asset values of sovereign wealth funds collected by the SWF Institute[61] and from specific studies (ECB, 2008). In the absence of reliable information on the distribution by country and by financial instrument, we assume that they are proportionally distributed according to the global discrepancy. In other words, such assets have been proportionally subtracted from the global discrepancy for each combination of year, issuer country and type of instrument (see formula A.1 below).

Other countries not included in the CPIS and IIP statistics – assets and liabilities

As regards the other countries (e.g. Taiwan) not reporting data to IMF (CPIS and IIP) and not included elsewhere, we derived data – subject to availability – on assets (portfolio securities plus the 70 per cent of official reserves) and liabilities (portfolio securities) from EWN II. In the absence of reliable

[56] According to estimates made by Lane and Milesi-Ferretti (2010), these two countries account for between 50 and 60 per cent of total assets and liabilities of the 32 small international financial centers (SIFCO) countries (information relating to year 2007).
[57] http://www.cimoney.com.ky/Stats_Reg_Ent/. (Investment Statistical Digest for various years).
[58] http://www.gfsc.gg/Investment/Pages/Statistics.aspx.
[59] http://www.jerseyfsc.org/investment_business/statistics/totalfundsunderinvestmentmanagement.asp.
[60] The group comprises Bermuda, Guernsey, Jersey, Luxembourg, the Isle of Man and - only for banking sector - Barbados, the Bahamas, British Virgin Islands, Cayman Islands and Netherlands Antilles.
[61] http://www.swfinstitute.org/fund-rankings.

information on the distribution by country and by financial instrument, we assume that they are proportionally distributed according to the global discrepancy (see formula A.1 below).

As regards the breakdown by country and type of instrument of estimated assets held both by Arab (A) oil exporters (in securities issued by countries other than the US and Japan) and by countries not included in the CPIS and IIP statistics (O), we define, respectively, equity and debt securities as follows:

$$A_{AO}^{E} \text{ and } A_{AO}^{D}$$

and considering global individual country discrepancies before the integration of the above assets:

$${}_{t}U^{E*} \quad {}_{t}U^{D*} \quad {}_{t}U_{i}^{E*} \quad {}_{t}U_{i}^{D*}$$

the final amount of the discrepancy in equity securities by a reference year and issuer country can be expressed as follows (with a similar notation for debt securities):

A.1) $$\forall \boldsymbol{i,t} \quad {}_{t}U_{i}^{E} = {}_{t}U^{E*} - \left(A_{AO}^{E} \times \frac{{}_{t}U_{i}^{E*}}{{}_{t}U^{E*}} \right) = {}_{t}L_{i}^{E} - \sum_{j} {}_{t}A_{ji}^{E} - \left(A_{AO}^{E} \times \frac{{}_{t}U_{i}^{E*}}{{}_{t}U^{E*}} \right) \quad .$$

Appendix D

Table D.1: Under-reporting attributed to five major European countries
(billions of euros or percentages)

		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
ITALY														
1° criterion: mirror data (CPIS)	A) Equity securities	92.6	94.6	101.0	103.7	145.4	141.5	140.0	95.9	98.9	116.8	117.6	124.5	122.1
	B) Debt securities	51.1	41.5	28.6	28.0	31.0	20.1	21.4	26.5	23.4	7.1	37.0	42.1	34.7
	C) Total	**143.7**	**136.1**	**129.6**	**131.7**	**176.4**	**161.6**	**161.4**	**122.4**	**122.3**	**123.9**	**154.6**	**166.6**	**156.8**
	% on official assets	*22.9%*	*24.0%*	*20.7%*	*19.6%*	*21.2%*	*18.7%*	*19.1%*	*17.8%*	*15.8%*	*14.3%*	*19.4%*	*21.0%*	*18.9%*
2° criterion: share of world GDP	A) Equity securities	46.7	42.1	48.7	56.4	72.8	75.5	93.6	70.3	70.4	72.0	68.8	68.6	70.2
	B) Debt securities	38.1	39.0	29.5	32.9	33.9	27.3	31.0	37.3	29.5	12.0	41.6	48.2	44.1
	C) Total	**84.8**	**81.1**	**78.1**	**89.2**	**106.6**	**102.8**	**124.7**	**107.6**	**100.0**	**84.0**	**110.4**	**116.8**	**114.4**
	% on official assets	*13.5%*	*14.3%*	*12.5%*	*13.3%*	*12.8%*	*11.9%*	*14.8%*	*15.7%*	*12.9%*	*9.7%*	*13.9%*	*14.7%*	*13.8%*
GERMANY														
1° criterion: mirror data (CPIS)	A) Equity securities	121.5	102.5	111.3	115.4	152.3	161.1	174.2	162.0	161.9	169.8	161.1	165.1	156.1
	B) Debt securities	58.9	67.3	49.9	59.9	64.9	59.9	71.2	79.5	68.1	32.1	107.4	142.5	130.7
	C) Total	**180.4**	**169.8**	**161.2**	**175.3**	**217.2**	**221.0**	**245.4**	**241.5**	**230.0**	**201.9**	**268.5**	**307.5**	**286.8**
	% on official assets	*20.1%*	*19.8%*	*16.9%*	*15.8%*	*16.5%*	*12.8%*	*13.8%*	*15.6%*	*13.2%*	*10.6%*	*14.6%*	*14.7%*	*12.8%*
2° criterion: share of world GDP	A) Equity securities	78.2	68.9	77.9	88.5	112.7	117.0	146.3	110.4	110.1	115.7	113.6	116.7	123.2
	B) Debt securities	63.8	63.9	47.2	51.6	52.5	42.3	48.5	58.5	46.1	19.3	68.7	82.0	77.5
	C) Total	**142.0**	**132.8**	**125.1**	**140.1**	**165.2**	**159.2**	**194.8**	**169.0**	**156.2**	**135.0**	**182.4**	**198.7**	**200.7**
	% on official assets	*15.8%*	*15.5%*	*13.1%*	*12.6%*	*12.5%*	*9.2%*	*10.9%*	*10.9%*	*9.0%*	*7.1%*	*9.9%*	*9.5%*	*9.0%*
FRANCE														
1° criterion: mirror data (CPIS)	A) Equity securities	51.0	48.3	57.8	67.9	101.8	121.3	160.8	118.6	92.9	105.0	85.2	92.1	100.8
	B) Debt securities	44.4	51.8	42.1	49.7	49.8	54.7	73.3	91.2	72.4	32.8	102.8	121.7	102.8
	C) Total	**95.5**	**100.1**	**99.9**	**117.6**	**151.7**	**176.0**	**234.1**	**209.9**	**165.3**	**137.8**	**188.0**	**213.8**	**203.5**
	% on official assets	*11.8%*	*11.3%*	*9.2%*	*9.1%*	*9.6%*	*9.4%*	*11.6%*	*11.4%*	*8.3%*	*6.6%*	*10.3%*	*11.0%*	*9.7%*
2° criterion: share of world GDP	A) Equity securities	57.4	51.5	59.4	69.0	89.8	93.7	117.2	89.1	89.9	92.7	89.7	91.5	95.2
	B) Debt securities	46.9	47.8	36.0	40.2	41.8	33.9	38.8	47.2	37.7	15.5	54.2	64.3	59.8
	C) Total	**104.3**	**99.3**	**95.4**	**109.2**	**131.6**	**127.5**	**156.1**	**136.3**	**127.6**	**108.1**	**143.9**	**155.8**	**155.0**
	% on official assets	*12.9%*	*11.2%*	*8.8%*	*8.5%*	*8.3%*	*6.8%*	*7.7%*	*7.4%*	*6.4%*	*5.1%*	*7.9%*	*8.0%*	*7.4%*
the NETHERLANDS														
1° criterion: mirror data (CPIS)	A) Equity securities	62.9	50.1	59.9	57.3	60.7	53.8	66.8	62.7	73.2	84.6	84.5	93.6	94.8
	B) Debt securities	31.6	30.5	20.5	26.2	34.6	24.2	33.7	39.5	32.3	13.2	42.6	54.2	47.5
	C) Total	**94.5**	**80.6**	**80.5**	**83.5**	**95.4**	**78.1**	**100.5**	**102.2**	**105.5**	**97.8**	**127.1**	**147.8**	**142.3**
	% on official assets	*17.1%*	*14.8%*	*11.7%*	*10.3%*	*9.7%*	*7.7%*	*9.5%*	*11.6%*	*10.2%*	*8.8%*	*11.5%*	*11.8%*	*10.7%*
2° criterion: share of world GDP	A) Equity securities	17.7	15.9	18.3	21.0	27.4	29.0	36.7	28.4	28.6	29.3	28.0	28.0	28.9
	B) Debt securities	14.5	14.8	11.1	12.2	12.8	10.5	12.2	15.0	12.0	4.9	16.9	19.7	18.2
	C) Total	**32.2**	**30.7**	**29.5**	**33.2**	**40.1**	**39.5**	**48.8**	**43.4**	**40.6**	**34.2**	**44.9**	**47.7**	**47.1**
	% on official assets	*5.8%*	*5.7%*	*4.3%*	*4.1%*	*4.1%*	*3.9%*	*4.6%*	*4.9%*	*3.9%*	*3.1%*	*4.1%*	*3.8%*	*3.6%*
SPAIN														
1° criterion: mirror data (CPIS)	A) Equity securities	12.5	11.7	13.9	19.9	30.6	30.2	29.7	17.9	21.2	21.2	20.1	21.4	25.5
	B) Debt securities	12.0	16.1	14.9	17.7	24.7	15.9	17.6	18.2	17.5	5.0	15.9	22.5	13.2
	C) Total	**24.4**	**27.8**	**28.9**	**37.6**	**55.3**	**46.1**	**47.3**	**36.1**	**38.7**	**26.2**	**36.0**	**43.9**	**38.7**
	% on official assets	*12.4%*	*10.8%*	*8.6%*	*9.9%*	*11.2%*	*9.1%*	*9.4%*	*8.6%*	*8.8%*	*7.2%*	*12.2%*	*13.8%*	*11.9%*
2° criterion: share of world GDP	A) Equity securities	25.3	23.6	28.4	33.9	46.1	49.8	63.4	48.6	48.5	48.5	45.6	45.1	46.1
	B) Debt securities	20.7	21.9	17.2	19.8	21.4	18.0	21.0	25.7	20.3	8.1	27.6	31.6	28.9
	C) Total	**46.0**	**45.4**	**45.6**	**53.7**	**67.5**	**67.8**	**84.5**	**74.3**	**68.9**	**56.6**	**73.1**	**76.7**	**75.0**
	% on official assets	*23.4%*	*17.6%*	*13.6%*	*14.1%*	*13.7%*	*13.4%*	*16.7%*	*17.6%*	*15.7%*	*15.5%*	*24.7%*	*24.2%*	*23.1%*

Appendix E

Offshore Voluntary Disclosure Schemes

Offshore voluntary disclosure schemes usually have a temporary nature, and try to provide incentives to taxpayers to declare previously unreported foreign assets by relying on the sense of urgency created by the changing international context[62]. The "tax regularization" may affect previously undeclared income or assets that arose in a number of past years still subject to tax assessment, varying from a minimum of three to a maximum of twenty or even an unlimited period in cases involving tax fraud or unknown taxpayers. A number of countries also provide permanent or temporary voluntary disclosure schemes aimed at all kind of assets (i.e. domestic and foreign) and all kind of taxpayers.

Under most offshore voluntary programs, taxpayers must pay the amount of tax they would have owed in the absence of a voluntary disclosure; in some countries the taxes due under the voluntary scheme as well as the interest due for the late payment are reduced and/or computed differently. Monetary penalties are often eliminated or substantially reduced following a voluntary disclosure by the taxpayer. Finally, in most countries the voluntary disclosure allows non-compliant taxpayers to avoid criminal prosecution[63].

In 2010 the OECD draft specific guidelines for the implementation of voluntary disclosure programs, taking into account the experience of member countries (OECD, 2010). The guidelines aimed at helping countries to design voluntary disclosure programs able to identify the fine line between encouraging non-compliant taxpayers to permanently improve their compliance and retaining the support and compliance of the vast majority of taxpayers who are already compliant. The OECD guidelines have been recently updated, in parallel with the release of a survey of voluntary disclosure programs undertaken in 47 countries (OECD, 2015).

The Italian Voluntary Program Initiative of 2015

Following the example of other OECD countries, at the beginning of 2015 Italy launched a new voluntary disclosure program (VD) aimed at promoting the regularization of violations committed by resident individuals, partnerships and similar entities and concerning reporting duties and tax payments related to undeclared assets held abroad for the years still open for assessment (i.e. tax years 2009-2013, or 2004-2013 when the assets are held in tax havens or in case of tax fraud).[64]

The deadline for applying under the Voluntary Disclosure program, originally due to expire on 30 September 2015, was extended to 30 November 2015 (with the further possibility to present the relevant documentation up till 30 December 2015).[65]

Under the VD scheme taxpayers that come forward and declare the foreign assets have to pay all taxes due and interest for late payment, but may benefit from a significant reduction of administrative fines (up to 50 per cent) due for the non-declaration of foreign assets according to the special provisions known as "fiscal monitoring" ("monitoraggio fiscale", a legislation similar to the US

---

[62] For example, in 2014 Australia launched Project DO IT4, as a short-term "never-to-be-repeated" opportunity for taxpayers to correct their offshore tax affairs and to return back into the tax system. The United States have also run short-term programs aimed directly at improving offshore compliance. The terms of the short-term programs have become less generous each time, creating a sense of urgency as taxpayers can see that the opportunities for making a voluntary disclosure are steadily reducing, while the risks of detection are rising.

[63] In the United States a voluntary disclosure will not automatically guarantee immunity from prosecution; however, a voluntary disclosure may result in prosecution not being recommended.

[64] Law No. 186 of 15 December 2014. The initial draft of the program was released by the Italian Government on 29 January 2014 but then repealed a few weeks later. Under the VD taxpayers may declare not only financial assets held abroad, but also real estate and other real assets held abroad or even those held in Italy, but through foreign fiduciary entities or vehicles. In parallel with the VD scheme specifically aimed at unreported assets held abroad by individual taxpayers, the Decree provided for a VD scheme aimed at the declaration of previously unreported income by all types of taxpayers, including corporations and non-residents. The benefits of this latter VD scheme are similar to those of the foreign asset VD.

[65] The extension of the final deadline was introduced by Decree Law No. 153 of 30 September 2015.

FBAR) and from a lower reduction of the administrative fines due for the non-payment of taxes;[66] furthermore, they are excluded from criminal persecution, except in the case of tax fraud, in which criminal fines are only reduced by one half.

Given the variety of circumstances that may occur for each taxpayer, the actual cost of the VD for taxpayers can only be assessed on a "case-by-case" basis. In general terms, the VD can be particularly convenient for those taxpayers whose assets have been held abroad for some time, or come from inheritance: in these case, the amount of taxes and penalties due should be quite low (in the range of 7-12% of the foreign asset value if the assets were not held in tax havens, around 20% otherwise), being limited to taxes on annual yields and on penalties for the non-reporting of the foreign assets under the "fiscal monitoring" provisions. On the other hand, if the assets come from capital recently transferred abroad and arising from income subtracted to taxation, the cost could be significant (in some cases higher than 100% of the foreign assets value). In these latter cases, the likelihood of taxpayers adhering to the VD will mostly depend on how they evaluate the probability of being detected in the new international landscape of reinforced cooperation.

At the end of September 2015 the amount of foreign assets declared under the VD was around € 30 bn., with 63.251 requests.[67] Tax revenues were around € 1,9 bn. and, according to data indicated in the draft budgetary plan for 2016, the Italian Government expects them to rise to 3.3 bn. by the end of 2015[68]. The analysis of a sample representing 10% of them showed that more than half relates to asset values of less than one million euro. In terms of geographical origin, 85 per cent of the assets come from Switzerland, 7 per cent from Luxembourg, 2 per cent from Liechtenstein, 2 per cent from the Principality of Monaco and 1 per cent from Guernsey, and the rest from other tax havens. The sample, that only contained portfolio assets, showed that around 60 per cent of the assets was represented by shares and EU investment funds, 25 per cent of bonds, and 15 per cent of non-EU investment funds and other financial assets.[69]

[66] The reduction of administrative fines is lower if the assets were held in tax havens.

[67] The number of requests was announced to the Parliament by the Deputy Finance Ministry. See Marco Bellinazzo, *"Il Governo conferma la proroga "lunga",* Il Sole 24 Ore of 10 October, 2015.

[68] C. Bartelli, *Dalla Voluntary Disclosure atteso gettito di 3,3 miliardi di euro*, Italia Oggi of 20 October 2015.

[69] Data released by Generale Servizi Amministrativi – GSA, and reported by G. Negri, *Boom di rientri sotto il milione*, Il Sole 24 Ore" of 11 October 2015.

Appendix F

Recent OECD and EU action against tax avoidance

The BEPS Action Plan

The Base Erosion and Profit Shifting" (BEPS) Action Plan was launched by the OECD and endorsed by the G20 at its September 2013 meeting of Saint Petersburg. It consists of a series of 15 measures aimed at fighting tax planning that makes use of "gaps" in the interaction of different tax systems to artificially reduce taxable income or shift profits to low-tax jurisdictions. The Plan provided that BEPS measures should not result in double taxation, unwarranted compliance burdens or restrictions to legitimate cross-border activity. It was structured around three fundamental pillars: introducing coherence in the domestic rules that affect cross-border activities; reinforcing substance requirements in the existing international standards, to ensure alignment of taxation with the location of economic activity and value creation; and improving transparency, as well as certainty for businesses and governments. A first set of seven BEPS measures was released by the OECD in a temporary version in September 2014. The remaining measures, together with a final version of the full Action Plan was released on 5 October 2015 and presented at the G20 meeting of Lima of 8 October 2015.

The BEPS measures are:

- Action 1: Identification and addressing the main difficulties that the digital economy poses for the application of international tax rules, both in the field of direct and indirect taxes. Issues examined include the ability of a company to have a significant digital presence in the economy of another country without being liable to taxation due to the lack of nexus under existing international rules, the attribution of value created from the generation of marketable location-relevant data through the use of digital products and services, the characterization of income derived from new business models, the application of related source rules, and how to ensure the effective collection of VAT/GST with respect to the cross-border supply of digital goods and services;
- Action 2: hybrid mismatch arrangements. Domestic and tax treaty measures to neutralise the effects of hybrid mismatch arrangements (hybrid financial instruments, hybrid legal structures - such as trusts, foundations, partnerships and other "transparent" entities – and double tax residence or no-residence cases like Apple). These measures aim at ending multiple deductions for a single expense, deductions in one country without corresponding taxation in another[70], the generation of multiple foreign tax credits for foreign tax paid and entities that are not taxed in any country for lack of tax residency;
- Action 3: ways to strengthen CFC rules. One of the sources of BEPS concerns is the possibility of creating affiliated non-resident taxpayers and routing income of a resident enterprise through the non-resident affiliate. CFC and other anti-deferral rules have been introduced in many countries to address this issue. However, the CFC rules of many countries do not always counter BEPS in a comprehensive manner and need being reinforced in a comprehensive manner;
- Action 4: best practices to limit base erosion via interest deductions and other financial payments. Develop best practices in the design of rules to prevent base erosion through the use of interest expense, for example through the use of related-party and third-party debt to achieve excessive interest deductions or to finance the production of exempt or deferred income, and other financial payments that are economically equivalent to interest payments;

[70] For example, using hybrid financial instruments classified as debt in one country and as equity in another country, it is possible to obtain a cost deduction for the issuer of the instrument paying remuneration as "interest" and an exemption upon the beneficial owner of the instrument, receiving remuneration as "dividend". The European Union has partly addressed the issue of hybrid financial instruments through a revision of the parent-subsidiary directive that limits the non-taxation of the dividends received by the parent if the profits have not been taxed in the hands of the subsidiary.

- Action 5: measures to counter harmful tax practices more effectively, taking into account transparency and substance. While the 1998 OECD report on the topic focused on "ring-fenced" favorable tax regimes (i.e. those reserved to foreign entities), the BEPS puts the emphasis on "across the board" corporate tax rate reductions on particular types of income (e.g. "patent boxes": regimes that provide for a lower tax rate on patent income) and on "substantial activity" requirements (i.e. that a "substantial activity" is performed in the jurisdiction providing the favorable tax treatment); it proposes several approaches to realign taxation of profits with substantial activities;
- Action 6: measures to prevent treaty abuse. The measures consist both of proposed changes to the OECD Model Tax Convention and recommendations regarding the design of domestic rules. They also clarify that tax treaties are not intended to generate double non-taxation and identify the policy consideration that countries should take into account before entering into a tax treaty with another country (risk of tax heaven behavior, etc.);
- Action 7: measures prevent the artificial avoidance of permanent establishment (PE) status. Develop changes to the definition of PE to prevent the artificial avoidance of PE status in relation to BEPS, including through the use of commissionaire arrangements and the specific activity exemptions. Work on these issues will also address related profit attribution issues;
- Actions 8, 9, 10: assure that transfer pricing outcomes are in line with value creation:
- Action 8: intangibles. Develop rules to prevent BEPS by moving intangibles among group members. This will involve: (i) adopting a broad and clear definition of intangibles; (ii) ensuring that profits associated with the transfer and use of intangibles are appropriately allocated in accordance with (rather than divorced from) value creation; (iii) developing transfer pricing rules or special measures for transfers of hard-to-value intangibles; and (iv) updating the guidance on cost contribution arrangements;
- Action 9: risk and capital. Develop rules to prevent BEPS by transferring risks among, or allocating excessive capital to, group members. This will involve adopting transfer pricing rules or special measures to ensure that inappropriate returns will not accrue to an entity solely because it has contractually assumed risks or has provided capital. The rules will also require alignment of returns with value creation. This work will be co-ordinated with the work on interest expense deductions and other financial payments;
- Action 10: other high-risk transactions. Develop rules to prevent BEPS by engaging in transactions which would not, or would only very rarely, occur between third parties. This will involve adopting transfer pricing rules or special measures to: (i) clarify the circumstances in which transactions can be recharacterised; (ii) clarify the application of transfer pricing methods, in particular profit splits, in the context of global value chains; and (iii) provide protection against common types of base eroding payments, such as management fees and head office expenses.
- Action 11: Establish methodologies to collect and analyse data on BEPS and the actions to address it. Develop recommendations regarding indicators of the scale and economic impact of BEPS and ensure that tools are available to monitor and evaluate the effectiveness and economic impact of the actions taken to address BEPS on an ongoing basis. The work will also involve assessing a range of existing data sources, identifying new types of data that should be collected, and developing methodologies based on both aggregate (e.g. FDI and balance of payments data) and micro-level data (e.g. from financial statements and tax returns), taking into consideration the need to respect taxpayer confidentiality and the administrative costs for tax administrations and businesses;
- Action 12: Require taxpayers to disclose their aggressive tax planning arrangements. Develop recommendations regarding the design of mandatory disclosure rules for aggressive or abusive transactions, arrangements, or structures, taking into consideration the administrative costs for tax administrations and businesses and drawing on experiences of the increasing number of countries that have such rules. The work will use a modular design allowing for maximum consistency but allowing for country specific needs and risks. One focus will be international tax schemes, where the work will explore using a wide definition of "tax benefit" in order to capture such transactions.

The work will be co-ordinated with the work on co-operative compliance. It will also involve designing and putting in place enhanced models of information sharing for international tax schemes between tax administrations;

- Action 13: Re-examine transfer pricing documentation and introduce "country-by-country" reporting. Country-by-country reporting will require multinationals to report annually and for each tax jurisdiction in which they do business: the amount of revenue, profit before income tax and income tax paid, total employment, capital, retained earnings and tangible assets. It will also require MNEs to identify each entity within the group doing business in a particular tax jurisdiction and the activities each entity engages in. This information will provide a clear overview of where profits, sales, employees, and assets are located and where taxes are paid and should make it easier for tax administrations to identify whether companies have engaged in transfer pricing and other practices to artificially shift income into tax-advantaged environments;
- Action 14: Make dispute resolution mechanisms more effective. Develop solutions to address obstacles that prevent countries from solving treaty-related disputes under Mutual Agreement Procedures (MAP), including the absence of arbitration provisions in most treaties and the fact that access to MAP and arbitration may be denied in certain cases;
- Action 15: develop a multilateral instrument for treaty negotiation. Analyze the tax and public international law issues related to the development of a multilateral instrument to enable jurisdictions that wish to do so to implement measures developed in the course of the work on BEPS and amend bilateral tax treaties. On the basis of this analysis, interested Parties will develop a multilateral instrument designed to provide an innovative approach to international tax matters, reflecting the rapidly evolving nature of the global economy and the need to adapt quickly to this evolution.

The European Commission Communication on Tax Rulings and the Action Plan on corporate taxation

On 18 March 2015 the European Commission released a Communication on the exchange of information on tax rulings, together with a set of other measures aimed at enhancing tax transparency for corporations. The Communication provides for the automatic exchange of information on tax rulings between EU Member States. Originally aimed at giving certainty on tax rules to taxpayers, namely in cases involving large or complex commercial structures, tax rulings have been used more and more by tax administrations to facilitate or even incentivize aggressive tax planning. The automatic exchange of information on tax rulings will enable Member States to detect certain abusive tax practices by companies and take the necessary action in response.

The Action Plan for fair and efficient corporate taxation in the EU, adopted by the Commission on 17 June 2015, sets to reform the corporate tax framework in the EU, in order to tackle tax abuse, ensure sustainable revenues and support a better business environment in the Single Market. The Plan refers to OECD action regarding BEPS, but at the same time proposes specific EU solutions, such as a mandatory Common Consolidated Corporate Tax Base as an effective tool to reduce profit shifting and other forms of corporate tax abuse, and the adoption of a common EU approach towards non-cooperative jurisdictions. In this latter respect, as an immediate first step, the Commission published an EU-wide list of third country non-cooperative tax jurisdictions, compiled from Member States' blacklists (the EU list included those jurisdictions black-listed by at least 10 Member States).