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Measuring tax attractiveness across countries

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Measuring Tax Attractiveness across Countries

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Abstract: This paper develops a new tax measure – the *Tax Attractiveness Index* – reflecting the attractiveness of a country's tax environment and the tax planning opportunities that are offered. Specifically, the *Tax Attractiveness Index* covers 16 different components of real-world tax systems, such as the statutory tax rate, the taxation of dividends and capital gains, withholding taxes, the existence of a group taxation regime, loss offset provision, the double tax treaty network, thin capitalization rules, and controlled foreign company (CFC) rules. We develop methods to quantify each tax factor. The *Tax Attractiveness Index* is constructed for 100 countries over the 2005 to 2009 period. Regional clusters in the index as well as in the application of certain tax rules can be observed. The evaluation of individual countries based on the index corresponds – but is not totally identical – with the OECD's 'black' respectively 'grey' list. By comparing the *Tax Attractiveness Index* with the statutory tax rate, we reveal that even high tax countries offer favorable tax conditions. Hence, the statutory tax rate is not a suitable proxy for a country's tax climate in any case since countries may set other incentives to attract firms and investments.

Keywords: tax measure, tax attractiveness, tax planning, multinational company

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1 Introduction

With increasing globalization, countries are competing for companies, investment, and jobs. Due to the fact that tax law has not been harmonized internationally so far, a country's tax conditions represent an important location factor. A large body of empirical literature confirms that taxation has an influence on the location, investment, and financing decisions of multinational enterprises (see the surveys by Hines 1997, 1999; Devereux 2007). As a proxy for a country's tax environment, many different tax measures have been used in the past. Though, most recent empirical studies either rely on the statutory corporate income tax rate or on model-based effective tax rates (see, e.g., Devereux and Griffith 1998; Buettner and Ruf 2007; Hebous et al. 2011). However, we argue that corporate decisions and, hence, a country's tax attractiveness depend on a bundle of tax factors that existing tax measures do not capture. Therefore, this paper develops a new tax measure – the *Tax Attractiveness Index* – that includes 16 different tax components providing a comprehensive picture of a country's tax environment.[1]

In early empirical literature, average tax rates have been applied to analyze the effect of taxation on the investment decisions of multinational enterprises (see Devereux 2007; Feld and Heckemeyer 2011, for an overview). The public media (see, e.g., Rapoza 2011; Isidore 2012) as well as current empirical literature investigating the location decisions of multinational enterprises focus on the statutory tax rate when comparing corporate taxation across countries (see, e.g., Buettner and Ruf 2007; Overesch and Wamser 2009, 2010; Hebous et al. 2011). There is no doubt that the statutory tax rate has an important signaling function (see OECD 2001). However, due to the fact that it neglects tax base effects it is an unsatisfactory proxy in most cases. To overcome this shortcoming at least partially, more sophisticated tax measures that reflect effective tax burdens by capturing certain tax base determinants, such as depreciation allowances and interest deduction have been developed (see King and Fullerton 1984; Devereux and Griffith 1999, 2003; Jacobs and Spengel 1999) and applied in empirical studies (see, e.g. Slemrod 1990; Devereux and Griffith 1998). Still, many further rules of real-world tax systems, such as group taxation regimes, thin capitalization rules or double tax treaty networks that might be relevant for corporate decisions have not been considered yet. We try to address this issue. Developing the *Tax Attractiveness Index* that summarizes 16 different tax factors, we create a new, transparent tax measure that provides a detailed picture of the

[1] In other contexts, the application of indices is widely accepted. A famous example is the creditor rights index introduced by La Porta et al. (1998) that has been applied in many subsequent articles (see, e.g., Djankov et al. 2007; Spamann 2010). In the sense of Hung (2000), Jacob and Goncharov (2012) construct a tax accrual index that counts accrual norms codified in tax law.

tax environment a country offers. Specifically, the *Tax Attractiveness Index* covers the statutory corporate tax rate, the taxation of dividends and capital gains, withholding taxes, membership in the European Union (EU), loss offset provisions, the group taxation regime, the double tax treaty network, thin capitalization rules, controlled foreign company (CFC) rules, anti avoidance legislation, the statutory personal income tax rate, and the existence of a special holding regime. Hence, the index particularly reflects the tax planning opportunities a country offers. It comprises components that a substantial body of mainly practice-oriented literature identifies as being relevant for cross-border tax planning strategies (see, e.g., Eicke 2009; Endres et al. 2005). Therefore, in contrast to existing tax measures, the *Tax Attractiveness Index* may also explain multinationals' location decisions for intermediate affiliates such as holding companies[2] or similar tax planning entities.

Since many of the tax components we regard are qualitative in nature, we develop methods for quantifying them. For the purpose of the index, all tax factors are restricted to values between zero and one. In each case, a value of one indicates the optimum (e.g., a statutory tax rate of 0%; the possibility of cross border group relief; no thin capitalization rules) while a value of zero signifies least favorable tax conditions (e.g., the highest statutory tax rate in the sample; no group relief; the existence of thin capitalization rules). Adding values for all single tax factors and dividing the sum by 16 yields us the country-specific *Tax Attractiveness Index*. Consistent with the single tax factors, the index varies between zero and one with high values indicating an attractive tax environment. The index is measured on an annual basis for 100 countries over the 2005 to 2009 period.

The *Tax Attractiveness Index* enables us to compare tax environments across different countries. We find that off-shore tax havens,[3] such as Bermuda, the Bahamas, the Cayman Islands, the British Virgin Islands, and the Netherlands Antilles achieve highest index values. Certain European countries such as Luxembourg, the Netherlands, Ireland, Malta, Cyprus, Austria, and Belgium also offer favorable tax conditions as reflected by high index values. In contrast, Germany obtains an index value that only slightly exceeds the sample average, while values for Japan and the United States are very low.

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[2] The term 'holding company' is not clearly defined yet. Though, a holding company is understood as a legal entity that usually does not perform operative business activities, but whose main purpose is holding and managing shareholdings in other subsidiaries. A holding company may be set up for strategic reasons, such as the regional bundling of shares. However, it is also an important tax planning tool that may be used to achieve tax advantages.

[3] The term 'tax haven' is not clearly defined in recent literature. According to the latest version of the OECD grey list from 18 May 2012, only Nauru and Niue constitute tax havens. However, for the purpose of this paper, countries that do not levy income taxes at all, primarily located in the Caribbean, are regarded as tax havens. Though, it can be argued that also certain European countries, such as Luxembourg, Switzerland, Ireland, and the Netherlands are tax havens.

In further analysis, we reveal that the *Tax Attractiveness Index* significantly differs across geographical regions and that there are regional clusters in the application of certain tax rules. Furthermore, we show that the *Tax Attractiveness Index* corresponds with the 'black' respectively 'grey' list published by the OECD (see OECD 2000, 2009), that is, countries which are perceived as being harmful by the OECD reach significantly higher index values than others. However, certain countries have been removed from the OECD list although they keep offering extremely attractive tax environments. Moreover, we relate the *Tax Attractiveness Index* to the statutory corporate tax rate showing that the latter is an unsuitable proxy for a country's overall tax environment. A comparison with effective tax rates used in recent empirical studies reveals that they are not perfectly correlated with the *Tax Attractiveness Index*, either.

Our research is relevant for three groups of addressees: policy makers and governments, companies and consultants, and researchers. Policy makers and governments can use the *Tax Attractiveness Index* to compare their current tax position to other countries. Moreover, with regard to the fight against harmful tax competition (see OECD 2013), it might be important that certain countries did not change their tax conditions significantly, although they have been removed from the OECD list of harmful tax regimes. Companies and consultants might benefit as the index allows identifying attractive tax locations that can be used for future tax planning purposes. International researchers can employ the *Tax Attractiveness Index* as a new tax measure capturing more dimensions than existing tax measures in future studies regarding international tax differences.[4]

The remainder of the paper is organized as follows: the next section describes existing tax measures and shows the gap the *Tax Attractiveness Index* tries to fill. Section 3 presents all single index components and illustrates why they are relevant for a country's tax attractiveness. Moreover, it explains how the index is constructed. Section 4 discusses descriptive statistics and in section 5, regional differences are analyzed. Section 6 contains a comparison of the *Tax Attractiveness Index* with the OECD lists published in 2000 and 2009 and in section 7, we relate the *Tax Attractiveness Index* to existing tax measures. The last section summarizes and concludes.

[4] The *Tax Attractiveness Index* is applied by Keller and Schanz (2013) to analyze the influence of taxation on the location decisions of German multinational enterprises.

2 Survey of Existing Tax Measures

In the past, a bunch of different tax measures has been applied as a proxy for a country's tax climate. Early studies examining the influence of taxation on foreign direct investment (FDI) make use of macroeconomic average tax rates (for pioneering work, see Hartman 1984). These 'backward-looking' measures are computed as total tax payments divided by a measure of profits. As they are based on actual taxes paid after tax deductions and after corporate tax planning, they may directly depend on investment activity. As a consequence, such implicit tax rates cause the problem of endogeneity in empirical analysis (see Devereux 2007).[5]

To overcome this shortcoming, 'forward-looking' tax rates based on neoclassical investment theory have been developed (see Hall and Jorgenson 1967). The underlying idea is to determine the effective tax burden of a hypothetical, standardized investment project taking the statutory corporate tax rate as well as certain tax base determinants, such as depreciation allowances, valuation of inventories, and interest deduction into consideration. The basic framework, put forward by King and Fullerton (1984), reflects the influence of taxation on an investment that just earns the cost of capital. This effective marginal tax rate can be interpreted as the proportionate difference between the pre-tax rate of return and a given post-tax required rate of return. However, recent literature claims that the effective marginal tax rate is not appropriate for an analysis of the effect of taxation on discrete investment choices, such as location decisions of multinational enterprises (see Devereux and Griffith 1998). Extending the approach of King and Fullerton (1984), Devereux and Griffith (1999, 2003) show that for the discrete choice of where to locate a subsidiary, the effect of taxation on the total rather than the marginal investment project is decisive. They develop the effective *average* tax rate representing the tax burden on an investment that yields a higher rate of return than the marginal investment (see also Devereux et al. 2002).[6]

A further instrument that tries to measure the effective tax burden of different locations is the European Tax Analyzer developed by the Centre for European Economic Research (ZEW) and the University of Mannheim. In this approach, the effective average tax rate is derived by simulating the development of a model-corporation over a period of ten

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[5] For example, high investment levels may involve high depreciation allowances leading to a decreased tax liability and, therefore, to a negative correlation between taxation and investment. However, in such case, the direction of causation is inverted to what is intended to analyze. That is, instead of the level of investment reacting to taxation, the tax burden depends on investment (see Devereux 2007).

[6] The approach of King and Fullerton (1984) and Devereux and Griffith (1999, 2003) was subsequently applied by, for example, the OECD (1991) and the European Commission (1992, 2001).

years. The effective tax burden reflects the difference between the pre-tax and the post-tax value of the model-firm at the end of the computer-based simulation period. Estimations take many periodical assumptions, for example, regarding production and sales, investment, costs of financing or depreciable assets into account (see, e.g., Oestreicher et al. 2009). In contrast to the effective tax rates calculated by Devereux and Griffith (1999, 2003), the model does not only include the statutory tax rate, but it accounts for all taxes that are relevant on corporate level, such as trade taxes, real estate taxes, and payroll taxes. Moreover, the European Tax Analyzer captures many different tax base determinants including depreciation, inventory valuation, research and development costs, employee pension schemes, and loss carry over (see, e.g., Jacobs et al. 2005).[7] However, the computation is very complex and partly not transparent and it has been done for only a limited number of countries so far.[8] Moreover, especially tax factors that are relevant for cross-border corporate tax planning, such as group taxation regimes, double tax treaty networks, and CFC rules are still neglected.

Abstracting from a country-specific perspective, Egger et al. (2009) use the methodology of Devereux and Griffith (1999, 2003) to compute bilateral effective tax rates taking host and home country taxation into consideration (see also Bellak et al. 2009).[9] In a very recent study, Barrios et al. (2012) construct another form of bilateral effective tax rates. In contrast to Egger et al. (2009), their approach is not based on hypothetical investment projects in the parent company and the foreign subsidiary. They rather compute effective tax rates between 33 European countries by combining the statutory tax rate of the host country, the withholding tax rate imposed by the host country as well as the parent country tax rate depending on the treatment of foreign dividends in the parent country (exemption, credit, or deduction method). The approach of bilateral effective tax rates is very useful in empirical studies since it comprises cross-border tax parameters making analyses more precise. However, such tax measures do not allow comparing tax attractiveness across countries.

Another type of effective tax rates is calculated by Markle and Shackelford (2012). They use *accounting* effective tax rates based on micro-level financial statement information to compute effective tax rates per country. However, this proceeding is valuable for analyzing *ex post* tax burdens of multinationals depending on their locations, but similar to above men-

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7 The study conducted by the European Commission (2001) contains a comparison between the European Tax Analyzer and effective tax rates computed according to the King & Fullerton approach.

8 According to the ZEW, the effective tax burden has been computed for the 27 EU member states as well as the United States and Switzerland so far (see http://www.zew.de/en/publikationen/taxation/eta.php).

9 Previously, already Devereux and Freeman (1995) as well as, e.g., Cummins and Hubbard (1995) account for bilateral aspects. Slemrod (1990) and Bénassy-Quéré et al. (2005) additionally regard the method of international double taxation relief (exemption vs. credit countries).

tioned 'backward-looking' macroeconomic average tax rates it is not suitable for an *ex ante* analysis of the attractiveness of a country's tax environment. Furthermore, (Graham 1996a, 1996b) develops a simulated corporate marginal tax rate based on Compustat tapes that is defined as the present value of current and expected future taxes paid on an additional dollar of income earned today. However, it is based on U.S. tax law and, therefore, calculated for U.S. corporations only. Hence, it does not allow a cross-country comparison.[10] Ramb (2007) is first in calculating such marginal tax rate for Germany.

Finally, a tax measure that is widely used in empirical studies (see, e.g. Buettner and Ruf 2007; Hebous et al. 2011; Overesch and Wamser 2009, 2010) as well as in cross-country comparisons of corporate tax burdens is the statutory tax rate (see, e.g., KPMG 2013; Isidore 2012; Rapoza 2011). Since it neglects tax base determinants it is an inappropriate proxy in most cases. However, the statutory tax rate is readily available and still has a strong signaling effect for the overall tax climate (OECD 2001).

3 Development of the Tax Attractiveness Index

3.1 Components of the Tax Attractiveness Index

This paper develops a new, transparent tax measure, the *Tax Attractiveness Index*. The index includes a bundle of tax parameters that determine a country's tax environment. In contrast to existing tax measures that capture only a small number of real-world tax components, the *Tax Attractiveness Index* covers 16 different tax factors that especially reflect the tax planning opportunities a country offers. Although it is a country-specific measure, the index comprises cross-border tax parameters, such as withholding taxes, group taxation regimes, and double tax treaty networks. However, unlike bilateral effective tax rates, the index does not refer to specific country pairs but keeps a unilateral perspective. Therefore, the *Tax Attractiveness Index* offers the opportunity to compare tax environments across countries and to evaluate given tax planning opportunities. All tax factors included and their respective characteristics described refer to the case of legally independent entities.

We construct the *Tax Attractiveness Index* for 100 countries over the 2005 to 2009 period. We obtain data on each tax factor from the *Global Corporate Tax Handbook* respectively the *European Tax Handbook* by the International Bureau of Fiscal Documentation (IBFD), PricewaterhouseCoopers' *Corporate Taxes – Worldwide Summaries* and *Individual Taxes –*

[10] The work of Graham is based on Shevlin (1990) and has been extended and improved by Blouin et al. (2010).

Worldwide Summaries, Ernst & Young's *Worldwide Corporate Tax Guide*, Deloitte's *Taxation and Investment Guides*, KPMG's *Corporate Tax Rate Survey* and *Individual Income Tax Rate Survey*, and the OECD tax database. Whenever sources yield contradictory information, we rely on the source(s) that provide most details.

3.1.1 Statutory Tax Rate

As a first criterion, we include the statutory tax rate (*STR*) since it is an important determinant of a country's tax environment. By means of a low statutory tax rate, countries may try to attract firms and investment. Multinational enterprises have an incentive to shift profits (e.g., via transfer pricing or financing structures) into countries levying low statutory tax rates. In this way, they may decrease their overall group tax burden.[11] There is evidence that multinational companies even establish subsidiaries in off-shore tax havens that do not levy income taxes at all to use affiliates there as profit-shifting entities (see, e.g., Desai et al. 2006a, 2006b).

To capture all taxes corporate entities face, the statutory tax rate we include in the *Tax Attractiveness Index* combines the corporate income tax rate imposed by the central government as well as sub-central government taxes. The latter cover, for example, U.S. state income taxes, Swiss cantonal taxes as well as regional trade taxes levied, for example, in Germany. In case those taxes vary across administrative units, we either use averages (e.g., for prefectural and municipal taxes in Japan) or figures of representative territorial communities (e.g., New York for the United States, Zurich for Switzerland). If progressive tax rates apply for either central or/and sub-central government taxes, we take the maximum tax rate into account. In Estonia and Macedonia no corporate income taxes are imposed. Instead, corporate tax payers are subject to a distribution tax levied on distributed profits. There are no taxes on retained earnings. In both cases, we do not assume that the statutory tax rate is zero, but we treat the distribution tax as statutory tax rate. In this way, we distinguish Macedonia and Estonia from tax havens which *de facto* levy a statutory tax rate of zero.

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[11] A sizeable body of empirical literature provides evidence for the influence of tax rates on the profit shifting activities of multinational enterprises (see, e.g., Grubert and Slemrod 1998; Hines and Rice 1994; Huizinga and Laeven 2008; Overesch 2009; Weichenrieder 2009). Studies that concentrate on internal transfer prices to reveal the impact of taxation are, for example, Clausing (2001, 2003) and Bartelsman and Beetsma (2003).

3.1.2 Taxation of Dividends Received

Next, we take the taxation of dividends received into consideration (*DIV*). Within a multinational group, profits generated in one subsidiary may be transferred to another one or sent to the parent company, for example. From the perspective of a multinational enterprise, it is favorable if profits can be transferred as easily as possible, that is, without causing further taxation, since this guarantees a high degree of flexibility. However, if profits are distributed across borders, the danger of double taxation arises due to the fact that tax law has not been harmonized internationally so far. *De facto*, dividends have already been taxed as profits at the level of the distributing subsidiary. Many countries account for this fact when taxing dividends received: in several jurisdictions, a participation exemption applies meaning that dividends received from domestic and/or foreign affiliated companies are disregarded when determining taxable income. This is an attractive feature of a country's tax environment. For corporate tax planning, a participation exemption is of particular significance. If, for example, a holding company shall be established in a third country in order to exploit advantageous tax provisions there, profits are not transferred directly from the operative unit to the parent company, but they are redirected through such intermediate unit. Hence, for the location decision of the holding company, the existence of a participation exemption is crucial. Otherwise, double or even triple taxation occurs.

We measure the taxation of dividends received by considering the extent to which dividends are tax exempt. In so doing, countries where dividends are not subject to tax at all (100% exemption) receive the value one (*DIV*=1). This is the case in, for example Austria, the Netherlands, and Belgium. However, for example, in Germany, 5% of any dividends received are deemed to be non-deductible business expenditures. Hence, only 95% of the dividends can effectively be obtained free of tax (*DIV*=0.95). In most countries, the participation exemption is subject to certain requirements, such as a minimum participation (e.g., in the Netherlands, Spain, and Malta) or a minimum holding period (e.g., in Austria). For reasons of simplicity, we do not take these requirements into consideration, that is, the value for *DIV* implies that the requested conditions are satisfied.

Furthermore, there are countries where national tax provisions exempt only dividends received from other domestic subsidiaries (e.g., Argentina, Brazil, and Indonesia). However, we focus on cross-border transaction since they are decisive for international tax planning purposes. Hence, jurisdictions that apply only a national participation exemption receive a value of zero (*DIV*=0). A value of 0 is even given if a tax credit on foreign profit taxes paid might be granted (e.g., in Argentina and Egypt). If, however, the participation exemption is

limited to foreign dividends received from subsidiaries resident in the European Union (this is the case, e.g., in Bulgaria, Poland, and Romania), we consider the prerequisites of an international participation exemption to be fulfilled (*DIV*=1). For example, Australia and New Zealand explicitly exempt dividends received from non-domestic companies. These countries also receive the value one (*DIV*=1).

Another issue we account for when measuring the taxation of dividends received is the credit method some countries apply to avoid double taxation (e.g., the United States). In such cases, dividends are not tax exempt in the hands of the receiving company, but corporate taxes paid abroad can be credited against the domestic tax liability. Since the tax credit available is limited to the domestic tax level, the higher of the tax burden in the country of the affiliate and the one in which the parent company is located is decisive. If the country of the parent company levies higher taxes than the country of the affiliate, multinational enterprises have an incentive to defer repatriation of profits.[12] As most countries that apply the credit method maintain a comparatively high level of taxation, they do not offer favorable tax conditions for dividends received. Therefore, in case the credit method applies, *DIV* equals zero, even though a tax credit is available to mitigate double taxation (*DIV*=0).

Moreover, we take the fact that several tax regimes are based on the territoriality principle into consideration, that is, companies are subject to tax on their domestic-source income only (e.g., in Bolivia, Costa Rica, and Panama). Therefore, dividends received from foreign corporations are not subject to tax, although dividends received from resident companies might be included in the taxable income. Since our focus is on cross-border transaction, countries applying the territoriality principle receive a value of one (*DIV*=1).

3.1.3 Taxation of Capital Gains

Furthermore, we incorporate the taxation of capital gains (*CG*) into *the Tax Attractiveness Index*. Similar to the taxation of dividends, the taxation of capital gains causes double taxation. The reason is that capital gains include retained earnings or expected future income of the divested company. As in the case of dividends, especially for tax planning entities in third countries the tax exemption of capital gains is crucial. However, also for holding companies set up for real business purposes, such as central companies that are used to pool participations (e.g., in case a U.S. parent company establishes an EU regional holding), the taxation of capital gains is highly important. Thus, in many countries the participation exemption

[12] See, e.g., Hines (1999) for a detailed description of the U.S. credit system.

that applies to dividends is extended to capital gains (e.g., in Germany, Malta, and Austria). On the contrary, other jurisdictions do not make an effort to avoid double taxation. In such countries, capital gains are treated as ordinary income and taxed at the statutory tax rate (e.g., in the Slovak Republic, Japan, and South Korea).

According to the taxation of dividends, we quantify the taxation of capital gains by considering the extent of tax exemption. If capital gains are completely disregarded when determining taxable income, *CG* equals one. This is the case in, for example, New Zealand where, by definition, capital gains are not subject to taxation. Moreover, for example, in Nicaragua and Panama foreign capital gains are not included in taxable income due to the territoriality principle (*CG*=1). As in case of dividends, the participation exemption for capital gains might be dependent on certain conditions, such as a minimum holding period (e.g., in France) or a taxation test (e.g., in Belgium). For example, in Australia, even a set of complex regulations applies.[13] Again, we assume the respective requirements to be met. If countries differentiate between capital gains derived from domestic and those derived from foreign participations, we consider the cross-border case to be decisive.

In most countries the deductibility of capital losses corresponds with the taxation of capital gains, that is, if capital gains are tax exempt, capital losses cannot be deducted. Accordingly, if capital gains are subject to taxation, capital losses are fully deductible. That is why we do not account for the treatment of capital losses as a separate criterion. Luxembourg represents an exception as capital losses and current value depreciations are tax deductible although capital gains are not subject to tax.

3.1.4 Withholding Taxes

As further tax factors, we include withholding taxes raised on dividends (*WHTD*), interest (*WHTI*), and royalties (*WHTR*). By means of withholding taxes, the source country tries to secure its share in tax revenue. However, from companies' perspective, withholding taxes are disadvantageous since in case of dividends, profits that have already been subject to corporate taxation are taxed again (in contrast to dividends that are not distributed across borders). If the receiving country exempts dividends from taxation (*participation exemption*), there is no possibility to offset the withholding taxes paid. Hence, the tax burden caused by withholding taxes cannot be reduced. In contrast, interest and royalties are generally subject to

[13] In Australia, capital gains on the disposal of shares in a foreign company that is held at least 10% by an Australian resident company may be partly or wholly disregarded to the extent that the foreign company has an underlying active business.

tax in the receiving country. However, if the source country levies withholding taxes, double taxation occurs. In either case, a minimization of withholding taxes can be realized by means of bilateral double tax treaties that aim at reducing double taxation. Under certain double tax conventions, the contracting parties even agree not to levy withholding taxes at all.

However, we are not able to consider the withholding taxes agreed on in all double tax treaties signed between all sample countries. Therefore, we take the withholding tax rates constituted in domestic tax law into consideration. Low withholding taxes, of course, are an attractive location factor. For example, in the Slovak Republic, dividends are not subject to withholding tax, while Hungary does not impose withholding taxes on payments to foreign entities at all. We consider withholding taxes levied on dividends (*WHTD*), interest (*WHTI*), and royalties (*WHTR*), respectively. In case of interest and royalty payments, national legislation may include several exceptions, such as reduced rates on certain kind of interest or on royalties for films and television. We do not account for these exceptions, but we use the tax rates that apply in usual cases.

3.1.5 EU Membership

Next, we comprise a dummy variable indicating whether a country is member of the European Union (*EU*). In this way, we account for the fact that within the EU, the Parent-Subsidiary Directive as well as the Interest and Royalties Directive apply that abolish withholding taxes on dividends respectively on interest and royalties. Hence, dividends, interest, and royalties can be transferred free of withholding tax between two EU member countries. The scope of the directives has been extended to Switzerland. Therefore, in years 2005 and 2006, the 25 member countries and Switzerland receive a value of one (*EU*=1). In 2007, Bulgaria and Romania entered the EU. Thus, in 2007, 2008 and 2009, *EU* equals one for 28 countries.

3.1.6 Loss Offset Rules

The next tax factors we take into account are a country's loss offset possibilities. Under such rules current losses can be used to either offset profits of previous periods by carrying losses back (*LCB*) or to offset future profits by carrying losses forward (*LCF*). In either way, companies can lower their tax burden. Hence, multinational enterprises perceive flexible loss compensation possibilities as being attractive. For a full picture of a country's loss treatment, we analyze the loss carry forward options (*LCF*) as well as the possibilities to carry losses back (*LCB*). With regard to the latter we make a distinction according to whether a loss

carry back opportunity is available at all. Limitations in respect of the amount that can be carried back which apply, for example, in Germany, are not taken into account. Moreover, we disregard any time restriction that may be linked to loss carry back provisions. In so doing, for example, France where national tax law provides a loss carry back into the preceding three years and the Netherlands that allow only a one-year carry back period are treated in the same manner. Countries offering a loss carry back receive the value one (*LCB*=1) and for those where a loss carry back is not possible *LCB* equals zero.

The distinction we make regarding the loss carry forward is based on the number of years national tax law permits losses to be carried over into the future. Countries that offer a loss carry forward of up to five years obtain the value zero (*LCF*=0), while for countries in which losses can be carried forward for more than five and up to twenty years *LCF* equals 0.5. Loss carry forward opportunities are most attractive if losses can be used to offset profits far into the future. Thus, countries where losses can be carried forward indefinitely obtain a value of one (*LCF*=1). Again, we do not take limitations concerning the amount that can be offset into consideration (e.g., Austrian tax law contains such rule).

3.1.7 Group Relief

Furthermore, the *Tax Attractiveness Index* covers the availability of a group taxation regime (*GROUP*). Under such system, multiple subsidiaries belonging to the same corporate group are allowed to file a consolidated tax return. Thus, a loss from one group member can be transferred to another profitable one. In so doing, the overall tax burden of a corporate group can be lowered. Therefore, a group taxation regime is an attractive feature of a country's tax environment.

In many countries, tax consolidation regimes are restricted to domestic companies meaning that only group members situated in the same country are allowed to offset their profits and losses. Frequently, the formation of a tax group is even subject to the requirement that one of the participating companies serves as a domestic parent entity controlling the others and filing the consolidated tax return. Hence, in order to exploit a group taxation regime, it might be advantageous to establish a country holding as controlling unit which holds the majority of the voting rights in the other domestic group members.[14] So far, only Denmark, France, Italy, and Austria offer international group relief schemes providing that losses can be

[14] Oestreicher and Koch (2010) empirically analyze the determinants of forming a German tax group. They reveal that the introduction of the exemption method for corporate shareholders in 2001 has led to an increase in the probability of establishing a tax group.

transferred across borders. However, the judgment of the European Court of Justice in the Marks & Spencer case demands that countries which fall under the scope of EU law have to allow for an international tax consolidation regime in case of final losses (Case C-446/03 from 13 December 2005).

Evaluating tax consolidation regimes, we disregard certain requirements that may be linked to a group relief system. For example, in Germany a domestic parent company has to be established and a so-called *profit and loss pooling agreement* has to be entered into. According to the agreement, the subsidiary commits to transfer its entire profit to the parent company. Correspondingly, the parent has to absorb potential losses incurred by the subsidiary. In other countries, requirements regarding a minimum participation or a minimum holding period apply.

The classification we utilize to measure tax consolidation regimes is as follows: countries that do not allow for a group relief scheme obtain a value of zero (*GROUP*=0), while for countries offering such system, but restricting it to domestic group members *GROUP* equals 0.5. From the perspective of a multinational enterprise, regimes providing the possibility to offset *foreign* losses are most attractive. Hence, countries allowing for an international group relief system receive the value one (*GROUP*=1). The value 1 is obtained by Austria, Denmark, France, and Italy.

3.1.8 Double Tax Treaty Network

The next criterion we take into account is the double taxation treaty network a country has established (*DTT*). Legally independent entities fall within the scope of tax law effective in their country of residence. That is why multinational companies operating subsidiaries in many different countries around the globe have to cope with a considerable number of national tax provisions. However, for example, if dividends are distributed across borders, the risk of double taxation arises since both, the source as well as the receiving country might claim their right of taxation. To reduce or even prevent double taxation, two jurisdictions may conclude a double tax treaty. Dealing with different types of income (e.g., dividends, capital gains, business profits, interest, and royalties), such bilateral agreements assign the right of taxation to one of the contracting parties. Moreover, double tax treaties serve the purpose of reducing or even avoiding withholding taxes levied on distributed profits as well as on interest and royalty payments. In addition, double tax conventions often impose lower requirements for the granting of participation exemptions compared to national tax law.

Therefore, a broad treaty network is an important characteristic of a country's tax environment. It allows multinational enterprises to undertake business transactions with many other foreign countries without fearing double taxation. It might even be beneficial for multinational companies to set up a holding company in a country that offers a comprehensive treaty network. In this way, they get access to favorable tax rules they could not have exploited otherwise, such as reduced withholding taxes (*treaty shopping*).[15]

To quantify a country's treaty network, we count the number of double tax treaties in force per year. Double tax conventions that are under negotiation, but have not yet been ratified are not taken into consideration. Even those that have been concluded but are not yet in force are disregarded. Furthermore, we do not account for *Tax Information Exchange Agreements* like those, e.g., the Netherlands Antilles has signed with several countries including Australia, Canada, Denmark, Mexico, and the United States.

3.1.9 Thin Capitalization Rules

Next, we regard the thin capitalization rules a country imposes (*THIN*). In most countries, interest expenses are deductible for corporate tax purposes while dividends have to be paid out of profits *after* tax. Hence, there is a general incentive to prefer debt financing over equity financing. However, in contrast to companies acting only on national level, multinational enterprises have the opportunity to allocate their debts across countries in the most efficient way by means of internal financing strategies. The deductibility of interest expenses is perceived to be most valuable in high tax countries. Affiliates in low tax countries, however, may be equipped with equity.[16] For tax planning purposes, it might be beneficial to establish an intermediate company in a low tax country to achieve a so-called *double dip* of interest deductions. In such case, the parent company borrows capital passing it to the intermediate company in the form of equity. The intermediate company, in turn, lends the capital to another subsidiary located in a high-tax country. Hence, interest can be deducted twice, at the level of the high-tax affiliate and at the level of the parent company while it is taxed at the low level of the intermediate group unit (see Mintz 2004).

To curb the intense use of debt financing, governments especially in high tax countries have adopted thin capitalization rules (see Buettner et al. 2012, for an empirical analyses).

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[15] Mintz and Weichenrieder (2010) are first in analyzing the phenomenon of *treaty shopping* empirically. They find that withholding taxes significantly increase the possibility of establishing an intermediate holding company in a third country.

[16] A substantial body of empirical literature confirms that taxation has an impact on corporate financing decisions (see, e.g. Desai et al. 2004; Huizinga et al. 2008; Buettner et al. 2009).

These rules aiming at limiting the deductibility of interest expenses from taxable income differ heavily across countries. Frequently, a full interest deduction is not possible in case the debt-to-equity ratio exceeds a certain threshold, that is, interest payments connected with a high level of indebtedness cannot be offset for tax purposes. In the Netherlands, for example, corporations whose debt-to-equity ratio exceeds 3:1 are subject to thin capitalization rules. If, however, the debt-to-equity ratio for the corporate group as a whole is above 3:1, a Dutch affiliate may be leveraged to the same extent. Although Dutch thin capitalization rules take third-party debt into consideration when calculating ratios, only the deduction of interest due on loans between *related* parties can be limited.

Similar to the Netherlands, other governments refer to related party debt when imposing thin capitalization rules. In Argentina, for example, interest is not deductible if a company's debt-to-equity ratio exceeds 2:1 and the interest is paid to a controlling banking or financial entity. Interest that is not deductible is re-characterized as a dividend. However, tax laws differ a lot in their definition of the term *related party* making it very difficult to compare rules across countries. Moreover, in several cases, thin capitalization rules are not only associated with related party loans but also refer to the place where the creditor is located. Japanese tax law, for example, restricts the deductibility of interest due on loans provided by foreign controlling shareholders or affiliates. In so doing, the above mentioned extensive foreign debt financing shall be avoided.

Furthermore, thin capitalization legislation may consist of more than one rule making a comparison with other tax laws even more complicated. Denmark serves as an example since three sets of rules are codified in national tax law.[17] In many countries, companies can avoid being subject to thin capitalization rules if they fulfill certain conditions. For example, the German interest barrier can be circumvented if either the exemption limit is not exceeded or the conditions of either the stand-alone clause or the escape clause are met. Italy applies similar rules.

To summarize, thin capitalization rules are quite complex and differ heavily across countries. Comparing the rules and making a general decision on which rules are perceived to be most attractive from a multinational's point of view is almost impossible. Therefore, we utilize a rather rough classification when measuring thin capitalization rules. For multinational enterprises, tax regimes that do not apply thin capitalization rules at all are most attractive

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[17] In addition to the debt-to-equity ratio which may not exceed 4:1, an asset test limiting the deduction of interest expenses to a certain percentage of the tax value of the company's assets (6.5% in 2009) and an EBIT test limiting the deduction of net financing expenses to 80% of earnings before interest and tax apply.

as the allocation of debts is not restricted. Therefore, locations where the deductibility of interest is not limited receive the value one (*THIN*=1). These countries are, for example, Cyprus, Finland, Malta, and Thailand. Moreover, thin capitalization rules which are defined very narrow and whose application, therefore, is very unlikely, also obtain a value of one (*THIN*=1). Belgium and Switzerland serve as an example for such jurisdictions. Furthermore, in some locations thin capitalization rules are existent, but not clearly defined, that is, no official debt-to-equity ratio is provided. However, tax authorities are entitled to re-characterize certain transactions if they are considered as being excessive. For countries falling under this category, *THIN* equals 0.5 (e.g., Austria, Bolivia, and Great Britain). Finally, governments that impose clearly defined thin capitalization rules are denoted with zero (*THIN*=0) since the existence of such rules is not an attractive feature of a tax environment. For reasons of simplicity, we neither differentiate between the various debt-to-equity ratios nor between any other characteristics that may be linked with thin capitalization rules.

3.1.10 Controlled Foreign Corporation Rules

A further tax factor we take into consideration for the *Tax Attractiveness Index*, are the controlled foreign corporation rules a country enforces (*CFC*). In general, foreign subsidiaries taking the form of a legally independent company are taxed in their country of residence. Profits may only be subject to taxation in the country of the parent company when being distributed as a dividend. However, this system leaves scope for abuse as multinational corporations are provided with incentives to generate income in low tax countries. For example, this can be realized by shifting intellectual property to tax havens and subsequently allocating the corresponding royalty payments there (see, e.g., Collins 2011; Drucker 2010, for anecdotal evidence). Thus, the tax haven entity does not execute operational activities but only generates passive income. As long as these profits are not distributed, they are kept away from the country in which the parent company is located enabling multinational companies to heavily decrease their tax burden.

To prevent the avoidance or the deferral of taxes due in the jurisdiction of the parent company, governments have established CFC rules that override the system of protecting undistributed foreign profits from being taxed domestically. In other words, if the requirements of CFC rules are fulfilled, tax authorities are able to include undistributed income of corporations in foreign countries in the corporate tax base of resident parent companies. Hence, CFC

rules protect the domestic tax base from erosion and secure tax revenue. In most countries, a tax credit is available for foreign taxes that have already been paid.[18]

The conditions for CFC rules vary across countries. However, three main dimensions can be identified. First, CFC rules refer to foreign affiliates that are controlled or owned to a certain extent by resident companies. However, definitions of *control* differ a lot. In Canada, for example, it is sufficient if the domestic company owns at least 1% of the shares in the foreign corporation and in addition, the domestic company together with related persons directly or indirectly owns at least 10%. In contrast, for example, French CFC rules require a domestic participation of at least 50%. Moreover, the percentages of voting rights or the decisive influence might be taken into account when defining whether a foreign corporation is under control of domestic entities. Second, the activity or the income of the foreign corporation has to be of passive nature (such as dividends, interest, rent, and royalties). For this purpose, the question whether the assets of a subsidiary are of financial nature may be considered as well. Under Danish CFC rules, for example, a threshold of 10% applies, meaning that a share of financial assets exceeding 10% is considered to be harmful. Third, CFC rules apply only in case the effective taxation of the foreign subsidiary is substantially lower than that of the home country. For example, Finnish CFC rules define that an effective tax rate of less than 60% of the Finnish corporate income tax rate of 26% (for 2009) is too low. In Japan, a foreign entity needs at least to be taxed at 25% not to be subject to CFC legislation. For Korean tax purposes, a low tax jurisdiction is a foreign country with an average effective tax rate of 15% or less. Some governments (such as Sweden and Lithuania) publish 'white lists' containing countries whose tax regimes are generally not perceived as being harmful. In contrast, e.g., Italy issues a 'black list' that defines 71 countries and territories as tax havens. Under Portuguese CFC rules, a country is considered to be a low tax jurisdiction if it is included in a list of tax haven territories provided by the Portuguese tax authorities. In some European countries, CFC legislation explicitly includes exemptions for controlled foreign corporations located within the European Economic Area (EEA) meaning that such subsidiaries generally do not fall under the scope of CFC rules. Moreover, in many cases, CFC rules do not apply for countries a double tax treaty has been concluded with. Remarkably, the Italian black list still contains certain European territories including Malta, Cyprus, and Luxembourg. In addition, Sweden explicitly excludes Belgium, Estonia, Ireland, Luxemburg, and the Netherlands from

[18] Weichenrieder (1996) develops a model to analyze the impact of anti tax avoidance provisions. He finds that anti tax avoidance legislation distorts the portfolio choice of the foreign subsidiary and, thus, has an influence on capital allocation.

its white list. Numerous CFC rules contain ‘safeguards’ or ‘active clauses’ giving the domestic company the chance to demonstrate that the location of the foreign entity is not motivated solely by tax reasons. If the firm can prove that real business activities are carried out, CFC legislation does not apply.

Similar to the case of thin capitalization rules, it is hard to put CFC rules into categories since companies are affected differently by CFC regimes depending on their specific situation and strategy. Therefore, we simply differentiate between countries that apply CFC rules and those who do not. If CFC rules are in force, they cause planning costs as well as administrative expenditures for firms irrespective of their specific design. That is why, from the perspective of a multinational enterprise, countries whose tax law does not contain CFC rules are perceived to be attractive. Hence, for such countries, *CFC* equals one. On the contrary, countries which apply CFC rules receive the value zero (*CFC*=0).

3.1.11 Anti Avoidance Legislation

As a further criterion, we include a country’s anti avoidance legislation (*AAL*). In addition to CFC rules, the tax law of many countries includes further provisions aiming at preventing abuse. By means of anti avoidance rules, tax authorities try to combat tax evasion and to challenge fictitious or artificial transactions. Anti avoidance legislation prohibits transactions whose primary or dominant purpose is the reduction of a tax liability. Moreover, transactions which are solely carried out to obtain a tax benefit shall be prevented. In case a certain transaction falls under the scope of anti avoidance legislation, the tax liability is determined without taking benefits resulting from the abuse into consideration. In other words, the tax burden is as high as it would have been if the abuse had not occurred. However, in almost all countries, companies are provided with the chance to prove that a transaction has been undertaken or arranged for real business purposes and not to artificially reduce the tax liability.

The design of anti avoidance rules differs heavily across countries. As in the case of thin capitalization rules and CFC rules, we face the difficulty to convert verbally documented provisions into quantitative measures. Since certain tax planning schemes may be impeded by anti avoidance rules, the existence of such legislation is not favorable from a company’s perspective. That is why countries where no anti avoidance rules are established (for example, Malaysia, Uruguay, and the Slovak Republic) receive the value one (*AAL*=1). However, in many jurisdictions, a general anti avoidance rule (GAAR) is codified determining that transactions have to be assessed according to their economic result. In this way, tax authorities have the right to ignore the legal form of a transaction if the economic substance is lacking. In

case national tax law contains a general anti avoidance rule, the respective country obtains a value of 0.5 (*AAL*=0.5). However, there are countries in which a general anti avoidance rule is not explicitly codified in tax law. Nevertheless, the general substance-over-form principle is valid as it is applied by the courts. In such cases, *AAL* also equals 0.5. In doing so, we do not distinguish between countries where the substance-over-form principle is explicitly documented in national tax code and countries where the principle applies without being codified.

Moreover, in some countries anti avoidance legislation does not only consist of a general anti avoidance rule, but includes further provisions amending the general rule. For example, in Italy, Portugal, and Brazil, a special anti tax haven legislation applies. In Germany, an anti treaty shopping rule is codified. Countries where a general rule plus special anti abuse clauses apply offer least attractive anti avoidance rules. That is why *AAL* equals zero for these jurisdictions.

3.1.12 Personal Income Tax Rate

Moreover, the *Tax Attractiveness Index* covers the personal income tax rate (*PIT*) a country levies. The personal income tax rate may be important as it determines the level of current taxation for the employees of a subsidiary. Therefore, multinational enterprises might take this criterion into consideration when evaluating a country's tax attractiveness. Measuring the current taxation of individuals, we take the statutory personal income tax rate imposed by the central government into consideration. If a progressive tax rate applies – which is the case in most countries – we include the maximum one. We account for sub-central taxes by either using averages (e.g., for Finland and Sweden) or by comprising the tax rate of a representative region (e.g., Zurich for Switzerland; Brussels for Belgium). We include other surcharges, such as solidarity surcharges that are imposed in Germany and Hungary, for example, only if precise numbers are available.

3.1.13 Special Holding Regime

Finally, we take the existence of a special holding regime into consideration (*HOLD*). This is an attractive feature of a country's tax environment as it offers favorable conditions for holdings that might serve as a central tool in corporate tax planning strategies. The location decision for holding companies depends on multiple tax factors, most importantly, a participation exemption for dividends and capital gains, a wide treaty network, low withholding taxes, and a group taxation regime. However, certain countries try to enhance their tax position by offering special regimes for holding companies in order to attract subsidiaries. In Luxem-

bourg, for example, a special holding regime was applied until 2010 that exempted holding companies from current taxation if certain requirements were met. Hence, the statutory tax rate for holding companies was zero. Similar rules exist in Lichtenstein. In Switzerland, holding companies are not subject to corporate income tax at the cantonal and communal level which lowers the statutory tax rate to approximately 7-8%. The Maltese income tax system contains a holding regime under which non-resident shareholders may claim a full refund of the tax paid by the company in Malta in case the related profits are distributed subsequently. In this way, the Maltese tax burden can be lowered heavily. Also Singapore operates a special holding regime. A company which qualifies as an approved holding is exempt from tax on all disposals of shares in subsidiaries. Although Singapore does not levy taxes on capital gains, gains on disposals of shares may be subject to corporate income tax if they are classified as income in nature. To provide greater certainty on the treatment of capital gains, approved holding companies can receive capital gains free of tax.

When evaluating a country's tax treatment of holding companies, we only take rules into account that have not been covered by one of the other tax factors included in the *Tax Attractiveness Index*. We differentiate between countries that offer a special holding regime (*HOLD*=1) and those who do not (*HOLD*=0).

3.2 Construction of the Tax Attractiveness Index

In a next step, we use all 16 tax factors that have been identified as determining a country's tax environment to construct the *Tax Attractiveness Index*. Table 1 summarizes all index components and their respective measurement.

[Insert Table 1 about here]

For the purpose of the index, all tax factors have to be constrained to values between zero and one. In cases we had to develop quantification schemes, the measurement of the respective tax factors has already been adjusted to this scale. However, the statutory tax rate, the three different measures for withholding taxes, the double tax treaty network and the personal income tax rate are not yet restricted to values between zero and one. The statutory tax rate, the withholding taxes and the personal income tax rate are standardized by subtracting the tax rate country *i* levies in year *t* from the maximum sample tax rate in year *t* and subsequently dividing the resulting difference by the maximum sample tax rate in year *t* (see Table 1). Thus, the lower the tax rate country *i* imposes, the more the fraction approaches one, indicat-

ing an attractive characteristic of country *i*'s tax environment. The double tax treaty network is standardized by dividing the number of double tax treaties country *i* has concluded in year *t* by the maximum sample number of double tax treaties concluded in year *t*. Hence, the more double tax treaties country *i* has signed, the more the fraction converges to one, indicating a favorable tax feature.

To construct the *Tax Attractiveness Index*, we add values for all 16 tax factors per country and divide the sum by 16. Hence, the index represents an equally-weighted sum of 16 tax factors. It indicates the attractiveness of a country's tax environment and the tax planning opportunities that are offered. Analogical to its components, the *Tax Attractiveness Index* is measured on an annual basis and restricted to values between zero and one. The more the index values approaches one, the more attractive is the tax environment of a certain country.

4 Descriptive Statistics

Panel A of Table 2 reports descriptive statistics for the 16 tax factors collected for a sample of 100 countries over years 2005 to 2009. However, tax data for Belarus in year 2005 are not available. Hence, the number of observations amounts to 499.

[Insert Table 2 about here]

The statutory tax rate, the three different measures for withholding taxes, the double tax treaty network and the personal income tax are presented in unstandardized form. Table 2 reveals that the statutory tax rate has an average of 24.69% with a minimum of 0% representing the value for certain off-shore tax havens, such as the Cayman Islands, the Bahamas and Bermuda. The maximum sample statutory tax rate is 42.34% indicating the value for Japan in 2008. Comparing the taxation of dividends and the taxation of capital gains, we see that *DIV* is on average higher than *CG* showing that countries exempt dividends more often from taxation than capital gains. Descriptive statistics for the three different withholding taxes are very similar. However, the mean value for withholding taxes on royalties is highest. Maximum withholding taxes are levied by Argentina, Chile and the Philippines (*WHTD*), Bangladesh (*WHTI*), and Columbia (*WHTR*).With respect to the loss carry over possibilities, it can be seen that only few countries permit a loss carry back as the mean value is 0.1804 with a median and an upper quartile value of zero. In contrast, most countries permit a loss carry forward of at least 5 years. A group taxation regime is offered by only a limited number of countries as indicated by a mean value of 0.1934 and a median of zero. Moreover, the sample countries

have concluded approximately 38 double tax treaties on average per year. The maximum number of 119 treaties has been signed by France in years 2008 and 2009. With respect to anti abuse provisions, Table 2 shows that the application of a general anti avoidance rule is quite common as the mean, median as well as the upper and lower quartile values for *AAL* equal 0.5. However, thin capitalization and CFC rules are not that prevalent indicated by mean values of 0.6022 respectively 0.7275 and median values of one, respectively. The personal income tax rate is on average 30.21% with a maximum of 59% representing the value for Denmark in years 2005 to 2009. Furthermore, only few countries offer a special regime for holding companies (mean value of 0.2545; median of 0). All tax factors show sufficient variation. Mean values per country for each of the 16 tax factors are reported in Table A.I in the appendix.

The correlation matrix in Table A.II in the appendix reveals that most index components are significantly correlated. However, only very few correlations are higher than 0.5. Still, the different measures for withholding taxes show high correlation coefficients among each other. Moreover, withholding taxes account for three out of 16 tax factors, that is, they represent a considerable part of the *Tax Attractiveness Index*. Furthermore, the anti abuse provisions (*THIN*, *CFC*, *AAL*) are highly correlated. To prevent the *Tax Attractiveness Index* from being driven by one group of related tax factors, we provide alternative specifications of the index. First, we summarize the withholding taxes (*WHTD*, *WHTI*, *WHTR*) meaning that the index consists of 14 components only (*TAX_I*). As a further alternative, we summarize the anti abuse provisions (*THIN*, *CFC*, *AAL*). In this specification, the index also covers 14 components only (*TAX_II*). Third, we combine *TAX_I* and *TAX_II*, that is, withholding taxes as well as anti abuse provisions are summarized (*TAX_III*). Hence, *TAX_III* comprises 12 components. Summary statistics for the *Tax Attractiveness Index* (*TAX*) in its original version as well as for the alternative specifications are presented in Panel B of Table 2. Summary statistics do not differ heavily from each other. In addition, all different index specifications are highly correlated (results not reported). Hence, we can conclude that the index is not affected by summarizing certain criteria or including them separately. It is neither driven by withholding taxes nor by anti abuse provisions. Therefore, we use the *Tax Attractiveness Index* in its original version containing all 16 tax factors equally-weighted. The *Tax Attractiveness Index* has a mean value of 0.4598 and a median of 0.4502 indicating that the variance is moderate. The index ranges between 0.0814 representing the value for Argentina in 2007 and 0.8125 representing the value for the Bahamas, Bermuda in years 2005 to 2009 and the British Virgin Islands in years 2006 to 2009.

Table 3 reports mean values of the *Tax Attractiveness Index* per sample country over years 2005 to 2009.

[Insert Table 3 about here]

We reveal that countries which have been classified as tax havens in former literature (see OECD 2000; Hines and Rice 1994; Dharmapala and Hines 2009) achieve highest index values. These countries are the Bahamas (average index value of 0.8125), Bermuda (0.8125), the Cayman Islands (0.7813), and the British Virgin Islands (0.7739). They offer highly attractive tax environments because they do not levy income taxes at all. Moreover, some European countries obtain high index values. For example, Luxembourg (0.7219), Jersey (0.7181), Cyprus (0.7086), the Netherlands (0.7076), Ireland (0.6694), and Malta (0.6639) offer favorable tax conditions. Other countries that have an attractive tax environment as indicated by high index values are the United Arab Emirates (0.7682), Bahrain (0.7554), Malaysia (0.6886), and Singapore (0.6798). In contrast, Argentina (0.0890), Venezuela (0.1301), and South Korea (0.1505) receive lowest index values. With respect to the leading industrial nations, Germany (0.5245), France (0.5329), and Great Britain (0.5913) exceed the sample average, while Japan (0.2748), the United States (0.2432), and Canada (0.3147) are far below.

5 Regional Differences

To analyze whether the *Tax Attractiveness Index* differs significantly across regions and to investigate whether regional patterns of single tax factors can be observed, we divide our 100 sample countries into five geographical categories.[19] Our sample includes 41 European countries, 19 American countries, 6 Caribbean countries, 18 countries that are located in Africa & Middle East, and 16 countries that fall into the Asia-Pacific region. Panel A of Table A.III in the appendix presents summary statistics for the *Tax Attractiveness Index* for each of the five geographical regions. Figure 1 shows average index values over years 2005 to 2009 across regions. It can be seen that the Caribbean and Europe achieve highest values.

[Insert Figure 1 about here]

[19] We follow the classification of the World Bank. However, we summarize the categories 'Sub-Saharan Africa' and 'Middle East & Nord Africa' to 'Africa & Middle East'. Moreover, we combine 'North America' and 'Latin America & Caribbean' to 'Americas'. Though, we exclude the Caribbean countries to be able to examine them separately since their tax environments differ heavily from those of the other American countries. Furthermore, we summarize the World Bank's categories 'South Asia' and 'East Asia & Pacific' to 'Asia-Pacific'.

Correspondingly, Panel B of Table A.III in the appendix shows mean value differences between regions. Values of the column are always subtracted from row values. Above the diagonal, p-values resulting from t-tests are reported in parentheses. Below the diagonal, we provide p-values resulting from Wilcoxon rank-sum tests in parentheses. Since the *Tax Attractiveness Index* shows little within-country variation over time, cross-country differences are persistent. Therefore, we use mean values per country for the purpose of this analysis reducing the number of observations to 100. Taking all 499 observations into account would artificially increase levels of significance.

It can be seen that the Caribbean countries offer most favorable tax conditions as reflected by the highest index value of 0.6621 on average. Differences between the Caribbean and all other regions are significant (p-values < 0.1).[20] This can be explained by the fact that some of the Caribbean countries do not impose income taxes at all. Hence, they also obtain high values in most of the other tax factors we take into consideration since tax base determinants, such as loss carry over possibilities and thin capitalization rules do not play a role if the statutory tax rate is zero. Furthermore, anti abuse provisions rarely apply in the Caribbean region. In contrast, group taxation regimes are scarce; moreover, the Caribbean countries do not have broad double tax treaty networks. On average, they have concluded only 0.67 double tax treaties.

European countries show index values above the sample average as well (0.5127). Differences to other geographical regions are significant with the exception of the Caribbean (Wilcoxon rank-sum test). High index values arise since in Europe, participation exemptions for dividends and capital gains are very common. In addition, members of the European Union can benefit from the Parent-Subsidiary Directive as well as the Interest and Royalties Directive that abolish intra-EU withholding taxes. Furthermore, most European countries offer group taxation regimes; Austria, Denmark, France, and Belgium even allow for a cross border group relief. Other important tax factors are the wide double tax treaty networks many European countries have established (on average 56.55 treaties per country) and the existence of special holding regimes in certain locations. In contrast, most European countries enforce rather strict anti abuse provisions.

The other three geographical regions do not differ significantly from each other. The mean value of the *Tax Attractiveness Index* for Africa & Middle East (0.4420) is slightly be-

[20] Only the p-value resulting from a Wilcoxon rank-sum test for the mean value difference between the Caribbean and Europe is not significant.

low the sample average. The sample countries located in this region suggest that participation exemptions for dividends and capital gains are not very common in Africa & Middle East. Besides, loss carry over possibilities are poor. However, anti abuse provisions, especially thin capitalization rules and CFC rules do not apply frequently. American countries receive a mean index value of 0.3858. Less attractive tax conditions can be explained by the fact that withholding taxes are extremely high (on average, 12.29% on dividends; 19.67% on interest; 23.34% on royalties) and especially in South America the number of double tax treaties concluded is very low. In addition, most American countries neither offer favorable loss offset possibilities nor do group taxation regimes exist frequently. Countries located in Asia-Pacific offer least attractive tax environments as reflected by lowest mean values for the *Tax Attractiveness Index* (0.3700). In Asia-Pacific, the mean value of the statutory tax rates is highest (29.81%) and considerable withholding tax rates are imposed. Furthermore, dividends and capital gains cannot be received free of tax in most countries. Only Hong Kong, Malaysia, and Singapore exempt dividends and capital gains from taxation. In addition, countries in Asia-Pacific on average receive lowest values for all anti abuse provisions (*THIN*, *CFC*, *AAL*). However, countries located there frequently offer group taxation regimes as well as comprehensive double tax treaty networks.

Our analysis reveals that the *Tax Attractiveness Index* varies across geographical regions although not all differences are significant.[21] Moreover, regional clusters in the application of several tax provisions can be observed. Furthermore, we find that countries which form part of the European Union show significantly higher index values (on average 0.5320) than those which do not belong to the European Union (0.4314). Besides, index values differ significantly between countries that offer special holding regimes (0.5989) and those who do not (0.4107). However, we do not find a significant difference between OECD (0.4708) and non-OECD countries (0.4548) (results not reported).

6 Comparison between Tax Attractiveness Index and OECD Lists

As a further analysis, we relate the self-constructed *Tax Attractiveness Index* to lists published by the OECD in 2000 and 2009 that contain tax havens as well as jurisdictions identified as offering harmful tax regimes. We explore whether the *Tax Attractiveness Index* corresponds with the OECD's evaluations, that is, whether countries that offer an attractive tax environment as reflected by high index values appear on the OECD list(s).

[21] If we do not use mean values per country over time, but include all 499 observations separately, mean value differences between all five geographical regions are significant.

In its report published in 2000, the OECD identified 35 countries as tax havens (see OECD 2000).[22] Initially, this so-called 'black list' contained 41 jurisdictions, however, Bermuda, the Cayman Islands, Cyprus, Malta, Mauritius, and San Marino were removed since they made formal 'advance commitments' obliging them to eliminate their harmful tax practices and to follow the OECD principles. Though, these countries still met the tax haven criteria. Moreover, the OECD identified 47 potentially harmful preferential tax regimes in 21 different countries, such as the Belgian 'Co-ordination Centers' and the Irish 'International Financial Services Center' (see OECD 2000). In addition, holding company regimes in 13 countries were characterized as constituting potentially harmful tax competition (see OECD 2000).

To compare the OECD's evaluation with the *Tax Attractiveness Index*, we introduce a dummy variable (*OECD List 2000*) assuming the value one if a country is either classified as a tax haven (including the six countries that issued an 'advance commitment') or identified as offering a preferential tax regime or as providing a potentially harmful holding regime. Not all countries named in the OECD 2000 report form part of our sample. Hence, only 36 countries obtain the value one. Panel A of Table 4 reveals that countries appearing on the OECD list achieve significantly higher values for the *Tax Attractiveness Index* (0.5580 on average) than countries which are not listed (0.4042 on average). Again, we use mean values of the index over years 2005 to 2009 per country.

[Insert Table 4 about here]

After 2000, all tax haven countries subsequently committed themselves to the internationally agreed tax standard. Hence, they were removed from the 'black list' leading to the fact that in year 2009 no country was listed as an unco-operative tax haven any longer. The preferential tax regimes as well as the potentially harmful holding regimes were abolished, amended or classified as being not harmful any longer. However, on the 2009 G20 London Summit, a new report was agreed on to be published by the OECD. This new progress report divided countries into three categories: first, jurisdictions that have substantially implemented the internationally agreed tax standard, second, jurisdictions that have committed to the internationally agreed tax standard, but have not yet substantially implemented, and third, jurisdictions that have not committed to the internationally agreed tax standard (see OECD 2009). In

[22] In 1998, the OECD agreed on key factors to identify countries as tax havens. These criteria are: no or only nominal taxes, a lack of effective exchange of information, lack of transparency, and no substantial activities (see OECD 1998). Empirical studies identifying tax havens are consistent with the OECD list published in 2000 (see Hines and Rice 1994; Dharmapala and Hines 2009).

April 2009, 40 countries fell into the first category ('white list'). The second category was subdivided into tax havens (30 countries) and other financial centers (8 countries). Together with the third category (4 countries) it formed the so-called 'grey list'. Hence, the 'grey list' contained 42 jurisdictions. The 'black list' was completely abolished.

We introduce a further dummy variable (*OECD List 2009*) assuming the value one if a country appears on the 'grey list'. Thus, 19 of our sample countries receive the value one. All sample countries that either appear on the 'white list' or are not named in the OECD report at all obtain the value zero. Until now, the OECD 2009 report has been updated several times. In its latest version from 18 May 2012, only three countries are on the 'grey list'. These are Nauru and Niue as tax havens and Guatemala as financial center (see OECD 2012). Panel B of Table 4 reports differences in the *Tax Attractiveness Index* between countries that appear on the OECD 2009 'grey list' and those who do not. Jurisdictions on the OECD list 2009 on average receive significantly higher index values (0.6072) than other sample countries (0.4250). Moreover, correlations between the *Tax Attractiveness Index* and *OECD List 2000* as well as *OECD List 2009*, respectively, are highly significant (results not reported). Hence, the *Tax Attractiveness Index* corresponds with the OECD's evaluation, that is, countries that appear on the OECD list(s) and are thus perceived as harmful, offer extremely attractive tax environments as indicated by high index values.

To conduct further analysis, we simultaneously take both OECD lists into consideration. We divide our sample countries into four categories: countries that appear only on the 2009 list (*New on 2009 List*), countries that are never listed (*Never Listed*), countries that appear on both lists (*Listed in 2000 & 2009*), and those that only appear on the 2000 list (*Delisted in 2009*). Figure 2 displays mean values of the *Tax Attractiveness Index* for each category. It can be seen that jurisdictions which are constantly identified as being harmful by the OECD receive highest index values (0.6786). In contrast, countries that are never listed, on average, reach lowest values for the *Tax Attractiveness Index* (0.3944).

To investigate whether the differences observed are statistically significant, we conduct t-tests as well as Wilcoxon rank-sum tests. Consistent with previous analyses, we use mean values per country to not artificially increase levels of significance. Results are presented in Table 5.

[Insert Figure 2 and Table 5 about here]

We find that differences between countries that are always listed and all other categories are statistically highly significant. The same holds true for countries that are never listed. In contrast, differences between jurisdictions that either appear only on the 2000 or on the 2009 list are not significant. Furthermore, we analyze the relation between the *Tax Attractiveness Index* and the dummy variables *Listed in 2000 & 2009* and *Never Listed*, respectively (results not reported). Confirming our results from investigating both lists separately, *Listed in 2000 & 2009* is highly positively correlated with the *Tax Attractiveness Index*. In contrast, *Never Listed* is significantly negatively associated with the index.

Our analyses reveal that the attractiveness of a country's tax environment as measured by the *Tax Attractiveness Index* corresponds with the evaluation conducted by the OECD in its 2000 and 2009 'black' respectively 'grey' lists. Sample countries that appear on the list(s) have significantly higher index values than others. However, there are certain exceptions. Panama forms part of both OECD lists, though, the country has an average index value (0.4806) that only slightly exceeds the sample average. Furthermore, Chile, Costa Rica, and the Philippines appear on the 2009 'grey' list although their index values are considerably low (on average 0.3310, 0.4379, and 0.2240, respectively). In contrast, countries offering highly attractive tax environments, such as Cyprus (mean index value of 0.7086), Guernsey (0.5943), Ireland (0.6694), Jersey 0.7181), Malta (0.6639), Mauritius (0.5395), the Netherlands (0.7076), and the United Arab Emirates (0.7682) appear on the 2009 OECD 'white list' that contains jurisdictions which are explicitly perceived as not being harmful. Malta, for example, was identified as a tax haven in the 2000 OECD report. Although, the index value increased from 0.5878 in 2005 to 0.7131 in 2009, the country was not perceived as being harmful in 2009 any longer. The same is true for Guernsey and Jersey. This gives rise to the assumption that certain countries were removed from the OECD list although their tax environments did not change significantly, but remained extremely attractive.

7 Relation between Tax Attractiveness Index and Existing Tax Measures

7.1 Tax Attractiveness Index and Statutory Tax Rate

To analyze the relation between the self-constructed *Tax Attractiveness Index* and existing tax measures, we first compare the index to the statutory tax rate. The statutory tax rate is used as a tax measure in various empirical studies (see Buettner and Ruf 2007; Overesch and Wamser 2009, 2010; Hebous et al. 2011). Moreover, it is widely perceived as an indicator for a country's tax environment (see, e.g., Rapoza 2011; Isidore 2012; KPMG 2013). We explore whether this notion can be verified. Using our sample of 100 countries over years 2005

to 2009, we try to shed light on the question whether countries imposing a high statutory tax rate necessarily offer unfavorable tax conditions as reflected by the *Tax Attractiveness Index*. Possibly, countries set incentives other than the statutory tax rate to create a favorable tax climate, and, hence, attract multinational enterprises. For the purpose of this analysis, we exclude the statutory tax rate from the *Tax Attractiveness Index* since it serves as independent variable. Thus, the index consists of 15 tax factors only.[23] As we use the statutory tax rate in unstandardized form, we expect it to be negatively associated with the *Tax Attractiveness Index*.

Figure 3 depicts the relation between the statutory tax rate and the index. We use mean values over years 2005 to 2009 for both variables. The solid line which is a linear fit to all sample countries reveals that the statutory tax rate and the *Tax Attractiveness Index* are negatively correlated, that is, the higher the tax rate the lower the index. However, if low tax countries with a statutory tax rate of less than 15% are excluded, the relationship is less straightforward as indicated by the dashed line.

[Insert Figure 3 about here]

Correspondingly, Table 6 presents regression outputs with the statutory tax rate as independent and the *Tax Attractiveness Index* as dependent variable. Since within-country variation over time is rather low, we use mean values per country. Results in Panel A confirm the effect observed in Figure 3. If the full sample is considered, the index and the statutory tax rate are significantly negatively correlated. If, however, only countries with statutory tax rates of more than 15% are taken into account, the correlation is less significant.[24]

[Insert Table 6 about here]

Figure 4 includes only EU countries. It can be seen that the association between the *Tax Attractiveness Index* and the statutory tax rate is very weak (solid line). However, if countries with a statutory tax rate of less than 15% are neglected, even a positive correlation can be observed (dashed line).

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[23] The *Tax Attractiveness Index* in its original version and the *Tax Attractiveness Index* excluding the statutory tax rate are highly correlated with each other (0.9966; p-value < 0.0001) (results not reported).

[24] Correlation coefficients between the *Tax Attractiveness Index* and the statutory tax rate yield similar results (not reported).

[Insert Figure 4 about here]

Panel B of Table 6 reports corresponding regression results. If all EU countries are taken into consideration, the coefficient for the statutory tax rate is insignificant. If low tax EU countries are excluded, remarkably, the statutory tax rate has a significantly positive coefficient. Results suggest that the statutory tax rate is not a suitable proxy for a country's tax environment. There are EU countries that offer an extremely favorable tax environment as reflected by high index values although they impose high statutory tax rates. Panel B of Table 6 also reports results for non-EU countries. The statutory tax rate and the *Tax Attractiveness Index* are significantly negatively correlated. In Panel C of Table 6, we distinguish between OECD and non-OECD countries. Again, in case all OECD countries are considered, the coefficient for the statutory tax rate is significantly negative. Though, the level of significance is not as high as for the full sample. If, however, the number of observation is reduced to OECD countries with tax rates of more than 15%, the coefficient is insignificant. For non-OECD countries, the relation between the *Tax Attractiveness Index* and the statutory tax rate is significantly negative. Though, if low tax countries are neglected, the level of significance decreases.[25]

Our analysis reveals that the *Tax Attractiveness Index* and the statutory tax rate are negatively correlated with each other. However, the statutory tax rate is not a suitable proxy for the *Tax Attractiveness Index* in any case. Especially in Europe, there are countries simultaneously imposing high statutory tax rate and achieving high index values. Hence, jurisdictions perceived as high tax countries may offer an attractive tax environment. From this, we can conclude that countries set incentives other than the tax rate, such as a broad treaty network, group taxation regimes, and special holding regimes to attract multinational enterprises. Our findings suggest that the characteristics of other tax factors cannot be predicted on the basis of the statutory tax rate.

7.2 Tax Attractiveness Index and Effective Tax Rates

For further analyses, we relate the *Tax Attractiveness Index* to effective tax rates computed according to the methodology developed by King and Fullerton (1984) and extended by Devereux and Griffith (1999, 2003) which is discussed in section 2 of the present paper. Effective average tax rates for 27 EU countries as well as 7 other countries (Croatia, Norway,

[25] Regression outputs from including all observations separately and not using mean values per country do not differ significantly (results not reported).

Switzerland, Turkey, Canada, Japan, and USA) for years 1998 to 2007 are published by Devereux et al. (2008) in their report for the European Union (see also Elschner and Vanborren 2009).[26] We use effective average tax rates per country for year 2007 for comparison with the *Tax Attractiveness Index.* We refer to the case that only considers corporation taxes.[27] Figure 5 depicts the relation between the effective average tax rate and the *Tax Attractiveness Index* for year 2007. The slope of the line representing fitted values is rather low indicating that the correlation is weak. Countries, such as Malta, Luxembourg, and the Netherlands offer favorable tax conditions as reflected by high index values although their effective tax rates are rather high.

[Insert Figure 5 about here]

Furthermore, data for the effective marginal as well as the effective average tax rate for 19 countries up to year 2005 are provided by the Institute for Fiscal Studies (see Devereux et al. 2002).[28] As expected, the index is negatively correlated with the effective marginal as well as the effective average tax rate, that is, the higher the effective tax rate, the lower the *Tax Attractiveness Index*. However, the correlation is not significant (results not reported).

Our analysis shows that neither the effective marginal nor the effective average tax rate is a perfect proxy for the *Tax Attractiveness Index*. Thus, the index cannot be represented by existing tax measures. In contrast, it includes tax factors that have not been integrated so far. Thus, the index constitutes a new, innovative approach to measuring a country's tax conditions that may be useful in future empirical studies.

8 Conclusion

This paper develops a new tax measure – the *Tax Attractiveness* Index. The index covers 16 different tax factors, many of which have been neglected in existing tax measures so far. Hence, the *Tax Attractiveness Index* represents a new approach to measuring the attractiveness of a country's tax environment and the tax planning opportunities that are offered. We find that off-shore tax havens, such as Bermuda, the Bahamas, and the Cayman Islands

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[26] Hebous et al. (2011) rely on these effective tax rates for the purpose of their empirical analysis.

[27] Devereux et al. (2008) compute various effective tax rates depending on the asset that is invested in and the source of finance. We use the overall mean values provided.

[28] Buettner and Ruf (2007) use this data for their analyses. We use data that refers to the base case. The following assumptions apply: investment in plant and machinery financed by equity or retained earnings, taxation at shareholder level not included, rate of economic rent of 10% (i.e. financial return of 20%), real discount rate of 10%, inflation rate of 3.5%, and depreciation rate of 12.25%.

provide very favorable tax conditions as reflected by high index values. However, certain European countries, such as Luxembourg, Cyprus, the Netherlands, Ireland, and Malta also achieve high index values. In further analyses, we observe regional clusters in the *Tax Attractiveness Index* and certain tax rules. Moreover, we show that the index corresponds with the OECD lists of countries and tax regimes that are perceived as constituting harmful tax competition. However, several exceptions can be noticed revealing that certain countries were removed from the OECD list although their tax environments did not change significantly. Furthermore, we find that the statutory tax rate is not a suitable proxy for a country's tax environment in any case. In contrast, countries set incentives other than the statutory tax rate to attract firms and investments. Especially in Europe, many high tax countries offer extremely favorable tax conditions. Finally, we show that effective tax rates that are used in several previous publications are not perfectly correlated with the *Tax Attractiveness Index*. Therefore, the index represents a genuinely innovative approach to measuring tax climates across countries.

Our research has several implications: first, the *Tax Attractiveness Index* allows a comparison of tax environments across countries. Hence, governments and politicians can compare their current tax position to other countries. Second, companies and consultants can use our research to identify favorable tax environments and tax planning opportunities. Third, the *Tax Attractiveness Index* can be employed by international researchers as a new tax measure in future studies. Since existing tax measures cover only a limited number of tax factors, the application of the *Tax Attractiveness Index* might yield further insights into the influence of taxation on the location, investment, and financing decisions of multinational companies. Keller and Schanz (2013) make use of the *Tax Attractiveness Index* to yield deeper knowledge about the impact of taxation on the location decisions of German multinational enterprises.

Nevertheless, our study suffers from certain limitations. First, although the *Tax Attractiveness Index* includes more tax factors than existing tax measures, it still does not capture *all* components of a tax system. For example, depreciation methods are neglected. Second, we do not manage to include all characteristics of certain tax factors. Complex requirements that are associated with several components are not taken into consideration. Hence, we use rather simplified measurement procedures in some cases. Finally, the *Tax Attractiveness Index* summarizes the attractiveness of a country's tax environment in one figure. However, it depends on multinational companies' individual tax planning strategies which tax factors to take into account.

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Figure 1
Tax Attractiveness Index – Regional Differences

Figure 1 shows differences in the *Tax Attractiveness Index* across geographical regions. The 100 sample countries are divided into five different geographical regions which are entered on the abscissa. On the ordinate, mean values of the *Tax Attractiveness Index* per region over years 2005 to 2009 are plotted. The *Tax Attractiveness Index* is an equally-weighted sum of 16 different tax factors determining a country's tax attractiveness. For a detailed description of the index construction see Table 1. The *Tax Attractiveness Index* is measured on annual basis and it is constructed for a sample of 100 countries over years 2005 to 2009. The index is restricted to values between zero and one. The closer the *Tax Attractiveness Index* is to one, the more attractive is the tax environment country *i* offers in year *t*. Since the index shows little within-country variation over time, we apply mean values per country reducing the number of observations to 100.

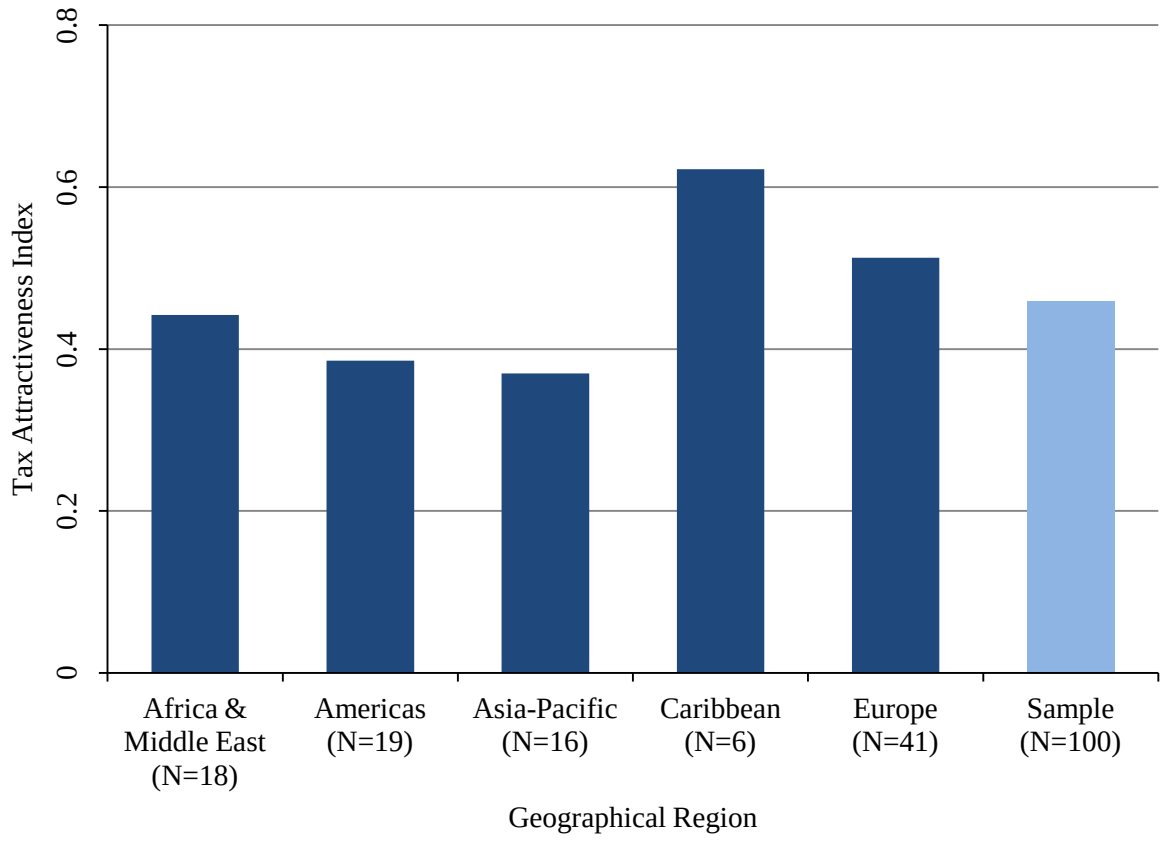

Figure 2
Tax Attractiveness Index and OECD Listing

Figure 2 displays the *Tax Attractiveness Index* for sample countries grouped according to their appearance on the OECD lists published in 2000 and 2009. We differentiate between countries that appear only on the 2009 list (*New on 2009 List*), countries that are never listed (*Never Listed*), countries that appear on both lists (*Listed in 2000 & 2009*), and those that only appear on the 2000 list (*Delisted in 2009*).These four different classifications are entered on the abscissa. On the ordinate, mean values of the *Tax Attractiveness Index* over years 2005 to 2009 are plotted. The *Tax Attractiveness Index* is an equally-weighted sum of 16 different tax factors determining a country's tax attractiveness. For a detailed description of the index construction see Table 1. The *Tax Attractiveness Index* is measured on annual basis and it is constructed for a sample of 100 countries over years 2005 to 2009. The index is restricted to values between zero and one. The closer the *Tax Attractiveness Index* is to one, the more attractive is the tax environment country *i* offers in year *t*. Since the index shows little within-country variation over time, we apply mean values per country reducing the number of observations to 100.

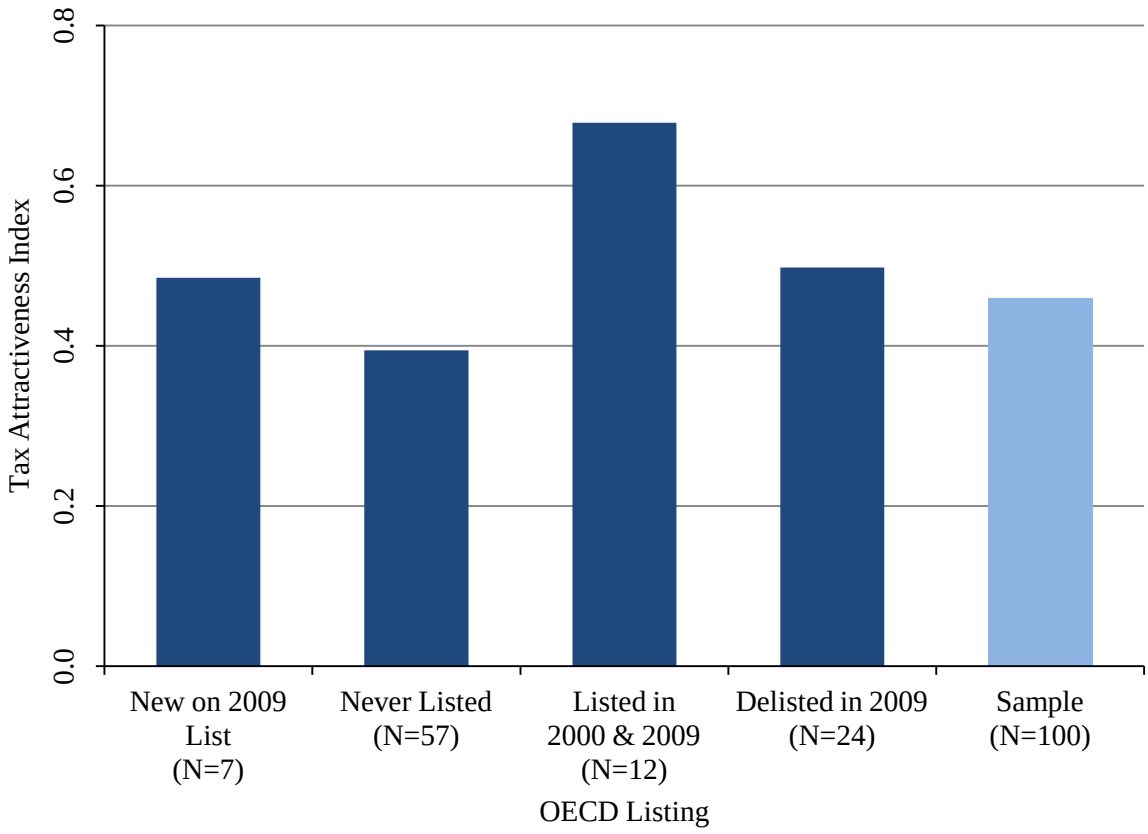

Figure 3
Tax Attractiveness Index and Statutory Tax Rate – Full Sample

Figure 3 shows the relation between the *Tax Attractiveness Index* and the statutory tax rate. The *Tax Attractiveness Index* is defined as an equally-weighted sum of 15 different tax factors determining a country's tax attractiveness. For the purpose of this analysis, we exclude the statutory tax rate from the index. The *Tax Attractiveness Index* is measured on annual basis and it is constructed for a sample of 100 countries over years 2005 to 2009. The index is restricted to values between zero and one. The closer the *Tax Attractiveness Index* is to one, the more attractive is the tax environment country *i* offers in year *t*. Mean values of the statutory tax rate over years 2005 to 2009 are entered on the abscissa. On the ordinate, mean values of the *Tax Attractiveness Index* over years 2005 to 2009 are plotted. The solid line is a linear fit to all sample countries. The dashed line is a linear fit to sample countries with mean statutory tax rates of more than 15%.

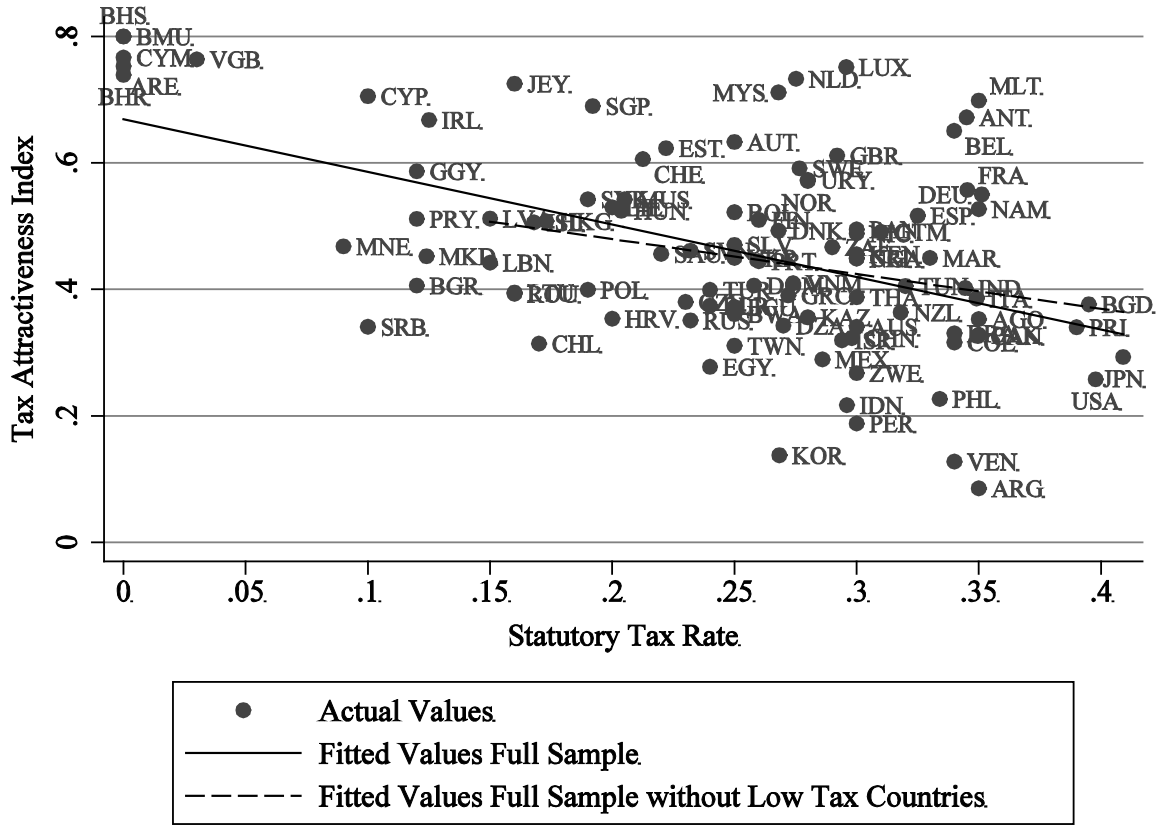

Figure 4
Tax Attractiveness Index and Statutory Tax Rate – EU Countries

Figure 4 shows the relation between the *Tax Attractiveness Index* and the statutory tax rate. The *Tax Attractiveness Index* is defined as an equally-weighted sum of 15 different tax factors determining a country's tax attractiveness. For the purpose of this analysis, we exclude the statutory tax rate from the index. The *Tax Attractiveness Index* is measured on annual basis and it is constructed for a sample of 100 countries over years 2005 to 2009. This figure includes only sample countries that are member of the EU, defined as those who belong to the EU in the year 2009. The index is restricted to values between zero and one. The closer the *Tax Attractiveness Index* is to one, the more attractive is the tax environment country *i* offers in year *t*. Mean values of the statutory tax rate over years 2005 to 2009 are entered on the abscissa. On the ordinate, mean values of the *Tax Attractiveness Index* over years 2005 to 2009 are plotted. The solid line is a linear fit to all EU countries. The dashed line is a linear fit to EU countries with mean statutory tax rates of more than 15%.

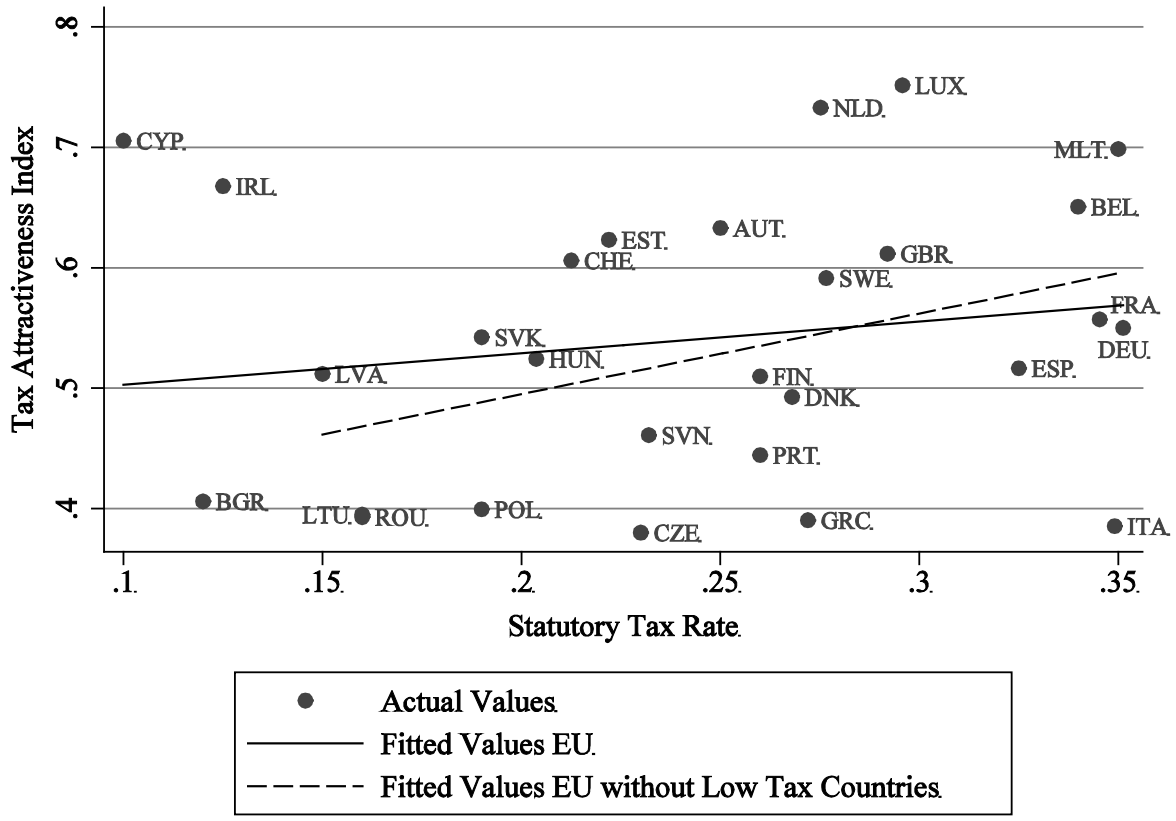

Figure 5
Tax Attractiveness Index and Effective Average Tax Rate 2007

This figure displays the relation between the *Tax Attractiveness Index* and the effective average tax rate. Effective average tax rates for 34 countries up to year 2007 are provided by Devereux et al. (2008). The *Tax Attractiveness Index* is an equally-weighted sum of 16 different tax factors determining a country's tax attractiveness. For a detailed description of the index construction see Table 1. The *Tax Attractiveness Index* is measured on annual basis and it is constructed for a sample of 100 countries over years 2005 to 2009. The index is restricted to values between zero and one. The closer the *Tax Attractiveness Index* is to one, the more attractive is the tax environment country *i* offers in year *t*. This figure displays all 34 countries for which the effective average tax rate is available in year 2007. The effective average tax rate for year 2007 is entered on the abscissa. On the ordinate, the *Tax Attractiveness Index* for year 2007 is plotted. The solid line is a linear fit to the 34 sample countries.

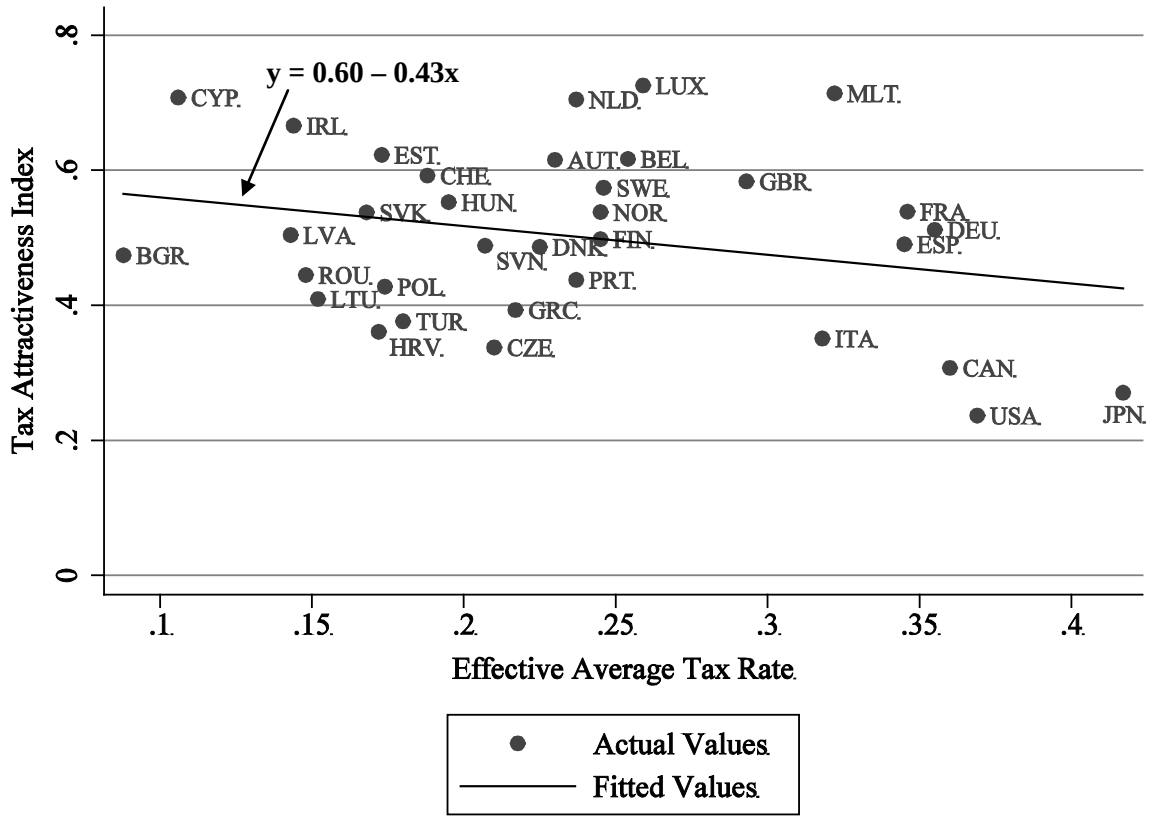

Table 1
Tax Attractiveness Index

Table 1 shows components of the *Tax Attractiveness Index* and their respective measurement. Each tax factor is measured on annual basis and restricted to values between zero and one. *STR*, *WHTD*, *WHTI*, *WHTR*, and *PIT* are standardized by subtracting the tax rate country *i* levies in year *t* from the maximum sample tax rate in year *t* and subsequently dividing the resulting difference by the maximum sample tax rate in year *t*. *DTT* is standardized by dividing the number of double tax treaties country *i* has concluded in year *t* by the maximum sample number of double tax treaties concluded in year *t*. In all cases, a value of one indicates the optimum, that is, the most attractive characteristic of a tax factor. To construct the *Tax Attractiveness Index*, we add all tax factors and divide the sum by 16. Hence, the *Tax Attractiveness Index* represents an equally-weighted sum of 16 tax factors determining country *i*'s tax attractiveness in year *t*. The closer the *Tax Attractiveness Index* is to one, the more attractive is the tax environment country *i* offers in year *t*.

	Tax Factor	Abbr.	Measurement	Weight
(1)	Statutory Tax Rate	*STR*	(Max. tax $rate_t$-tax $rate_{it}$)/max. tax $rate_t$	1/16
(2)	Taxation of Dividends	*DIV*	Percentage of tax exemption	1/16
(3)	Taxation of Capital Gains	*CG*	Percentage of tax exemption	1/16
(4)	Withholding Tax Dividends	*WHTD*	(Max. tax $rate_t$-tax $rate_{it}$)/max. tax $rate_t$	1/16
(5)	Withholding Tax Interest	*WHTI*	(Max. tax $rate_t$-tax $rate_{it}$)/max. tax $rate_t$	1/16
(6)	Withholding Tax Royalties	*WHTR*	(Max. tax $rate_t$-tax $rate_{it}$)/max. tax $rate_t$	1/16
(7)	European Union	*EU*	1 - Member of the European Union 0 - Not member of the European Union	1/16
(8)	Loss Carry Back	*LCB*	1 - Loss carry back possible 0 - Loss carry back not possible	1/16
(9)	Loss Carry Forward	*LCF*	1 - Unlimited loss carry forward 0.5 - Loss carry forward > 5 y & ≤ 20 y 0 - Loss carry forward ≤ 5 years	1/16
(10)	Group Relief	*GROUP*	1 - Cross border group relief possible 0.5 - National group relief possible 0 - No group relief possible	1/16
(11)	Treaty Network	*DTT*	Number double tax $treaties_{it}$/ max. number double tax $treaties_t$	1/16
(12)	Thin Capitalization Rules	*THIN*	1 - No thin capitalization rules apply 0.5 - Thin cap rules not clearly defined 0 - Thin capitalization rules apply	1/16
(13)	Controlled Foreign Corporation Rules	*CFC*	1 - No CFC rules apply 0 - CFC rules apply	1/16
(14)	Anti Avoidance Legislation	*AAL*	1 - No anti avoidance legislation applies 0.5 - General anti avoidance rule applies 0 - GAAR + special rules apply	1/16
(15)	Personal Income Tax Rate	*PIT*	(Max. tax $rate_t$-tax $rate_{it}$)/max. tax $rate_t$	1/16
(16)	Holding Regime	*HOLD*	1 - Holding regime applies 0 - No holding regime applies	1/16

Table 2
Descriptive Statistics

Table 2 presents descriptive statistics. In Panel A, summary statistics for 16 tax factors that form the *Tax Attractiveness Index* are reported. Each tax factor is measured on annual basis and collected for a sample of 100 countries over years 2005 to 2009. For a detailed description of the respective measurement see Table 1. *STR* is the statutory tax rate (in unstandardized form). *DIV* represents taxation of dividends and *CG* taxation of capital gains. *WHTD*, *WHTI*, and *WHTR* indicate withholding taxes on dividends, interest, and royalties, respectively (in unstandardized form). *EU* indicates whether a country is member of the European Union. *LCB* and *LCF* denote loss carry back and loss carry forward opportunities. *GROUP* represents the possibility to file a consolidated tax return. *DTT* represents the double tax treaties concluded (in unstandardized form). *THIN* indicates thin capitalization rules and *CFC* indicates controlled foreign corporation rules. *AAL* represents anti avoidance legislation. *PIT* denotes the personal income tax rate (in unstandardized form). *HOLD* indicates the existence of a special holding regime. Panel B presents summary statistics for the *Tax Attractiveness Index*. The *Tax Attractiveness Index* (*TAX*) is an equally-weighted sum of 16 different tax factors determining a country's tax attractiveness. It is restricted to values between zero and one. The closer the *Tax Attractiveness Index* is to one, the more attractive is the tax environment country *i* offers. *TAX_I* represents a modification of the index where the three different measures for withholding taxes (*WHTD*, *WHTI*, and *WHTR*) are summarized. Hence, *TAX_I* consists of 14 components only. *TAX_II* is another modification where all anti abuse provisions (*THIN*, *CFC*, and *AAL*) are summarized. Hence, *TAX_II* also consists of 14 components. *TAX_III* combines *TAX_I* and *TAX_II*, that is, withholding taxes (*WHTD*, *WHTI*, and *WHTR*) as well as anti abuse provisions (*THIN*, *CFC*, and *AAL*) are summarized. Hence, *TAX_III* consists of 12 components.

Panel A: Summary Statistics for Tax Factors

	Tax Factor	N	Mean	Std. Dev.	Min.	25%	Median	75%	Max.
(1)	STR	499	0.2469	0.0978	0.0000	0.2000	0.2600	0.3000	0.4234
(2)	DIV	499	0.5755	0.4912	0.0000	0.0000	1.0000	1.0000	1.0000
(3)	CG	499	0.4784	0.4907	0.0000	0.0000	0.0000	1.0000	1.0000
(4)	WHTD	499	0.1252	0.1097	0.0000	0.0000	0.1000	0.2000	0.3500
(5)	WHTI	499	0.1323	0.1035	0.0000	0.0000	0.1500	0.2000	0.4000
(6)	WHTR	499	0.1607	0.0966	0.0000	0.1000	0.1500	0.2200	0.3955
(7)	EU	499	0.2725	0.4457	0.0000	0.0000	0.0000	1.0000	1.0000
(8)	LCB	499	0.1804	0.3849	0.0000	0.0000	0.0000	0.0000	1.0000
(9)	LCF	499	0.4860	0.4490	0.0000	0.0000	0.5000	1.0000	1.0000
(10)	GROUP	499	0.1934	0.2819	0.0000	0.0000	0.0000	0.5000	1.0000
(11)	DTT	499	37.9299	29.6253	0.0000	9.0000	37.0000	60.0000	119.0000
(12)	THIN	499	0.6022	0.4674	0.0000	0.0000	1.0000	1.0000	1.0000
(13)	CFC	499	0.7275	0.4457	0.0000	0.0000	1.0000	1.0000	1.0000
(14)	AAL	499	0.5210	0.3057	0.0000	0.5000	0.5000	0.5000	1.0000
(15)	PIT	499	0.3021	0.1449	0.0000	0.2000	0.3200	0.4000	0.5900
(16)	HOLD	499	0.2545	0.4360	0.0000	0.0000	0.0000	1.0000	1.0000

Panel B: Summary Statistics for Tax Attractiveness Index

	Index	N	Mean	Std. Dev.	Min.	25%	Median	75%	Max.
(1)	TAX	499	0.4598	0.1573	0.0814	0.3438	0.4502	0.5408	0.8125
(2)	TAX_I	499	0.4370	0.1589	0.0866	0.3186	0.4258	0.5233	0.7857
(3)	TAX_II	499	0.4373	0.1652	0.0693	0.3150	0.4103	0.5463	0.7857
(4)	TAX_III	499	0.4071	0.1706	0.0733	0.2642	0.3873	0.5246	0.7500

Table 3
Tax Attractiveness Index per Country

This table reports mean values of the *Tax Attractiveness Index* (*TAX*) per sample country over years 2005 to 2009. The *TAX* represents an equally-weighted sum of 16 tax factors. It is restricted to values between zero and one. The closer the *Tax Attractiveness Index* is to one, the more attractive is the tax environment country *i* offers.

Country (Code)	TAX	Country (Code)	TAX	Country (Code)	TAX	Country (Code)	TAX
Algeria (DZA)	0.3424	Denmark (DNK)	0.4835	Korea (South) (KOR)	0.1505	Poland (POL)	0.4079
Angola (AGO)	0.3399	Dom. Republic (DOM)	0.4036	Latvia (LVA)	0.5194	Portugal (PRT)	0.4395
Argentina (ARG)	0.0890	Ecuador (ECU)	0.3730	Lebanon (LBN)	0.4541	Puerto Rico (PRI)	0.3217
Australia (AUS)	0.3361	Egypt (EGY)	0.2859	Liechtenstein (LIE)	0.5286	Romania (ROU)	0.4065
Austria (AUT)	0.6178	El Salvador (SLV)	0.4652	Lithuania (LTU)	0.4083	Russia (RUS)	0.3560
Bahamas (BHS)	0.8125	Estonia (EST)	0.6128	Luxembourg (LUX)	0.7219	Saudi Arabia (SAU)	0.4564
Bahrain (BHR)	0.7554	Finland (FIN)	0.5008	Macedonia (MKD)	0.4675	Serbia (SRB)	0.3667
Bangladesh (BGD)	0.3550	France (FRA)	0.5320	Malaysia (MYS)	0.6886	Singapore (SGP)	0.6798
Belarus (BLR)	0.3765	Germany (DEU)	0.5245	Malta (MLT)	0.6639	Slovak Republic (SVK)	0.5419
Belgium (BEL)	0.6206	Great Britain (GBR)	0.5913	Mauritius (MUS)	0.5395	Slovenia (SVN)	0.4592
Bermuda (BMU)	0.8125	Greece (GRC)	0.3869	Mexico (MEX)	0.2899	South Africa (ZAF)	0.4557
Bolivia (BOL)	0.5137	Guatemala (GTM)	0.4753	Montenegro (MNE)	0.4875	Spain (ESP)	0.4971
Botswana (BWA)	0.3626	Guernsey (GGY)	0.5943	Morocco (MAR)	0.4336	Sweden (SWE)	0.5747
Brazil (BRA)	0.3203	Hong Kong (HKG)	0.5120	Namibia (NAM)	0.5030	Switzerland (CHE)	0.5981
Brit. Virg. Islands (VGB)	0.7739	Hungary (HUN)	0.5229	Netherlands (NLD)	0.7076	Taiwan (TWN)	0.3157
Bulgaria (BGR)	0.4248	Iceland (ISL)	0.5112	Neth.Antilles (ANT)	0.6398	Thailand (THA)	0.3800
Canada (CAN)	0.3147	India (IND)	0.3868	New Zealand (NZL)	0.3547	Tunisia (TUN)	0.3935
Cayman Islands (CYM)	0.7813	Indonesia (IDN)	0.2206	Nicaragua (NIC)	0.4746	Turkey (TUR)	0.4000
Chile (CHL)	0.3310	Ireland (IRL)	0.6694	Nigeria (NGA)	0.4373	Ukraine (UKR)	0.4460
China (CHN)	0.3197	Israel (ISR)	0.3171	Norway (NOR)	0.5555	Unit. Arab Emir. (ARE)	0.7682
Colombia (COL)	0.3067	Italy (ITA)	0.3705	Pakistan (PAK)	0.3166	United States (USA)	0.2432
Costa Rica (CRI)	0.4379	Japan (JPN)	0.2748	Panama (PAN)	0.4806	Uruguay (URY)	0.5570
Croatia (HRV)	0.3634	Jersey (JEY)	0.7181	Paraguay (PRY)	0.5236	Venezuela (VEN)	0.1301
Cyprus (CYP)	0.7086	Kazakhstan (KAZ)	0.3533	Peru (PER)	0.1927	Vietnam (VNM)	0.4046
Czech Republic (CZE)	0.3837	Kenya (KEN)	0.4437	Philippines (PHL)	0.2240	Zimbabwe (ZWE)	0.2675

Table 4
Tax Attractiveness Index and OECD Lists 2000 and 2009 – Mean Value Differences

This table reports differences in the *Tax Attractiveness Index* between sample countries that appear on the OECD lists published in 2000 and 2009, respectively, and those who do not. The *Tax Attractiveness Index* is an equally-weighted sum of 16 different tax factors determining a country's tax attractiveness. For a detailed description of the index construction see Table 1. The *Tax Attractiveness Index* is measured on annual basis and it is constructed for a sample of 100 countries over years 2005 to 2009. The index is restricted to values between zero and one. The closer the *Tax Attractiveness Index* is to one, the more attractive is the tax environment country *i* offers in year *t*. Panel A reports mean value differences for the *Tax Attractiveness Index* between countries that appear on the OECD list published in 2000 and those who do not. Panel B presents mean value differences for the *Tax Attractiveness Index* between countries that appear on the OECD list published in 2009 and those who do not. Values of the column are always subtracted from row values. Above the diagonal, we provide p-values resulting from t-tests in parentheses. Below the diagonal, p-values resulting from Wilcoxon rank-sum tests are reported in parentheses. Since the index shows little within-country variation over time, we apply mean values per country reducing the number of observations to 100, respectively.

Panel A: OECD List 2000 vs. Non-OECD List 2000		
	OECD List 2000 (N=36; Mean=0.5580)	Non-OECD List 2000 (N=64; Mean=0.4042)
OECD List 2000 (N=36; Mean=0.5580)		0.1537 (0.0000)
Non-OECD List 2000 (N=64; Mean=0.4042)	-0.1537 (0.0000)	
Panel B: OECD List 2009 vs. Non-OECD List 2009		
	OECD List 2009 (N=19; Mean=0.6072)	Non-OECD List 2009 (N=81; Mean=0.4250)
OECD List 2009 (N=19; Mean=0.6072)		0.1822 (0.0000)
Non-OECD List 2009 (N=81; Mean=0.4250)	-0.1822 (0.0000)	

Table 5
Tax Attractiveness Index and OECD Listing – Mean Value Differences

Table 5 reports differences in the *Tax Attractiveness Index* between sample countries grouped according to their appearance on the OECD lists published in 2000 and 2009. We differentiate between countries that appear only on the 2009 list (*New on 2009 List*), countries that are never listed (*Never Listed*), countries that appear on both lists (*Listed in 2000 & 2009*), and those that only appear on the 2000 list (*Delisted in 2009*). The *Tax Attractiveness Index* is an equally-weighted sum of 16 different tax factors determining a country's tax attractiveness. For a detailed description of the index construction see Table 1. The *Tax Attractiveness Index* is measured on annual basis and it is constructed for a sample of 100 countries over years 2005 to 2009. The index is restricted to values between zero and one. The closer the *Tax Attractiveness Index* is to one, the more attractive is the tax environment country *i* offers in year *t*. Values of the column are always subtracted from row values. Above the diagonal, we provide p-values resulting from t-tests in parentheses. Below the diagonal, p-values resulting from Wilcoxon rank-sum tests are reported in parentheses. Since the index shows little within-country variation over time, we use mean values per country reducing the number of observations to 100.

	New on 2009 List (N=7; Mean=0.4848)	Never Listed (N=57; Mean=0.3944)	Listed in 2000 & 2009 (N=12; Mean=0.6786)	Delisted in 2009 (N=24; Mean=0.4977)
New on 2009 List		0.0904	-0.1938	-0.0129
(N=7; Mean=0.4848)		(0.0649)	(0.0085)	(0.8461)
Never Listed	-0.0904		-0.2842	-0.1033
(N=57; Mean=0.3944)	(0.1294)		(0.0000)	(0.0010)
Listed in 2000 & 2009	0.1938	0.2842		0.1809
(N=12; Mean=0.6786)	(0.0179)	(0.0000)		(0.0007)
Delisted in 2009	0.0129	0.1033	-0.1809	
(N=24; Mean=0.4977)	(0.7768)	(0.0012)	(0.0010)	

Table 6
Tax Attractiveness Index and Statutory Tax Rate – Regression Outputs

This table reports results from OLS regressions for the relation between the *Tax Attractiveness Index* and the statutory tax rate. The dependent variable is the *Tax Attractiveness Index*, defined as an equally-weighted sum of 15 different tax factors determining a country's tax attractiveness. For the purpose of this analysis, we exclude the statutory tax rate from the index. The *Tax Attractiveness Index* is measured on annual basis and it is constructed for a sample of 100 countries over years 2005 to 2009. The index is restricted to values between zero and one. The closer the *Tax Attractiveness Index* is to one, the more attractive is the tax environment country *i* offers in year *t*. The independent variable is the statutory tax rate country *i* imposes in year *t*. Since both variables show little within-country variation over time, we use mean values per country over years 2005 to 2009 for the *Tax Attractiveness Index* as well as the statutory tax rate. Panel A reports regression outputs for the full sample. Panel B presents regression outputs for EU versus non-EU countries. EU countries are defined as those who belong to the EU in the year 2009. Panel C reports regression results for OECD versus non-OECD countries. Standard errors (shown in parentheses) allow for heteroskedasticity. ***, **, * indicate statistical significance at 1%, 5%, and 10% level, respectively.

Panel A: Full Sample				
	STR	Constant	Observations	R-squared
Full Sample	-0.8310***	0.6689***	100	0.2534
	(0.1356)	(0.0340)		
Full Sample (STR > 15%)	-0.5513**	0.5897***	86	0.0592
	(0.2215)	(0.0599)		
Panel B: EU vs. Non-EU Countries				
	STR	Constant	Observations	R-squared
EU	0.2616	0.4768***	28	0.0285
	(0.3401)	(0.0881)		
EU (STR > 15%)	0.6691**	0.3612***	25	0.1425
	(0.3149)	(0.0775)		
Non-EU	-1.0367***	0.6914***	72	0.4320
	(0.1285)	(0.0341)		
Non-EU (STR > 15%)	-0.8306***	0.6333***	61	0.1446
	(0.2573)	(0.0751)		
Panel C: OECD vs. Non-OECD Countries				
	STR	Constant	Observations	R-squared
OECD	-0.6614**	0.6643***	30	0.0871
	(0.3043)	(0.0831)		
OECD (STR > 15%)	-0.5287	0.6238***	29	0.0478
	(0.3491)	(0.0971)		
Non-OECD	-0.9364***	0.6753***	70	0.3559
	(0.1531)	(0.0366)		
Non-OECD (STR > 15%)	-0.6137**	0.5861***	57	0.0820
	(0.2908)	(0.0778)		

Appendix
Table A.I
Tax Factors per Country

This table reports mean values per sample country over years 2005 to 2009 for each of the 16 tax factors that form the *Tax Attractiveness Index*. Each tax factor is measured on annual basis and collected for a sample of 100 countries. All tax factors are restricted to values between zero and one. In all cases, a value of one indicates the optimum, that is, the most attractive characteristic of a tax factor. For a detailed description of the respective measurement see Table 1. *STR* is the statutory tax rate. *DIV* represents taxation of dividends and *CG* taxation of capital gains. *WHTD*, *WHTI*, and *WHTR* indicate withholding taxes on dividends, interest, and royalties, respectively. *EU* indicates whether a country is member of the European Union. *LCB* and *LCF* denote loss carry back and loss carry forward opportunities. *GROUP* represents the possibility to file a consolidated tax return. *DTT* represents the double tax treaties concluded. *THIN* indicates thin capitalization rules and *CFC* indicates controlled foreign corporation rules. *AAL* represents anti avoidance legislation. *PIT* denotes the personal income tax rate. *HOLD* indicates the existence of a special holding regime.

Country (Code)	STR	DIV	CG	WHTD	WHTI	WHTR	EU	LCB
Algeria (DZA)	0.3399	0.0000	0.0000	0.5714	0.7384	0.3418	0.0000	0.0000
Angola (AGO)	0.1443	0.0000	0.0000	0.7143	0.6076	0.7258	0.0000	0.0000
Argentina (ARG)	0.1443	0.0000	0.0000	0.0000	0.0844	0.1361	0.0000	0.0000
Australia (AUS)	0.2665	1.0000	1.0000	0.1429	0.7384	0.1773	0.0000	0.0000
Austria (AUT)	0.3888	1.0000	1.0000	0.2857	1.0000	0.4515	1.0000	0.0000
Bahamas (BHS)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000
Bahrain (BHR)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000
Bangladesh (BGD)	0.0347	0.0000	0.0000	0.5429	0.6000	0.7258	0.0000	0.0000
Belarus (BLR)	0.4132	0.0000	0.0000	0.5714	0.7362	0.5806	0.0000	0.0000
Belgium (BEL)	0.1690	0.9500	1.0000	0.2857	0.6076	0.5886	1.0000	0.0000
Bermuda (BMU)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000
Bolivia (BOL)	0.3888	1.0000	1.0000	0.6429	0.6730	0.6572	0.0000	0.0000
Botswana (BWA)	0.3888	0.0000	0.0000	0.5714	0.6076	0.5886	0.0000	0.0000
Brazil (BRA)	0.1687	0.0000	0.0000	1.0000	0.6076	0.5886	0.0000	0.0000
British Virgin Islands (VGB)	0.9267	0.8000	1.0000	1.0000	1.0000	0.9241	0.0000	0.8000
Bulgaria (BGR)	0.7066	0.6000	0.0000	0.8229	0.6878	0.6752	0.6000	0.0000
Canada (CAN)	0.1453	1.0000	0.5000	0.2857	0.3460	0.3144	0.0000	1.0000
Cayman Islands (CYM)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000
Chile (CHL)	0.5844	0.0000	0.0000	0.0000	0.0844	0.1773	0.0000	1.0000
China (CHN)	0.2714	0.0000	0.0000	0.7143	0.7384	0.7258	0.0000	0.0000

Country (Code)	LCF	GROUP	DTT	THIN	CFC	AAL	PIT	HOLD
Algeria (DZA)	0.0000	0.5000	0.1657	1.0000	1.0000	0.5000	0.3220	0.0000
Angola (AGO)	0.0000	0.0000	0.0000	1.0000	1.0000	0.5000	0.7458	0.0000
Argentina (ARG)	0.0000	0.0000	0.1522	0.0000	0.0000	0.5000	0.4068	0.0000
Australia (AUS)	1.0000	0.5000	0.3538	0.0000	0.0000	0.0000	0.1983	0.0000
Austria (AUT)	1.0000	1.0000	0.6061	0.5000	1.0000	0.5000	0.1525	0.0000
Bahamas (BHS)	1.0000	0.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Bahrain (BHR)	1.0000	0.0000	0.0866	1.0000	1.0000	1.0000	1.0000	0.0000
Bangladesh (BGD)	0.5000	0.0000	0.2000	1.0000	1.0000	0.5000	0.5763	0.0000
Belarus (BLR)	0.0000	0.0000	0.4252	1.0000	1.0000	0.5000	0.7966	0.0000
Belgium (BEL)	1.0000	0.0000	0.7333	1.0000	1.0000	0.5000	0.0949	1.0000
Bermuda (BMU)	1.0000	0.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Bolivia (BOL)	1.0000	0.0000	0.0770	0.5000	1.0000	0.5000	0.7797	0.0000
Botswana (BWA)	0.0000	0.0000	0.0682	1.0000	1.0000	1.0000	0.5763	0.0000
Brazil (BRA)	1.0000	0.0000	0.2254	1.0000	0.0000	0.0000	0.5339	0.0000
British Virgin Islands (VGB)	1.0000	0.0000	0.0000	1.0000	1.0000	1.0000	0.9322	1.0000
Bulgaria (BGR)	0.0000	0.0000	0.5158	0.0000	1.0000	0.5000	0.6881	0.0000
Canada (CAN)	0.5000	0.0000	0.7300	0.0000	0.0000	0.0000	0.2135	0.0000
Cayman Islands (CYM)	1.0000	0.0000	0.0000	1.0000	1.0000	0.5000	1.0000	1.0000
Chile (CHL)	1.0000	0.0000	0.1277	0.0000	1.0000	0.0000	0.3220	1.0000
China (CHN)	0.0000	0.0000	0.7282	0.6000	0.6000	0.5000	0.2373	0.0000

Country (Code)	STR	DIV	CG	WHTD	WHTI	WHTR	EU	LCB
Colombia (COL)	0.1687	0.0000	0.0000	0.9200	0.0647	0.0230	0.0000	0.0000
Costa Rica (CRI)	0.2665	1.0000	1.0000	0.5714	0.6076	0.3144	0.0000	0.0000
Croatia (HRV)	0.5110	1.0000	0.0000	1.0000	0.6076	0.5886	0.0000	0.0000
Cyprus (CYP)	0.7555	1.0000	1.0000	1.0000	1.0000	0.7258	1.0000	0.0000
Czech Republic (CZE)	0.4378	1.0000	0.4000	0.5714	0.6076	0.4303	1.0000	0.0000
Denmark (DNK)	0.3448	1.0000	1.0000	0.2000	0.8483	0.2067	1.0000	0.0000
Dominican Republic (DOM)	0.3692	1.0000	1.0000	0.2629	0.4495	0.2915	0.0000	0.0000
Ecuador (ECU)	0.3888	0.4000	0.4000	1.0000	0.7417	0.3144	0.0000	0.0000
Egypt (EGY)	0.4132	0.0000	0.0000	1.0000	0.4161	0.3908	0.0000	0.0000
El Salvador (SLV)	0.3888	1.0000	1.0000	1.0000	0.5273	0.4515	0.0000	0.0000
Estonia (EST)	0.4572	0.8000	0.0000	1.0000	1.0000	0.6180	1.0000	1.0000
Finland (FIN)	0.3643	1.0000	1.0000	0.2000	1.0000	0.2321	1.0000	0.0000
France (FRA)	0.1557	0.9500	0.8080	0.2857	0.5608	0.0859	1.0000	1.0000
Germany (DEU)	0.1412	0.9500	0.9500	0.3971	1.0000	0.4825	1.0000	1.0000
Great Britain (GBR)	0.2861	0.0000	1.0000	1.0000	0.4768	0.4198	1.0000	1.0000
Greece (GRC)	0.3350	0.0000	0.0000	0.9429	0.2752	0.4515	1.0000	0.0000
Guatemala (GTM)	0.2421	1.0000	1.0000	1.0000	0.7384	0.1498	0.0000	0.0000
Guernsey (GGY)	0.7065	0.4000	1.0000	0.6571	0.6834	0.6834	0.0000	0.0000
Hong Kong (HKG)	0.5772	1.0000	1.0000	1.0000	1.0000	0.8578	0.0000	0.0000
Hungary (HUN)	0.5019	1.0000	0.6000	0.8857	1.0000	1.0000	1.0000	0.0000
Iceland (ISL)	0.5892	1.0000	0.4000	0.6000	1.0000	0.5411	0.0000	0.0000
India (IND)	0.1579	0.0000	0.0000	1.0000	0.4768	0.4515	0.0000	0.0000
Indonesia (IDN)	0.2766	0.0000	0.0000	0.4286	0.4768	0.4515	0.0000	0.0000
Ireland (IRL)	0.6944	0.0000	1.0000	0.4286	0.4768	0.4515	1.0000	1.0000
Israel (ISR)	0.2813	0.0000	0.0000	0.2857	0.3460	0.3144	0.0000	0.0000
Italy (ITA)	0.1464	0.9500	0.9300	0.2286	0.3670	0.3829	1.0000	0.0000
Japan (JPN)	0.0004	0.0000	0.0000	0.4286	0.4768	0.4515	0.0000	1.0000

Country (Code)	LCF	GROUP	DTT	THIN	CFC	AAL	PIT	HOLD
Colombia (COL)	0.8000	0.0000	0.0308	1.0000	1.0000	0.5000	0.4000	0.0000
Costa Rica (CRI)	0.0000	0.0000	0.0000	1.0000	1.0000	0.5000	0.7458	0.0000
Croatia (HRV)	0.0000	0.0000	0.3705	0.0000	1.0000	0.5000	0.2373	0.0000
Cyprus (CYP)	1.0000	0.5000	0.3641	1.0000	1.0000	0.5000	0.4915	0.0000
Czech Republic (CZE)	0.0000	0.0000	0.6187	0.0000	0.0000	0.5000	0.5729	0.0000
Denmark (DNK)	1.0000	1.0000	0.6360	0.0000	0.0000	0.5000	0.0000	0.0000
Dominican Republic (DOM)	0.0000	0.0000	0.0086	1.0000	1.0000	0.5000	0.5763	0.0000
Ecuador (ECU)	0.0000	0.0000	0.1144	0.6000	1.0000	0.5000	0.5085	0.0000
Egypt (EGY)	0.0000	0.0000	0.4407	0.0000	0.8000	0.5000	0.6136	0.0000
El Salvador (SLV)	0.0000	0.0000	0.0000	1.0000	1.0000	0.5000	0.5763	0.0000
Estonia (EST)	1.0000	0.0000	0.3056	1.0000	1.0000	0.0000	0.6237	0.0000
Finland (FIN)	0.5000	0.5000	0.5708	1.0000	0.0000	0.5000	0.1447	0.0000
France (FRA)	1.0000	1.0000	1.0000	0.0000	0.0000	0.5000	0.1665	0.0000
Germany (DEU)	1.0000	0.5000	0.7541	0.0000	0.0000	0.0000	0.2167	0.0000
Great Britain (GBR)	1.0000	0.5000	0.9557	0.5000	0.0000	0.0000	0.3220	1.0000
Greece (GRC)	0.0000	0.0000	0.3637	1.0000	1.0000	0.5000	0.3220	0.0000
Guatemala (GTM)	0.0000	0.0000	0.0000	1.0000	1.0000	1.0000	0.4746	0.0000
Guernsey (GGY)	1.0000	0.2000	0.0171	1.0000	1.0000	0.5000	0.6610	1.0000
Hong Kong (HKG)	1.0000	0.0000	0.0221	0.0000	1.0000	0.0000	0.7356	0.0000
Hungary (HUN)	1.0000	0.0000	0.5366	0.0000	0.0000	0.5000	0.3424	0.0000
Iceland (ISL)	0.5000	0.5000	0.2527	1.0000	1.0000	0.5000	0.2956	0.0000
India (IND)	0.5000	0.0000	0.6114	1.0000	1.0000	0.5000	0.4915	0.0000
Indonesia (IDN)	0.0000	0.0000	0.4718	0.5000	0.0000	0.5000	0.4237	0.0000
Ireland (IRL)	1.0000	0.5000	0.3812	1.0000	1.0000	0.5000	0.2780	1.0000
Israel (ISR)	1.0000	0.0000	0.3568	1.0000	0.0000	0.5000	0.1898	0.8000
Italy (ITA)	0.0000	1.0000	0.6717	0.0000	0.0000	0.0000	0.2517	0.0000
Japan (JPN)	0.5000	0.5000	0.3863	0.0000	0.0000	0.5000	0.1525	0.0000

Country (Code)	STR	DIV	CG	WHTD	WHTI	WHTR	EU	LCB
Jersey (JEY)	0.6120	0.8000	1.0000	1.0000	1.0000	1.0000	0.0000	0.8000
Kazakhstan (KAZ)	0.3170	0.0000	0.0000	0.5714	0.6076	0.4809	0.0000	0.0000
Kenya (KEN)	0.2665	1.0000	1.0000	0.7143	0.6076	0.4515	0.0000	0.0000
Korea (South) (KOR)	0.3443	0.0000	0.0000	0.3429	0.4007	0.3307	0.0000	0.0000
Latvia (LVA)	0.6333	1.0000	0.0000	0.7143	0.7384	0.5886	1.0000	0.0000
Lebanon (LBN)	0.6333	0.0000	0.0000	0.7143	0.7384	0.7943	0.0000	0.0000
Liechtenstein (LIE)	0.5110	0.9500	0.0000	0.8857	0.8954	1.0000	0.0000	0.0000
Lithuania (LTU)	0.6080	1.0000	0.6000	0.5429	0.7384	0.7258	1.0000	0.0000
Luxembourg (LUX)	0.2771	1.0000	1.0000	0.5143	1.0000	1.0000	1.0000	0.0000
Macedonia (MKD)	0.6968	0.0000	0.0000	0.7314	0.7890	0.7396	0.0000	0.2000
Malaysia (MYS)	0.3449	1.0000	1.0000	1.0000	0.6076	0.7258	0.0000	0.0000
Malta (MLT)	0.1443	0.6000	0.6000	1.0000	1.0000	1.0000	1.0000	0.0000
Mauritius (MUS)	0.4987	0.0000	1.0000	1.0000	0.6614	0.6752	0.0000	0.0000
Mexico (MEX)	0.3008	0.0000	0.0000	1.0000	0.7384	0.3144	0.0000	0.0000
Montenegro (MNE)	0.7800	0.8000	0.0000	0.6057	0.8692	0.6239	0.0000	0.0000
Morocco (MAR)	0.1932	0.4000	0.0000	0.7143	0.5801	0.4515	0.0000	0.0000
Namibia (NAM)	0.1443	1.0000	1.0000	0.7143	1.0000	0.7120	0.0000	0.0000
Netherlands (NLD)	0.3272	1.0000	1.0000	0.4571	1.0000	1.0000	1.0000	1.0000
Netherlands Antilles (ANT)	0.1565	0.9600	0.9600	1.0000	1.0000	1.0000	0.0000	0.0000
New Zealand (NZL)	0.2225	1.0000	1.0000	0.1429	0.6076	0.5886	0.0000	0.0000
Nicaragua (NIC)	0.2665	1.0000	1.0000	1.0000	0.4114	0.4241	0.0000	0.0000
Nigeria (NGA)	0.2665	0.0000	1.0000	0.7143	0.7384	0.7258	0.0000	0.0000
Norway (NOR)	0.3154	0.9940	0.9940	0.2857	1.0000	1.0000	0.0000	0.4000
Pakistan (PAK)	0.1443	0.0000	0.0000	0.7143	0.4218	0.5886	0.0000	0.0000
Panama (PAN)	0.2665	1.0000	1.0000	0.7143	0.6531	0.5128	0.0000	0.0000
Paraguay (PRY)	0.7066	1.0000	1.0000	0.6000	0.5949	0.5760	0.0000	0.0000
Peru (PER)	0.2665	0.0000	0.0000	0.8829	0.2152	0.1773	0.0000	0.0000

Country (Code)	LCF	GROUP	DTT	THIN	CFC	AAL	PIT	HOLD
Jersey (JEY)	1.0000	0.1000	0.0171	1.0000	1.0000	0.5000	0.6610	1.0000
Kazakhstan (KAZ)	0.1000	0.0000	0.3127	1.0000	1.0000	0.5000	0.7627	0.0000
Kenya (KEN)	1.0000	0.0000	0.0684	0.0000	1.0000	0.5000	0.4915	0.0000
Korea (South) (KOR)	0.1000	0.0000	0.5416	0.0000	0.0000	0.0000	0.3475	0.0000
Latvia (LVA)	0.2000	0.5000	0.3532	0.0000	1.0000	1.0000	0.5831	0.0000
Lebanon (LBN)	0.0000	0.0000	0.2247	1.0000	1.0000	0.5000	0.6610	1.0000
Liechtenstein (LIE)	0.0000	0.0000	0.0086	1.0000	1.0000	0.5000	0.7062	1.0000
Lithuania (LTU)	0.4000	0.0000	0.3655	0.0000	0.0000	0.0000	0.5525	0.0000
Luxembourg (LUX)	1.0000	0.5000	0.4186	1.0000	1.0000	0.5000	0.3398	1.0000
Macedonia (MKD)	0.2000	0.4000	0.2832	0.8000	1.0000	1.0000	0.6407	0.0000
Malaysia (MYS)	1.0000	0.4000	0.5104	0.9000	1.0000	1.0000	0.5288	1.0000
Malta (MLT)	1.0000	0.5000	0.3707	1.0000	1.0000	0.0000	0.4068	1.0000
Mauritius (MUS)	0.4000	0.0000	0.2787	1.0000	1.0000	0.5000	0.6186	1.0000
Mexico (MEX)	0.5000	0.5000	0.2697	0.0000	0.0000	0.5000	0.5153	0.0000
Montenegro (MNE)	0.0000	0.5000	0.2682	0.6000	1.0000	1.0000	0.7525	0.0000
Morocco (MAR)	0.0000	0.0000	0.2699	1.0000	1.0000	1.0000	0.3288	1.0000
Namibia (NAM)	1.0000	0.0000	0.0836	0.5000	1.0000	0.5000	0.3932	0.0000
Netherlands (NLD)	0.7000	0.5000	0.7179	0.0000	1.0000	0.5000	0.1186	1.0000
Netherlands Antilles (ANT)	0.5000	0.5000	0.0257	1.0000	1.0000	1.0000	0.1346	1.0000
New Zealand (NZL)	1.0000	0.5000	0.2715	0.0000	0.0000	0.0000	0.3424	0.0000
Nicaragua (NIC)	0.0000	0.0000	0.0000	1.0000	1.0000	1.0000	0.4915	0.0000
Nigeria (NGA)	0.4000	0.0000	0.0751	1.0000	1.0000	0.5000	0.5763	0.0000
Norway (NOR)	0.9000	0.5000	0.6890	1.0000	0.0000	0.5000	0.3102	0.0000
Pakistan (PAK)	0.5000	0.2000	0.4035	0.0000	1.0000	0.5000	0.5932	0.0000
Panama (PAN)	0.0000	0.0000	0.0000	1.0000	1.0000	1.0000	0.5424	0.0000
Paraguay (PRY)	0.0000	0.0000	0.0017	1.0000	1.0000	1.0000	0.8983	0.0000
Peru (PER)	0.0000	0.0000	0.0497	0.0000	1.0000	0.0000	0.4915	0.0000

Country (Code)	STR	DIV	CG	WHTD	WHTI	WHTR	EU	LCB
Philippines (PHL)	0.1842	0.0000	0.0000	0.0629	0.4768	0.0999	0.0000	0.0000
Poland (POL)	0.5355	0.6000	0.0000	0.4571	0.4768	0.4515	1.0000	0.0000
Portugal (PRT)	0.3643	1.0000	0.0000	0.4000	0.4768	0.5886	1.0000	0.0000
Puerto Rico (PRI)	0.0465	0.0000	0.0000	0.7143	0.2413	0.2047	0.0000	0.0000
Romania (ROU)	0.6088	0.6000	0.0000	0.5486	0.5865	0.5663	0.6000	0.0000
Russia (RUS)	0.4334	0.4000	0.0000	0.5714	0.4768	0.4515	0.0000	0.0000
Saudi Arabia (SAU)	0.4621	0.0000	0.0000	0.8571	0.8692	0.5886	0.0000	0.0000
Serbia (SRB)	0.7555	0.0000	0.0000	0.4286	0.4768	0.4515	0.0000	0.0000
Singapore (SGP)	0.5306	1.0000	1.0000	1.0000	0.6076	0.7258	0.0000	0.8000
Slovak Republic (SVK)	0.5355	1.0000	0.0000	1.0000	0.5029	0.4789	1.0000	0.0000
Slovenia (SVN)	0.4329	0.9800	0.5000	0.4571	0.5064	0.4875	1.0000	0.0000
South Africa (ZAF)	0.2911	1.0000	0.5000	1.0000	1.0000	0.6709	0.0000	0.0000
Spain (ESP)	0.2054	1.0000	1.0000	0.5200	0.5594	0.3317	1.0000	0.0000
Sweden (SWE)	0.3240	1.0000	1.0000	0.1429	1.0000	1.0000	1.0000	0.0000
Switzerland (CHE)	0.4804	0.9500	1.0000	0.0000	0.0844	1.0000	1.0000	0.0000
Taiwan (TWN)	0.3888	0.0000	0.0000	0.2857	0.4768	0.4515	0.0000	0.0000
Thailand (THA)	0.2665	0.6000	0.0000	0.7143	0.6076	0.5886	0.0000	0.0000
Tunisia (TUN)	0.2176	1.0000	0.0000	1.0000	0.4768	0.5886	0.0000	0.0000
Turkey (TUR)	0.4132	1.0000	0.6000	0.6286	0.5924	0.4313	0.0000	0.0000
Ukraine (UKR)	0.3888	0.0000	0.0000	0.5714	0.6076	0.5886	0.0000	0.0000
United Arab Emirates (ARE)	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000
United States (USA)	0.0274	0.0000	0.0000	0.1429	0.2152	0.1773	0.0000	1.0000
Uruguay (URY)	0.3154	1.0000	1.0000	0.5371	0.8074	0.4889	0.0000	0.0000
Venezuela (VEN)	0.1687	0.0000	0.0000	0.0286	0.1105	0.0676	0.0000	0.0000
Vietnam (VNM)	0.3306	0.0000	0.0000	1.0000	0.7384	0.7258	0.0000	0.0000
Zimbabwe (ZWE)	0.2665	0.0000	0.0000	0.4286	0.7384	0.4515	0.0000	0.0000

Country (Code)	LCF	GROUP	DTT	THIN	CFC	AAL	PIT	HOLD
Philippines (PHL)	0.0000	0.0000	0.3026	0.5000	1.0000	0.5000	0.4576	0.0000
Poland (POL)	0.0000	0.5000	0.6562	0.0000	1.0000	0.5000	0.3492	0.0000
Portugal (PRT)	0.5000	0.5000	0.4066	0.5000	0.0000	0.0000	0.2949	1.0000
Puerto Rico (PRI)	0.5000	0.0000	0.0000	1.0000	1.0000	1.0000	0.4407	0.0000
Romania (ROU)	0.1000	0.0000	0.6650	0.0000	1.0000	0.5000	0.7288	0.0000
Russia (RUS)	0.5000	0.0000	0.5829	0.0000	1.0000	0.5000	0.7797	0.0000
Saudi Arabia (SAU)	1.0000	0.0000	0.0254	1.0000	1.0000	0.5000	1.0000	0.0000
Serbia (SRB)	0.5000	0.5000	0.2749	0.0000	1.0000	0.7000	0.7797	0.0000
Singapore (SGP)	1.0000	0.5000	0.4558	1.0000	1.0000	0.0000	0.6576	0.6000
Slovak Republic (SVK)	0.0000	0.0000	0.4751	1.0000	1.0000	1.0000	0.6780	0.0000
Slovenia (SVN)	0.7000	0.2000	0.3396	0.0000	1.0000	0.5000	0.2441	0.0000
South Africa (ZAF)	1.0000	0.5000	0.5074	0.0000	0.0000	0.5000	0.3220	0.0000
Spain (ESP)	0.5000	0.5000	0.5790	0.0000	0.0000	0.5000	0.2576	1.0000
Sweden (SWE)	1.0000	0.5000	0.6874	1.0000	0.0000	0.5000	0.0407	0.0000
Switzerland (CHE)	0.5000	0.0000	0.7367	1.0000	1.0000	0.5000	0.3186	1.0000
Taiwan (TWN)	0.0000	0.5000	0.1263	1.0000	1.0000	0.5000	0.3220	0.0000
Thailand (THA)	0.0000	0.0000	0.4305	1.0000	1.0000	0.5000	0.3729	0.0000
Tunisia (TUN)	0.0000	0.3000	0.3059	0.5000	1.0000	0.5000	0.4068	0.0000
Turkey (TUR)	0.0000	0.0000	0.5380	0.2000	0.4000	0.2000	0.3966	1.0000
Ukraine (UKR)	1.0000	0.0000	0.5195	1.0000	1.0000	0.7000	0.7593	0.0000
United Arab Emirates (ARE)	1.0000	0.0000	0.2914	1.0000	1.0000	1.0000	1.0000	0.0000
United States (USA)	0.5000	0.5000	0.5454	0.0000	0.0000	0.5000	0.2828	0.0000
Uruguay (URY)	0.0000	0.0000	0.0171	1.0000	1.0000	1.0000	0.7458	1.0000
Venezuela (VEN)	0.0000	0.0000	0.1827	0.6000	0.0000	0.5000	0.4237	0.0000
Vietnam (VNM)	0.0000	0.0000	0.3401	1.0000	1.0000	1.0000	0.3390	0.0000
Zimbabwe (ZWE)	0.5000	0.0000	0.1110	0.0000	1.0000	0.5000	0.2841	0.0000

Table A.II
Correlation between Components of the Tax Attractiveness Index

This table reports correlation coefficients for 16 tax factors that form the *Tax Attractiveness Index*. Each tax factor is measured on annual basis and collected for a sample of 100 countries over years 2005 to 2009. In all cases, a value of one indicates the optimum, that is, the most attractive characteristic of a tax factor. For a detailed description of the respective measurement see Table 1. *STR* is the statutory tax rate. *DIV* represents taxation of dividends and *CG* taxation of capital gains. *WHTD*, *WHTI*, and *WHTR* indicate withholding taxes on dividends, interest, and royalties, respectively. *EU* indicates whether a country is member of the European Union. *LCB* and *LCF* denote loss carry back and loss carry forward opportunities. *GROUP* represents the possibility to file a consolidated tax return. *DTT* represents the double tax treaties concluded. *THIN* indicates thin capitalization rules and *CFC* indicates controlled foreign corporation rules. *AAL* represents anti avoidance legislation. *PIT* denotes the personal income tax rate. *HOLD* indicates the existence of a special holding regime. *TAX* is the self-constructed *Tax Attractiveness Index*. Insignificant correlations ($p \geq 0.1$) are reported in italics.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(1) STR	1																
(2) DIV	0.25	1															
(3) CG	0.19	0.62	1														
(4) WHTD	0.30	*0.07*	*0.03*	1													
(5) WHTI	0.38	0.41	0.37	0.33	1												
(6) WHTR	0.47	0.31	0.29	0.40	0.61	1											
(7) EU	*0.01*	0.33	0.20	-0.20	0.11	*0.06*	1										
(8) LCB	0.28	0.11	0.24	*0.04*	0.14	0.18	*0.06*	1									
(9) LCF	0.16	0.23	0.45	*0.03*	0.35	0.31	0.19	0.43	1								
(10) GROUP	-0.11	0.21	0.22	-0.28	0.19	*-0.07*	0.43	0.10	0.25	1							
(11) DTT	-0.21	0.07	*-0.02*	-0.32	*-0.07*	*-0.07*	0.58	0.12	0.12	0.44	1						
(12) THIN	0.15	*-0.06*	0.14	0.29	0.20	0.31	-0.19	*-0.03*	*0.00*	-0.24	-0.38	1					
(13) CFC	0.32	*-0.04*	*-0.04*	0.41	0.10	0.27	-0.23	-0.09	-0.13	-0.34	-0.48	0.45	1				
(14) AAL	0.28	*0.05*	*0.03*	0.26	0.15	0.18	-0.23	*-0.07*	-0.20	-0.16	-0.33	0.39	0.43	1			
(15) PIT	0.60	*-0.02*	*-0.01*	0.45	0.19	0.32	-0.39	0.11	*-0.03*	-0.48	-0.51	0.29	0.46	0.33	1		
(16) HOLD	0.23	0.13	0.31	0.09	0.11	0.36	0.11	0.28	0.26	*0.01*	*-0.03*	0.26	0.13	*0.03*	*0.03*	1	
(17) TAX	0.56	0.58	0.66	0.38	0.64	0.68	0.30	0.43	0.53	0.17	*-0.02*	0.40	0.32	0.28	0.28	0.53	1

Table A.III
Tax Attractiveness Index – Regional Differences

This table shows differences in the *Tax Attractiveness Index* across geographical regions. The *Tax Attractiveness Index* is an equally-weighted sum of 16 different tax factors determining a country's tax attractiveness. For a detailed description of the index construction see Table 1. The *Tax Attractiveness Index* is measured on annual basis and it is constructed for a sample of 100 countries over years 2005 to 2009. The index is restricted to values between zero and one. The closer the *Tax Attractiveness Index* is to one, the more attractive is the tax environment country *i* offers in year *t*. The 100 sample countries are divided into five different geographical regions. Panel A reports summary statistics for the *Tax Attractiveness Index* per region. Panel B reports mean value differences of the *Tax Attractiveness Index* between regions. Values of the column are always subtracted from row values. Above the diagonal, we provide p-values resulting from t-tests in parentheses. Below the diagonal, p-values resulting from Wilcoxon rank-sum test are reported in parentheses. Since the index shows little within-country variation over time, we apply mean values per country reducing the number of observations to 100.

Panel A: Summary Statistics for Tax Attractiveness Index Across Regions

Region	N	Mean	Std. Dev.	Min.	Median	Max.
Africa & Middle East	18	0.4420	0.1371	0.2675	0.4354	0.7682
Americas	19	0.3858	0.1699	0.0890	0.3730	0.8125
Asia-Pacific	16	0.3700	0.1483	0.1505	0.3454	0.6886
Caribbean	6	0.6221	0.2111	0.3217	0.7069	0.8125
Europe	41	0.5127	0.1109	0.3533	0.5112	0.7219
Total	100	0.4596	0.1556	0.0890	0.4448	0.8125

Panel B: Mean Value Differences for Tax Attractiveness Index Across Regions

	Africa & Middle East	Americas	Asia-Pacific	Caribbean	Europe
Africa & Middle East		0.0562	0.0720	-0.1801	-0.0707
		(0.2777)	(0.1510)	(0.0235)	(0.0406)
Americas	-0.0562		0.0159	-0.2363	-0.1269
	(0.4846)		(0.7726)	(0.0100)	(0.0010)
Asia-Pacific	-0.0720	-0.0159		-0.2522	-0.1427
	(0.0533)	(0.7157)		(0.0048)	(0.0002)
Caribbean	0.1801	0.2363	0.2522		0.1094
	(0.0719)	(0.0330)	(0.0150)		(0.0531)
Europe	0.0707	0.1269	0.1427	-0.1094	
	(0.0178)	(0.0018)	(0.0002)	(0.1704)	