GEGAFRICA
GLOBAL ECONOMIC GOVERNANCE

DISCUSSION PAPER | OCTOBER 2016

ILLICIT FINANCIAL FLOWS

ESTIMATING TRADE MISPRICING AND TRADE-BASED MONEY LAUNDERING FOR FIVE AFRICAN COUNTRIES

Kathy Nicolaou-Manias & Yuchen Wu

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ABOUT GEGAFRICA

The Global Economic Governance (GEG) Africa programme is a policy research and stakeholder engagement programme aimed at strengthening the influence of African coalitions at global economic governance forums such as the G20, BRICS, World Trade Organization and World Bank, among others, in order to bring about pro-poor policy outcomes.

The second phase of the programme started in March 2016 and will be implemented over a period of three years until March 2019.

The programme is expected to help create an international system of global economic governance that works better for the poor in Africa through:

- undertaking substantial research into critical policy areas and helping South African policymakers to prepare policy papers for the South African government to present at global economic governance platforms;
- ensuring that African views are considered, knowledge is shared and a shared perspective is developed through systematic engagement with African governments, regional organisations, think tanks, academic institutions, business organisations and civil society forums; and
- disseminating and communicating research and policy briefs to a wider audience via mass media and digital channels in order to create an informed and active policy community on the continent.

For the next three years the work of the programme will be focused on three thematic areas: development finance for infrastructure; trade and regional integration; and tax and transparency.

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CONTENTS

ABSTRACT

This paper focuses on the commercial tax evasion component of illicit financial flows (IFFs), clarifying concepts often used interchangeably, namely transfer pricing, abusive transfer pricing, trade mispricing (or trade mis-invoicing), trade-based money laundering (TBML), tax evasion and tax avoidance. It also shows how they link to IFFs. It estimates the extent of trade mispricing by enhancing the model currently used by Global Financial Integrity, and by developing a TBML model as a means of quantifying IFFs between two developing countries. There are data challenges with this methodology, as it is an estimation of illegal or hidden activities, using the International Monetary Fund s Direction of Trade methodology. The research points to declining trade mispricing in South Africa and Zambia for the period 20132 015, and Nigeria for the period 20132 014. Morocco and Egypt exhibit increasing trade mispricing from 2013 to 2014. The TBML model, which addresses the criticism regarding flows between two developing countries, points to increasing financial outflows for all five countries. These flows mean less revenue is available to the fiscus to invest in socio-economic infrastructure and pro-poor growth strategies, which would benefit women and the poor. Policy recommendations address commercial tax evasion as well as proposals to remedy the data anomalies.

AUTHORS

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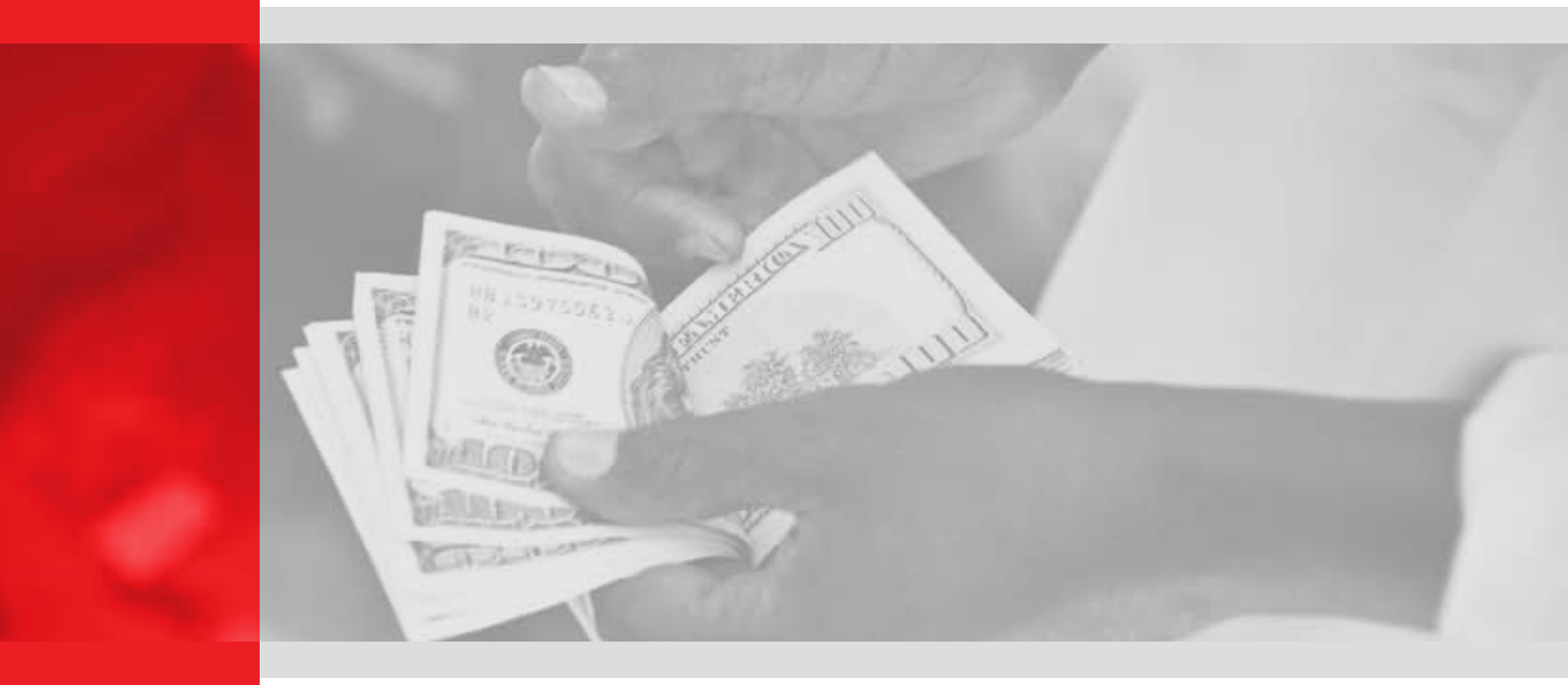


INTRODUCTION

> Every year the developing world loses staggering amounts of its wealth to corruption, tax evasion and money laundering, which could help to fill the shortfall for funding sustainable development[1]
>
> Transparency International, 2015

Illicit financial flows (IFFs) – or illicit money – are defined as 'money that is illegally earned, transferred, or utilised. Somewhere at its origin, movement, or use, the money broke laws and hence it is considered illicit.'[2] There is no consensus regarding this definition despite the fact that the concept of IFFs has gained increased recognition in the international development community in recent years and is seen as a rising and pervasive problem for developing and emerging market economies. IFFs are garnered through the proceeds of illicit trade, trade mispricing, transfer pricing and other forms of organised profit-motivated crime.

1 Transparency International, Curbing Illicit Financial Flows to Unlock a Sustainable Future , Working Paper, 1, 2015.

2 Kar D, Illicit financial flows from developing countries: The absurdity of traditional methods of estimation , GFI (Global Financial Integrity), blog, 16 August 2010, http://www.gfintegrity.org/illicit-financial-flows-from-developing-countries-the-absurdity-of-traditional-methods-of-estimation/, accessed 5 May 2015.

Dirty money promotes bribery and corruption, and finances insurgency and, in some cases, terrorist activities. IFFs represent a thread linking tax evasion, base erosion and profit shifting (BEPS), corruption, asset forfeiture, transnational crime, money laundering and terror financing with forgone socio-economic development, growth and stability. All these illegal economic activities destabilise and deter legitimate enterprise while negatively affecting foreign investment, economic development and socio-political stability. Thus, IFFs and related activities are often seen as developmental obstacles to the domestic and global economy, as well as to governance structures.

Reflecting their significance as a potential disabler of development efforts and credible institutions, the framework of Sustainable Development Goals (SDGs) includes IFFs as an element of target 16.4, which by 2030 aims to 'significantly reduce illicit financial and arms flows, strengthen recovery and return of stolen assets and combat all forms of organised crime'.[3] Goal 16 focuses on peace, justice and the strong institutions necessary to promote just, peaceful and inclusive societies.

The High-Level Panel on IFFs (HLP)[4] has estimated that Africa loses $50 billion a year in IFFs, adversely affecting the development of infrastructure and social sectors.[5] It stated that a large component of IFFs occurs through commercial tax evasion, including under- and over-invoicing, and other practices by multinational corporations (MNCs).

According to Global Financial Integrity's (GFI) 2015 report, emerging market economies lost $7.8 trillion in IFFs from 2004–2013. The report concluded that developing countries lost $991.2 billion in illicit financial outflows in 2012 alone, representing a year-on-year increase of 1.8%. Of the nearly $1 trillion in illicit flows reportedly leaving developing countries annually, over 83% is due to trade mispricing (or mis-invoicing).[6] This is significantly higher than the original 2010 finding reported in Kar and Cartwright-Smith, which estimated that commercial transactions (through commercial tax evasion) involving MNCs constitute approximately 60% of IFFs. Commercial tax evasion refers to abusive transfer pricing, trade mispricing and mis-invoicing; practices that are often used by MNCs and seemingly unrelated corporate entities to hide profits from authorities and transfer these across borders to lower tax destinations, including tax holiday or tax

3 UNDP (UN Development Programme), *Sustainable Development Goals: 2030 Agenda*, 2015.

4 In 2012, the UN Economic Commission for Africa (UNECA) inaugurated the 10-member HLP on IFFs from Africa, chaired by former South African president Thabo Mbeki, to look into the problem.

5 Tafirenyika M, Africa loses $50 billion every year: Interview with Ambassador Segun Apata , *Africa Renewal*, December 2013, http://www.un.org/africarenewal/magazine/december-2013/africa-loses-50-billion-every-year, accessed 15 June 2016.

6 Kar D & J Spanjers, Illicit Financial Flows from Developing Countries: 20042 013 , GFI (Global Financial Integrity), December 2015, http://www.gfintegrity.org/wp-content/uploads/c2015/12/IFF-Update_2015-Final.pdf, accessed 5 May 2016.

haven destinations. The 2010 report estimates that 35% of IFFs arise from criminal activities, with an additional 5% stemming from corruption and the theft of public funds.[7]

There is little consensus on how to accurately measure IFFs, since by definition they are a hidden activity. The lack of methodological consensus has fuelled debates on whether IFFs are as large a pandemic as some of the numbers point to, while others argue (although they are certainly a minority) that IFFs are negligible and not a matter of concern. It is necessary to remember that these methods aim to estimate hidden activities and therefore can never be accurate – even formally reported data have problems, as will be highlighted in the course of this paper. However, there is merit in using a consistent methodology to gauge the extent of a problem, using proxies, as this provides insight on whether there is a need for policy interventions in this area.

Why illicit flows and not illegal flows? IFFs as a concept emerged in the early 1990s, focusing more exclusively on capital flight as a form of illicit flows, which arguably undermine economic growth and development in developing and emerging market economies. Capital flight is not illegal but could be illicit (and possibly immoral). In recent years the concept of IFFs (and therefore the estimation method) has increasingly focused more on the illegal (and, to a lesser extent, illicit) elements of cross-border flows, stemming from commercial tax evasion; corruption; smuggling and trafficking of minerals, wildlife, drugs and people; and financial organised crime.[8] Despite the lack of consensus on the definition, the concept of IFFs is widely used and the World Bank recommends that it is necessary to focus 'on flows and activities that have a clear connection with illegality. Regardless of how IFFs are precisely defined, it's clear that the flows are an impediment to development. What's most important is to understand how and why money flows illicitly out of developing countries and to devise strategies to stem these flows.'[9]

This paper aims to provide an understanding of the commercial tax evasion component of IFFs, where transfer pricing, abusive transfer pricing and trade mispricing or mis-invoicing are often confused or used interchangeably. Moreover, it also measures the extent of trade mispricing and trade-based money laundering (TBML) in the five most affected African countries (as identified by the 2015 Kar and Spanjers GFI report),[10] providing insight into the methodological and data challenges associated with IFFs. Finally, the paper provides policy

7 Kar D & D Cartwright-Smith, *Illicit Financial Flows from Developing Countries: 20022 006*. Washington, DC: GFI, 2010.

8 There is an ongoing debate among experts on tax avoidance, and whether it should be included in the definition of IFFs. This paper argues that it should not, since it might be illicit but not illegal. Tax authorities spend a significant amount of time focusing assessing whether corporate tax avoidance is in fact abusive and tantamount to tax evasion. This is a time-consuming, case-by-case audit by tax authorities of company tax claims.

9 World Bank, Illicit Financial Flows , 14 April 2016, http://www.worldbank.org/en/topic/financialmarketintegrity/brief/illicit-financial-flows-iffs, accessed 15 June 2016.

10 Kar D & J Spanjers, *op. cit*.

recommendations to address the data challenges in curbing the commercial tax evasion component of IFFs, with a view to promoting pro-poor and pro-women socio-economic growth and development.[11]

This paper will inform African policymakers and policy practitioners about the IFF pandemic as it relates to trade mispricing and TBLM, allowing them to put processes in place to address the data anomalies and trade-mispricing challenges by strengthening co-operative governance and information-sharing between tax and customs authorities, central banks, ministries of finance and financial intelligence authorities.

COMMERCIAL TAX EVASION: SO MANY TERMS

The literature is riddled with so many terms that they create confusion. The most important ones in this context are transfer pricing, transfer mispricing, abusive transfer pricing, trade mispricing, trade mis-invoicing, tax evasion, tax avoidance, illicit trade and TBML. This section aims to clarify some of these concepts.

Economic policy has always advocated the importance of increasing foreign direct investment (FDI) as a method of promoting growth and development, while improving a country's standard of living by increasing the tax revenue streams generated from investors. A growing understanding of the resource curse, however, has resulted in a somewhat pessimistic view of foreign investment's ability to solve problems in developing countries. The Organization for Economic Cooperation and Development (OECD) has noted that there is no guarantee that FDI and international trade will translate into tax revenues for the countries attracting them.[12] Approximately 70% of global trade is conducted by MNCs and half of that amount is between the subsidiaries of a parent company.[13] This trade is called

11 It is important to note that curbing IFFs does not necessarily result in pro-poor and pro-gender growth and development in emerging/developing markets. Pro-poor and pro-gender growth depends entirely on the fiscal allocation processes in place in each country. However, this paper will make policy recommendations that are pro-poor and pro-gender.

12 OECD (Organization for Economic Cooperation and Development), *Foreign Direct Investment for Development: Maximising Benefits, Minimising Costs*, 2002, https://www.oecd.org/investment/investmentfordevelopment/1959815.pdf, accessed 12 June 2016.

13 Derived from Sikka P & H Willmott, The Dark Side of Transfer Pricing: Its Role in Tax Avoidance and Wealth Retentiveness , University of Essex, 2010, pp. 91 0, http://repository.essex.ac.uk/8098/1/WP2010-1%20-%20PSikka%20Transfer%20Pricing%20Paper.pdf, accessed 30 August 2016: The 200 top corporations accounted for 28% of the world economic activity. The top 500 transnational corporations controlled 70% of the worldwide trade, 80% of the foreign investments, 30% of the global GDP, one-third of all manufacturing exports, 75% of all commodities trade and 80% of the trade in management and technical services; just 20 controlled the coffee trade, 6 of them held 70% of wheat trade and just one controlled 98% of the production of packed tea; 80% of the entire production of world grain was distributed by just two companies (Cargill and Archer Daniel Midland); 97% of all patents are held by nationals of OECD countries [and] almost 90% of these are held by global corporations.

intra-firm trade and the intra-firm transaction prices are referred to as transfer prices, which affect the allocation of profits between the buyer and seller firm:[14]

> Transfer pricing is not, in itself, illegal nor necessarily abusive. What is illegal or abusive is transfer mispricing, also known as transfer pricing manipulation or abusive transfer pricing. (Transfer mispricing is a form of a more general phenomenon known as trade mispricing, which includes trade between unrelated or apparently unrelated parties – an example is re-invoicing.)

Historically, intra-company transactions were not subject to the same oversight rules and requirements as transactions between unrelated parties operating in the free market. There is mounting evidence, however, that tax differences across countries provide MNCs with an arbitrage opportunity to minimise tax liabilities.[15] Transfer pricing is believed to be the most significant profit-shifting technique used by multinationals.[16] An example of this is having an affiliate in a low-tax jurisdiction charge an unjustifiably high transfer price for a good or service to its affiliate in a higher tax location. Thus, over- and under-invoicing[17]

> enables corporations to minimize tax payments by enabling capital to be exported to more favourable locations … Given the importance of transfer pricing in relocating corporate profits, facilitating tax avoidance and the flight of capital, and its implications for the distribution of wealth and public goods … the Head of the US Inland Revenue Service (IRS) has described transfer pricing as 'one of [the] most significant challenges.

And,

> Transfer pricing may be playing an important role in aggregate national accounting, potentially reducing the reported value of exports and the current account (and thus GDP [gross domestic product]). The response of the price wedge to tax rates indicates that tax minimization may be an important part of transfer pricing decisions with consequences for the level of corporate tax revenue and strategic responses to changes in the tax code.[18]

Tax authorities frown upon such behaviour as it deviates from a notional arm's-length price, which is the price that would ordinarily be charged by two unrelated

14 Tax Justice Network, Transfer pricing , http://www.taxjustice.net/topics/corporate-tax/transfer-pricing/, accessed 3 June 2016.

15 De Mooij R & V Perry, Taking a bite out of Apple? Fixing international corporate taxation , VoxEU.org, 14 September 2014, http://voxeu.org/article/fixing-international-corporate-taxation, accessed 3 June 2016.

16 OECD, *Dealing Effectively with the Challenges of Transfer Pricing*, 2012, http://www.oecd.org/site/ctpfta/49428070.pdf, accessed 16 September 2014.

17 Sikka P & H Willmott, *op. cit.*, p. 4.

18 Bernard AB, Jensen JB & PK Schott, Transfer Pricing by US-based Multinational Firms , Tuck School of Business at Dartmouth Working Paper, 2006, pp. 192 0, http://mba.tuck.dartmouth.edu/pages/faculty/andrew.bernard/tp.pdf, accessed 30 August 2016, quoted in Sikka P & H Willmott, *op. cit*.

parties. Profit shifting, by over- and under-invoicing, is therefore made possible within MNCs by their capitalising on the tax arbitrage regulatory opportunities, especially if they operate global value chains (GVCs). It is relatively difficult to price and value transactions between related entities within a group and apply the arm's-length principle for varying reasons, namely:

- transactions not always being 'true' market transactions;
- intellectual property and royalties;
- highly specialised skills, including management services;
- product with varying degrees of quality (for example, the grades of different mineral ores vary significantly) or is unique and not standardised;
- product/service part of a GVC;
- financing debt or equity within the group and across borders; and
- the organisational form (owning the affiliate or engaging in a joint venture).

BOX 1 THE ARM S-LENGTH PRINCIPLE FOR TRANSFER PRICING TRANSACTIONS

The 'arm's-length' principle is the conventional standard applied to transfer pricing transactions between two related entities, which posits that a transfer price should be the same price as if the two companies were unrelated parties negotiating in a normal market. This principle has been endorsed by the OECD and the UN Tax Committee, and is therefore widely used as the basis for bilateral treaties between governments. Practically, the arm's-length principle is very hard to implement, even with the best intentions. For example, two related parties are trading a tiny component for an aircraft engine. This product is unique and only made for that engine, hence there is only one supplier of the product. In this instance there are no market comparisons and the 'arm's-length' price cannot easily be ascertained. This is exacerbated in instances where the following need to be priced: a company's brand; patents; trademarks; and other proprietary information or intellectual property.

While this is a complex area, it also creates opportunities for 'all kinds of artificial arrangements that have been put in place for the essential purpose of circumventing the law or its spirit, including certain legal "tax-optimization" schemes, making

use of legal loopholes that allow, for example, transnational corporations to shift around profits to zero or low corporate tax jurisdictions'.[19]

As Davies *et al*. state:[20]

> Such behaviour need not be illegal; indeed, transfer pricing regulations are typically vague enough for the multinational to make a strong case for a wide range of arm's length prices which should be used to judge whether or not its transfer pricing is abusive. Either way, however, the end result remains the same – profits are shifted towards low-tax locations.

If the intention is to evade tax, then the practice is deemed to be illegal as per the tax code of the country's revenue authority. 'Tax evasion is an illegal practice where a person, organization or corporation intentionally avoids paying his true tax liability. Those caught evading taxes are generally subject to criminal charges and substantial penalties. To wilfully fail to pay taxes is a federal offense.'[21] Tax avoidance, on the other hand, uses legal methods to modify the financial situation of an individual or entity to reduce the tax liability, generally achieved by claiming the permissible deductions and credits. This practice differs from tax evasion, which uses illegal methods such as under-reporting income to evade paying taxes.[22] Thus tax evasion requires the use of illegal methods to avoid paying proper taxes, while tax avoidance uses legal mechanisms to lower the tax liability.

The commercial tax evasion component of IFFs comprises the fraudulent mispricing of goods (and services) traded between independent parties; illegal transfer pricing within an MNC; or fictitious transactions. While these activities are all forms of transfer mispricing, their natures differ and it is consequently best to divide them into different subcategories, since the corrective policy recommendations will be different.

Abusive transfer pricing

Governments set rules to determine the manner in which transfer pricing should take place between related MNC entities (or their GVC partners). It is only when the practice of mispricing becomes abusive that it is tantamount to tax evasion. Abusive transfer pricing (or transfer mispricing) utilises legitimate accounting

19 UN General Assembly, Human Rights Council, Illicit financial flows, human rights and the post-2015 development agenda , A/HRC/20/60, 10 February 2015, http://www.ohchr.org/EN/HRBodies/HRC/RegularSessions/Session28/Documents/A_HRC_28_60_en.doc, accessed 15 June 2016.

20 Davies R *et al.*, Knocking on tax haven s door: Multinational firms and transfer pricing , Vox, 5 January 2015, http://voxeu.org/article/multinational-firms-and-transfer-pricing-new-evidence, accessed 15 June 2016.

21 Investopedia, Tax evasion , http://www.investopedia.com/terms/t/taxevasion.asp, accessed 9 June 2016.

22 Investopedia, Tax avoidance , http://www.investopedia.com/terms/t/tax_avoidance.asp, accessed 9 June 2016.

mechanisms to facilitate the transfer of revenues, profits or investment returns to lower tax destinations, which might be secrecy or tax haven locations, through complex smurfing[23] arrangements between subsidiaries and their holding companies using artificial or fictitious prices for goods and services.

FIGURE 1 STRATEGIC/ABUSIVE TRANSFER PRICING

Source: Gałuszka J, 'Transfer pricing as a problem of multinational corporation', University of Economics in Katowice, 2013, http://cejsh.icm.edu.pl/cejsh/search/page.action?token=37fb7c98-eb92-40b7-9c68-b5ded49ac341, accessed 15 June 2016

23 Structuring or smurfing is a money-laundering term and can be defined as a pattern of financial transaction activity in which a single transaction is broken down into multiple/sequential transactions below the threshold that would require mandatory reporting and/or the application of a Money Services Business s client identity and record-keeping obligations. As a more general (and more obvious) technique, some conductors simply ask that transactions not be recorded. (See glossary for a more detailed definition of smurf .) To prevent money laundering by criminals involved in illegal activities, such as drugs and extortion, countries such as the US and Canada require that a currency transaction report be filed by a financial institution handling a transaction exceeding $10,000 in cash. Corporate entities can apply the same concept regarding the movement of illicitly earned proceeds from tax evasion by creating smaller entities to move the monies. Linked to smurfing is layering. There are three stages of money laundering: (1) The placement stage is where the criminal is relieved of guarding large amounts of illegally obtained cash by placing it into the financial system. For example, a smurf may pack cash in a suitcase and smuggle it to another country for gambling, buying international currency or other reasons. (2) In the layering stage, illicit money is separated from its source by the sophisticated layering of financial transactions that obscures the audit trail and breaks the link with the original crime. For example, the smurfs move funds electronically from one country to another, and then divide the money into investments placed in advanced financial options or overseas markets. (3) The integration stage is where the money is returned to the criminal from what appear to be legitimate sources. Although there are numerous ways of getting the money back, funds must appear to come from a legitimate source, and the process must not draw attention. Transnational organised criminal syndicates are in fact just MNCs; they use the same principles of transacting across borders as MNCs, and like MNCs they use the same methods to move money illegally across borders. See Investopedia, Smurf , http://www.investopedia.com/terms/s/smurf.asp#ixzz4IpWrd6BB, accessed 30 August 2016.

Abusive transfer pricing is a tool is used by MNCs to minimise their total tax liability for the group through prudent business practices aimed at effective tax structuring or tax avoidance practices, which are not illegal. Aggressive tax avoidance, when achieved through over- and under-invoicing or fictitious invoicing, is illegal, and tantamount to commercial tax evasion.

As has already been mentioned, using the arm's-length principle the correct transfer price for tangible goods can be established through comparison with the prices charged for similar goods to unrelated parties. However, the transfer pricing of intangible goods such as products of intellectual efforts rarely has a comparable equivalent. This requires transfer prices to be based on expectations of future income, adding a subjective layer of complexity to valuing the transaction.

It is important to note that trade mispricing comprises the mispricing of goods and services (valuation fraud) through over- and under-invoicing. If the entities are related through the MNC, then the trade mispricing of these goods and services is included in the definition of abusive transfer pricing. Thus, for related entities, trade mispricing is a subset of transfer mispricing or abusive transfer pricing.

Transfer mispricing is the major tool for corporate tax avoidance (and evasion) as assessed through the OECD's BEPS process, which includes high-level policies to address issues relating to FDI, exchange rates, trade imports and exports and taxation, to name a few. Transfer mispricing, therefore, affects overlapping government priorities such as providing an attractive investment climate, being able to protect the income tax base, and ensuring the neutral treatment of domestic and multinational businesses.

BOX 2 EXAMPLES OF ABUSIVE TRANSFER PRICING

- Sharife and Grobler highlighted transfer mispricing of African diamonds from Angola and the Democratic Republic of the Congo amounting to $3.5 billion by using intra-company valuations, shell companies and tax havens in Dubai and Switzerland.[24]
- Similarly, in Sweden (a high-tax country) it was common from 2005–2010 to have 'interest loops', where simple loans or investments were placed between a Swedish company and a tax haven company in both directions, and where the interest rates were mispriced to create a tax deduction in Sweden. This loophole was closed in 2013.[25]

24 Sharife K & J Grobler, Kimberley s illicit process , *World Policy Journal*, Winter 2013/14.

25 Froberg K & A Waris, *Bringing the Billions Back: How Africa and Europe Can End Illicit Capital Flight*. Stockholm: Forum Syd Forlag, 2011.

- According to a 2014 study by the Alternative Information and Development Centre, Lonmin Mines in South Africa allegedly paid ZAR[26] 2 billion ($149,253)[27] to subsidiary companies in Bermuda as well as management fees to the UK Lonmin company. As the authors say: 'Lonmin's greed has been exposed, but they forget that it's our government that gives them their mining license. We the people can hold them to account and demand compensation for the horrors of Marikana. We can also stop companies like Lonmin pillaging our nation's wealth and hiding money overseas to avoid paying their fair share in tax, giving workers a living wage and investing in communities as per our nation's Mining Charter.'[28] The report claimed this took place just before a wage hike request for mine workers was denied, as it was deemed unaffordable by the company.[29]
- A recent study[30] commissioned by the Open Society Initiative for West Africa estimates that West African states lost roughly $3 billion in tax revenues in 2011 due to transfer mispricing. It projects that these losses will reach $14 billion in 2018 if current trends continue. Figure 2 depicts how corporations indirectly avoid paying taxes or bear countries' compliance costs through the use of transfer pricing policies and trade and investment regulations.

26 Currency code for the South African rand.

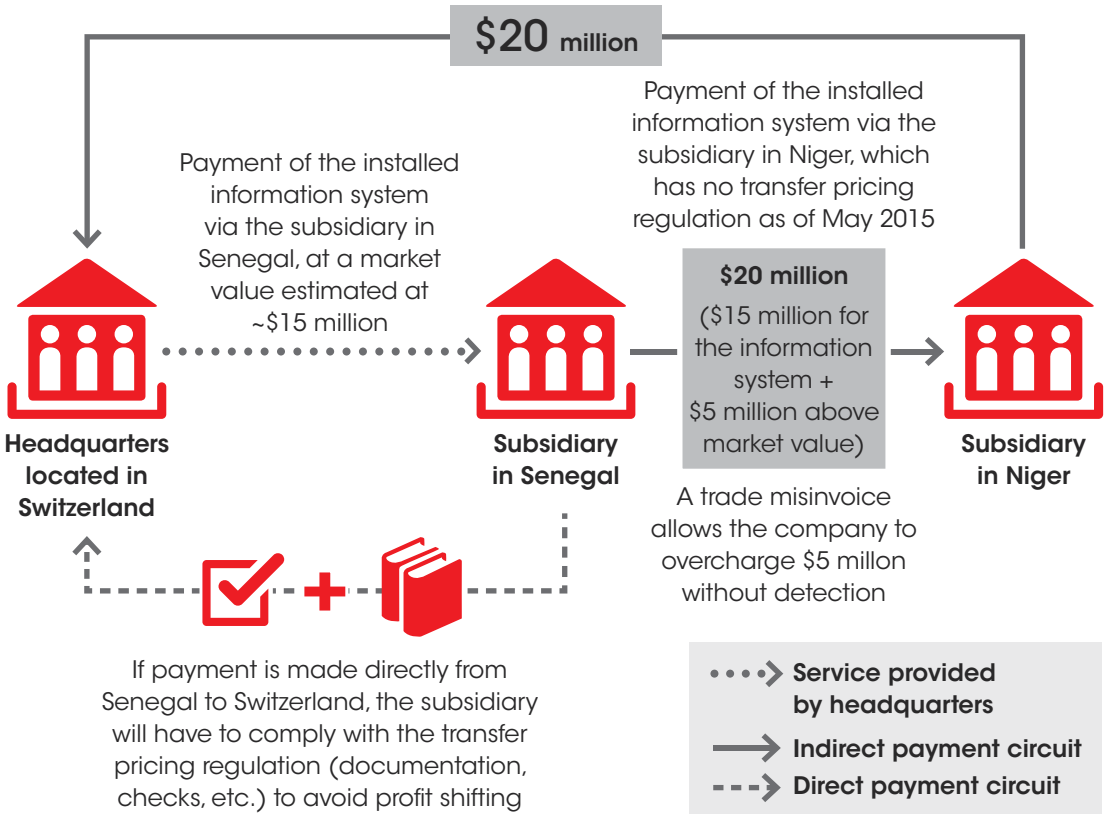
27 Exchange rate as at 16 August 2016.

28 Amandla Action for Mzanzi, Exposed! Lonmin hiding money from widows of Marikana , petition, http://www.amandla.mobi/lonmin_brokenpromises, accessed 30 August 2016.

29 Forsland D, The Bermuda Connection: Profit-shifting, Inequality and Unaffordability at Lonmin 19992 012 , AIDC (Alternative Information and Development Centre), 2014, http://aidc.org.za/download/Illicit-capital-flows/BermudaLonmin04low.pdf, accessed 15 July 2016. In the lead-up to South Africa s first post-apartheid massacre, Lonmin refused to meet with its miners to discuss a living wage of ZAR 12,500 a month, stating that this was unaffordable. The police intervened in the strike, resulting in a massacre.

30 Dalberg, Illicit Financial Flows Represent Missed Opportunities for West Africa s Development and Economic Needs , OSIWA (Open Society Initiative for West Africa), 2015. The report looks at cases in C te d Ivoire, Nigeria, Senegal, Ghana and Togo.

FIGURE 2 ABUSIVE TRANSFER PRICING: WEST AFRICA



Source: Dalberg, Illicit Financial Flows Represent Missed Opportunities for West Africa s Development and Economic Needs , OSIWA (Open Society Initiative for West Africa), 2015

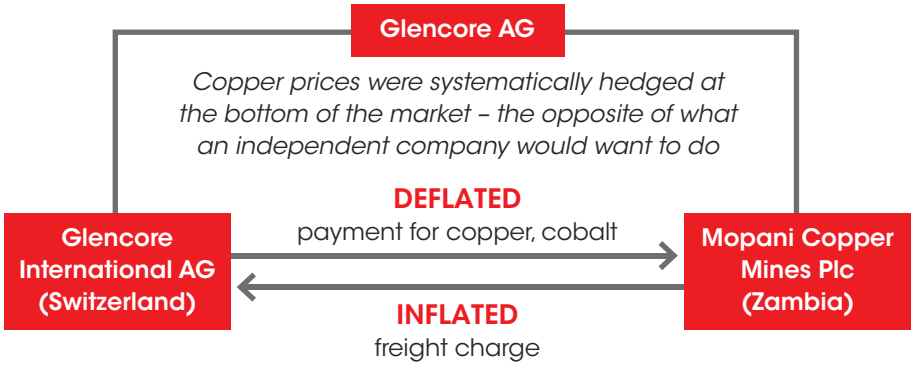
ZAMBIA

Mopani[31] **Copper Mine owned by Glencore AG:** The Zambian government commissioned a private auditing firm to conduct a sample tax audit on Mopani Copper Mine (MCM), owned by Glencore AG, a commodities trader, and Quantem, a Canadian extractive company. The Zambian government has a 10% share in MCM. The report found evidence that taxable profits had been reduced using several techniques, totalling an approximate tax loss of $174 million from tax revenues and dividends. The Extractives Industry Transparency Initiative (EITI) report revealed that MCM paid no (windfall) taxes on profits in 2008.

31 Eurodad (European Network on Debt and Development), Exposing the Lost Billions: How Financial Transparency by Multinationals on a Country by Country Basis Can Aid Development , November 2011, http://eurodad.org/files/pdf/4720-exposing-the-lost-billions-how-financial-transparency-by-multinationals-on-a-country-by-country-basis-can-aid-development-.pdf, accessed 3 June 2016.

Additionally, MCM payments, in comparison with similar mines, were found to be very low. Investigations suggested that copper was exported to a sister company in Switzerland at agreed prices – not based on the arm's-length principle – and that the copper prices were lower than expected while the freight charges were excessive. The report identified that 100% of MCM sales were to related parties, resulting in a zero profit and corporate tax. The Zambian EITI report broke down tax information by type of tax and by country. Without this breakdown it would not be possible to identify indicators of tax avoidance and probable tax evasion.[32]

FIGURE 3 ABUSIVE TRANSFER PRICING BETWEEN MCM AND GLENCOR



LOSS TO ZAMBIAN GOVERNMENT (SOURCE)	TRANSFER PRICING ABUSE	LOCAL COST INFLATION
Tax Revenue	$29 million	$95 million
Dividend Income	$12 million	$38 million
Total	$41 million	$133 million

- Overestimation of production costs
- Underestimation of production volumes
- Breach of the arm s length principles with transfer pricing manipulation, the copper produced was being sold systematically below market prices to the headquarters in Switzerland

Source: Eurodad (European Network on Debt and Development), Exposing the Lost Billions: How Financial Transparency by Multinationals on a Country by Country Basis Can Aid Development , November 2011, http://eurodad.org/files/pdf/4720-exposing-the-lost-billions -how-financial-transparency-by-multinationals-on-a-country-by-country-basis-can-aid-development-.pdf, accessed 3 June 2016

32 The report has been described as flawed and incomplete as it does not analyse the Swiss component, given that it requires a disaggregation of several companies, subsidiaries and entities, and as such limits the conclusions that can be drawn. However, it does point to the complex organisational form necessary to mask tax evasion and facilitate profit shifting from (resource-rich) developing countries. It also points to the laborious nature of detangling accounting frameworks for large group MNCs and TNCs.

South Africa and Zambia

Associated British Foods, Illovo Sugar and Zambia Sugar Plc.:[33] Associated British Foods (ABF) is a hidden giant in the global food industry. Beyond Europe, the company's operations range from yeast factories in Brazil to spice production in India. A FTSE 100 company, ABF has operations in 46 countries, with a turnover of GBP[34] 11 billion ($8.5 billion) per year. A 2011 Action Aid report alleged that the company took advantage of international tax rules, used tax haven jurisdictions and exploited investment incentive regimes. Much of the information on which ActionAid based its analysis was guided by annual financial statements and reports, and documents made publicly available designed to show investors and regulators the performance and profitability of the company. It is important to note that accounts from companies based in tax havens are not publicly available, hence it is not possible to explore their accounts in detail. The report found that Zambia Sugar paid fees to sister companies in Ireland and Mauritius – tax haven countries – and that the Mauritius group had no staff. According to the report, $2.1 million was paid in secondment fees, $2.5 million in management fees and another $3.4 million for unspecified charges. It further found that tax haven payments in terms of intra-group services between 2007 and 2012 amounted to $54 million and that profits made on management fees by Illovo Sugar in Ireland amounted to 26%.

More concerning is that the loans were made between the entities. The interest charged legally decreases the tax liability, which was levied at a rate of 17% and resulted in interest payments of $29.4 million. The loan looks local, was denominated in Zambian kwacha, secured by Zambia Sugar's assets and estate, and repaid via the Zambian Citibank in Lusaka. On paper, Citibank in London and Standard Bank in South Africa issued a $70 million loan to Illovo Sugar Ireland, which then made an identical loan to sister company Zambia Sugar. With this loan structure in place, ABF admits that it circumvents paying the Zambian government a 10% withholding tax. In this instance there was a clear loss of tax revenue as a result of 'very prudent business practice'. Authorities would need to prove that this practice intended to contravene the letter and spirit of the tax law.

Performing an analysis of this nature is laborious and time consuming, requiring investigation into each company and subsidiary, analysing down to the transaction level of cross-border transactions, inter-company loans and interest payments. The lack of transparent information in tax haven and secrecy jurisdictions makes it difficult to find all the pieces of the puzzle.

33 Action Aid, *Sweet Nothings: The Human Cost of a British Sugar Giant Avoiding Taxes in Southern Africa*, February 2013, https://www.actionaid.org.uk/sites/default/files/doc_lib/sweet_nothings.pdf, accessed 3 June 2016.

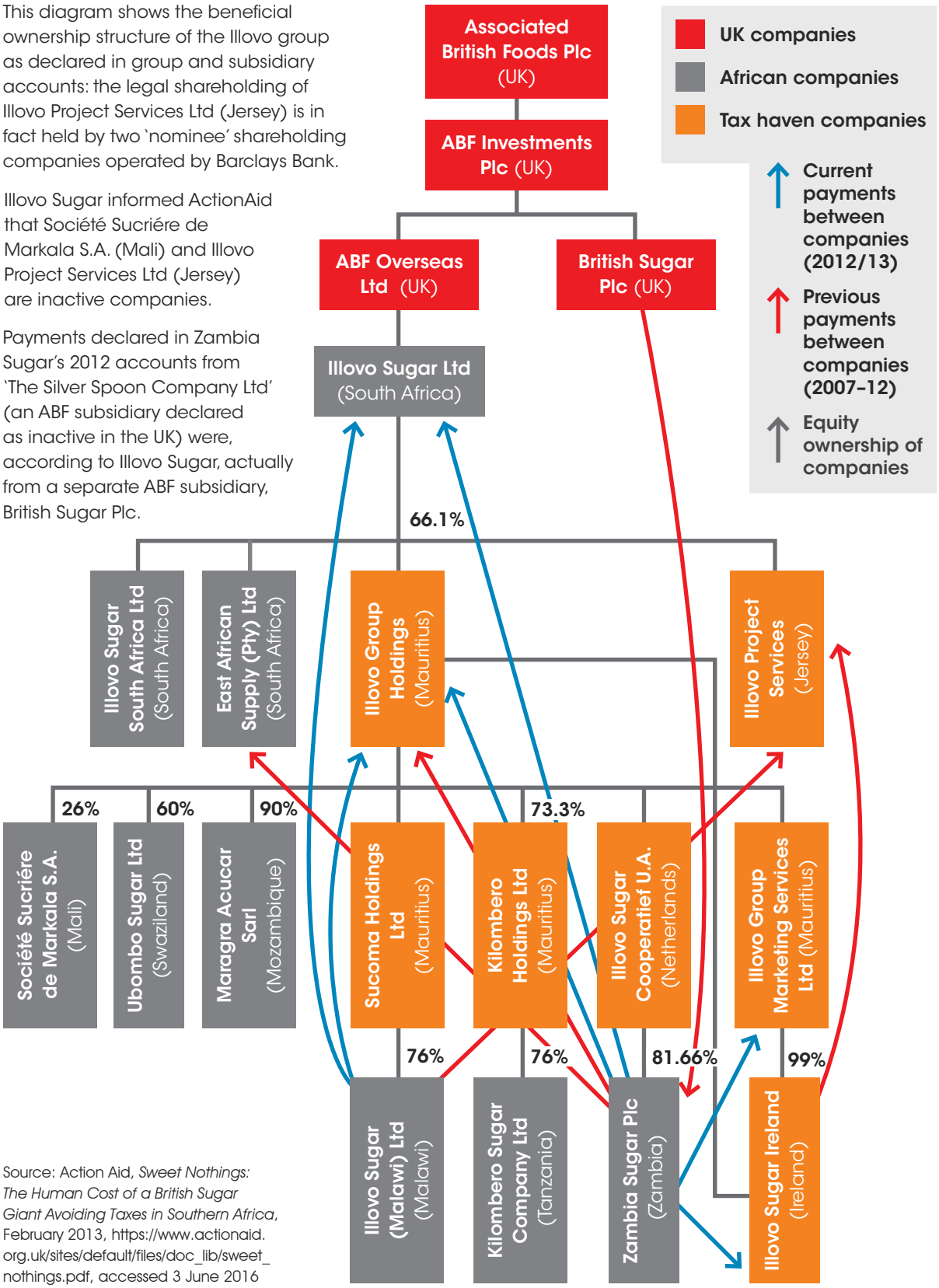
34 Currency code for the British pound.

FIGURE 4 ILLOVO SUGAR'S INTRICATE INTRA-COMPANY PAYMENT STRUCTURES

This diagram shows the beneficial ownership structure of the Illovo group as declared in group and subsidiary accounts: the legal shareholding of Illovo Project Services Ltd (Jersey) is in fact held by two 'nominee' shareholding companies operated by Barclays Bank.

Illovo Sugar informed ActionAid that Société Sucriére de Markala S.A. (Mali) and Illovo Project Services Ltd (Jersey) are inactive companies.

Payments declared in Zambia Sugar's 2012 accounts from 'The Silver Spoon Company Ltd' (an ABF subsidiary declared as inactive in the UK) were, according to Illovo Sugar, actually from a separate ABF subsidiary, British Sugar Plc.



Source: Action Aid, *Sweet Nothings: The Human Cost of a British Sugar Giant Avoiding Taxes in Southern Africa*, February 2013, https://www.actionaid.org.uk/sites/default/files/doc_lib/sweet_nothings.pdf, accessed 3 June 2016

Nigeria

MTN:[35] The *Mail and Guardian* undertook an investigation into MTN, Africa's largest cellular phone company. The company – originally established in South Africa and operating in a number of African countries, including Côte d'Ivoire, Ghana, Uganda and Nigeria – has moved the holding company to Mauritius. Public and secret company and government agency investigation documents from across Africa exposed the scale of the management fees, which MTN confirmed:

- A total of ZAR 3.7 billion ($276 million) was earmarked to flow from Nigeria to Dubai for the 'ultimate benefit' of MTN International (Mauritius) from 2007–2013 (about 1.8% of MTN Nigeria's revenues). However, MTN met resistance from the Nigerian government in 2013 and was forced to reverse ZAR 2.6 billion ($194 million) of this amount.
- A total of ZAR 85.6 million ($6.5 million) flowed from Uganda to Mauritius in 2009 alone, representing 3% of MTN Uganda's revenues, suggesting that hundreds of millions might have flowed out over the years.
- A total of ZAR 3.7 billion ($276 million) went from Ghana to Dubai between 2008 and 2013, with an unknown portion flowing on to Mauritius. It is estimated that the fees are a massive 9.6% of MTN Ghana's revenues in those years.
- A total of ZAR 512.9 million ($38 million) flowed from Côte d'Ivoire to Mauritius from 2012–2013. It is estimated that the 2013 fee is 5% of the company's revenues in that country for that year.

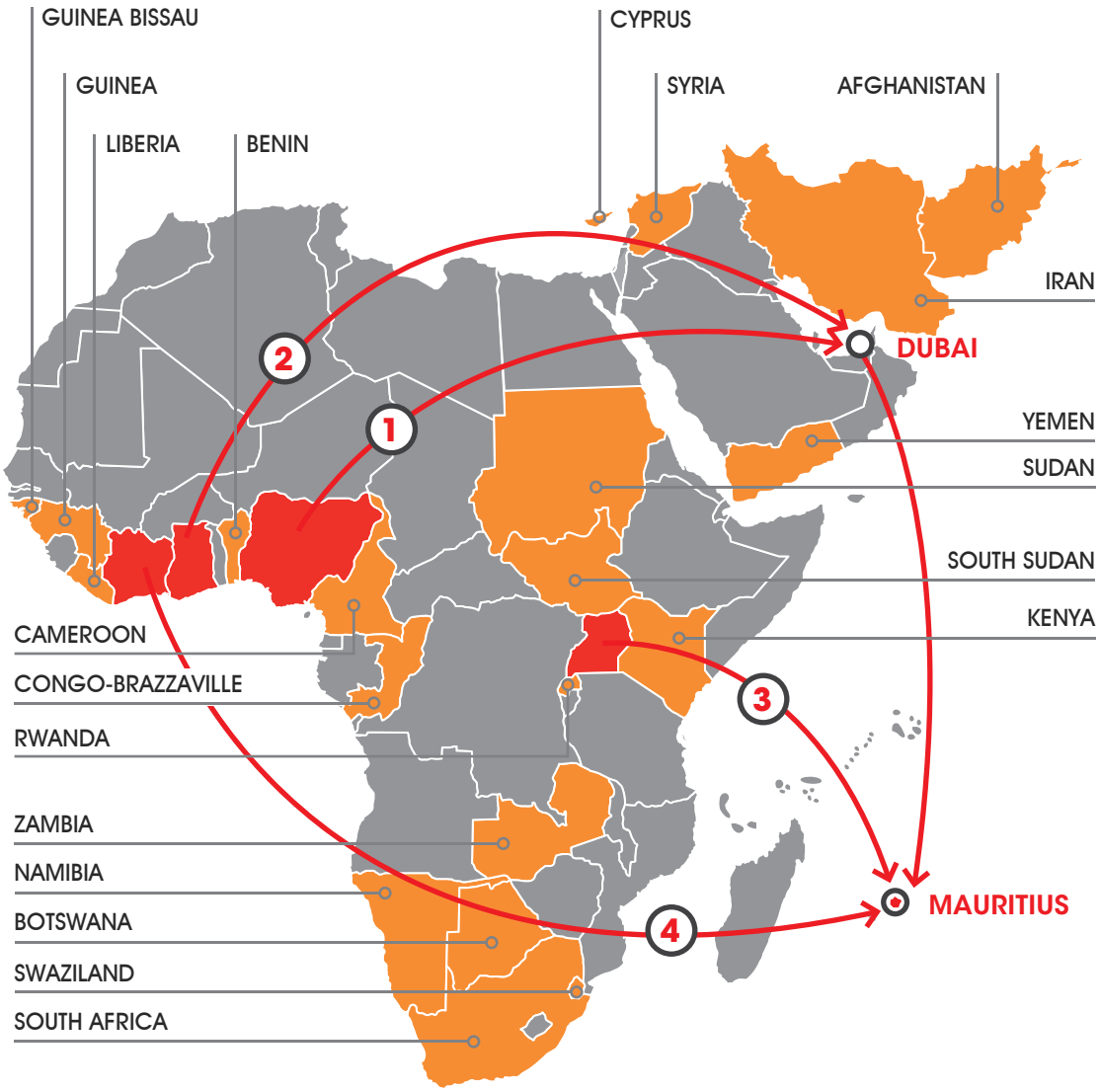
In conclusion, identifying abusive transfer pricing is not an easy task and requires highly skilled tax authorities that can meticulously work through intricate organisational structures and transactions to test whether the letter and spirit of the tax law has been broken – an even more daunting task.

Trade mispricing (or mis-invoicing)

Trade mispricing is the deliberate over-invoicing of imports or under-invoicing of exports by entities in a country, usually for the purpose of avoiding (higher) tax or levies in that country. The literature commonly refers to TBML, which is measured slightly differently. Trade mispricing can best be explained through a simple example. Assume Company A, a food grower in Africa, processes its produce through three subsidiaries: X, located in Africa; Y, located in a secrecy destination with an offshore financial centre; and Z, located in the US. If Company X sells its product to Company Y at an artificially low price (under-invoicing), this results in a low profit and tax rate for the African-based company. Company Y then sells the product to Company Z at an artificially high price (over-invoicing) close to the retail price in the US, implying that Company Z would have a low profit and thus

35 McKune C & G Turner, Ramaphosa and MTN s offshore stash , *Mail and Guardian*, 9 October 2015, http://mg.co.za/article/2015-10-09-00-ramaphosa-and-mtns-offshore-stash, accessed 9 October 2015.

FIGURE 5 THE MTN MONEY TRAIL



1 NIGERIA

ZAR 3.7 billion went from Nigeria to Dubai to the 'ultimate beneficiary' in Mauritius from 2007–2013. Some of this was reversed after resistance from the Nigerian government

2 GHANA

ZAR 3.7 billion went from Ghana to Dubai from 2008–2013 – an unknown portion flowed on from there to Mauritius

3 UGANDA

ZAR 85.6 million was sent from Uganda to Mauritius in 2009 alone

4 C TE D IVOIRE

ZAR 512.9 million went from Côte d'Ivoire to Mauritius from 2012–2013

Source: McKune C & G Turner, Ramaphosa and MTN s offshore stash , *Mail and Guardian*, 9 October 2015, http://mg.co.za/article/2015-10-09-00-ramaphosa-and-mtns-offshore-stash, accessed 9 October 2015

pay less tax. GFI research has shown that nearly 60% of IFFs manifest as trade mispricing.[36] However, the value in the 2015 study is a little over 83%.[37]

Therefore, commercial tax evasion through trade mispricing represents a potential vehicle for moving large volumes of unrecorded capital out of a country. Exporters understate the revenue generated from exports on their invoices and importers overstate import expenditures, while their trading partners receive instructions to deposit the variance or balance (for their benefit) into a foreign account.

It is important to note that the methods used to transfer IFFs vary from country to country. For instance, according to Kar and Freitas, trade mispricing is the major channel for the transfer of illicit capital from China, India and South Africa. The balance of payments (BOP) approach (captured by the Hot Money Model, estimates net errors and omissions on the BOP account) is the primary conduit for the unrecorded transfer of capital from oil exporters such as Kuwait, Nigeria, Qatar, Russia, Saudi Arabia, the United Arab Emirates and Venezuela.[38]

Trade mispricing therefore manifests in different ways, namely mis-invoicing, transfer mispricing (ie, where the mispricing of traded goods is between related entities or affiliates), re-invoicing through an apparently unrelated trading partner in an offshore territory (especially in secrecy destinations) and other fraudulent invoicing practices. The Financial Action Task Force (FATF) identified four basic techniques for TBML as follows:[39]

- over- and under-invoicing of goods and services;
- multiple invoicing of goods and services;
- over- and under-shipments of goods and services; and
- falsely described goods and services.

Other common techniques related to the above include:[40]

- **Short shipping:** this occurs when the exporter ships fewer goods than the invoiced quantity of goods, thus misrepresenting the true value of the goods in the documentation. The effect of this technique is similar to over-invoicing.

36 Kar D & D Cartwright-Smith, *op. cit.*

37 Kar D & S Freitas, *Illicit Financial Flows from Developing Countries over the Decade Ending 2009*, GFI, 2012, http://iff.gfintegrity.org/documents/dec2012Update/Illicit_Financial_Flows_from_Developing_Countries_2001-2010-HighRes.pdf, accessed 22 March 2013.

38 *Ibid.*; GFI, South Africa: Estimates of Export Under-invoicing and Import Over-invoicing, 20002 009 , Country Report, 2012.

39 FATF (Financial Action Task Force), Trade Based Money Laundering , 23 June 2006, http://www.fatf-gafi.org/media/fatf/documents/reports/Trade%20Based%20Money%20Laundering.pdf, accessed 14 March 2012.

40 Cassara J, Trading with the enemy: Trade-based money laundering is the growth industry in terror finance , Task Force to Investigate Terrorism Financing, 3 February 2016, http://democrats.financialservices.house.gov/uploadedfiles/02.03.2016_john_a._cassara_testimony.pdf, accessed 3 April 2016.

- **Over-shipping:** the exporter ships more goods than what is invoiced, thus misrepresenting the true value of the goods in the documentation. The effect is similar to under-invoicing.
- **Phantom shipping:** No goods are actually shipped. The fraudulent documentation generated is used to justify payment abroad.

FIGURE 6 AN EXAMPLE OF OVER- AND UNDER-INVOICING

Company A (a foreign exporter) ships a million widgets worth $2 each, but invoices Company B (a colluding domestic importer) for 1 million widgets at a price of $1 each. Company B pays Company A for the goods by sending a wire transfer for $1 million. Company B then sells the widgets on the open market for $2 million and deposits the extra $1 million (the difference between the invoiced prices and the 'fair market' value) into a bank account to be disbursed according to Company A's instructions.

Alternatively, Company C (a domestic exporter) ships 1 million widgets worth $2 each, but invoices company D (a colluding foreign importer) for $1 million widgets at a price of $3 each. Company D pays Company C for the goods by sending a wire transfer for $3 million. Company C then pays $2 million to its suppliers and deposits the remaining $1 million (the difference between the invoiced price and the 'fair market' price) into a bank account to be disbursed according to Company D's instructions.

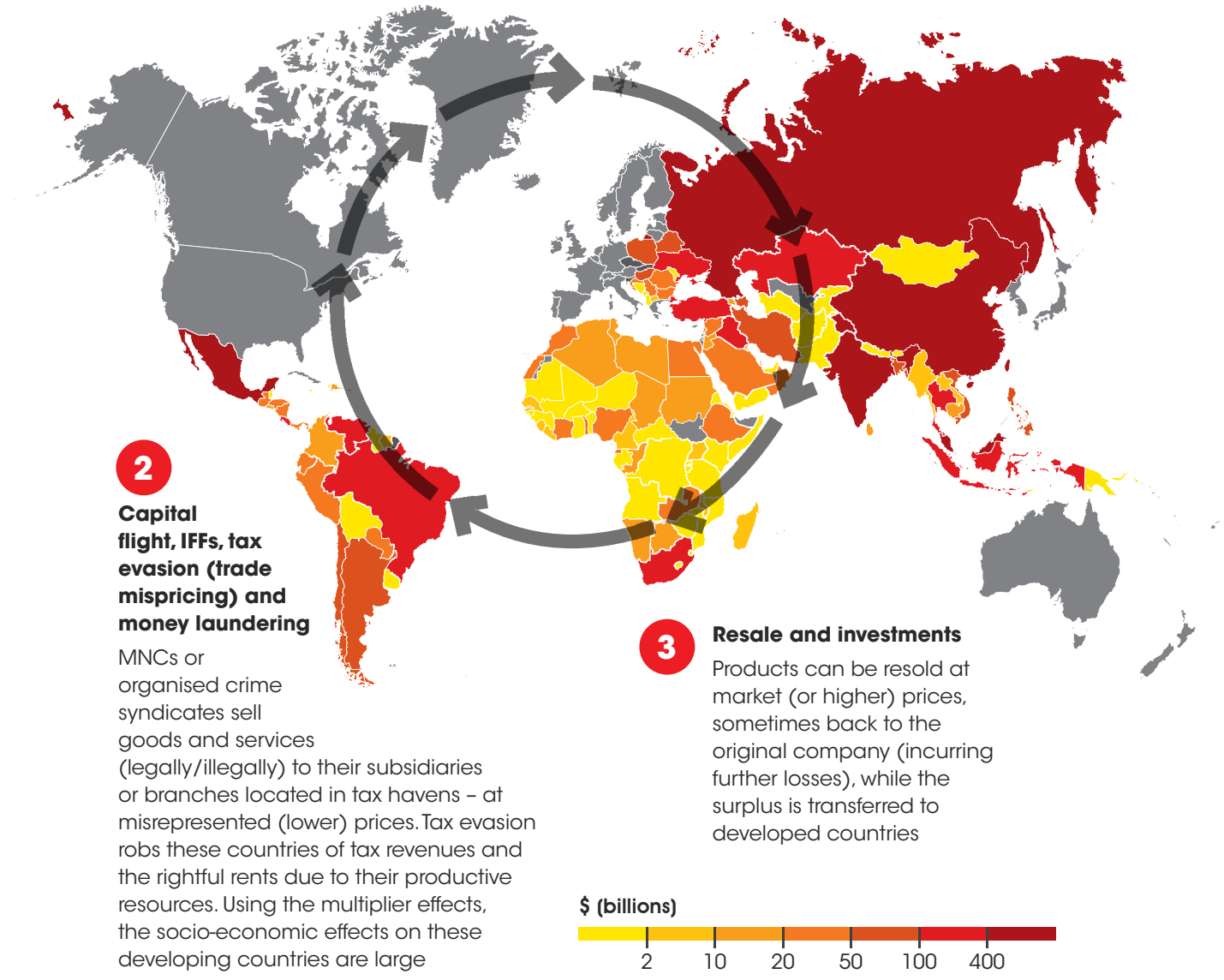
Source: FATF (Financial Action Task Force), Trade Based Money Laundering , 23 June 2006, http://www.fatf-gafi.org/media/fatf/documents/reports/Trade%20Based%20Money%20Laundering.pdf, accessed 14 March 2012

Paying an over-priced invoice raised for goods or services within a company effectively results in profits being transferred to the tax-free or lower tax destination. Similarly, selling goods or services at significantly reduced prices produces the same effect. Figure 6 provides an example of how monies flow across

borders using goods and services (whether as related entities, partly related or seemingly unrelated entities).

Figure 7 provides another example of trade mispricing or TBML that is used by transnational crime syndicates or MNCs.

FIGURE 7 A SIMPLE EXAMPLE OF IFFS (CUMULATIVE IN NOMINAL $ (BILLIONS))



Source: Kar D & J Spanjers, Illicit Financial Flows from Developing Countries: 20042 013 . Washington DC: Global Financial Integrity, 2015

Examples of trade mispricing

In South Africa, various reports[41] have shown that a significant amount of capital flight or IFFs from South Africa takes place using the conduit of trade mispricing. For instance, Mohamed and Finnoff argue that from 1980 to 2000 the structural weaknesses in the economy led wealthy South Africans to take their wealth out of the country rather than investing domestically. Specifically, they found that the General Export Incentive Scheme (GEIS) led to substantial over-invoicing of exports from 1990 to 1994 as exporters fraudulently took advantage of export subsidies under the GEIS. Import over-invoicing also increased during this period, partly as a result of fewer IFFs occurring through export under-invoicing. In fact, they found that as export under-invoicing increased, import over-invoicing dropped off. This is another reason why export over-invoicing (representing illicit inflows) should not be netted out from outflows. Such inflows, far from being beneficial to the country, actually represent a loss of government funds through illegal claims on export subsidies.

The South African Revenue Service (SARS) provided two examples of impending cases to the G20 Development Working Group in June 2016. These are depicted in Figure 8 and Figure 9.

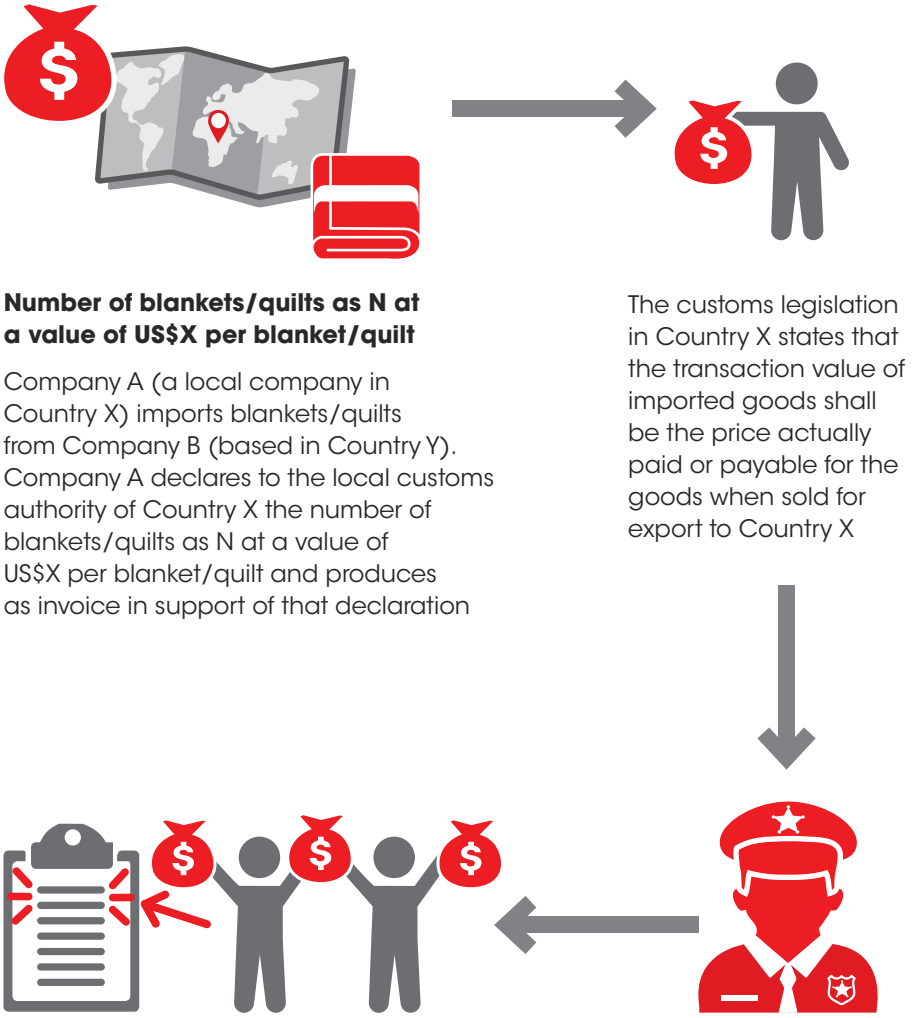
Figure 8 depicts Company A in Country X that misrepresented the price of blankets on an invoice submitted to the customs authorities. Customs intervened and on further investigation found that the invoice submitted to the bank by Company B in Country Y was five times the price in local currency (or 2.5 times the price in dollars).

Figure 9 depicts a case where Company X in Country A, a landlocked country, has a mineral exploitation licence. The same company (Company X) enters into an agreement with Company Y (an MNC based in Country D) to sell the extracted raw mineral to Company Y. However, Company X does not have an export licence to sell the raw mineral since Country A stipulates that there is a prescribed minimum level of beneficiation necessary before the mineral can be exported. Company X moves the mineral to Country B (also a landlocked country) and then on to Country C (with a sea-port) for export to Country E, where beneficiation will take place. One of the interesting conditions of the agreement is that Company Y takes ownership of the mineral in Country B (not D, where it is domiciled). Company X exports the raw material from Country A to Country B despite not being in possession of an exporting licence. Company Y moves the mineral from Country B to C, but under-declares the value of the export to the authorities. The mineral

41 Fine B & Z Rustomjee, *The Political Economy of South Africa: From Minerals and Energy Complex to Industrialization*. Boulder: Westview Press, 1996; Mohamed S & K Finnoff, Capital Flight from South Africa, 19802 000 , 2004 TIPS Forum on African Development and Poverty Reduction: The Macro-Micro Linkage, Somerset West, 131 5 October 2004; Smit BW & BA Mocke, Capital flight from South Africa: Magnitude and causes , *South African Journal of Economics*, 59, 2, 1991, pp. 1011 17; Ndikumana L & JK Boyce, New Estimates of Capital Flight from Sub-Saharan African Countries: Linkages with External Borrowing and Policy Options , University of Massachusetts Working Paper, April 2008.

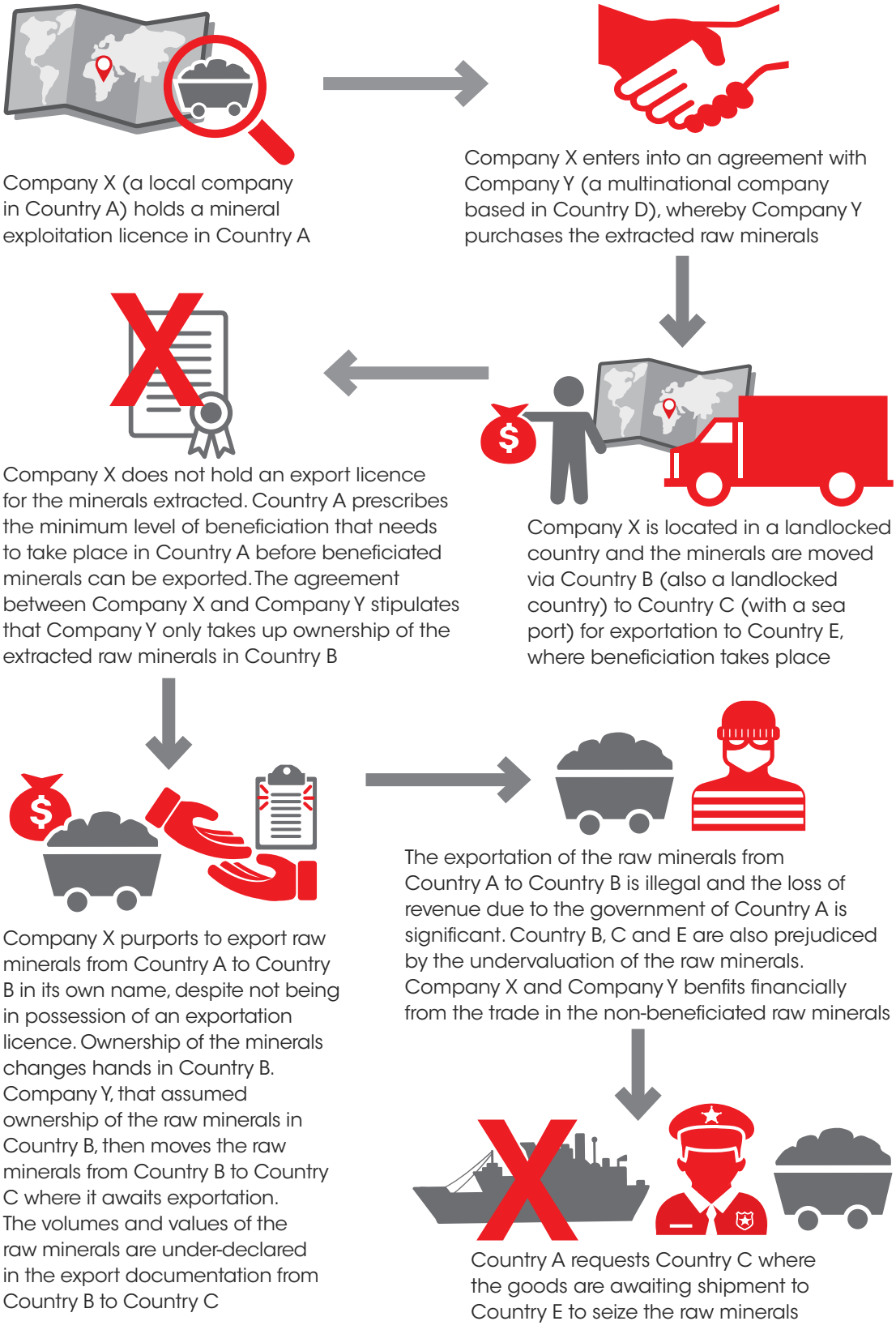
exportation from A is illegal, while the revenues to authorities in countries B, C and E are understated due to the under-valuation of the export.

FIGURE 8 TRADE MISPRICING: EXAMPLE A



Source: Department of International Relations and Cooperation (from SARS), 2016

FIGURE 9 TRADE MISPRICING: EXAMPLE B



Source: Department of International Relations and Cooperation (from SARS), 2016

Zdanowicz conducted a study analysing US trade data[42] and identified the following:

- plastic buckets from the Czech Republic were imported with the declared price of $972 per bucket;
- toilet tissue from China was imported at over $4,000/kg; and
- bulldozers were being shipped to Colombia at $1.74 each.

There are various reasons why the prices could be abnormal. For example, there could simply be a data 'input' or 'classification' error. However, recalling the above explanation of over- and under-invoicing, the abnormal prices were believed to represent attempts to transfer value into or out of the US in the form of traded goods. At the very least, the prices should be considered suspicious and further analysis and investigation is required to identify the reasons for these large discrepancies between market price and declared price.

Note that the examples provided in the aforementioned section on abusive transfer pricing are also relevant, for example the cases highlighted above relating to the trade in copper, sugar, diamonds or mobile services; these are also examples of trade mispricing but between related entities.

Overlaps between abusive transfer pricing and trade mispricing (or mis-invoicing)

From the above discussion it is clear that abusive transfer pricing and trade mispricing are forms of transfer (mis)pricing and overlap quite significantly. MNCs can over- and under-invoice traded goods and services, meaning that this type of mispricing is both abusive transfer mispricing and trade mispricing (or mis-invoicing). Transactions within MNCs will always raise questions as to whether the arm's-length principle has been applied, given the complexities in estimating prices for intellectual property, specialised skills or unique services and goods. Related entities within an MNC have a vested interest to maximise profits and minimise costs for the global corporation as a whole and not the individual profits or costs of each subsidiary.

The biggest challenge is that without a beneficial ownership register in place globally, it is not possible to effectively assess whether unrelated entities are in fact related

42 Zdanowicz JS, Trade-Based Money Laundering and Terrorist Financing , Florida International University, https://datapro.fiu.edu/campusedge/files/articles/zdanowiczj3008.pdf, accessed 14 April 2016.

TABLE 1 COMPARISON BETWEEN ABUSIVE TRANSFER PRICING AND TRADE MISPRICING

ABUSIVE TRANSFER PRICING	TRADE MISPRICING/MIS-INVOICING
Form of transfer • Mispricing to evade tax	**Form of transfer** • Mispricing to evade tax
Abuse of pricing (through fictitious, over- or under-invoicing) of • goods and services on the current account of the balance of payments (this is trade mispricing/ mis-invoicing) • loans, royalties, dividends, and short-term and long-term investments on the capital account of the BOP	**Mis-invoicing (through over- or under-invoicing) of** • goods and services on the current account of the balance of payments
Practised by • related entities, namely MNCs	**Practised by** • seemingly unrelated entities • related entities
Policy tools include • demand resource management • base erosion and profit shifting (including country-by-country reporting) • beneficial ownership registers	**Policy tools include** • automatic exchange of customs information • improved vetting and controls at customs authorities • benchmark, real-time, on-line pricing tool • the enforcement of unique consignment reference to track consignments

Source: Compiled by author

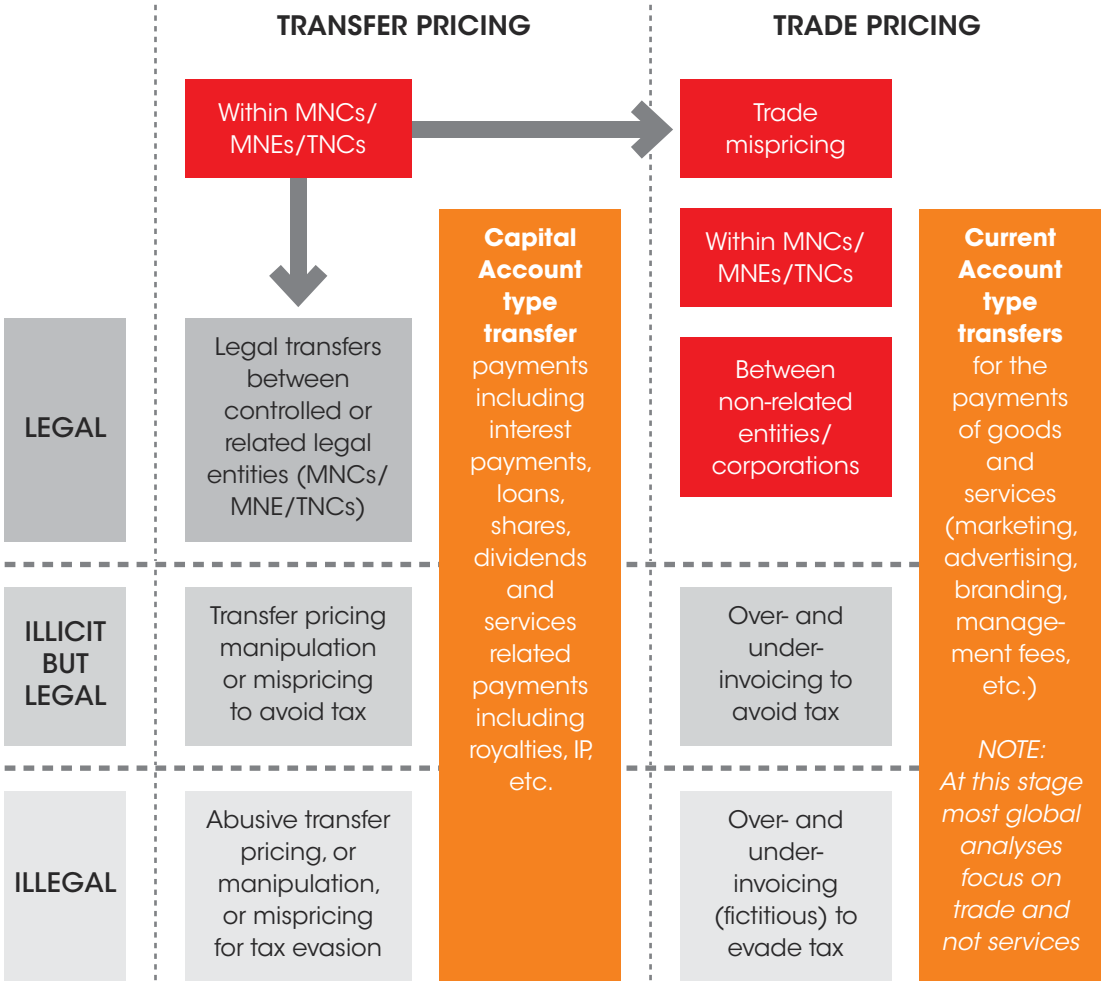
Both related and unrelated entities can misprice traded goods and services. The biggest challenge is that without a beneficial ownership register in place globally, it is not possible to effectively assess whether unrelated entities are in fact related. If entities are unrelated there is no real intention to over- or under-invoice, other than to manipulate the reported results to the authorities with the intention to evade tax and possibly move illicit flows to lower tax destinations, capitalising on tax arbitrage through the existence or absence of double taxation agreements. In some instances, the lower tax destination could be considered a tax haven and/ or a secrecy jurisdiction.

Further investigation by SARS (through forensic audits), revealed that suspicious transactions between seemingly unrelated entities involve entities that are actually somehow related. In a recent workshop a SARS official argued that there are cases where a third unrelated party is drawn into a transaction between two related entities. In this case, the third party is indifferent to which of the two related

companies it sells its goods. The related entities will identify the most favourable tax case. In Figure 2, assume that the company in Niger is not a subsidiary but rather an unrelated entity acting as a middleman or a trans-shipment point transferring the software solution to the Swiss company from the Senegalese company. The introduction of a third unrelated party complicates transactions for tax authorities, making them appear to be at arm's-length. However, the third party is merely transacting on behalf of the two parties and has nothing to lose (and could possibly be swayed through a quick 'effortless' profit, often none the wiser as to the intentions of or relationship between the two related parties). Thus a beneficial ownership register will call more transactions into question, as they currently fly under the radar.

Figure 10 highlights the differences and overlaps between the two concepts graphically, linking them to IFFs.

FIGURE 10 COMPARING TRANSFER PRICING AND TRADE MISPRICING: LINKING THESE TO IFFs



Source: Nicolaou K, FIC presentation to Finance Portfolio Committee, September 2015

It is evident that if the mispricing occurs in the trade arena, and in the absence of a beneficial ownership register, then regardless of whether the entities are related or not, the mispricing is deemed to be trade mispricing (or mis-invoicing). Furthermore, although the term 'IFFs' refers to 'illicit' flows, the trend over the last few years has been to move towards focusing on the illegal components. It is the responsibility of the revenue authorities to test the information presented to them as to whether the tax avoidance is bordering on tax evasion. Revenue authorities have indicated that this is where the bulk of their work lies – assessing whether tax avoidance has crossed the line and is tantamount to tax evasion.

MEASURING ILLICIT FINANCIAL FLOWS THROUGH TRADE MISPRICING: SOMETHING BETTER THAN NOTHING

There are two main methods through which estimated illicit flows (or capital) leaving a country and unrecorded in official statistics, can be measured. The first method is estimated by the World Bank Residual Model, which captures illicit capital outflows leaving a country through its external accounts (BOP). The second method uses the Trade Mis-invoicing Model (based on the International Monetary Fund's [IMF] Direction of Trade Statistics [DOTS]), which compares trade data reported by partner countries, thus estimating the loss in tax revenues.

IMF DOTS Trade Mispricing Model

Trade mispricing or mis-invoicing has been recognised as a commercial conduit for acquiring foreign assets (representing the illegal transfer of capital) by over-invoicing imports and under-invoicing exports. As a result, researchers have analysed the potential extent of mis-invoicing by comparing partner country trade data after adjusting for the cost, insurance and freight (CIF). Thus, country A's exports to Country B, valued free on board (FOB), are compared to what Country B reports as imports from Country A, after adjusting for the CIF. The same approach is used when analysing Country A's imports from Country B.

World exports to, and imports from, a particular country are derived from partner country trade data reported to the IMF by its member countries for publication in the DOTS. The DOTS is a unique database on global trade flows, which allows researchers to estimate the mis-invoicing of international trade flows (K). Trade mis-invoicing is derived as follows:

$$K_{i,j} = [\, X_i \,] - M_j / \beta + [\, M_i / \beta \,] - X_j$$

This equation seeks to capture mispricing, or mis-invoicing, on both the export (X) and import (M) side, assuming that IFFs take place through both exports and imports. Specifically, the exports of goods, which are FOB (X) from Country *i* to Country *j*, are compared to the imports (M) reported by the latter after adjusting for the CIF factor β. Similarly, on the import side, Country *i*'s imports (M) from

Country *j* are converted to FOB values and then compared to what Country *j* reported that it had exported to Country *i*.

It is important to note that that mispricing is evident where:

- Country *i*'s exports are understated when compared to Country *j*'s reported imports from Country *i*; and/or
- Country *i*'s imports are overstated when compared to Country *j*'s reported exports, after adjusting for CIF.

These variances account for the measured differences arising from trade mispricing, which is linked to the commercial tax evasion component of IFFs.

Methodology and data challenges

We applied the IMF DOTS method to the five African countries most affected by trade mispricing, according to GFI, analysing the extent of trade mispricing. These countries are:

- Nigeria;
- South Africa;
- Morocco;
- Zambia; and
- Egypt.

Secondary data sources are used to estimate the trade mispricing commercial tax evasion component of IFFs. The matching country data are obtained from the International Trade Centre (ITC) and are secondary data. The ITC is a subsidiary organisation of the World Trade Organization (WTO) and the UN Conference on Trade and Development (UNCTAD) that provides trade-related technical assistance and houses the UN's COMTRADE database of imports and exports at the 4-digit HS product level, reported by statistical authorities in more than 200 countries or territories and standardised by the UN Statistics Division. The original methodology uses IMF data, but there are weaknesses with this data, especially relating to the conversion from local currency into US dollars, coupled with the fact that the analysis is limited in terms of product categories, since it is used for national accounting purposes. Moreover, data are available for 184 countries only. Since the intention is to undertake further research in this area by product category, UNCOMTRADE data are a far better data source, as it deals with more countries and specialises in collecting such data. UNCOMTRADE data are updated on a quarterly basis.

The original period of analysis was from 2013–2015. However, there are missing data for 2015 for three of the five countries, namely Nigeria, Morocco and Egypt. As a result, the period 2013–2015 is assessed for South Africa and Zambia, and for the remaining countries the period 2013–2014 is assessed.

The DOTS method of analysis, as applied here, analyses the data for a country, such as Nigeria, and compares the mirror trade data with every other country. Thus there is a one-to-one relationship between the country being analysed and the counterparty country for imports and exports.

The next critical step of this approach is to adjust the values for the CIF and FOB effects, to ensure that the values are at base prices. Matching official partner country trade statistics results in differences that arise from legitimate statistical reasons, capturing errors, self-declaration misreporting errors or intended misdeclaration. The most notable variance between the matched exports of one country and the imports of another stems from the differences in the abovementioned valuation. The exporting country reports goods at the initial point of departure (FOB), while importing countries value goods at the final destination, including the CIF. As a result, the CIF/FOB ratio has often been treated as the cost of transportation. Due to the overwhelming lack of detailed CIF data and information, standard practice is to use a flat CIF/FOB conversion factor. Typically, a 10% difference between CIF and FOB values is assumed. This is the rate that GFI applies, as well as the World Bank, for instance, when using partner data to supplement its trade database. The IMF generally applies a CIF/FOB factor of 1.1.[43]

BOX 3 IMF DOTS ESTIMATION PROCEDURES FOR CIF[44]

Reported data, including total imports and exports reported for publication in the fund's International Financial Statistics (IFS), are the basis of all estimates in DOTS. The entire DOTS database is continuously supplemented with estimates.

Estimation occurs if a reporting country does not report trade with its partners for a specific period. Data are estimated for all partners and not for some of the partners. In the absence of some or all of the monthly DOTS, quarterly or annually reported DOTS are used. If quarterly data are available, these are distributed over the relevant months using the available monthly DOTS reported for other partner countries, the IFS monthly totals, or an even distribution.

If only annual data are available, then estimation procedures include, in addition to the techniques described above, DOTS reported from the

43 See IMF (International Monetary Fund), IMF data: Access to macroeconomic & financial data , http://www.imfstatistics.org/dot/DOTEstim.htm, accessed 22 August 2016. Any discrepancy in mirror statistics that exceeds this correction might then be attributed to mispricing; also see Bhagwati JN, Krueger A & C Wibulswasdi, Capital flight from LDCs: A statistical analysis , in Bhagwati JN (ed.), *Illegal Transactions in International Trade*. Amsterdam: North-Holland Publishing Co., 1974.

44 The estimation procedures are described in IMF, *A Guide to Direction of Trade Statistics*, 1993, http://www.imf.org/external/pubs/cat/longres.cfm?sk=154.0, accessed 16 August 2016.

most recent annual report or extrapolations of the most recent data or estimates. Where possible, estimates are computed first for months, and then annual totals are obtained by summation.

If data on total trade are reported for publication in the IFS but DOTS data are not reported, then the sum of the direction of trade estimates will be constrained so as to coincide with the IFS totals. In such cases, the data for total exports and total imports shown in the lines IFS World Total and DOTS World Total will be identical. If IFS data are not available, then extrapolations are used to determine the estimated value of trade, and IFS data will not appear on the country page.

When information is not reported and is inadequate to support the estimation techniques, the data are extrapolated using a matrix of trade among broad country groups. Projected trade growth by these country groups, consistent with trade growth estimates used in the fund's World Economic Outlook, is combined with the available DOTS to derive extrapolation factors.

Estimates are not provided for trade flows between countries where data are unavailable for both trading partners during the latest 10 years or more.

In summation, only a small portion of world trade is omitted from the DOTS. This portion comprises a small amount of unreported trade among developing countries; a small amount of unreported trade between developing countries and the countries comprising the group 'other countries not included elsewhere'; and trade among 'other countries not included elsewhere'.

When partner data are used directly or indirectly to derive estimates, the data are first adjusted by a CIF/FOB factor of 1.10 to allow for the cost of freight and insurance. Reported imports CIF are divided by the CIF/FOB factor to give partner country estimates of exports FOB. Similarly, reported exports FOB are multiplied by the CIF/FOB factor to give partner country imports CIF. For example, if Country B has not reported data from its own records but Country A has done so, then A's data for imports from B (reported CIF) are divided by 1.10 to give the FOB value of B's exports to A. Conversely, A's data for exports to B (reported FOB) are multiplied by 1.10 to give the CIF value of B's imports from A. Given the absence of timely data on CIF, the 10% CIF/FOB factor represents a simplified estimate of these costs, which vary widely across countries and transactions.

Source: Rollet JM, FAQ: WorldI MF DOT differs from national stats , Moody s Analytics, https://www.economy.com/support/blog/buffet.aspx?did=F21498DE-BE6A-423C-8890-57F779C5CAA7, 16 August 2016

However, work undertaken by SARS indicated that CIF – for a long-haul destination such as South Africa – was less than 5%, hence an adjusted CIF conversion ratio of 1.05 has also been applied to the model. So there are two versions of the model:

- Version 1 of the model uses 1.1 as the CIF conversion factor, based on the international best practice and the approach used by GFI.
- Version 2 uses a 1.05 CIF conversion factor and is based on the SARS average.

It is important to note that this is a very crude estimation of potential trade mis-invoicing, since the conversion rate is fixed and does not vary over time, between trading partner countries, by distance, or even by the number of transiting destinations. Although this is not optimal, it is the only possible approach given the lack of accurate data.

It is also important to note that not all the data need to be adjusted for this on the UNCOMTRADE database, specifically for countries that report according to the general reporting method specified by the UN's guide entitled 'International Merchandise Trade Statistics: Concepts and Definitions 2010'. This means that their imports and exports are reported as FOB and only the countries reporting CIF/FOB need to be adjusted. Annexure A includes the latest list highlighting the reporting method and therefore the necessary adjustments to be made to the database and where the conversion rates should be applied.

The analysis uses a limited number of variables, and applies a standard flat ratio for CIF of 1.1 (or 10%) and 1.05 (or 5%) to adjust import values to the exported (FOB) value. This estimation provides a guide to the extent of the problem and should only be used as a gauge of the extent of trade mispricing. Using the number in any other way is problematic.

Assumptions

An underlying principle of the analysis is that if there is over- or under-invoicing it is considered to be trade mispricing, which is assumed to represent the commercial tax evasion component of IFFs. From the discussion above, it is clear that there are also timing delays, unreported entries from multilateral trade routes and general data errors that overestimate the extent of mispricing. Similarly, due to illicit trade and intra-company transactions between MNCs, the extent of mispricing will likely be understated.

The CIF/FOB ratio is fixed at 1.1 with a second version of the model applying 1.05, which is fraught with its own problems. Furthermore, where there are missing data from the corresponding partner country, it is assumed that there is no trade mispricing, which could underestimate the extent of mispricing especially for (developing) countries that experience poor reporting cycles, which could paradoxically indicate that they are more vulnerable to trade mispricing.

The assumption underpinning the bilateral DOT analysis for each of the five African countries trading with a list of more than 200 countries is that the reported and

recorded data submitted to UNCOMTRADE are accurate and a fair representation of their trade.

It is the view of the authors that hot money, which is a form of capital flight, as measured by net errors and omissions on the BOP, is not necessarily illegal. It is therefore not included in the analysis here.

Due to time constraints it was only possible to estimate trade mispricing for the top five African countries that exhibit high levels of trade mispricing.

Interpretations

At this stage of the analysis we will merely report the extent of trade mispricing at a country level. As the analysis delves into the sector and product categories, it is possible to identify whether there are reasons for the asymmetries, stemming from:

- **Unreported trade:** In order for unreported trade activities such as smuggling to result in asymmetries in partner country trade statistics, the transactions have to be recorded by one partner and not the other. In some product categories there are strong export restrictions, which incentivise the smuggling of unrecorded goods out of the country. Imports on the partner country's side, however, will be properly reported as there are no entry constraints for such goods in that country.
- **Fictitious trade:** This is where imaginary trade transactions (where official trade figures are artificially inflated) occur, either through fictitious trade between various free-trade areas or where companies located in multiple countries fabricate invoices. This is typical in Europe, where there are no barriers to trade and therefore no customs declarations. As a result, trade statistics are derived from the VAT system, ie, where firms on their VAT returns declare their trade activities with customers and suppliers to the authorities. In this instance, trade statistics are then affected by two types of VAT fraud, namely acquisition

It is not possible to recoup all these monies into their respective governments since this is a problem between two countries and not one, and the cumulative effect is a mathematical exercise, which is not what the actual flows are since in the real world these net off

fraud and carousel fraud. Acquisition fraud occurs when goods are regularly imported VAT free and then sold in the home market at a price including VAT. Instead of paying VAT to revenue authorities the importer disappears, resulting in missing VAT declarations and unrecorded and reported imports. Carousel fraud is similar to acquisition fraud, and occurs when a number of sales take place through home companies and the imported goods are re-exported over and over again to the country of origin (or any other country in the free-trade

zone) and thus move in a circular pattern. Carousel fraud usually relates to one consignment of goods that is shipped to and fro, between the same countries, going round and round, in order to reclaim VAT that was never paid in the first place. In this case, the fictitious exports are properly declared while the imports are not captured in trade data, which may lead to substantial asymmetries in partner country trade statistics.[45]

- **Misreported trade:** Trade may be reported and recorded by the authorities, but the declared values on the invoices have been fabricated and the trade transaction deviates from its true value. A plausible explanation for this could be capital flight, which is the GFI and HLP argument, particularly in the case of exchange controls. In this case, over-invoicing of imports and under-invoicing of exports is a pervasive method for moving capital out of the home country where the exchange controls prevail. There are other, equally plausible, explanations for mispricing working in the same direction as the above-mentioned scenario. Where exports are under-reported, firms acquire undisclosed foreign exchange, allowing exporters to utilise the foreign currency at will without needing to comply with any exchange controls and regulations. In countries where authorities use exports as a measure of production, firms could under-report exports to under-report output and thus evade domestic taxes.
- **Import restrictions:** Where there are import restrictions the pattern operates in the opposite direction, as there is an incentive to under-invoice imports. A common solution devised is the misdeclaration of cargo aimed at bypassing the trade restrictions. Similarly, to benefit from export subsidies, exports are over-stated. 'Celasun and Rodrik argue that a sizable share of the increase in Turkish exports after 1980 is due to a change in invoicing practices of domestic entrepreneurs (in order to take advantage of generous export subsidies).'[46]

Table 2 highlights the possible scenarios and what seems plausible.

45 In 2003 the UK National Statistics Office made adjustments to trade figures relating to acquisition and carousel fraud as a result of VAT fraud, resulting in real GDP growth for previous years being lowered by up to 0.2 percentage points. See UK Government, Report on Further Research into the Impact of Missing Trader Fraud on UK Trade Statistics, Balance of Payments and National Accounts , https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=3&ved=0ahUKEwj35t-X-vLPAhUiK8AKHXUWBuUQFggtMAI&url=http%3A%2F%2Fwww.ons.gov.uk%2Fons%2Frel%2Fuktrade%2Fuk-trade%2Freport-on-impact-of-mtic-on-uk-trade-statistics%2Freport-on-impact-of-mtic-on-uk-trade-statistics-.pdf&usg=AFQjCNEVhwm4V7MhmQtQEZXq4a_SBr5nzw&sig2=bskPhYX12ulxYMlsRHuEUg, accessed 16 August 2016.

46 Nitch V, Trade Mispricing and Illicit Flows , Darmstadt University of Technology, Darmstadt Discussion Papers in Economics, 2011, p. 3.

TABLE 2 EXPECTED SIGNS FOR IMPORTS (M) AND EXPORTS (X)

SCENARIO	POSSIBLE SIGN	INTERPRETATION	MISPRICING PLAUSIBILITY	RISK
Country *i* exports to Country *j* **Country *j* imports from Country i** **FORMULA: Country *i* exports LESS Country *j* imports**	**<***	• Country *i* under-invoicing/ reporting exports	• Tax evasion in Country *i* and (illegal) capital flight from Country *i*; exchange controls; smuggling/ misdeclaration; import quotas in Country *j*	High
		• Country *j* over-invoicing imports from Country *i*	• MNCs: Tax evasion in Country *j*; (illegal) capital flight into Country *i*; exchange controls	High (not a risk in a developing country such as South Africa or Zambia, but points to collusion and/or creative accounting)
	>	• Country *i* over-invoicing exports	• Export incentives	High
		• Country *j* under-invoicing imports from Country *i*	• MNCs: Import quotas in Country *j*; grey stock; smuggling; misdeclaration	Moderate (not a risk in a developing country such as South Africa, but points to collusion)
	=		• None • Mirror data due to non-existent reporting by a developing country	Low
Country *i* M from Country *j* **Country *j* X to Country *i*** **FORMULA: Country *i* imports LESS Country *j* exports**	**>**	• Country *i* under-invoicing / reporting of imports	• TNCs** and MNCs: Import quotas in Country *j*; grey stock; smuggling; misdeclaration	Low

SCENARIO	POSSIBLE SIGN	INTERPRETATION	MISPRICING PLAUSIBILITY	RISK
Country *i* M from Country *j* Country *j* X to Country *i* ***FORMULA: Country i imports LESS Country j exports***	>	• Country *j* over-invoicing exports to Country *i*	• Export incentives in Country *j*; capital flight into Country *i*; and exchange controls in Country *j*	Moderate
	<*	• Country *i* over-invoicing imports	• MNCs: Tax evasion in Country *i*; capital flight from Country *i*; misdeclaration	High
		• Country *j* under-invoicing its exports to Country *i*	• Tax evasion in Country *j*; capital flight into Country *i*; exchange controls; smuggling/ misdeclaration; import quotas in Country *i*	High (not a risk in a developing country such South Africa, but points to collusion and/or creative accounting)
	=		• None • Mirror data due to non-existent reporting by a developing country	Low

* desired sign
** transnational corporation

Source: Compiled by author

Official trade statistics are plagued with misreporting and fake declarations, with clear incentives for mis-invoicing.[47] As has been discussed above, using trade statistics to quantify the extent of misreporting and mispricing does have its own challenges, especially where certain financial flows offset each other in the aggregate statistics. From Table 2 it is clear that all scenarios are plausible, resulting in a setting off between the directions of flows. Trade mispricing is pervasive if the direction of the flows is driven by export under-invoicing and import over-invoicing (ie, where the expected signs appear).

47 See Bhagwati JN, On the under-invoicing of imports , *Bulletin of the Oxford University Institute of Statistics*, 26, November 1964; Bhagwati JN, Fiscal policies, the faking of foreign trade declarations, and the balance of payments , *Bulletin of the Oxford University Institute of Statistics*, 26, November 1964.

Data challenges

From the IMF DOTs method, if there is an overstatement of exports and/or an understatement of imports (ie, the variables carrying the wrong signs) researchers generally net out the two effects. This reduces the total impact of measured IFFs through trade mispricing. As a result, the adjusted GFI methodology estimates IFFs from mispricing by estimating the gross value excluding reversals (GER), as well as the gross value net of these reversals. However, the most common number referred to in the public domain is the cumulative value, which excludes the reversals. It is important for policymakers to understand that this is a theoretical exercise pointing to a problem, but it is not possible to recoup all these monies into their respective governments since this is a problem between two countries and not one, and the cumulative effect is a mathematical exercise, which is not what the actual flows are since in the real world these net off.

Another challenge stems from multilateral trade flows, where the correct identification of the source or destination country is not reported. When the country of final destination is unknown at the time of exportation the exporter declares the country of last shipment, while the country of final destination records imports by the country of origin, resulting in a mismatch. This contributes to a significant component of over- and/or under-estimation. Thus a word of caution is advised on interpreting the results. This is a major problem and could possibly be addressed with the introduction of the Unique Consignment Reference (UCR) tool[48] developed by the World Customs Organization (WCO). However, this tool is poorly implemented.

Another variance relates to timing lags between the departure and arrival of the shipment, particularly for long-haul destinations; there is a reporting lag between the date of export by the sending country and the date of import recorded by the receiving country. Thus it is possible that trade could be reported in different

48 The Unique Consignment Reference (UCR) is a reference number for customs use and may have to be reported to customs at any point during a customs procedure. The UCR should be: applied to all international goods movements for which customs control is required; used only as an access key for audit, consignment tracking and information, and reconciliation purposes; unique at both national and international level; applied at consignment level; and issued as early as possible in the international transaction. The main objective of the UCR is to define a generic mechanism that has sufficient flexibility to cope with the most common scenarios that occur in international trade. The basis of the UCR is to make maximal use of existing supplier, customer and transport references. The fundamental considerations behind the current UCR concept derive from the need for customs authorities to facilitate legitimate international trade, while, at the same time, not opening the flood gates as a by-product of relaxation of controls. The UCR will provide customs with an efficient tool to exchange information between enforcement agencies. As one of the leading international trade organisations stated: Like an electronic staple designed for e-commerce, a UCR binds information together [on] all the bits of data about a trade transaction, from initial order and consignment of goods by a supplier, to the movement of those goods and arrival at the border through to their final delivery to the importer. See WCO (World Customs Organization), WCO Unique Consignment Reference (UCR) , June 2004, http://www.wcoomd.org/en/topics/facilitation/resources/~/media/633F01FC1783462EA9DBDE125AF48834.ashx, accessed 16 November 2015.

calendar years. This lag in turn could result in valuation errors, especially in the import country, using different prices and more importantly exchange rates.

Recorded trade at the commodity level may differ due to the omission of individual transactions in one of the partner countries stemming from values below the threshold trade level,[49]

> including the exclusion of certain product groups in a country's trade statistics (such as military material or repair trade) or differences in commodity classification (e.g., a regrouping of a transaction into chapter 99, which covers items not elsewhere classified, for reasons of confidentiality).

Misdeclaration results in discrepancies in trade statistics. 'Transactions may be hidden completely (so that official statistics underreport trade), mispriced in trade invoices (with a priori unknown effects on trade statistics), or purely imaginary (so that trade is overstated in the data).'[50]

Some of the challenges relate to the incompleteness of and inconsistencies in the data. Some of the countries' mirror data are completely missing, which is not a problem if the country being analysed is not a trade partner. However, there are other instances where the data are missing or have zeros recorded in the ITC dataset, as is the case for 2015. This stems from those countries' not submitting their trade reports timeously to the WTO and the UN. In other instances, where there are long time delays (one to two years), the mirror data are reported until the trade reports are updated.

All these discrepancies in the data collation process mean that there are limitations as to what can be expected from an analysis of data. The following limitations are emphasised:

- Confidentiality affects the availability of some of the data collected, specifically on the detailed commodity categories, such as defence expenditure.
- Coverage is incomplete, that is, over the three-year period not all the countries have data available for all three years.
- Classifications vary, ie, different commodity classifications are used by different countries in different periods, so the comparison is not always exact. Although this is not a problem at the aggregate level, it will affect the analysis of the sectors and products. This results in misdeclaration and therefore an over- or under-statement of trade mispricing.
- Self-declaration affects many countries reporting their import and, particularly, their export data. This self-declaration also results in misdeclaration and therefore an over- or under-statement of trade mispricing.
- It is important to note that the data cannot identify mispricing conducted on the same customs invoice (GFI adjusts for this in its methodology).

49 *Ibid.*, p. 5.

50 *Ibid.*, p. 4.

- Conversion from one classification to another does not always map precisely. Although this will affect the sector and product categories, it does not affect the analysis at the aggregate country level.
- Due to South Africa's and Zambia's more consistent and up-to-date reporting, their data are often reported as the mirror data for the partner country's trade data. In this instance it is not possible to identify any trade mispricing.

Export data issues: It would appear that there is less of a problem with reported export data other than errors in capturing the information and self-declaration, which results in misdeclaration and misclassification. The Chamber of Mines, in a recent response to the UNCTAD report by Ndikumana,[51] argues that there are adequate checks and balances in place to ensure that the export data are correctly reported, as well as compliance with international tax standards. According to tax and customs expert Duane Newman,[52] the trade mispricing data come from export trade data and not export revenues declared for income tax purposes. It is important to remember that there could be multiple layers of invoicing on an export transaction; some have an impact on trade data and others not. For example, some fees would appear as royalties, technical assistance, management fees, etc. declared as revenue for income tax purposes but are not included in export trade data, while some are included in import trade data due to differences in the definition.

There could be multiple layers of invoicing on an export transaction; some have an impact on trade data and others not

These limitations mean that extra caution is needed when analysing the data and making inferences. It should be noted that Cerra, Rishi and Saxena argue that mis-invoicing often takes place in response to high trade taxes and thus may be unrelated to illicit flows. Furthermore, Chang and Cumby note that regular under-reporting of trade statistics can occur in both directions in order to evade trade barriers, adversely affecting any discernible capital flight through mis-invoicing.[53]

51 Ndikumana L, *Trade Mis-invoicing in Primary Commodities in Developing Countries: The Cases of Chile, C te d'Ivoire, Nigeria, South Africa and Zambia*, UNCTAD (UN Conference on Trade and Development), 2016a, http://unctad.org/en/PublicationsLibrary/suc2016d2.pdf, accessed 19 July 2016.

52 Email correspondence, Peter Draper and Duane Newman, 22 July 2016.

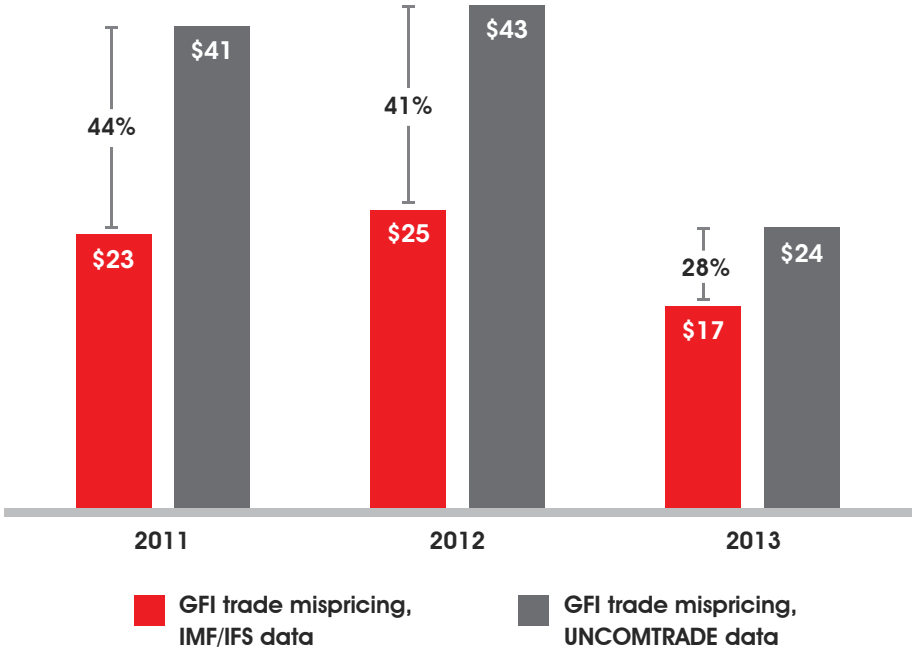
53 Kar D & D Cartwright-Smith, *op. cit.*, p. 10, argue that this is the case for Russia, where trade mispricing has the wrong sign, reflecting an inflow of illicit capital large enough to swamp outward illicit flows, using their Hot Money Narrow Method or the World Bank Residual Method. Even though the model indicates an inflow of illicit capital for some developing countries, we should not disregard the approach as invalid for the vast majority of developing countries.

The variances between the IMF and UNCOMTRADE datasets are significant and are largely related to valuation methods associated with annual or quarterly exchange rates, estimations regarding non-reporting, and so forth, leading to some of the mispricing on UNCOMTRADE.

Figure 11 highlights the variances between the datasets (as a result of estimations and exchange rates) using the same methodology. These were as high as 44% in 2011, albeit decreasing to 28% in 2013.

So which dataset is correct? Although both point to a problem of trade mispricing, the magnitude is questionable. It is important to note that until the anomalies are addressed in the data, particularly as they pertain to source and destination countries through the introduction of the UCR, the data will always be fraught with errors and high mispricing. The UCR represents the quick win in addressing the data anomalies.

FIGURE 11 SAME ESTIMATION METHOD, DIFFERENT DATABASE: SOUTH AFRICA, $ BILLIONS



Source: Nicolaou K & Y Wu, Presentation on TBML, Task Force for Curbing Illicit Trade Annual Conference, OECD, 2016

BOX 4 OUTCRY OVER NUMBERS

The 2016 UNCTAD report entitled *Trade Mis-invoicing in Primary Commodities in Developing Countries: The Cases of Chile, Côte d'Ivoire, Nigeria, South Africa and Zambia* and written by Prof. Léonce Ndikumana, has caused an outcry among South African government officials and the South African Chamber of Mines.

According to the report, about $113 billion (estimated in 2014 prices) worth of gold was exported between 2000 and 2014 to major trading partners without being recorded, representing gold that has supposedly been 'smuggled' out of the country. It also finds significant historical mis-invoicing of platinum exports of about $19 billion for the same period.

The issue was last year given new international prominence by former president Thabo Mbeki, who led a UN high-level panel investigation into the issue using the same COMTRADE database used by the report. Going estimates put Africa's export losses to this practice at, on average, $50 billion a year, which might theoretically have generated additional taxes of about $10 billion a year for the continent's governments. Ndikumana is one of a handful of influential researchers who are regularly cited regarding estimates of capital outflows on the African continent, which are often compared to the overseas development assistance inflows. Ndikumana argues that companies understate exports in order to move capital (or value) across borders.

However, the recent estimates of trade mis-invoicing in the gold and platinum sector reported by Ndikumana are based on reporting and classification problems in the UNCOMTRADE database. The Chamber of Mines and Statistician-General Pali Lehohla were angered by this report, released in July 2016. SARS, which was criticised for not curbing these large volumes of smuggling, has also criticised the report.

The numbers cited by the report are due to classification anomalies and can easily be refuted. More importantly, the biggest variance in the data stems from the manner in which source and destination is reported in the UNCOMTRADE database. Without the introduction of the UCR there will always be mispricing stemming from misreported trade consignments. There are many benefits to the UCR, which:

- promotes safe and secure borders by providing enhanced access to information at the time of release;
- assists in promoting co-operation between export and import customs by offering authorised traders end-to-end premium procedures coupled with simple integrated treatment of the total transaction;

- enables the processing of pre-arrival data prior to the assignment of a goods declaration number;
- contributes to rapid release;
- helps in the management of the logistical chain and enhancing just-in-time operations;
- eliminates redundant and repetitive data submitted by the carrier and the importer;
- reduces the amount of data required to be presented at the time of release;
- provides an additional aid in general cargo reception, handling and servicing at ports;
- allows commercial and official contacts/enquiries at any point in the logistical chain;
- reduces compliance costs;
- promotes greater customs co-operation; and
- improves the effective recording of consignments as they transit through different countries, reflecting trade more accurately.

The mistakes call into question some of the estimates regarding the pervasive nature of trade mis-invoicing, which is supposedly the leading contributor to illicit capital outflows from Africa. However, there are problems with South Africa's gold export reports, which follow the IMF standard and are poorly reported to UNCOMTRADE.

Source: Chamber of Mines, Trade mispricing: Chamber response to UNCTAD-sponsored report, Media Report, 25 July 2016, https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKEwjK1L_R_PLPAhUBLcAKHdSyD9MQFggdMAA&url=http%3A%2F%2Fchamberofmines.org.za%2Findustry-news%2Fmedia-releases% 2F2016%2Fsend% 2F24-2016%2F259-trade-mis-invoicing-chamber-response-to-unctad-sponsored-report&usg=AFQjCNFUcVrum8j9G-0m1OoaUQCYLJS62g&sig2=R5kw9hlSdEr3noh8MHcPHA, accessed 29 August 2016; Van Rensburg D, Being wrong while being right: Recent mis-invoicing statistics blunder by UNCTAD sounds the alarm bell on how much we don t know, pressreader, 7 August 2016, www.pressreader.com/south-africa/citypress/20160807/282540132721623, accessed 29 August 2016

The biggest issue really relates to the data. This can be seen from Box 4. Despite the data challenges, however, one should remember that this approach only addresses trade of goods and not trade of services, where the biggest opportunities to misprice exist.

It is also important to note that the magnitude of the problem identified by Ndikumana does point to an underlying issue. For one, there is a need to report gold, platinum and diamonds using the UNCOMTRADE standard rather than the IMF reporting standards in the BOP. Even after correcting gold, platinum and

diamond export data; source and destination country errors; misspecification errors; self-declaration errors, etc., there probably still is some underlying amount of mispricing. If not, the entire reporting of trade is called into question.

There is a need to report gold, platinum and diamonds using the UNCOMTRADE standard rather than the IMF reporting standards in the BOP

Not all the evidence in the Ndikumana report is misleading. What the report and the resultant outcry point to is the need for improvements in the reporting of import and export data. To totally discredit the work and the analysis ignores the cases where tax evasion through trade mispricing or abusive transfer pricing is evident. For example:[54]

- Evraz High Steel and Vanadium channelled billions of rands through a fake manufacturing subsidiary in Austria, with tax allowances facilitating a 75% reduction in the tax bill. It is currently trying to settle a tax claim with SARS of ZAR 689 million ($51 million).
- Kumba Iron Ore has a ZAR 5.5 billion ($410 million) tax and penalty claim against it.
- Also see the examples identified in the abusive and trade mispricing section above, regarding diamonds, sugar, Zambian copper, etc.

Moreover, discrediting the data and the analysis of officially reported data raises other concerns about the credibility of any trade analysis. Policymakers need some numbers to guide their decisions.

Methodological variations

Using the IMF DOTS method highlighted above, it is possible to crudely estimate the extent of IFFs by focusing on only one aspect thereof, namely the commercial tax evasion component as a proxy (ie, trade mispricing). As has already been highlighted, the methodology has data challenges so care should be taken when reaching conclusions.

GFI produces the most consistent and updated results for IFFs and is considered the 'go-to' source on the topic, with the president of the organisation having coined the phrase. Its methodology comprises two key components that make up IFFs, namely a 'Hot Money' Model estimated by looking at the net errors and omissions

54 Van Rensburg D, Being wrong while being right: Recent mis-invoicing statistics blunder by UNCTAD sounds the alarm bell on how much we don t know , pressreader, 7 August 2016, www.pressreader.com/south-africa/citypress/20160807/282540132721623, accessed 29 August 2016.

from the BOP account; and a Trade Mispricing Model estimated through the GER approach on the IMF DOTS method. The combination of these two represents IFFs. From Table 3 it is clear that there is a general downward trend for hot money measured by GFI since 2011.

Hot money is a small component of GFI's measured IFFs for most African countries, except Morocco, where it is exceptionally low in comparison with the other 10 most affected countries. Since hot money is not illegal (but possibly illicit), the focus will be on trade mispricing and its possible linkages to TBML.

TABLE 3 COMPONENTS OF ILLICIT FINANCIAL OUTFLOWS (% OF TOTAL IFFS)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	AVERAGE
Import over-invoicing	27.2	26.3	27.4	26.7	26.2	24.8	28.6	34.6	38.1	42.6	31.5
Export under-invoicing	65.9	59.3	61.3	59.6	58.2	53.9	49.5	51.5	42.9	37.9	52.0
Hot money narrow	6.9	14.4	11.3	13.8	15.6	21.3	21.9	13.9	18.9	19.4	16.6

Source: Kar D & J Spanjers, *op. cit.*

TABLE 4 GFI S MOST AFFECTED AFRICAN COUNTRIES, BY IFF COMPONENT (2013)

RANK	HOT MONEY AND TRADE MISPRICING ($ MILLIONS)		HOT MONEY ($ MILLIONS)		TRADE MISPRICING ($ MILLIONS)		TRADE MISPRICING AS A % OF TOTAL IFFs
1	Nigeria	26 735	Nigeria	26 735	South Africa	17 421	65.2%
2	South Africa	17 421	Libya	2 680	Morocco	3 934	22.6%
3	Equatorial Guinea	4 455	Egypt	1 317	Zambia	3 680	82.6%
4	Morocco	3 934	Equatorial Guinea	1 196	Ethiopia	3 371	85.7%
5	Zambia	3 709	Algeria	1 043	Equatorial Guinea	3 259	87.9%
6	Egypt	3 619	Ghana	659	Egypt	2 302	63.6%
7	Ethiopia	3 371	Tanzania	323	Tunisia	1 993	59.1%
8	Libya	3 008	Liberia	296	C te d Ivoire	1 917	63.7%
9	Tunisia	1 993	Mauritania	292	Chad	1 532	76.9%
10	C te d Ivoire	1 917	Madagascar	184	Togo	1 479	77.2%

Source: Kar D & J Spanjers, *op. cit.*

Thus the starting point of the analysis on trade mispricing is the five most affected countries on the African continent. Why bother if GFI has already assessed these countries? There is a fundamental difference between the GFI methodology and the one applied here.

Firstly, the GFI methodology for estimating trade mispricing for South Africa, Morocco and Zambia was updated in 2015. This is referred to as the new method–bilateral advanced economies calculation, which has been updated for 20 countries. In this case there is a one-to-one assessment of (bilateral) DOT for Country *i*, such as Zambia, with 36 advanced economies; and for the rest, an aggregated method is used, namely Trade (import or export) with the Rest of the World (ROW). The older method did not include a bilateral analysis of advanced economies, and instead used the aggregated method. For example, exports by Nigeria (Country *i*) would be compared to aggregate imports with the ROW to a total of 149 countries.[55] The ROW aggregate, which is a net figure, is applied to 93 countries (including China, Nigeria and Egypt) and results in a probable under-estimation of trade mispricing.[56] Thus, despite the data challenges, the revised GFI methodology is better and more accurate than using the averaging approach, which is why South Africa and Morocco exhibit a significant increase in trade mispricing. This method does not correct for source and destination errors for consignments in transit, and for South Africa the misclassification of gold, platinum and diamonds is probably a large proportion of the problem.

The reason GFI uses the new method–bilateral advanced economies calculation is that, according to Bhagwati,[57] the direction of trade between two developing countries cannot be determined with certainty and the direction of trade is generally from developing country to advanced economy, largely underpinned by weak and unreliable data from developing countries. Thus one can deduce that there is no trade mispricing between a developing African country trading with China. Clearly this approach is fundamentally flawed, since it discounts bilateral trade with China. China is the primary trading partner especially for South Africa, Nigeria and Zambia, and is among the top trading partners for Morocco and Egypt.

55 There are 149 countries less the 36 advanced economics and the 20 countries analysed: 149-36-20=93.

56 This averaging method results in probable underestimation, since it discounts the trade between developing countries. This is especially problematic for countries on the African continent where China, a developing country, is a primary trading partner.

57 The World Bank Residual and Trade Mis-invoicing models understate actual outflows of illicit capital due to missing data, particularly for the earlier years. For instance, reliable data on external debt, foreign direct investment and DOTS are not available for most African countries going back to 1970. For many countries only partial data are available, but a data gap in any part of the model s inputs necessitates setting that model s estimate to zero for that year. For example, South Africa was the only country with sufficient balance of payments data for the early 1970s, but as data on South Africa s external debt are not available, the World Bank Residual Model could not be estimated prior to 1994. The methodology takes into account the changing nature of trade and trade statistics.

The methodology used in this paper is a pure bilateral trade estimation method that compares bilateral trade (ie, exports) for Country *i* with trade (ie, imports) for Country *j* (ie, for more than 200 countries, where data are applicable and available and there are no mirror data due to non-reporting). The advantage of this bilateral approach is that, although an incredibly time-consuming exercise, it provides the extent of trade mispricing for each and every country, assuming that the data submitted to UNCOMTRADE (the officially reported data) are accurate.[58]

Thus, despite the challenges, especially the misspecification of South Africa's traded gold, platinum and diamond exports and the source and destination errors, an attempt is made to quantify the extent of trade mispricing to gain insight into this complex problem. To completely discount the data means that no trade analysis is credible and that the data collected and reported to the WCO are dubious – an equally dangerous conclusion.

TRADE MISPRICING: WHAT THE NUMBERS SAY

Using a one-to-one DOT analysis for the five most affected African countries and applying the 10% and 5% conversion factor, the following is evident: South Africa has the highest level of statistical trade mispricing, followed by Nigeria, Egypt, Morocco and Zambia.

Figure 13 highlights the total trade mispricing (gross excluding reversals), in millions of dollars for 2013, 2014 and 2015 (where the information exists) using the 1.1 standard conversion rate and 1.05, which is deemed to be more accurate as it was based on research on the average CIF between South Africa and all its trading partners.

58 It is important to note that for South Africa there is a misspecification regarding the exports of its largest traded commodities: gold, platinum and diamonds. The rest of the data are perhaps less problematic.

FIGURE 12 TRADE MISPRICING FOR FIVE AFRICAN COUNTRIES (2014)

MOROCCO

Morocco exhibits marginal increases in converting from 1.1 to 1.05

EGYPT

Egypt exhibits small decreases of 4.6% and 3.0% respectively when converting from 1.1. to 1.05

NIGERIA

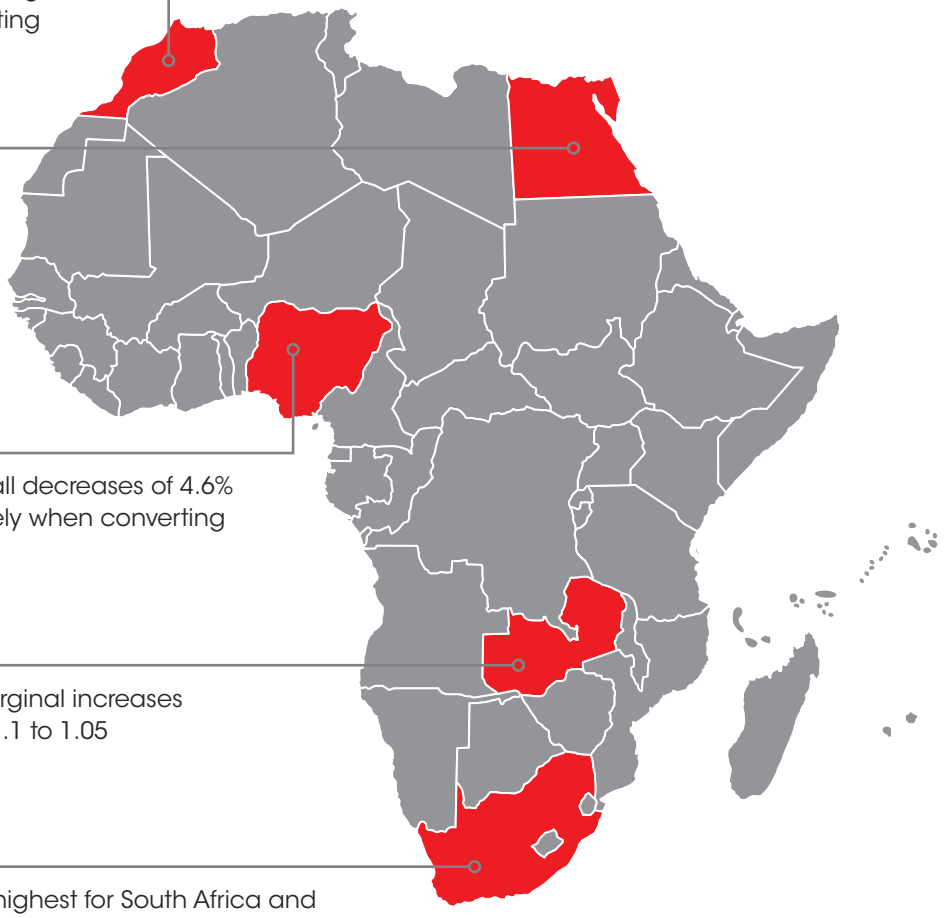
Nigeria exhibits small decreases of 4.6% and 3.0% respectively when converting from 1.1. to 1.05

ZAMBIA

Zambia exhibits marginal increases in converting from 1.1 to 1.05

SOUTH AFRICA

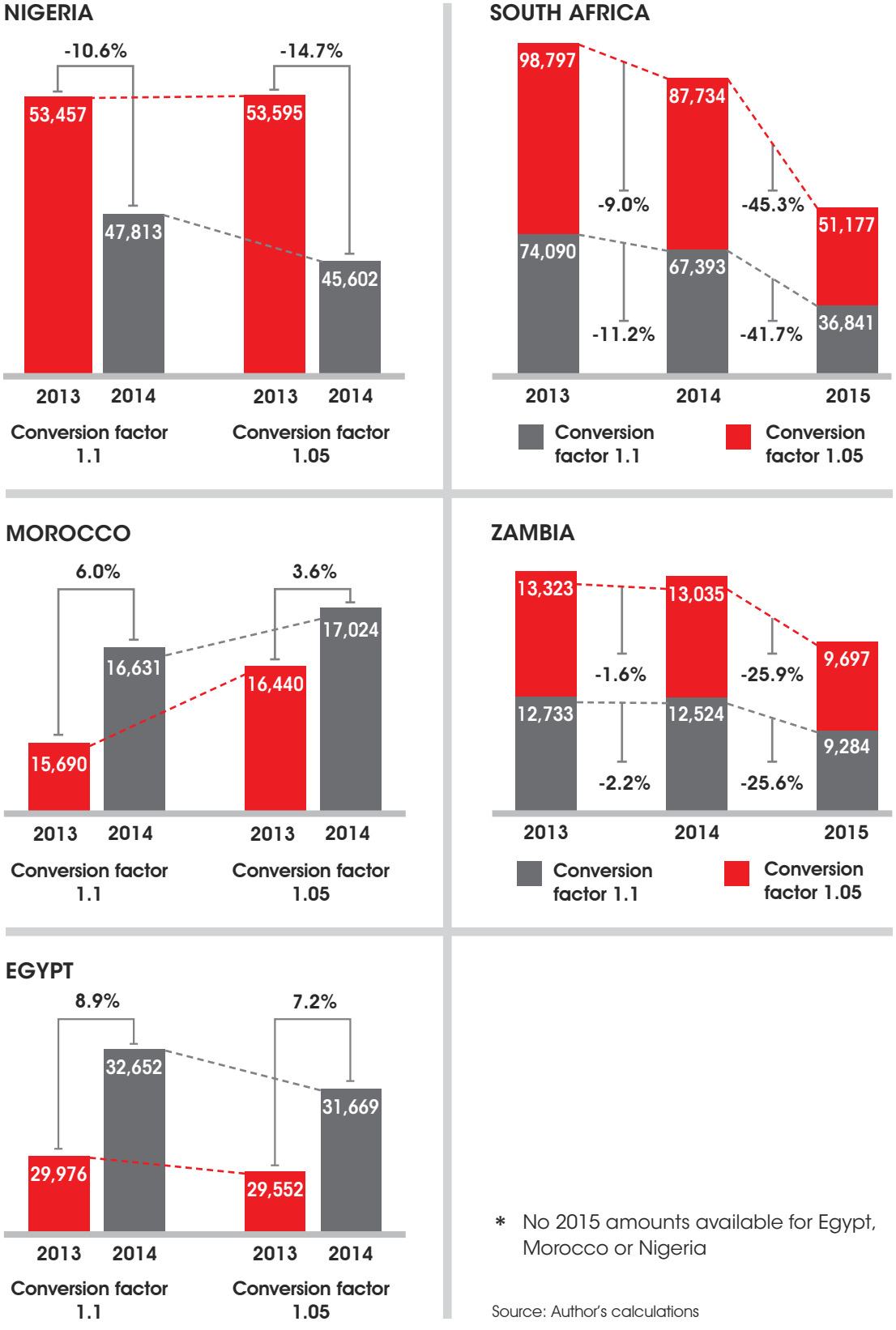
Trade mispricing is highest for South Africa and increases by 30.2% if the correct conversion ratio of 1.05 is used



TRADE MISPRICING: GROSS EXCLUDING REVERSALS ($ MILLIONS)		
CONVERSION RATIO	1.1	1.05
South Africa	67,393	87,734
Nigeria	47,813	45,602
Egypt	32,652	31,669
Morocco	16,631	17,024
Zambia	12,524	13,035

Source: Author's calculations

FIGURE 13 GROSS TRADE MISPRICING EXCLUDING REVERALS FOR SELECTED AFRICAN COUNTRIES (2013, 2014 AND 2015*)



* No 2015 amounts available for Egypt, Morocco or Nigeria

Source: Author's calculations

TABLE 5 TRADE MISPRICING RESULTS USING THE BILATERAL TRADE APPROACH (DOT) (2011, 2012 AND 2015*) ($ MILLIONS)

	CONVERSION FACTOR 1.1			CONVERSION FACTOR 1.05		
	2013	2014	2015	2013	2014	2015
GROSS TRADE MISPRICING (EXCLUDING REVERSALS)						
Nigeria	53,457	47,813		53,594	45,602	
South Africa	74,090	67,393	36,841	98,797	87,734	51,176
Morocco	15,690	16,631		16,440	17,024	
Zambia	12,734	12,524	9,284	13,323	13,034	9,697
Egypt	29,976	32,652		29,552	31,669	
NET FLOWS (INCLUDING REVERSALS; INFLOWS LESS OUTFLOWS)						
Nigeria	**5,742**	**19,112**		**777**	**13,762**	
South Africa	60,610	59,577	34,951	57,373	59,022	35,927
Morocco	1,947	2,284	0	4,723	5,179	0
Zambia	1,715	573	359	2,433	1,218	842
Egypt	**804**	**8,971**		3,252	**4,796**	

* No 2015 amounts available for Egypt, Morocco or Nigeria

Source: Author s calculations

Bearing the data challenges in mind, the above analysis indicates likely net trade mispricing inflows that outweigh outflows for Nigeria; this is due to import under-invoicing (or, to a lesser extent, export over-invoicing). The amount for 2014 is significantly larger, amounting to nearly $20 million using the 1.1 or about $14 million using the 1.05 adjustment factor. Nigeria's apparent total outflows, using 1.1 (and 1.05 in brackets) amounted to $23.9 million ($26.4 million) in 2013, with a decrease of nearly 40% to $14.3 million ($15.9 million) in 2014. On the other hand, apparent inflows increased from $29.6 million ($27.2 million) in 2013 to $33.5 million ($29.7 million) in 2014.

For South Africa, the outflows far outweigh the inflows and stem from export under-invoicing. This error is largely due to the missing gold, platinum and diamond exports in the data. The data analysis points to significant trade mispricing when using this direction of trade approach. This is because the counter-party country is reporting gold imports from South Africa but, due to the latter's misreporting of gold and platinum exports, this is in fact a misspecification and not mispricing. Therefore, South Africa needs to correct its reported data. This probably accounts for why South Africa's trade mispricing is an outlier. South Africa has one of the largest economies on the continent and is among the richest countries in the world in terms of its extractive wealth. It is not possible that the full amount of the trade mispricing identified above is all a reporting and misspecification/

misclassification error. Thus there is trade mispricing, but the extent of this would have to be discounted significantly in the gold, platinum and diamond sectors, as a result of the misspecification in the UNCOMTRADE database. Using 1.05 as the most accurate measure for South Africa, probable outflows for 2013 were $78.1 million, decreasing to $73.4 million the following year, coupled with a further significant decrease in 2015 to $43.6 million. Apparent net outflows for South Africa amounted to $57.4 million in 2013, decreasing to $35.9 million in 2015. A large proportion of this could be discounted, resulting in a smaller trade mispricing figure.

For 2015, FDI into South Africa decreased markedly by 69% to $1.8 billion, the lowest level in 10 years, owing to poor economic performance, lower commodity prices and higher electricity costs.[59] Divestments during the first quarter from non-core assets in manufacturing, mining, consulting services and telecommunications contributed to the decline in FDI. Even excluding divestments, however, inflows were considerably lower than in 2014, owing to the economy's continued reliance on mineral-based exports. This divestment into South Africa could also explain the declining trend in trade mispricing.

The apparent outflows for Morocco are higher than inflows. Total likely outflows, using 1.1 (and 1.05 in brackets) in 2013 amounted to $8.8 million ($10.6 million) and increased marginally by 7.3% (4.9%) to $9.5 million ($11.1 million) in 2014. Moroccan inflows have likely increased marginally from $6.9 million ($5.9 million) in 2013 to $7.2 million ($5.9 million) in 2014. Nigeria has also seen decreases in FDI in 2015, which will more than likely point to decreases in trade mispricing for 2015, when the data become available.

Zambia's apparent outflows also outweigh inflows and Egypt experiences likely inflows, which increased nearly tenfold between 2013 and 2014, stemming from (counter-party) import under-invoicing.

It is important to note that these numbers differ from the GFI numbers measured by Kar *et al*. since they use an aggregate measure for estimating trade mispricing for all but 20 countries linked to trade (flows) to the 36 advanced economies. This aggregate approach for the balance results in an under-estimation of the results, but the data challenges listed in the following section need to be taken into account.

Figure 14 highlights the counter-party trading partners that are responsible for monies flowing into and out of the five countries of interest, using the 1.05 conversion rate.

59 UNCTAD, World Investment Report , 2016b, p. 41, http://unctad.org/en/PublicationsLibrary/wir2016_en.pdf, accessed 31 August 2016.

FIGURE 14 LIKELY INFLOWS AND OUTFLOWS FOR SELECTED AFRICAN COUNTRIES (1.05 CONVERSION RATE, 2014) ($ MILLIONS)

NIGERIA OUTFLOW 2014

Germany	3 315
South Korea	2 344
Brazil	1 352
Belgium	1 250
Japan	1 036
China	862
Switzerland	820
Latvia	646
Argentina	568
Taiwan (Chinese Taipei)	423

NIGERIA INFLOW 2014

China	5 677
Italy	3 569
Netherlands	3 018
Turkey	2 109
United Kingdom	1 898
France	1 615
United States	1 384
Spain	1 364
Portugal	1 086
Niger	1 066

SOUTH AFRICA OUTFLOW 2014

China	33 769
Nigeria	8 080
Saudi Arabia	7 174
Hong Kong	2 806
United Kingdom	2 280
United States	2 274
India	1 939
United Arab Emirates	1 469
Germany	1 469
Italy	1 203

SOUTH AFRICA INFLOW 2014

Zimbabwe	1 866
India	1 171
Germany	1 124
Netherlands	1 110
Côte d'Ivoire	864
Belgium	719
United Kingdom	648
Hong Kong	640
Tanzania	639
Israel	611

ZAMBIA OUTFLOW 2014

China	3 048
United Arab Emirates	1 117
South Korea	370
Saudi Arabia	261
South Africa	229
Kuwait	227
Italy	211
India	179
Singapore	137
United Kingdom	129

ZAMBIA INFLOW 2014

Switzerland	4 327
Australia	349
South Africa	340
Singapore	294
Namibia	107
Malawi	67
Luxembourg	48
Tanzania	48
Japan	42
Botswana	36

MOROCCO OUTFLOW 2014

Saudi Arabia	1 974
Russia	1 271
United States	1 162
France	904
China	600
Germany	471
Ukraine	339
Belgium	334
Italy	292
Mexico	244

MOROCCO INFLOW 2014

Spain	1 959
France	947
Netherlands	339
Sweden	234
Singapore	187
Romania	158
Belgium	156
United Kingdom	153
Italy	133
Portugal	125

EGYPT OUTFLOW 2014

Kuwait	3 276
Germany	2 692
Malta	857
China	774
Saudi Arabia	640
Greece	592
Italy	575
France	475
United States	353
United Kingdom	287

EGYPT INFLOW 2014

China	2 787
United Arab Emirates	2 084
United States	1 521
Russia	1 314
Netherlands	982
India	921
Turkey	664
Belgium	660
Indonesia	605
Italy	513

Source: Author s calculations

China is Africa's largest trading partner, and it is not surprising that it ranks first on the outflows list for countries such as South Africa and Zambia. Both these countries have rich extractives sectors. According to Cassara,[60] modern Chinese *hawala* or *fei-chien* (literally 'flying money') relies on networks of trade partners, often linked by family ties, to move cash using trade (see Box 1). One example of the abuse of *fei-chien* is Chinese firms working with *fei-chien* brokers who can send money out of China by under-invoicing exports and overvaluing imports. This is often linked to the trade of goods such as gold, shoes, steel and textiles.

At the product level of analysis, the bulk of trade mispricing between South Africa and China resides in category 99, the miscellaneous goods category, mostly believed

60 J Byrne, Money laundering s other face: Book review , Banking Exchange, 30 November 2015, http://www.bankingexchange.com/blogs-3/books-for-bankers/item/5919-money-laundering-s-other-face, accessed 14 April 2016.

to be gold – probably illicit or second-hand, monetised gold. This would validate the use of trade through a valuable item to repatriate monies to China.

For South Africa, the challenge relates to the way gold trade is reported, which is based on the IMF system and not the UNCOMTRADE reporting method used for the rest of its trade categories.

It is not possible to analyse China without understanding its symbiotic relationship with Hong Kong (China). In 2015 Hong Kong became the second largest FDI recipient in the world after the US.[61] This increase was mainly due to a rise in equity investment, which resulted in part from a major corporate restructuring involving Cheung Kong Holdings and Hutchison Whampoa, under the control of the Li family. This conglomerate restructured its main business, switching its business base from Hong Kong to the Cayman Islands. Hong Kong is in second position in the 2015 Financial Secrecy Index.[62] Its secrecy score is 72 out of 100, and it accounts for about 4% of the global market for offshore financial services, which is growing at an accelerated pace. Hong Kong's secrecy offerings have for years made it a major 'round-tripping' destination, particularly for China. Tax is an equally beneficial component of Hong Kong's offshore offering. Hong Kong does not tax capital gains, dividends or deposit interest, and has no inheritance taxes. Like many secrecy jurisdictions it adopts a 'territorial' principle, where it only taxes income arising in Hong Kong. Profits from trading operations abroad, accruing to Hong Kong wealth managers, are generally untaxed:[63]

> Hong Kong is widely used as a base for transfer mis-pricing, where corporations shift profits offshore to escape tax, round-tripping money to Hong Kong, dressing it up in offshore secrecy, then returning it to China masquerading (illegally) as foreign investment, in order to obtain special privileges afforded to foreigners. The Asian Development Bank remarked in 2004 that 'the scale of round tripping FDI in PRC [China] is very large' and the State Administration of Foreign Enterprises (SAFE) admitted that Chinese mainlanders, not foreigners, were significantly behind the flow of speculative 'hot money' into China.

Round-tripping probably explains the $2.1 trillion in nominal inward investment into China at the end of 2012, with over $950 billion being sourced (nominally) from Hong Kong; the second largest direct 'investor' in China was the British Virgin Isles with an estimated $320 billion. Recorded direct investment from the US into China amounted to $63 billion. It is believed that most of this investment is likely to be Chinese origin capital, routed via family links within the US Chinese diaspora.[64] It is well known that much of the recorded FDI into China is financed by domestically generated funds that leave the country to return as 'round-tripping' FDI. Geng estimates that round-tripping most likely accounts for 40% of recorded

61 UNCTAD, 2016b, *op. cit.*, p. 45.

62 Financial Secrecy Index, Narrative Report on Hong Kong , 2015, p. 1, http://www.financialsecrecyindex.com/PDF/HongKong.pdf, accessed 31 August 2016.

63 *Ibid.*, p. 7.

64 *Ibid.*, p. 7.

flows, and argues that, conceptually, FDI to an economy is linked with its capacity to generate new capital, so that FDI to the East Asian region cannot be seen as a zero-sum game, where the gain of one country comes at the expense of another.[65]

BOX 5 CHINESE FLYING MONEY AND TRADE

Chinese underground finance has existed since long before the advent of modern-day banking, and is similar to the *hawala* system or 'alternative remittance system'. The Chinese system was used to transmit wages back home; an area with which law enforcement officials do not wish to interfere. Unfortunately, this system is abused by criminals, who move, transfer and launder illicit proceeds. The lack of a proper paper trail makes this system opaque and attractive, as it avoids government scrutiny, taxes and countermeasures, such as compliance with the Financial Intelligence Centre Act.

It is believed that *fei-chien* or 'flying money' dates back to the T'ang Dynasty (618–907 AD). At the time there was a growing commodity trade within China – historians think that it was linked to the rice and tea trade – creating a new financial system. Ironically, the system was originally developed as a tool to facilitate tax payments, whereas its modern-day use is to evade tax. Merchants sold their goods and reported their revenues at provincial 'memorial offering courts', which the government used to collect taxes. The merchants were issued with certificates for the remaining value of the commodity sales. At home the merchants would present the certificates to the provincial government for payment, making it a system that facilitated payment via trade-based value transfer. This way, large sums of money did not need to be transported.

Over the centuries, the system continued to evolve and has progressively been used to repatriate money.

With growing merchant trade and 'Chinatowns' all over the world, flying money is growing. Strong family bonds are incorporated into *guanxi*, which is an overarching social system of rules governing relationships and social behaviour, guaranteeing secrecy and the integrity of the parties of the transaction. It is very difficult for outsiders to penetrate these underground financial networks.

These systems transfer money without it actually crossing borders or moving. If person A in a Chinese province wants to send 1 million Chinese

65 Geng X, *Round-tripping Foreign Direct Investment and the People s Republic of China*, ADB (Asian Development Bank) Institute Research Paper, 58, July 2004, p. iii, http://www.adb.org/sites/default/files/publication/157240/adbi-rp58.pdf, accessed 31 August 2016.

yuan of illicit proceeds to his brother in New York City, person A gives the provincial 'flying money' broker the yuan and in turn receives a code number. There is trust, as they have a family tie. The provincial broker directs his counterpart (perhaps a member of the same family) to pay the equivalent in US dollars upon presentation of the code. The code could be an expression in a telephone call or a message contained in an e-mail. At times, a playing card or a portion of a currency note with a specific chop, mark, seal or some other physical sign must be presented to the broker as a sign of authentication. Upon receipt of the code, the New York broker pays person A's brother in New York City. The money never physically left Hong Kong or physically entered New York. Bitcoin or cryptocurrency operates much the same way.

The World Bank estimates these informal remittance exchanges are at least 50% more than recorded transfers, estimated at $707 billion in 2016. The IMF and World Bank reckon these unrecorded flows could be over $1 trillion. There is a massive influx of Chinese in Africa, and they do not keep their money on the continent – they send it back home. Thus massive amounts of capital leave China and massive amounts return.

Surplus credits could also be used by a client unrelated to the original transactions, where credits could be utilised for the purchase of foreign real estate. For a fee, a person who wants money outside China pays yuan in China to a 'flying money' broker and receives credits in the desired foreign location in that local currency. This is achieved through trade, since most brokers have trading companies that are used to settle accounts, where TBML techniques, invoice fraud and manipulation are used. There are a variety of techniques, but the most common are over- and under-invoicing.

To move money out, import goods are overvalued or export goods are undervalued, while moving money in requires imported goods to be undervalued or exported goods to be overvalued.

Brokers earn commissions, often by using legitimate businesses as fronts, including restaurants, 'China shops' and trading companies. Of course, in the underground remittance segment of their business they skirt regulations and taxes. Understanding the linkages to TBML and value transfer is the next step in international money laundering enforcement.

Source: Cassara J, The next terrorism financiers: Stopping them before they start , Congressional testimony, hearing before the Task Force to Investigate Terrorism Financing, House Financial Services Committee, 3 February 2016, http://www.defenddemocracy.org/content/uploads/documents/Cassara_The_Next_Terrorist_Financiers.pdf, 14 April 2016

An alternative measure: Trade-based money laundering combining bilateral trade (DOTS) method with the attractiveness index from the Gravity Money Laundering Model

In order to tackle the Bhagwati criticism, which relates to the direction of trade between two developing countries both plagued by poor governance structures and resulting in unreliable data with little confidence as to the DOT, it is necessary to find an alternative methodology. This approach builds on the bilateral DOT model discussed above and applies the Walker Gravity Model, which uses an attractiveness index as a gauge where the proceeds of crime (which include tax evasion) are likely to be laundered. The details pertaining to the gravity model and the attractiveness index are attached in annexure B.

TBML is merely trade mispricing and centres around invoice fraud and the manipulation of supporting documents. When a buyer and seller work together, the price of goods (or services) can be whatever the parties want it to be.

The primary techniques used for invoice fraud and manipulation are:[66]

- over- and under-invoicing of goods and services;
- multiple invoicing of goods and services; [and]
- falsely described goods and services.

Other common techniques related to the above include:

- Short shipping: this occurs when the exporter ships fewer goods than the invoiced quantity of goods thus misrepresenting the true value of the goods in the documentation. The effect of this technique is similar to over invoicing.
- Over shipping: the exporter ships more goods than what is invoiced thus misrepresenting the true value of the goods in the documentation. The effect is similar to under invoicing.
- Phantom shipping: No goods are actually shipped. The fraudulent documentation generated is used to justify payment abroad.

Thus trade mispricing and TBML are similar but the laundering component has more to do with the attractiveness of a destination to launder money, based on a series of criteria, including:

- the share of offenders' incomes transferred from the host country to the destination country;
- the gross national product in the country of destination;

66 Cassara J, The next terrorism financiers: Stopping them before they start , Congressional testimony, hearing before the Task Force to Investigate Terrorism Financing, House Financial Services Committee, 3 February 2016, http://www.defenddemocracy.org/content/uploads/documents/Cassara_The_Next_Terrorist_Financiers.pdf, accessed 14 April 2016.

- banking secrecy and the application of the 40+ FATF rules;[67]
- government attitudes;
- the existence or lack of a SWIFT[68] system;
- the existence of wars on the state territory;
- corruption; and
- the real and virtual distance between two states, linked to common borders, language, culture and distance.

Fundamentally, this is a DOT (trade mispricing) model with an added gravity money-laundering (attractiveness) dimension, rendering it a TBML model. Essentially, where two developing countries trade with each other, the DOT is based on where the attractiveness index is greater, meaning where money launderers are more likely to transfer their illicit proceeds (including tax evasion).

According to the De Boyrie, Pak and Zdanowicz[69] study on Switzerland in 2005, there were significant changes in the degree of abnormal international trade pricing subsequent to the enactment of Switzerland's anti-money laundering legislation. The authors argued that individuals and companies find substitute techniques and channels to launder money when central banking authorities close loopholes in the financial space. With the significant changes in the anti-money laundering legislation implemented through the FATF and EGMONT,[70] the opportunities or loopholes to launder money through the financial system are disappearing, and this will be exacerbated with the introduction of beneficial ownership registers. It would therefore appear that there is a ballooning effect in the trade sector, which could also be associated with the decline in hot money as a percentage of total IFFs (as estimated by GFI in Table 3: Components of illicit financial outflows [% of total IFFs]).

67 The Financial Action Task Force (on Money Laundering) (FATF), also known by its French name, *Groupe d'action financi re* (GAFI), is an intergovernmental organisation founded in 1989 on the initiative of the G7 to develop policies to combat money laundering and terror financing (added in 2001). The FATF monitors countries progress in implementing the 40 plus 9 FATF Recommendations through peer reviews or mutual evaluations of member countries.

68 SWIFT stands for the Society for Worldwide Interbank Financial Telecommunications. It is a messaging network that financial institutions use to securely transmit information and instructions through a standardised system of codes. Behind most international money and security transfers is the SWIFT system, a vast messaging network used by banks and other financial institutions to quickly, accurately and securely send and receive information such as money transfer instructions.

69 De Boyrie M, Pak S & J Zdanowicz, The impact of Switzerland s money laundering law on capital flows through abnormal pricing in international trade , *Applied Financial Economics*, 15, 4, 2005, pp. 2172 30.

70 The Egmont Group of Financial Intelligence Units is an informal network of national financial intelligence units (FIUs). National FIUs collect information on suspicious or unusual financial activity from the financial industry and other entities or professions required to report transactions suspected of being money laundering or terrorism financing. FIUs are normally not law enforcement agencies, with their mission being to process and analyse the information received. If sufficient evidence of unlawful activity is found, the matter is passed to the public prosecution agencies.

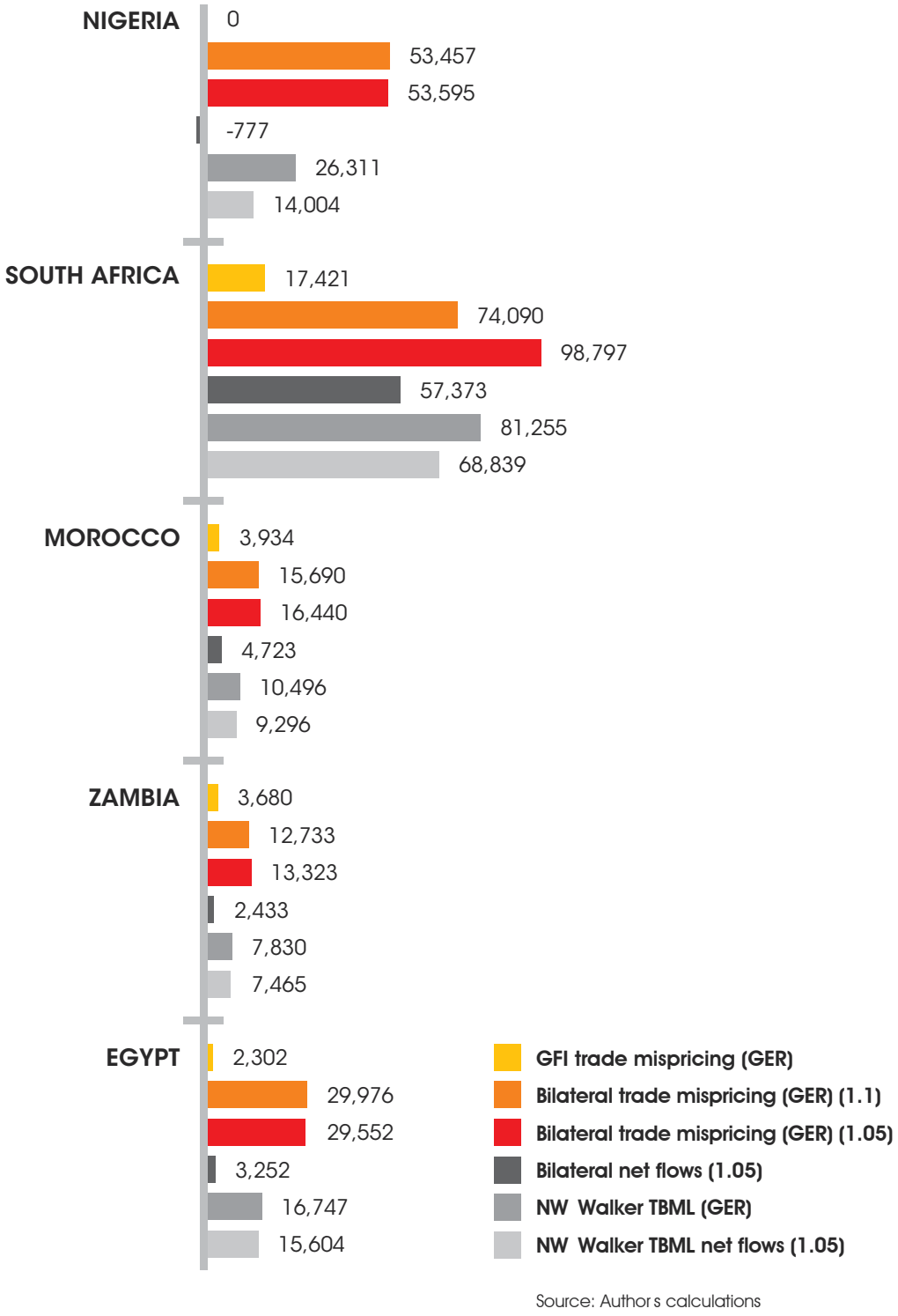
TABLE 6 NW* WALKER TBML MODEL			
DESCRIPTION (USING 1.05 CONVERSION RATIO)	2013	2014	2015
	$ MILLIONS	$ MILLIONS	$ MILLIONS
Nigeria			
Gross trade mispricing	26,311	15,704	0
Net effect on the country (outflows less inflows)	14,004	5,827	0
Outflow	20,157	10,766	0
Inflow	6,154	4,938	0
South Africa			
Gross trade mispricing	81,255	74,489	42,729
Net effect on the country (outflows less inflows)	68,839	68,114	41,237
Outflow	75,047	71,302	41,983
Inflow	6,208	3,188	746
Morocco			
Gross trade mispricing	10,496	11,130	0
Net effect on the country (outflows less inflows)	9,296	10,371	0
Outflow	9,896	10,750	0
Inflow	600	380	0
Zambia			
Gross trade mispricing	7,830	7,125	5,193
Net effect on the country (outflows less inflows)	7,465	6,790	5,117
Outflow	7,647	6,957	5,155
Inflow	182	168	38
Egypt			
Gross trade mispricing	16,747	13,738	0
Net effect on the country (outflows less inflows)	15,604	12,338	0
Outflow	16,176	13,038	0
Inflow	571	700	0

* NW stands for Nicolaou-Wu

Source: Own calculations

The most striking feature of these results is that, with the TBML approach, the apparent outflows out of Africa into other developing countries increase significantly. For example, Nigeria exhibited a likely net inflow, but with this TBML approach there is an apparent outflow of funds out of Nigeria, with inflows reducing significantly. Given Nigeria's petroleum wealth, this seems more plausible and aligned to anecdotal evidence that Nigerians (and the citizens of other countries on the continent) invest in countries such as South Africa. With the TBML approach, all countries show likely net outflows.

FIGURE 15 COMPARISON OF TRADE MISPRICING RESULTS: GFI MODEL AND NW WALKER MODEL (2013)



Source: Author s calculations

Figure 15 highlights the differences between the different models. The 2013 results are used for comparison with the original GFI results.

From Figure 15 it is evident that the GFI number underestimates the extent of mispricing, due to the fact that it uses the IMF data. Recall from Figure 11 that the variance between IMF data versus COMTRADE data can be as much as 44% due to estimation variances linked to valuation of the data, as a result of standardisation, exchange rates and so forth. The fact that GFI uses the aggregate method for 93 countries and only applies the new bilateral analysis explains why Nigeria exhibited zero trade mispricing. It is important to compare the following:

- net flows from the bilateral model with net flows in the TBML model; and
- trade mispricing (GER) for GFI, with the bilateral model (GER, 1.1), with the bilateral model (GER, 1.05) and with the TBML (GER).

In essence, the TBML approach results in somewhat smaller gross mispricing (or TBML) than when compared to the bilateral model using either 1.1 or 1.05 conversion rates. Secondly, the apparent net flows with the bilateral model were relatively small and negative for Nigeria in 2013. However, the TBML net flows indicate that significant outflows are likely to exist for all countries, which in turn show that there is something amiss in the customs and trade space.

One thing is clear: if a TBML approach is considered there appears to be an increase in the extent of mispricing or laundering between developing countries. The hypothesis that illicit financial outflows move from developing to advanced economies is not entirely correct, and the TBML approach indicates that there is

If a TBML approach is considered there appears to be an increase in the extent of mispricing or laundering between developing countries

significant trade mispricing (or TBML) between developing countries themselves, and between more and least developed countries.

Less focus should be placed on the actual number, since this is a clandestine activity and, more significantly, since there are the data problems. It is more important to understand that regardless of what methodology is being used, even discounting for data problems and misspecifications or misclassification due to source and destination country, there is an underlying trade mispricing or TBML problem that results in outflows from developing countries to either advanced or other developing countries.

The IMF DOTS method and the one outlined above do have a trade bias, but it could also be indicative of the fact that with increased anti-money laundering legislation tightening the screws in the financial sector there could be a ballooning effect, with companies and individuals capitalising on the weaknesses of customs officials in developing countries to vet, interrogate and investigate consignments entering or leaving their borders.

There are problems with the data reported in the customs and trade space that warrant attention. There is also mispricing or TBML where the loopholes need to be closed.

POLICY RECOMMENDATIONS

IFFs are complex and include many different elements, some of which are currently being attended to by a combination of international organisations and G20 structures. This includes the work being done on anti-corruption and bribery, transparency of beneficial ownership, transfer pricing and related international taxation issues under the G20/OECD BEPS project and tax transparency under the Global Forum on Transparency and Exchange of Information for Tax Purposes. International organisations are also adding value in this space, including the UN, the FATF and the OECD through the Oslo Dialogue, to name a few. This means that the two core components of IFFs, namely corruption and the proceeds of crime, are being addressed.

There are gaps relating to the commercial tax evasion component, which includes abusive transfer pricing and trade mispricing. The former, found with related entities, is being targeted through the OECD's work on BEPS, the Demand Resource Management process and the EITI initiative regarding country-by-country reporting. Trade mispricing and, closely linked to it, TBML, is a gap that needs to be addressed. The FATF raised the issue of TBML in 2006, but little has been done and evidence is mounting that terrorist activities are being financed through illicit trade, such as counterfeit goods. Gaps in addressing this component of IFFs, especially regarding unrelated or seemingly unrelated entities, require further attention. GEG efforts to support the South African government have led to the successful inclusion of the commercial tax evasion component in the agenda of the G20 Development Working Group, complementing the work by the anti-corruption and trade working groups.

The following is recommended:

- This topic requires a coherent policy agenda supported by improvements in the exchange of information and co-operation between governments. IFFs is a concept gaining momentum, and represents an additional lens in the way policies are drafted to address it. The work on BEPS, country-by-country reporting by the Stolen Asset Recovery (STaR) programme run by the World Bank, double taxation agreements, anti-corruption efforts, the FATF and EGMONT work on anti-money laundering and counter-terror financing as well as customs and trade, to mention a few, all attempt to address one or more of the components of IFFs, whether directly or indirectly. These need to be considered in a more comprehensive, consistent and coherent manner, ensuring that these institutional guidelines and recommendations talk to each other and foster greater collaboration between government agencies.
- Commercial tax evasion requires information exchanges between government departments/agencies within a country as well as across borders. This co-operative

governance approach needs to span the following authorities: tax, customs, central banks, treasuries and financial intelligence units.

- It is necessary to encourage African countries to participate in the best-practice models and approaches of the EITI. This focuses on country-by-country reporting but is an equally powerful tool in addressing abusive transfer pricing by MNCs.
- The automatic exchange of tax information through the Global Forum on Transparency and Exchange of Information for Tax Purposes is a wonderful tool that fosters the automatic exchange of tax information. Although the exchange of information has created opportunities for tax arbitrage, being aware of the implications is the first step in addressing them. Customs authorities do not automatically exchange information, which is necessary for a monitoring and oversight body such as the Global Forum. Investigations are a different issue – in this case information is shared but the process is slow. It should be added that these reforms should be incorporated in the models/initiatives established towards the implementation of the Trade Facilitation Agreement (Bali Agreement) to ensure coherence, and countries must notify of these reforms at WTO level.
- The biggest gap at the moment relates to trade mispricing (mis-invoicing). It is necessary to emulate the tax successes and practices in the customs and excise area, thereby creating an environment where there is a single multilateral instrument coupled with political support for the implementation and monitoring thereof. Increased financial regulation closes the loopholes for moving wealth through the financial sector, resulting in wealth shifting illicitly or illegally using trade as an alternative mechanism (ie, abusive transfer pricing, trade mispricing and TBML). In 2009 the Global Forum was restructured in response to the G20's call to strengthen the implementation of the exchange of tax information standards. The G20 needs to establish a similar process in the trade and customs space.
- The data need to be fixed. South Africa needs to correct the data for its largest exports reported to UNCOMTRADE, namely gold, platinum and diamonds. Efforts to improve reporting standards, classifications and addressing source and destination reporting for goods in transit are a critical step in improving the accuracy of the analysis. Methodologically, there is nothing wrong with the approach; the problem is the data.
- The G20 Development Working Group has focused on the commercial tax evasion component of IFFs and, with the assistance of the OECD, has mandated the WCO to develop and implement a multilateral instrument fostering the automatic exchange of customs information, including the enforcement and implementation of the UCR instrument. The WCO requires clear guiding elements propelling members to share information, coupled with the necessary monitoring mechanism. This will go a long way in addressing some of the key weaknesses in the data, resulting in estimation and valuation errors parading as trade mispricing. Addressing source and destination will probably address a large proportion of the anomalies in data misspecification.

- The introduction of an online, real-time benchmark pricing tool included in the customs risk engine could make a significant impact on raising the importance of mispriced goods, long before the consignment reaches a country's borders.
- Improved capacity at customs is critical, coupled with an awareness of what mispricing is and examples of how it works, which will assist in empowering customs officials.

This list is by no means comprehensive. More work is needed, especially in terms of the link between TBML and a pro-poor, pro-gender strategy. It would be interesting to assess the impact of mispricing on the poor and women. Trade mispricing sends the wrong signals to the market and stimulates the wrong sectors, which are generally anti-poor and affect women. That may, however, be a secondary priority given that attention should first be given to tackling IFFs.

Further research needs to identify the sectors where mispricing is prevalent in African countries. The typical sectors included are countries that have rich extractive sectors, yet what are the implications for sectors in least and more developed countries? How do they differ? For example, the analysis of South Africa's sectors identified the bulk of mispricing as being in the miscellaneous category. There is a definitive need to address services; one step would be to improve the information gathered, which tends to be scant at the moment.

Quantifying the extent of the problem provides government departments in developing countries with insights into the problem of trade mispricing and TBML, but these numbers should be interpreted with great care. It points to weaknesses in the compilation, specification, declaration and valuation of recorded trade data.

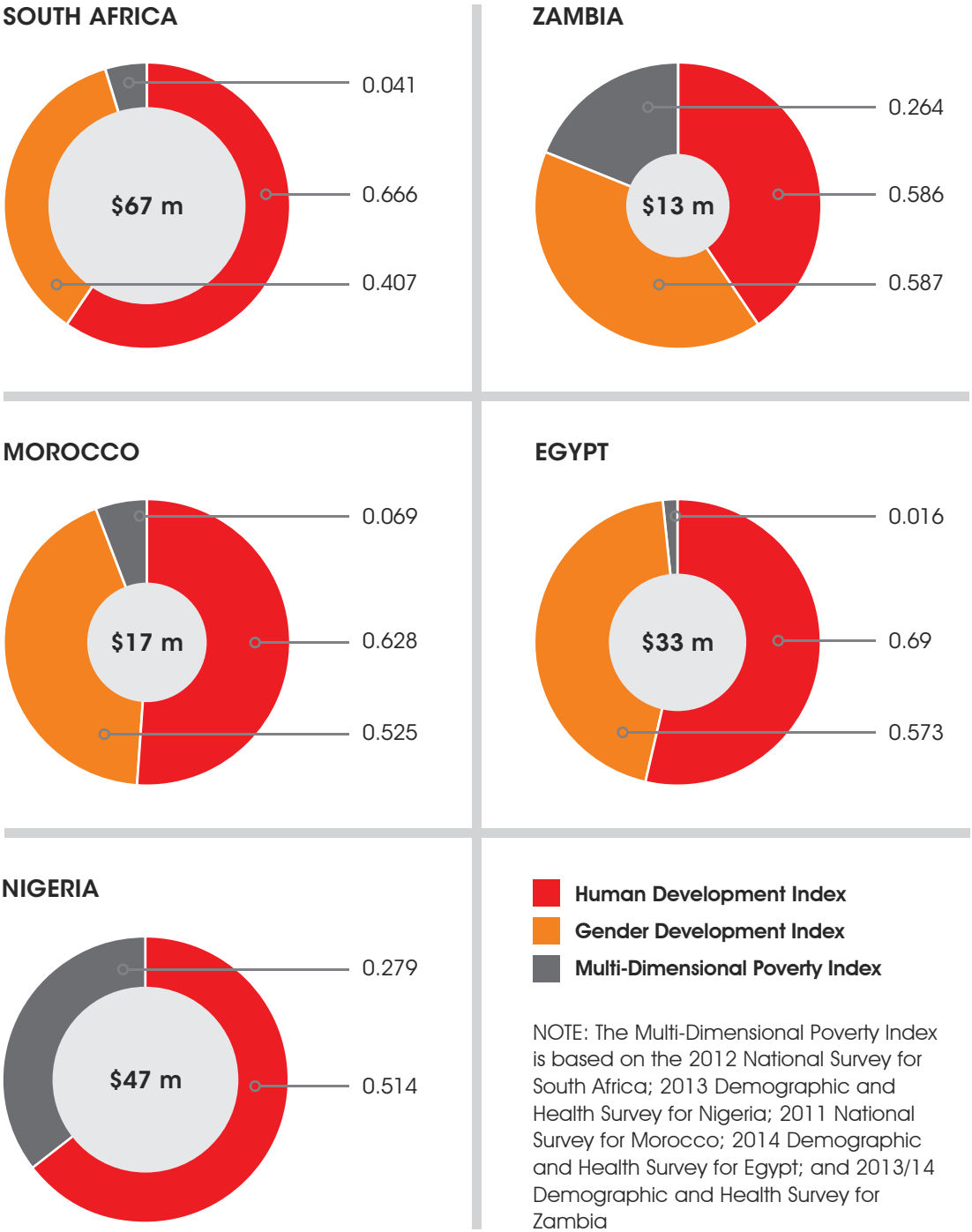
Abusive transfer pricing and trade mispricing (mis-invoicing) represent the illegal (and disguised) expatriation of money into secrecy destinations by those resident or liable for taxation in a country of origin. This leakage of profits and forgone tax revenues, through mispricing, could potentially be retained in the developing country of origin, contributing to gross fixed capital formation and accumulation in these countries. The impact is greatest for capital-scarce developing economies, where the loss in domestic savings yields lower levels of internally funded investment, coupled with the loss in tax revenues flowing from those savings. The reduced levels of domestically financed investment and reduced tax revenues for publicly funded programmes mean that there are fewer fiscal resources available for public expenditure on health, education and infrastructure. Furthermore, the reliance on external borrowings to finance government deficits raises the debt servicing burden, adversely affecting economic growth, social and political stability and sustainable development.

Policy recommendations that are pro-poor and pro-women

Figure 16 depicts the extent of trade mispricing alongside the Human Development Index, the Gender Index and the Multi-Dimensional Poverty Index (MDPI). It is important to note that all the data for each the five countries are for 2014, except for the MDPI, which varies by country. Addressing mispricing or TBML would go a

long way in providing additional health or educational infrastructure, or contribute to jobs while reducing unemployment.

FIGURE 16 TRADE MISPRICING AND WELFARE (2014)



NOTE: The Multi-Dimensional Poverty Index is based on the 2012 National Survey for South Africa; 2013 Demographic and Health Survey for Nigeria; 2011 National Survey for Morocco; 2014 Demographic and Health Survey for Egypt; and 2013/14 Demographic and Health Survey for Zambia

Source: Author s calculations; UNDP, Human Development Report , 2015, http://hdr.undp.org/sites/default/files/2015_human_development_report.pdf, accessed 31 August 2016

Although one would need to develop a longitudinal database to determine the correlation with and possibly even the statistical significance of trade mispricing on these three indexes, it is clear is that there is a negative relationship between trade mispricing (or TBML) and the Gender Index as well as the Poverty Index, while there is a positive relationship between trade mispricing and the Human Development Index. Thus it would appear that measures to curb trade mispricing would, at face value, have a positive effect on both gender and poverty.

It is important to note that curbing tax evasion in a developing country releases funds that the government can invest in social infrastructure such as health, education and welfare. However, if the levels of corruption are high in a developing country, involving the political elite and other politically exposed persons, then regardless of whether these policies curb tax evasion, a plutocracy will ensue and none of these strategies will ever be pro-poor or pro-women. These policies are at a strategic level but can trickle down and contribute towards the alleviation of poverty affecting all vulnerable groups, including women, children and the poor. However, this is critically dependent on the existing institutional structures and policies in place in each developing country.

Addressing IFFs, however, goes a long way towards promoting peaceful and sustainable societies, since crime and corruption erode the base of the economy and raise the cost of provision of public goods and services, affecting the poor and women the most, as they are most vulnerable.

Mechanisms aimed at curbing IFFs should be designed and guided by public interest considerations, particularly those relevant to disadvantaged groups such as women and youth. These considerations include issues related to poverty eradication, universal access to public service delivery and sustainable development. Additionally, governments need to put in place effective mechanisms to recover and, most importantly, re-direct monies and assets from IFFs to socio-economic development initiatives that target the poorest of the poor and women. This would need to be managed through the likes of the FATF, the World Bank, the IMF or the UN.

How can this be implemented into the various GEG forums?

Currently, the commercial tax evasion recommendations listed here are on the G20 Development Working Group's agenda, as documented in the recent G20 communiqué.[71] This paper provided insights into the data and estimation challenges but also identified that there is a problem in the trade and customs space, which needs to be aligned with the current policies, procedures, guidelines and possible legislative amendments that target corruption, money laundering and tax evasion through policies such as country-by-country reporting; beneficial

71 G20, Leaders Communiqu , Hangzhou Summit, 15 July 2016, zero draft, para 32., email from the Financial Intelligence Centre, 1 August 2016.

ownership; base erosion and profit shifting; demand resource management strategies; and anti-money laundering and counter-terror financing strategies.

The first critical step is to address the data, especially with the introduction of the UCR.

Understanding the concepts and the data challenges is critical in addressing the problem. Most government officials do not understand the topic, the concepts or its components; and care needs to be taken to ensure that the information from the data is not interpreted carelessly, since the extent of mispricing is really about trade between two countries, so there is not a clear liability on one side – this is a process driven by collusion. Capacity building and outreach are necessary steps.

Introducing the topic as a means of developing a coherent agenda needs to be addressed at all the global economic governance forums. This is a necessary step in creating coherence and consistency between the various working groups that focus on this topic, while addressing target 16.4 of the SDGs.

The loss of revenue from these IFFs through commercial tax evasion undermines revenue generation in developing countries, particularly those with resource-rich extractive sectors, hampering the ability to mobilise the resources necessary to fund developmental goals. In addition, IFFs drain hard currency reserves; heighten inflation; discourage and 'crowd out' investment; weaken free trade and hamper industrial policies; diminish economic growth; reduce social infrastructure investment; shrink and stagnate state capacity; discredit sovereign governments; and weaken national and financial security. IFFs, through their largest component, namely abusive transfer pricing or trade mispricing, exacerbate the adversity faced by the poor and women in developing countries.

GLOSSARY

Balance of payments (BOP)

A statistical statement that systematically summarises, for a specific time period, the economic transactions of an economy with the rest of the world. Transactions, for the most part between residents and non-residents, consist of those involving goods, services and income; those involving financial claims on, and liabilities to, the rest of the world; and those (such as gifts) classified as transfers. While the current account mainly consists of exports and imports of goods and services and worker remittances, the financial account includes transactions involving foreign direct investment, portfolio capital flows and changes in the reserve holdings of the central bank – line items that are necessary to estimate illicit flows based on the World Bank Residual Model.

Capital flight

The movement of money from one investment to another in search of greater stability or increased returns. Sometimes specifically refers to the movement of money from investments in one country to another in order to avoid country-specific risk (such as high inflation or political turmoil) or in search of higher returns. Capital flight is seen most commonly in massive foreign capital outflows from a specific country, often at times of currency instability. Often the outflows are large enough to affect a country's entire financial system.

Change in reserves

According to the IMF, net 'transactions in assets that are considered by the monetary authorities of an economy to be available for use in funding payments imbalances, and, in some instances, meeting other financial needs'.

Change in external debt (CED)

A version of the World Bank Residual Model that includes change in external debt as an indicator of new loans (ie, a source of funds for a country). The World Bank Residual Model estimates unrecorded (defined to be illicit) outflows from the balance of payments by estimating the gap between source and use of funds. Note that the CED model only includes gross illicit outflows from a country, occurring when source of funds is greater than use of funds (in other words, calculations have a positive sign). Thus, when the use of funds exceeds the source of funds, that is, when there are inward transfers of

illicit capital (calculations have a negative sign), the CED method sets illicit flows to zero for that year. In contrast, economists have typically netted out illicit inflows from outflows under the traditional World Bank residual method.

Current account balance

All transactions (other than those in financial items) that involve economic values and occur between resident and non-resident entities. Also covered are offsets to current economic values provided or acquired without a quid pro quo. Specifically, the major classifications are goods and services, income and current transfers.

Direction of Trade Statistics (DOTS)

IMF database containing data on exports and imports of goods on a bilateral basis. No bilateral trade data are available for services or for specific commodities.

Export under-invoicing

A country's exports to the world compared to world imports from that country, adjusted for CIF. Illicit outflows from a country are indicated whenever exports of goods from that country are understated relative to the reporting of world imports from that country adjusted for the cost of insurance and freight (CIF factor).

External debt

World Bank definition: debt owed to non-residents repayable in foreign currency, goods or services. Total external public and publicly guaranteed debt includes long-term debt, use of IMF credit and short-term debt. While private non-guaranteed debt is also included in total debt, the data are not comprehensive for some developing countries.

Foreign direct investment

All net transactions between a direct investor in one economy and a direct investment enterprise (recipient) in another economy.

Gross excluding reversals (GER)

A method calculating gross illicit outflows defined as export under-invoicing plus import over-invoicing. In other words, GER calculations are based on the sum of discrepancies between (i) a country's exports and world imports from that country and (ii) a country's imports and world exports to that country. The absolute value of the export under-invoicing, which is a negative estimate under (i), is added to import over-invoicing to arrive at a GER estimate. All CIF values are converted to a FOB basis by netting out the CIF (at 10% of import value).

Illicit financial flows	Funds that are illegally earned, transferred or utilised; all unrecorded private financial outflows that drive the accumulation of foreign assets by residents in contravention of applicable laws and regulatory frameworks.
Import over-invoicing	A country's imports from the world (adjusted for CIF) compared to world exports to that country. Illicit outflows from a country will be indicated if the country's imports are overstated with respect to world exports to that country.
Illicit trade	Trade that infringes the rules – the laws, regulations, licences, taxation system, embargoes and all the procedures that countries use to organise trade, protect their citizens, raise the standard of living and enforce codes of ethics. Illicit trade involves the exchange of goods and services, for money, goods or values derived from illegal and generally unethical activity.
Smurf	Colloquial term for a money launderer, or one who seeks to evade scrutiny from government agencies by breaking up a transaction involving a large amount of money into smaller transactions below the reporting threshold. The smurf deposits illegally gained money into bank accounts for transfer in the near future.
Trade mispricing	Includes the deliberate over-invoicing of imports and the under-invoicing of exports, usually for the purpose of tax evasion. The traditional approach used to estimate trade mispricing is where a country's exports (imports) to the world are compared to world imports (exports) from that country to determine export or import under- and over-statement. Export under-invoicing and import over-invoicing reflect illicit outflows, while export over-invoicing and import under-invoicing reflect illicit inflows. Traditionally, economists have netted out illicit inflows from outflows, thereby understating the adverse impact of illicit flows on developing countries. As illicit inflows are also unrecorded, they cannot be taxed by the government and are generally unusable for legitimate productive purposes. Hence, only gross outflows through trade mispricing are considered in the GER method (see definition of GER).

Transfer pricing The setting of the price for goods and services sold between controlled (or related) legal entities within an enterprise. For example, if a subsidiary company sells goods to a parent company, the cost of those goods is the transfer price.

World Bank Residual Model Measures a country's source of funds (inflows of capital) vis-à-vis its recorded use of funds (outflows and/or expenditures of capital). Source of funds includes increases in net external indebtedness and the net inflow of FDI. Use of funds includes the current account deficit that is financed by the capital account flows and additions to central bank reserves. Illicit outflows (inflows) exist when the source of funds exceeds (falls short of) the uses of funds. As in GER, only gross outflows are considered in the change in external debt.

ANNEXURE A

UN REPORTING COUNTRY CODE	REPORTING COUNTRY CODE	REPORTING COUNTRY NAME	TRADE FLOW	TRADE TYPE	ORIGINAL CURRENCY CODE	UN EXCHANGE RATE	TRADE SYSTEM	VALUATION	PARTNER
124	CA	Canada	1	Imports	CAD	0.9043524	General	FOB	Origin
124	CA	Canada	2	Exports	CAD	0.90418824	General	FOB	Last Known Destination
328	GY	Guyana	1	Imports	GYD	0.00484385	Special	CIF	Origin
328	GY	Guyana	2	Exports	GYD	0.00484363	Special	FOB	Last Known Destination
500	MS	Montserrat	1	Imports	XCD	0.37037	Special	CIF	Origin
500	MS	Montserrat	2	Exports	XCD	0.37037	Special	FOB	Last Known Destination
348	HU	Hungary	1	Imports	USD	1	Special	CIF	Consignment
348	HU	Hungary	2	Exports	USD	1	Special	FOB	Last Known Destination
579	NO	Norway	1	Imports	NOK	0.159016	General	CIF	Origin
579	NO	Norway	2	Exports	NOK	0.159082	General	FOB	Last Known Destination
620	PT	Portugal	1	Imports	EUR	1.32758934	Special	CIF	Origin/Consignment for Intra-EU
620	PT	Portugal	2	Exports	EUR	1.3281224	Special	FOB	Last Known Destination
566	NG	Nigeria	1	Imports	NGN	0.00631	General	CIF	Origin
566	NG	Nigeria	2	Exports	NGN	0.00631	General	FOB	Last Known Destination
643	RU	Russian Federation	1	Imports	USD	1	General	CIF	Origin
643	RU	Russian Federation	2	Exports	USD	1	General	FOB	Last Known Destination
196	CY	Cyprus	1	Imports	EUR	1.327326	General	CIF	Origin/Consignment for Intra-EU
196	CY	Cyprus	2	Exports	EUR	1.332864	General	FOB	Last Known Destination
442	LU	Luxembourg	1	Imports	EUR	1.32701	Special	CIF	Origin/Consignment for Intra-EU
442	LU	Luxembourg	2	Exports	EUR	1.330046	Special	FOB	Last Known Destination
392	JP	Japan	1	Imports	JPY	0.009454	General	CIF	Origin
392	JP	Japan	2	Exports	JPY	0.009443	General	FOB	Last Known Destination
276	DE	Germany	1	Imports	EUR	1.328718	Special	CIF	Origin
276	DE	Germany	2	Exports	EUR	1.328111	Special	FOB	Last Known Destination
800	UG	Uganda	1	Imports	USD	1	General	CIF	Origin
800	UG	Uganda	2	Exports	USD	1	General	FOB	Last Known Destination
28	AG	Antigua and Barbuda	1	Imports	XCD	0.37037	General	CIF	Origin
28	AG	Antigua and Barbuda	2	Exports	XCD	0.37037	General	FOB	Last Known Destination
752	SE	Sweden	1	Imports	SEK	0.14606472	Special	CIF	Origin/Consignment for Intra-EU
752	SE	Sweden	2	Exports	SEK	0.14612842	Special	FOB	Last Known Destination

UN REPORTING COUNTRY CODE	REPORTING COUNTRY CODE	REPORTING COUNTRY NAME	TRADE FLOW	TRADE TYPE	ORIGINAL CURRENCY CODE	UN EXCHANGE RATE	TRADE SYSTEM	VALUATION	PARTNER
233	EE	Estonia	1	Imports	EUR	1.328486	General Extra-EU/ Special Intra-EU	CIF	Consignment
233	EE	Estonia	2	Exports	EUR	1.329072	General Extra-EU/ Special Intra-EU	FOB	Last Known Destination
208	DK	Denmark	1	Imports	DKK	0.178406	General	CIF	Origin/Consignment for Intra-EU
208	DK	Denmark	2	Exports	DKK	0.178475	General	FOB	Last Known Destination
826	GB	United Kingdom	1	Imports	GBP	1.64677429	General	CIF	Origin/Consignment for Intra-EU
826	GB	United Kingdom	2	Exports	GBP	1.64655446	General	FOB	Last Known Destination
694	SL	Sierra Leone	1	Imports	SLL	0.000222	General	CIF	Origin
694	SL	Sierra Leone	2	Exports	SLL	0.000223	General	FOB	Last Known Destination
132	CV	Cape Verde	1	Imports	CVE	0.011987	Special	CIF	Origin
132	CV	Cape Verde	2	Exports	CVE	0.012022	Special	FOB	Last Known Destination
600	PY	Paraguay	1	Imports	USD	1	General	CIF	Origin
600	PY	Paraguay	2	Exports	USD	1	General	FOB	Last Known Destination
524	NP	Nepal	1	Imports	NPR	0.01003708	General	CIF	Origin
524	NP	Nepal	2	Exports	NPR	0.01003739	General	FOB	Last Known Destination
454	MW	Malawi	1	Imports	MWK	0.002369	General	CIF	Origin
454	MW	Malawi	2	Exports	MWK	0.002358	General	FOB	Last Known Destination
140	CF	Central African Republic	1	Imports	XAF	0.002016	General	CIF	Origin
140	CF	Central African Republic	2	Exports	XAF	0.002038	General	FOB	Last Known Destination
703	SK	Slovakia	1	Imports	EUR	1.327831	Special	CIF	Origin
703	SK	Slovakia	2	Exports	EUR	1.328484	Special	FOB	Last Known Destination
340	HN	Honduras	1	Imports	USD	1	Special	CIF	Origin
340	HN	Honduras	2	Exports	USD	1	Special	FOB	Last Known Destination
887	YE	Yemen	1	Imports	YER	0.004654	Special	CIF	Origin
887	YE	Yemen	2	Exports	YER	0.004654	Special	FOB	Last Known Destination
450	MG	Madagascar	1	Imports	MGA	0.000417	General	CIF	Origin
450	MG	Madagascar	2	Exports	MGA	0.000417	General	FOB	Last Known Destination
484	MX	Mexico	1	Imports	USD	1	General	CIF	Origin
484	MX	Mexico	2	Exports	USD	1	General	FOB	Last Known Destination

UN REPORTING COUNTRY CODE	REPORTING COUNTRY CODE	REPORTING COUNTRY NAME	TRADE FLOW	TRADE TYPE	ORIGINAL CURRENCY CODE	UN EXCHANGE RATE	TRADE SYSTEM	VALUATION	PARTNER
504	MA	Morocco	1	Imports	MAD	0.119281	Special	CIF	Origin
504	MA	Morocco	2	Exports	MAD	0.119171	Special	FOB	Last Known Destination
324	GN	Guinea	1	Imports	GNF	0.000143	Special	CIF	Origin
324	GN	Guinea	2	Exports	GNF	0.000143	Special	FOB	Last Known Destination
662	LC	Saint Lucia	1	Imports	XCD	0.37037	General	CIF	Origin
662	LC	Saint Lucia	2	Exports	XCD	0.37037	General	FOB	Last Known Destination
422	LB	Lebanon	1	Imports	LBP	0.000663	Special	CIF	Origin
422	LB	Lebanon	2	Exports	LBP	0.000663	Special	FOB	Last Known Destination
275	PS	Palestine, State of	1	Imports	USD	1	General	CIF	Origin
275	PS	Palestine, State of	2	Exports	USD	1	General	FOB	Last Known Destination
246	FI	Finland	1	Imports	EUR	1.328973	Special	CIF	Origin
246	FI	Finland	2	Exports	EUR	1.328131	Special	FOB	Last Known Destination
784	AE	United Arab Emirates	1	Imports	AED	0.272294	Special	CIF	Origin
784	AE	United Arab Emirates	2	Exports	AED	0.272294	Special	FOB	Last Known Destination
178	CG	Congo	1	Imports	XAF	0.002026	Special	CIF	Origin
178	CG	Congo	2	Exports	XAF	0.002026	Special	FOB	Last Known Destination
203	CZ	Czech Republic	1	Imports	USD	1	Special	CIF	Origin
203	CZ	Czech Republic	2	Exports	USD	1	Special	FOB	Last Known Destination
528	NL	Netherlands	1	Imports	EUR	1.32863295	Special	CIF	Origin/Consignment for Intra-EU
528	NL	Netherlands	2	Exports	EUR	1.3283139	Special	FOB	Last Known Destination
410	KR	South Korea	1	Imports	USD	1	General	CIF	Origin
410	KR	South Korea	2	Exports	USD	1	General	FOB	Last Known Destination
84	BZ	Belize	1	Imports	BZD	0.5	General	CIF	Origin
84	BZ	Belize	2	Exports	BZD	0.5	General	FOB	Last Known Destination
834	TZ	Tanzania	1	Imports	TZS	0.000605	General	CIF	Origin
834	TZ	Tanzania	2	Exports	TZS	0.000605	General	FOB	Last Known Destination
360	ID	Indonesia	1	Imports	USD	1	General	CIF	Origin
360	ID	Indonesia	2	Exports	USD	1	General	FOB	Last Known Destination
740	SR	Suriname	1	Imports	USD	1	General	CIF	Origin
740	SR	Suriname	2	Exports	USD	1	General	FOB	Last Known Destination
498	MD	Moldova, Republic of	1	Imports	USD	1	General	CIF	Origin

UN REPORTING COUNTRY CODE	REPORTING COUNTRY CODE	REPORTING COUNTRY NAME	TRADE FLOW	TRADE TYPE	ORIGINAL CURRENCY CODE	UN EXCHANGE RATE	TRADE SYSTEM	VALUATION	PARTNER
498	MD	Moldova, Republic of	2	Exports	USD	1	General	FOB	Last Known Destination
499	ME	Montenegro	1	Imports	EUR	1.326495	Special	CIF	Origin
499	ME	Montenegro	2	Exports	EUR	1.32264	Special	FOB	Last Known Destination
533	AW	Aruba	1	Imports	AWG	0.558659	General	CIF	Origin
533	AW	Aruba	2	Exports	AWG	0.558659	General	FOB	Last Known Destination
428	LV	Latvia	1	Imports	EUR	1.32748312	Special	CIF	Origin/Consignment for Intra-EU
428	LV	Latvia	2	Exports	EUR	1.32730759	Special	FOB	Last Known Destination
191	HR	Croatia	1	Imports	USD	1	Special	CIF	Origin
191	HR	Croatia	2	Exports	USD	1	Special	FOB	Last Known Destination
705	SI	Slovenia	1	Imports	USD	1	Special	CIF	Origin
705	SI	Slovenia	2	Exports	USD	1	Special	FOB	Last Known Destination
585	PW	Palau	1	Imports	USD	1	General	FOB	Origin
585	PW	Palau	2	Exports	USD	1	General	FOB	Last Known Destination
414	KW	Kuwait	1	Imports	USD	1	Special	CIF	Origin
414	KW	Kuwait	2	Exports	USD	1	Special	FOB	Last Known Destination
170	CO	Colombia	1	Imports	USD	1	Special	CIF	Origin
170	CO	Colombia	2	Exports	USD	1	Special	FOB	Last Known Destination
352	IS	Iceland	1	Imports	ISK	0.008568814	Special	CIF	Origin
352	IS	Iceland	2	Exports	ISK	0.008554251	Special	FOB	Last Known Destination
112	BY	Belarus	1	Imports	USD	1	General	CIF	Origin
112	BY	Belarus	2	Exports	USD	1	General	FOB	Last Known Destination
842	US	United States	1	Imports	USD	1	General	FOB	Origin
842	US	United States	2	Exports	USD	1	General	FOB	Last Known Destination
40	AT	Austria	1	Imports	EUR	1.328999	Special	CIF	Origin
40	AT	Austria	2	Exports	EUR	1.32837603	Special	FOB	Last Known Destination
757	CH	Switzerland	1	Imports	CHF	1.09142878	Special	CIF	Origin
757	CH	Switzerland	2	Exports	CHF	1.09186212	Special	FOB	Last Known Destination
231	ET	Ethiopia	1	Imports	ETB	0.0539583	General	CIF	Origin
231	ET	Ethiopia	2	Exports	ETB	0.0539583	General	FOB	Last Known Destination
258	PF	French Polynesia	1	Imports	XPF	0.01110807	Special	CIF	Origin
258	PF	French Polynesia	2	Exports	XPF	0.01110576	Special	FOB	Last Known Destination
20	AD	Andorra	1	Imports	EUR	1.32482108	General	CIF	Origin
20	AD	Andorra	2	Exports	EUR	1.32768572	General	FOB	Last Known Destination
48	BH	Bahrain	1	Imports	USD	1	General	CIF	Origin

UN REPORTING COUNTRY CODE	REPORTING COUNTRY CODE	REPORTING COUNTRY NAME	TRADE FLOW	TRADE TYPE	ORIGINAL CURRENCY CODE	UN EXCHANGE RATE	TRADE SYSTEM	VALUATION	PARTNER
48	BH	Bahrain	2	Exports	USD	1	General	FOB	Last Known Destination
604	PE	Peru	1	Imports	USD	1	Special	CIF	Origin
604	PE	Peru	2	Exports	USD	1	Special	FOB	Last Known Destination
120	CM	Cameroon	1	Imports	XOF	0.00201885	Special	CIF	Origin
120	CM	Cameroon	2	Exports	XOF	0.00201784	Special	FOB	Last Known Destination
270	GM	Gambia	1	Imports	GMD	0.0241366	General	CIF	Origin
270	GM	Gambia	2	Exports	GMD	0.02414746	General	FOB	Last Known Destination
458	MY	Malaysia	1	Imports	MYR	0.30581198	General	CIF	Origin
458	MY	Malaysia	2	Exports	MYR	0.30561366	General	FOB	Last Known Destination
776	TO	Tonga	1	Imports	TOP	0.5399039	General	CIF	Origin
776	TO	Tonga	2	Exports	TOP	0.53932529	General	FOB	Last Known Destination
384	CI	Côte d'Ivoire	1	Imports	XOF	0.00202112	Special	CIF	Origin
384	CI	Côte d'Ivoire	2	Exports	XOF	0.00202212	Special	FOB	Last Known Destination
44	BS	Bahamas	1	Imports	USD	1	General	CIF	Origin
44	BS	Bahamas	2	Exports	USD	1	General	FOB	Last Known Destination
72	BW	Botswana	1	Imports	BWP	0.11149015	General	CIF	Origin
72	BW	Botswana	2	Exports	BWP	0.11148827	General	FOB	Last Known Destination
646	RW	Rwanda	1	Imports	RWF	0.00146922	General	CIF	Origin
646	RW	Rwanda	2	Exports	RWF	0.00146763	General	FOB	Last Known Destination
858	UY	Uruguay	1	Imports	USD	1	Special	CIF	Origin
858	UY	Uruguay	2	Exports	USD	1	Special	FOB	Last Known Destination
616	PL	Poland	1	Imports	USD	1	Special	CIF	Origin
616	PL	Poland	2	Exports	USD	1	Special	FOB	Last Known Destination
686	SN	Senegal	1	Imports	XOF	0.002017	General	CIF	Origin
686	SN	Senegal	2	Exports	XOF	0.00202412	General	FOB	Last Known Destination
634	QA	Qatar	1	Imports	QAR	0.274725	Special	CIF	Origin
634	QA	Qatar	2	Exports	QAR	0.274725	Special	FOB	Last Known Destination
702	SG	Singapore	1	Imports	SGD	0.78970205	General	CIF	Origin
702	SG	Singapore	2	Exports	SGD	0.78965256	General	FOB	Last Known Destination
388	JM	Jamaica	1	Imports	USD	1	Special	CIF	Origin
388	JM	Jamaica	2	Exports	USD	1	Special	FOB	Last Known Destination
512	OM	Oman	1	Imports	OMR	2.60078	General	CIF	Origin
512	OM	Oman	2	Exports	OMR	2.60078	General	FOB	Last Known Destination
31	AZ	Azerbaijan	1	Imports	USD	1	General	CIF	Origin
31	AZ	Azerbaijan	2	Exports	USD	1	General	FOB	Last Known Destination
470	MT	Malta	1	Imports	EUR	1.32612297	General	CIF	Origin/Consignment for Intra-EU

UN REPORTING COUNTRY CODE	REPORTING COUNTRY CODE	REPORTING COUNTRY NAME	TRADE FLOW	TRADE TYPE	ORIGINAL CURRENCY CODE	UN EXCHANGE RATE	TRADE SYSTEM	VALUATION	PARTNER
470	MT	Malta	2	Exports	EUR	1.3312552	General	FOB	Last Known Destination
304	GL	Greenland	1	Imports	DKK	0.178451	General	CIF	Origin
304	GL	Greenland	2	Exports	DKK	0.178451	General	FOB	Last Known Destination
108	BI	Burundi	1	Imports	USD	1	General	CIF	Origin
108	BI	Burundi	2	Exports	USD	1	General	FOB	Last Known Destination
478	MR	Mauritania	1	Imports	MRO	0.003311	General	CIF	Origin
478	MR	Mauritania	2	Exports	MRO	0.003311	General	FOB	Last Known Destination
214	DO	Dominican Republic	1	Imports	USD	1	General	FOB	Origin
214	DO	Dominican Republic	2	Exports	USD	1	General	FOB	Last Known Destination
90	SB	Solomon Islands	1	Imports	SBD	0.13562724	Special	CIF	Origin
90	SB	Solomon Islands	2	Exports	SBD	0.13574451	Special	FOB	Last Known Destination
558	NI	Nicaragua	1	Imports	USD	1	General	CIF	Origin
558	NI	Nicaragua	2	Exports	USD	1	General	FOB	Last Known Destination
4	AF	Afghanistan	1	Imports	USD	1	General	CIF	Origin
4	AF	Afghanistan	2	Exports	USD	1	General	FOB	Last Known Destination
372	IE	Ireland	1	Imports	EUR	1.32584303	General	CIF	Origin
372	IE	Ireland	2	Exports	EUR	1.32797207	General	FOB	Last Known Destination
56	BE	Belgium	1	Imports	EUR	1.32919072	Special	CIF	Origin/Consignment for Intra-EU
56	BE	Belgium	2	Exports	EUR	1.32907306	Special	FOB	Last Known Destination
554	NZ	New Zealand	1	Imports	NZD	0.82949649	General	CIF	Origin
554	NZ	New Zealand	2	Exports	NZD	0.83119545	General	FOB	Last Known Destination
882	WS	Samoa	1	Imports	WST	0.43339	General	CIF	Origin
882	WS	Samoa	2	Exports	WST	0.433744	General	FOB	Last Known Destination
300	GR	Greece	1	Imports	EUR	1.32884	Special	CIF	Origin/Consignment for Intra-EU
300	GR	Greece	2	Exports	EUR	1.32884	Special	FOB	Last Known Destination
70	BA	Bosnia and Herzegovina	1	Imports	USD	1	Special	CIF	Origin
70	BA	Bosnia and Herzegovina	2	Exports	USD	1	Special	FOB	Last Known Destination
764	TH	Thailand	1	Imports	USD	1	Special	CIF	Origin
764	TH	Thailand	2	Exports	USD	1	Special	FOB	Last Known Destination
688	RS	Serbia	1	Imports	USD	1	General	CIF	Origin
688	RS	Serbia	2	Exports	USD	1	General	FOB	Last Known Destination

UN REPORTING COUNTRY CODE	REPORTING COUNTRY CODE	REPORTING COUNTRY NAME	TRADE FLOW	TRADE TYPE	ORIGINAL CURRENCY CODE	UN EXCHANGE RATE	TRADE SYSTEM	VALUATION	PARTNER
710	ZA	South Africa	1	Imports	ZAR	0.09219796	General	FOB	Origin
710	ZA	South Africa	2	Exports	ZAR	0.09214608	General	FOB	Last Known Destination
376	IL	Israel	1	Imports	USD	1	Special	CIF	Origin
376	IL	Israel	2	Exports	USD	1	Special	FOB	Sale
608	PH	Philippines	1	Imports	USD	1	General	CIF	Origin
608	PH	Philippines	2	Exports	USD	1	General	FOB	Last Known Destination
586	PK	Pakistan	1	Imports	PKR	0.00988183	General	CIF	Origin
586	PK	Pakistan	2	Exports	PKR	0.00988425	General	FOB	Last Known Destination
480	MU	Mauritius	1	Imports	MUR	0.03259577	General	CIF	Origin
480	MU	Mauritius	2	Exports	MUR	0.03263829	General	FOB	Last Known Destination
540	NC	New Caledonia	1	Imports	XPF	0.01110525	General	CIF	Consignment
540	NC	New Caledonia	2	Exports	XPF	0.01109768	General	FOB	Last Known Destination
320	GT	Guatemala	1	Imports	USD	1	General	CIF	Origin
320	GT	Guatemala	2	Exports	USD	1	General	FOB	Last Known Destination
792	TR	Turkey	1	Imports	USD	1	Special	CIF	Origin
792	TR	Turkey	2	Exports	USD	1	Special	FOB	Last Known Destination
12	DZ	Algeria	1	Imports	DZD	0.01242094	Special	CIF	Origin
12	DZ	Algeria	2	Exports	DZD	0.01248162	Special	FOB	Last Known Destination
100	BG	Bulgaria	1	Imports	BGN	0.67823778	Special	CIF	Consignment
100	BG	Bulgaria	2	Exports	BGN	0.67938787	Special	FOB	Last Known Destination
462	MV	Maldives	1	Imports	MVR	0.0650179	General	CIF	Consignment
462	MV	Maldives	2	Exports	MVR	0.0650179	General	FOB	Last Known Destination
32	AR	Argentina	1	Imports	USD	1	Special	CIF	Origin
32	AR	Argentina	2	Exports	USD	1	Special	FOB	Last Known Destination
894	ZM	Zambia	1	Imports	ZMK	0.16244488	General	CIF	Origin
894	ZM	Zambia	2	Exports	ZMK	0.16246794	General	FOB	Last Known Destination
218	EC	Ecuador	1	Imports	USD	1	Special	CIF	Origin
218	EC	Ecuador	2	Exports	USD	1	Special	FOB	Last Known Destination
156	CN	China	1	Imports	USD	1	General	CIF	Origin
156	CN	China	2	Exports	USD	1	General	FOB	Last Known Destination
204	BJ	Benin	1	Imports	XOF	0.0020302	General	CIF	Origin
204	BJ	Benin	2	Exports	XOF	0.00200847	General	FOB	Last Known Destination
496	MN	Mongolia	1	Imports	USD	1	General	CIF	Origin
496	MN	Mongolia	2	Exports	USD	1	General	FOB	Last Known Destination
144	LK	Sri Lanka	1	Imports	LKR	0.00765873	General	CIF	Origin
144	LK	Sri Lanka	2	Exports	LKR	0.00765761	General	FOB	Last Known Destination

UN REPORTING COUNTRY CODE	REPORTING COUNTRY CODE	REPORTING COUNTRY NAME	TRADE FLOW	TRADE TYPE	ORIGINAL CURRENCY CODE	UN EXCHANGE RATE	TRADE SYSTEM	VALUATION	PARTNER
818	EG	Egypt	1	Imports	EGP	0.141312	General	CIF	Consignment
818	EG	Egypt	2	Exports	EGP	0.141312	General	FOB	Last Known Destination
242	FJ	Fiji	1	Imports	FJD	0.52939738	General	CIF	Purchase
242	FJ	Fiji	2	Exports	FJD	0.52926768	General	FOB	Sale
642	RO	Romania	1	Imports	USD	1	Special	CIF	Origin
642	RO	Romania	2	Exports	USD	1	Special	FOB	Last Known Destination
8	AL	Albania	1	Imports	ALL	0.00947008	Special	CIF	Origin
8	AL	Albania	2	Exports	ALL	0.00950395	Special	FOB	Last Known Destination
268	GE	Georgia	1	Imports	USD	1	General	CIF	Consignment
268	GE	Georgia	2	Exports	USD	1	General	FOB	Last Known Destination
807	MK	Macedonia, The former Yugoslav Republic of	1	Imports	USD	1	Special	CIF	Origin
807	MK	Macedonia, The former Yugoslav Republic of	2	Exports	USD	1	Special	FOB	Last Known Destination
562	NE	Niger	1	Imports	XOF	0.00200044	General	CIF	Origin
562	NE	Niger	2	Exports	XOF	0.0019815	General	FOB	Last Known Destination
381	IT	Italy	1	Imports	EUR	1.32821389	General	CIF	Origin/Consignment for Intra-EU
381	IT	Italy	2	Exports	EUR	1.32761572	General	FOB	Last Known Destination
96	BN	Brunei Darussalam	1	Imports	BND	0.78997695	Special	CIF	Origin
96	BN	Brunei Darussalam	2	Exports	BND	0.78434762	Special	FOB	Last Known Destination
804	UA	Ukraine	1	Imports	USD	1	General	CIF	Origin
804	UA	Ukraine	2	Exports	USD	1	General	FOB	Last Known Destination
678	ST	São Tomé and Príncipe	1	Imports	STD	0.00005424	Special	CIF	Origin
678	ST	São Tomé and Príncipe	2	Exports	STD	0.00005424	Special	FOB	Last Known Destination
398	KZ	Kazakhstan	1	Imports	USD	1	General	CIF	Origin
398	KZ	Kazakhstan	2	Exports	USD	1	General	FOB	Last Known Destination
446	MO	Macao	1	Imports	MOP	0.125069	General	CIF	Origin
446	MO	Macao	2	Exports	MOP	0.125069	General	FOB	Last Known Destination
716	ZW	Zimbabwe	1	Imports	USD	1	General	CIF	Origin
716	ZW	Zimbabwe	2	Exports	USD	1	General	FOB	Last Known Destination
400	JO	Jordan	1	Imports	JOD	1.408451	Special	CIF	Origin
400	JO	Jordan	2	Exports	JOD	1.408451	Special	FOB	Last Known Destination

UN REPORTING COUNTRY CODE	REPORTING COUNTRY CODE	REPORTING COUNTRY NAME	TRADE FLOW	TRADE TYPE	ORIGINAL CURRENCY CODE	UN EXCHANGE RATE	TRADE SYSTEM	VALUATION	PARTNER
591	PA	Panama	1	Imports	PAB	1	Special	CIF	Origin
591	PA	Panama	2	Exports	PAB	1	Special	FOB	Last Known Destination
699	IN	India	1	Imports	INR	0.01638691	General	CIF	Origin
699	IN	India	2	Exports	INR	0.01638989	General	FOB	Last Known Destination
36	AU	Australia	1	Imports	AUD	0.90221043	General	FOB	Origin
36	AU	Australia	2	Exports	AUD	0.90213104	General	FOB	Last Known Destination
51	AM	Armenia	1	Imports	USD	1	General	CIF	Origin
51	AM	Armenia	2	Exports	USD	1	General	FOB	Last Known Destination
52	BB	Barbados	1	Imports	BBD	0.5	General	CIF	Origin
52	BB	Barbados	2	Exports	BBD	0.5	General	FOB	Last Known Destination
440	LT	Lithuania	1	Imports	USD	1	Special	CIF	Origin
440	LT	Lithuania	2	Exports	USD	1	Special	FOB	Last Known Destination
60	BM	Bermuda	1	Imports	BMD	1	General	CIF	Origin
60	BM	Bermuda	2	Exports	BMD	1	General	FOB	Last Known Destination
854	BF	Burkina Faso	1	Imports	XOF	0.00202474	General	CIF	Origin
854	BF	Burkina Faso	2	Exports	XOF	0.00202514	General	FOB	Last Known Destination
508	MZ	Mozambique	1	Imports	USD	1	General	CIF	Origin
508	MZ	Mozambique	2	Exports	USD	1	General	FOB	Last Known Destination
724	ES	Spain	1	Imports	EUR	1.32691436	Special	CIF	Origin/Consignment for Intra-EU
724	ES	Spain	2	Exports	EUR	1.32751258	Special	FOB	Last Known Destination
68	BO	Bolivia, Plurinational State of	1	Imports	USD	1	General	CIF	Origin
68	BO	Bolivia, Plurinational State of	2	Exports	USD	1	General	FOB	Last Known Destination
251	FR	France	1	Imports	EUR	1.32802271	Special	CIF	Origin
251	FR	France	2	Exports	EUR	1.32793678	Special	FOB	Last Known Destination
222	SV	El Salvador	1	Imports	USD	1	General	CIF	Origin
222	SV	El Salvador	2	Exports	USD	1	General	FOB	Last Known Destination
152	CL	Chile	1	Imports	USD	1	General	CIF	Consignment
152	CL	Chile	2	Exports	USD	1	General	FOB	Last Known Destination
344	HK	Hong Kong	1	Imports	HKD	0.128964	General	CIF	Consignment
344	HK	Hong Kong	2	Exports	HKD	0.128964	General	FOB	Last Known Destination
76	BR	Brazil	1	Imports	USD	1	Special	FOB	Origin
76	BR	Brazil	2	Exports	USD	1	Special	FOB	Last Known Destination

ANNEXURE B

ATTRACTIVENESS INDEX

Walker's Gravitational Model makes it possible to estimate IFFs between different worldwide jurisdictions using the original Tinbergen Trade Model. The Walker methodology links criminology, economics and financial elements in the estimation of money laundering. Walker's approach is based on Newton's universal law of gravitation, developed in 1687. According to gravitation law formula, the attraction force between two objects depends on their mass, the distance between them and a gravitational constant.

$$F_{12} = \frac{g \cdot M_1 \cdot M_2}{d_{12}^2}$$

Where:

F_{12} / M_i is the attraction force between objects 1 and 2;

M_1 , M_2 – the object's mass;

d_{12} – the distance between the two objects; and

g – the gravitational constant

> Walker's Gravity model estimated different types of streams, such as labour migration, road traffic, workers flow, a hospital patients' flow etc. Jan Tinbergen (1962) explained the economics of international trade by applying Newton's formula for bilateral trade flows.[72]

Consequently, this approach argues that commerce between two countries depends on their economic weight (measured as GDP) and the physical distance between partner states. Based on such evidence, the Walker Gravitational Model is the first serious attempt to scientifically quantify money laundering.

The method was developed in 1994 by Prof. John Walker and first published in 1995. He continues to improve his model and the attractiveness index is updated regularly on his website.

72 Corina ME, Measuring money laundering using the Walker Gravity Model , *Annales Universitatis Apulensis Series Oeconomica*, 16, 2, 2014, p. 153.

The initial Walker model argued that:

- criminal activities generate illegal incomes all over the world;
- illegal incomes are greater in the case of sophisticated criminal networks, which are better organised when compared to individual offenders; and
- in the countries where GDP per capita is high, the crime offender revenues are higher.

Based on these assumptions, Walker described a theoretical model that connected money laundering and illegal activities with the incomes derived from those offences. He established three rating categories of illegal laundered incomes: 1% for very little, 10% for least, and 80% for considerable incomes. He applied these coefficients to illegal incomes to determine the proportion of laundered money. 'He also introduces an axiom stating that the trade value between two countries depends on population number in each country, on "attractiveness" of the two countries, but also the distance that separates these countries.'[73]

$$\frac{F_{ij}}{M_i} = \frac{\text{Country's attractiveness}_j}{\text{Distance between countries}^2}$$

$$\frac{F_{ij}}{M_i} = \frac{\text{GNP per capita}_j \cdot (3SB_j + AG_j + SWIFT_j - 3CFL_j - COR_j + 15)}{\text{Distance between countries}^2}$$

Where:

F_{ij} / M_i is the share of offenders' incomes transferred from Country i to Country j;

GNP per capita $_j$ is the gross national product in Country j;

SB refers to the banking secrecy index;

AG refers to government attitudes index;

SWIFT refers to the existence or lack of a SWIFT system;

CFL is the existence of wars on the state territory;

COR is linked to the corruption index; and

The distance between two states is number of kilometres.

73 *Ibid.*, p. 154.

Prof. Brigitte Unger has reviewed the Walker model and, in a collaboration, they amended the index, listed below:

$$P(X,y_i) = \frac{1}{\sum_{i=1}^{n}\left[\frac{\text{Attractiveness }(y_i)}{\text{Distance }(X,y_i)}\right]} \times \frac{\text{Attractiveness }(y_i)}{\text{Distance }(X,y_i)}$$

TABLE B1 ATTRACTIVENESS INDEX – WALKER GRAVITY MODEL				
East Africa	Burundi	1.0	Mauritius	1.4
	Comoros	1.1	Mayotte	1.1
	Djibouti	1.1	Rwanda	1.1
	Eritrea	1.1	Seychelles	1.5
	Ethiopia	1.1	Somalia	1.0
	Kenya	3.6	Tanzania	1.1
	Madagascar	1.1	Uganda	1.1
North Africa	Algeria	1.1	Sudan	1.0
	Egypt	1.1	Tunisia	1.3
	Libya	1.1	West Bank	1.1
	Morocco	1.2	Western Sahara	1.1
Southern Africa	Angola	1.1	Namibia	1.2
	Botswana	1.3	South Africa	1.3
	Lesotho	1.2	Swaziland	1.2
	Malawi	1.1	Zambia	1.2
	Mozambique	1.1	Zimbabwe	3.6
West and Central Africa	Benin	1.1	Guinea	1.1
	Burkina Faso	1.1	Guinea-Bissau	3.6
	Cameroon	1.1	Liberia	1.1
	Cape Verde (Cabo Verde)	1.3	Mali	1.1
	Central African Republic	1.1	Mauritania	1.1
	Chad	1.0	Niger	1.1
	Congo, Dem Rep	1.1	Nigeria	3.6
	Congo, Rep	1.1	St Helena	1.1
	Côte d'Ivoire	1.1	São Tomé and Príncipe	1.1
	Equatorial Guinea	1.2	Senegal	1.1
	Gabon	1.2	Sierra Leone	1.1
	Gambia	1.1	Togo	1.1
	Ghana	1.2		
Caribbean	Anguilla	1.4	Netherlands Antilles	1.3
Central America	Central America	4.1	Puerto Rico	1.5
	Aruba (Neth.)	1.5	St Kitts-Nevis	1.4
	Bahamas	4.4	St Lucia	1.5
	Barbados	1.8	St Vincent and Grenadines	1.5
	Bermuda	3.9	Trinidad and Tobago	1.3
	British Virgin Islands	6.3	Turks and Caicos Islands	1.4
	Cayman Islands	12.4	US Virgin Islands	1.4
	Cuba	1.3	Belize	3.8
	Dominica	1.4	Costa Rica	4.0

Caribbean Central America	Dominican Republic	3.7	El Salvador	1.2
	Grenada	1.3	Guatemala	3.7
	Haiti	3.6	Honduras	1.1
	Jamaica	1.2	Nicaragua	1.1
	Montserrat	1.3	Panama	4.2
North America	Canada	4.7	Mexico	3.8
	Greenland	1.7	United States	7.5
South America	Argentina	1.2	Guyana	1.2
	Bolivia	3.7	Paraguay	3.6
	Brazil	3.9	Peru	1.2
	Chile	1.5	Suriname	1.2
	Colombia	3.8	Uruguay	4.2
	Ecuador	1.1	Venezuela	3.8
	Falkland Islands	1.6		
Central Asia and Trans Caucasus	Armenia	1.4	Kyrgyzstan	1.4
	Azerbaijan	1.1	Tadzhikistan	1.1
	Georgia	1.2	Turkmenistan	1.1
	Kazakhstan	1.2	Uzbekistan	1.0
Near and Middle East / South-West Asia	Afghanistan	3.5	Lebanon	3.9
	Bahrain	1.8	Oman	1.4
	Gaza Strip	1.2	Palestine	1.1
	Iran	3.7	Qatar	1.7
	Iraq	1.0	Saudi Arabia	1.3
	Israel	4.8	Syria	1.1
	Jordan	1.2	United Arab Emirates	4.9
	Kuwait	1.4	Yemen	1.1
South Asia	Bangladesh	1.1	Nepal	1.1
	Bhutan	1.3	Pakistan	3.6
	India	3.7	Sri Lanka	1.2
	Maldives	1.1		
East and South-East Asia	Brunei	1.5	Malaysia	1.7
	Burma/Myanmar	3.5	Mongolia	1.3
	Cambodia	3.6	North Korea	1.2
	China	3.9	Philippines	3.8
	Guam	1.3	Singapore	8.6
	Hong Kong	6.1	South Korea	1.4
	Indonesia	3.7	Taiwan (Chinese Taipei)	4.1
	Japan	4.5	Thailand	3.8
	Laos	1.1	Vietnam	1.1
	Macau	4.6		

East Europe	Belarus	1.1	Russia	3.8
	Moldova	1.1	Ukraine	3.7
South-east Europe	Albania	1.4	Montenegro	1.1
	Bosnia and Herzegovina	1.2	Romania	2.2
	Bulgaria	1.1	Serbia	1.1
	Croatia	1.3	Turkey	3.9
	Macedonia	1.2		
West & Central Europe	Andorra	1.7	Italy	4.4
	Austria	5.3	Jersey	5.9
	Belgium	2.3	Latvia	4.2
	Cyprus	5.4	Liechtenstein	5.9
	Czech Republic	4.7	Lithuania	1.6
	Denmark	2.0	Luxembourg	12.1
	Estonia	2.6	Malta	1.8
	Faroe Islands	1.7	Monaco	1.9
	Finland	1.9	Netherlands	5.4
	France	4.6	Norway	2.2
	Germany	4.7	Poland	1.8
	Gibraltar	2.2	Portugal	1.8
	Greece	4.2	Slovakia	1.8
	Guernsey	5.5	Slovenia	1.8
	Hungary	2.9	Spain	4.5
	Iceland	1.7	Sweden	2.0
	Ireland	2.9	Switzerland	7.3
	Isle of Man	5.2	United Kingdom	6.1
Oceania	American Samoa	1.2	Niue	1.2
	Australia	4.7	Northern Mariana Islands	1.2
	Cook Islands	1.2	Palau Islands	1.2
	Fiji	1.2	Papua New Guinea	1.1
	French Polynesia	1.2	Solomon Islands	1.2
	Kiribati	1.1	Timor-Leste	1.1
	Marshall Islands	1.2	Tonga	1.2
	Federated States of Micronesia	1.1	Tuvalu	1.1
	Nauru	1.2	Vanuatu	1.3
	New Caledonia	1.2	Wallis and Futuna Islands	1.2
	New Zealand	1.7	Western Samoa	1.3

Source: John Walker, Crime Trends Analysis. http://www.johnwalkercrimetrendsanalysis.com.au/toc.htm

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