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Transfer pricing auditing and tax forestalling by Multinational Corporations: A game theoretic approach

Eukeria Mashiri^{1*}, Shewangu Dzumira² and Dzingirai Canicio³

Abstract: The problem of revenue leakages through transfer pricing remains unabated, and an examination of possible causes is a continuum. This study provides a nuanced examination of the interaction between MNCs and the tax consultants (TCs) which is treated with mixed views in the existing literature. The role of TCs in aiding and abetting taxpayers into abusive transfer pricing (TP) has implications for policy especially in situations where the tax administration systems are porous. Based on a theoretical review (deductive theorising) the study moves from exploring broad and general aspects of the game theory to applying them to tax forestalling through TP by Multinational Corporations (MNCs). The study critiques the assumptions of game theory and explores the influence of TCs in TP decision making processes by MNCs. It gives a theoretical explanation (interpretive phenomenology) on game theory attempting to promote a deeper understanding of TP by MNCs. The study contributes to knowledge by exploring a confluence of three TP-related aspects which have been treated in isolation in existing literature. The findings show

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PUBLIC INTEREST STATEMENT

The conundrum associated with TP legislation and its administration remains a topical issue on the international scene. TP is the biggest tax avoidance tool in international taxation, and understanding it is vital. While attempts have been made in antecedent literature, to understand TP applying the game theory, this study unravels the unholy collusion between TCs and taxpayers to avoid/evade tax. The study reveals the dilemma of TCs to sell aggressive tax planning strategies and serving the state. Their wealth of knowledge and the probability of a tax audit by the tax authority have been found as major determinants of the MNCs' compliance levels. This has ramifications for the magnitude of revenue collected and threatens the governments' fiscal space to respond to global pandemics and citizenry's social welfare. The conceptualisation of the game theory done in this paper provides important insights for governments, policy makers and tax authorities collectively.

that the tacit collusion between TCs and MNCs sanitise the abusive TP activities by minimising the chances of the MNCs shenanigans being recognised by the tax authority due to information asymmetry. Further, the mediating role of TCs is polarised and benefits the TCs and the MNCs who will share the spoils at the expense of the tax authority.

Subjects: Economics; Economic Theory & Philosophy; International Economics; Business, Management and Accounting; Accounting; Corporate Governance; International Business

Keywords: game theory; MNCs; abusive transfer pricing; tax consultant; aggressive tax planning; Nash and Bayesian equilibrium

1. Introduction

In the fourth industrial revolution and for more than four decades to date, large corporates dominated the global economy. For example, the combined total revenues of 2000 biggest companies in 2014¹ constitute approximately half of the world's gross domestic product (GDP) of around 78.63 USD trillion (World Bank, 2016). The bulky of these companies are multinational corporates with operating facilities across the whole world and selling their products all over the world. This stimulates and rejuvenates the perception of the public, particularly academia and policy makers that multinational entities are involved in some forms of tax avoidance strategies. The following few snapshots attest to this observation. The European Commissioner for Competition Margrethe Vestager, after finding that in 2014 Ireland granted Apples a meagre corporate tax rate of 0.005%, on 30 August 2016 announced the decision by the Commission that Ireland was liable to collect Corporate Income Taxes from Apple amounting to €13 billion (European Commission, 2016). The bases of the commission's point of contention were the bizarre action by the Irish government tantamount to illegal subsidizing of a company already earning billions a year. In addition, part of the state of the nation (SONA) speech by President of the USA Barack Obama was:

But for far too long, lobbyists have rigged the tax code with loopholes that let some corporations pay nothing while others pay full freight ... This year, we have an opportunity to change that. Let's close loopholes so we stop rewarding companies that keep profits abroad, and reward those that invest in America.

Sikka (2009) described TP² as the biggest tax avoidance scheme of all with 60% of world trade occurring internally among multinationals (MNCs). Juxtaposing annual US corporate tax revenues of 400 USD billion, in the case of OECD countries, revenues losses due to tax avoidance by MNCs average between 100 USD—\$240 billion per annum, where tax evasion losses stood at 200 USD billion (Avi-Yonah, 2017). MNCs are very resourceful, providing them with unfair advantages over domestic firms. Revenue losses through abusive TP by MNCs has been estimated to be in excess of US\$160 billion a year in developing countries (Fuest & Riedel, 2009; Murphy, 2012) hence the need to emphasize the importance of understanding MNCs TP practices, as they impact on taxes and the ability of governments to provide public goods and services directly affecting social welfare.

Some taxpayers continuously search for, discover and create loopholes in income tax laws, hence some tax authorities have become more aggressive in dealing with the TP issues, introducing significant penalties, new documentation requirements, and increased audit procedures (Holtzman & Nagel, 2014). As such on one hand, MNCs are faced with the challenge of setting transfer prices that are consistent with the host nation's tax requirements, and the prices that will subsequently be used for their performance evaluation and rewards (Adams & Drtina, 2010). On the other hand, in the face of deterrent penalties from tax authorities, MNCs with the hidden expert hand of TCs which perfect their game are enticed by enormous rewards to venture into

abusive TP. Surprisingly, a paucity of antecedent literature examines the anecdote of the hidden influence of tax consultants on MNCs involvement into legal or abusive TP activities through application of game theory. Insight and stylised facts on the pertinent issue of TP works as a solution to the troublesome problem of revenue surmountable leakages globally in general and developing economies in particular, Africa included, where the problems of tax evasion and avoidance are more prevalent. This therefore makes tax matters the prime objective for TP decisions (Bernard et al., 2006), but Uyanik (2010) argues that not every TP incident result in tax avoidance.

The need to study the interaction between tax compliance and TP was also the motivation of Uyanik (2010) who argued that the visions of tax authorities and MNCs are diametrical opposites. Understanding the decision-making process of MNCs as well as the tax authorities under different circumstances would influence policy, improve national revenue and ultimately foster economic vibrancy. However, majority of scant studies that have been conducted on TP have applied the contingency theory (Alexandra, 2013; Elliot, 1999; S.C. Borkowski, 1992), a theory which according to S. C. Borkowski (1990) addresses specific variables and not provide a comprehensive analysis of the TP environment. This study seeks to close this lacuna by applying game theory to the TP visible decision-making process of both MNCs aided by the hidden hand of TCs and the tax authority in a bid to simplify the complex subject. Studies by Baistrocchi (2006), Radaelli (1998), and Vogeles et al. (2008) have attempted to apply game theory to TP, however, this study brings in an important “invisible hand” by the TCs aiding MNCs to venture into abusive TP at the detriment of tax authorities which has received less attention if any, in academic extant literature. While some studies focus on specific sectors (banking sector, supply chain), most of these studies employ the Shapley value (game theory) (Leng & Parlar, 2012; Pogorelova, 2015; Rosenthal, 2008; Ying et al., 2016) to determine transfer price, but neither of them provide a nuanced focus on TP audits in a holistic manner as done in this paper. Antecedent literature by being confined to Shapley value (see Shapley, 1951) which view the sharing of surplus or spoils from the game being direct on players involved, only neglect the indirect (hidden) collusive connection between TCs, MNCs and game theory within the context of TP auditing. This serves as the anecdote of the current study which seeks to unmask the conspicuously neglected indirect influence of TCs on MNCs uncooperative tax evasion appetite. Such cheating action through abusive TP activities are only beneficial to MNCs and TCs. They pose social welfare cost since they are detrimental to tax authorities’ revenue and governments’ fiscal space which is crucial in crisis periods like the case of COVID-19 pandemic. Against this background, the paper looks at invisible TC-aided TP and tax forestalling by MNCs applying the simultaneous and sequential game theory both in normal and extensive forms with complete but perfect information. Essentially, information assumptions, rules and underpinnings of the game were developed to be the points of departure in explaining and testing the game theory in this study.

The problem of revenue leakages through tax avoidance is not new, and this study contributes to literature in a number of ways. First, we show that the tax compliance behaviour of MNCs cannot be isolated from the influence of an invisible hand (TCs) because of their wealth of knowledge especially in complex issues like TP. Secondly, our study applies the game theory to conceptualise the TC-taxpayer relationship with a special focus on the MNCs and TP decisions. Thirdly, we demonstrate how the probability of a tax audit determines the strategy of choice in terms of tax compliance decisions. Mainly, this paper contributes to knowledge by exploring a confluence of three TP-related aspects (TP and auditing¹; TP and the role of TCs²; and TP and Game theory³) which have been treated in isolation in existing literature (see Table 1, 2 & 3). The study is also motivated by the recent call by Brychta et al. (2020) to analyse the issues surrounding TP tax audits in the context of the stakeholders involved (in this case the tax authority, taxpayer and tax advisor).

Finally, the study added to the paucity of literature on the TC-taxpayer relationship in tax compliance literature, by elucidating the strategic options available to TCs and taxpayers, explaining the decision-making processes of the duo in situations where the tax authority is either

Table 1. The role of tax consultants in taxpayer behaviour

Year	Author (s)	Title
2019	Aksiana and Sujana	Effect of risk preference, professional relationship on ethical decision-making of tax consultants
2019	Wiguna and Yadnyana	The role of working experience moderating the effect of emotional intelligence, intellectual intelligence and spiritual intelligence on the ethical decision of tax consultants in Bali area.
2018	West	Multinational Tax Avoidance: Virtue ethics and the role of Accountants
2017	Field	Aggressive Tax Planning and ethical tax lawyer
2016	Dienkowski and Peroni	The decline in tax adviser professionalism in American Society
2016	Wurth and Braithwaite	'Tax practitioners and tax avoidance: gaming through authorities, cultures and markets
2014	Fogarty and Jones	Between a rock and hard place: How tax practitioners straddle client advocacy and professional responsibilities
2013	Sikka and Willmott	The tax Avoidance Industry: Accountancy Firms on the make.
2011	Mitchell and Sikka	The Pin-stripe Mafia: How Accounting firms destroy Societies
2007	Bobek and Radtke	An experimental investigation of tax professionals' ethical environments
2004	Killian and Doyle	Tax Aggression among Tax Professionals

Source: Own Compilation from various studies

complacent or active. West (2018) and Tan (2009) stress that the role of TCs has not been considered in much detail in the taxpaying behaviour of taxpayers, and the results of the game reveal how the role of TCs is influential in aiding and abetting taxpayers to venture into tax evasion and avoidance activities that has implications for policy given the detrimental effects of such actions on the fiscus and societal welfare. The involvement of MNCs in abusive and undetected TP activities creates a competitive disadvantage to local firms and adversely affects the country's balance of trade (BOP) due to illicit capital outflows posing a threat on the exchange rate stability.

2. Related literature review

According to Barrera and Bustamante (2018) tax avoidance and the ethical behaviour of multi-nationals has become a major issue for governments around the world. Though crucial, tax avoidance by MNCs has been largely discussed with reference to the role played by low-tax jurisdictions or tax havens in facilitating TP manipulation (Taylor & Richardson, 2014). In order to take advantage of tax differentials in tax jurisdictions, MNCs also exploit the loopholes in the existing TP rules. Other scholars have discussed tax avoidance in the context of tax administration deficiencies, with the majority addressing this phenomenon as a matter between MNCs and the tax inspector (authority) (Klassen, Li et al., 2017; Lisowsky & Mescall, 2017; Marques & Pinho, 2016). However, what taxpayers do without the taxman has been overlooked in extant literature. This is the role performed by the TC. The limited literature scrutinizes the influences of the TCs on the taxpayer's compliance behaviour, albeit with inconsistencies on the kind of role they play. Table 1

Table 2. Transfer pricing tax audits

Author (s)	Jurisdiction	Methodology	Findings
Shongwe (2019)	African countries	Review of literature	Transfer pricing tax audits regularity in developing countries is handicapped by legislative inadequacies and lack of audit skills
Abdul et al. (2016)	Indonesia	Qualitative inquiry	Tax auditors face numerous challenges in auditing TP transactions involving intangibles
Chalu and Mzee (2018)	Tanzania	Descriptive and inferential statistics	Critical factors for tax audit effectiveness include sound tax audit unit, taxpayers' attitude, standards of tax audit and leadership & tax policies for tax audit
McNair et al. (2010)	Developing countries	Review of literature	Two main challenges faced by developing countries are; absence of effective TP legislation and limited capacity for tax authorities to conduct TP audits
Bateman (2007)	General perspective	Review of literature	TP decisions by MNCs are based on a tax-motivated cost/benefit analysis

Source: Own Compilation from various studies

below shows a list of some of the few studies that considered the role of tax consultants in the tax decisions of taxpayers.

Some of the researchers believe that there would be no well-functioning tax system without tax advisors, with many justifying the favour of TCs towards taxpayers than tax authorities. Holtzman and Nagel (2014) support their existence, arguing that the tax professionals assist MNCs in developing tax efficient structures that can increase taxpayer's compliance with laws, prepare for quick audit response, resolve or minimise TP disputes, in the era of increased scrutiny by tax authorities. Killian and Doyle (2004) also emphasize their importance arguing that taxpayers increasingly seek the assistance of tax advisors because of the complexity of tax laws. Because taxpayers are not familiar with the intricacies of tax laws, tax professionals become handy in assisting the taxpayers to fulfil these sophisticated tax obligations (Thuronyi & Vanistendael, 1996). They add that tax advisors not only assist the taxpayers, but also help the governments with the formulation of legislation and regulations. Hai and See (2011) also defend them arguing that accounting firms belong to an elite profession and so are not always at the mercy of taxpayers' demands.

Literature acknowledges the janus elements embedded in the TCs' role in serving both their client and the state with high chances of their role being skewed towards one side as their loyalty lies primarily to their client and not to the state (Fogarty & Jones, 2014; Thuronyi & Vanistendael, 1996). The general expectation is for TCs to assist the government to collect their fair share of tax revenue while taxpayers would want assistance in the form of reduced tax liabilities (Fogarty & Jones, 2014). The former has been deemed to render TCs into uncompensated agents while the latter is what renders TCs tax avoidance engineers.

Table 3. Transfer pricing and game theory

Year	Author (s)	Title
2018	Salazar Wang, Rauniar and Wang	A game analysis of MNC CSR in China.
2016	Ying, Qiao & Qiuya	Transfer Pricing in group of companies based on modified Shapley value method
2015	Pogorelova	Transfer Pricing and Game Theory
2012	Leng and Parlar	Transfer Pricing in a Multidivisional firm: A cooperative Game Analysis
2008	Vogele Gonnet and Gottschling	Transfer Prices Determined by Game Theory: 1- Underlyings
2008	Rosenthal	A Game-theoretic Approach to Transfer Pricing in a vertically integrated supply chain
1998	Radaelli	Game Theory and institutional entrepreneurship: transfer pricing and the search for coordination in international tax policy

Source: Own Compilation from various studies

Wiguna and Yadnyana (2019) emphasized how TCs would practice unethical conduct, manipulating financial statements thereby reducing the taxes that would have been paid to the state because of the large rewards received from their clients. Killian and Doyle (2004) investigated factors affecting decision-making of TCs in South Africa and found that the level of risk preference, professional dominance and professional relations are the ones that have significant effect on the level of aggressive tax avoidance. These factors have been found dominant in the large Consultancy firms that serve large corporates (MNCs) (Aksiana & Sujana, 2019; Killian & Doyle, 2004; Wurth & Braithwaite, 2016). Accuse the sophisticated accounting firms of being architects of the artificial structures associated with unacceptable or aggressive tax planning by engineering ways to comply with the letter of the law and ignoring the spirit of the law. TCs have been accused of abandoning ethics, public interest or social welfare in favour of commercialism and client advocacy (Frecknall-Hughes et al, 2017 Sikka and Willmott (2013) describe them as “financial mafias” that engage in schemes that erode public revenues and deprive citizens of crucial merit goods and services, like health and education. It is also estimated that the Big 4 accounting firms generate about £4.2bn in fees every year from “commercial tax planning” and “artificial avoidance schemes” (Mitchell & Sikka, 2011). This has been estimated to constitute more than 33% of their aggregated annual global income (Sikka, 2015). This has been attributed to the MNCs’ capacity to legally reduce their corporate tax burdens by hiring the services of tax professionals compared to small entities. These firms orchestrating tax avoidance are doing a disservice to the society. This reduces national revenue andacerbates the global economic crisis that has placed many governments under pressure especially after Covid-19 (Nicola et al., 2020).

The TCs have the advantage of their tax knowledge which is superior to that of the ordinary taxpayers (Killian & Doyle, 2004). Though, Dienkowski and Peroni (2016) argue that TCs do not owe the state the duty to comply but rather their sole duty is to represent vigorously their clients within the confines of the law, they acknowledge the involvement of tax advisors in overly aggressive tax planning strategies which impairs professionalism. The decision to be aggressive or compliant depends on a number of factors which include; the client appetite for risk, the chances for tax audit and the ultimate adverse consequences that will include penalties and reputational damage (Fogarty & Jones, 2014). Tan (2009) opined that the aggressiveness or conservatism of the tax decisions are a result of the complex interplay between the TC and the taxpayer, while Sakurai and Braithwaite (2001) stress that the aggressiveness or conservatism of TCs depends on the motivation of taxpayers and Field (2017) argues that it is dependent on the

TC's tax planning philosophy. Fogarty and Jones (2014) acknowledge that literature has not provided consensus, and an appreciation of the actual interaction that occurs between client and tax experts is necessary, which is the thrust of this paper. Killian and Doyle (2004) castigate tax authorities for focussing on the taxpayers and turning a blind eye on the significant influences of the TCs. Given the practical importance of tax advisors for the functioning of the tax system, a nuanced understanding of the role they play is crucial especially in this dispensation where governments are under pressure to balance stabilising their economies and saving lives from the global challenges. This paper provides the nuances and the intricacies of the interaction between the TC and the taxpayer with particular attention on the impact of the probability of a tax audit on the tax decision-making processes. TCs conduct a risk-reward analysis, and revenue authorities must manage this risk if tax avoidance and its repercussions are to be mitigated.

Hunter et al. (2015) posit that TP is frequently discussed but often misunderstood. One of the ways of verifying the correctness of the transfer price determined is through tax audits. Tax audits are important in that they also serve as fundamental tools to foster voluntary tax compliance (Brychta et al., 2020). TP being one of the tax avoidance strategies used by MNCs, it is difficult to audit (Hung et al., 2015; Yeni, 2010). While nations especially developing countries need MNCs for technological and other benefits their resource mobilisation efforts are handicapped by their inadequate resources and incapacity to conduct TP audits (Cooper et al., 2016; Yeni, 2010). Auditing MNCs often encompass a wide range of intricate technical issues, and TP is frequently the most central one (Shongwe, 2019) and in today's environment, hard-hitting TP audits are given, and tax disputes are probable. The tax audit activities on TP are pigeon-holed by thrilling frailty, this is in relation to the type of data and information that is worth strategic value, which tax inspectors are required to research (Pavone, 2020). McNair et al. (2010) found the ability for tax authorities to engage in TP audits as severely limited or non-existent. Some recent studies presented in the Table 2 confirm the existence of this conundrum within TP audits. The selected studies provide intriguing findings with regards to TP audits.

Chalu and Mzee (2018) found among the top five critical factors for tax audit effectiveness were sound tax audit unit, taxpayers' attitude, standards of tax audit and leadership and tax policies for tax audit in Tanzania. Bateman (2007) found determining an appropriate and ethical transfer price as a difficult exercise, and that such decisions are usually tax motivated and the objective of managing the risk of tax audits. Due to the uncertainties of the TP audit outcomes hence the engagement of TCs who are believed to have superior tax knowledge especially when the probability of the audit is high. In such engagements TCs tend to either undermine or influence compliance. Information asymmetry gives more leverage to the TCs and their clients at the expense of the tax authority. The special knowledge that TCs possess are no match for revenue authorities (Jaffer, 2019). Their effectiveness is marred by a myriad of administration and capacity challenges such as inexperience, inadequate resources, and lack of training (Blumenthal, 2017; Jaffer, 2019; Mashiri, 2018; Oguttu, 2020). TP audits are associated with difficulties that arise due to the complexities involved in the comparability analysis within the arm's length principle (Brychta et al., 2020). Mashiri (2018) and McNair et al. (2010) also concede that lack of comparable data impedes the successful conduct of TP audits.

The other challenges that tax authorities face in TP audits involve intangibles (Brychta et al., 2020; McNair et al., 2010). Garcia (2016) attributes this challenge to the shortcomings of the current TP regimes which are not designed to suit the digital economy and regulate intangible transactions. Sakurai and Braithwaite (2001) also highlight that taxpayers consult TCs to exploit the grey areas of law. Tax jurisdictions with irregular and ineffective TP audits become a fertile ground for aggressive tax planning since Field (2017) iterates that the TCs tax behaviour is dependent on the probability of tax audits. A good example is Indonesia where Yeni (2010) found that factors such as tax audit policies, unsound staffing policies and tax auditors' preference for non-TP audits result in MNCs to be less subjected to TP audits. The study also revealed that the

MNCs took advantage of the poorly organised tax audits which are also worsened by corruption, thereby making the tax authorities' competency and integrity questionable.

MNCs have been accused of tax forestalling especially in developing countries through strategies such as over-invoicing and underpricing (McNair et al., 2010; Okwoma, 2014) yet the mainstream of developing countries appears not to conduct explicit TP audits and, in many countries, the regularity of tax audits as such lags behind than of developed countries (Shongwe, 2019; McNair et al., 2010; PWC, n.d.). However, there are some African jurisdictions which have got generally adequate TP legislation, but have been incapable of effectively enforcing it and as a result; few TP audits are being carried out (Guj et al., 2017). Furthermore, the complexity of TP legislation compounds the urge for MNCs to contract TCs and Tan and Braithwaite (2018) found receiving aggressive tax advice from TCs as a significant determinant of retention of TCs by taxpayers. Enforcement is also weakened by porous TP regimes, archaic and misguided audit strategies and corrupt behaviour (Yeni, 2010).

Following the enactment of TP legislation and guidance, tax administrations need to advance, implement, and incessantly update an effective TP audit program (Cooper et al., 2016) since TP audits can be, and often are, stirred by corporate tax audits, mostly when the transaction could result in a considerable tax deduction against the local tax base (KPMG, 2008). As a result, many tax audit activities, at national and global level, have tinted a belligerent approach by MNCs to the most existing international tax issues, often distorting the logic of TP to favour the manipulation of tax bases (Pavone, 2020). Since the auditing of MNCs is not simple it requires cautious reflections to be made regarding clear understanding of how the business is organised in relation to commercial and economic reality of business operations such as the generation of incomes, profits and which functions of the business are crucial to generating the profits (Shongwe, 2019). For this reason, the tax audit procedures by the tax authority are of an awfully complex nature since they entail a deep knowledge of the company and of the operations carried out by it and sometimes, it is possible to find an entire fiscal approach to TP by the tax authorities, which does not consider business logic (Pavone, 2020).

One of the preliminary points in any TP audit is to test the dependability of the conclusions recorded in a TP study. Though, the key audit issue is normally to test whether the facts on which the analysis is best alignes with the substance of the authentic transactions and in precise, the functions, assets and risks related to them (OECD, n.d.). If the tax authority highlights the non-compliance with the "arm's-length principle", it can make a modification on the transfer prices of the resident company, with limited upshot for tax purposes, without changing the contractual obligations between the subsidiaries (Pavone, 2020). Tax authorities may use information from local tax filings to enlighten risk assessment, and possibly audits. This is predominantly fitting given the ridiculously high cost of commercial TP databases, as well as the geographic importance of the accessible data. For audit purposes information contained in the local and the master files are a crucial source of information for tax auditors during an audit as they contain thorough information required by tax administrators to effectively validate whether the country's TP laws, including the arm's length principle are being observed (OECD, n.d.).

Tax authorities usually choose cases for TP audits based on effective risk identification and assessment using system-based data analytic methods in detecting and picking specific cases of higher-risk taxpayers for TP audits (Deloitte, 2015). This is believed to either increase or decrease the dead weight loss from tax audits (Waegenaere et al., 2006). Mostly, prompts for TP audits comprise compliance level of TP obligations, value of related party transactions, loss making entities or winding down of business, trade with entities in tax havens or constantly reported low profit margins (Deloitte, 2015). A fragile TP regime compounds the ability of MNCs to transfer income between jurisdictions and misprice these transfers in order to obtain a tax-benefit. Blouin et al. (2017) suggest that coordination among tax authorities from different tax jurisdictions will influence MNC tax behaviour. While MNCs are a blessing, TCs are responsible for the proliferation of

tax avoidance and evasion by MNCs making tax forestalling a complex phenomenon that requires deep analysis. Next is an outline of the methodological strategies applied in this study.

3. Methodology

This study is based on theoretical review (deductive theorising) which enables a focused and deeper theoretical understanding of a TP and tax forestalling phenomenon (Du-plooy-cilliers et al., 2014). In light of Brink et al. (2012) argument, the study moves from exploring broad and general aspects of the game theory to applying them to tax forestalling through TP by MNCs and provide a global perspective of the discipline and its scope and practice as grand theory. It gives a theoretical explanation (interpretive phenomenology) on game theory attempting to promote understanding of TP by MNCs. In this study a detailed theoretical framework was developed with specific collection of thoughts and theories that relate to the TP phenomenon under investigation. Essentially assumptions were developed to be the points of departure in explaining and testing the game theory in this study. According to Brink et al. (2012) the following steps were taken in this study;

- Identification, selection and clarification of TP and tax forestalling by MNCs.
- Identification of the assumptions that form the grounding for the game theory.
- Clarification of the context through the literature review and theoretical framework.
- Developed relational statements from the concept analysis, derivation and synthesis.
- The relational statements were tested and validated by the strategies from the developed game theory involving an “invisible hand” (TC) aiding the MNC (taxpayer) and tax authority which contribute to the logical extension of scholarly and academic body of knowledge from existing game theories.

3.1. Theoretical framework

The game theory is premised on the assumption that players are rational and would select actions that yield higher payoffs (dominant strategy) given what they expect their rivalries to do (Turocy & Stengel, 2001) and its use in TP studies is coeval (Radaelli, 1998; Vogele et al., 2008). Torgler (2003) explains its wide use as a basis for analysing the interaction between taxpayers only, but further indicates that tax compliance is a more complex subject than a simple game with two taxpayers. Torgler further stressed that game theory is limited by omitting important players, the tax authority and TCs. The hidden role of TCs in influencing the actions and behaviour of taxpayers (MNCs), was conspicuously omitted in the realm of the extant literature. Some of the few studies that applied game theory in transfer pricing literature are shown in Table 3.

Most of these studies confine their analysis to Shapley value where the sharing of surplus or spoils from the game is direct on the players involved only and neglect the indirect (hidden) collusive connection between TCs, MNCs and game theory within the context of TP auditing. This serves as the anecdote of the current study, by unmasking the indirect influence of TCs on MNCs uncooperative appetite at the detriment of tax authorities’ revenue and fiscus but benefiting the MNCs and TCs via unorthodox means hidden to the purview of tax authorities’ legislation dictates. Baistrocchi (2006) tried to incorporate the tax authority as a crucial player in his TP litigation game where both the host tax authority and the taxpayer facing a TP adjustment have two options to defect (conceal some of the adverse information) or to cooperate (provide all the relevant information). Braithwaite (2003) describes it as the “cops-and-robbers” game with taxpayers seeking weaknesses in the tax system for their benefit, and regarding tax authorities as cops which hunt after the errant taxpayers. But these studies ignored the role of TCs as crucial taxpayers’ accomplices, which is the strength and focus of this study. Since all players are rational, the strategy “defect” dominates “cooperate” (Turocy & Stengel, 2001). Imagining interaction between these two, at first taxpayers would decide on how much income to report, and the tax authority decides on the audit process (Torgler, 2003).

Tax avoidance by MNCs disadvantages local firms (McKerchar & Evans, 2009). To get higher payoffs, MNCs take expert advantage of the tax professionals' tax knowledge to assist them to legally minimise their tax liability. If they choose to be aggressive, it means more tax avoidance is perpetrated. This happens against a background of deficient tax systems in developing countries (Sebele-Mpofu, 2020) which lack expertise and resources to detect the TP abuse by MNCs (Shongwe, 2019). From the above, it is evident that the game played by MNCs and tax authorities is a cat and mouse complicated by more information which is either imperfect or incomplete and the collusion between TCs and taxpayers. Thus, this study seeks to unravel the role played by TCs in enticing and influencing MNCs to erase their footprints and invigorating their confidence of venturing into abusive TP decisions and perfecting their abusive TP game. The implications of this relationship on the tax authorities cannot be overlooked as Brychta et al. (2020) allude to the need for further research on the examination of TP from the perspective of tax authorities' experience of tax audits.

3.2. Conceptualisation of the game theoretic model

Game theory assumes similar players (e.g., taxpayer 1 and taxpayer 2), but this study has incorporated the tax authority and taxpayers, where MNCs represent taxpayers. The cooperative behaviour of a taxpayer is based on the previous experience with the tax authority for example, nature and frequency of tax audits, and issues of punishment (e.g., penalties) or reward (Turocy & Stengel, 2001)). But the sentimental influence of the TCs in aiding and abetting taxpayers' behaviour and perfection of their tax evasion and avoidance game is conspicuously omitted in body of antecedent literature. Since the main aim of this study is to characterise, replicate and reveal the strategic decision choices MNCs make in cahoots with TCs, we use pseudo figures to portray payoffs making their game outcomes clearer. The figures we used are not derived anywhere but are for illustrative purposes and can be taken as any other symbols used in game theory to represent payoffs (see for example, Salazar et al., 2018). In addition, the special focus on TP is motivated by Blumenthal (2017) who emphasizes that TP is inherently subjective because of its reliance on facts and circumstances. Hunter et al. (2015) posit that issues of TP require sophisticated economic analysis for understanding and resolution, and game theory as applied in this study is a useful lens to elucidate the TC-taxpayer behaviour which is important to policy makers and tax authorities. The outcomes and payoffs of the game to be played in this study is dependent on whether it is played simultaneously (with imperfect information situation) or sequentially (with perfect information situation) and both players involved have complete or incomplete information about the game. In addition, the outcomes and payoffs of our game between tax authorities and MNCs, presented either in normal or extensive form is also influenced by the number of strategies faced by the two players. That is, whether the strategies are the same or different and whether the game outcomes are symmetry or asymmetry. Given that the players have different strategic options, we play a game with different and asymmetric outcomes. The presentation and structure of the outcomes and equilibrium of the game are reported and discussed in the next section.

4. Discussion of game theoretic outcomes

The study was anchored by the need to understand the behaviour of economic players with regards to transfer pricing audits, an exercise often described as complex and deficient especially in the context of tax authorities. Game theory became a cornerstone for this pursuit. In our game

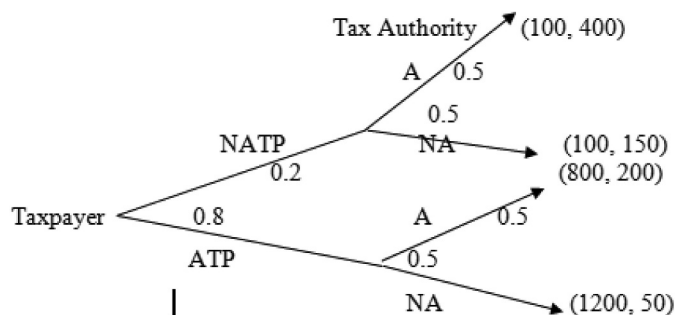
Table 4. The transfer pricing game

		Taxpayer (MNC)	
		Abusive Transfer Price (ATP)	Non-Abusive Transfer Price (NATP)
Tax Authority	Do Random Audits (A)	200, 800	400, 100
	No Random Audits (NA)	50, 1 200	150, 100

Source: Own Conceptualisation

Figure 1. Extensive form game with perfect information and strategic options probabilities.

Source: Own conceptualisation



theory analysis, we presented the structure and outcomes of our game in normal form which was first played simultaneously and then in extensive form done sequentially. First, the interactions of the simultaneous game with imperfect information in normal form and different strategies for each player in matrix form are depicted in Table 4.³ Both players have complete information since they know each player's strategic options. Our game is played under Cournot Competition because it is played with imperfect and complete information between the tax authority and taxpayer. The strategic options of the taxpayer with the help of the TC's expertise are to venture into abusive TP or not, whereas that of tax authority is to do random audits or request TP documentation or not. The game has four possible payoffs and each player has four possible outcomes whose payoffs are valued in million US\$.⁴ Since each player is rational, it will play its dominant strategy, which has the potential of providing it with the best payoff. The first payoffs correspond to the tax authority (row player) while that on the taxpayer (column player) is the second one.

Given that each player is rational and thrive to maximise its utility, the dominant strategic option for the taxpayer whether the tax authority do random audits or not is to venture into TP with a maximum expected payoff of 1.2 USD billion. Evidence in antecedent literature disregarding the critical role played by TCs argue that audits by tax authorities enforce compliance by taxpayers due to fear for severe punishment. In contrast, the strategic choice of the taxpayer of our game payoff matrix in Table 4 shows that, armed with the information provided by the expert (TC), the MNCs are not deterred from venturing into abusive TP since it will give them the best outcome, slimmest chances of being caught and highest valued payoffs. This confirm arguments in the antecedence literature that accounting firms (TCs) belong to an elite profession whose services are mostly targeted and more beneficial to taxpayers against tax authorities (Killian & Doyle, 2004; Wurth & Braithwaite, 2016; Frecknall-hughes et al., 2017; Dienkowski & Peroni, 2016; Aksiana & Sujana, 2019). Therefore, no matter what the tax authority does, the best strategic option for the MNCs, from payoffs reported in Table 4, is to venture into abusive TP. If the tax authority request (do not request) TP documentation, the MNC enjoys a payoff of 800 USD million (\$1.2 billion) when it ventured into abusive TP. Since the MNC is rational and seeking to maximise its utility, this is more lucrative compared to equal compliant payoffs of 100 USD million, regardless of whether the tax authority requested for the TP documentation or not. This shows how the hidden role of tax professionals/consultants (TCs) alters the strategic choice of MNCs from compliance to non-compliance no matter how large or severe the penalties from tax authorities when caught are.

On the other hand, the dominant strategic option for the tax authority is to carry out auditing, enticed with the highest expected outcome with a payoff of 400 USD million. Thus, following results reported in Table 4, no matter what the MNC does, the best strategic option for the tax authority, is to request TP documents. If the MNC comply and not venture into an abusive TP (do not comply or venture into an abusive TP), the tax authority enjoys a payoff of 150 USD million (50 USD million) when it does not request TP documentation. Since the tax authority is rational and a utility maximiser, this is less attractive compared to higher valued payoffs associated with requesting

TP documentation of 400 USDmillion and 200 USDmillion, when the MNC comply or do not comply, respectively.⁵ Therefore, from the payoff matrix in [Table 4](#), the Nash equilibrium of this normal form simultaneously game played under Cournot competition is (Do Audit, Do TP) with respective payoff for the tax authority and taxpayer of (200 USD million, 800 USDmillion).

The sum of the payoffs accruing to the tax authority and taxpayer at Nash equilibrium of 1 USDbillion is less than 1.250 USDbillion enjoyed when there are no audits done by the tax authority and the MNCs ventures into TP activities. If the difference of 250 USD million is assumed to be the amount paid to the TC by the MNCs for its role in aiding and abetting, then the tax expert would get a higher payoff (250 USD million) than what the tax authority actually gets (200 USD million). As a result, our Nash Equilibrium outcome show that the hidden hand of the TC in aiding and abetting the taxpayer by perfecting the abusive TP activities benefits both the MNCs and TCs at the expense of tax authorities and the nation at large. In the antecedent literature this anecdote empirical evidence which is the main thrust of this study is lacking. As an antidote to this problem of unholy collusion between TCs and taxpayers, tax authorities must up their game to match or be ahead of TCs' level of expertise. This was echoed by Cooper et al. (2016) who believes that legislative reforms alone are not enough without revamping the tax administration and enforcement systems. Also, for tax authorities to be able to bust these bubbles and syndicates, they must be pro-active as opposed to being reactive. This is critical particularly when transfer pricing auditing has proved to be a sophisticated and daunting exercise (Shongwe (2019)).

We also seek to examine whether the outcome of the game changes if the game is played sequentially with imperfect and complete information, and probabilities of doing audits and of venturing into TP activities as presented in [Figure 1](#).

Tax authorities are not proactive but reactive by nature, so they have a second mover advantage in the sequential game in [Figure 1](#). To avoid the tax authority from capitalising on the second mover advantage, the first mover (taxpayer) arm himself with the expertise of the consultant. This will create information asymmetry such that the tax authority will have the slimmest chance of noticing the hidden collusive shenanigans of the TC and MNC. This is consistent with Tarasova et al. (2018) who found that tax decisions by taxpayers are influenced by information asymmetry and Yeni (2010) found evidence that when MNCs are aware that the chances of impromptu tax audits on TP are low they take advantage and use TP strategically as a collusive mechanism (Shor & Chen, 2009). The expertise of the TC gave the taxpayer confidence to venture into abusive or aggressive TP regardless of being at a first mover disadvantage. This collusive behaviour between taxpayer and TC will make it very difficult if not impossible for the tax authority to observe the TC perfected abusive TP actions of the taxpayer. Thus, the helping hidden hand of the TC raise taxpayer's utility and rent seeking behaviour, which enable the taxpayer to assign a higher probability on venturing into abusive TP (0.8) than not doing so (0.2). Abusive TP choice by taxpayer might be more rewarding and lucrative since tax audit by nature are mostly random, thus tax authority's probabilities of requesting TP documentation from the taxpayer in this study are assumed to be symmetry (0.5).

In the case of our mixed form Cournot competition game portrayed by [Figure 1](#), the payoffs, in million dollars for the four sequential outcomes of (NATP, A), (NATP, NA), (ATP, A) and (ATP, NA) are (20, 200), (20, 75), (640, 100) and (960, 25) and the payoff sums are 220 USDmillion, 95 USD m, 740 USDmillion and 985 USDmillion, respectively.⁶ The taxpayer dominant strategy in this mixed form game is 960 USDmillion when it play ATP, but since the tax authority have complete but imperfect information about the taxpayer's move due to its second mover advantage it will avoid a lower payoff of 25 USDmillion by playing A. As a result, the perfect Bayesian equilibrium for this Cournot competition is (ATP, A) with respective payoffs in millions of 640 USD and 100 USD accruing to the taxpayer and tax authority. Similar to the normal form game in [Table 4](#), in this extensive-mixed-form game, the taxpayer will venture into abusive TP activities regardless of whether the tax authority request TP documentation or not whereas the

tax authority chose to request TP documentation, no matter what the taxpayer does. If the value of the difference between (ATP, A) and (ATP, NA) payoffs of 245 USD million⁷ is enjoyed by the TC for legally advising the taxpayer to venture into tax avoidance, it will be much higher than the 100 USDmillion paid to the tax authority. Thus, the taxpayer and TC by venturing into abusive tax avoidance will enjoy higher spoils from the activity, which they enjoy at the expense of the tax authority (tax base erosion).

5. Conclusion and recommendations

The main thrust of the study was to examine the conspicuously omitted and neglected effect of collusion between TCs and taxpayers on the benefits or detriment of tax authorities. This study identifies a very crucial component in TP being TCs that arm and entice taxpayers to venture into abusive TP covering their tracks and perfecting their game, which is ignored in antecedent literature. The paper shows that the tax compliance behaviour of MNCs cannot be isolated from the influence of an invisible hand (TCs) because of their wealth of knowledge especially in complex issues like TP. By applying the game theory, the study conceptualises the TC-taxpayer relationship with a special focus on the MNCs and TP strategic decisions. A focussed examination of this relationship revealed how the tax administration capacity using the probability of a tax audit determines the strategic choice in terms of tax compliance decisions by the duo. With the complexity of TP, the mainstream of tax authorities is incapacitated to conduct robust TP audits. The low probability of TP audits present uncontested opportunities for the TCs and their clients to collude for abusive TP (aggressive tax planning) which awards them a higher pay off at the expense of the tax authority.

Fragile legislation, inadequate resources and inadequate skills and experience also reduce the chances for TP audits to be regularly and competently administered, thereby causing TCs and the taxpayers to be opportunistic. Irregular TP audits or no audits at all will impact on the strategic options to be selected by the TCs and the MNCs. TCs strive to identify weaknesses and loopholes done by tax authorities which they relay to their clients which in most cases are taxpayers (MNCs). The findings from the game theory suggest that through their expertise, TCs provide superior information (hidden to the tax authority) to the MNCs to perfect their game which ultimately entice them to venture into abusive TP activities regardless of the tax authorities' strategic options pursued. It has been concluded from the game that the taxpayer is rational and a utility maximiser and armed with expert advice from TCs chooses to defect (avoid tax) so as to get a higher payoff. Also, the TC can have an influence favourable to the taxpayer at the expense of the tax authority which can ultimately yield asymmetry benefits tilted in favour of the taxpayer and tax consultant. If the TC influences a Nash or perfect Bayesian equilibrium point, then it means more revenue goes to the taxpayer and consultant and the least flow to the fiscus via the tax authority. The tacit collusion between TCs and MNCs sanitise the abusive TP activities by minimising the chances of the MNCs shenanigans being recognised by the purview of the tax authority due to information asymmetry. At the expense of the tax authority, the tacit collusion benefit TCs and MNCs who will share the spoils. Moreover, when the taxpayer pays the expected amount of tax (without audits) the tax authority gets a higher pay-off with minimum effort due to tax audit cost savings.

MNCs with the helping hidden hand of TCs thrive and search for legislation loopholes to capitalise on at the detriment of tax authorities and the nation at large. It has been concluded that the hidden collusive actions between TCs and MNCs results in abusive TP by MNCs which are not only detriment to the national revenue, but also pose unfair competition to domestic firms and impede foreign investment. This non-compliance by MNCs aided by TCs ultimately pose social welfare losses due to dwindling fiscal revenues.

We conclude that game theory is a useful lens to understand the TC-MNC relationship, and that TCs must retain responsibility for the MNCs antagonistic tendencies. As a result of latent undesirable effects of TP on national revenue, rules that align tax advisors with the spirit of fiscal policy are recommended. Therefore, Governments need to restrain the circumstances that surround the

provision of compensated tax assistance through the regulation of tax practitioners. Similarly, MNCs should be put under superfluous “autopsy” by revenue authorities since some MNCs have become tax antagonistic in avoiding tax through TP manipulation practices perfected by TCs whose expertise might be ahead of tax authorities. Both TCs and their MNCs should comply with the letter and the spirit of the TP laws that govern the jurisdictions in which they operate in. Furthermore, we recommend tax authorities to up their game by putting in place human capital, systems and expertise that are ahead or match that of TCs coupled with deterrent penalties for venturing into abusive TP targeting both culprits and accomplices. Tax authorities’ tax avoidance and evasion detection abilities emanating from abusive TP must be proactive rather than reactive through mechanisms such as financial intelligence.

The study is not without limitations. First, it takes a theoretical dimension and does not take a case study approach by either using a specific country or group of countries. Second, the game was not used as a tool to unravel the possible pull and pushing factors towards venturing into abusive or cooperative TP strategies by MNCs based on a comparative study between high or low TP prone country or countries. Third, the study does not separate the avenues by which TP issues vary by the state of a country's state of development. Lastly, we used a game theoretic approach with only two strategic options. Based on these limitations we recommend that further studies must use theoretical game theory based on more than two strategic options. In addition, future empirical studies must look at TP issues using case studies and also compared the pull and push factors comparing developed, emerging and developing economies. Lastly, to be more exhaustive and more robust, future researchers must compare the strategic option pursued by firms using high prone and low prone economies to ascertain whether they are different or uniform.

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Notes

1. The value according to the Forbes 2000 List was estimated to be \$38,86 trillion.
2. Transfer pricing is defined as the setting of prices for controlled transactions between related enterprises in order to minimise their tax liability (Mashiri, 2018).
3. The audit costs affect both players equally and so the values of their payoffs are affected symmetrically.
4. This is a game theoretic paper meant to bring TCs’ role in unveiling increasing utility, appetite and involvement, of MNCs in abusive TP despite harsh penalties put in place by tax authorities. To make it clearer, the figures we used are not derived from anywhere but are for illustrative purposes and can be taken as any other symbols used in game theory to represent payoffs (see for example, Salazar et al., 2018).

5. The analogue of this equilibrium outcome is achieved following the Nash Equilibrium Model proposed by Nash (1950) where each player is rational and a utility maximiser playing the dominant strategic option.
6. The figures are obtained by multiplying the payoffs in Table 4 by their respective probabilities in Figure 1.
7. This is the difference between sum of payoffs when the taxpayer play ATP and the tax authority either play NA or A, that is the difference between \$985 and \$640, respectively.

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