South African Journal of Economic and Management Sciences
ISSN: (Online) 2222-3436, (Print) 1015-8812

Original Research

An analysis of South Africa's guidance on the income tax consequences of crypto assets

Authors:
Namhla Vumazonke[1]
Shaun Parsons[1]

Affiliations:
[1]College of Accounting, Faculty of Commerce, University of Cape Town, Cape Town, South Africa

Corresponding author:
Shaun Parsons,
shaun.parsons@uct.ac.za

Dates:
Received: 15 Sept. 2022
Accepted: 30 Nov. 2022
Published: 28 Feb. 2023

How to cite this article:
Vumazonke, N. & Parsons, S., 2023, 'An analysis of South Africa's guidance on the income tax consequences of crypto assets', *South African Journal of Economic and Management Sciences* 26(1), a4832. https://doi.org/10.4102/sajems.v26i1.4832

Copyright:
© 2023. The Authors. Licensee: AOSIS. This work is licensed under the Creative Commons Attribution License.

Read online:

Scan this QR code with your smart phone or mobile device to read online.

Background: A media statement issued by the South African Revenue Service (SARS) in 2018 represents the primary guidance available to South African taxpayers on the income tax consequences of crypto asset transactions.

Aim: This study assessed the adequacy of the guidelines available to South African taxpayers on the consequences of crypto asset transactions, and identified the income tax consequences for transactions not addressed in these guidelines.

Setting: This study compared the scope and depth of the SARS guidelines to guidance issued in other jurisdictions. This distinguishes it from other studies focusing on the theoretical income tax consequences of crypto asset transactions.

Method: The first phase of the study was an in-depth documental analysis to benchmark the SARS guidelines against the guidance of tax authorities in other jurisdictions. In the second phase of the study, a doctrinal legal research methodology was adopted to identify the income tax consequences of transactions not addressed by SARS, applying existing legislation and case law, and taking into account the guidance of the other selected tax authorities.

Results: The study found that the SARS guidelines did not comprehensively address all the crypto asset transactions addressed by the other selected tax authorities.

Conclusion: The study recommended that SARS provide comprehensive guidance to South African taxpayers on the income tax consequences of crypto asset transactions, the development of which would be supported by consequences identified in this study.

Contribution: This study contributes to the understanding of, and development of taxpayer guidance to address the income tax consequences of crypto asset transactions in South Africa.

Keywords: cryptocurrency; crypto asset; South African Income Tax; South African Revenue Service; tax literacy; tax compliance.

Introduction

In 2018, for the first time, the South African Revenue Service (SARS) issued a media statement providing guidance and accompanying answers to frequently asked questions (FAQs) to South African (SA) taxpayers on the taxation of crypto asset transactions (hereafter referred to collectively as the 'SARS guidelines'). The SARS guidelines indicate that 'normal income tax rules' will apply to such transactions, and that crypto asset gains or losses must be declared as part of taxable income (SARS 2018b:1). The SARS guidelines, together with a brief information page added subsequently to its website (SARS 2021), remain the only guidance on crypto asset transactions provided to SA taxpayers by SARS.

The only amendments to the *South African Income Tax Act* No. 58 of 1962 ('the Act') to address the income tax consequences of crypto asset transactions occurred in the year following the publication of the SARS guidelines. 'Cryptocurrency' was added to the definition of a 'financial instrument' (section 1) and related activities included in the list of so-called 'suspect trades' (section 20A), wherein losses of individuals may be ring-fenced in certain circumstances. At the same time, the *Value-Added Tax Act* No. 89 of 1991, was amended (section 2[1][o]) to designate cryptocurrency transactions as financial services and, are therefore, exempt from value-added tax (VAT) (*Taxation Laws Amendment Act* 2019). In 2021, the references to 'cryptocurrency' were amended to the more broadly-defined 'crypto assets' for income tax in order to align with the terminology of the proposed South African regulatory framework for crypto assets (Intergovernmental Fintech Working Group, 2021; National Treasury 2021). The term 'cryptocurrency' was retained in the *VAT*

Act, suggesting a narrower application focused on eliminating double taxation when used as a medium of exchange (Greeff 2019).

The lack of comprehensive guidance on the income tax consequences of crypto asset transactions in SA is concerning, as guidance provided to taxpayers is a potentially significant contributor to improved tax compliance (Brackin 2014). Tax compliance with regard to crypto asset transactions has been identified as an area of concern in SA (Select Committee on Finance 2021). In surveying jurisdictions' responses to the taxation of crypto asset transactions, the Organisation for Economic Co-operation and Development (OECD) (2020) encouraged tax administrations to develop comprehensive guidance for taxpayers. In their review of the SARS response to the taxation of crypto asset transactions, Bornman, Soobramoney and Loonat (2022) concluded that it did not fully live up to the administration's commitment to service orientation expressed in its Strategic Plan of 2020.

Research objective

Two objectives were pursued in this study. The first objective was to assess the scope and depth of the SARS guidelines on crypto asset transactions compared to those of other selected jurisdictions. This will add further weight to the conclusions of studies (such as by Bornman et al. 2022) on the adequacy of guidance provided in SA to date. The second objective was to extend the existing research by providing recommendations regarding specific income tax consequences that may arise on transactions not yet addressed by the SARS guidelines. These recommendations would support SARS in developing comprehensive guidance to taxpayers on crypto asset transactions.

Research method

The OECD has defined financial literacy as the combination of awareness, knowledge, skill, attitude, and behaviour necessary to make informed financial decisions and attain individual financial well-being (OECD INFE 2011). Tax literacy is less researched and is a newer concept than financial literacy (Cvrlje 2015). Tax literacy is a component of financial literacy, which focuses on an individual's understanding, comprehension, and numerical skills in tax-related matters within their local and international jurisdiction (Bornman & Wassermann 2020). Cvrlje (2015) links increased tax literacy with reduced levels of non-compliance and improved tax morale. It is critical for the country's tax authority to provide its taxpayers with sufficient appropriate, clear, and continual guidance. Such guidance improves their understanding of the requirements of the tax legislation and the consequences of non-compliance, as well as their ability to accurately complete tax returns and calculate tax consequences (Brackin 2014).

Tax administrations may follow 'norm-orientated', 'service-orientated', or 'power-orientated' strategies for encouraging compliance (Bornman 2015:170). This study adopted the view that the provision of comprehensive guidance is consistent with a service-orientated approach to furthering tax compliance concerning crypto asset transactions (Bornman et al. 2022).

The first phase of this study was conducted through document analysis. Documental analysis is a process of accessing empirical knowledge and answering research questions from documented material. Documental analysis uses data from government records, regulations and statistics, as well as journals. The data assist the researcher to gain insight into a current research problem, support the research question from the data available, and generate new knowledge of the research question (Gross 2018).

In the document analysis, the SARS guidelines were benchmarked for completeness and comprehensiveness against the crypto asset income tax guidelines and regulations issued by selected countries. The United States of America (USA) was selected for comparison because it is the largest global economy, with the US Dollar considered a universal currency (Amadeo 2020), and because of its early response to the income tax consequences of crypto asset transactions (Bal 2015a). Only US federal income tax was considered in this study. The United Kingdom (UK) and Australia were selected because they each have a similar tax system and have been influential in the development of the tax system in SA (Harris 2016; Hattingh 2016) and because both have issued comprehensive guidance on the tax consequences of crypto asset transactions. Details of this guidance are presented in Table 1.

The first phase of the study identified the transactions omitted from the SARS guidelines and the extent to which they were addressed in other jurisdictions. This analysis supports the recommendations for the scope of comprehensive guidance to address the income tax consequences of crypto asset transactions in SA.

The second phase of the analysis focused on doctrinal legal research. The doctrinal legal research method involves a systematic process for testing propositions through analysing laws, regulations, and statutory provisions (McKerchar 2008).

In the doctrinal legal research phase, the SA income tax consequences for those transactions not addressed in the SARS guidelines were analysed against the provisions of the Act, as amended, and relevant case law. In this analysis the income tax guidance provided to taxpayers in the other jurisdictions addressed in phase one is also considered. This second phase of the study supports recommendations about the appropriate consequences to be incorporated into comprehensive guidance to SA taxpayers.

The next section contains a literature review. The findings of the document analysis of jurisdictional guidance are then presented. Thereafter, the SA income tax consequences of the

TABLE 1: Summary of documents reviewed for the study.

Country	Issuer	Document name	Description
USA	Internal Revenue Service (IRS)	Notice 2014–21 (IRS 2014); Revenue Rule 2019–24 (IRS 2019b); and FAQs on virtual currency transactions (IRS 2019a).	The IRS first addressed the taxation of virtual currency transactions in 2014 (Bal 2015a). Further guidance followed in 2019. Both documents are available in PDF form on the IRS website. Accompanying FAQs are also provided on the IRS website.
UK	Her Majesty's Revenue and Customs (HMRC)	Cryptoassets for individuals (HMRC 2018b); and Cryptoassets for businesses (HMRC 2019).	HMRC followed its 'Revenue and Customs Brief 9 (2014): Bitcoin and Other Cryptocurrencies' (HMRC 2014) with the provision of guidance for individuals on its website in 2018 and to businesses in 2019. This guidance was subsequently consolidated into the HMRC Cryptoassets Manual (2021), an interactive document on its website.
AUS	Australian Tax Office (ATO)	Tax treatment of cryptocurrencies in Australia – specifically bitcoin (ATO 2020).	The ATO first provided guidance on the tax treatment of cryptocurrencies to taxpayers in 2014 (Bal 2015b). It provides comprehensive guidelines on its website, which it regularly updates.
SA	SARS	SARS' stance on the tax treatment of cryptocurrencies (SARS 2018b); and FAQs: Cryptocurrencies (SARS 2018a).	Guidelines on the tax treatment of cryptocurrencies and accompanying FAQs were issued by SARS in 2018. These were consolidated on the SARS website in 2021 without significant amendment. The original statements continue to be available in PDF form on the SARS website.

FAQ, frequently asked questions; SARS, South African Revenue Service; SA, South Africa; USA, United States of America; UK, United Kingdom; AUS, Australia.

crypto asset transactions not addressed in the SARS guidelines are analysed. The study then concludes and makes recommendations for developing comprehensive guidance in SA. The limitations of the study are noted, and areas for future research are suggested.

Literature review

This section provides a brief introduction to crypto assets, the defining characteristics of the underlying technology, and the identified taxable events to which they may give rise.

Terminology

'Currency' is an instrument used as a medium of exchange to facilitate transactions between parties, helping buyers and sellers find the right 'price' at which the transaction can take place (Peetz & Mall 2017). 'Fiat currency' is any government-issued currency that is in a tangible form of coins or notes. Fiat currency is typically not backed by a physical commodity such as gold but by the government's financial system (Hong, Park & Yu 2018).

Although the concept of cryptocurrency can be traced back as far as 1983, it became a practical reality in 2009 with the launch of Bitcoin, which served as the prototype for the many thousands of crypto assets that exist today (Bal 2014, 2015b; Hileman & Rauchs 2017). Bitcoin aims to be 'an electronic payment system based on cryptographic proof instead of trust, allowing any two willing parties to transact directly with each other without the need for a trusted third party' (Nakamoto 2009:1). Cryptocurrency is legally distinct from fiat currency because it is not recognised as legal tender, and economically distinct because of its questionable ability to function as a unit of account, store of value and medium of exchange (Parsons 2022b).

Many countries and publications use different terminologies, including 'cryptocurrency', 'crypto asset', 'virtual currency', and 'digital currency' in addressing the same core concept (Parsons 2022a). The term 'crypto asset' encompasses 'cryptocurrency' (or 'exchange tokens'), 'utility tokens' and 'security tokens', all of which apply distributed ledger technology (DLT) to different ends (OECD 2020). Utility tokens, such as Ether and Siacoin, function as tokens issued by a particular platform and are used as a means of payment on that platform for the use of the network, but are non-redeemable and carry no rights to any actual pay-out (Dewey 2019). Security tokens, such as Blockestate and tZero, are used for either investment or borrowing (Houben & Snyers 2018).

The term 'crypto asset', as used in the remainder of this study, is consistent with the dominant terminology currently utilised in literature and guidance. However, this study focused on the income tax consequences of crypto assets in South Africa when used as a medium of exchange, which aligns with the use of the term 'cryptocurrency' in the SARS guidelines.

A brief introduction to crypto assets

Crypto assets, like Bitcoin, use DLT to record and share data across multiple ledgers. Distributed ledger technology allows different network participants to transact with one another, with data being recorded, shared and synchronised across the network (Natarajan, Krause & Gradstein 2017). The blockchain is the public ledger of all transactions, which are shared across the network and validated as true records by 'miners' through a consensus mechanism. For participating in this mechanism, miners are rewarded with newly-minted tokens (Bal 2018). Mining is used in some instances (such as Bitcoin) to introduce new crypto asset tokens into the ecosystem. Other crypto assets have been introduced through Initial Coin Offerings (ICOs), in which tokens are sold in a market similar to shares, or airdrops, and tokens are given away to selected participants to promote their adoption (Kaal 2018; Landoni & Pieters 2019). Crypto asset tokens are also bought and sold in the secondary market, either privately or on crypto asset exchanges (Law Library of Congress 2018).

Crypto asset tokens are stored in a 'wallet'. Users access their wallets and transfer tokens by means of cryptographic keys (Herbert & Stabauer 2017). Each crypto asset transfer is initiated by the user, broadcast to the network, validated by miners, and added to the blockchain as an irreversible record of the transaction (Nakamoto 2009). A user who forgets their key, risks losing access to their tokens (Webb 2018).

While many new crypto assets are the product of a process of development, others are the consequence of a 'hard fork'.

A fork occurs when there is disagreement regarding the adoption of new protocols to the blockchain. This results in the creation of two separate blockchains: one maintaining the existing protocols and another adopting the new protocols. In some instances, this is merely a temporary situation arising from differences in timing of adoption, after which the two blockchains return to consensus. This is referred to as a 'soft fork' and is a frequent occurrence. In others, a permanent divergence occurs: the 'new' blockchain retains the transaction history of the 'pre-existing' blockchain but adopts a new name and results in the creation of 'new' crypto assets, each mirroring a pre-existing crypto asset on the pre-existing blockchain. For this reason, the holder of each pre-existing crypto asset token receives an equivalent new crypto asset token, which then proceeds to exist independently on the new blockchain. At the same time, the holder continues to hold their pre-existing crypto assets, which exist on the pre-existing blockchain and are unaffected by the new crypto assets. The hard fork of Bitcoin Cash from Bitcoin is one such example (Bernstein et al. 2020; Landoni & Pieters 2019; Webb 2018).

Taxable events

A comparative analytical study of over 50 countries found that most countries did not specifically amend their income tax legislation to address crypto assets (Strauss, Schutte & Fawcett 2020). This is consistent with the response of SA, where amendments were limited to the addition of crypto assets to the definition of 'financial instrument' and their inclusion as a so-called 'suspect trade', in respect of which losses arising for individuals may be ring-fenced in certain circumstances (*Taxation Laws Amendment Act* 2019).

In 2020, the OECD conducted its first survey of the tax treatment of crypto asset transactions among participating countries. In that report, the OECD concluded that the following taxable events should be included in comprehensive country guidance: the creation of crypto assets by mining, ICOs and airdrops; the exchange of crypto assets for other crypto assets, for fiat currency, or goods and services (including as payment of wages); disposal by gift or inheritance; loss or theft; and hard forks (which the OECD included within 'emerging developments') (OECD 2020).[1] These 11 transactions identified by the OECD, as listed in Table 2, were used in this study as the foundation for considering the completeness of jurisdictional guidance available in the countries investigated.

Research findings and discussion

Comparison of South African Revenue Service guidelines to selected jurisdictions

The SARS guidelines and FAQs were analysed and compared to guidance documents of the tax authorities of the USA, UK and Australia (see Table 1). The results of the benchmarking exercise are shown in Table 2. The benchmarked countries explicitly addressed 10 of the 11 crypto asset transactions identified. Initial Coin Offerings were the only transaction not addressed by any of the benchmarked countries. By contrast, the SARS guidelines addressed only six of the 11 transactions. The transactions covered by SARS were among those found by Strauss et al. (2020) to be most frequently addressed by tax administrations.

The five crypto asset transactions not addressed in the SARS guidelines were:

- blockchain hard fork,
- receiving an airdrop,
- donating crypto assets, including to charities,
- Initial Coin Offerings, and
- loss or theft.

For the transactions addressed, the SARS guidelines were broadly consistent with those of other jurisdictions regarding income tax consequences. The SARS guidelines, however, did not address business users of crypto assets to the extent of the benchmarked jurisdictions. The SARS guidelines also contained significantly less detail than the guidance of the benchmarked jurisdictions, such as worked examples for the various transactions addressed.

Analysis of the transactions not addressed in the South African Revenue Service guidelines

Having identified five transactions not addressed in the SARS guidelines in the first phase of the study, in the second phase, the determination of the appropriate SA income tax consequences of each of these five transactions are considered.

Blockchain hard fork

In the USA, Rule 2019–24 provides that when the fork results in the creation of a new crypto asset, which is referred to as the taxpayer's e-wallet, then the event results in taxable income, provided the taxpayer can transfer, sell or exchange the crypto asset (IRS 2019b). Such abilities represent evidence of the 'accession to wealth' of the taxpayer recognised in USA tax law (Landoni & Pieters 2019). The income is equivalent to the market value of the crypto asset when it is received (IRS 2019b).

In the UK, the HMRC refers only to the application of the *Capital Gains Tax Act* in both its guidance to individuals and businesses. The capital gain (or loss) arises only on the disposal of the new crypto asset. The allocation of the cost of the pre-existing crypto asset between the pre-existing and new crypto asset for capital gains is derived from the cost of the pre-existing crypto asset and the values of the two crypto assets at the date of the fork (HMRC 2018a, 2019). Presumably, the subsequent use of a crypto asset received in a hard fork as trading stock would not preclude it giving rise to revenue income arising on disposal merely

1. The other items listed by the OECD for consideration, which are not relevant to this study, were stable coins, central bank digital currencies, interest-bearing tokens, and related services, such as exchanges and wallet providers.

TABLE 2: Income tax consequences of crypto asset transactions identified in benchmarking.

Number	Transaction	USA (IRS 2014, 2019a, 2019b)	UK (HMRC 2018b, 2019)	AUS (ATO 2020)	SA (SARS 2018a, 2018b)
1	Exchanging one type of crypto asset for another	Capital gain or loss if held as a capital asset. Ordinary gain or loss if held as trading stock.	For individuals, considered for Capital Gains Tax (CGT), except when an individual is a trader and, as such, normal income tax rules apply. For businesses, subject to corporation tax except when held for investment, which results in CGT for individuals and partnerships, and Corporation Tax on Chargeable Gains for companies.	Will give rise to capital gain or loss. It is possible that such gain or loss may be disregarded as arising from the disposal of a personal use asset. If held as trading stock, will give rise to deductible expenditure and ordinary income.	Capital gain, if held as a capital asset; and gross income, if held as trading stock.
2	Exchanging crypto assets for fiat currency	Capital gain, if held as capital asset; and gross income, if held as trading stock.	For individuals, considered for CGT, except when an individual is a trader and normal income tax rules apply. For businesses, subject to corporation tax, except when held for investment.	Will give rise to capital gain or loss. If held as trading stock, will give rise to deductible expenditure and ordinary income.	Capital gain, if held as a capital asset; and gross income, if held as trading stock.
3	Making payments in crypto assets in exchange for products or services	Capital gain on disposal as payment, if held as capital asset; and gross income, if held as trading stock.	For individuals, considered for CGT, except when an individual is a trader and normal income tax rules apply. For businesses, subject to corporation tax, except when held for investment.	Will give rise to capital gain or loss. If held as trading stock, will give rise to deductible expenditure and ordinary income.	Normal barter transaction rules apply.
4	Receiving crypto assets in exchange for products or services	Ordinary income at the fair value of crypto assets received.	Ordinary income at the fair value of crypto assets received.	Ordinary income at the fair value of crypto assets received.	Gross income at the fair value of crypto assets received.
5	Receiving salary payments in crypto assets	Ordinary income at the fair value of crypto assets received.	Ordinary income at the fair value of crypto assets received.	Ordinary income at the fair value of crypto assets received.	Gross income at the fair value of crypto assets received.
6	Obtaining crypto assets through mining	Gross income at the fair value of crypto assets received.	Ordinary income at the fair value of crypto assets received. If not undertaken as a trade, amounts are included in miscellaneous income.	Ordinary income at the fair value of crypto assets received. Mining is listed as an example of a crypto asset business. The ATO guidance acknowledges that not all crypto asset transactions will occur in the context of a business, although it does not explicitly address mining outside of a business context.	Gross income at the fair value of crypto assets received. Considered to be held as trading stock until exchanged for other crypto assets or fiat currency.
7	Blockchain hard fork	Ordinary income at the fair value of new crypto assets on receipt.	Capital gain or loss on disposal of new crypto assets.	Capital gain on disposal of new crypto assets if the result of investment activities. Revenue income in the year of receipt if the product of business activities.	No guidance provided
8	Receiving an airdrop	No guidance provided (the IRS refers to an 'airdrop' as the receipt of new crypto assets in a hard fork)	Ordinary income at the fair value of crypto assets on receipt, if received for reciprocal action by the taxpayer. Otherwise, capital gain or loss on disposal of new crypto assets.	Ordinary income at the fair value of crypto assets received.	No guidance provided
9	Donating crypto assets, including to charities	Donations to charitable organisations will not give rise to income or capital gain or loss. No guidance provided on other donations.	Will give rise to capital gain or loss. Donations to charitable organisations are excluded from CGT.	Will give rise to capital gain or loss.	No guidance provided
10	ICOs	No guidance provided	No guidance provided	No guidance provided	No guidance provided
11	Loss or theft	No guidance provided	Excluded from the concept of disposal, therefore no income tax consequences.	Considered a disposal. Loss may be recognised if theft or loss of access can be substantiated.	No guidance provided

ATO, Australian Tax Office; ICO, Initial Coin Offerings; IRS, Internal Revenue Service; USA, United States of America; UK, United Kingdom; AUS, Australia.

by virtue of the means of acquisition, although this is not stated by HMRC.

The ATO considers that a hard fork gives rise to CGT for taxpayers who hold the pre-existing and new crypto asset for investment purposes. It treats the new crypto assets as trading stock for businesses where it is held for sale or exchange in the ordinary course of business (ATO 2020). Although no explicit reference is made to the timing of recognition of revenue income, by implication this will give rise to revenue income at the earlier of the disposal dates, or at year end, since Australia recognises unrealised increases in trading stock value as income (ATO 2022a). The cost of the new crypto asset to be recognised in the hard fork is zero (ATO 2020).

In recommending an income tax consequence of a hard fork for SA taxpayers, the guidance issued by the three other tax authorities was considered. The IRS treats any income arising from a hard fork as revenue for the taxpayer, the ATO indicates that a hard fork may give rise to either a capital receipt on disposal or revenue income if held as trading stock, and HMRC only contemplates a capital gain or loss.

Blockchain hard fork: South African income tax consequences

The taxpayer bears the burden of proving that income is not revenue in nature (s102; *Tax Administration Act* 2011). The mere fact that a profit has resulted from a transaction is insufficient to make that profit revenue in nature; rather, it must be the product of 'an operation of business in carrying out a scheme for profit-making' (*Commissioner for Inland Revenue v Stott* 1928 [3], SATC 253 [A], p. 259). The intention of the taxpayer plays a vital role in determining whether income is capital or revenue in nature (*Commissioner for Inland Revenue v Stott 1928* [3], SATC 253 [A]). The taxpayer's intention will be determined by taking into account their stated intention (or *ipse dixit*) together with the surrounding facts in each specific case (*Malan v Kommissaris van Binnelandse Inkomste* 1983, 45 SATC 59). The taxpayer's intention in acquiring the asset will be decisive unless other factors show that it was sold as part of a scheme of profit-making (*Commissioner for Inland Revenue v Stott* 1928 (3), SATC 253 (A). It is, however, possible that taxpayers may, subsequent to acquiring a capital asset, change their intention and enter into a scheme of profit-making involving the disposal of that

asset, in which case the resultant income will be revenue in nature (*Natal Estates Limited v Secretary for Inland Revenue* 1975, 37 SATC 193).

Proving a capital intention with respect to crypto assets may be challenging since crypto assets do not yield any fruit, such as dividends or interest, as do other long-term investments; the yield is in the appreciation of the market value of the crypto asset. However, SA has a history of comparable cases dealing with long-term holdings of appreciating assets. In *Commissioner for Inland Revenue vs Nel* 1997, 59 SATC 349, even though the taxpayer acquired Kruger Rands (that is, gold coins) for their value appreciation, the court concluded that, as they were held for a long period and disposed of for a purpose other than profit-making, the proceeds on disposal were capital in nature. On the other hand, *Commissioner for Inland Revenue vs Nussbaum* 1996, 58 SATC 283, concluded that the taxpayer who frequently and profitably disposed of investments was, in fact, pursuing a secondary profit-making scheme. Thus, the length of time held and the reasons for disposal, as well as the frequency and profitability thereof, would assist in determining whether the disposal of crypto assets is tantamount to a profit-making scheme.

A taxpayer benefits from a hard fork through the receipt of new crypto assets as a result of being a holder of the pre-existing crypto asset. Therefore, it is submitted that the taxpayer's intention at acquisition for the new crypto asset might be imputed from the intention with which the pre-existing crypto asset was held. Consideration might also be given to whether any activities undertaken by the taxpayer to benefit from the hard fork amounted to a scheme of profit-making.

The SARS guidelines indicate that mining will give rise to revenue income, and do not contemplate the possibility of non-trade mining activities. This is consistent with the approach of the IRS and HMRC (which includes non-trade mining income as miscellaneous income rather than a capital receipt). Crypto assets received in mining will be held as trading stock until it is sold or exchanged. Therefore, if crypto assets obtained in mining, subsequently give rise to the receipt of new crypto assets through a hard fork, such additional crypt assets might also be initially regarded as revenue in nature (if revenue is recognised on receipt in this instance).

Recognition of revenue income may occur either initially on receipt of the new crypto asset, with a subsequent inclusion of the incremental profit upon disposal, or only upon disposal. Since the US concept of 'accession to wealth' is not explicitly recognised within the Act or SA case law, and since the Australian requirement to mark trading stock to market is not present in South Africa, there may be justification for recognising revenue income only on disposal. Furthermore, no trading activity or reliable market values may exist on the date of the hard fork, making any recognition of revenue on receipt difficult to quantify. However, recognition at receipt or accrual seems to most closely align with the definition of gross income in the Act. It will therefore be important for SARS to address the timing of revenue recognition in this context.

If the new crypto asset is revenue in nature and such revenue is recognised upon receipt, the value will be included in the taxpayer's trading stock in terms of section 22(4) of the Act at its current market value upon receipt (*Income Tax Act* 1962). This trading stock amount will be equal to the amount included in income on that date. This is consistent with the conclusion of Basson (2020) in her analysis of the income tax consequences of mining activities. Since a crypto asset is defined in section 1 of the Act as a 'financial instrument', no unrealised impairment loss may be recognised at year end. This designation, notwithstanding, income on disposal, cannot be treated as capital in nature merely due to the length of time held, since section 9C applies only to equity shares and not to all financial instruments (*Income Tax Act* 1962).

Alternatively, if the taxpayer is able to discharge the burden of proving that the crypto asset received, represents a capital asset, the proceeds on disposal will be taken into account in the determination of a capital gain. The proceeds will be valued at either the amount of fiat currency received or at the market value of the non-monetary proceeds received, in accordance with the barter transaction rules referred to by SARS in addressing other crypto asset transactions. It should also be noted that the possibility of crypto asset transactions falling within personal-use asset exclusions from CGT, as contemplated in Australia, is precluded by their inclusion within the definition of financial instruments in the Act in 2019 (Basson 2020).

Paragraph 20 of the Eighth Schedule to the Act stipulates that the base cost of a capital asset consists of the actual expenditure incurred in the acquisition of the asset, including the allowable expenditure directly incurred in the acquisition and disposal of the asset (*Income Tax Act* 1962). The new crypto asset is received by the taxpayer for no consideration, while the pre-existing crypto asset continues to be held. However, the taxpayer may incur expenditure for the negligible fees incurred on either receipt or disposal of the new crypto asset. Therefore, it is proposed in this study that these costs should be the only amounts on which the base cost is determined and that no portion of the cost of the pre-existing crypto asset be assigned to the new crypto asset received. This would conceptually align with the treatment of shares received for no consideration in section 40C of the Act, which stipulates that when a taxpayer acquires shares, share options or other rights by virtue of their existing shareholding, the cost of acquisition should be deemed to have a nil value of actual expenditure incurred (*Income Tax Act* 1962).

Receiving an airdrop

Crypto assets in both a hard fork and an airdrop are received for no consideration. However, an airdrop is typically an

active distribution by a promoter of a crypto asset, rather than a by-product of events on the blockchain (OECD 2020).

The HMRC and ATO have addressed the income tax consequences of airdrops in their jurisdictions. The IRS has not specifically addressed airdrops related to marketing or advertising campaigns, but only those related to hard forks (which were considered in the preceding analysis of hard forks).

The ATO guidelines provide that an airdrop of crypto assets, received in a taxpayer's digital wallet or e-wallet as part of a marketing or advertising campaign, is treated as ordinary income at the fair value of the crypto assets at the time of receipt. The ATO has, however, expanded its guidance to indicate that airdrops that represent the first distribution of a new crypto asset do not give rise to tax consequences on receipt, because they do not yet have a market value as they are not actively traded (ATO 2022b). Either the trading stock rules (for business activities) or CGT rules apply to the subsequent disposal of the airdropped crypto assets (ATO 2020).

If the taxpayer receives an airdrop of crypto assets in their personal capacity without assuming any corresponding obligation, HMRC advises that it will not be taxable at the time of receipt. Where crypto assets are received in exchange for services, or other performance obligations from the taxpayer, the airdrop will be included in either the taxpayer's other income, or receipts from trade. On disposal, the proceeds from the disposal of the airdropped crypto assets will be considered capital in nature. However, if the airdropped crypto assets form part of the taxpayer's business activities, the income tax rules will take preference over capital gains (HMRC 2018b).

The ATO treats all receipts as revenue in nature, while HMRC treats only those received in return for some reciprocal action as revenue. This inclusion by HMRC would seem to address a concern that a payment might be incorrectly referred to as an airdrop, while a 'true' airdrop is gratuitous. The income from subsequent disposal of the airdropped crypto assets is treated similarly in both jurisdictions, namely as capital for investors or revenue for businesses.

Receiving an airdrop: South African income tax consequences

In determining the income tax consequences of an airdrop for SA taxpayers the proposed tax treatment of hard forks was considered, because in both cases, the taxpayer involuntarily receives new crypto assets at no personal cost. As with hard forks, an airdrop increases a taxpayer's wealth. Here too, the taxpayer will have to prove that the receipt of the new crypto assets is of a capital nature, failing which the income arising will be considered revenue in nature. It is submitted that this would likely require that the receipt of crypto assets be fortuitous rather than 'designedly sought for and worked for' (see Commissioner for Inland Revenue vs Pick 'n Pay Employee Share Purchase Trust 1992, ZASCA 84, p. 280), and might be informed by the extent and nature of the taxpayer's collective crypto asset activities. Likewise, the taxpayer's intention, subsequent to acquisition, and the possibility of a change in intention to a scheme of profit-making, or vice versa, would also need to be considered in determining the nature of the income arising on subsequent disposal.

The ATO and HMRC consider that taxation first occurs, either upon receipt (if revenue), or only upon disposal (if capital). If such an approach is adopted in SA, airdropped crypto assets of a revenue nature will be taxable at the earlier of accrual or receipt date to the taxpayer, in terms of the gross income definition in section 1 of the Act. Upon receipt of the crypto asset, the taxpayer will add its value to their trading stock and any subsequent change in value will be realised upon disposal in terms of the trading stock rules of section 22 of the Act (*Income Tax Act* 1962). Alternatively, the lack of an observable market value on receipt may make it more pragmatic to recognise income only on disposal (as is the case in Australia with respect to initial distributions). Again, guidance from SARS on the timing of recognition that it considers appropriate, is therefore important.

By contrast, taxpayers whose new crypto assets are capital in nature will have no inclusion in taxable income upon receipt, while a capital gain will only arise upon disposal. Such crypto assets will have a base cost of nil since no cost is incurred by the taxpayer.

Donating crypto assets, including to charities

According to the IRS, donating crypto assets to a charitable organisation will not be considered as ordinary income, or a capital gain or loss, as such transactions are exempt from tax. The value of the available charitable contribution deduction is based on the period for which the crypto asset was held. For crypto assets held for longer than a year, the value is the market value of the crypto assets on the donation date. When the crypto assets are held for less than a year, the deduction is the lesser of either the market value of the crypto assets on the date of the donation, or their cost (IRS 2019a). Charitable contributions are only deductible to the extent that the taxpayer does not receive a benefit in return (IRS 2022), and this limitation would presumably extend to the exemption as well. Guidance has not been specifically provided by the IRS for non-charitable donations.

In the UK, charitable donations do not attract capital gains for individuals or corporation tax for businesses, unless they are 'tainted' (when the taxpayer enters into an arrangement to obtain financial advantage from a charity after making a donation) or represent an attempt to realise a gain from the disposal (HMRC 2018b, 2020). In contexts other than donations to charities, the HMRC guidance provides that a disposal of crypto assets in the form of a donation to a person other than a spouse or civil partner will attract CGT (HMRC 2018b). For a company, the donation of crypto assets, other than to a member of the same group of companies, will attract

corporation tax. The value of the donation for the corporation tax calculation will be the value of the crypto assets at the time of the donation (HMRC 2019).

In the ATO guidance, the donation of crypto assets is treated as a disposal of crypto assets and, as such, will give rise to revenue income when held as trading stock, and capital disposal in other instances. The value of the donation will be the market value of the crypto assets in the calculation of the capital gains, or the application of trading stock rules (ATO 2020). The ATO does not specifically consider the deductibility of donations made in crypto assets.

There is consensus in the IRS, HMRC and ATO guidelines that donations will give rise to either a capital or revenue disposal. The IRS and HMRC explicitly consider the availability of exemptions with respect to donations to charities.

Donating crypto assets: South African income tax consequences

South African taxpayers are entitled to a limited deduction for donations made to public benefit organisations (PBOs) in terms of section 18A of the Act. In terms of section 22(8)(C) of the Act, the donation to a PBO of crypto assets held as trading stock will be deemed to be disposed of at an amount equivalent to the taxpayer's section 11(a) or section 22(1) deduction. This amount will be available for the allowable deduction in terms of section 18A. An investor will disregard the capital gains or losses for any donation made to a PBO, in terms of paragraph 62 of the Eighth Schedule to the Act, and will be entitled to a deduction of the cost of any crypto assets donated to a qualifying charity, limited to 10% of the taxpayer's taxable income before such deduction (*Income Tax Act* 1962).

For any other donation made, the normal trading stock rules or CGT consequences will apply. The cost of any crypto assets purchased as trading stock, or the value of any crypto asset giving rise to revenue on receipt, will be added to the taxpayer's cost of trading stock on acquisition. In terms of section 22(8)(b) read with section 22(8)(B) of the Act, crypto assets held as trading stock will be deemed to be disposed of at an amount equal to the market value of the crypto assets at the time of the donation to a non-PBO (*Income Tax Act* 1962).

The investor taxpayer's capital gain or loss on the donation to any person other than to a PBO (or to other parties qualifying for exemption, such as between spouses), will be determined in terms of paragraph 38 of the Eighth Schedule to the Act. This states that the donation made will constitute a disposal with a value equivalent to the asset's market value on the date of the donation (*Income Tax Act* 1962).

Initial coin offerings

Determining the income tax consequences for ICOs is complex, considering the unique characteristics of crypto assets, coupled with the fact that there are no formal guidelines available from the benchmarked authorities regarding the income tax consequences of an ICO on those jurisdictions. Unlike other financial instruments defined in section 1 of the Act, crypto assets do not provide the crypto asset holder with a residual right to the equity of a company or any rights to dividends. In an ICO, the issuer offers crypto asset tokens that the purchaser hopes will be accepted in the future by someone other than the issuer. Thus, the crypto asset purchaser has no ownership interest in or future claim against the issuer (OECD 2019). An ICO is therefore distinguishable from the initial public offering (IPO) of shares, from which its name is derived.

Initial coin offerings: South African income tax consequences

The SA taxpayer must include in gross income the total amount received by, or accrued to the taxpayer, in cash or otherwise, during the year of assessment, excluding receipts or accruals of a capital nature (*Income Tax Act* 1962). The issuer in an ICO sells the new crypto assets for fiat currency (cash) or in exchange for other crypto assets. Thus, the consideration accrues to, or is received by, the taxpayer issuing the crypto asset on the date of the ICO issue. Furthermore, when an ICO occurs for the benefit of the issuer with no future obligation to the crypto asset holder, it is submitted that the income arising is 'designedly sought for and worked for' rather than fortuitous, and therefore not capital in nature (see *Commissioner for Inland Revenue vs Pick 'n Pay Employee Share Purchase Trust* 1992, ZASCA 84, p. 280). Therefore, in the absence of any further obligation by the issuer to the holder, it is submitted that the proceeds of an ICO represent gross income for the issuer upon receipt or accrual.

For the purchaser, the cost of acquisition represents either a deductible expense, if acquired as trading stock, or the base cost of the crypt asset in other cases.

Loss or theft

The IRS does not address loss or theft, while the position of His Majesty's Revenue and Customs (HMRC) differs from that of the ATO. HMRC does not consider loss or theft to be a disposal, and therefore no income tax consequences arise. In contrast, the ATO accepts loss or theft as a disposal of no value, if the crypto asset, the wallet in which it was stored, or the access key, cannot be replaced or recovered. The taxpayer will be required to provide supporting evidence such as the cost of the crypto assets lost and the details of when they were acquired and lost.

Loss or theft: South African income tax consequences

In terms of SA tax legislation, the issue at hand would be whether a disposal has taken place. Paragraph 11 of the Eighth Schedule to the Act provides a definition of 'disposal', which includes 'the sale, donation, expropriation, conversion, grant, cession, or any other alienation or transfer of ownership of an asset', and goes on to include such events as 'forfeiture, termination, …, cancellation, surrender, …, abandonment, …, scrapping, loss or destruction' (*Income Tax Act* 1962). Such

a definition would accommodate involuntary disposals such as loss or theft. However, it would be necessary to demonstrate that a true alienation, or loss, of ownership had occurred. This may more readily be accepted in the case of stolen crypto assets or lost computer hardware than in the case of the loss of a password. There is no obvious parallel in this context in the literature of which the authors are aware. Here too, the taxpayer would benefit from guidance from SARS in this respect.

Limitations

The study was conducted using the SARS guidelines, in the form of a media statement released on 06 April 2018, together with accompanying FAQs, as the basis for conducting the benchmarking exercise with other jurisdictions. The SARS guidelines are not in the form of an Interpretation Note and, therefore, are not an 'official publication' as defined (*Tax Administration Act* 2011).

The study focused on crypto assets that function as a means of payment, such as Bitcoin. Security and utility tokens, such as Neufund and Ether, did not form part of the research and may have income tax consequences beyond, or different to, those considered in this study. Furthermore, the focus was exclusively on the income tax consequences of crypto asset transactions. Other taxes, such as VAT, donations tax, and estate duty, did not form part of the ambit of this study and may present scope for further research.

Conclusion

This study's first objective was to ascertain whether the SARS guidelines, provided in its statement of 2018, comprehensively addressed the income tax consequences of all the crypto asset transactions identified in the literature and dealt with in the guidance of the other benchmarked authorities (i.e. that of the USA, UK and Australia).

The SARS guidelines addressed six out of the 11 crypto asset transactions identified. In these instances, it was found that the income tax consequences were broadly consistent with those of the benchmarked countries. The SARS guidelines were, however, found to be brief and vague by comparison. They did not comprehensively address the crypto asset transactions considered or provide references to the relevant sections of the Act to support their conclusions. A high level of knowledge was assumed to be held by taxpayers. For example, the SARS guidelines referred to, but did not elaborate on, the income tax consequences of barter transactions. The SARS guidelines lacked explanatory examples that the other benchmarked authorities included in their guidance. This suggests that these guidelines were perhaps intended to be a temporary measure.

The study identified five crypto asset transactions that were not addressed by the SARS guidelines (as indicated in Table 1). For only one of these transactions was no guidance provided by any of the three benchmarked jurisdictions. Therefore, the findings support the conclusion that the SARS guidelines do not comprehensively and specifically address the income tax consequences of a broad range of crypto asset transactions.

The study's second objective was to analyse and determine the income tax consequences of the five transactions not addressed by the SARS guidelines. These transactions were the hard fork of an existing crypto asset blockchain, receiving crypto assets in an airdrop, donating crypto assets, ICOs, and the loss or theft of crypto assets. In determining the income tax consequences of these transactions the application of relevant provisions of the Act was considered in this study, as well as the positions taken by the benchmarked jurisdictions.

It was found that it was possible to determine income tax consequences[2] for all five identified transactions, although the outcomes were not always readily apparent. It may be unrealistic to assume that similar conclusions could be reached by ordinary taxpayers without specific guidance. These findings provide further evidence of the need for comprehensive guidance in SA regarding the income tax consequences of crypto assets and support the development of such guidance.

Recommendations

This study recommends that SARS develops comprehensive guidance for the income tax consequences of crypto asset transactions. The current SARS guidelines should be elaborated on for the crypto asset transactions already dealt with, and their scope extended to include those transactions identified in the study that, to date, have not been addressed by SARS. The recommended comprehensive SARS guidance may be best positioned in the form of an official publication as either an Interpretation Note or a Comprehensive Guide, both of which are normally more detailed than the seemingly temporary media statement format employed in 2018.

In developing comprehensive guidance, consideration should be given to both the approaches of other countries referenced in this study, and to other jurisdictions that have issued comprehensive guidance. The application of the Act to those crypto asset transactions not yet addressed by SARS, but identified and addressed in this study, may also inform the development of an Interpretation Note or Comprehensive Guide. Explanatory examples, such as those included by these other jurisdictions, as well as decision trees or flow charts, would assist SA taxpayers in determining the income tax consequences of their crypto asset transactions. The guidance that is accessible, user-friendly and comprehensive is likely to assist in improving the tax compliance of SA taxpayer crypto asset users.

2.Or the absence of a taxable event in the case of a lost password.

Acknowledgements

This article is partially based on the dissertation of the first author, Namhla Vumazonke, presented for the degree of Master of Commerce (Financial Reporting, Analysis and Governance) at the University of Cape Town, supervised by the second author, Prof S. Parsons, received 13 December 2021, available here: https://open.uct.ac.za/handle/11427/36207.

The authors would like to express their appreciation to the University of Cape Town for administrative support.

Competing interests

The author(s) declare that they have no financial or personal relationship(s) that may have inappropriately influenced them in writing this article.

Authors' contributions

N.V. was the primary researcher as part of his Master of Commerce study. S.P. supervised the research project and contributed to the drafting of the published article.

Ethical considerations

This article followed all ethical standards for research without direct contact with human or animal subjects.

Funding information

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

Data availability

The data that support the findings of this study are available in the public domain.

Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of the University of Cape Town.

References

Amadeo, K., 2020, 'Why the US dollar is the world currency', *The Balance*, viewed on 30 May 2020 from https://www.thebalance.com/world-currency-3305931.

ATO, 2020, *Tax treatment of crypto-currencies in Australia-specifically bitcoin*, viewed on 30 May 2020 from https://www.ato.gov.au/General/Gen/Tax-treatment-of-crypto-currencies-in-Australia---specifically-bitcoin/.

ATO, 2022a, *General trading stock rules*, viewed on 1 November 2022 from https://www.ato.gov.au/Business/Income-and-deductions-for-business/Accounting-for-trading-stock/General-trading-stock-rules/.

ATO, 2022b, *Staking rewards and airdrops*, viewed on 1 November 2022 from https://www.ato.gov.au/individuals/investments-and-assets/crypto-asset-investments/transactions---acquiring-and-disposing-of-crypto-assets/staking-rewards-and-airdrops/.

Bal, A., 2014, *Taxation of virtual currency*, Faculty of Law, Institute of Tax Law and Economics, viewed on 13 June 2018 from https://openaccess.leidenuniv.nl/handle/1887/29963.

Bal, A., 2015a, 'Chapter 14 – How to tax bitcoin?', in D.L.K. Chuen (ed.), 267– 282, *Handbook of digital currency: Bitcoin, innovation, financial instruments and big data*, Elsevier.

Bal, A., 2015b, 'Taxing virtual currency: Challenges and solutions', *Intertax* 43(5), 380–394. https://doi.org/10.54648/TAXI2015033

Bal, A., 2018, 'Blockchain, initial coin offerings and other developments in the virtual currency market', *Finance and Capital Markets, Journal Articles & Opinion Pieces IBFD* 20(2), viewed on 4 March 2021 from https://research-ibfd-org.ezproxy.uct.ac.za/#/doc?url=/document/dfi_2018_02_int_1.

Basson, R., 2020, 'An analysis of issues relating to the taxation of cryptocurrencies as financial instruments', *Journal of Economic and Financial Sciences* 13(1), 1–9. https://doi.org/10.4102/jef

Bernstein, J., Cura, M., Geest, A., Nainifard, S., Resas, D., Richter, S. et al., 2020, 'Introduction', in N. Schmidt, J. Bernstein, S. Richter & L.M. Zarlenga (eds.), *Taxation of crypto assets*, pp. 27–76, Wolters Kluwer Law International, Kluwer Law International B.V. PO Box 316 2400 AH Alphen aan den Rijn The Netherlands

Bornman, M. & Wassermann, M.M., 2020, 'Tax literacy in the digital economy', *Journal of Economic and Financial Sciences* 13(1), 1–11. https://doi.org/10.4102/jef.v13i1.461

Bornman, M., 2015, *Principles for understanding, encouraging, and rewarding voluntary tax compliance*, University of Johannesburg, viewed on 18 August 2022 from https://ujcontent.uj.ac.za/vital/access/manager/Repository/uj:14202?view=grid&f0=sm_contributor%3A%22Stack%2C+E.+M.+%2C+Prof.+%3B+Coetsee%2C+D.%2C+Prof.%22&sort=ss_dateNormalized+desc%2Csort_ss_title+asc.

Bornman, M., Soobramoney, J. & Loonat, F., 2022, 'Encouraging a culture of tax compliance for South Africans owning and using crypto assets', in *SAAA National Virtual Conference*, viewed on 27 Janaury 2023 from http://www.saaa.org.za/Pages/Conference-Reports.

Brackin, T., 2014, *Taxation as a component of financial literacy: How literate are Australians in relation to taxation*, Griffith Business School, Griffith University, Brisbane.

Commissioner for Inland Revenue v Stott 1928 (3), SATC 253 (A).

Commissioner for Inland Revenue vs Nel 1997, 59 SATC 349.

Commissioner for Inland Revenue vs Nussbaum 1996, 58 SATC 283.

Commissioner for Inland Revenue vs Pick 'n Pay Employee Share Purchase Trust 1992, ZASCA 84.

Cvrlje, D., 2015, 'Tax literacy as an instrument of combating and overcoming tax system complexity, low tax morale and tax non-compliance', *The Macrotheme Review* 4(3), 156–167, viewed on 8 July 2019 from https://macrotheme.com/yahoo_site_admin/assets/docs/13MR43Cv.804829.pdf.

Dewey, J., 2019, *Blockchain & cryptocurrency regulation*, J. Dewey (ed.), 1st edn., Global Legal Group, viewed on 27 January 2023 from https://www.acc.com/sites/default/files/resources/vl/membersonly/Article/1489775_1.pdf.

Greeff, C., 2019, 'An investigation into the output tax consequences of bitcoin transactions for a South African value-added tax vendor', *South African Journal of Economic and Management Sciences* 22(1), 1–9. https://doi.org/10.4102/sajems.v22i1.2162

Gross, J.M.S., 2018, 'Document analysis', in B.B. Frey (ed.), *The SAGE encyclopedia of educational research, measurement, and evaluation*, pp. 545–548, SAGE Publications, California.

Harris, P., 2016, 'Importing and exporting income tax law: The international origins of the South African Income Tax Act', in J. Hattingh, J. Roeleveld & C. West (eds.), *Income tax in South Africa: The first 100 years (1914–2014)*, pp. 2–24, Juta and Company, Cape Town.

Hattingh, J., 2016, 'On the introduction of income tax in South Africa by JC Smuts: Three eventful months (24 April 1914 to 20 July 1914)', in J. Hattingh, J. Roeleveld & C. West (eds.), *Income tax in South Africa: The first 100 years (1914–2014)*, pp. 77–110, Juta and Company, Cape Town.

Herbert, J. & Stabauer, M., 2017, 'Bitcoin & Co: An ontology for categorising cryptocurrencies', *International Journal of Multidisciplinarity in Business and Science* 3(3), 29–37, viewed on 7 July 2021 from https://www.researchgate.net/publication/328191994_Bitcoin_Co_An_Ontology_for_Categorising_Cryptocurrencies.

Hileman, G. & Rauchs, M., 2017, *Global cryptocurrency benchmarking study*, Judge Business School, University of Cambridge, Cambridge.

HMRC, 2014, *Revenue and customs brief 9 (2014): Bitcoin and other cryptocurrencies*, viewed on 19 May 2019 from https://www.gov.uk/government/publications/revenue-and-customs-brief-9-2014-bitcoin-and-other-cryptocurrencies/revenue-and-customs-brief-9-2014-bitcoin-and-other-cryptocurrencies.

HMRC, 2018a, *Check if you need to pay tax when you sell cryptoassets*, viewed on 7 July 2019 from https://www.gov.uk/guidance/check-if-you-need-to-pay-tax-when-you-sell-cryptoassets#:~:text=To check if you need,what you sold it for.

HMRC, 2018b, *Cryptoassets for individuals*, viewed on 1 February 2020 from https://www.gov.uk/government/publications/tax-on-cryptoassets/cryptoassets-for-individuals.

HMRC, 2019, *Cryptoassets for businesses*, viewed on 1 February 2020 from https://www.gov.uk/government/publications/tax-on-cryptoassets/cryptoassets-tax-for-businesses.

HMRC, 2020, *Annex viii: Tainted charity donations*, viewed on 16 February 2020 from https://www.gov.uk/government/publications/charities-detailed-guidance-notes/annex-viii-tainted-charity-donations#what-happens-where-a-donation-is-tainted.

HMRC, 2021, *Cryptoassets manual*, viewed on 29 May 2021 from https://www.gov.uk/hmrc-internal-manuals/cryptoassets-manual.

Hong, K.H., Park, K. & Yu, J., 2018, 'Crowding out in a dual currency regime? Digital versus fiat currency', *Emerging Markets Finance and Trade* 54(11), 2495–2515: https://doi.org/10.1080/1540496X.2018.1452732

Houben, R. & Snyers, A., 2018, *Cryptocurrencies and blockchain*, North Carolina Journal of Law and Technology 19(4), viewed on 25 March 2020 from https://scholarship.law.unc.edu/cgi/viewcontent.cgi?article=1361&context=ncjolt.

Income Tax Act No. 58 of 1962, Government Printer, Pretoria.

Intergovernmental Fintech Working Group, 2021, *Crypto assets regulatory working group position paper on crypto assets*, viewed on 5 October 2021 from https://www.fic.gov.za/Documents/171002_FIC%20Guidance%20Note%2007.pdf.

IRS, 2014, *Notice 2014–21*, viewed on 5 February 2018 from https://www.irs.gov/pub/irs-drop/n-14-21.pdf.

IRS, 2019a, *Frequently asked questions on virtual currency transactions*, viewed on 14 October 2019 from https://www.irs.gov/individuals/international-taxpayers/frequently-asked-questions-on-virtual-currency-transactions.

IRS, 2019b, *Rev. Rul. 2019–24*, viewed on 14 October 2019 from https://www.irs.gov/pub/irs-drop/rr-19-24.pdf.

IRS, 2022, *Charitable contributions*, viewed on 1 November 2022 from https://www.irs.gov/pub/irs-pdf/p526.pdf.

Kaal, W.A., 2018, 'Initial coin offerings: The top 25 jurisdictions and their comparative regulatory responses (as of May 2018)', *Stanford Journal of Blockchain Law & Policy* 1(1), 41–63. https://doi.org/10.2139/ssrn.3117224

Landoni, M. & Pieters, G.C., 2019, 'Taxing blockchain forks', *Stanford Journal of Blockchain Law & Policy* 3(2), 197–227. https://doi.org/10.2139/ssrn.3475598

Law Library of Congress, 2018, *Regulation of cryptocurrency around the world*, viewed on 26 July 2019 from http://www.law.gov.

Malan v Kommissaris van Binnelandse Inkomste 1983, 45 SATC 59.

McKerchar, M., 2008, 'Philosophical paradigms, inquiry strategies and knowledge claims: Applying the principles of research design and conduct to taxation', *EJournal of Tax Research* 6(1), 5–22, viewed on 2 January 2019 from http://www.austlii.edu.au/au/journals/eJlTaxR/2008/1.html.

Nakamoto, S., 2009, *Bitcoin: A peer-to-peer electronic cash system*, viewed on 20 March 2019 from www.bitcoin.org.

Natal Estates Limited v Secretary for Inland Revenue 1975, 37 SATC 193.

Natarajan, H., Krause, S.K. & Gradstein, H.L., 2017, *Distributed ledger technology (DLT) and blockchain* (No. 1; FinTech Note), World Bank, viewed on 27 January 2023 from https://openknowledge.worldbank.org/handle/10986/29053.

National Treasury, 2021, *Explanatory memorandum on the tax laws amendment bill, 2020*, viewed on 31 October 2022 from http://www.treasury.gov.za/legislation/acts/2020/Explanatory%20Memorandum%20on%20the%202020%20TLAB.pdf.

OECD INFE, 2011, *Measuring financial literacy: Questionnaire and guidance notes for conducting an internationally comparable survey of financial literacy*, viewed on 8 July 2019 from https://www.oecd.org/finance/financial-education/49319977.pdf.

OECD, 2019, *Initial coin offerings (ICOs) for SME financing*, viewed on 23 June 2020 from http://www.oecd.org/finance/initial-coin-offerings-for-sme-financing.htm.

OECD, 2020, *Taxing virtual currencies: An overview of tax treatments and emerging tax policy issues*, viewed on 14 October 2020 from https://www.oecd.org/tax/tax-policy/taxing-virtual-currencies-an-overview-of-tax-treatments-and-emerging-tax-policy-issues.htm.

Parsons, S., 2022a, *Developing a foundation for a globally coordinated approach to the taxation of crypto-asset transactions*, University of Cape Town, viewed on 27 January 2023 from https://open.uct.ac.za/handle/11427/36713.

Parsons, S., 2022b, 'What's in a name?: The classification of "interest" on crypto-assets in South Africa and beyond', *Intertax* 50(6/7), 499–511, viewed on 4 July 2022 from https://doi.org/10.54648/TAXI2022054.

Peetz, D. & Mall, G., 2017, *Why bitcoin is not a currency but a speculative real asset*, viewed on 27 January 2023 from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3098765.

SARS, 2018a, *FAQs: Cryptocurrencies*, viewed on 27 January 2023 from https://www.sars.gov.za/wp-content/uploads/Docs/Legal/Crypto-FAQs-reviewed-23-June-2021.pdf

SARS, 2018b, *SARS's stance on the tax treatment of cryptocurrencies*, viewed on 27 January 2023 from https://www.sars.gov.za/media-release/6-april-2018-sarss-stance-on-the-tax-treatment-of-cryptocurrencies/.

SARS, 2021, *Crypto assets & tax*, viewed on 3 November 2021 from https://www.sars.gov.za/individuals/crypto-assets-tax/.

Select Committee on Finance, 2021, *A guide to understanding major cryptocurrency issues and regulatory frameworks*, viewed on 18 August 2022 from https://www.parliament.gov.za/storage/app/media/PBO/Analysis_and_Reports/2021/june/03-06-2021/May_2021_PBO_Select_Finance_Committee_Cryptocurrency_25_May.pdf

Strauss, H., Schutte, D. & Fawcett, T., 2020, 'An evaluation of the legislative and policy response of tax authorities to the digitalisation of the economy', *South African Journal of Accounting Research* 35(3), 239–262. https://doi.org/10.1080/10291954.2020.1810504

Tax Administration Act No. 28 of 2011, Government Printer, Pretoria.

Taxation Laws Amendment Act No. 23 of 2019, Government Printer, Pretoria.

Value-Added Tax Act No. 89 of 1991, Government Printer, Pretoria.

Webb, N., 2018, 'A fork in the blockchain: Income tax and the bitcoin/bitcoin cash hard fork', *North Carolina Journal of Law and Technology* 19(4), 283–311, viewed on 25 March 2020 from https://scholarship.law.unc.edu/cgi/viewcontent.cgi?article=1361&context=ncjolt.