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For your consideration

Senate Economics References Committee - inquiry into digital currency

Dear Dr Dermody

Thank you for your letter dated 13 October 2014 inviting the ATO to make a submission to this inquiry.

Our submission is attached for the Committee's consideration. We would of course be pleased to provide further information to assist the Committee, if required.

The ATO has no objection to its submission being made public.

Yours sincerely

Jonathan Woodger
Deputy Chief Tax Counsel

ATO submission - Senate Economics References Committee - inquiry into digital currency

What is digital currency?

1. Digital currency is, broadly put, a medium of exchange that is electronically created and stored (i.e. distinct from physical currency, such as banknotes and coins).
2. A crypto-currency is a type of digital token that relies on cryptography to ensure the security of transactions. Cryptography (again broadly put) is the practice of techniques for secure communication.
3. Our understanding is that the focus of the inquiry is largely on crypto-currencies, and we have framed our submission accordingly.
4. Examples of what are described as 'crypto-currencies' include Bitcoin, Litecoin, Peercoin, Ripple, Mastercoin, Primecoin, Dogecoin, Darkcoin, etc.
5. In Australia, the most widely used and known of these appears to be Bitcoin, and the nature and operation of crypto-currency can be understood by reference to Bitcoin as an example.

6. The *Oxford Dictionary of English*¹ defines Bitcoin as:

a type of digital currency in which encryption techniques are used to regulate the generation of units of currency and verify the transfer of funds, operating independently of a central bank: *bitcoin has become a hot commodity among speculators | If you want to buy something using bitcoin you need to make sure the seller accepts the cryptocurrency.*

7. It is described by commentators as 'a virtual currency that essentially operates as online cash'² and as a 'crypto-currency, designed to reinvent the way that money works'.³ Bitcoin operates as a decentralized peer-to-peer payment network whose implementation relies on the use of public-key cryptography to validate transactions involving existing bitcoin and in doing so generates new bitcoin.⁴ The Bitcoin system is decentralized in that it is not under the control of a central authority.⁵ Transactions on the Bitcoin network are denominated in bitcoin. The value of bitcoin is 'not derived from gold or government fiat, but from the value that people assign it'.⁶
8. The process through which bitcoins are created and enter into circulation is called bitcoin 'mining'. Mining involves a 'miner' using freely downloadable Bitcoin software to solve complex cryptographic equations that essentially verify and validate transactions involving the transfer of existing bitcoins between other parties, for example to ensure an existing bitcoin cannot be transferred more than once by the one person. The first 'miner' to successfully solve an equation receives as a reward a specified number of newly created bitcoins to their Bitcoin address. The process of 'mining' has been explained as follows:⁷

¹ *Oxford Dictionary of English* [online] 3rd edn viewed 7 August 2014 www.oxfordreference.com.

² Brito, J and Castillo, A 'Bitcoin: A Primer for Policymakers', *Policy*, Summer 2013-2014, vol. 29, no. 4, pp 3-12.

³ Bradbury, D 'The problem with Bitcoin', *Computer Fraud & Security* November 2013, issue 11, pp 5-8.

⁴ Refer note 2.

⁵ See also Guthrie, N 'The End of Cash? Bitcoin, the Regulators and the Courts' *Banking & Finance Law Review* Apr 2014, vol 29, no. 2, pp 355-367; Moore, T 'The promise and perils of digital currencies' *International Journal of Critical Infrastructure Protection*, 2013, pp 147-149.

⁶ Refer notes 2 and 5.

⁷ Tindell, K 'Geeks Love the Bitcoin Phenomenon Like They Loved the Internet in 1995' *Business Insider* 5 April 2013. See also note 11 above at pp 5-6.

The actual mining of Bitcoins is by a purely mathematical process. A useful analogy is with the search for prime numbers: it used to be fairly easy to find the small ones (Eratosthenes in Ancient Greece produced the first algorithm for finding them). But as they were found it got harder to find the larger ones.

...

For Bitcoins the search is not actually for prime numbers but to find a sequence of data (called a 'block') that produces a particular pattern when the Bitcoin 'hash' algorithm is applied to the data. When a match occurs the miner obtains a bounty of Bitcoins (and also a fee if that block was used to certify a transaction). The size of the bounty reduces as Bitcoins around the world are mined.

The difficulty of the search is also increased so that it becomes computationally more difficult to find a match. These two effects combine to reduce over time the rate at which Bitcoins are produced and mimic the production rate of a commodity like gold. At some point new Bitcoins will not be produced and the only incentive for miners will be transaction fees.

9. Bitcoins that are already in circulation can be acquired either by exchanging 'national' or 'fiat' currencies⁸ for them through an online exchange (or through a Bitcoin ATM), or by accepting them as a gift or in exchange for goods and services.
10. Bitcoins are sent and received via Bitcoin addresses. A Bitcoin address is a long alphanumeric string used by the network as an identifier. A Bitcoin address can be generated at no cost by any user of Bitcoin and a person can have any number of Bitcoin addresses.⁹
11. Bitcoin uses public key cryptography to make and verify digital signatures used in Bitcoin transactions.¹⁰ Each user is assigned a 'public/private' keypair which is saved to that person's Bitcoin wallet. A Bitcoin wallet has been described as something 'that stores the digital credentials for [a person's] bitcoin holdings'.¹¹
12. The public key is an alphanumeric number that mathematically corresponds to the Bitcoin address which is publically known. The private key is also an alphanumeric number, however, it is kept secret as it is what allows the bitcoins to be transferred between Bitcoin addresses.¹² The private key is also mathematically related to the Bitcoin address. It is designed so that the Bitcoin address can be calculated from that private key, but importantly, the same cannot be done in reverse.¹³
13. To transfer bitcoins, a person creates a transaction message with the number of bitcoins to be transferred and signs the transaction with their private key.¹⁴ Those bitcoins are associated with the person's public key. The transaction is then broadcast to the Bitcoin network for validation through the Bitcoin mining process.¹⁵
14. All confirmed transactions are included in the blockchain. The blockchain is a shared public ledger on which the entire Bitcoin network relies.

⁸ For example, Australian dollars, US dollars etcetera. 'Fiat money' is defined as 'Money that a government has declared to be legal tender, although it has no intrinsic value and is not backed by reserves. Most of the world's paper money is now fiat money.': *A Dictionary of Finance and Banking* (Oxford) 4th revised ed.

⁹ Refer note 3.

¹⁰ Refer note 2.

¹¹ Refer note 3.

¹² Refer note 2.

¹³ Wiener, H, Zelnik, J, Tarshish, I, & Rodgers, M 'Chomping at the Bit: U.S. Federal Income Taxation of Bitcoin Transactions' *Journal Of Taxation Of Financial Products* (2013) vol. 11, no. 3, pp. 35-47 at 35.

¹⁴ Kondor D, Posfai M, Csabai I, Vattay G 'Do the Rich Get Richer? An Empirical Analysis of the Bitcoin Transaction Network' (2014) *PLoS ONE* vol. 9, issue 2 pp 1-10 at p 1.

¹⁵ Refer note 2.

15. A bitcoin is only accessible by the person in possession of the private key that relates to the Bitcoin address associated with that person's bitcoin holdings. Accordingly, a bitcoin consists not just of the numerical amount (or balance) of bitcoins and the Bitcoin address to which they are associated, but also the related private key that allows the holder to do anything with those bitcoin.

ATO view of the current law

16. Representatives of the Bitcoin industry asked the ATO to publish its position on the tax treatment of bitcoin. While drafting our view, the ATO consulted with industry bodies as well as legal, accounting and banking bodies.

17. On 20 August 2014 the ATO published a suite of draft public rulings confirming its considered, although preliminary, view of the tax treatment of bitcoin, as follows:

- GSTR 2014/D3 – Goods and services tax: the GST implications of transactions involving Bitcoin
- TD 2014/D11 – Income tax: is Bitcoin a 'foreign currency' for the purposes of Division 775 of the Income Tax Assessment Act 1997?
- TD 2014/D12 – Income tax: is Bitcoin a CGT asset for the purposes of subsection 108-5(1) of the Income Tax Assessment Act 1997?
- TD 2014/D13 – Income tax: is Bitcoin trading stock for the purposes of subsection 70-10(1) of the Income Tax Assessment Act 1997?
- TD 2014/D14 – Fringe benefits tax: is the provision of Bitcoin by an employer to an employee in respect of their employment a fringe benefit for the purposes of subsection 136(1) of the Fringe Benefits Tax Assessment Act 1986?

18. The technical detail provided in these rulings has been supplemented by plain English web material.¹⁶

19. The key elements of the ATO's preliminary views are that bitcoin is a form of intangible property, is not money or currency, and its supply is not a financial supply for GST purposes. Its use is akin to barter.

20. A summary of taxation impacts is as follows:

- individuals who make personal use of bitcoin (e.g. they use it to purchase items for personal use, such as coffee, meals, etc.) and where the cost of the bitcoin was less than \$10,000, will have no capital gains tax (CGT) obligations. Those who use it for investment or business purposes may be subject to CGT when they dispose of bitcoin, in the same way they would be for the disposal of shares or similar CGT assets;
- individuals will be charged GST¹⁷ when they buy bitcoin, as with any other property;
- businesses paid in bitcoin will include the amount, valued in Australian currency, in assessable business income;
- businesses will charge GST when they supply bitcoin and be charged GST when they buy bitcoin. They will be able to claim an input tax credit where the purchase of bitcoin is a business purchase. Bi-directional charging of GST (where a business sells its bitcoin or pays its suppliers in bitcoin) tends to give rise to compliance costs where the system wide impacts may be seen as 'neutral' (that is, GST payable by one party is claimed as an input tax credit by the other party). This outcome is common to any other barter transactions;

¹⁶ <https://www.ato.gov.au/General/Gen/Tax-treatment-of-crypto-currencies-in-Australia---specifically-bitcoin/>

¹⁷ All GST consequences described here depend upon the relevant business being registered or required to be registered for GST. A business will only be required to charge GST, or be entitled to claim input tax credits, where it is registered.

- businesses which convert bitcoin to currencies (e.g. exchanges, ATM operators, etc.) will be required to remit GST on the supply of the bitcoin. However, unlike other foreign currency transactions, such businesses would be entitled to input tax credits where those bitcoin were acquired from another registered business. No input tax credits will be available on the acquisition of bitcoin from a consumer or non-registered entity. This outcome is contentious but is likely only to affect a limited number of businesses;
- bitcoin held by a person carrying on a business of mining and selling bitcoins or carrying on a bitcoin exchange business will generally be considered trading stock of that business and any bitcoin on hand at the end of each income year is required to be brought to account in the usual manner; and
- remuneration paid in bitcoin will be subject to FBT where the employee has a valid salary sacrifice arrangement, otherwise the usual salary and wage PAYG rules will apply.

21. The ATO's views about bitcoin could be expected to apply equally to other crypto-currencies with similar features to bitcoin.

22. The ATO's views were developed by an impartial consideration of the existing law and without any pre-conceived preference to whether Bitcoin should, or should not, be regarded as money for tax purposes. Issues associated with potential consumer risk, tax compliance risk, administrative difficulty, and potential criminal use were not determinative in settling the ATO's view.

Public comment

23. The ATO's views were released on 20 August 2014 in draft form and for public comment.

24. Public comment on the draft rulings closed on 3 October 2014. We received 10 submissions in total. In addition, several accounting and tax advisory firms have published their views on the guidance without making a submission directly to the ATO. Generally, tax practitioners have welcomed the ATO clarifying its position on the tax consequences of dealing in bitcoin.

25. In summary, the comments indicate that industry would prefer bitcoin to be treated as money for both income tax and GST purposes, and as a financial supply for GST purposes where there is a conversion of bitcoin to a national currency (such as Australian dollars).

26. The ATO will take all of the comments received into account in finalising the draft rulings in due course.

27. The main points from the submissions and public comment are:

GST:

- the definition of 'money' in the GST law should not be interpreted in terms of something that is 'currency';
- the definition of 'money' in the GST Act should be interpreted to include concepts that take their value and recognisance by custom and commercial practice, rather than by reference to the *Currency Act 1965* (Cth) (the Currency Act). Bitcoin satisfies this ordinary meaning of money because it is widely used and a generally accepted medium of exchange;
- the UK GST treatment of bitcoin transactions is more favourable than the Commissioner's approach;
- Germany has recognised bitcoin as a financial instrument in the form of units of account and therefore bitcoin falls within the meaning of foreign currency;
- the definition of 'bitcoin' as money is supported by at least two decisions of courts in the United States; and

- if GST is imposed on bitcoin transactions bitcoin exchange businesses will not be viable in Australia and operations may move offshore to more favourable tax jurisdictions.

Income tax:

- the meaning of 'currency' for the purposes of the definition of 'foreign currency' in Income Tax law should not be affected by the Currency Act because there is no legal meaning of 'currency' in the Currency Act;
- a more flexible interpretation of 'currency' is open and the ATO should adopt a functional view, i.e. all things must be counted as money that operate as money and ultimately it is society and custom that determines what money is; and
- bitcoin is money for the purposes of the Fringe Benefits Tax (FBT) law and therefore when paid as salary or wages should be subject to pay as you go (PAYG) withholding obligations rather than FBT.

28. We understand the UK position is based on an interpretation of a European Union value added tax directive (EU VAT Directive). The European Court of Justice has been asked to provide advice on the correct interpretation of the relevant EU VAT Directive given other EU countries have taken a different view to that of the UK.

29. Germany has recognised bitcoin as a financial instrument in the form of units of account pursuant to the German Banking Act. This is to ensure that entities trading in bitcoin or undertaking bitcoin mining pools will be subject to regulation. This classification under German law simply means that bitcoin is a unit of value (that is not legal tender) that serves as a private means of payment in barter transactions. Germany does not recognise bitcoin as legal tender and it is not a foreign currency or foreign banknotes or coins. Bitcoin is also not recognised as e-money. Accordingly, Germany has not legally accepted bitcoin as a means of discharging monetary obligations in Germany.

30. The cases from the United States, we note were decided under legislation regarding the scope of the concept of a money transmitting service.¹⁸ They have little or no relevance to interpreting Australian tax law. The US Internal Revenue Service treats bitcoin as property for tax purposes.¹⁹

31. The ordinary meaning of 'money', including a reference to custom and commercial practice, and its application in the context of the GST and income tax legislation were considered in the ATO's draft rulings. Submissions received have raised no novel issues or arguments to those raised during the early consultation phase, which were taken into account in forming the ATO's views.

32. Whether bitcoin or other crypto-currencies *should* be treated as 'money' or 'currency' is a question of policy.

Tax compliance risk

33. The nature and size of the tax compliance risk is not significantly affected by whether bitcoin is treated as intangible property or as money.

¹⁸ Securities and Exchange Commission v. Trendon T Shavers and Bitcoin Savings and Trust CASE NO. 4:13-CV-416 and U.S. v. Faiella, U.S. District Court, Southern District of New York, No. 14-cr-00243.

¹⁹ <http://www.irs.gov/pub/irs-drop/n-14-21.pdf>

Nature of the risk

34. The nature of the compliance risk associated with crypto-currency is essentially similar to that associated with the cash economy. That is, the capacity for transactions to be handled pseudo-anonymously²⁰ and go unreported.
35. Additionally, the online nature of crypto-currency means that transactions can be highly mobile internationally. This can be made to facilitate profit shifting or used to help 'hide' transactions and make forensic efforts to obtain evidence difficult and expensive.
36. It is correct for example that bitcoin transactions are recorded on the blockchain and can be viewed publicly.²¹ However, unlike an account with a financial institution, bitcoin wallets and transactions are not subject to proof of identity and directly linked to an individual. The absence of required reporting arrangements similar to those attaching to currency is not helpful, although given the peer-to-peer nature of crypto-currency and the capacity for international mobility of transactions any such reporting arrangements are perhaps likely to be of limited success only. However, digital currencies, such as Bitcoin, can be exchanged back-and-forth for fiat currency. This exchange process (both the initial purchase and the subsequent integration of funds back into the real economy) will often intersect at some point with traditional financial sectors and services, such as banking and remittance services, which are captured under Australia's anti-money laundering and counter-terrorism financing regime.

Size of the risk

37. Bitcoin appears to be the only crypto-currency with market strength in Australia at this time. It is broadly a payment system, although some use it as an investment, and it is therefore of relevance to a wide range of segments of the community. A small, although growing, industry has developed to mine, market and trade in bitcoin.
38. The ATO's assessment of the fiscal risk associated with bitcoin is relatively low. There are presently some 13.54 million bitcoins in existence²² (with the maximum number ever to exist being 21 million), each with a current value of about \$AUS440 (\$US375)²³ – giving a total worldwide value of about \$AUS5.96 billion.²⁴ By comparison, Australia's GDP in 2012-13 was \$1.5 trillion.²⁵
39. The nature of bitcoin makes it hard to measure in geographical terms, as it is instantly mobile across the world. Some global figures since April 2013 from the bitcoin blockchain²⁶ are set out in the table below.

²⁰ Every Bitcoin transaction is linked to a corresponding public key, which is stored and made available in the blockchain. To the extent, if any, a person's identity can be linked to a public key, it is possible to look through the recorded transactions in the blockchain and see all transactions associated with that public key, and therefore the person.

²¹ Off blockchain transactions can occur with the use of a 'paper wallet' for example, although there are risks for the parties involved.

²² Reported by CoinDesk (<http://www.coindesk.com/>) on 26 November 2014.

²³ Reported by CoinDesk (<http://www.coindesk.com/>) on 26 November 2014 as \$US375.24 and \$AUS440.03 (opening price).

²⁴ If all 21 million bitcoin were available, at present value, they would have a total worldwide value of \$AUS9.24 billion.

²⁵ Key Economic Indicators, 2014 (ABS) -

<http://www.abs.gov.au/AUSSTATS/abs@.nsf/mf/1345.0?opendocument?opendocument#from-banner=LN>

²⁶ <https://blockchain.info/>

	1 April 2013	1 April 2014	31 October 2014
Cumulative bitcoins mined	10.98 million	12.59 million	13.44 million
Price (USD)	\$103 ²⁷	\$480 ²⁸	\$341 ²⁹
Market Capitalisation (USD)	\$1.13 billion	\$6.04 billion	\$4.58 billion
Unique Transactions per day	52,469 ³⁰	64,692 ³¹	88,062 ³²
Value of transactions per day (USD)	\$18.96 million ³³	\$59.21 million ³⁴	\$48.01 million ³⁵
Hash Rate ³⁶	73K gigahashes	45M gigahashes	336M gigahashes
MyWallet Users ³⁷	170,000	1.45 million	2.43 million

40. It has been reported that 7% of the bitcoin in circulation in the world is held by Australians.³⁸ We are unable to verify this claim. It is very difficult to establish whether the bitcoins are actually held in Australia. It is claimed that 7% of the venture capital investment in bitcoin is in Australia.³⁹ Again we are unable to verify this claim. Australia ranks about 7th in terms of global downloads of the software used to mine bitcoin (11th on a per capita basis).⁴⁰
41. In relation to compliance activity, assuming the ATO does not change its position on the law, our intended approach would be that although our view may have application for periods prior to publication, the ATO will not generally apply compliance resources to past year cases in relation to taxpayers who have behaved in a bona fide manner and made a genuine attempt to understand and satisfy their obligations.

²⁷ Average for the month of April 2013 was \$US131 – taken from data at <https://blockchain.info/>

²⁸ Average for the month of April 2014 was \$US460 – taken from data at <https://blockchain.info/>

²⁹ Average for the month of October 2014 was \$US364 – taken from data at <https://blockchain.info/>

³⁰ Average for the month of April 2013 was 56,945 – taken from data at <https://blockchain.info/>

³¹ Average for the month of April 2014 was 63,277 – taken from data at <https://blockchain.info/>

³² Average for the month of October 2014 was 76,992 – taken from data at <https://blockchain.info/>

³³ Average for the month of April 2013 was \$US38.11 million – taken from data at <https://blockchain.info/>

³⁴ Average for the month of April 2014 was \$US50.43 million – taken from data at <https://blockchain.info/>

³⁵ Average for the month of October 2014 was \$US54.38 million – taken from data at <https://blockchain.info/>

³⁶ Hash Rate is a measure of the computing power applied to mining and conducting bitcoin transactions.

³⁷ The 'MyWallet' is a product which is indicative of entities holding amounts of bitcoin as recorded by one substantial global provider of wallet services.

³⁸ https://www.taxpayer.com.au/NewsDetail/28451/ATO%E2%80%99s_bitcoin_rules_may_drive_tax_evasion

³⁹ <http://www.coindesk.com/bitcoin-australia-preemptive-strike-restrictive-taxes/>

⁴⁰ <http://www.zerohedge.com/news/2013-05-27/mapping-bitcoins-global-adoption> with data sourced from <https://tradeblock.com/>. Note however that you don't need to download the mining software in order to invest in bitcoin.