Rebooting Money: The Canadian Tax Treatment of Bitcoin and Other Cryptocurrencies

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Abstract

Bitcoin is widely regarded as the world's first decentralized digital currency, or "cryptocurrency." Bitcoin, like many cryptocurrency systems, operates via a peer-to-peer network that is independent of any government, central authority, or bank. All functions, such as the issuance, or "mining," of bitcoins and the processing and verification of transactions, are managed collectively by this network. In addition to mining, the network's typical activities include the trading of bitcoins and the provision of exchange facilities whereby parties trade bitcoins for more established currencies, such as the Canadian dollar. Bitcoins may also be held as an investment or used to pay for goods or services; indeed, there already exist worldwide a number of retail outlets that accept payment in bitcoins.

Cryptocurrency systems such as Bitcoin are an emerging area, and the determination of their legal and regulatory status is ongoing. In Canada, regulatory agencies such as the Canada Revenue Agency have recently stated that Bitcoin and other cryptocurrency systems should not be characterized as "money" or "currency" for Canadian purposes. The authors challenge this basic view by undertaking a legal and historical analysis of the concepts of "money" and "currency" and by reviewing a number of Canadian income tax and indirect tax issues that may arise in the context of the Bitcoin system. Considering the unique policy challenges prompted by these innovations, the authors conclude that pre-emptive legislative intervention is needed to achieve a more predictable administration of tax rules that may apply to Bitcoin-based transactions.

* We would like to thank Evan Paperman, Dave Pouliot, and Alexander Spraggs for their research assistance. Any errors or omissions are our responsibility.

Keywords Bank of Canada; commodities; comparative analysis; financial services; foreign currency; GST; information technology; instruments; international monetary system; monetary policy; monetary systems; money.

Introduction

Legislation is naturally reactive to innovation. In some instances, general principles and existing laws are sufficient to address the new paradigms brought forth by innovation; in others, significant evolution of the legal framework is required. In our view, Bitcoin and other cryptocurrency systems represent the latter form of innovation. They purport to revolutionize payments in such a way that traditional conceptions of money or currency, on which the current legislative framework is based, may cease to be appropriate if cryptocurrencies become more prevalent and generally adopted.

In this paper, through an analysis of the Bitcoin system from the perspectives of the Canadian income and indirect tax frameworks, we posit that pre-emptive legislative intervention is desirable in order to arrive at a predictable administration of income and indirect tax rules that may apply to Bitcoin-based transactions.

From a Canadian income and sales tax perspective, cryptocurrencies are currently, at the very least, intangible property. Both the Income Tax Act (ITA)[1] and part IX of the Excise Tax Act (ETA)[2] provide a rather complete framework for the taxation (or non-taxation) of transactions involving intangible property, including the taxation of barter transactions and the exchange of money. In our view, however, Canadian tax legislation has never contemplated the creation of a new form of money or currency that is not backed or issued by any particular country and that exists only in digital form in no particular location. Although the Canada Revenue Agency (CRA) has published a number of interpretations dealing with Bitcoin transactions essentially as barters of non-money intangible property, further analysis is needed. We have identified certain growing pains that are likely to develop if the Canadian judicial system ultimately has to address such transactions and, in particular, the question whether cryptocurrency units constitute "money" or "currency."

Our purpose in this paper is not to explain the intricate details of the Bitcoin system. However, our analysis of the Canadian tax aspects of Bitcoin and similar cryptocurrency systems does require an overview of such systems. Thus, in the first part of this paper, we embark on an overview of the history of Bitcoin and examine the basic mechanics of the system. In the second part, we consider how Bitcoin should be characterized as a matter of Canadian law in light of the recent pronouncements by regulatory authorities such as the CRA and the Bank of Canada, which have held that Bitcoin should not be characterized as "money" or "currency" for Canadian purposes. More specifically, we undertake a legal and historical analysis of the concepts of "money" and "currency" and conclude that

Bitcoin may satisfy either definition. In the third part of the paper, we review a number of income tax issues related to Bitcoin, including the potential application of rules pertaining to borrowed money, foreign currency, and barter. In the final part of the paper, we consider a number of sales tax issues related to Bitcoin.

Bitcoin Basics

What Is Bitcoin?[3]

The first step in applying tax consequences to a new concept is to gain a thorough understanding of it. Understanding new software concepts can be as daunting to most tax lawyers as new tax concepts are to most software developers. The concept of the Bitcoin system is no exception.

For the purposes of this paper, we have styled the cryptocurrency system ("Bitcoin") with a capital B and the unit of the system ("bitcoin") with a lowercase b. Although the theoretical basis for a cryptocurrency appears to have existed for almost 20 years,[4] Bitcoin is the first mainstream cryptocurrency system. Its software is open source, meaning that the source code is freely reviewable, can be audited and understood by anyone with the appropriate expertise, and can be used by anyone to develop derivative programs. Because of Bitcoin's open-source nature, a number of derivative cryptocurrencies have been launched. For example, the litecoin, the dogecoin, the mastercoin, and other less mainstream cryptocurrencies were partially based on the Bitcoin source code, but they are fundamentally different from the bitcoin in certain respects.[5]

Bitcoin and similar cryptocurrencies do not constitute a claim to a physical or intangible good or to another currency. Bitcoin is designed to be, in and of itself, a currency with no physical form. This is a fundamental feature of cryptocurrencies in general. However, it is not a particularly new concept: digital currencies have existed for several decades, and most of the currencies held worldwide are not held in paper, coin, or any other physical form, but rather in digital form at financial institutions.

Bitcoin and similar cryptocurrencies innovate by eliminating the need for a trusted third-party payment processor, such as a bank, a broker, or other intermediary, along with the need for a central bank that controls the supply of currency. With cryptocurrencies, all of these functions are handled through open-source software that is deployed across a worldwide community of users who allocate their own personal computing power to run the back-end software and to support the cryptocurrency system.

Overview of the Bitcoin System

The origin of the Bitcoin system is shrouded in mystery. It is supposed to have been proposed by one or more computer programmers, who used the pseudonym "Satoshi Nakamoto," in a white paper published in November 2008.[6] Their

purpose was to devise an electronic currency with features similar to those of cash but without the need for a trusted third party as an intermediary for approval and confirmation of payments. Traditionally, such third parties (for example, credit card companies, financial institutions, and online payment processors) were thought necessary to secure online transactions.

To achieve a comparable level of security, the Bitcoin system relies on a peer-to-peer network of computers to transfer units, verify transactions, and prevent the double spending of one's units. As a digital currency system, Bitcoin has no physical form—coin, paper, or otherwise. Each unit corresponds to a digital signature that is assigned to a single user. This assignment is reflected on a single ledger. Transfers are also reflected on this ledger and can be traced back to the very first owner of the unit upon its issuance.

The issuance of bitcoins is also unique. First, the software limits to 21 million the total number of bitcoins that will ever be issued. Second, no central authority or predetermined timing governs the issuance of units. Instead, units come into existence through a process called "mining." Mining essentially involves devoting computer power to run software that attempts to solve very complex resource-consuming mathematical problems by way of what amounts to guesswork. As "miners" solve problems, new problems of increased difficulty[7] come into existence. Once a problem is solved, a "proof of work" is recorded on a public ledger, allowing other users to see that a problem has been validly solved and notifying them of the next problem. For having solved a problem, a miner is currently rewarded with 25 bitcoins.[8] The computer power devoted to solving problems serves a dual purpose: it confirms transactions[9] in an objectively reliable manner, and it secures the network.[10] Of course, the great amounts of computing power[11] necessary to solve the mathematical problems involve a certain cost. This cost is what the reward of 25 bitcoins is designed to compensate. Clearly, this reward is the linchpin of the Bitcoin system; without it, the incentive to devote the costly computing power that is crucial to the network would not exist. There is broad discussion within the Bitcoin community of the need to introduce and increase mandatory transaction fees as and when the maximum amount of issued bitcoins is reached, in order to sustain the incentive to devote the necessary computing power to the network.[12] It is plain that a reliable and fast confirmation of transactions is fundamental to the Bitcoin system's utility as a means of exchange.

The Mechanics of Bitcoin Transactions

When transacting in bitcoins for the first time, one typically installs a Bitcoin application on a phone, tablet, or computer and exchanges a traditional currency for bitcoins on an exchange or at a Bitcoin automated teller machine (ATM). These purchased bitcoins are notionally ascribed to a unique "wallet" that is accessed via the application. Most applications automatically generate one or more unique wallets. A wallet should be thought of generally as a digital vault in which bitcoins are stored.

Bitcoin and its derivatives are called "cryptocurrencies" because a process known as asymmetric key cryptography serves as the basic system by which bitcoins are exchanged.[13] Each Bitcoin user can generate "addresses" (that is, unique strings of letters and numbers that are akin to public keys) that are used to receive bitcoins in the user's wallet or verify the wallet balance. Each such address is paired with a private key that is never to be revealed by its owner and is used to spend bitcoins.

When any number (or fraction) of bitcoins is spent, the transfer is entered on a single public ledger known as the "blockchain."[14] For some time, the transaction remains unconfirmed, and the transferee cannot spend the bitcoins received. As the previously described mathematical problems are solved, a record, or "block," of all transactions since the last solving is added to the public ledger—hence the name "blockchain." By this process, transactions forming part of a new block become confirmed, after which the bitcoins received by a recipient can be spent. This process, which happens within a few minutes, prevents a user from spending the same bitcoins twice and causes the transactions to be irreversible.

Summary: Bitcoin Is Not as Complicated as It Seems

The foregoing discussion may have made the reader's mind boggle. This is wholly understandable: Bitcoin and the cryptocurrencies derived from it are often seen as arcane and extremely complex, particularly by the uninitiated. However, despite the technical complexity of the back end of the Bitcoin system itself (that is, mining and transaction verification), the various iterations of its front-end software are designed to be rather simple for most end users to access via a phone or computer application. If you can use your online banking application on your smartphone, you can use the Bitcoin application.

Characterization of Bitcoin at Canadian Law

Do the Regulators Have It Right?

Canadian regulatory authorities, like those of many other countries, have been measured in providing guidance on how the bitcoin ought to be treated for various purposes.

The CRA, in particular, has been rather vague and conservative in its declarations, having issued only three interpretation letters on the topic to date.

In a December 2013 letter,[15] the CRA stated that

- Bitcoin is not a "currency" for Canadian tax purposes, but is instead a commodity, and therefore the income tax and goods and services tax/harmonized sales tax (GST/HST) rules on barter apply to Bitcoin transactions;
- taxable supplies of goods or services made in exchange for bitcoins are subject to GST, which must be computed on the fair market value (FMV) of the bitcoins at the time of sale;

- bitcoins can be gifted to a qualified donee, in which case the FMV of the bitcoins at the time they are transferred is used in determining the eligible amount of the gift for tax purposes; and
- bitcoins can be traded or sold like a commodity, and the determination of whether such a transaction is on account of income or capital is factual.

In March 2014, the CRA said that Bitcoin mining is not immune from tax treatment.[16] Specifically,

- Bitcoin miners may be taxed depending on whether their mining activities constitute a personal activity (or hobby) or a business activity (based on the test set out by the Supreme Court of Canada in *Stewart*);[17]
- if the activity is considered a business activity, the normal rules on inventory valuation apply; and
- if the activity is considered a business activity, miners may be entitled to claim losses associated with the mining operation.

The CRA's March 2014 letter also stated that gifts of bitcoins received by employees may be subject to tax depending on their status as a "voluntary payment."

Finally, in an April 2015 letter,[18] the CRA stated that digital currency (for example, Bitcoin) and an interest in a foreign partnership that holds digital currency may both be "specified foreign property" as defined in ITA subsection 233.3(1) if they are situated, deposited, or held outside Canada.

Although most of the CRA's conclusions are uncontentious, its holding that Bitcoin and other digital currencies are not considered "currencies" or money for Canadian tax purposes should raise some eyebrows.[19] So too should the April 2014 position paper published by the Bank of Canada,[20] which also posits that Bitcoin and similar cryptocurrencies do not constitute money:

> Using those criteria [that is, the three functions of money] for Bitcoin and other cryptocurrencies, we see that they fall short of today's definition of "money."
>
> **As a medium of exchange.** Only a few retailers accept Bitcoin as payment for goods and services. In Canada, in early 2014, there may be only about 200 retailers that accept Bitcoin. While this number is likely growing, at present, Bitcoin is not "generally accepted" as a medium of exchange.
>
> **As a unit of account.** Even retailers that accept Bitcoin tend to display their prices in state currencies such as the Canadian dollar and only translate them into Bitcoin at the point of sale. This suggests that Bitcoin is not a unit of measurement that could be used to compare the value of a good or service offered over time or by different merchants.
>
> **As a store of value.** Cryptocurrencies such as Bitcoin are highly volatile. For example, the value of Bitcoin is 40 times more variable than the value of the U.S. dollar. People are unlikely to want to save or invest money in a cryptocurrency whose value could swing wildly over a short period of time.

> The same is true for merchants, who are unlikely to accept a "medium of exchange" that is so volatile in value.

In our view, the Bank of Canada's position suggests two things: (1) that the determination of whether bitcoins constitute money is a point-in-time determination—a position that was in flux as of the time of the publication—and may thus change completely; and (2) that the Bank of Canada's analysis appears (rightly or wrongly) geographically focused on Canada.

Indeed, the general response to bitcoins as a means of exchange and a unit of account is, in our view, rather early to evaluate, because the Bitcoin system is relatively new compared with, say, the Canadian dollar system. The same applies to an evaluation of bitcoins as a store of value: though bitcoins are not perishable goods, their original volatility relative to conventional currencies has been rather high. However, a comparison of the 2014 and (year-to-date) 2015 price bands relative to the US dollar appears to show a relative decrease in volatility, which may indicate that this aspect is (or will eventually) no longer be of concern (see figure 1).

Interestingly, the Bank of Canada appears to restrict to Canada its determination of whether bitcoins are money. In our view, this approach creates confusion between currency and money. What is accepted as money may vary from one location to the next; however, the concept of currency incorporates the possibility that different jurisdictions or geographical locations may have different (and multiple) currencies. For example, no one disputes that the euro is money, yet it is not commonly accepted as a means of exchange or unit of account in Canada. From a Canadian perspective, under the Bank of Canada's definition, the euro is currency but not money. This dichotomy is difficult to reconcile with tax definitions of money, such as the definition in the ETA, which includes currency.

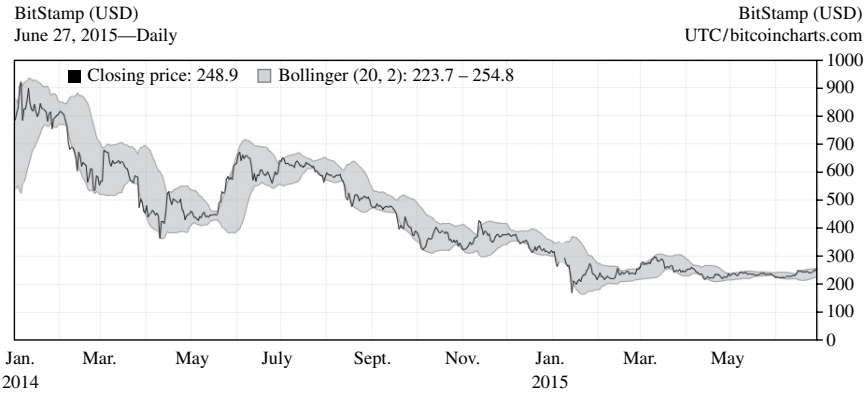
In the end, neither the CRA nor the Bank of Canada appears to have disclosed the precise legal rationale for its conclusions. This leaves the matter of how to characterize the bitcoin open to discussion. In the following section, we review whether the positions of the CRA and the Bank of Canada on the characterization of Bitcoin are correct as a matter of law.

Money and Currency: Definitions in Context

From a legal perspective, the most significant feature of bitcoins and other cryptocurrencies is that they are not issued or expressly authorized by governments as an official medium of exchange. This naturally raises some practical and (potentially) legal impediments to their wider adoption: few commercial transactions can be formed and performed with their usual legal consequences for the parties if the values exchanged as payment do not legally qualify as money.[21]

In this regard, the terms "money" and "currency" are concepts that (1) should be understood as distinct even though they are clearly interrelated, (2) can often overlap, and (3) are frequently used interchangeably. As with any term, the

Figure 1 Bitcoin's Price Bands Relative to the US Dollar: 2014 and 2015



Source: Bitcoincharts.org, at bit.ly/1KkXLQW.

precise meanings of the terms may depend on the context in which they are used.

Money

The notion of money is particularly abstract. One dictionary defines "money" as "something generally accepted as a medium of exchange, a measure of value, or a means of payment," and as including such things as "officially coined or stamped metal currency," "money of account," and "paper money."[22] "Money of account" is defined as "a denominator of value or basis of exchange which is used in keeping accounts and for which there may or may not be an equivalent coin or denomination of paper money."[23]

In a July 2012 publication,[24] the Bank of Canada described the concept of money as follows:

> Money is any asset that is widely accepted as a means of making payments or settling debts. Over the course of history, money has taken many forms. "Commodity" money included cattle (related to the word "capital"), iron, gold, silver, diamonds and shells. Today, most money is in the form of bank notes, coins and deposits at banks and other financial institutions. Whether a tangible object or a computer entry (representing, for example, the value of a bank deposit), money is based on a social agreement to recognize value.

The Bank of Canada further explains the core functions of money:

> Money has three main functions. Money is:
>
> - *A means of exchange*. Without money, we would have to exchange goods and services directly—i.e., engage in barter. Money simplifies commercial transactions.

- *A unit of measurement*. As a unit of measurement, money allows us to compare the value of various goods and services. It is both the standard for pricing goods and services and the means of buying and selling them. Money also allows us to compare prices over time.
- *A store of value for future use*. As a store of value, money facilitates the accumulation of savings and the lending of those savings to someone else. This attribute of money also makes it easier to enter into a contract—to pay in the future for goods or services received now.[25]

These basic definitions have some solid legal underpinnings. Money has been judicially defined as follows:

> The primary function of money is to serve as a medium of exchange, and as such it is accepted without question in final discharge of debts or payment for goods or services. Money also serves as a common standard of value by reference to which the comparative values of different commodities are ascertained, as a unit of account in which debts and liabilities are expressed, and as a store of value or purchasing power.[26]

As stated most succinctly by Darling J in *Moss v. Hancock*, money is

> that which passes freely from hand to hand throughout the community in final discharge of debts and full payment of commodities, being accepted equally without reference to the character or credit of the person who offers it and without the intention of the person who receives it to consume it or apply it to any other use than in turn to tender it to others in discharge of debts or payment for commodities.[27]

Unlike other jurisdictions, such as the United States,[28] Canada has long accepted as a matter of law that money need not necessarily be legal tender recognized in Canada or in another country. Instead, Canada essentially adopts the classic English judicial definition from *Moss v. Hancock*, which was largely approved by the Supreme Court in *Reference re Alberta Statutes*.[29] In that case, the court considered the definition of "money" in the context of the proposed Alberta Social Credit Act. Although the court's decision was focused on a division-of-powers issue, Duff CJ made the following comments regarding the scope of the term "money":

> [M]oney as commonly understood is not necessarily legal tender. Any medium which by practice fulfils the function of money and which everybody will accept in payment of a debt is money in the ordinary sense of the words even although it may not be legal tender.[30]

Thus, under Canadian law, money is not restricted to the legal tender of Canada, and any medium of payment that fulfills the function of money and that everyone will accept in payment of a debt is money.

Currency

"Currency," for its part, has had various generally accepted meanings that, like the meanings of "money," depend on the context in which the term is used:

1) Currency can be understood as a system of money, or as monetary units. For example, when the governing authority of a jurisdiction adopts or authorizes a specific monetary unit for use within its jurisdiction, that monetary unit becomes the currency of that jurisdiction. The Currency Act provides that "[t]he monetary unit of Canada is the dollar"[31] and that "the denominations of money in the currency of Canada are dollars and cents, the cent being one hundredth of a dollar."[32] Similarly, the US dollar, the British pound, and the European euro have been authorized by their relevant governing authorities as the official currencies of the respective jurisdictions.
2) Currency can also mean the specific objects, known as "money" (for example, coins or notes), that constitute a medium of exchange and that circulate within a system. In Canada, "coins that are current" under the Currency Act and notes issued by the Bank of Canada intended for circulation in Canada are the specific monetary objects authorized for circulation as legal tender.
3) "Currency" may also refer to the free transmissibility of money—that is, the ability of the transferee in the ordinary course to take it free of the claims of prior owners or holders.[33] Money, in other words, "passes in currency" when it is transmitted from one party to another. As Lord Mansfield noted in 1758, when considering whether banknotes—then a new phenomenon in England—constituted money at law,

> money can not be followed . . . upon account of the currency of it: it can not be recovered after it has passed in currency. So, in case of money stolen, the true owner can not recover it, after it had been paid away fairly and honestly upon a valuable and bona fide consideration: but before money has passed in currency, an action may be brought for the money itself.[34]

The term "currency" is likely most often used in reference to one of the first two definitions—either currency as a system of money or currency as an object. These two definitions are historically interrelated and have their foundations in the English common-law system.

Historically, at common law, the Crown enjoyed the exclusive right of making and issuing money for use throughout the English realm.[35] The tokens known as "money" traditionally consisted of coins made and issued by the Crown under these exclusive powers, although the Crown would frequently grant coin-making franchises. The grantees of such franchises were obliged to stamp the coins by means of an official stamp sent to them by the Exchequer. The denomination or value at which a coin was to "pass current" was also determined by the Crown.[36]

In short, money as a medium of exchange and the specific objects of money (or currency) were highly regulated and tightly controlled in England.

Over time, the Crown's prerogatives became increasingly governed by statute, and a system of banknotes developed. Such banknotes have been considered money within the meaning of English statutes as far back as 1790.[37]

In Canada, the earliest statutes pertaining to currency date back to before Confederation.[38] At least 12 different colonial acts dealt with currency, the first of which was enacted in 1796 and the last in 1853.[39] None of these historical enactments provided any specific definition of "currency." Instead, they focused (unsurprisingly, given the English tradition of tight control over the production and recognition of money) on identifying which of the widely and freely circulating foreign currencies were acceptable as legal tender within the colonies.[40] Many of these early enactments also specified the value of acceptable currencies in terms of English currency and coinage, which was notionally the principal medium of exchange at the time. An 1841 enactment, for example, provided rates for the conversion of currency or coinage of the United States, France, Spain, Mexico, La Plata, Colombia, Peru, Chile, Portugal, and Brazil, all of which were specified to be legal tender.[41]

Under the Constitution Act, 1867,[42] Parliament was granted the exclusive legislative authority over various economic matters, including all matters relating to "currency and coinage" in Canada under section 91(14), and all matters relating to "legal tender" in Canada under section 91(20).

Acting on this authority, Parliament enacted the precursor to the modern Currency Act in 1871. Its long title, An Act To Establish One Uniform Currency for the Dominion of Canada,[43] clearly suggests that its main purpose was to replace all of the pre-Confederation currencies in use with a single Canadian monetary unit. It accomplished this aim by stipulating, among other things, that as of July 1, 1871, "the currency of the Province of Nova Scotia shall be the same as that of the Provinces of Quebec, Ontario and New Brunswick, in all of which one currency, of the uniform value hereinafter mentioned, has been and is now used,"[44] and that "no Dominion note or bank note payable in any other currency other than the currency of Canada, shall be issued or reissued by the Government of Canada, or by any bank."[45]

From the enactment of the 1871 act until 1935, when the Bank of Canada was formed, the paper currency circulating in Canada was a combination of Dominion notes, issued by the federal government under various successive Dominion Notes Acts, and notes of banks that had been granted a federal charter.[46] The ability of chartered banks to issue notes for circulation within Canada ended in 1945, with the result that the Bank of Canada now has the sole right to issue currency notes.[47]

Today, the Bank of Canada Act[48] governs the production of Canadian-dollar-denominated banknotes, whereas the Royal Canadian Mint Act[49] governs the manufacture of coins. As noted above, Canadian banknotes and coins are given the quality of currency in Canada pursuant to the Currency Act.

In sum, Canada has a long and complex history with currency. Although the Canadian currency system has historically been tightly controlled and regulated—first by the Crown, and then by Parliament—Canada also has a deep-rooted tradition of exposure to multiple currencies as media of exchange and commerce. This tradition should teach us that it is possible to conceive of laws and regimes that recognize multiple, competing systems of money.

Are Bitcoins Money, Currency, or Both?

In light of the jurisprudence, it is entirely valid, in the absence of some special legislative enactment, to conceive of bitcoins and similar cryptocurrencies gaining recognition as legitimate forms of money to the extent that they are able to achieve the threshold level of acceptance within a community.

In addition, it appears to us that the Bitcoin system satisfies each of the three basic definitions of "currency." First, it is a system of money or monetary units (albeit one that exists outside the normal state-issued money paradigm). Second, it can be divided into specific—though intangible—objects of exchange. Finally, the transmissibility of Bitcoin, due in large part to the anonymity associated with its exchange, allows the recipient to take it clear from the claims of prior holders, thus allowing it to "pass in currency."

We recognize that our assessment is not consistent with the views expressed by Canadian regulatory authorities such as the Bank of Canada and the CRA. It must be kept in mind, however, that both the CRA and the Bank of Canada represent the executive branch of government, and their views are arguably not disinterested. The Bank of Canada, for example, may consider competing money or currencies a threat, and the CRA's position may reflect its mandate to administer federal tax legislation. If Parliament does not legislate on this important matter, the courts may be called upon to make a final determination.

Income Tax Treatment of Bitcoin

In this part of the paper, we highlight certain income tax considerations that may arise in the course of or as a consequence of the Bitcoin-characterization debate discussed earlier.

Money

Unlike the ETA, which contains a fairly detailed definition of "money" at subsection 123(1), the ITA contains no general definition of "money." The word "money" does, however, appear 333 times in the ITA, frequently next to the word "borrowed" or in the context of the phrase "lending of money."

ITA paragraph 20(1)(c), for example, contemplates that a deduction may be taken for an amount paid (or payable in respect of) the year pursuant to a legal

obligation to pay interest on "borrowed money" used for the purpose of earning income. Assuming that bitcoins already satisfy the judicially accepted definition of "money" (or eventually will, if the definition becomes more widely used), one might therefore ask whether a taxpayer who borrows bitcoins in consideration for payments of interest to the lender would be entitled to a deduction under paragraph 20(1)(c) (on the assumption that the bitcoins were used by the taxpayer for the purpose of earning income).

The term "money" also appears in the definition of "qualified investments" in ITA section 204, which defines what kind of assets can be held, inter alia, in a registered retirement savings plan (RRSP) or a tax-free savings account (TFSA). Paragraph (a) of that definition provides that "money (other than money the fair market value of which exceeds its stated value as legal tender in the country of issuance or money that is held for numismatic value)" constitutes a "qualified investment" for RRSP purposes. Assuming that bitcoins were not being held as a collector's item, they would not be excluded by the parenthetical language, since the bitcoin has no country of issuance and its FMV could never exceed its stated value as legal tender in such a country. Accordingly, could Bitcoin constitute a qualified investment that could be held in a registered savings account?

The term "money" also appears in part XIII of the ITA. For example, subsection 214(15) treats guarantee fees as interest for the purposes of part XIII, and it applies, inter alia, "where a non-resident person has entered into an agreement under the terms of which the non-resident person agrees to lend money, or to make money available, to a person resident in Canada." Could an amount in Bitcoin paid or credited as consideration for such an agreement be subject to part XIII withholding tax?

Currency

The word "currency" appears 498 times in the ITA, often (but not always) qualified by "foreign." "Foreign currency" is specifically defined at subsection 248(1) to mean "currency of a country other than Canada."

The expression "currency of a country other than Canada" is somewhat ambiguous. One might assume that Parliament intended to refer to a currency issued by the central bank of a country other than Canada, but this is clear neither from the wording of the provision nor from the technical notes issued by the Department of Finance in connection with the 2001 technical bill that introduced the expression.[50]

"Foreign currency" could also conceivably include (1) a currency that is recognized in a country as legal tender, (2) a currency that has obtained some lower level of formal recognition in a country (such as Germany, which recognizes Bitcoin as "private money" or "units of account" for certain domestic purposes), or even (3) a currency that is widely used within a country (for example, a country whose official domestic currency is unstable).

To our knowledge, no country has to date formally adopted Bitcoin as its official currency, nor has any country formally recognized Bitcoin as legal tender. But the potential for some countries to do so should encourage Parliament to consider clarifying the foreign currency rules in the ITA.

For example, qualifying Bitcoin as a foreign currency would bring it within the ambit of the "weak currency" rule set out at ITA section 20.3. A "weak currency debt" is defined to mean, where certain conditions apply,

> a particular debt in a foreign currency (in this section referred to as the "weak currency"), incurred or assumed by the taxpayer at a time . . . in respect of a borrowing of money or an acquisition of property.

If Bitcoin were not considered a foreign currency, it would not be subsumed within the weak currency debt rules, which may mean that it could be validly used in a hedging transaction designed to fix the Canadian-dollar cost of interest and principal payments in a situation where Bitcoin is expected to decline in value vis-à-vis the Canadian dollar (assuming, of course, that such interest would, as described above, be deductible as interest on borrowed money). We imagine that, from a public policy perspective, Parliament would not find this too appealing, given that section 20.3 was specifically enacted to prevent such schemes.

Barter Transactions

From an income tax perspective, the rules on barter are another major issue in characterizing Bitcoin as either a commodity or a currency. In one of its few administrative pronouncements on Bitcoin,[51] the CRA took the position that virtual currencies are not considered to be a currency issued by a government of a country, as US dollars (for example) are. Therefore, the CRA treats Bitcoin as a commodity for the purposes of the ITA, and it would treat the use of bitcoins to purchase goods or services as a form of barter transaction.

The terms "barter" and "barter transaction" are not defined in the ITA. The courts have addressed the tax issues raised by bartering transactions on a number of occasions. Unfortunately, in most circumstances, the courts have not provided an analysis of what constitutes bartering; they have simply concluded on the facts that certain transactions do or do not constitute bartering transactions.

That said, the Tax Court of Canada has defined "barter" as "the acquisition of an asset other than by paying cash or assuming a liability."[52] In the same vein, the CRA has stated that "bartering consists of trading by exchanging one commodity for another" and that "a barter transaction is effected when any two persons agree to a reciprocal exchange of goods or services and carry out that exchange usually without using money."[53] Accordingly, two elements must exist for a transaction to be characterized as a barter transaction: (1) the parties must

agree to a reciprocal exchange of goods or services, and (2) they must carry out the exchange of such goods or services without using money.

Normally, the element of reciprocity in bartering involves the expectation that the goods or services exchanged are prima facie of equal commercial value. In *Miller*, the Tax Court relied on the principle, articulated by the House of Lords in *Westminster Bank*,[54] that a barter transaction involves a "*probability* that articles exchanged in the way of trade would *prima facie* be of equal commercial value."[55] The CRA, for its part, seems to have acknowledged this principle, and may even have elevated it beyond a mere "probability" by stating that "*it is a fundamental principle* that each of those persons considers that the value of whatever is received is at least equal to the value of whatever is given up in exchange therefor."[56]

However, in the same interpretation bulletin, the CRA also stated that

> [i]n the case of services bartered by a taxpayer for either goods or services, the value of those services must be brought into the taxpayer's income where they are of the kind generally provided by him in the course of earning income from, or are related to, a business or a profession carried on by him. . . .
>
> In the case of goods bartered by a taxpayer for either goods or services, the value of those goods must similarly be brought into the taxpayer's income if they are business-related.[57]

Moreover, the CRA stated the following:

> In arm's length transactions, where an amount must be brought into income or treated as proceeds of disposition of capital property, that amount is the price which the taxpayer would normally have charged a stranger for his services or would normally have sold his goods or property to a stranger. The cost of the services, goods or property received by him is the same amount as the total value of the goods, property or services given up, plus any cash given as part of the barter, and minus any cash received as part of the barter.[58]

This view appears to be founded in the jurisprudence. In *D'Auteuil Lumber*,[59] Jackett P had to determine the cost to the appellant of certain rights to cut timber that it acquired from the province of Quebec in consideration for (1) a release of its rights against the province in respect of the expropriation of a portion of another timber limit and (2) its transfer of another timber limit to the province. The appellant argued that the cost should be the value of the timber limits that it acquired, and the minister argued that the cost should be the value of what was given to the province for the limits acquired. Jackett P concluded that the cost of the rights acquired by the appellant should be the value of what it gave up to get them. In arriving at this conclusion, he referred to the following hypothetical situation:

> As it seems to me, if A conveys Blackacre to B in exchange for a conveyance by B to A of Whiteacre, the cost of Whiteacre to A is the value of Blackacre (being what he gave up to get Whiteacre) and the cost of Blackacre to B is the value of Whiteacre (being what he gave up in order to get Blackacre). Assuming both parties were equally skillful in their bargaining, *there is a probability that the values of the two properties are about the same but this does not mean that A's "cost" is the "value" of what he acquired or that B's "cost" is the "value" of what he acquired*. This is established if we assume that some element of generosity or sentiment entered into A's motivation and that, knowing that Blackacre was worth twice the value of Whiteacre, he nevertheless made the exchange. In that event, the cost to him of acquiring Whiteacre would be the value of Blackacre (what he gave up) and twice the value of Whiteacre (what he acquired).[60]

Similarly, in *Donovan*,[61] a shareholder benefit case in which the Tax Court had to determine the benefit to the individual taxpayer from his free use of a Florida residence that he had transferred to a family corporation, Teskey J considered the issue of barter in his analysis, stating that "the value of the benefit is what the shareholder receives and not the cost of the benefit to the corporation."[62]

Thus, in light of the jurisprudence, it appears that barter transactions may in fact lead to a mismatch in treatment between the two parties to the transaction, given that the cost to one party of participating in the transaction need not necessarily reflect the value of what that party receives. If this interpretation is true, this mismatch could lead to uneven results in the context of bitcoin-denominated transactions, especially given the historic volatility of bitcoins.

Assume, for example, that John, an office equipment dealer, sells a new high-definition printer to Olivier, who plans to use the printer in his business. Consideration for the sale is 1 bitcoin. Assume also that the printer would normally be sold for $900, and that the value of 1 bitcoin at the time that the sales contract was concluded was $900 but had fallen to $500 at the time that title to the printer passed.

According to the CRA's interpretation, it appears that John would have to include $900 in his income, because this is the price he would normally have charged a stranger. However, the value (in Canadian-dollar terms) of the actual consideration received by John is only $500. Olivier receives a good that is worth $900, but its cost to him is only worth $500 in Canadian-dollar terms, because this is the value of what he gave up in the transaction.

Although it may be possible to diminish the negative effects of this mismatch,[63] it clearly deviates from the basic principle that the purchaser's cost should normally equal the vendor's proceeds of disposition. If the transaction in the example was treated as a regular sale denominated in foreign currency, no mismatch would arise: the proceeds to John would be 1 bitcoin and the cost to Olivier would be 1 bitcoin. For Canadian tax purposes, both John and Olivier would be required to recognize the transaction at the same time and in Canadian-dollar terms.

Summary: Clarification Required

On balance, general principles under the ITA do not provide a consistent framework for the income tax treatment of Bitcoin. If Bitcoin and other cryptocurrency systems become increasingly pervasive, Parliament will need to develop precise and comprehensive rules to govern them and to ensure that taxpayers can clearly understand the rationale for these rules and how to comply with them. Specifically, an examination of the use of cryptocurrencies as a form of money would assist Parliament in determining whether other taxation rules—such as those that apply to foreign currencies—should also apply to cryptocurrencies.

Sales Tax Treatment of the Bitcoin

The CRA's Position

The CRA has issued rather minimal guidance to date on the GST/HST implications of transacting in bitcoins.[64] It should come as no surprise that if a person[65] is engaged in a commercial activity that consists of selling goods or services and is a registrant,[66] the CRA considers that the acceptance of bitcoins in exchange for such goods or services does not change the basic requirement to collect GST/HST in respect of taxable supplies. In such situations, the CRA takes the position that the amount of GST/HST to be collected is based on the FMV of the bitcoins paid.[67] The CRA also considers that if the recipient of the supply is a registrant and purchased the goods or services for consumption, use, or supply in a commercial activity, the recipient can claim an input tax credit for the GST/HST paid.

The CRA's published positions with respect to income tax are more detailed than its published positions with respect to the GST/HST implications of transacting in bitcoins, which do not (to date) go much beyond the positions we have summarized above. This leaves certain key questions unanswered, particularly with respect to conversions of conventional currencies to bitcoins (that is, purchases and sales of bitcoins themselves). In our view, the following questions should be specifically addressed:

- Should Canadian Bitcoin ATM and online exchange operators register under the ETA and charge GST/HST? In other words, do bitcoins constitute "money" for the purposes of ETA subsection 123(1)?[68]
- Is the mining of bitcoins a taxable supply?
- Are transaction fees received in consideration for taxable supplies?
- Are traders in bitcoins or other cryptocurrencies required to collect and remit GST/HST?
- What method of valuation of bitcoins is most appropriate in the context of a taxable supply?

We propose to address these questions below. Although GST is not the central focus of this paper, certain fundamental GST concepts are briefly reviewed in

order to establish a proper framework for an examination of the GST/HST treatment of bitcoin-denominated transactions.

Basic Concepts Relating to the GST

ETA subsection 165(1) provides the basic charge to tax with respect to the GST:

> Subject to this Part, every recipient of a taxable supply made in Canada shall pay to Her Majesty in right of Canada tax in respect of the supply calculated at the rate of 5% on the value of the consideration for the supply.

Under ETA subsection 123(1), a "taxable supply" is defined as "a supply that is made in the course of a commercial activity"; a "commercial activity" is defined as follows:

> "commercial activity" of a person means
>
> (a) a business carried on by the person (other than a business carried on without a reasonable expectation of profit by an individual, a personal trust or a partnership, all of the members of which are individuals), except to the extent to which the business involves the making of exempt supplies by the person,
>
> (b) an adventure or concern of the person in the nature of trade (other than an adventure or concern engaged in without a reasonable expectation of profit by an individual, a personal trust or a partnership, all of the members of which are individuals), except to the extent to which the adventure or concern involves the making of exempt supplies by the person, and
>
> (c) the making of a supply (other than an exempt supply) by the person of real property of the person, including anything done by the person in the course of or in connection with the making of the supply.

A "recipient" is defined as follows:

> "recipient" of a supply of property or a service means
>
> (a) where consideration for the supply is payable under an agreement for the supply, the person who is liable under the agreement to pay that consideration,
>
> (b) where paragraph (a) does not apply and consideration is payable for the supply, the person who is liable to pay that consideration, and
>
> (c) where no consideration is payable for the supply,
>
> (i) in the case of a supply of property by way of sale, the person to whom the property is delivered or made available,
>
> (ii) in the case of a supply of property otherwise than by way of sale, the person to whom possession or use of the property is given or made available, and
>
> (iii) in the case of a supply of a service, the person to whom the service is rendered,

> and any reference to a person to whom a supply is made shall be read as a reference to the recipient of the supply.

The Definition of "Money" Under the ETA

The ETA provides a definition of the term "money" at subsection 123(1):

> "[M]oney" includes any currency, cheque, promissory note, letter of credit, draft, traveller's cheque, bill of exchange, postal note, money order, postal remittance and other similar instrument, whether Canadian or foreign, but does not include currency the fair market value of which exceeds its stated value as legal tender in the country of issuance or currency that is supplied or held for its numismatic value;

The first aspect of note is that this definition is not exhaustive. It includes such things as currency, bills of exchange, money orders, and similar instruments. This suggests that an instrument does not have to constitute currency in order to be considered "money." Second, the definition also specifically excludes currency that is held for its numismatic value or whose FMV exceeds its stated value (that is, collectors' money). Third, although the term "currency" is not defined under the ETA, the definition of "money" reflects a traditional view of a currency as having a "country of issuance."

The Supply of Financial Services

The supply of financial services is generally treated as exempt under part VII of schedule V of the ETA, unless the services are specifically zero-rated under part IX of schedule VI (that is, exported financial services, supplies of precious metals by refiners, and certain insurance supplies involving a non-Canadian aspect). The exemption is not random. There are fundamental policy considerations in exempting financial services from a value-added tax. In the 1987 white paper on sales tax reform,[69] which first introduced Canadians to the GST, the minister of finance described the following policy aspects of taxing financial services:

> Financial services provided by financial institutions are similar to services provided by other sectors of the economy. They require the use of labour and capital resources and are charged to users in a variety of ways. They include intermediation services provided by a bank in serving as a link between borrowers and lenders, or the service provided by an investment dealer in assisting its clients in buying and selling securities. *In the case of non-financial businesses, however, dealings in financial instruments represent their savings and investment activities rather than financial intermediation. Since a multi-stage tax is a tax on consumption and not on savings, these financial and investment activities of non-financial businesses should not be taxed*. . . .

> The definition of financial instruments *will include items such as currency. . . . The definition of financial instruments will be very broad to ensure that non-financial businesses will be exempt on all of their financial activities*.[70]

The main conclusion to be drawn from this is that, as a policy matter, the GST is not designed to tax the savings or investment activities of non-financial businesses. It seems perfectly logical not to tax such things, because it is difficult to see how value can be added to financial instruments (or to money) along a supply chain. In a pure money-exchange transaction (for example, a purchase of Canadian dollars that uses US dollars), the seller's input (the Canadian dollars) is invariably the same as its output and can never be improved, irrespective of the amount of labour or capital applied to it. Conversely, a value-added supply of goods involves "the use of labour and capital resources" applied to the goods to transform or improve them.

It is in the context of these policy considerations that the definition "financial service" in ETA subsection 123(1) includes (and therefore exempts from GST) "(a) the exchange, payment, issue, receipt or transfer of money, whether effected by the exchange of currency, by crediting or debiting accounts or otherwise," but of course specifically excludes "(n) the payment or receipt of money as consideration for the supply of property other than a financial instrument or of a service other than a financial service."

The foregoing discussion provides a basic framework for the analysis of the main bitcoin-denominated transactions occurring today. For a more in-depth analysis of financial services under the ETA, a number of excellent reference papers can be found in publications of the Canadian Tax Foundation.[71]

From the foregoing definitions, it can be seen that the determination of whether bitcoins constitute money or currency is central to the determination of whether a particular bitcoin-based supply is taxable or an exempt financial service. The inclusive nature of the definition of "money" under ETA subsection 123(1) requires an analysis of other sources to ascertain the ordinary meaning of the term.

Moreover, although the ETA's definition of "money" may disclose an underlying assumption that a currency has a country of issuance, it is reasonable to assume that at the time of the enactment of the ETA, Parliament could not have conceived of a decentralized virtual cryptocurrency system. Whether a currency has a country of issuance should accordingly be a neutral point in determining whether bitcoins are currency for ETA purposes.

As our analysis has suggested, it is our view that the Bitcoin system as a whole appears to satisfy the basic requirements of a currency, and that bitcoins, whose volatility appears to have decreased, may eventually become sufficiently accepted as a means of exchange and unit of account that it may become recognized as "money." It is also worth noting that if one or more countries were to consider the Bitcoin system as an official currency, this fact could sway a court's opinion in this regard.

Most importantly, the policy considerations of an exempt financial service system, as set out in the GST white paper, should be kept in mind as part of a textual, contextual, and purposive interpretation of the definition "money" under ETA subsection 123(1). In our view, whether or not one considers that bitcoins are currency or some other form of money, it is not possible to add value to bitcoins—much like money or currency. In addition, treating bitcoins like any commodity will give rise to an undue layer of taxation. Compare the two following examples:

> *Example 1*: John, a Canadian resident, has US$1,000 and wants to purchase a television at a big-box store in Canada. He exchanges his US dollars for Cdn$1,200 and uses the Canadian dollars to purchase a television.
>
> *Example 2*: Olivier, a Canadian resident, has 4 bitcoins and wants to purchase a television at a big box-store in Canada. He exchanges his bitcoins for Cdn$1,200 and uses the Canadian dollars to purchase a television.

These two very similar examples involve two supplies: a currency conversion and a taxable supply of a television. The distinction is that if bitcoins are neither money nor currency for ETA purposes, Olivier will be taxed twice and his purchasing power (that is, his *savings*—to use a term from the GST white paper) will be unduly depleted. In our view, these contrasting examples illustrate the policy need to treat bitcoins the same as any foreign currency for the purposes of the ETA.

Remaining GST/HST Issues

With the foregoing in mind, we now address some further significant GST/HST questions.

The Use of Traditional Currencies To Purchase Bitcoins

If bitcoins are money or currency, the purchase of bitcoins using Canadian dollars or other traditional currencies should be exempt as a "financial service" under the ETA. The determination of whether operators of Bitcoin ATMs are engaged in a commercial activity for ETA purposes, as opposed to the making of exempt supplies, should follow the same logic.

The Mining of Bitcoins

One interesting aspect of the mining of bitcoins is that it is the supply of a service consisting of providing computing power to the entire Bitcoin network, with no particular recipient, even if a recipient is identifiable and the service is actually rendered in Canada as part of a commercial activity. Indeed, given the definition of "recipient" in ETA subsection 123(1), it is difficult to identify a person on

whom the tax would be charged: no particular person is liable to pay any consideration. Even if one assumes that the mining reward constitutes consideration for the service, it simply comes into existence within the software. If the reward does not constitute consideration, and setting aside the fact that there would generally be no tax under subsection 165(1), one concludes that the service is rendered to all users of the Bitcoin network, none of whom are readily identifiable. In practice, it seems that the imposition of GST under general principles would be quite difficult and would have very tenuous bases under the ETA. Fundamentally, however, because the mining of bitcoins can constitute a business and therefore a "commercial activity," it would be reasonable to enact a rule deeming a self-supply of the mining service for consideration equal to the mining reward when the service is rendered in the course of a commercial activity.

Transaction Fees

A bitcoin miner earns transaction fees in exchange for the service of confirming a payment by a third party within the network. Such fees could be seen as fees charged for the service of arranging for the transfer of money, such that under paragraphs (a) and (i) of the definition of "financial service" under subsection 123(1) of the ETA, bitcoin mining would constitute a financial service. If this service constituted a taxable supply rather than a financial service, it would be rather problematic, because it would require miners to (1) identify the recipients of the service in order to collect GST/HST, and (2) determine whether the service is rendered in Canada. This requirement would unduly burden Canadian bitcoin miners who out of an abundance of caution would choose to remit the maximum rate of HST (and even some arbitrary component of QST) without ever being able to collect GST/HST from the recipients of their service. Such a result would, in our view, be absurd.

Trading in Bitcoins

If bitcoins are money or currency, the trading of bitcoins on exchanges, whether for other cryptocurrencies or for traditional currencies, should be exempt as a "financial service" under the ETA. Operators of bitcoin exchanges, much like operators of currency exchanges, should also logically be considered to be engaged in the provision of financial services, such as "arranging for" the exchange of money.

The Appropriate Valuation of Bitcoins in the Context of a Taxable Supply

If bitcoins are used as consideration for a taxable supply, one must keep in mind that the GST is imposed on the "value of the consideration for the supply" under subsection 165(1) and that the value of bitcoins can vary from one exchange to the next (depending on the volume of transactions in each particular exchange) and, much like the value of any currency, can fluctuate throughout the day. We

propose that registrants who accept bitcoins as consideration for taxable supplies should choose a reasonable valuation method (for example, an averaging of midday values across a number of high-volume exchanges) and use that method consistently. For greater consistency, predictability, and fairness, it would be desirable for the CRA to publish a valuation guide for bitcoin-denominated transactions generally.

Summary: GST/HST Treatment of Bitcoin

On balance, the ETA, as it currently stands, does not provide a clear and predictable framework for the application of the GST/HST to common bitcoin-based transactions. Our proposed analysis is firmly rooted in the context and purpose of the GST as a multi-stage tax; however, there is simply no substitute for a clear legislative framework. If and when Bitcoin and other cryptocurrency systems gain prevalence, it will progressively become more apparent that Parliament needs to enact targeted amendments to the ETA. Although the CRA may take more specific positions, and the courts may or may not confirm such positions over time, it would be desirable for Parliament to pre-empt these developments and address cryptocurrencies simply and logically within the ETA.

Conclusion

Unlike many other legislative fields, tax law is in a perpetual state of evolution as Parliament works constantly to make the Canadian tax system more predictable, fair, and reflective of present-day economic realities. Thus, although the evolution of the legal framework is often largely based on case law, the tax framework in Canada evolves from a healthy mix of legislative intervention and judicial interpretation (which is sometimes even followed by legislative correction).

The Bitcoin system may not ultimately bring the revolutionary change that it seems to portend. Nonetheless, where there is money to be made, there is tax to be levied. And where the available tax rules are rooted in past perceptions of what "money" is, the courts have broad latitude in determining what is just. Ultimately, tax authorities and parliamentarians may not be happy with the judicial interpretations that stem from the current framework. In the interim, taxpayers are left without a set of predictable rules to abide by, and tax practitioners have only their best guesses to offer as advice. It is therefore our view that Canada would benefit from being the first country to adopt a specific framework integrating cryptocurrency transactions into its tax system.

Notes

1 RSC 1985, c. 1 (5th Supp.), as amended.

2 RSC 1985, c. E-15, as amended.

3 We have tried to distill a variety of literature on the Bitcoin system in a way that, we hope, is clear to tax professionals. For those who want to undertake a more in-depth analysis of the

Bitcoin system, the following papers are useful primers: Satoshi Nakamoto, "Bitcoin: A Peer-to-Peer Electronic Cash System" (2008) (bitcoin.org/bitcoin.pdf) (colloquially known as "the bitcoin white paper"); Eric Spano, "Bitcoin: A Canadian Taxation and Financial Reporting Perspective" (sent to us by its author but also available at bit.ly/1P59aVr); and Allison Nathan, "All About Bitcoin," *Top of Mind*, issue 21, March 11, 2014, 1-3 (bit.ly/1BEmB6Y).

4 See Laurie Law, Susan Sabett, and Jerry Solinas, *How To Make a Mint: The Cryptography of Anonymous Electronic Cash* (Washington, DC: National Security Agency Office of Information Security Research and Technology, Cryptology Division, June 1996) (bit.ly/1A7IfUY).

5 While the focus of this paper is on the Bitcoin system, we believe that the tax considerations do not currently vary from one Bitcoin-based cryptocurrency to another. Nevertheless, when one is considering tax consequences for a cryptocurrency other than Bitcoin, it would be wise to gain a thorough understanding of that cryptocurrency in order to ascertain whether its distinctions from the Bitcoin system are significant enough to yield different tax consequences.

6 See Nakamoto, supra note 3.

7 The system is designed to increase the difficulty of such problems over time. At the inception of the Bitcoin system, one could reliably use an ordinary laptop to mine. Now, however, the complexity of the problems to be solved is such that bitcoin miners must either deploy very significant (and costly) mining-specific hardware or pool resources with other miners in order to reliably receive rewards.

8 This amount is set to decrease over time.

9 See the discussion below regarding transaction mechanics.

10 A theoretical weakness of the Bitcoin network arises if a single user or group controls more than half of the computer power of the entire network. Such a user or group could theoretically falsify the ledger and ascribe the ownership of all bitcoins to itself. It is commonly accepted that in light of the current computing power of the Bitcoin network, this risk is unlikely to materialize. However, this hypothesis does not appear to have been reliably tested, and the computing capacity of the world's various governments is unknown.

11 For example, electricity costs, the cost of the equipment itself, and maintenance costs.

12 Although there may be a general consensus that such a measure is (or will become) required, the manner in which to implement it is the subject of much debate. One key issue is whether, if increased transaction fees are paired with an increased number of blocks (described below) or transactions per block, those fees will increase to a point where some users may be priced out of the system altogether. See Kadhim Shubber, "Gavin Andresen: Rising Transaction Fees Could Price Poor Out of Bitcoin," *CoinDesk*, May 16, 2014 (bit.ly/1lxDENU).

13 Although our purpose in this paper is not to delve into the minute details of various classes of cryptographic algorithms, the US National Institute of Standards and Technology describes this as follows:

> Asymmetric key cryptography, also known as public key cryptography, uses a class of algorithms in which Alice has a private key, and Bob (and others) have her public key. The public and private keys are generated at the same time, and data encrypted with one key can be decrypted with the other key. That is, a party can encrypt a message using Alice's public key, then only Alice, the owner of the matching private key, can decrypt the message.

See Richard Kuhn, Vincent C. Hu, W. Timothy Polk, and Shu-Jen Chang, *Introduction to Public Key Technology and the Federal PKI Infrastructure*, SP 800-32 (Gaithersburg, MD: National Institute of Standards and Technology, February 2001) (1.usa.gov/1QTVxII), at 11. Broadly speaking, the term "asymmetric" stems from the use of different keys to perform these opposite functions. This differs from conventional ("symmetric") cryptography which relies on the same key (a.k.a. password) to perform both.

14 This ledger reflects a transfer from address A to address B. As these addresses are strings of numbers and letters, the ledger is considered pseudonymous.

15 CRA document no. 2013-0514701I7, December 23, 2013.

16 CRA document no. 2014-0525191E5, March 28, 2014.

17 *Stewart v. Canada*, 2002 SCC 46. In this case, the court distinguished a business activity from a hobby, stating that "in order for an activity to be classified as commercial in nature, the taxpayer must have the subjective intention to profit" and there must be evidence of "business-like behaviour" that supports that intention (ibid., at paragraph 54).

18 CRA document no. 2014-0561061E5, April 16, 2015.

19 Although the CRA did not explicitly state that it does not consider Bitcoin to be money, this conclusion is inescapable given its further statement that barter rules apply to Bitcoin transactions. By definition, a barter occurs when two parties agree to a reciprocal exchange of goods or services and carry out that exchange without using money.

20 Bank of Canada, "Decentralized E-Money (Bitcoin)," *Bank of Canada Backgrounders*, April 2014 (bit.ly/1RGHxk8), at 1-2.

21 Bradley Crawford, *Payment, Clearing and Settlement in Canada*, vol. 1 (Aurora, ON: Canada Law Book, 2002), at 40.

22 *Merriam-Webster Online Dictionary* (www.merriam-webster.com).

23 Ibid.

24 Bank of Canada, "What Is Money?" *Bank of Canada Backgrounders*, July 2012 (bit.ly/1LBTuIY), at 1.

25 Ibid.

26 *Halsbury's Laws of England*, vol. 49 (Markham, ON: LexisNexis Canada, 2008), at paragraph 1276.

27 *Moss v. Hancock*, [1899] 2 QB 111, at 116. For an earlier iteration of this principle under English law, see *Miller v. Race* (1758), 97 ER 398, at 401 (KB), in which Lord Mansfield stated, with respect to banknotes, that

> they are not goods, not securities, nor documents for debts, nor are so esteemed: but are treated as money, as cash, in the ordinary course and transaction of business, by the general consent of mankind; which gives them the credit and currency of money, to all intents and purposes. They are as much money, as guineas themselves are; or any other current coin, that is used in common payments, as money or cash.

28 The *Uniform Commercial Code* (Philadelphia and Chicago: American Law Institute and the National Conference of Commissioners on Uniform State Laws, 2012), at article 1-201(24), specifically defines "money" as meaning "a medium of exchange authorized or adopted by a domestic or foreign government. The term includes a monetary unit of account established by an intergovernmental organization or by agreement between two or more countries."

29 *Reference Re Alberta Statutes—The Bank Taxation Act; The Credit of Alberta Regulation Act; and the Accurate News and Information Act*, [1938] SCR 100.

30 Ibid., at 116.

31 Currency Act, RSC 1985, c. C-52, as amended, section 3(1).

32 Ibid., section 3(2).

33 See supra note 21, at 24.

34 *Miller*, supra note 27, at 401.

35 See supra note 26, at paragraph 1278.

36 Ibid.

37 *Wright v. Reed* (1790), 100 ER 729 (KB).

38 It bears noting that Canada may generally have been subject to the English rules on money and currency following the Royal Proclamation of 1763.

39 Law Reform Commission of British Columbia, *Report on Foreign Money Liabilities* (Victoria: Queen's Printer for British Columbia, 1983), at 46-47 (herein referred to as "the LRCBC report").

40 Given the vast distance between the colonies and the "motherland," the plethora of currencies in circulation may have been due to shortages in official English coins.

41 See the LRCBC report, supra note 39, at 47.

42 Constitution Act, 1867, 30 & 31 Vict., c. 3, sections 91(14) and 91(20).

43 An Act To Establish One Uniform Currency for the Dominion of Canada, 34 Vict., c. 4 (herein referred to as "the 1871 Act").

44 1871 Act, section 1.

45 1871 Act, section 5.

46 See supra note 21, at 24.

47 Bank Act, SC 1991, c. 46, as amended, sections 60 and 61.

48 Bank of Canada Act, RSC 1985, c. B-2, as amended.

49 Royal Canadian Mint Act, RSC 1985, c. R-9, as amended.

50 The Department of Finance simply stated that " 'Foreign currency' means currency of a country other than Canada" and that this new definition "relate[s] to Canadian branches of authorized foreign banks." Canada, Department of Finance, *Legislative Proposals and Explanatory Notes on Taxation of Foreign Bank Branches* (Ottawa: Department of Finance, August 2000), at clause 25.

51 CRA document no. 2013-0514701I7, December 23, 2013.

52 *Miller v. The Queen*, 95 DTC 542, at 545 (TCC).

53 See *Interpretation Bulletin* IT-490, "Barter Transactions," July 5, 1982, at paragraphs 2-3.

54 *Westminster Bank Ltd. v. Osler* (1932), 17 TC 381 (HL).

55 *Miller*, supra note 52, at 546 (emphasis added).

56 Supra note 53, at paragraph 3 (emphasis added).

57 Ibid., at paragraphs 5-6.

58 Ibid., at paragraph 7.

59 *The D'Auteuil Lumber Co. Ltd. v. MNR*, 70 DTC 6096 (Ex. Ct.).

60 Ibid., at 6099 (emphasis added).

61 *A.S. Donovan v. Canada*, [1994] 1 CTC 2394 (TCC).

62 Ibid., at 2400.

63 For example, John may be able to mitigate his situation by immediately selling the bitcoin to a third party for $500, thus presumably realizing a business loss of $400 (the difference between the $900 cost to John of the bitcoin and its current value) to offset against his income inclusion of $900.

64 See CRA document no. 2013-051470lI7, December 23, 2013.

65 For GST/HST purposes, a "person" includes a broader range of entities than the term does in an income tax context. See the definition of "person" in ETA subsection 123(1), supra note 2.

66 That is, registered or required to register.

67 See CRA document no. 2013-0514701I7, December 23, 2013:

> In those transactions where a taxable supply of a good or service is made and the consideration for that supply is Bitcoins, the consideration for the supply is deemed to be equal to the fair market value of the Bitcoins at the time the supply is made for the purposes of determining the GST/HST payable for the supply.

68 The other requirements of carrying on a commercial activity are assumed in this context.

69 Canada, Department of Finance, *Tax Reform 1987: Sales Tax Reform* (Ottawa: Department of Finance, June 18, 1987).

70 Ibid., at 119-20 (emphasis added).

71 See, among others, Ray M. Resendes, "The GST and Financial Services," in *Report of Proceedings of the Forty-Second Tax Conference*, 1990 Conference Report (Toronto: Canadian Tax Foundation, 1991), 31:1-7; Satya Poddar and Morley English, "Financial Services Under the GST: 1992 Draft Amendments," in *Report of Proceedings of the Forty-Fourth Tax Conference*, 1992 Conference Report (Toronto: Canadian Tax Foundation, 1993), 43:1-26; and, for a more recent review, Danny Cisterna, "Financial Services: GST/HST Issues—What a Year It Has Been!" in *Report of Proceedings of the Sixty-Second Tax Conference*, 2010 Conference Report (Toronto: Canadian Tax Foundation, 2011), 12:1-59.