

Adviser alert – *IFRS Viewpoint – Accounting for crypto assets – mining and validation issues*

August 2018

Overview

The Grant Thornton International IFRS team has published *IFRS Viewpoint – Accounting for crypto assets – mining and validation issues*.

The *IFRS Viewpoint* series provides insights on applying IFRS in challenging situations. Each edition will focus on an area where the standards have proved difficult to apply or lack guidance.

This edition provides guidance on issues relating to miners and validators of blockchains, in particular accounting for transferred cryptocurrency earned by miners and validators in the form of transaction fees, as well as the accounting for newly created cryptocurrency by miners.

The issue

Currently, IFRS does not provide specific guidance on accounting for crypto assets. This *IFRS Viewpoint* seeks to explore the accounting issues that arise for miners and validators in mining and maintaining the blockchain in accordance with existing IFRS. It follows the earlier publication *IFRS Viewpoint – Accounting for cryptocurrencies – the basics*.

Resource

The publication *IFRS Viewpoint – Accounting for crypto assets – mining and validation issues* follows this *Adviser alert*.

About Raymond Chabot Grant Thornton

Raymond Chabot Grant Thornton LLP is a leading accounting and advisory firm providing audit, tax and advisory services to private and public organizations. Together with Grant Thornton LLP in Canada, Raymond Chabot Grant Thornton LLP has more than 4,200 people in offices across Canada. Raymond Chabot Grant Thornton LLP is a member firm within Grant Thornton International Ltd (Grant Thornton International). Grant Thornton International and the member firms are not a worldwide partnership. Services are delivered independently by the member firms.

We have made every effort to ensure the information in this publication is accurate as of its issue date. Nevertheless, information or views expressed herein are neither official statements of position nor should they be considered technical advice for you or your organization without consulting a professional business adviser. For more information about this publication, please contact your Raymond Chabot Grant Thornton / Catalaxy adviser.

IFRS Viewpoint

Accounting for crypto assets – mining and validation issues

What's the issue?

Currently, IFRS does not provide specific guidance on accounting for crypto assets. This IFRS Viewpoint seeks to explore the accounting issues that arise for miners and validators in mining and maintaining the blockchain in accordance with existing IFRS. It follows our earlier IFRS Viewpoint No.9 'Accounting for cryptocurrencies – the basics'.

Our 'IFRS Viewpoint' series provides insights from our global IFRS team on applying IFRSs in challenging situations. Each edition will focus on an area where the Standards have proved difficult to apply or lack guidance. This edition provides guidance on issues relating to miners and validators of blockchains, in particular accounting for transferred cryptocurrency earned by miners and validators in the form of transaction fees, as well as the accounting for newly created cryptocurrency by miners.

Relevant IFRS

IFRS 15 Revenue from contracts with customers
IAS 38 Intangible assets



The technology

Blockchains

A blockchain is a distributed ledger of transactions tracking the creation and transfer of cryptocurrencies or other crypto assets between online wallet addresses. The distributed ledger is maintained by software which runs on what are known as 'core nodes' – there are a significant number of these nodes worldwide. To maintain the distributed ledger, the network relies on widely dispersed nodes which perform the complex cryptographic calculations in order to verify transaction data occurring between the users of crypto assets, in the case of some crypto assets, increasing the overall supply in circulation. These nodes maintaining the blockchain network are operated by individuals and corporate entities; collectively referred to as 'miners' or 'validators'.

Miners and validators

Miners must either run a core node (solo mining) or contribute computing power to a pool which consolidates computing effort from many miners (pool mining). Miners compete to solve a cryptographic 'puzzle' by brute force¹ and to create a new block in the blockchain which consists of verified transactions initiated by the broader user population.

Validators, on the other hand, are individually selected to create a new block and verify transactions based on the proportion of cryptocurrency 'staked' against other validators. Validators therefore do not need to compete with one another using computing power but rather the amount of cryptocurrency they already hold.

Types of crypto assets

Some crypto assets typically take the form of cryptocurrencies which function only to serve as a form of virtual currency to be exchanged in return for cash, other crypto assets, goods or services. Other forms of crypto assets, such as those issued as part of initial coin offerings (ICOs), carry other rights such as rights to future goods or services or discounted future goods or services of the entity making the ICO.

In IFRS Viewpoint No.9 'Accounting for cryptocurrencies – the basics', we set out our view that holdings of cryptocurrencies are within the scope of IAS 38 'Intangible Assets' and should generally be accounted for in accordance with that Standard (in some circumstances it may be appropriate to account for them using the guidance for broker-traders in IAS 2 'Inventories'). Other crypto assets should be accounted for based on the specific rights they convey to the holder.

Miners or validators connect their computing hardware to the blockchain network using specially designed software, which works to continuously maintain the network. Miners and validators need to be compensated for the cost of their efforts to maintain the blockchain. As a reward, miners and validators receive transactions fees in the form of cryptocurrencies transferred from the transacting parties.

Depending on the particular blockchain algorithm, a miner might also receive a block reward, therefore increasing the overall supply of that particular cryptocurrency in circulation.

Transaction fees

The transaction fee is a reward earned by a miner or validator for processing and validating transaction data in the blockchain. It is paid in the form of a transfer of cryptocurrency from the transaction initiator. The amount is stipulated by the transaction initiator when proposing the transaction for validation. When a miner or validator creates a block, they are entitled to specify where all the fees paid by the transactions in that block should be sent; usually they would transfer the transaction fees to themselves.

Block reward

In a proof of work algorithm, new cryptocurrency is added to the total supply in circulation every time a new block is created by a miner. The blockchain algorithm specifies the amount of block reward created for each new block, which usually decreases over time as the total number of blocks in the blockchain increases. When a miner creates a block, they are entitled to specify where all the block reward should be sent; usually they would transfer the block reward to themselves.

¹ Refers to a programming style that does not include any shortcuts to improve performance, but instead relies on sheer computing power to try all possibilities until the solution to a problem is found.

Framework for determining the appropriate accounting treatment

With the current lack of clear guidance, there is likely to be a large amount of diversity in practice as to what alternative accounting treatments may be acceptable for crypto assets and in particular cryptocurrencies. Furthermore, as the use of blockchain technology evolves, more specific guidance is issued, and more standardised industry practice is established there may be changes in the current thinking around acceptable accounting treatments.

Until further specific guidance is issued it is necessary to obtain a detailed understanding of the particular type of cryptocurrency and use of blockchain being considered. Therefore, we recommend following a framework to determine the most appropriate accounting treatment.

The framework should consist of the following steps:

- **Step 1** – Understand the blockchain environment the entity is operating in
- **Step 2** – Understand how the entity operates (solo or in a pool)
- **Step 3** – Understand the rights associated with the particular cryptocurrency (or crypto asset)
- **Step 4** – Apply existing IFRSs to the specific facts and circumstances based on the understanding obtained above



Step 1 – Understand the blockchain environment the entity is operating in

Blockchain technology operates using either a proof of work or proof of stake algorithm. Each has specific characteristics which dictate how an entity is selected to create a new block and how it will be rewarded for maintaining the distributed ledger.

Proof of work

Blockchain network participants compete against each other using sheer computing power (brute force) to solve a complex mathematical algorithm, and in doing so validate transactions and create a new block in the blockchain. Once a miner solves the algorithm, it communicates its proof of work to the rest of the mining network who validate it and start working to compete for the next block in the blockchain.

In return for creating the block and validating the transactions, the miner receives transaction fees and a predetermined number of newly created cryptocurrency units (block reward). As new cryptocurrency is created on solving a block the participants are referred to as “miners”.

The greater the proportion of computing power a miner has relative to the total mining network, the greater that miner’s probability of solving the hash function and creating the new block first, thus earning the block reward and transaction fees. As the miners are competing against one another this form of blockchain maintenance requires significant amounts of computing power and therefore high hardware and energy input costs. Fees alone are not sufficient to compensate the miners and therefore the algorithm offers the miner an additional block reward.

Proof of stake

Network participants “stake” their currently held cryptocurrency to be selected to validate transactions and create a new block in the blockchain. In general, under this algorithm, the greater the proportion of cryptocurrency held and staked against the total amount staked by all participants, the greater the chances of being randomly selected to validate a block and earn fees. For example, if there were only two participants, one who staked 6 units of cryptocurrency and one who staked 4 units, their probabilities of being randomly selected by the system would be 60% or 6/10, and 40% or 4/10 respectively. No new cryptocurrency is created and therefore participants are referred to as “validators”. The selected participant earns transaction fees for validating the block. If a selected validator validates a fraudulent transaction or does not complete the validation they forfeit a portion of their initial stake.

As only one validator is selected to validate new blocks in the blockchain, significant amounts of computing power are not required, thus the cost drivers for validators are generally the cost of internet fees and data storage. This therefore results in a lower return required by validators, hence no block reward is required.

Proof of Stake is typically applicable to blockchains where the cryptocurrency has already been pre-mined and the total supply is already in circulation. This ensures validators have access to the cryptocurrency required to make a stake. Therefore, the overall supply of cryptocurrencies in circulation is generally fixed from its inception.

There are additional advantages and disadvantages, not mentioned above, of each of the algorithms discussed and some blockchain networks which currently operate using a proof of work algorithm are switching or considering switching from a proof of work algorithm to a proof of stake algorithm due to the high cost inputs and environmental impact of proof of work algorithms.



Step 2 – Understand how the entity operates (solo or in a pool)

Proof of work

If the entity is a proof of work miner, it is necessary to determine whether they operate individually or in a pool. This helps determine how to account for the different forms of return, specifically the block reward.

Mining pools

As the blockchain grows, more computational power is required to solve the hash function. It therefore becomes harder to mine individually and so miners pool together, combining their computing resources to create a block quicker. In these cases, the amount of cryptocurrency received from mining a block, ie the block reward and sometimes the transaction fees, are shared between the pooling miners and the pool operator. However, the volatility of returns is greatly reduced as the increased computing power of the pool results in a higher probability of solving more cryptographic hash functions than if the individual miner attempted to solve a block on their own. In other words, the rewards are lower overall but more frequent.

Proof of stake

Proof of stake validating does not require extensive computing power and therefore validators almost exclusively operate individually, however the considerations below would apply equally to validators operating in a pool as discussed above.

Step 3 – Understand the rights associated with the particular cryptocurrency (or crypto asset)

Not all crypto assets carry the same rights. For example, some carry a right to transfer to another party the particular crypto asset, these usually take the form of a virtual currency whose value in fiat currency is driven by market sentiment and the perceived value of the crypto asset (eg Bitcoin, Litecoin, and Ethereum).

Other crypto assets, often referred to as ‘tokens’ or ‘utility tokens’, for example those issued in ICOs, typically carry other rights which might, for example, entitle the holder to redeem the crypto asset for future services or services at a discounted value. These types of crypto assets typically ‘piggy back’ on mainstream established blockchain networks designed for the purpose of storing contract information (smart contracts) rather than acting as pure virtual currencies discussed above. This means that the mining or validating process still occurs following the mainstream blockchain algorithm, and miners or validators are usually compensated in that blockchain’s own form of cryptocurrency.

Illustrative example

Entities embarking on ICOs may propose to use a blockchain in their business and so create a ‘coin’ or ‘token’ which they issue to initial subscribers. The coin or token provides the holder with a right to receive future goods or services (or discounted goods or services) that the entity is proposing to provide as part of its business plan. Many such entities utilise the capabilities of an existing blockchain network, such as Ethereum, which facilitates the blockchain needs, including token issuance, required by the issuer to fulfill its proposed business model. This enables the transaction data for the entity and its customer transactions, facilitated through the purchase and exchange of the coins or tokens it issues, to be verified as part of a blockchain by miners on the Ethereum network. These miners are compensated in the Ethereum based cryptocurrency, called Ether.

While this Viewpoint does not seek to discuss the accounting for the holder of a cryptocurrency asset (see instead IFRS Viewpoint No.9 ‘Accounting for cryptocurrencies – the basics’), it is important to understand the rights attached to the crypto assets being received by the miner or validator to determine the appropriate accounting for their receipt.

Step 4 – Apply existing IFRSs to the specific facts and circumstances based on the understanding obtained above

Transaction fees

Both miners and validators operating under a proof of stake algorithm earn transaction fees in the same way and thus this guidance applies equally to both.

Applying IFRS 15

The first stage in the revenue model in IFRS 15 is to establish whether there is a contract with a customer. Absent a contract with a customer, IFRS 15 does not apply and any inflows of economic resources would not be described as revenue. There is no explicit contract between the party initiating a cryptocurrency transaction and the individual miner/validator who ultimately verifies the transaction. However, due to the nature of the underlying blockchain algorithm and ecosystem, there is a common and binding understanding between the transaction initiator and the miners/validators that the miner/validator who solves the puzzle and creates the next block will be unconditionally entitled to the transaction fee of that transaction and the other transactions which it includes in that new block.

Our view

At the point in time a new block is created, there is a contract between the party initiating the transaction and the miner/validator who created it. The performance obligation is satisfied and the consideration is received. Revenue may therefore be recognised for the transaction fees, as at this point in time the miner/validator becomes unconditionally entitled to the transaction fees.

The transaction price under IFRS 15 is the amount of consideration the entity expects to receive for performing the promised services [IFRS 15.47]. In accordance with IFRS 15, the transaction price when settled in assets other than cash should be measured at the fair value of the asset [IFRS 15.66]. Additional information on some of the issues encountered in measuring crypto assets may be found in IFRS Viewpoint No.9 'Accounting for cryptocurrencies – the basics'

Accounting for the block reward

Under a proof of stake algorithm all cryptocurrency intended to be in circulation is already in circulation (pre-mined) and therefore validators do not earn a block reward. The guidance below is therefore only of relevance to miners operating on a proof of work algorithm.

Applying IFRS 15

Solo miners

IFRS 15.6 is specific in requiring there to be a counterparty to the contract who is a customer. There is no direct relationship between a customer and the miner when a block is created and the block reward is generated, ie there is no explicit contract for the block reward.

One argument may be that there is an implied contract between all the participants in the blockchain that have a shared understanding that the next miner to create a block will be awarded new cryptocurrency. In other words, the customer is the entire community participating in the blockchain. On this basis some would argue that new cryptocurrency on the writing of a block could be considered revenue.

Our view

No contract can exist with the participant community as a whole in accordance with IFRS 15. This is because under such an implied contract, there are no enforceable rights and obligations which may be enforced against any individually identifiable parties. Therefore, the requirements of IFRS 15.9(b) are not met. This can be contrasted with our view taken above on transaction fees, whereby at the point the block is created, there is a clearly identifiable customer who is paying the transaction fee. With a block reward there is never a clearly identifiable customer even when the block is created.

Other income

If the newly created cryptocurrency cannot be recognised as revenue under IFRS 15, it nevertheless represents an inflow of economic benefit in the form of an increase in assets. Provided it can be reliably measured, in accordance with the Conceptual Framework, it can be recognised as other income within profit or loss and should be presented in a manner which is consistent with IAS 1 'Presentation of Financial Statements'.

IFRS 15.9(b):

“An entity shall account for a contract with a customer that is within the scope of this Standard only when all of the following criteria are met:

... (b) the entity can identify each party’s rights regarding the goods or services to be transferred”

Pools of miners

Miners in a pool will generally contract through standardised terms and conditions with pool operators to pay an administration fee to the operator for administering the pool. The pool fee often varies depending on the amount of risk taken on by the administrator. Risk arises from pool sharing ratios.

While some pools will payout purely based on computing power contributed to creating a specific block, with no payout for an Orphaned block², others may pay out based on contributed computational power irrespective of whether a block reward is earned by the pool. There are a number of different payout formulae used by various pools. The total return for solving a block is therefore reduced by the administration fee payable to the pool operator before being shared by the miners. The guidance in IFRS 15 relating to consideration payable to a customer [IFRS 15.70-72] should be considered in relation to accounting for the administration fee payable to the pool operator.

It is important to consider whether the substance of the pooling arrangement is that of provision of services to the pooling operator in return for consideration paid in the form cryptocurrencies, or whether it merely represents a sharing of transaction fees and block reward between solo miners operating some form of joint arrangement. The specific characteristics of individual pooling arrangements must be carefully analysed to determine the appropriate accounting treatment.

Our view

Different pooling arrangements are possible. For example, where a pooling arrangement is essentially a form of joint arrangement between the solo miners, it may be difficult to conclude that there is a contract to provide services to a pool. Instead it may be that there is a mere sharing of the block reward between joint venturers. In substance, the arrangement appears no different to that discussed above for a solo miner. Therefore, the accounting treatment will ultimately depend on the specific facts and circumstances surrounding a particular pooling arrangement and may require significant judgement. Where no contract exists that meets the requirements of IFRS 15.9, the return from the pool should be accounted for as if the entity were a solo miner as discussed above.

In circumstances when there is a contract between the miner and the pool operator which meets the requirements of IFRS 15.9, accounting for the total return from mining in accordance with IFRS 15 may be appropriate. In other words, as there is a contract between the miner and the pool operator in which the miner provides computing power in return for a share of the rewards of the entire pool, the payout from the pool can be regarded as revenue in accordance with IFRS 15.

An entity which operates in such a pool whereby they contractually provide their computational power in return for a share of the total mining return, will not distinguish between transaction fees and block rewards (see below). Rather the consideration for the services rendered should be assessed on a total return from mining basis.

A complication may arise regarding determination of the transaction price in accordance with IFRS 15. This is due to the variability in the consideration caused by the uncertainty of whether current computing power contributed will result in a solved block. IFRS 15 requires determination of the transaction price the entity expects to receive in exchange for transferring the promised good or service. In a pool mining situation, the amount the pool miner expects to receive is variable until such time as a block has been created by the pool.

It is therefore necessary to apply the two step approach in IFRS 15 to determining the amount of revenue to be recognised; first applying the guidance on variable consideration [IFRS 15.50-54] to determine an estimate and then applying the guidance on revenue constraints [IFRS 15.56-59]*. The revenue constraint might lead to no amount of revenue being recognised until a block has been created by the pool, on the basis that whether a block is created or not is outside the entity’s control.

*IFRS 15’s guidance on variable consideration and revenue constraints

Under IFRS 15.50-54, an entity estimates and includes variable payment amounts in the contract price using either a probability-weighted or most likely amount approach. This amount is further subject to a revenue constraint in IFRS 15.56-59, such that estimated amounts are included in the contract price only to the extent that it is highly probable that a subsequent change in the estimate will not result in a significant reversal of cumulative contract revenue recognised.

² Detached or Orphaned blocks are valid blocks which are not part of the main chain. They can occur naturally when two miners produce blocks at similar times or they can be caused by an attacker (with enough hashing power) attempting to reverse transactions.

Alternative views

Internally generated intangible asset

Some commentators argue that the mining of cryptocurrency represents the creation of an internally generated intangible asset. Accordingly, the requirements of IAS 38.57 need to be considered. The miner is inputting computing power, electricity and staff cost to build, or mine, an internally generated intangible asset, being the cryptocurrency. Therefore, no revenue or gain is recognised until the resulting cryptocurrency is subsequently sold.

IAS 38.57:

“An intangible asset arising from development (or from the development phase of an internal project) shall be recognised if, and only if, an entity can demonstrate all of the following:

- a the technical feasibility of completing the intangible asset so that it will be available for use or sale.
- b its intention to complete the intangible asset and use or sell it.
- c its ability to use or sell the intangible asset.
- d how the intangible asset will generate probable future economic benefits. Among other things, the entity can demonstrate the existence of a market for the output of the intangible asset or the intangible asset itself or, if it is to be used internally, the usefulness of the intangible asset.
- e the availability of adequate technical, financial and other resources to complete the development and to use or sell the intangible asset.
- f its ability to measure reliably the expenditure attributable to the intangible asset during its development”.

Our view

While our preferred views are discussed above, if a view is taken that no revenue or other income can be recognised and the transaction is considered to be development of an intangible asset, we do not consider that the requirements of IAS 38.57(f) will be met. IAS 38.57(f) requires that the cost attributable to the development of the intangible asset can be reliably measured.

The nature of competing against other miners to create the next block will result in it being difficult to specifically identify the cost incurred to create the block reward separately from the cost incurred on all previous unsuccessful attempts to create the next block, meaning that this criterion is not met.

Therefore, all costs associated with mining must be expensed as incurred and no revenue or gain is recognised until the resulting cryptocurrency is subsequently sold.

Looking forward

The world of cryptocurrencies, and more importantly the growth in the number of applications of the underlying blockchain technology, is evolving fast. This results in it being difficult to create a standardised taxonomy for crypto assets. In addition, with the current lack of clear guidance, there is likely to be a significant diversity in practice as to what alternative accounting treatments may be acceptable.

Therefore, while this viewpoint provides guidance on the general accounting considerations relating to the cryptocurrency mining industry, each specific situation should be assessed based on its own underlying facts and circumstances. Furthermore, as the use of blockchain technology evolves, more specific guidance is issued, and more standardised industry practice is established, there may be changes in the current thinking around acceptable accounting treatments. It is highly advisable then that consultation with your Grant Thornton advisor is sought in all situations.



Example

This example is included to provide an illustration of the above framework to our understanding of the popular Bitcoin cryptocurrency, and the accounting for a miner on its proof of work blockchain.

Bitcoin is a cryptocurrency secured by blockchain technology. The Bitcoin blockchain is a distributed ledger of transactions tracking the creation and transfer of Bitcoin between wallet addresses. The distributed ledger is maintained by a piece of software which runs on 'core nodes' – there are approximately 11,000 of these nodes worldwide. Miners must either run a core node ("solo mining") or contribute computing power to a pool which consolidates computing effort from many miners. Miners compete to solve the Bitcoin 'puzzle' by brute force and to create and lock a new block in the chain which consists of verified Bitcoin transactions initiated by the broader Bitcoin user population and a transaction paying them a reward:

- Bitcoin core nodes broadcast transactions and co-ordinate the assembly of each new block to be added to the chain, which represents the immutable distributed ledger
- the distributed ledger solves the dual spending problem³. A wallet balance in the ledger essentially represents a right to transfer value from one user's wallet to another. For example, X wants to send BTC3 (3 Bitcoins) to Y, he must have been provided a right to transfer that many Bitcoins from a previous transaction. Once the transaction is included in the chain of blocks it is not possible to delete or modify that transaction without rewriting all the blocks that have been created since then. A malicious attacker, Z, would need to possess >50% of the computing power on the Bitcoin network to invalidate and rewrite those blocks and this is what creates the intrinsic immutability of Bitcoin.

A transaction between X and Y consists of the following: Assume X previously received BTC4 in two transactions of BTC2 each. Each of those transactions has a name and are verified and cannot be altered as they already form part of a previous block in the chain.

- **Inputs:** X cannot merely take BTC3 out of his 'wallet' and transfer that to Y, he needs to use the rights he received from the previous two transactions to do so. Therefore, the two previous transactions which total BTC4 are the inputs together with conditions including a public and private key which are used by Y to ensure that she, and only she, can obtain those BTC3, and an instruction for a specified amount of 'change' to be sent back to X for the transaction.
- **Outputs:** after the transaction is included in a validated block in the blockchain the output is that Y then has a right to BTC3 and the 'change' is sent back to X. If there is a difference between the total value of inputs (BTC4) and the total value of outputs (BTC3 + change), this is automatically considered to be a 'transaction fee' available to the first miner to verify the transaction. For example, if the 'change' in the above transaction were 0.5BTC, the transaction fee would be the residual 0.5BTC. For transactions to be included in blocks verified by miners a fee must be included, normally measured in 'satoshi per byte' of the transaction. There are 100 million satoshi in one Bitcoin. The larger the fee the quicker the transaction is recognised and included in the blocks mined by the network.

³ The dual spending problem refers to the ability to spend the same money twice. A previous problem with digital money is that transactions could be copied and spent twice. The double spending problem is solved by implementing a confirmation mechanism and maintaining a universal ledger (called "blockchain"), similar to the traditional cash monetary system.

The Bitcoin software sends out a message about this transaction between X and Y being an unconfirmed transaction together with many other unconfirmed transactions. Miners take these unconfirmed transactions, together with many other values such as the previous block name and time stamps etc (input values) and run them through a cryptographic hash function (SHA-256) to arrive at a computed hash (output value) in order to try and 'solve a block' in the blockchain software and so verify those transactions and lock the 'block' from any future editing:

- each new block has a 'difficulty value'. If the hash determined by the miners is greater than the difficulty value, then the puzzle has not been solved and the miners continue to arbitrarily amend the input value by brute force and run the hash function until they arrive at a value which is smaller than the difficulty value
- if this hash is smaller than the difficulty value, then the problem has been solved and a new block is created. Once the problem is solved all transactions forming the input are verified, and the miner becomes entitled to the transaction fees for each transaction included in that block (see above), and are also rewarded with newly generated Bitcoins which are released (created) and act as a reward to the miners for solving the algorithm and creating and closing the new block
- in verifying the transactions, the miners create a special transaction with no inputs representing the transaction whereby they have obtained the transfer rights for the number of new bitcoins in the block, the Block reward. There are no inputs as these are newly created Bitcoins and so have no transaction history
- the difficulty value is adjusted approximately every 2 weeks to maintain the creation rate of blocks at one block per 10 minutes on average. The more computing power that is added to the Bitcoin network the harder the difficulty gets.

The number of Bitcoins created in each new block is currently 12.5 BTC. The Bitcoin block mining reward halves every 210,000 blocks. The next halving (to 6.25 BTC) is expected to occur in mid-2020. As the number of Bitcoins extracted out of each new block diminishes so the reward for mining decreases and so to incentivise miners the transaction fees required to verify transactions will need to increase over time.

Scenario 1 – Entity A is a solo miner

In our view, in accordance with IFRS 15, revenue may be recognised for the transaction fees, however as there is no contract in place with a customer to satisfy the requirements of IFRS 15.9, no revenue may be recognised for the block reward. It is our view, that the block reward may however be recognised as other income. At the time of writing, Bitcoin is an established frequently traded cryptocurrency and therefore the revenue and other income can be reliably measured at the rate of exchange for fiat currency quoted on various recognised cryptocurrency exchanges.

Scenario 2 – Entity A operates in a pool

Entity A operates in a pool with a contract setting out the rights and obligations of Entity A, as the miner, and the pool operator. The contract sets out the pool administration fee (2% of total block return) and the reward formula in which Entity A will receive a return of Bitcoin equal to the total block return less the 2% administration fee multiplied by the proportion of computing power it has contributed to the entire pool to create the new block. If no new block is created, no return is receivable.

As there is a contract in place between Entity A and the pool operator, revenue may be recognised in accordance with IFRS 15 for the contribution of computational power to the pool. The revenue should be measured at a value equivalent to the rate of exchange of Bitcoin to fiat currency at the point in time Entity A becomes unconditionally entitled to it (ie when a block is created).

Applying the guidance of IFRS 15 relating to 'consideration payable to the customer', the 2% administration fee is accounted for as a reduction of the transaction price (ie a reduction of revenue), as services provided by the pool operator are not considered to be a distinct good or service [IFRS 15.70]. Had the services provided by the pool operator been considered distinct, then the 2% administration fee would be recognised as a cost in line with any other standard supplier transaction [IFRS 15.71].



Grant Thornton

An instinct for growth™

grantthornton.global

© 2018 Grant Thornton International Ltd. All rights reserved.

'Grant Thornton' refers to the brand under which the Grant Thornton member firms provide assurance, tax and advisory services to their clients and/or refers to one or more member firms, as the context requires. Grant Thornton International Ltd (GTIL) and the member firms are not a worldwide partnership. GTIL and each member firm is a separate legal entity. Services are delivered by the member firms. GTIL does not provide services to clients. GTIL and its member firms are not agents of, and do not obligate, one another and are not liable for one another's acts or omissions.