Practice aid

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Accounting for and auditing of digital assets

as of June 30, 2022

Digital Assets Working Group

Accounting Subgroup

Matthew Schell, *Chair*
Crowe LLP

Michael Bingham
US Government Accountability Office

Brian Fields
KPMG LLP

Rahul Gupta
Grant Thornton LLP

Kevin Jackson
PwC

Jin Koo
BDO USA LLP

Corey McLaughlin
Cohen & Company

Lan Ming
Ernst & Young LLP

Mark Murray
RSM US LLP

Amy Park
Deloitte & Touche LLP

Beth Paul
PwC

Aleks Zabreyko
Connor Group

Auditing Subgroup

Amy Steele, *Chair*
Deloitte & Touche LLP

Michael Bingham
US Government Accountability Office

Jay Brodish
PwC

Damon Busse
Baker Tilly Virchow Krause, LLP

Mary Grace Davenport
PwC

Jeremy Goss
BKD

Angie Hipsher-Williams
Crowe LLP

Michael Kornstein
Ernst & Young LLP

Sara Krople
Crowe LLP

Bryan Martin
BDO USA LLP

Dylan McDermott
Coinbase

Shelby Murphy
Deloitte & Touche LLP

Christian Randall
Cohen & Company

Jay Schulman
RSM US LLP

Robert Sledge
KPMG LLP

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BitPay

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AICPA

Daniel Noll, *Senior Director*
Accounting Standards
AICPA

Amy Pawlicki, *Vice President*
Assurance & Advisory Innovation
AICPA

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Notice to readers

The objective of this practice aid is to develop nonauthoritative guidance on how to account for and audit digital assets under U.S. generally accepted accounting principles (GAAP) for nongovernmental entities and generally accepted auditing standards (GAAS), respectively. This guidance is intended for financial statement preparers and auditors with a fundamental knowledge of blockchain technology. For the purposes of this practice aid, *digital assets* are defined broadly as digital records that are made using cryptography for verification and security purposes, on a distributed ledger (referred to as a *blockchain*). The distributed ledger keeps a record of all transactions on a blockchain network. Digital assets, as defined herein, may be characterized by their ability to be used for a variety of purposes, including as a medium of exchange, as a representation to provide or access goods or services, or as a financing vehicle, such as a security, among other uses. The rights and obligations associated with digital assets vary significantly, as do the terms used to describe them. It is important to note that the accounting treatment for a digital asset will ultimately be driven by the specific terms, form, underlying rights, and obligations of the digital asset.

Digital assets and the associated underlying technology are an evolving area, and the expectations and experiences of stakeholders such as preparers, auditors, and regulators may change accordingly. Therefore, questions, examples, challenges, risks, considerations, and potential procedures listed in this practice aid should not be considered exhaustive. Preparers, auditors, and those charged with governance need to stay abreast of developments and consider the implications of those developments.

The guidance in this practice aid is based on existing professional literature and the experience of members of the Digital Assets Working Group. This nonauthoritative guidance represents the views of the Digital Assets Working Group and AICPA staff. This publication is not approved, disapproved, or otherwise acted on by the Auditing Standards Board, the membership, or the governing body of the AICPA, and is not an official pronouncement of the AICPA.

Accounting content

The Financial Reporting Executive Committee (FinREC) is the designated senior committee of the AICPA authorized to speak for the AICPA in the areas of financial accounting and reporting. The accounting guidance in this practice aid has been reviewed by FinREC, who did not object to ts issuance.

Accounting standards and regulatory updates issued but not yet effective

This practice aid has been updated to reflect standards that have been issued and are effective as of the date of publishing.

The SEC issued Staff Accounting Bulletin No. 121 which is effective for periods after June 15, 2022.

The preceding SAB is not reflected in this practice aid. As this update becomes effective, this practice aid will be updated.

Auditing content

This information represents the views of AICPA staff based on the input of the Digital Assets Working Group and has not been approved by any senior committee of the AICPA. The auditing portion of this practice aid is an other auditing publication as defined in AU-C section 200, *Overall Objectives of the Independent Auditor and the Conduct of an Audit in Accordance With Generally Accepted Auditing Standards*,[1] and is intended to provide nonauthoritative guidance to auditors. Other auditing publications may help the auditor understand and apply GAAS but have no authoritative status. In applying the auditing guidance included in an other auditing publication, the auditor should exercise professional judgment and assess the relevance and appropriateness of such guidance to the circumstances of the audit.

Auditing standards issued but not yet effective

This practice aid has been updated to reflect standards that have been issued and are effective as of the date of publishing.

The Auditing Standards Board (ASB) has issued the following Statement on Auditing Standards (SASs), which is effective for audits of financial statements for periods ending on or after Dec. 15, 2022:

- SAS No.142, *Audit Evidence*

In addition, the ASB has issued the following Statements on Auditing Standards (SASs), which are effective for audits of financial statements for periods ending on or after Dec. 15, 2023:

- SAS No.143, *Auditing Accounting Estimates and Related Disclosures*
- SAS No.144, *Amendments to AU-C Sections* 501, 540, and 620 *Related to the Use of Specialists and the Use of Pricing Information Obtained From External Information Sources*
- SAS No.145, *Understanding the Entity and Its Environment and Assessing the Risks of Material Misstatement*

The preceding SASs are not reflected in this practice aid as they are issued but not yet effective as of the date this practice aid has been published. As these standards become effective, this practice aid will be updated.

[1] All AU-C sections can be found in AICPA Professional Standards.

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Accounting subgroup

Questions [Published December 2019]

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Accounting subgroup

Questions [Published October 2020]

NOTE: Q&As 13–15 do not address how an entity determines whether it is within the scope of FASB ASC 940 and the Broker-Dealer guide. See NOTE before Q&A 13 for additional information about considerations for an entity that reaches a conclusion that it is within the scope of FASB ASC 940.

NOTE: The scope of Q&As 16–21 is specific to crypto assets. In addition, the Q&As interrelate and therefore are intended to be read in conjunction with one another.

[2] Refer to the definition of a *crypto asset* in Q&A 1 of this practice aid.

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Auditing subgroup

Introduction

The AICPA formed the Digital Assets Working Group (the working group), a joint working group under the Financial Reporting Executive Committee (FinREC) and the Assurance Services Executive Committee (ASEC), with the objective of developing nonauthoritative guidance for financial statement preparers and auditors on how to account for and audit digital assets under U.S. generally accepted accounting principles (GAAP) for nongovernmental entities and generally accepted auditing standards (GAAS), respectively. The working group is split into two subgroups, one focusing on accounting topics and one focusing on auditing topics.

Each subgroup created a list of topics and prioritized those that it believes are the most relevant or critical for practitioners and accountants. As additional topics are completed, they will be added to this practice aid and posted to aicpa.org. The format of each of the accounting and auditing topics will vary based on the necessary context. For example, some topics will be addressed in question and answer (Q&A) format, whereas others requiring more context will be presented in a narrative format.

Help desk: For additional information on what blockchain technology is and how it is affecting the profession, see the white paper "Blockchain Technology and Its Potential Impact on the Audit and Assurance Profession", as well as AICPA-developed CPE courses related to blockchain.

In addition, see the blockchain podcast series at aicpa-cima.com/disruption.

Accounting subgroup

The accounting subgroup focused on developing nonauthoritative guidance on accounting for digital assets and related transactions under GAAP. The scope of each question is defined within the question (for example, all digital assets versus digital assets that are classified as indefinite-lived intangible assets). The accounting Q&As do not address other factors such as compliance with laws and regulations.

Although many terms and colloquialisms that describe similar assets may be used to describe digital assets and related transactions, it is critical to consider that the accounting treatment for a digital asset and related transactions will ultimately be driven by the specific terms, form, underlying rights, and obligations of a digital asset. Therefore, the conclusions in any given topic may not be applicable to other types of digital assets that are outside the scope of such topic.

Auditing subgroup

The focus of the auditing portion of this practice aid is to provide nonauthoritative guidance on auditing digital assets under GAAS. Audits of issuers, audits performed in accordance with the PCAOB standards, and non-audit attest engagements are not currently contemplated.

Although auditor independence and ethical requirements should be considered prior to the performance of acceptance or continuance procedures for all engagements, such considerations are not within the scope of this practice aid.

> **Help desk:** For information regarding independence and ethics, see the AICPA Code of Professional Conduct at pub.aicpa.org/codeofconduct/Ethics.aspx.

The digital asset ecosystem is an evolving business environment, presenting practitioners with unique risks and more complex audit challenges ranging from obtaining sufficient appropriate evidence to understanding the complex IT environment of entities within the ecosystem. The guidance herein is not intended to be an exhaustive list of challenges or recommended procedures and does not address certain emerging enterprise use cases for blockchain technology such as supply chain use cases, but rather focuses on the present, most widely adopted use cases.

Although many blockchain applications share some fundamental principles of trust and security through cryptography and decentralization, the design of different blockchains may differ significantly. Some are entirely public and permissionless, while others are private and serve a very narrow purpose. Consequently, it is not practical to address every blockchain. The term blockchain, as used throughout this practice aid, does not refer to any particular application of blockchain technology and instead refers to the broad concept of a decentralized ledger that uses the principles of cryptography to transmit or store value securely. That value is generally in the form of one or more digital assets.

Throughout this practice aid, the term *digital asset ecosystem* is used, which is defined as all entities participating or involved with digital assets. This may include entities engaged in various elements of the ecosystem, including development; maintenance; use (for example, the purchase, sale, investment, trading, or exchange); custody or security (for example, hot or cold wallet providers, qualified custodians, or other custodial services); or validating.

Accounting subgroup

Classification and measurement when an entity purchases crypto assets

Question 1:

How should an entity that does not apply specialized industry guidance (for example, it is not applying FASB *Accounting Standards Codification* [ASC] 946, *Financial Services — Investment Companies*) account for purchases of crypto assets for cash?[3]

For purposes of this question and answer (Q&A), the term *crypto asset* is specific to the type of digital assets that

a. function as a medium of exchange and

b. have all the following characteristics:

   i. They are not issued by a jurisdictional authority (for example, a sovereign government).

   ii. They do not give rise to a contract between the holder and another party.

   iii. They are not considered a security under the Securities Act of 1933 or the Securities Exchange Act of 1934.

These characteristics are not all-inclusive, and other facts and circumstances may need to be considered.

Examples of crypto assets meeting these characteristics include bitcoin, bitcoin cash and ether.

Response 1:

The FASB ASC Master Glossary defines *intangible assets* as assets (not including financial assets) that lack physical substance. Accordingly, crypto assets with the previously described characteristics meet the definition of intangible assets and would generally be accounted for under FASB ASC 350, *Intangibles — Goodwill and Other*.

These crypto assets generally would not meet the definitions of other asset classes within GAAP, and therefore, accounting for them as other than intangible assets may not be appropriate, as described in the following examples:

- Crypto assets will not meet the definition of *cash* or *cash equivalents* (as defined in the FASB ASC Master Glossary) when they are not considered legal tender[4] and are not backed by sovereign governments. In addition, these crypto assets typically do not have a maturity date and have traditionally experienced significant price volatility.
- Crypto assets will not be *financial instruments* or *financial assets* (as defined in the FASB ASC Master Glossary) if they are not *cash* (see previous discussion) or an ownership interest in an entity and if they do not represent a contractual right to receive cash or another financial instrument.
- Although these crypto assets may be held for sale in the ordinary course of business, they are not tangible assets and therefore may not meet the definition of *inventory* (as defined in the FASB ASC Master Glossary).

[3] This question and answer (Q&A) discusses purchases of certain crypto assets that are owned and held by an entity. Refer to Q&A 10 for a discussion of ownership determination when crypto assets are held through a custodian.

[4] Legal tender is specific to a jurisdiction. For example, the *U.S. Code* states, "United States coins and currency (including Federal reserve notes and circulating notes of Federal reserve banks and national banks) are legal tender for all debts, public charges, taxes, and dues" [*Money and Finance, U.S. Code*, Title 31, Section 5103, "Legal tender"]. This statute means that all forms of money identified within are a valid and legal offer of payment for debts when tendered to a creditor.

Under FASB ASC 350, an entity should determine whether an intangible asset has a finite or indefinite life. FASB ASC 350-30-35-4 states that if no legal, regulatory, contractual, competitive, economic or other factors limit the useful life of an intangible asset to the reporting entity, the useful life of the asset should be considered indefinite. The term indefinite does not mean infinite or indeterminate. The useful life of an intangible asset is indefinite if that life extends beyond the foreseeable horizon — that is, there is no foreseeable limit on the period of time over which the asset is expected to contribute to the cash flows of the reporting entity.

Entities should consider the factors outlined in FASB ASC 350-30-35-3 when determining the useful life of an intangible asset. If there is no inherent limit imposed on the useful life of the crypto asset to the entity, then the crypto asset would be classified as an indefinite-lived intangible asset.

As intangible assets, these crypto assets purchased for cash would initially be measured at cost.

Recognition and initial measurement when an entity receives digital assets that are classified as indefinite-lived intangible assets

Question 2:

Entity A enters into a contract with a customer to deliver a good or service that is an output of its ordinary activities in a concurrent exchange for a fixed number of a digital asset that will be held in its own account and not through a custodian. At contract inception, Entity A transfers control of the good or service to the customer and concurrently receives the digital asset in return. The digital asset received is accounted for as an indefinite-lived intangible asset and the contract is within the scope of FASB ASC 606, *Revenue from Contracts with Customers*.

How should Entity A account for the receipt of the digital asset as consideration under a revenue contract with a customer?[5]

Response 2:

Entity A would treat the receipt of the digital asset as a form of noncash consideration under FASB ASC 606 when determining the transaction price. Entities should apply all aspects of FASB ASC 606 to the transactions in the scope of that guidance (for example, recognition, measurement, presentation and disclosure).

To determine the transaction price for the revenue contract, Entity A would measure the noncash consideration (digital asset) at its estimated fair value[6] at contract inception — that is, the date that all the criteria in FASB ASC 606-10-25-1 are met.

As explained in FASB ASC 606-10-32-23, any changes in the fair value of the digital asset after contract inception due to the form of the consideration would not affect the transaction price for the revenue contract. The entity would apply the relevant accounting guidance for the form of noncash consideration to determine how any change in fair value of the digital asset should be recognized after contract inception. For example, an entity may need to consider the application of the subsequent measurement guidance in FASB ASC 350-30 as discussed in Q&As 4, 5, 6, and 7.

[5] Entities with transactions outside of FASB *Accounting Standards Codification* (ASC) 606, *Revenue from Contracts with Customers*, (for example, the sale of property, plant, and equipment to a noncustomer in exchange for digital assets) should look to other relevant generally accepted accounting principles (GAAP), such as FASB ASC 610-20.

[6] As discussed in FASB ASC 606-10-32-22, if the fair value of the noncash consideration is not reasonably estimable, the entity should measure the noncash consideration by reference to the stand-alone selling price of the goods or services promised to the customer.

Question 3:

If the facts in Q&A 2 changed and Entity A were to receive the digital asset in the future rather than concurrently with the exchange of the good or service, what additional considerations, outside of FASB ASC 606, might be necessary for Entity A?

Response 3:

Some transactions may be more complex than the simple concurrent exchange of an entity's good or service for a digital asset. In arrangements that involve the future receipt of a digital asset in exchange for the current delivery of a good or service, entities may need to consider the guidance in FASB ASC 815, *Derivatives and Hedging*, to determine whether the right to receive a digital asset in the future is a derivative or a hybrid instrument containing an embedded derivative.

Subsequent accounting for digital assets classified as indefinite – lived intangible assets

Question 4:

How should an entity account for digital assets that are classified as indefinite-lived intangible assets subsequent to their acquisition?

Response 4:

An indefinite-lived intangible asset is initially carried at the value determined in accordance with FASB ASC 350-30-30-1 and is not subject to amortization.[7] Rather, it should be tested for impairment annually or more frequently if events or changes in circumstances indicate it is more likely than not that the asset is impaired. Paragraphs 18B and 18C in FASB ASC 350-30-35 provide examples of relevant facts and circumstances that should be assessed to determine if it is more likely than not that an indefinite-lived intangible asset is impaired. If an impairment indicator exists and it is determined that the carrying amount of an intangible asset exceeds its fair value, an entity should recognize an impairment loss in an amount equal to that excess. After the impairment loss is recognized, the adjusted carrying amount becomes the new accounting basis of the intangible asset. Refer to paragraphs 15–20 in FASB ASC 350-30-35 for details on the subsequent accounting for intangible assets that are not subject to amortization.

[7] Indefinite-lived intangible assets do not meet the definition of a *financial asset* (as defined in the FASB ASC Master Glossary) or any other eligible items under FASB ASC 825-10-15-4 and therefore are not eligible for the fair value option under that paragraph.

Question 5:

If a digital asset is classified by an entity as an indefinite-lived intangible asset and identical digital assets are reportedly bought and sold on a market at a price below its current carrying value, is this activity an impairment indicator, and if so, should an impairment charge be recorded?

Response 5:

An intangible asset with an indefinite useful life should be tested for impairment annually or more frequently if events or changes in circumstances indicate it is more likely than not that it is impaired. Paragraphs 18B and 18C of FASB ASC 350-30-35 list examples of factors an entity may consider in determining whether it is more likely than not that an indefinite-lived intangible asset is impaired. These examples are not all-inclusive, and other facts and circumstances should be considered. Judgment may be required to identify whether an event has occurred that would result in the need to perform an impairment assessment.

When an identical digital asset is bought and sold at a price below the entity's current carrying value, this will often serve as an indicator that impairment is more likely than not. Entities should monitor and evaluate the quality and relevance of the available information, such as pricing information from the asset's principal (or most advantageous) market or from other digital asset exchanges or markets, to determine whether such information is indicative of a potential impairment.

If an entity determines it is more likely than not that the indefinite-lived intangible asset is impaired, the entity should determine its fair value, following the fair value framework in FASB ASC 820, *Fair Value Measurement*.

If, based on its assessment, the entity concludes that the fair value of the digital asset is less than its carrying value, an impairment loss should be recorded.

Question 6:

If the fair value of a digital asset that is classified as an indefinite-lived intangible asset has declined below the carrying value in the middle of a reporting period (that is, an impairment has occurred), does impairment need to be recorded if the fair value has recovered by the end of the same period?

Response 6:

Yes. Impairment testing of indefinite-lived intangible assets is required whenever events or changes in circumstances indicate it is more likely than not that impairment has occurred. If the entity concludes the fair value of the digital asset is less than its carrying value, an impairment loss is recorded at that time. Pursuant to FASB ASC 350-30-35-20, subsequent reversal of previously recorded impairment losses on indefinite-lived intangible assets is prohibited. This provision applies even if the fair value of the digital asset recovers above the original carrying value within the same accounting period.

Example: ABC Entity holds 1 million units of a digital asset, which it purchased for cash on January 1, 20X1, for $10 per unit. ABC Entity accounts for its holdings of digital asset as an indefinite-lived intangible asset. During the last week of January 20X1, units of the same digital asset were traded on an exchange at prices below ABC Entity's carrying value. After considering the quality and relevance of the available information, ABC Entity concluded that the January

trades indicated that it was more likely than not that its digital asset was impaired. ABC Entity determined that the fair value at that time was $8 per unit based on the guidance in FASB ASC 820. ABC Entity concluded that an impairment loss of $2 million had occurred as of January 31, 20X1.

As of March 31, 20X1 (the balance sheet reporting date), units of the digital asset were traded above ABC Entity's original carrying value. Although this may be an indication that the fair value of the digital asset has increased above the original carrying value as of the reporting date, subsequent reversal of previously recognized impairment is prohibited. Accordingly, ABC Entity's results of operations for the period should include a charge for the impairment loss of $2 million.

Question 7:

How should an entity determine the unit of account when assessing impairment of digital asset holdings accounted for as an indefinite-lived intangible asset?

Response 7:

Entities often engage in multiple acquisitions and dispositions of digital assets during a period. Entities should determine the unit of account for purposes of testing the indefinite-lived intangible asset for impairment by applying guidance in paragraphs 21–27 of FASB ASC 350-30-35. Consistent with FASB ASC 350-30-35-24, because entities usually have the ability to sell or otherwise dispose of each unit (or a divisible fraction of a unit) of a digital asset separately from any other units, entities will generally reach the determination that the individual unit (or a divisible fraction of a unit) represents the unit of account for impairment testing purposes. To perform impairment testing, entities should track the carrying values of their individual digital assets (or a divisible fraction of an individual unit).

When performing the impairment testing for an individual digital asset, the entity should compare the carrying value of that specific asset with its fair value. If an entity determines that an individual unit (or a divisible fraction of a unit) represents the unit of account for impairment testing purposes, it would not be appropriate to perform such comparison for a bundle of digital assets of the same type purchased at different prices. This approach could lead to an inappropriate reduction in the amount of the impairment loss by netting (1) losses on units with carrying values above the current fair value against (2) unrealized gains on units with carrying values below the current fair value.

Practically speaking, entities could perform impairment testing for batches of digital asset units (or divisible fractions of a unit) with the same acquisition date and the same carrying value.

Measurement of cost basis of digital assets that are classified as indefinite-lived intangible assets when derecognized

Question 8:

When selling a portion of an entity's digital asset holdings that are accounted for as indefinite-lived intangible assets, how should an entity determine the cost basis of the units sold?

Response 8:

Entities should track the cost (or subsequent carrying value) of units of digital assets they obtain at different times and use this value for each unit of digital assets upon derecognition when they sell or exchange digital assets for other goods or services. Digital assets typically represent fungible units that can be subdivided into smaller fractional units. It may not be possible to identify which specific units of digital assets were sold or transferred in certain cases. For instance, it may be clear that the number of units of digital assets held has gone down (for example, from 10 units to 9 units in the entity's wallet) but not whether the first, last or some other unit purchased was the one sold. An entity may apply the guidance in these circumstance by developing a reasonable and rational methodology for identifying which units of digital assets were sold and apply it consistently. For example, one reasonable and rational approach could be using the first-in, first-out method.

Derecognition of digital asset holdings that are classified as indefinite-lived intangible assets

Question 9:

How should an entity account for the sale of digital asset holdings that are accounted for as indefinite-lived intangible assets?

Response 9:

An entity may transfer digital assets by exchanging them for fiat currencies (for example, digital asset X for U.S. dollars), in which case, the seller should assess whether the transaction is with a customer. If the counterparty is a customer (that is, selling digital asset X is an activity that constitutes part of the entity's ongoing major or central operations), an entity should account for the sale under FASB ASC 606 and present the sale as revenue when control of the digital assets sold has transferred. If the counterparty is not a customer (that is, selling digital asset X is not part of the entity's ongoing major or central operations), an entity should account for the sale under FASB ASC 610-20, *Other Income — Gains and Losses from the Derecognition of Nonfinancial Assets*, or FASB ASC 845, *Nonmonetary Transactions*, depending on the nature of the transfer. In those circumstances, any gain or loss upon derecognition would typically be presented net, outside of revenue (net gain or loss as determined by subtracting the cost [or subsequent carrying value] from the measured consideration).

Recognition of digital assets when an entity uses a third-party hosted wallet service

Question 10:

When an entity (the depositor) holds its digital asset in a third-party hosted wallet service (the custodian),[8] should the digital asset be recognized on the financial statements of the depositor or the custodian?

Response 10:

It depends. The digital asset should be recognized on the financial statements of the entity that has control over the digital asset. Determining which entity — the depositor or the custodian — has control[9] of the digital asset should be based on the specific facts and circumstances of the agreement between the depositor and custodian and applicable laws and regulations. In that regard, a legal analysis may be needed to evaluate certain aspects of the agreement, including legal ownership.

The form of the agreement between the depositor and the custodian may vary but often will be included within the terms and conditions or initial account-opening documents provided by the custodian.

In addition to assessing the terms of the agreement, an analysis of the characteristics of an asset as defined by FASB Concepts Statement No. 6, *Elements of Financial Statements*, may help determine which party should recognize the digital asset. Some factors an entity may consider include the following:

- Are there legal or regulatory frameworks applicable to the custodian and the depositor (which may also depend on the jurisdiction)? If so, does the framework specify who the legal owner of the digital asset is?
- Do the terms of the arrangement between the depositor and custodian indicate whether the depositor will pass title, interest, or legal ownership of the digital asset to the custodian?
- When the depositor transfers its digital assets out of the custodian's wallet, is the custodian required to transfer the depositor's original units of the digital asset deposited with the custodian?
- Does the custodian have the right (under contract terms, law, or regulation) to sell, transfer, loan, encumber, or pledge the deposited digital asset for its purposes without depositor consent or notice, or both?
- Would the digital asset deposited with the custodian be isolated from the custodian's creditors in the event of bankruptcy, liquidation, or dissolution of the custodian? If not, do the depositors have a preferential claim in such circumstances?
- Can the depositor withdraw the deposited digital asset at any time and for any reason? If not, what contingencies are associated with the rights to receive the deposited digital asset? Are there technological or other factors that would prevent timely withdrawal notwithstanding contractual, legal, or regulatory rights?
- Are there side agreements affecting rights and obligations of the depositor and the custodian?
- Are there "off-chain" transactions recorded outside of the underlying blockchain that should be considered?
- Is the digital asset held in a multisignature wallet, and if so, what are the digital signatures that are required to execute a transaction? Who holds the private keys to the multisignature wallet and how is ownership evidenced through any applicable account agreements?

[8] For purposes of this Q&A, we assume that the custodian is not subject to any industry-specialized guidance.

[9] *Control* is discussed in various parts of GAAP, such as FASB ASC 606.

- Is the custodian required (by contract, law, or regulation) to segregate the digital assets of depositors from the digital assets owned for the custodian's own account? Does the custodian commingle digital assets of multiple depositors?
- Does the depositor bear the risk of loss if the deposited digital asset is not retrievable by the custodian (for example, due to security breach, hack, theft, or fraud)?
- Could the depositor be impeded by the custodian in any way from receiving all economic benefits of controlling the digital asset, including price appreciation?

The previous list is not exhaustive, and there is no single factor that is considered determinative to the control of the digital asset held through a custodian's digital wallet. Each arrangement should be assessed separately.

If it is determined that the depositor has control over the digital asset, then the depositor should recognize the digital asset in its financial statements.

If it is determined that the depositor does not have control over the digital asset — that is, the custodian has control — then the depositor should recognize a right to receive the digital asset (from the custodian) as an asset in its financial statements. The custodian should recognize the digital asset as its asset and recognize a corresponding liability to return the digital asset to the depositor in its financial statements.

The right to receive the digital asset that is recognized by the depositor and the liability to return the digital asset to the depositor that is recognized by the custodian may require further assessment for accounting purposes, including subsequent measurement considerations and assessment for embedded derivatives that may require bifurcation pursuant to FASB ASC 815.

Meeting the definition of an investment company when engaging in digital asset activities

Question 11:

Would participation in digital asset activities (for example, mining activities) disqualify an entity from classification as an investment company within the scope of FASB ASC 946, *Financial Services—Investment Companies*?

Response 11:

It depends. In accordance with FASB ASC 946-10-15-5, a company that is not regulated under the Investment Company Act of 1940 may be an investment company, if it possesses the fundamental characteristics in FASB ASC 946-10-15-6, which are as follows:

a. It is an entity that does both of the following:
   1. Obtains funds from one or more investors and provides the investors with investment management services
   2. Commits to its investors that its business purpose and only substantive activities are investing the funds solely for returns from capital appreciation, investment income, or both.
b. The entity or its affiliates do not obtain or have the objective of obtaining returns or benefits from an investee or its affiliates that are not normally attributable to ownership interests or that are other than capital appreciation or investment income.

As stated in FASB ASC 946-10-15-7, typically, an investment company also has the following characteristics:

a. It has more than one investment.
b. It has more than one investor.
c. It has investors that are not related parties of the parent (if there is a parent) or the investment manager.
d. It has ownership interests in the form of equity or partnership interests.
e. It manages substantially all of its investments on a fair value basis.

However, the absence of one or more of those typical characteristics does not necessarily preclude an entity from being an investment company. An entity should apply judgment and determine how its activities are consistent with those of an investment company.

In accordance with FASB ASC 946-10-55-4, an investment company should have no substantive activities other than its investing activities and should not have significant assets or liabilities other than those relating to its investing activities, subject to certain exceptions outlined in FASB ASC 946-10-55-5.

It is important for an entity to consider evidence of its business purpose and substantive activities in determining appropriate classification as an investment company. Evidence of the business purpose and substantive activities may be included in the entity's offering memorandum, publications distributed by the entity, and other corporate or partnership documents that indicate the investment objectives of the entity. Additional evidence also may include the manner in which the entity presents itself to other parties (such as potential investors or potential investees). An entity's investment plans (for example, potential exit strategies to realize capital appreciation) also provide evidence of its business purpose and substantive activities.

It is important for an entity participating in digital asset activities (for example, buying and selling, mining) to use judgment and determine, considering all available evidence, whether these activities are consistent with those of an investment company in accordance with FASB ASC 946-10. For example, an entity's purchases of digital assets with the objective of selling them for capital appreciation would be considered investing activities consistent with those of an investment company. In contrast, an entity's activities in devoting resources to mining, such as procuring and operating significant computer and networking equipment in order to obtain digital assets in return for providing computing resources to a blockchain, would generally be considered "other than investing activities" that are inconsistent with those of an investment company.

If an entity or its affiliates participates in "other than investing" activities, it would need to evaluate whether those "other than investing activities" are substantive. If they are substantive, the entity would not meet the definition of an *investment company*. Determining whether noninvestment activities are substantive may require significant judgment.

In addition to the guidance in FASB ASC 946, an entity could consider Q&A section 6910.36, "Determining Whether Loan Origination Is a Substantive Activity When Assessing Whether an Entity Is an Investment Company,"[10] found in *Technical Questions and Answers*, which provides a framework to evaluate whether an entity's activities represent substantive activities that are inconsistent with the activities of an investment company. For example, the significance of income generated through noninvestment activities should be compared to income generated from capital appreciation, investment income, or both. If such activities are determined to be substantive, it would preclude the entity from qualifying as an investment company.

[10] See https://www.aicpa.org/interestareas/frc/recentlyissuedtechnicalquestionsandanswers.html.

Accounting by an investment company for digital assets it holds as an investment

Question 12:

How should an entity that qualifies as an investment company under FASB ASC 946, *Financial Services — Investment Companies*, account for investments in digital assets?

Response 12:

An investment company applying FASB ASC 946 should determine whether its holdings of digital assets represents a debt security, equity security, or an other investment and apply the guidance in FASB ASC 946-320 for investments in debt and equity securities or FASB ASC 946-325 for other investments. Irrespective of the type of investment, FASB ASC 946 requires an investment company to initially measure its investments at their transaction price, inclusive of commissions and other charges that are part of the purchase transaction.

Subsequently, the investment company should measure investments in digital assets at fair value in accordance with the applicable guidance in FASB ASC 946-320-35-1 or FASB ASC 946-325-35-1, unless an exception applies that would require equity method accounting or consolidation, for example, if the digital asset provides control over an operating entity whose purpose is to provide services to the investment company. See additional guidance in FASB ASC 946-323 and FASB ASC 946-810.

Recognition, measurement and presentation of digital assets specific to broker-dealers

NOTE: Q&As 13–15 address the recognition, measurement, and presentation of digital assets specific to broker-dealers in the scope of FASB ASC 940, *Financial Services — Brokers and Dealers*, and the AICPA's Audit and Accounting Guide *Brokers and Dealers in Securities* (Broker-Dealer guide).

Q&As 13–15 do not address how an entity determines whether it is within the scope of FASB ASC 940 and the Broker-Dealer guide. FASB's Emerging Issues Task Force (EITF), in Issue 06-12,[11] considered providing additional guidance on how to determine whether an entity is included in the scope of the Broker-Dealer guide; however, no consensus was reached. The EITF observed that this is an issue for which there is diversity in practice.

If an entity that is an SEC filer, or plans to become an SEC filer, reaches a conclusion that it is within the scope of FASB ASC 940 and the Broker-Dealer guide, it should consider discussing such a conclusion with the SEC's Office of the Chief Accountant.[12] In addition, any entity that applies broker-dealer guidance in FASB ASC 940 and the Broker-Dealer guide should (*a*) not selectively apply certain portions of FASB ASC 940 and the Broker-Dealer guide; rather, it should apply all the guidance, and (*b*) consider[13] the discussion of the SEC's financial responsibility rules provided in the Joint Staff Statement on Broker-Dealer Custody of Digital Asset Securities.[14] The SEC and Financial Industry Regulatory Authority (FINRA) staffs have not provided guidance on how a broker-dealer may demonstrate physical possession or control with respect to a digital asset security, nor have they provided guidance on how a broker-dealer may engage in a digital asset business in compliance with the financial responsibility rules. Moreover, these Q&As do not address other broker-dealer regulatory questions (for example, the deduction from net capital for digital assets or digital asset securities held by a broker-dealer on a proprietary basis).

Question 13:

How should an entity that is a broker-dealer in the scope of FASB ASC 940, *Financial Services — Brokers and Dealers*, present digital assets held or received[15] on behalf of customers on its statement of financial condition?

Response 13:

When an entity holds or receives digital assets on behalf of a customer and has determined that such activities are within the scope of FASB ASC 940-20, the entity should consider the guidance in FASB ASC 940-20-25-1 and, for registered broker-dealers, the discussion of the SEC's financial responsibility rules provided in the Joint Staff Statement on Broker-Dealer Custody of Digital Asset Securities. In accordance with FASB ASC 940-20-25-1, when a broker-dealer is an agent for a customer, the transaction should not be reflected on its statement of financial condition.

NOTE: Q&As 13–15 do not address how an entity determines whether it is within the scope of FASB ASC 940 and the Broker-Dealer guide. See NOTE before Q&A 13 for additional information about considerations for an entity that reaches the conclusion that it is within the scope of FASB ASC 940.

[11] See EITF Abstracts Issue No. 06-12.

[12] See https://www.sec.gov/page/oca-form-delivery-and-content-correspondence-oca-consultations.

[13] Importantly, if the entity is a registered broker-dealer, it must comply with broker-dealer financial responsibility rules, including, as applicable, custodial requirements under Rule 15c3-3 under the Securities Exchange Act of 1934, which is known as the Customer Protection Rule.

[14] See https://www.sec.gov/news/public-statement/joint-staff-statement-broker-dealer-custody-digital-asset-securities#_ftn1.

Question 14:

How should a broker-dealer in the scope of FASB ASC 940 recognize revenue for purchases or sales transactions in digital assets on behalf of its customers?

Response 14:

A broker-dealer may buy and sell digital assets on behalf of its customers in return for a commission. The Broker-Dealer guide notes that *agency transactions* are transactions in which the broker-dealer "is simply a middleman between two counterparties … [and] is acting in a broker capacity."[16] In accordance with FASB ASC 940-20-25-2, commission income is recognized in revenue when (or as) the broker-dealer satisfies its performance obligations under the contract in accordance with FASB ASC 606, *Revenue from Contracts with Customers*.

NOTE: Q&As 13–15 do not address how an entity determines whether it is within the scope of FASB ASC 940 and the Broker-Dealer guide. See NOTE before Q&A 13 for additional information about considerations for an entity that reaches the conclusion that it is within the scope of FASB ASC 940.

Question 15:

How should the digital assets owned by a broker-dealer in the scope of FASB ASC 940 as part of its proprietary trading portfolio be measured?

Response 15:

In accordance with paragraphs 1–2 of FASB ASC 940-320-35, positions resulting from proprietary trading should be measured at fair value with changes in fair value recognized in profit and loss.[17] Given that industry practice has been to interpret the definition of *inventory held by a broker-dealer* under FASB ASC 940 to include assets such as financial instruments and physical commodities held as proprietary positions, extending the interpretation of inventory to include digital assets that are held for proprietary trading is reasonable.

NOTE: Q&As 13–15 do not address how an entity determines whether it is within the scope of FASB ASC 940 and the Broker-Dealer guide. See NOTE before Q&A 13 for additional information about considerations for an entity that reaches a conclusion that it is within the scope of FASB ASC 940.

[15] *Receipt* refers to a transaction in which the customer transfers the digital asset to the broker-dealer, and the transfer is recorded on the blockchain native to the digital asset.

[16] See paragraph 5.66 of chapter 5, "Accounting Standards," of the AICPA Audit and Accounting Guide *Brokers and Dealers in Securities* (Broker-Dealer guide).

[17] Paragraph 5.02 of the Broker-Dealer guide states that a broker-dealer accounts for inventory and derivative positions (such as futures, forwards, swaps, and options) at fair value.

Considerations for crypto assets that require fair value measurement

Question 16:

When determining the fair value for crypto assets,[18] what is the principal market?

Response 16:

In accordance with FASB ASC 820-10-35-3, a fair value measurement assumes that the asset or liability is exchanged in an orderly transaction between market participants to sell the asset or transfer the liability at the measurement date under current market conditions. Furthermore, FASB ASC 820-10-35-5 states that a fair value measurement assumes that the transaction to sell the asset or transfer the liability takes place either (*a*) in the principal market for the asset or liability or (*b*) in the absence of a principal market, in the most advantageous market for the asset or liability. Therefore, a fair value measurement contemplates an orderly transaction to sell the asset or transfer the liability in its principal market (or in the absence of a principal market, the most advantageous market).

There are various markets in which crypto assets trade. The reliability and sufficiency of the information produced could vary market by market. It is important for entities to consider whether these markets provide reliable volume and level of activity information in their determination of the principal market (or in the absence of a principal market, the most advantageous market).

Under FASB ASC 820, *Fair Value Measurement*, a *principal market* is the market with the greatest volume and level of activity for the asset or liability. The determination of the principal market should be based on the market with the greatest volume and level of activity that the reporting entity can access and not on the entity's own level of activity in a particular market. In that regard, it is important for an entity to assess whether there are any regulatory or other restrictions that prevent it from accessing a particular market.

When identifying the principal market — or in the absence of a principal market, the most advantageous market — an entity is not required to undertake an exhaustive search of all possible markets for the asset, but it should consider all information that is reasonably available. In accordance with FASB ASC 820-10-35-5A, the market in which an entity normally transacts for the crypto asset is presumed to be the principal market, unless contrary evidence exists.

To overcome the presumption, an entity must obtain evidence that the market it normally transacts in is not the market with the greatest volume and level of activity for the crypto asset. For example, if an entity normally buys and sells crypto assets through an intermediary or a broker, it would generally identify that market as the principal market, unless it has obtained evidence (considering all information that is reasonably available) that another market (for example, an exchange) has a greater volume and level of activity. For this purpose, a comparison would be made between the other market and the market the entity normally transacts in. Although numerous market participants may transact in crypto assets through intermediaries or brokers, each individual intermediary or broker is not a market. Generally, there is a lack of information regarding volume and pricing of crypto asset transactions in non-exchange markets. Therefore, it may be difficult for an entity to make a comparison between markets in order to conclude that another market (for example, an exchange) has a greater volume and level of activity than the market in which it normally transacts through an intermediary or broker. In this situation, it would be difficult to overcome the presumption that the market it normally transacts in is the principal market.

[18] Refer to the definition of a *crypto asset* in Q&A 1 of this practice aid.

When there is a principal market for the crypto asset being valued, the price in that market should be used to measure fair value, even if there is a more advantageous price in a different market at the measurement date. That is, the most advantageous market concept is applied under FASB ASC 820 only in situations when the entity determines there is no principal market for the crypto asset being valued. The most advantageous market is the market that maximizes the amount that would be received to sell the crypto asset, after taking into account transaction costs (for example, exchange or broker fees). Although transaction costs may factor into determining the most advantageous market, consistent with FASB ASC 820-10-35-9B, such costs are not included in the fair value of the crypto asset.

NOTE: The scope of Q&As 16–21 is specific to crypto assets. In addition, the Q&As interrelate and therefore are intended to be read in conjunction with one another.

Question 17:

What are some items an entity should consider about the markets in which crypto assets[19] trade when determining the fair value of a crypto asset holding?

Response 17:

Crypto assets trade in various markets. The reliability and sufficiency of the information produced that could be used to determine if the market's reported transactions are orderly or the market is active can vary widely from market to market. To determine the fair value of a crypto asset in accordance with FASB ASC 820, *Fair Value Measurement*, an entity would need to, among other things, determine the principal (or most advantageous) market in which a crypto asset trades; assess whether that market is active or inactive; evaluate whether reported market trades are orderly; and determine if the information produced by the market is reliable.

An entity's assessment of these items may significantly affect how the fair value of a crypto asset should be measured. Examples follow:

- If an entity determines that information provided by a market is not reliable, it should not place weight on the information.
- If an entity participates in transactions in its principal market, it would generally not be appropriate to place zero weight on the market information.
- If trades are between willing buyers and sellers, and the exposure to the market allowed for usual and customary marketing activities, it would be difficult to assert that the trades are not orderly because the transaction is not a forced transaction.
- If any entity concludes that the market is inactive, the amount of weight placed on that transaction price when compared with other indications of fair value will depend on the facts and circumstances.

Ultimately, entities need to carefully assess the markets in which crypto assets trade to determine the appropriate inputs or techniques for determining the fair value of a crypto asset. Refer to Q&A 18–20 for further information.

NOTE: The scope of Q&As 16–21 is specific to crypto assets. In addition, the Q&As interrelate and therefore are intended to be read in conjunction with one another.

[19] Refer to the definition of a *crypto asset* in Q&A 1 of this practice aid.

Question 18:

Assume the principal (or most advantageous) market for a given crypto asset[20] is an active market with quoted prices for identical assets. Given the characteristics of the principal market, an entity concludes the fair value would be classified as Level 1. How is the fair value of the crypto asset determined in this circumstance?

Response 18:

If there is a principal market for the crypto asset, the fair value measurement of the crypto asset should be based on the quoted price in that market, even if prices in a different market are potentially more advantageous at the measurement date (FASB ASC 820-10-35-6). FASB ASC 820-10-35-44 states that if a reporting entity holds a position in a single asset or liability (including a position comprising a large number of identical assets or liabilities, such as a holding of financial instruments) and the asset or liability is traded in an active market, the fair value of the asset or liability should be measured within Level 1 as the product of the quoted price for the individual asset or liability and the quantity held by the reporting entity. That is the case, even if a market's normal daily trading volume is not sufficient to absorb the quantity held, and placing orders to sell the position in a single transaction might affect the quoted price.

Accordingly, except in certain circumstances identified in FASB ASC 820-10-35-41C, there should be no adjustment to Level 1 inputs, and the fair value of the crypto asset should be determined based on price times quantity (commonly referred to as "P × Q").

For markets that provide information on bid-ask spreads, FASB ASC 820-10-35-36C requires fair value to be based on the price within the bid-ask spread that is most representative of fair value. Entities may use the bid, ask, mid-point between bid and ask, or some other point within the range. Although the guidance in FASB ASC 820-10-35-36D does not preclude midpoint (or mid-market) pricing convention, there may be situations in which the use of such a convention is not appropriate (for example, when a large bid-ask spread exists).

NOTE: The scope of Q&As 16–21 is specific to crypto assets. In addition, the Q&As interrelate and therefore are intended to be read in conjunction with one another.

Question 19:

Is it appropriate for a reporting entity to adjust the fair value measurement of a crypto asset[21] to reflect the size of the entity's holding of the crypto asset?

Response 19:

No. FASB ASC 820-10-35-36B states the following:

> A reporting entity should select inputs that are consistent with the characteristics of the asset or liability that market participants would take into account in a transaction for the asset or liability (see FASB ASC 820-10-35-2B through 35-2C). In some cases, those characteristics result in the application of an adjustment, such as a premium or discount (for example, a control premium or noncontrolling interest discount). However, a fair value measurement should not incorporate a premium or discount that is inconsistent with the unit of account in the Topic that requires or permits the fair value measurement. Premiums or discounts that reflect

[20] Refer to the definition of a *crypto asset* in Q&A 1 of this practice aid.
[21] Refer to the definition of a *crypto asset* in Q&A 1 of this practice aid.

size as a characteristic of the reporting entity's holding (specifically, a blockage factor that adjusts the quoted price of an asset or a liability because the market's normal daily trading volume is not sufficient to absorb the quantity held by the entity, as described in FASB ASC 820-10-35-44), rather than as a characteristic of the asset or liability (for example a control premium when measuring the fair value of a controlling interest) are not permitted in a fair value measurement.

The response to Q&A 7 indicates that entities will generally reach a determination that the unit of account for a crypto asset is the individual unit (or divisible fraction of a unit.) Further, the response to Q&A 1 explains that a crypto asset is not a financial instrument, financial asset, or a nonfinancial item accounted for as a derivative in accordance with FASB ASC 815, *Derivatives and Hedging*. As a result, the portfolio exception at FASB ASC 820-10-35-18D is not applicable to a crypto asset and, therefore, it would be inappropriate to adjust the fair value measurement of a crypto asset to reflect the size of an entity's holding of a crypto asset.

NOTE: The scope of Q&As 16–21 is specific to crypto assets. In addition, the Q&As interrelate and therefore are intended to be read in conjunction with one another.

Question 20:

Crypto asset[22] markets often operate continuously, without a traditional market close. How should entities determine the fair value of the crypto asset in such circumstances?

Response 20:

In such circumstances, an accounting convention may establish a cut-off time for determining the fair value of the crypto asset. For example, it may be reasonable for an entity to establish an accounting convention based on prices at

- the close of the business day of the entity.
- a fixed Coordinated Universal Time (UTC).
- other timing as deemed reasonable, such as traditional close time based on local market jurisdictions.

Entities should consider transactions that take place after the cut-off time but before the end of the reporting period, similar to the guidance in FASB ASC 820-10-35-41C.

Any convention used should be reasonable and consistently applied, and changes should be made only if facts and circumstances support a change.

NOTE: The scope of Q&As 16–21 is specific to crypto assets. In addition, the Q&As interrelate and therefore are intended to be read in conjunction with one another.

[22] Refer to the definition of a *crypto asset* in Q&A 1 of this practice aid.

Question 21:

If the principal (or most advantageous) market is not active or does not have orderly transactions (that is, not Level 1), how does management weigh inputs from different sources in the determination of the fair value of a crypto asset? [23]

Response 21:

When evaluating the relevance of transaction prices as inputs into the fair value measurement of a crypto asset, entities may consider using the following approach, which is consistent with the guidance in FASB ASC 820-10-35-54J and the related framework in paragraph 8.07 of the AICPA Guide *Valuation of Privately Held Company Equity Securities Issued as Compensation* and paragraph 10.34 of the AICPA Guide *Valuation of Portfolio Company Investments of Venture Capital and Private Equity Funds and Other Investment Companies*.

- If the transaction is orderly and for an identical instrument in an active market that is not the principal (or most advantageous) market, the transaction may require adjustments that market participants would apply to arrive at a fair value consistent with the entity's principal (or most advantageous) market.
- If the transaction is for an identical instrument but not in an active market, or for a related instrument, and the evidence indicates that the transaction is orderly, then that transaction price would be considered. The amount of weight placed on the transaction price when compared with other indications of fair value will depend on the facts and circumstances.
- If evidence indicates that the transaction is not orderly, then little, if any, weight would be placed on the transaction price.
- If the investor does not have sufficient information to conclude[24] whether a transaction is orderly, it should consider the transaction price in its analysis (that is, give it some weight) but may also supplement the transaction price with other valuation inputs or techniques.[25] However, the entity should maximize the use of relevant observable inputs and minimize the use of unobservable inputs when developing a fair value estimate consistent with FASB ASC 820, *Fair Value Measurement*.

NOTE: The scope of Q&As 16–21 is specific to crypto assets. In addition, the Q&As interrelate and therefore are intended to be read in conjunction with one another.

[23] Refer to the definition of a *crypto asset* in Q&A 1 of this practice aid.

[24] FASB ASC 820-10-35-54J states that a reporting entity need not undertake exhaustive efforts to determine whether a transaction is orderly, but it should not ignore information that is reasonably available. When a reporting entity is a party to a transaction, it is presumed to have sufficient information to conclude whether the transaction is orderly.

[25] It would be rare that valuation techniques of a crypto asset apply any other approaches besides a market approach based upon observed transactions or market quotes.

Accounting for stablecoin holdings

Question 22:

How should investors that do not apply specialized industry guidance account for a holding of a stablecoin?

Response 22:

It depends. There are differences among digital assets that are referred to as *stablecoins* in the market. Some are collateralized and redeemable into the assets used to collateralize the stablecoin, such as U.S. dollars, a specific commodity, a specific crypto asset, or a combination of multiple different assets. Others may not be collateralized or may not be redeemable. Generally, stablecoins differ from a typical crypto asset in that they include mechanisms designed to minimize price volatility by linking their values (for example, a "peg") to the value of a more traditional asset, such as a fiat currency or a commodity. Given the differences in the underlying rights and obligations across digital assets referred to as *stablecoins*, the proper accounting for an investment in a stablecoin will depend on the relevant facts and circumstances.

When evaluating the relevant facts and circumstances, some key questions an entity may want to consider when determining the accounting for a holding in a stablecoin include the following:

- What is the purpose of the stablecoin, and how does it achieve that purpose?
- What are the rights and obligations of the stablecoin holder? For example, is the stablecoin collateralized? If so, what are the eligible forms of collateral? Can the stablecoin be traded with parties other than the issuing entity?
- Who is the issuing entity or group of entities that is pooling resources to support the stablecoin?
- Does a legal entity that issues the stablecoin exist? If so, does the stablecoin convey to the holder an interest in the issuing entity?
- What is the legal form of the stablecoin (for example, debt or equity)?
- What mechanisms exist to minimize the price volatility? For example, can the stablecoin be redeemed for, exchanged for, or converted into its underlying asset? How do these mechanisms work, and how are the mechanisms governed?
- If it is redeemable, how and how often can it be redeemed?
- If it is collateralized, how is the collateral verified and perfected? If it is collateralized, what is the level of collateral (that is, is it partially, fully or over-collateralized)?
- How well do the mechanisms to minimize the price volatility work? For example, how volatile is the price of the stablecoin versus its intended peg?
- Do any credit or liquidity concerns exist?
- What laws and regulations apply to the stablecoin?

Because of the variety of facts and circumstances that may exist, it is impossible to provide a general rule for accounting for stablecoins. Relevant GAAP should be considered. For example, the ownership of a stablecoin may provide the holder with an ownership interest in the issuing entity. In this case, the stablecoin should be evaluated under relevant GAAP (for example, FASB ASC 321, *Investments — Equity Securities*; FASB ASC 323, *Investments—Equity Method and Joint Ventures*; or FASB ASC 810, *Consolidation*). Other types of stablecoins may be financial assets or financial instruments containing an embedded derivative that should be evaluated under FASB ASC 815, *Derivatives and Hedging*. However, the accounting for stablecoins is not limited to the aforementioned FASB ASC topics.

Question 23:

Entity A owns 100 units of a stablecoin, a digital asset that has a stated value of one U.S. dollar and is collateralized on a one-for-one basis by dollars held in a segregated bank account by the issuing entity. The holders of the units only have the right to redeem each unit for one U.S. dollar. How should Entity A account for its stablecoin?

Assume Entity A does not apply any specialized industry guidance (for example, FASB ASC 946 or FASB ASC 940).

Response 23:

Entity A's stablecoin holding would not be a derivative[26] but does meet the definition of a *financial asset* under GAAP because it can be redeemed for cash. If the stablecoin also meets the definition of a *security* (as defined in the definition 2 in the FASB ASC Master Glossary), it would generally be accounted for under FASB ASC 320, *Investments — Debt Securities*. If the stablecoin does not meet the definition of a security, it would generally be accounted for under FASB ASC 310, *Receivables*, because it is contractually redeemable for cash. A stablecoin that meets the definition of a *financial asset* would also typically be eligible for the fair value option under FASB ASC 825, *Financial Instruments*. Depending on the relevant facts and circumstances of the stablecoins, entities may also need to consider the definitions of *cash or cash equivalent*.

[26] This is because the stablecoin requires a payment in cash equal to the stated value of the stablecoin at inception — that is, it does not meet the "no initial or small initial net investment" criteria of a derivative. An entity may need to evaluate if an embedded derivative exists under FASB ASC 815, *Derivatives and Hedging*.

NOTE: Q&As 24, 25 and 26 are not intended for those entities that apply specialized industry guidance (for example, FASB ASC 946, *Financial Services — Investment Companies* or FASB ASC 940, *Financial Services—Brokers and Dealers*). See Q&As 11, 12, 13, 14 and 15 for guidance related to investment companies and broker-dealers.

Contracts involving derivatives and embedded derivatives

Question 24:

Entity A provides a good to Entity B in exchange for a promise to receive a fixed quantity of crypto assets.[27] Entity A recognizes a right to receive crypto assets that will be settled in 30 days and revenue for the sale of the good. How should Entity A evaluate whether the asset representing the right to receive a fixed quantity of crypto assets contains an embedded derivative?[28]

Response 24:

A right to receive crypto assets may result from a variety of transactions, such as the sale of goods or services subject to FASB ASC 606. The evaluation of contracts involving the future delivery of crypto assets would generally first consider FASB ASC 815 at contract inception, to determine whether the contract is or contains a derivative that should be accounted for separately from the right to receive crypto assets.

To determine if the right to receive crypto assets represents a derivative in its entirety, Entity A evaluates the definition of a *derivative* in FASB ASC 815-10-15-83. The transaction is a result of an exchange of a good for a right to receive crypto assets of equivalent value. As such, in this fact pattern, it does not represent a derivative contract in its entirety because it would not meet the initial net investment criterion in FASB ASC 815-10-15-83(b).[29] That is, in this case, Entity A's initial net investment (that is, the value of the good) is not less than, by more than a nominal amount, the initial net investment that would be required to acquire the crypto asset. However, further evaluation should be performed to determine if the right to receive crypto assets contains an embedded derivative that should be bifurcated and accounted for separately.

FASB ASC 815-15-25-1 provides guidance for evaluating whether a feature in a hybrid instrument is an embedded derivative subject to bifurcation. If the embedded derivative meets all the requirements of FASB ASC 815-15-25-1, then (1) the embedded derivative would need to be separately accounted for as a derivative, and (2) the host contract would be accounted for based on other applicable GAAP.[30]

Entity A should first assess the embedded feature to be evaluated. In this example, we believe the host contract should be viewed as the receivable denominated in the entity's functional currency, and the embedded feature is a forward contract that swaps the entity's functional currency for a fixed quantity of a crypto asset. Entity A should evaluate the guidance in FASB ASC 815-15-25-1(a) to determine if the characteristics and risks of the embedded derivative (that is, the forward right to receive crypto assets in the future) are clearly and closely related to the economic characteristics and risks of the host contract (a simple receivable that represents a debt host under FASB ASC 815). We believe Entity A would conclude that an embedded crypto asset forward contract is not clearly and closely related to its host arrangement (a functional currency receivable for goods provided) because a forward contract on FASB ASC 350 intangible assets is not typically present in fiat financing arrangements.

[27] Refer to the definition of a *crypto asset* in Q&A 1 of this practice aid.

[28] This Q&A focuses on the evaluation of embedded features in a crypto asset–denominated receivable. Although many elements of the analysis may be similar, this Q&A does not address how to evaluate an executory contract (such as an agreement to deliver goods or services in the future) for embedded features pursuant to FASB *Accounting Standards Codification* (ASC) 815, *Derivatives and Hedging*.

[29] Refer also to paragraphs 94–98 of FASB ASC 815-10 for additional details.

[30] Refer to FASB ASC 815-15-25-54.

Entity A would next consider whether the embedded derivative meets the definition of a *derivative* on a standalone basis in accordance with FASB ASC 815-15-25-1(c), as follows:

- FASB ASC 815-10-15-83(a): The forward element has a notional (that is, a fixed quantity of crypto assets) and an underlying (that is, the price of the crypto asset).
- FASB ASC 815-10-15-83(b): As noted previously, the hybrid contract requires a significant initial net investment. However, when evaluating whether the embedded derivative meets the definition of a *derivative* on a standalone basis, FASB ASC 815-15-25-1(c) states that the initial net investment for the hybrid instrument should not be considered to be the initial net investment for the embedded derivative. Because the embedded feature is an at-the-market forward arrangement, there is not more than an insignificant initial net investment.
- FASB ASC 815-10-15-83(c): The embedded feature will result in a fixed quantity of crypto assets delivered. Assuming that there are no other features associated with the hybrid contract that would require or permit net settlement (that is, through the delivery of cash) and a market mechanism does not exist to net settle the contract, Entity A would need to evaluate (at inception and on an ongoing basis) whether the underlying crypto assets to be delivered are readily convertible to cash. In instances when the underlying assets delivered are readily convertible to cash, the contract is effectively net settled and would meet the definition of a *derivative*.
- Assets are readily convertible to cash when they have both (1) interchangeable (fungible) units and (2) quoted prices available in an active market that can rapidly absorb the quantity held by the entity without significantly affecting the price.[31] In assessing whether the crypto assets are readily convertible to cash, Entity A should evaluate (1) whether it has evidence that an *active market*[32] (as defined in FASB ASC 820) exists for the crypto asset, (2) the conversion costs associated with exchanging the crypto assets to cash, (3) whether Entity A has access to such a market, (4) whether Entity A is subject to any resale restrictions, and (5) whether the market identified can rapidly absorb the contract quantity of assets to be delivered without affecting the price.[33]

Finally, Entity A should evaluate whether any FASB ASC 815 scope exceptions are applicable.

If Entity A determines that the embedded derivative should be bifurcated (that is, it meets all the criteria of FASB ASC 815-15-25-1), Entity A will bifurcate the forward arrangement at an initial fair value of zero, pursuant to FASB ASC 815-15-30-4 and subsequently measure the derivative at fair value. In accordance with FASB ASC 815-10, changes in fair value each period associated with the embedded feature (the forward contract) should be recognized in net income. If the embedded derivative is not bifurcated, Entity A may need to further consider impairment and other subsequent measurement concerns.

[31] Refer to FASB ASC Master Glossary for the definition of *readily convertible to cash*.

[32] Per the FASB ASC Master Glossary, an *active market* is "a market in which transactions for the asset or liability take place with sufficient frequency and volume to provide pricing information on an ongoing basis."

[33] The spot market should be evaluated by comparing the crypto asset contract quantity to the daily transaction volume to determine if and how the market price could be affected by the contract. If the price would not be significantly affected, then the market can rapidly absorb the contract.

Crypto asset lending

Question 25:

Assume a lender lends 100 units of a crypto asset (Crypto Asset ABC) for a term of six months to a borrower. The borrower will pay a fee in total of six units of Crypto Asset ABC for borrowing Crypto Asset ABC during the six-month loan period, paying one unit of Crypto Asset ABC each month in arrears during the term (this is typically referred to as an *interest payment* in the agreement). At the end of six months, the borrower is required to deliver 100 units of Crypto Asset ABC back to the lender. For purposes of the Q&A, assume that:

- Crypto Asset ABC is an intangible asset under FASB ASC 350.
- The ownership of loaned Crypto Asset ABC is transferred to the borrower upon the transfer, and the borrower has the right to transfer, encumber or pledge the crypto asset in any way it chooses.
- The borrower is not required to post collateral to the lender in the arrangement.
- The borrower has identified its functional currency as the U.S. dollar under FASB ASC 830, *Foreign Currency Matters*.

How should the lender account for the loan?

Response 25:

Crypto asset lending transactions can be complex, and the accounting for a particular transaction depends on the facts and circumstances. In this case, the transfer of the crypto asset relates to an intangible asset and, pursuant to FASB ASC 350-10-40-1, would be subject to the derecognition guidance on nonfinancial assets in FASB ASC 610-20 or FASB ASC 606, as appropriate. Accordingly, the lender should first evaluate whether it has relinquished control and whether the borrower has obtained control of the crypto assets. The lender should evaluate the definition of *control* and the control indicators in paragraphs 25 and 30 of FASB ASC 606-10-25 to determine if or when control of the lent units of Crypto Asset ABC has transferred to the borrower upon the transfer.

This example does not meet the derecognition criteria in FASB ASC 606 or FASB ASC 610-20. Because the borrower must return 100 units of Crypto Asset ABC in six months, control of the transferred crypto asset has not passed under the repurchase agreement provisions in FASB ASC 606-10-55-68. Consistent with FASB ASC 606-10-55-66, this conclusion is not affected by the fact that units of Crypto Asset ABC are fungible and, therefore, the borrower does not have to return the original units of Crypto Asset ABC it was lent.

Because the units of Crypto Asset ABC loaned cannot be derecognized by the lender, in accordance with FASB ASC 606 or FASB ASC 610-20, no gain or loss on transfer should be recognized at inception of the loan. Rather, we believe the loaned units of Crypto Asset ABC should be reclassified on the lender's balance sheet to an appropriately titled caption such as "Crypto Asset ABC loaned" and continue to be accounted for by the lender under FASB ASC 350, including evaluating cost basis impairment and with appropriate disclosure of the nature of the arrangements. In this case, we believe the payments (that is, the fee) for use of the crypto asset represents a clearly and closely related embedded element of an executory contract[34] that provides the borrower with the use of its crypto asset during the period (specifically, the payment for the use of the asset is tied to the value of the asset lent). Relative to income recognition of the payments for using the crypto asset, we observe that the loan of Crypto Asset ABC is not within the scope of FASB

[34] The determination of whether this is clearly and closely related is driven by facts and circumstances. If the facts and circumstances are different, entities may reach a different conclusion.

ASC 842, *Leases*, or FASB ASC 835, *Interest*. However, similar to a lease of a tangible asset, the lender is providing a valuable right to use its crypto asset for a period of time from which the customer benefits throughout that period. Given the nature of the crypto asset (that is, with its indefinite economic life) and the borrower's payments for the right of use, we believe that right of use is analogous to an *operating* lease. Therefore, we believe it is appropriate to recognize the fees the lender receives for granting that right of use over the loan period on a generally straight-line basis.

The answer to this question depends significantly on the nature of the asset loaned. If the loaned asset was not an intangible asset accounted for pursuant to FASB ASC 350, but, instead, was a financial asset, other GAAP would apply, such as FASB ASC 860, *Transfers and Servicing*. Further, the specific terms of each arrangement should be analyzed to determine whether the loaned crypto asset should be derecognized by the lender, whether the arrangement contains derivatives (freestanding or embedded), and how income related to the lending arrangement should be recognized.

Question 26:

Assume identical facts to question 25. How should the borrower account for the loan?

Response 26:

Crypto asset lending transactions can be complex, and the accounting for a particular transaction depends on the facts and circumstances. In this example, it is assumed that the borrower has obtained control because it has the right to transfer, encumber or pledge the crypto asset in any way it chooses. The borrower should recognize the units of Crypto Asset ABC received at fair value on its balance sheet at the date it obtains control of the crypto asset. See Q&A 10 in the Accounting Subgroup section of this practice aid for additional guidance on making the judgment about whether the borrower has obtained control of a crypto asset — importantly, the borrower and the lender may reach different conclusions because the borrower is not subject to FASB ASC 610-20 or FASB ASC 606 in evaluating whether it obtains control of the crypto asset borrowed.

If it is determined the borrower obtained control of the crypto asset, the borrower also should record an offsetting obligation to return Crypto Asset ABC to the lender, which should be recognized at the fair value of Crypto Asset ABC on the date the borrower obtains control. Subsequently, the borrowed Crypto Asset ABC should be accounted for pursuant to the measurement and impairment guidance in FASB ASC 350, and the obligation to return should be accounted for as a liability.

Pursuant to FASB ASC 815, the obligation to return should be viewed as a hybrid instrument with a debt host contract and embedded derivatives linked to the fair value of Crypto Assets ABC loaned. Because the obligation is denominated in units of Crypto Asset ABC, the borrower will generally identify Crypto Asset ABC indexed embedded features in the hybrid instrument that may need to be bifurcated and marked to market pursuant to the provisions of FASB ASC 815. This analysis of the obligation to deliver a fixed number of crypto assets in satisfaction of the obligation is similar to the example in FASB ASC 815-10-55-76, in which an obligation to deliver shares in the future is viewed as a hybrid instrument with a debt host and embedded forward derivative feature.

The borrower identifies the host contract as a dollar-denominated debt obligation with a fixed interest rate following the principles in FASB ASC 815-15-25-24. Consistent with that judgment, the Crypto Asset ABC indexed elements of the obligation are viewed as embedded features with an initial fair value of zero pursuant to FASB ASC 815-15-30-4. Specifically, if the host contract is a fixed rate debt instrument, the embedded features represent pay crypto, receive dollar forward contract elements that should be evaluated for bifurcation. The bifurcation analysis under FASB ASC 815 depends on a number of factors, including whether the embedded feature can be net settled. In contracts that require gross settlement, the net settlement criterion may be met, for instance, if delivery of Crypto Asset ABC would be readily convertible to cash under that standard (refer to Q&A 24 for details). If the forward embedded features are required to be bifurcated, the features would be marked to market through net income each period as a derivative in accordance with FASB ASC 815-10.

Although the related asset would not otherwise be marked to market in a similar way under FASB ASC 350, the bifurcated embedded feature (crypto ABC derivative) related to the liability may be considered a hedging instrument in a fair value hedging relationship of the Crypto Asset ABC if designated, documented, and found to qualify for hedge accounting under the provisions of FASB ASC 815.

Mining

Question 27:

If an entity operates as a crypto asset miner, how should the entity recognize, and measure, transaction fees and block rewards earned in connection with its mining efforts?

For purposes of this Q&A, assume the following:

- The miner does not apply any specialized industry accounting (for example, FASB ASC 946).
- A crypto asset is an intangible asset under FASB ASC 350.

Blockchain networks that use Proof-of-Work protocols rely on miners that compete to validate and add blocks of transactions to the distributed ledger. To incentivize these miners to compete in processing the transactions for the next block, the winning miner is entitled to transaction fees, a block reward or both. Transaction fees are specified in each transaction request and are paid by the participant who requested the transaction (the requester) in the native crypto asset for the blockchain (for example, bitcoin). Block rewards are newly created crypto asset units granted to the winning miner by the network under the blockchain's consensus protocol.

Response 27:

Transaction fees

Transaction fees earned by a crypto asset miner should be recognized as revenue from customers in accordance with FASB ASC 606.

The transaction fees are specified in each transaction request and paid by the requester to the successful miner in exchange for the successful processing of the transaction. The requester meets the definition of a *customer* in FASB ASC 606 because it has contracted with the miner to obtain a service (successful mining) that is an output of the miner's ordinary activities in exchange for consideration.

A contract with a customer exists at the point when the miner successfully validates a requesting customer's transaction to the distributed ledger. At this point, the performance obligation has been satisfied in accordance with FASB ASC 606-10-25-30. Because of this, the additional criteria in FASB ASC 606-10-25-1 would be met as follows:

- Both the requester (a customer) and the miner have approved the contract and are committed to the transaction at the point of successfully validating and adding the transaction to the distributed ledger.
- Each party's rights, the consideration to be transferred, and the payment terms are clear.
- The transaction has commercial substance (that is, the risk, timing, or amount of the miner's future cash flows is expected to change as a result of the contract).
- Collection of the fees is probable because it is completed as part of closing a successful block.

By successfully mining a block, the miner satisfies its performance obligation to the requester and, thus, should recognize revenue at that point in time.

The payment of transaction fees in crypto asset constitutes non-cash consideration under FASB ASC 606-10-32-21. This non-cash consideration is measured at its estimated fair value at contract inception — that is, the date that the criteria in FASB ASC 606-10-25-1 are met. If fair value cannot be reasonably estimated in accordance with FASB ASC 606-10-32-22, the consideration should be measured indirectly by reference to the stand-alone selling price of the miner's services.

Miners should disclose, if not presented separately in the statement of comprehensive income (statement of activities), transaction fees as *revenue recognized from contracts with customers* in accordance with FASB ASC 606-10-50-4.

Block rewards

Block rewards earned by a crypto asset miner are generally are recognized as revenue, but the evaluation is required to determine if the block rewards earned should be recognized as revenue from contracts with customers under FASB ASC 606 or as other revenue.

Entity A should first evaluate whether its mining activities represent a contract with a customer to provide services and, if so, whether it should recognize block rewards it receives from the network as revenue from a customer under FASB ASC 606. All relevant facts and circumstances, including the network's protocols, should be considered in determining (1) whether Entity A has a contract with a customer under FASB ASC 606-10-25-2 and (2) whether its mining activities on the network meet all the criteria in FASB ASC 606-10-25-1.

If the miner concludes that the block rewards aren't revenue from contracts with customers under FASB ASC 606, it should consider other relevant guidance.

The inflow of crypto assets as a result of the block reward would meet the definition of *revenue* in the concepts statements because it gives rise to economic benefits to the miner from rendering services or carrying out activities. Therefore, miners may account for the block reward as revenue. Because there is no specific guidance that applies to revenues from block rewards, a miner could apply by analogy the revenue recognition guidance in FASB ASC 606 to recognize and measure the revenue from block rewards.

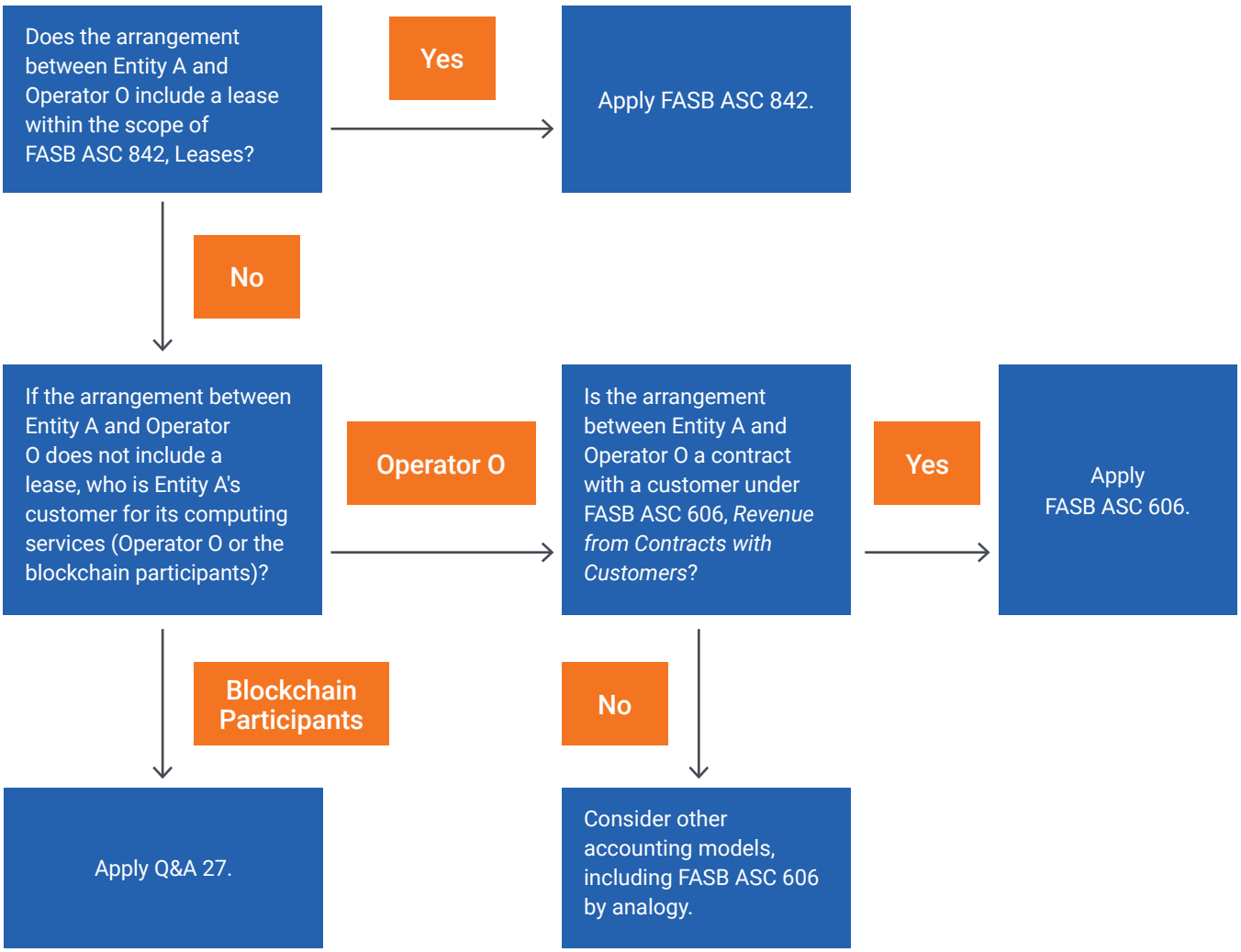
If analogizing to FASB ASC 606, the revenue from block rewards would be presented separately from FASB ASC 606 revenues from contracts with customers on the statement of comprehensive income or separately disclosed in the notes to the financial statements. This is because FASB ASC 606-10-50-4(a) requires an entity to disclose, unless separately presented in the statement of comprehensive income, the amount of revenue recognized from contracts with customers under FASB ASC 606 separately from other sources of revenue.

Question 28:

Entity A shares its computing infrastructure as part of a mining pool run by Operator O. The computing infrastructure from participants (including Entity A) is used for the mining activities of the pool. Each participant operates their own computing infrastructure. The block rewards received from the network upon successfully mining a block are collected by Operator O and then transferred to the mining pool participants in accordance with an agreed-upon formula.

How does Entity A account for the arrangement?

Response 28:



Entity A should apply the following steps to determine the appropriate accounting for its arrangement with Operator O.

- **Step 1: Does the arrangement between Entity A and Operator O include a lease within the scope of FASB ASC 842?**

  The guidance in FASB ASC 842 applies to contracts that convey the right to control the use of identified property, plant, and equipment for a period of time in exchange for consideration. For a lease to exist under FASB ASC 842, a customer should have both the right to obtain substantially all the economic benefits from using an identified asset and the right to direct its use. This determination should be based on all the facts and circumstances, including the terms and conditions of the contract. If Operator O can dictate when Entity A makes use of its computing infrastructure assets, this may indicate that Entity A is leasing those assets to Operator O.

  If the arrangement between Entity A and Operator O includes a lease, Entity A should apply the lessor accounting guidance in FASB ASC 842. Entity A should also consider whether it is providing a non-lease component service to Operator O of operating and maintaining the computing infrastructure assets.

  If Operator O is leasing Entity A's computing infrastructure, Entity A's customer for that lease and any operations and maintenance services will generally be Operator O. This means that, in general, Operator O is the principal to the mining activities undertaken using Entity A's computing infrastructure.

- **Step 2: If the arrangement does not include a lease, the next step is for Entity A to assess for which party it is providing computing services. Depending on the facts and circumstances, Entity A may be providing those services either for Operator O or the blockchain participants.**

  To make this determination, it would typically be appropriate for Entity A to consider whether it or Operator O is the principal for the mining activities performed on the blockchain, using the principal versus agent guidance in FASB ASC 606. If Entity A is the principal for providing mining services to the blockchain participants, Operator O is an agent arranging for Entity A to provide those services. If, instead, Operator O is the principal performing the mining activities on the blockchain, Entity A is providing computing services to Operator O, assisting Operator O with its provision of mining services to the blockchain participants.

  Determining the principal for performing the mining service may involve judgment. An entity should consider all the relevant guidance in FASB ASC 606 on principal versus agent considerations when making this determination. Some questions that may be relevant to applying that guidance in the context of mining pool arrangements include the following:

  - Does Operator O direct (that is, assign) to the mining pool participants (including Entity A) the mining activities they undertake as part of the pool?
  - Is Entity A or Operator O primarily responsible for selecting the transactions to be mined, the activities to be performed, placing the mined block on the blockchain, and collecting the block reward?
  - Does Entity A bear the risks and rewards associated with the mining activities? For example, is Entity A compensated on a fixed basis per unit of computing power delivered or, instead, allocated a percentage only of the actual rewards earned based on the results of the mining activities?

  If Entity A concludes that it is engaging in mining activities directly on the blockchain, rather than providing computing services to Operator O, the mining pool arrangement may represent a sharing of transaction fees and block reward between pool participants that is some form of joint arrangement under FASB ASC 808, *Collaborative Arrangements*. In that case, Entity A should apply Q&A 27 to account for its share of the transaction fees and block reward.

- **Step 3: Once Entity A determines to which party it is providing computing services, it should consider if those services are being provided pursuant to a contract with a customer under FASB ASC 606.**

  Refer to Q&A 27 if Entity A concludes it is providing computing services to the blockchain participants, that is, engaging in mining activities directly on the blockchain.

  If Entity A concludes it is providing computing services to Operator O, Entity A should evaluate whether its mining pool arrangement with Operator O is a contract with a customer. This evaluation should consider the definitions of both *contract* and *customer* in FASB ASC 606 as well as the following questions:

  – Do the terms and conditions of the mining pool arrangement create enforceable rights and obligations for Operator O and Entity A as described in FASB ASC 606-10-25-2?

  – Does the arrangement meet all the criteria in FASB ASC 606-10-25-1?

  – Is providing computing services of this nature an output of Entity A's ordinary activities pursuant to FASB ASC 606-10-15-3?

  If Entity A's computing services to Operator O are provided pursuant to a contract with a customer, Entity A should apply the guidance in FASB ASC 606 to recognize revenue from that contract.

  If Entity A determines that its computing services are not being provided pursuant to a contract with a customer, they are outside the scope of FASB ASC 606. Entity A should determine the appropriate accounting and presentation model to apply, including whether it is appropriate to apply FASB ASC 606 by analogy.

Auditing subgroup

Client acceptance and continuance

1. Overview

The topics in this section of the practice aid address matters for auditors to consider regarding accepting or continuing audit engagements of entities in the current digital asset ecosystem. As firms seek to provide audits to entities within the ecosystem, caution and consideration must be given to unique risks and challenges in the digital asset ecosystem.

The topics in this section of the practice aid focus on auditing applications and do not address ethics or independence considerations; it is important to note, however, that these considerations remain critical to an auditor's conformity to professional standards, and engagements in the digital asset ecosystem may introduce new or different compliance risks warranting additional consideration by the auditor. For example, a member of the engagement team may hold digital assets issued by the entity subject to audit. ET section 1.200, "Independence," provides examples of relationships or circumstances that create threats to compliance with the "Independence Rule," and ET section 1.295, "Nonattest Services," addresses threats involving the provision of nonattest services to an audit client, including the following specifically:

- **Self-review threat —** Threat that a member will not appropriately evaluate the results of a previous judgment made or service the member (or colleague) performed or supervised, which the member will rely on when forming a judgment as part of an attest engagement.
- **Management participation threat —** Threat that a member will assume the role of attest client management or perform management responsibilities for an attest client.
- **Advocacy threat —** Threat that a member will promote an attest client's interests or position to the point that his or her independence is compromised.

In addition to the AICPA Code of Professional Conduct, the following standards apply to client acceptance and continuance procedures:

- QC section 10, *A Firm's System of Quality Control*, as it relates to audits
- AU-C section 200, *Overall Objectives of the Independent Auditor and the Conduct of an Audit in Accordance With Generally Accepted Auditing Standards*
- AU-C section 210, *Terms of Engagement*
- AU-C section 220, *Quality Control for an Engagement Conducted in Accordance With Generally Accepted Auditing Standards*[1]

[1] All QC and AU-C sections can be found in AICPA *Professional Standards*.

The topics covered in this section of the practice aid are divided into the following sections:

- **Section 2:** Auditor skill sets and competencies
- **Section 3:** Management skill sets and competencies
- **Section 4:** Management integrity and the entity's overall business strategy
- **Section 5:** Processes and controls, including information technology systems

Each section begins with a detailed summary of the applicable professional standards, then outlines some unique challenges to engagements in the digital asset ecosystem, and ends with practical recommendations auditors may apply to address those challenges and requirements.

NOTE: For engagements involving digital assets, there may be a potential for an increase in instances of scope limitations given the potential for challenges in obtaining sufficient appropriate audit evidence.

2. Auditor skill sets and competencies

Relevant professional standards

QC section 10 and AU-C section 220 each contain requirements related to a firm's evaluation of its personnel's competence to perform an engagement prior to acceptance or continuance of a client relationship or specific engagement.[2]

A firm's evaluation generally encompasses competence, capabilities, resources, and availability of the engagement team. In this context, the engagement team includes the engagement partner, firm personnel assigned to the engagement (including internal specialists), and external specialists, if applicable.

The AICPA Code of Professional Conduct explains the meaning of the term *competence*, stating:

> .03 Competence is derived from a synthesis of education and experience. It begins with a mastery of the common body of knowledge required for designation as a certified public accountant. The maintenance of competence requires a commitment to learning and professional improvement that must continue throughout a member's professional life. It is a member's individual responsibility. In all engagements and in all responsibilities, each member should undertake to achieve a level of competence that will assure that the quality of the member's services meets the high level of professionalism required by these principles.
>
> .04 Competence represents the attainment and maintenance of a level of understanding and knowledge that enables a member to render services with facility and acumen. It also establishes the limitations of a member's capabilities by dictating that consultation or referral may be required when a professional engagement exceeds the personal competence of a member or a member's firm. Each member is responsible for assessing his or her own competence of evaluating whether education, experience, and judgment are adequate for the responsibility to be assumed.
>
> [ET section 0.300.060, "Due Care"]

[2] See paragraphs .27a and .A11 of QC section 10 and paragraphs .14 and .A7 of AU-C section 220.

The purpose of the firm's evaluation is to provide the firm reasonable assurance that it will only undertake client relationships and engagements for which it can perform the audit in accordance with professional standards and applicable legal and regulatory requirements to enable the issuance of an auditor's report that is appropriate in the circumstances.

Paragraph .A11 of QC section 10 states the following:

> Consideration of whether the firm has the competence, capabilities, and resources to undertake a new engagement from a new or an existing client involves reviewing the specific requirements of the engagement and the existing partner and staff profiles at all relevant levels, including whether
>
> - firm personnel have knowledge of relevant industries or subject matters or the ability to effectively gain the necessary knowledge;
> - firm personnel have experience with relevant regulatory or reporting requirements or the ability to effectively gain the necessary competencies;
> - the firm has sufficient personnel with the necessary competence and capabilities;
> - specialists are available, if needed;
> - individuals meeting the criteria and eligibility requirements to perform an engagement quality control review are available, when applicable; and
> - the firm is able to complete the engagement within the reporting deadline.

The assessment of these items occurs before accepting or continuing an engagement and is meant to mitigate the risk that the firm accepts an engagement it is not capable of effectively performing. If a firm has an insufficient understanding of the industry and environment when it accepts a client and fails to recognize and address the need for additional resources or education, it will be difficult, and may not be possible, for that firm to perform an effective audit or comply with applicable professional standards.

An auditor's ability to obtain a robust understanding of the client and its environment (sections 3 and 4), including its system of internal control (section 5), is critical to an effective risk assessment and audit response. For example, a firm may have deep experience in the financial services industry and may be presented with a client opportunity in that industry that also involves digital assets. Consideration in evaluating the client acceptance and continuance determination include a firm's (1) current industry expertise; (2) understanding of digital assets; and (3) understanding of how digital assets are being used in the specific client situation being evaluated. Knowledge of all three components is necessary for an auditor to effectively perform an engagement, and it is important to assess the ability to perform each for a well-informed client acceptance or continuance decision.

Performing audits in the digital asset ecosystem may require a firm to update, or include additional oversight of, its existing system of quality control. For example, if the firm intends to pursue audit work for entities participating in the ecosystem and its recruitment and training programs do not currently contemplate issues unique to that ecosystem, more thought and attention may need to be placed on assessing whether the firm has sufficient personnel with the necessary competence and capabilities in the client acceptance or continuance and other quality control processes, or the need to engage external specialists.

Paragraph .A11 of QC section 10 acknowledges that firm personnel may not have "knowledge of relevant industries or subject matter or the ability to effectively gain the necessary knowledge." A client acceptance and continuance determination, therefore, requires an assessment both of any gaps in the skill sets of the firm's personnel and of whether the firm can satisfactorily address those gaps if it chooses to accept or continue to be engaged with the client.

Notwithstanding that the standard allows for the ability to gain the necessary knowledge for emerging issues and industries, such as digital assets, for which a firm has no previous expertise, it is important to recognize the risk of overconfidence in client acceptance and continuance decision-making and implement appropriate firm quality controls or oversight to challenge those decisions. The digital asset ecosystem is evolving rapidly; it is important for the firm to understand the level of effort necessary to gain the knowledge about the ecosystem (or relevant parts thereof) needed to make a reasoned client acceptance and continuance determination and competently perform the audit.

Challenges specific to digital assets

Client acceptance and continuance procedures serve as a means of managing and mitigating the firm's own risks (including professional liability or external audit regulation) and informing its quality control strategy for an engagement. Although all industries encounter change, the digital asset ecosystem is evolving rapidly, and auditors' skill sets and competencies may be particularly strained in this environment. In designing procedures to meet the requirements of GAAS and QC section 10, firms may encounter challenges in adapting or maintaining auditors' skill sets and competencies related to the digital asset ecosystem in the following ways:

- Staying apprised of regulatory, industry, technological, or financial reporting developments affecting current or potential clients that may affect the risk assessment or other aspects of the audit;
- Recruiting, developing, and retaining talent in a highly competitive market, particularly those qualified in the information technology and cybersecurity aspects of the audit;
- Appropriately directing, supervising, and reviewing the work of the engagement team including staff, internal specialists, and multiple external specialists whose skill sets may not be familiar to the audit team;
- Adapting to new or different risks as the ecosystem evolves or new issues are identified;
- Updating training curricula for current and future auditors to adapt to the rapidly evolving elements of the digital asset ecosystem, new digital assets, and the surrounding business and regulatory environment.

When considering engagement acceptance or continuance in accordance with paragraph .27 of QC section 10, the firm takes into account the challenges to possessing appropriate competence indicated previously.

Procedures to consider specific to digital assets

Procedures specific to the digital asset ecosystem that an auditor may perform as part of the acceptance and continuance process include the following:

- Identify, in firm policy or quality control materials, the types of clients or engagements the firm is capable of accepting.
- Determine firm-wide areas of focus or criteria for client acceptance for entities within the digital asset ecosystem. For example, provided the firm's client acceptance criteria are met, some firms may decide to focus on validator entities only, given their level of experience in auditing such entities, and other firms may feel comfortable serving validator and exchange entities. If auditors are generally aware of the types of clients the firm will or will not accept, there is less risk that the firm will inadvertently accept an engagement it is not qualified to perform.

- Build general awareness among firm personnel of the risks inherent in the digital asset ecosystem, so that current auditors understand such risks and what resources are available for existing client engagements. For example, a firm's existing clients may become exposed to the digital asset ecosystem in a variety of ways, whether through vendors, customers, or the client's own strategic choices. To build awareness, a firm could develop a training program that discusses the risks described in this practice aid along with ways the firm is addressing those risks in its internal system of quality control.
- Communicate consultation resources, training, or guidance to relevant firm personnel and when necessary, re-evaluate client acceptance and continuance decisions based on changing facts and circumstances.
- Identify an individual or individuals, either internal or external to the firm, with known, demonstrated competence in auditing entities within the digital asset ecosystem to serve as the firm's subject matter expert(s) (SMEs). Note: the inability to identify such an individual may call into question the firm's ability to gain the necessary competence to perform work in this space.
- Communicate the SME name(s) to the practice for awareness.
- Require SME involvement in client acceptance and continuance decisions to make sure the considerations listed previously are made and documented appropriately.
- Implement training programs to acclimate relevant personnel to unique issues and risks discussed in other sections of this practice aid, commensurate with the needs identified in the client acceptance process; consider AICPA resources[3] or other sources to tailor training appropriately for engagement personnel and internal specialists (for example, IT, valuation, or cybersecurity).
- To the extent external specialists will be engaged, establish protocols for evaluating specialists that might not have been necessary in the past (Paragraph .09 of AU-C section 620, *Using the Work of an Auditor's Specialist*).

If one or more engagements in the digital asset ecosystem are accepted, a firm may need to consider other potential updates to the system of quality control, including the following types of changes:

- Implement authorized lists of engagement partners and other individuals approved to be assigned to different roles on an audit in the digital asset ecosystem (Paragraphs .33–.34 of QC section 10).
- Design, implement, and commit to maintaining guidance, practice aids, tools, training, and work programs to promote consistency and quality in engagement performance, supervision, and review, particularly in the risk assessment phase and audit strategy execution on an audit in the digital asset ecosystem (Paragraphs .35–.36 of QC section 10).
- Establish consultation requirements for unique auditing or financial reporting issues that may be relevant in the digital asset ecosystem (Paragraph .37 of QC section 10).
- Update the criteria for determining which engagements require an engagement quality control review, tailor review requirements to new or different risks, and assess the technical competence and qualifications of approved reviewers (Paragraphs .38–.45 of QC section 10).
- Include new or high-risk engagements in the scope of pre- or post-issuance quality control monitoring procedures to evaluate engagement quality and the effectiveness of the quality control measures described herein (Paragraph .52 of QC section 10).

[3] The AICPA has developed a course titled *Blockchain Fundamentals for Accounting and Finance Professionals Certificate* and also released a white paper titled *Blockchain Technology and Its Potential Impact on the Audit and Assurance Profession*.

In addition to the procedures noted previously, the following are some questions a firm may consider in the client acceptance and continuance process to evaluate its skill sets and competencies. For any negative or unknown answers, the auditor may need to perform additional procedures before accepting or agreeing to perform the audit, or ultimately decline the client or engagement. These examples are neither exhaustive nor always applicable, because facts and circumstance may vary from one engagement to the next.

- Does the firm have other similarly situated clients in the digital asset ecosystem?
- Does the auditor understand the applicable regulatory environment, and whether there is a risk an entity may not comply with laws and regulations?
- Does the auditor understand how the applicable financial reporting framework is applied to the client or its operations?
- Does the auditor understand the client's operations sufficiently to identify appropriate personnel to assign to the engagement (including partner, staff and internal specialists) and to perform an effective risk assessment?
- Are personnel sufficiently knowledgeable? If not, can the gaps be addressed with additional training or assistance from external specialists?

  Note that these questions address the proposed engagement team's ability to understand and interact with management and its specialists on other topics, including sufficient knowledge to remain skeptical and challenge management's positions. As discussed in sections 3 through 5, a firm may identify a need for more dialogue with management prior to client acceptance and continuance, potentially including questions about the extent of digital assets in the entity's operations, the entity's system of internal control related to digital assets, what tools the entity uses, how it values and records transactions, or what custody solutions it uses. In addition, these questions may assist the auditor in evaluating appropriate audit personnel and skill sets.

- Do personnel have the time and resources needed to perform the engagement effectively?

  Note that even if external specialists will be utilized, the ethical requirements relating to due professional care (ET section 0.300.060) and GAAS require the firm have procedures in place to supervise and take responsibility for the sufficiency of the audit work.

  Additionally, in this context, "resources" may encompass investments in technology or tools needed to gather sufficient appropriate audit evidence of digital assets and transactions. Most commonly, these may include transaction validation and valuation resources.

- Does the firm have appropriate processes and resources in place to support the proposed engagement team with questions, consultations, or pre-issuance reviews?

As described previously, firms may need to adapt existing quality control practices to provide more guidance or resources for consultation or pre-issuance review procedures, including engagement quality control review. In addition to providing training and resources to the engagement team, firms may need to do so for personnel performing consultations and reviews.

3. Management skill sets and competencies

Relevant professional standards

AU-C section 210 requires the auditor to obtain the agreement of management that it acknowledges and understands its responsibility for

a. the preparation and fair presentation of the financial statements in accordance with the applicable financial reporting framework;
b. the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error; and
c. providing the auditor with access to all relevant information and persons necessary to obtain audit evidence.

Further, as described in section 4, certain requirements of AU-C section 315, *Understanding the Entity and Its Environment and Assessing the Risks of Material Misstatement;* and AU-C section 250*, Consideration of Laws and Regulations in an Audit of Financial Statements*, are helpful to consider during acceptance and continuance procedures. As such, auditors may perform procedures to understand management's commitment to competence for particular jobs and how those levels translate into requisite skills and knowledge. The auditor should also consider attributes of those charged with governance, such as their experience and stature and whether they have sufficient skills and knowledge to fulfill their responsibilities.

Challenges specific to digital assets

Given the complexity associated with blockchain technology and digital assets, management may lack the skill sets or competencies needed to maintain the entity's books and records and secure its assets. Therefore, the assessment of whether an entity's personnel has the necessary competence and capabilities is likely an important factor related to the auditor's decision to accept or continue an audit engagement. Even if management has integrity and a sound business strategy, but does not have the appropriate skill sets or competencies, an audit may not be possible without management addressing the shortfalls. This may be because appropriate books and records were not maintained, processes and controls have not been implemented, or management over-relies on the auditor, thereby introducing the risk that the auditor is unable to fulfill their responsibility of providing an independent, objective opinion on the financial statements of the entity.

Further, when assessing the risks relative to the period being considered for acceptance or continuance, it is critical to understand *when* management obtained the necessary skill sets and competencies. For example, if an entity recently incorporated digital assets into its operations, it may be important for the auditor to consider management's ability to implement systems, processes, and controls over digital assets sufficient to produce financial statements free of material misstatement. Similarly, if certain actions are not taken when a transaction or control activity occurs, certain types of audit evidence may be difficult to obtain (for example, evidence that a control related to private key management operated effectively). Further, an entity's technical capabilities in developing digital assets technologies, although important, may not be indicative of sufficient and appropriate financial reporting capabilities or technical accounting experience.

Necessary skill sets and competencies of management include a general understanding of, and technical skill sets related to, blockchain technology and digital assets, sufficient for management to do the following:

- Identify the unique risks in the space and design and implement internal controls to respond to such risks. For example, given the pseudo-anonymity[4] associated with digital assets, management may implement internal controls to identify related parties and relationships and transactions with related parties — for example, know-your-customer (KYC) and other procedures.
- Understand the pace at which the technology could evolve and the need for additional controls or personnel.
- Have processes and controls for maintaining appropriate books and records, including maintaining appropriate support for transactions and applying the appropriate financial reporting framework. For example, an entity may maintain an independent record of digital asset transactions and reconcile such to the transaction summary provided from a custodian.
- Have competent personnel with ability to appropriately apply the financial reporting framework.
- Identify applicable laws and regulations or areas of evolving laws and regulations.
- Have access to or ability to identify the need for specialists — for example, competent legal counsel, IT specialists, or cybersecurity specialists.

Procedures to consider specific to digital assets

Given the challenges described previously, evaluating the skill sets and competencies of management in the client acceptance or continuance process may be more involved than typically performed for other new or continuing clients. Client acceptance and continuance procedures may include an evaluation of whether management has the requisite understanding of the risks, necessary controls, and understanding of the applicable financial reporting framework. This includes assessing the entity's ability to identify and address risks within the underlying technology that may introduce risks of material misstatement due to errors or fraud.

The following are some inquiries an auditor may consider incorporating into the acceptance and continuance process to evaluate management's skill sets and competencies.

- Does management have experience in the digital asset ecosystem such that it can identify the unique risks in the space and design and implement internal controls to respond to such risks (for example, risks surrounding private key management, related party transactions and disclosures or other fraud risks)?
- Does management understand the applicable regulatory environment and areas of evolving laws and regulations?
- Does management either (1) maintain books and records that are independent from the blockchain or third party or (2) derive the entity's records of balances and transactions solely from the blockchain or from statements provided by a third party? If the latter, the auditor may want to further understand, as part of the acceptance and continuance process, management's processes and controls over the quality of this information.

[4] In blockchain environments, digital assets are exchanged between blockchain addresses and private keys are used for authorization. However, the specific names and identities of those parties transacting are not explicitly identified with those addresses and keys. While it is possible to determine the identity through various de-anonymizing methods, this offers a level of disguised identity by transacting without publicly providing any personally identifiable information.

- Does management engage appropriate and qualified specialists or accounting consultants as needed when management does not have sufficient knowledge or expertise (for example, in house or external legal counsel or IT specialists, including cryptography and cybersecurity specialists) and perform effective reviews of the work performed by such specialists?
- Does management understand how the applicable financial reporting framework is applied to its operations? (See the "Accounting Subgroup" section of this practice aid.)

In addition to the previous inquiries, reading the accounting policy memorandums prepared by the entity (or performing detailed inquiries with management) assists the auditor in determining whether the entity appears to be sufficiently knowledgeable to assess the applicability of accounting standards, in addition to determining whether the entity has adequately applied the accounting standards. The entity should have competent members of the finance and accounting teams to determine appropriate accounting treatment of digital assets. Digital assets may carry different properties warranting varying classifications in the financial statements. Processes should be in place to assess the proper recognition, derecognition, measurement, classification, and tracking of new digital assets. (See "Accounting Subgroup" section of this practice aid.)

Depending on the results of these inquiries and procedures, auditors may need to further expand inquiries or seek additional information. In addition to evaluating management's skill sets and competencies, the auditor also considers management's integrity and overall business strategy regarding digital assets as a part of the client acceptance and continuance process.

4. Management integrity and overall business strategy

Relevant professional standards

In accordance with paragraph .27 of QC section 10, a firm should establish policies and procedures for the acceptance and continuance of client relationships and specific engagements, designed to provide the firm with reasonable assurance that it will undertake or continue relationships and engagements only when, among other things, the firm has considered the integrity of the client and does not have information that would lead it to conclude that the client lacks integrity.

Matters to consider regarding the integrity of a client may include the following:

- The identity and business reputation of the client's principal owners, key management, and those charged with governance;
- The nature of the client's operations, including its business practices;
- Information concerning the attitude of the client's principal owners, key management, and those charged with governance toward such matters as internal control or aggressive interpretation of accounting standards;
- Indications of an inappropriate limitation in the scope of the work;
- Indications that the client might be involved in money laundering or other criminal activities; and
- The reasons for the proposed appointment of the firm and non-reappointment of the previous firm (Paragraph .A12 of QC section 10).

When performing acceptance and continuance procedures, it may also be helpful for the auditor to consider certain requirements in other AU-C sections addressing activities that may occur after client acceptance and continuance, such as AU-C section 315 and AU-C section 250. For example, paragraph .12 of AU-C section 315 requires the auditor to obtain an understanding of the entity's objectives and strategies and those related business risks that may result in risks of material misstatement. Paragraph .15 of AU-C section 315 further requires that the auditor should obtain an understanding of the control environment, including evaluating whether

- management, with the oversight of those charged with governance, has created and maintained a culture of honesty and ethical behavior, and
- the strengths in the control environment elements collectively provide an appropriate foundation for the other components of internal control and whether those other components are not undermined by deficiencies in the control environment.

Elements of the control environment that may be relevant when obtaining this understanding include management's communication and enforcement of integrity and ethical values and commitment to competence, as well as attributes of those charged with governance, such as their experience and stature (paragraph .A79 of AU-C section 315).

The auditors may also consider the requirements in AU-C section 250, which highlights aspects of the legal and regulatory environment. Paragraph .12 of AU-C section 250 requires that the auditor obtain a general understanding of the following:

a. The legal and regulatory framework applicable to the entity and the industry or sector in which the entity operates; and
b. How the entity is complying with that framework.

Challenges specific to digital assets

The digital asset ecosystem presents unique considerations for auditors in the client acceptance and continuance process, which relate to both management's integrity and commitment to compliance with laws and regulations and its strategic objectives; for example, the following:

- The pseudo-anonymous nature of the digital asset transactions may present an opportunity for illegal activities such as money laundering or other illegal activities. Noncompliance with KYC procedures, anti-money laundering (AML) procedures, and other regulations could present considerable reputation and business risks to the entity in the form of fines and penalties, both criminal and civil.
- The anonymity of participants in public blockchain transactions may make it difficult to identify transactions with related parties or "bad actors" who may have illegal or fraudulent intentions. It may also provide opportunities to engage in fraud schemes such as roundtrip transactions.

- Ease of entry to the market (that is, anyone can market or create a digital asset) may attract those who lack integrity or a commitment to competence into the digital asset ecosystem.
- Management may not have a sufficient understanding of digital assets, the underlying technology and protocols, or the evolving regulatory environment to identify the risks related to fraud or noncompliance with laws and regulations. Furthermore, although management may assert that activities related to digital assets may not be significant or material to the financial statements, it is important for the auditor to consider noncompliance with laws and regulations (for example, failing to meet the regulatory requirements governing the issuance of a token that might be a "security") regardless of materiality, when completing client acceptance and continuance evaluations.

Procedures to consider specific to digital assets

When making client acceptance and continuance decisions for audits of entities in the digital asset ecosystem, auditors will likely find it important to obtain information necessary to understand the entity's business strategy, planned operations, and role the entity serves or intends to serve in the overall digital asset ecosystem.

Obtaining an understanding of the entity's business purpose in its initial involvement or significant changes in its involvement with digital assets is a key aspect in assessing management's integrity. If a new engagement is accepted or an existing engagement is continued, such understanding will be a critical starting point for identifying and assessing risks of material misstatement associated with those areas where special audit consideration may be necessary (for example, related party transactions).

In addition, each role within the digital asset ecosystem (for example, entities that hold the digital assets, custodians or wallet companies, exchanges, funds that invest in digital assets, vendors accepting digital currency, and validators) may present unique considerations.

Given the challenges described, auditors considering accepting new engagements or continuing existing engagements for clients in the digital asset ecosystem will ordinarily find it appropriate to augment their usual procedures by including some or all of the following. (The examples provided are nonexhaustive, and the nature and extent of these example procedures may vary depending on the entity's role in the ecosystem and the type of digital assets held by the entity.)

- Inquire with management to understand its business purpose related to the entity's current and future anticipated involvement with digital assets. The depth and breadth of these inquiries may vary depending on the nature and significance of the entity's involvement in digital assets (for example, whether entities own, invest, trade, have custodial responsibilities for, or otherwise transact digital assets). For example, if an entity accepts payment in digital assets but immediately converts it to U.S. dollars, the auditor's consideration of the business purpose of the involvement with digital assets may be less complex compared to an exchange offering multiple types of digital assets.
- Inquire with management to understand the control environment and the tone at the top, including management's philosophy, operating style, and level of tolerance for risk. These inquiries may focus on obtaining an understanding of how the entity's involvement in digital assets has been considered as a part of management's risk assessment and the level of risk they are willing to accept in the context of their overall risk appetite.

- Inquire with management to understand the nature of digital assets held or intended to be held and significance of such assets to the business. Inquiries may focus on obtaining an understanding of the type of digital assets held by the entity and the materiality of such assets.
- Inquire with management to understand their policies and procedures to onboard new customers or enter into relationships with other players in the digital asset ecosystem. These may include KYC procedures, AML procedures, and other due diligence procedures to understand the identity and integrity of the counterparty. These procedures may also assist in obtaining an understanding of management's process for identifying related parties and relationships and related party transactions. Inquiry may go beyond the chief executive officer, chief financial officer and chief accounting officer and include discussions with chief compliance officers, the entity's risk management or legal departments, or chief anti-money laundering officers, when applicable.
- Inquire with management to understand their processes and procedures to monitor transactions for illegal or suspicious activity subsequent to new customer onboarding or entering into a new business relationship. This may also include inquiry to understand third parties that may be used to facilitate digital asset transactions (for example, exchanges).
- Inquire with management to obtain an understanding of the legal and regulatory framework applicable to digital asset transactions, including regulations in other jurisdictions in which the entity is engaged, changes in this environment, and management's process for maintaining compliance with legal and regulatory requirements.
- Inquire with management regarding Bank Secrecy Act (BSA), or AML law, reports prepared by a third party or process documentation prepared by the entity. The auditor may inquire whether any known instances of noncompliance with these laws and regulations have occurred, or whether the entity has received communication from regulatory bodies concerning the entity's compliance or noncompliance with these types of laws and regulations.
- Inquire with management to understand policies and procedures, including due diligence procedures, performed when evaluating potential digital assets to transact with. The depth and breadth of these inquiries may vary depending on the role in the ecosystem and the type of digital asset (for example, a more established digital asset may have different risks compared to a lesser-known or less-liquid digital asset).
- Inquire with management to understand their policies and procedures to identify related parties and relationships and transactions with related parties. Given the pseudo-anonymous nature of the blockchain, the risk of material misstatements associated with related party transactions and disclosures as well as the risk of engaging in fraudulent activity (for example, engaging in transactions with related parties to inflate revenue) may increase. Gaining an understanding of management's policies and procedures to identify related parties and relationships and transactions with related parties, may assist the auditor in evaluating the entity's commitment to developing an ethical culture through the implementation of processes and controls.
- Inquire with management to understand the considerations for maintaining adequate books and records related to the particular digital assets that the entity currently transacts in, including any planned or potential additions to the digital assets currently held. Examples of such considerations include the identification and monitoring of related parties and the ability to prove ownership. The nature and extent of the books and records to support the assertions of management in the financial statements may depend on the particular digital assets.

- Inquire with predecessor auditor, if applicable, regarding matters that will assist the auditor in determining whether to accept the engagement, in accordance with paragraph .11 of AU-C section 210.
- Inquire with management to understand whether management uses third parties (for example, custodians or exchanges) and whether an appropriate SOC[5] report is available. If the services provided by a service organization (and sub-service organizations, if applicable) are relevant to the audit of a user entity's financial statements, obtaining an understanding of management's processes and controls in addition to obtaining and evaluating the SOC report will also be relevant. If a SOC report is not likely to be available, inquire with management regarding alternative procedures that could be performed. For example, if the entity uses a third party to maintain custody of its digital assets, inquire with management to understand whether the third party commingles the entity's digital assets in a public address that also includes the digital assets of other depositors. When custodians commingle digital assets, a customer might see its individual account balances for each digital asset through the third party's web interface, but it may not be transparent to the customer whether those digital assets exist in the blockchain. Further, if the transactions (buy/sell or send/receive) are between two customers both using this same entity as the custodian, the custodian might decide to transfer funds only within their internal systems rather than using the public blockchain. When assets are commingled, it might be more challenging for management to maintain adequate books and records and for auditors to obtain sufficient appropriate audit evidence. In situations where there is commingling, it is important for auditors to understand management's processes and controls to validate the existence of, and the entity's rights to, the digital assets prior to acceptance or continuance. This will likely involve understanding whether an appropriate SOC report is available for the third party that maintains custody of the entity's digital assets and the complementary user entity controls, or whether alternate procedures can be performed if a SOC report is not available.
- For entities that have or plan to have initial coin offerings or similar mechanisms to create and distribute digital assets to others, understand the business purpose of the offering (for example, tokenizing a limited partnership interest in a venture capital fund or raising capital to develop a utility platform) and assess management's commitment to, and process for, identifying, staying current with, and complying with applicable laws and regulations (for example, state, local, federal, and international). Consider expanding inquiries to the entity's legal counsel and inspecting additional documentation or correspondence.
- For entities seeking to invest in an initial coin offering or similar offering, understand management's process to evaluate whether the digital asset is considered a security,[6] including the use of management's experts; the due diligence procedures the entity performed on the counterparty; the business rationale for investing in the initial coin offering; and the counterparty's business purpose of the initial coin offering.
- Consider contradictory information obtained by performing media searches and from other sources, including information from background checks on management and indicators that management may not be ethical.

[5] In 2017, the AICPA introduced the term system and organization controls (SOC) to refer to the suite of services practitioners may provide relating to system-level controls of a service organization and system or entity-level controls of other organizations. Formerly, SOC referred to service organization controls. By redefining that acronym, the AICPA enables the introduction of new internal control examinations that may be performed (a) for other types of organizations, in addition to service organizations, and (b) on either system-level or entity-level controls of such organizations.

[6] The SEC FinHub staff's "Framework for 'Investment Contract' Analysis of Digital Assets" (April 3, 2019) provides a framework for analyzing whether a digital asset offered or sold as an investment contract is a security.

5. Processes and controls, including information technology

Relevant professional standards

As described in paragraph .06 of AU-C section 210, a precondition for an audit is management's ability to prepare and take responsibility for the fair presentation of the financial statements, and the design, implementation, and maintenance of effective internal controls over financial reporting. The degree to which an auditor evaluates these preconditions in the client acceptance and continuance process may vary significantly. Engagements in the digital asset ecosystem often warrant rigorous inquiries in the client acceptance and continuance process to evaluate these preconditions. This is largely due to the complexity of the underlying technology and the unique risks and the related audit challenges in gathering sufficient appropriate audit evidence. Internal controls, including controls over information technology, have a direct effect on the auditability of the underlying financial activity, and auditors may need to expand traditional acceptance or continuance procedures to understand these challenges. For example, understanding how the entity is dependent on or enabled by IT and the manner in which information systems are used to record and maintain financial information may be more critical in the client acceptance or continuance process for entities engaged in newer technology.

Challenges specific to digital assets

Overview

Obtaining an understanding of how the entity uses digital assets, the underlying IT environment, and the controls implemented by the entity over digital assets is likely to be relevant to the auditor in deciding whether to accept or continue an engagement. In some cases, an auditor may encounter circumstances after the initial acceptance or continuance decision that may be cause for reassessment of the decision, such as instances where the auditor has determined that management has not or is unable to fulfill its responsibilities for the preparation and fair presentation of financial statements. For example, if the entity has entered into material digital assets transactions for the first time or strategically entered into a business that leverages digital assets in everyday operations, management may not have proper skill set and understanding, supporting books and records, or internal controls implemented to effectively account for and fairly present digital assets or associated transactions within the financial statements.

Certain applications of blockchain technology can eliminate the need for a central intermediary (for example, banks) for the completion of transactions. Correspondingly, audit evidence traditionally obtained from these intermediaries surrounding the existence and rights and obligations of assets may not be available. If an entity loses access to the private key, or another party inappropriately accesses the private key and transfers the digital assets to another public address where the entity does not have knowledge of the private key, then the entity may lose control of or access to the digital assets. Due to these characteristics, the knowledge of the private key represents control of the digital assets. Although procedures (for example, sending signed messages or moving assets) may be performed to evidence control of a digital asset, additional procedures may often need to be performed to obtain sufficient appropriate audit evidence of the entity's ownership of digital assets (for example, testing the operating effectiveness of controls over private key management).

Although it is sometimes claimed that blockchain technology eliminates the need for trust among transaction participants, the underlying technology does not make the information contained within it inherently trustworthy. Events recorded on the blockchain are not necessarily accurate and complete, and the reliability of data obtained from a blockchain is highly dependent upon the reliability of underlying complex blockchain technology. In addition, entities may implement new IT applications that interface between the blockchain and financial reporting system. The introduction of an interface system may further increase the complexity of an entity's IT environment.

The pseudo-anonymous nature of a public blockchain often increases risks related to undisclosed related party transactions or transactions with entities subject to sanctions or other regulations. There may be no record of which transactions relate to one another, such as may be the case if there is a side arrangement to an initial contract. Moreover, although the blockchain ledger may provide the public address of the transacting parties and the amount of value exchanged, and transactions can be tracked using a transaction identification number or an address, the technology does not provide any information concerning the identity of the counterparty or the appropriate recognition or classification in the financial statements.

As a result of these factors, the auditor may need to test the effectiveness of certain processes and controls around digital assets because substantive procedures alone may not be sufficient to obtain sufficient appropriate audit evidence.[7] (Note: if the auditor plans on relying on controls, the auditor is required to test those controls.[8]) Consequently, more detailed inquiries or review of relevant documentation surrounding the entity's internal control and IT environment may be appropriate in the client acceptance and continuance process. Such inquiry and review may focus on the following areas:

- The blockchain technology and technology used by and relied on by the entity to track, aggregate, reconcile, and report digital assets balances and transactions;
- The entity's method and controls implemented to hold and secure digital assets and to authorize and track digital asset transactions; and
- The entity's controls established to identify, authorize, and approve related parties and relationships and transactions with related parties.

Each of these areas is discussed in more detail in the following subsections.

The blockchain technology and technology used by and relied on by the entity to track, aggregate, reconcile and report digital assets balances and transactions

During the client acceptance and continuance process, obtaining an understanding of the nature of blockchain technology and the technology used to track, aggregate, reconcile, and report digital assets balances and transactions helps the auditor assess the extent of audit procedures that may be required. The nature and extent of procedures performed to obtain an understanding of the technology used by the entity will vary depending on the entity's role in the digital asset ecosystem.

It will be important for the auditor to obtain an understanding of the underlying blockchain technology related to the digital asset transactions. If an entity derives its books and records of balances and transactions solely from the blockchain or from statements provided by a third party, the auditor may want to further understand, as part of the acceptance and continuance process, management's processes and controls over the quality of this information. In certain instances, audit evidence obtained from the blockchain or such third parties may not constitute sufficient appropriate audit evidence, and further procedures may be warranted.

As noted, entities may have separate financial reporting systems apart from the blockchain or a third party to evaluate whether digital asset transactions have been appropriately recorded with their financial records. For example, reconciliation of digital asset balances and transactions from accounting records to the relevant blockchain or a third party may be accomplished through manual processes or automated processes. The volume of transactions and

[7] Paragraph .31 of AU-C section 315.

[8] Paragraph .07 of AU-C section 330.

addresses processed by the entity and how the entity processes these balances and transactions, including whether the entity maintains a copy of the blockchain to independently reconcile transactions and whether the systems were developed in house or purchased from third parties may also be important to determine the extent of audit procedures necessary to obtain sufficient appropriate audit evidence.

Additionally, the extent to which balances and transactions are recorded internally by the entity and not transmitted to the blockchain (off-chain transactions) may also be relevant. Some entities, primarily entities operating as digital asset exchanges, may record their customers' transactions on an internal ledger and send transactions to be recorded on the blockchain (on-chain transactions) only if the transaction is taking place between an address controlled by the entity and an address not controlled by the entity. Off-chain transactions may present additional challenges in obtaining audit evidence as compared to a transaction recorded on the blockchain.

Transacting and safeguarding digital assets typically requires a number of IT systems to process and record digital asset activity. As such, the auditor may consider assessing whether substantive procedures alone will provide sufficient appropriate audit evidence. In the instances where substantive procedures alone may not provide sufficient appropriate audit evidence, obtaining an understanding of the design, implementation, and operating effectiveness of IT general controls and application controls may be relevant in the client acceptance or continuance process.

Finally, due to the evolving nature of the industry and the technology used by entities within the digital asset ecosystem, it is important for management and the auditor to stay apprised of current and anticipated changes in the underlying technology used by the entity.

The entity's method and controls implemented to hold and secure digital assets and to authorize and track digital asset transactions

Blockchain transactions are designed to be difficult or impossible to reverse. Although the same could be said for any double-entry bookkeeping application, the peer-to-peer nature of blockchains means that once an entity sends a transaction to a particular wallet address, there is no adjusting blockchain entry that can be made unless the counterparty is actively involved. As such, erroneous or inappropriate digital assets transfers may result in the permanent loss of digital assets. Consequently, controls over initiation and authorization of transactions are critical.

Similarly, given that digital assets are secured using cryptography that results in "private keys" that provide control (that is, the ability to transfer) of the associated digital assets, there is an inherent risk that the private keys could be stolen, lost, or misused by either internal or external parties. One example of misuse could be sharing private keys to facilitate an intentional misreporting of assets through a fraud. Private key security and understanding how private keys are controlled is paramount, because anyone with access to the private keys of the entity's assets can use or send those assets, and thus obtaining an understanding of the entity's methods of storing and safeguarding the private key (for example, hot/cold self-storage or through a third-party custodian) is important.

Digital assets held by the entity

If the entity stores digital assets itself (also referred to as *self-custody*), it may be important for the auditor to consider the entity's related technical capabilities, including the entity's ability to verify existence of the digital asset as well as safeguards in place to prevent digital asset loss due to fraud or error. In most public blockchains, the underlying digital assets are bearer instruments and private keys that are lost or stolen represent irreversible, and typically uninsured, losses for the entity, with no recourse due to the decentralized nature of the blockchain.

Obtaining an understanding of the entity's safeguards related to the storage and transaction initiation/authorization of digital assets, may include, but is not limited to, inquiring about the policies, processes and controls around the following:

- The security of the physical location of the private keys;
- The processes surrounding key lifecycle management, including the key generation process (hardware, software, and algorithms associated with generation);
- The security of the entity's data centers;
- Access to private keys, including redundant private keys;
- The number of users required to process a transaction, whether through encrypting and splitting of keys or multisignature address signing requirements; and
- Segregation of duties in the authorization of digital asset transactions.

The auditor will need to obtain an understanding of how management intends to provide evidence related to the ownership assertion of the digital assets. In some instances, management may assert that the entity's ability to sign messages demonstrates their control of those digital assets and therefore can provide audit evidence of the ownership assertion. In certain instances, operational limitations may prohibit the entity from signing messages using their private keys, which further reduces available substantive evidence to support the ownership assertion. Although control of a digital asset is one consideration in the evaluation of the ownership assertion, the auditor will need to determine whether the demonstration of control in this manner constitutes sufficient evidence of ownership of the related digital assets or whether other considerations or procedures are necessary, such as testing the effectiveness of internal controls. The auditor may determine that substantive procedures alone are not adequate to provide sufficient audit evidence of the ownership assertion.

Digital assets held by a third-party custodian

If an entity relies on a third-party custodian to store its digital assets, the auditor considers additional risks both at the entity and the custodian. Determining the level of interaction between the entity and the custodian, including who has the ability to initiate transactions, may be critical to determining whether the preconditions for an audit are present. For example, audit procedures to test digital asset ownership by obtaining signed messages may require interaction with the custodian. If so, understanding whether the custodian is willing and technically capable to assist in the audit process helps the auditor evaluate whether the preconditions for an audit are present. As noted, professional judgment may be needed for the auditor to determine whether sufficient appropriate audit evidence can be obtained to prove ownership of the related digital asset.

For security, efficiency, or other reasons, the custodian may commingle assets of many customers into the same addresses and maintain the custodian's own off-chain ledger. Commingling and off-chain ledgers can complicate the auditor's verification of the entity's specific assets held by the custodian, because the blockchain is no longer representative of the entity's holdings alone. In these instances, the auditor may need to consider procedures to confirm balances with the custodian. Confirmation procedures require the auditor to determine whether the custodian's confirmation is reliable as audit evidence, which may require additional procedures. As of this writing, there is no widely accepted confirmation form or process for digital asset custodians or exchanges, similar to what exists for cash balances held at financial institutions.

Management is responsible for designing, implementing, and maintaining internal control relevant to the preparation and fair presentation of financial statements, including establishing controls over information received from service organizations such as an exchange or controls over the safeguarding of assets that may occur at a custodian. As a part of the acceptance and continuance process, the auditor may seek to understand controls implemented by management to monitor service organizations. Management's controls may include performing appropriate reviews of SOC reports by personnel with the relevant competency and skill set and implementing complementary user entity controls. In the event SOC reports are not available, understanding alternative controls implemented by management (for example reconciliations of third-party data to the entity's independent books and records) will be important. The auditor may wish to obtain the SOC report to consider whether the auditor can rely on the SOC report, as a part of the acceptance and continuance process. If the auditor is unable to determine whether the auditor can rely on the SOC report or that the scope of the report is not relevant for audit purposes, inquiring of the client about the auditor's ability to perform audit procedures at the service organization will help the auditor assess the sufficiency of audit evidence that can be obtained. Often custodians will offer a SOC 2® report in lieu of SOC 1® reports. Although SOC 2 reports may offer greater insights on controls implemented to address trust service principles, they do not necessarily provide insights on the controls over processing of transactions for financial statement reporting. Additionally, SOC 1 reports may not contain control objectives relating to generation, security, and monitoring of the keys used in these transactions, and the lack of this information may affect obtaining a thorough understanding of the relevant controls related to financial reporting. If a SOC report is unavailable, it is important for the auditor to consider whether additional procedures will be necessary and feasible to obtain sufficient appropriate audit evidence for reliance on information produced by the service organization.

Additionally, due to the pseudo-anonymous nature of blockchain transactions, obtaining an understanding of whether customer onboarding and due diligence procedures are performed by the custodian assists the auditor in determining whether business risks at the custodian could result in legal or other risks associated with noncompliance with BSA, AML, or other regulations.

The entity's controls established to identify, authorize, and approve related parties and relationships and transactions with related parties

The pseudo-anonymous nature of blockchain transactions may create challenges in determining the identity of the parties with which the entity transacts, hence increasing the risk associated with the completeness of related party relationships, transactions, and disclosures. Understanding the policies, processes, and controls performed by the entity assists the auditor in assessing the risk that a counterparty to the entity's transactions is a potentially undisclosed related party.

The auditor's inquiry surrounding compliance with KYC, AML, and other regulations as discussed in section 4 in tandem with other processes may assist in the identification of related parties and relationships, as well as transactions with related parties.

Procedures to consider specific to digital assets

The preceding section addressed challenges as well as some inquiries or procedures auditors may consider when addressing the underlying challenges. Some additional procedures specific to the digital asset ecosystem to consider as part of the acceptance and continuance process may include the following:

- Inquire with management, specifically those from the IT department, to understand the nature of the IT general controls, application controls, processes in place to track, aggregate, and reconcile digital assets as well as mitigate IT risks associated with the underlying blockchain technology and any known deficiencies.
- Evaluate the competence of the entity's personnel involved with the controls and processes and understand the technology used to transact with digital assets.
- Understand the entity's use of IT specialists (internal or external) and whether plans exist to implement new technology to allow for the processing of digital asset transactions. New digital assets that are created and supported by new technologies require management to be able to implement processes to read and process digital asset transactions and account for them.
- Understand the entity's use of service organizations (for example, to secure private keys) and the availability of SOC reports. Obtain and read any SOC reports (including SOC 2 reports) that are available and obtain an understanding of whether management has controls in place to review SOC 1 reports and appropriate complementary user entity controls. The auditor should focus on the responsiveness of the controls in the SOC report to the financial reporting risks.
- Inquire with management to understand their due diligence procedures performed on service organizations (for example, custodians), including gaining an understanding of the processes and controls performed by the third party related to customer onboarding and due diligence.
- Understand the entity's due diligence process for transacting in new digital assets, such as how it assesses the consensus mechanism, and the governance model and process for evaluating available wallet software that may be needed to transact. Consider whether certain assets that are specifically designed to further increase individual privacy may affect the auditor's ability to obtain sufficient appropriate audit evidence.
- Understand the entity's protection of private keys and other customer information, including the following:
  - The infrastructure used to generate and store private keys, including how private keys are stored (for example, hot wallets and cold wallets);
  - Segregation of duties in the authorization of digital asset transactions;
  - The number of users required to process a transaction, whether through encrypting and splitting of keys or multisig address signing requirements; and
  - Monitoring of addresses for any unauthorized activity.
- Understand the entity's process for identifying, accounting for, and disclosing related parties and relationships, as well as related party transactions.
- Understand the existence of cybercrime or fidelity insurance from reputable carriers.
- Understand the wallet software and wallet backup (for example, whether encrypted private key information is backed up to provide the entity with continued access to the private key in case of system failure).

Risk assessment and processes and controls

I. Introduction

A. Overview

As previously stated in the "Client Acceptance and Continuance" section of this practice aid, the digital asset ecosystem is constantly evolving, which presents unique risks and challenges. It is especially important for the auditor to understand these unique risks and challenges when performing procedures in response to the requirements to identify and assess the risks of material misstatements.

This section of the practice aid is organized into the following topics:

- Understanding the Entity and Its Environment
- Understanding and Evaluating the Entity's Risk Assessment Process
- Understanding the Entity's Processes and Controls

Each of these sections describes the unique considerations that may be important when performing risk assessment procedures, including the types of procedures that auditors may perform, or are required to perform, to identify and assess risks of material misstatement in audits of entities engaged in the digital asset ecosystem.[9]

B. Relevant professional standards

Paragraph .03 of AU-C section 315, states that the objective of the auditor is to identify and assess the risks of material misstatement, whether due to fraud or error, at the financial statement and relevant assertion levels through understanding the entity and its environment, including the entity's internal control, thereby providing a basis for designing and implementing responses to the assessed risks of material misstatement.

Paragraph .06 of AU-C section 315 states that risk assessment procedures should include the following:

a. Inquiries of management, appropriate individuals from within the internal audit function (if such function exists), others within the entity who, in the auditor's professional judgment, may have information that is likely to assist in identifying risks of material misstatement due to fraud or error;

b. Analytical procedures; and

c. Observation and inspection.

During the client acceptance and continuance process, the auditor gains some understanding of the entity and its environment. Paragraph .07 of AU-C section 315 states that the auditor should consider whether information obtained from the auditor's client acceptance or continuance process is relevant to identifying risks of material misstatement.

[9] Note that this section of the practice aid specifically excludes engagements related to decentralized finance.

In addition, the auditor should determine whether any risks identified are, in the auditor's professional judgment, significant risks, including fraud risks. AU-C section 240, *Consideration of Fraud in a Financial Statement Audit*, includes further requirements regarding procedures to identify and respond to fraud risks.

II. Understanding the entity and its environment

Auditors are required to gather information about a wide range of matters to enable them to understand the entities they audit. Some of these matters relate directly to the financial reporting process, whereas others relate to the broader business issues, such as the current status of the industry in which the entity operates as well as the entity's business objectives and strategies.

The facts and circumstances of each entity differ depending on the nature of their activities in the digital asset ecosystem. When understanding the entity and its environment, the auditor gathers information that pertains to the entity's strategy, operations, internal controls and its role in the digital asset ecosystem, among other things. The level of effort necessary to obtain a sufficient understanding of the entity and its environment and the auditor's risk assessment procedures will likely vary based on the entity's business purpose, the entity's role in the digital asset ecosystem, management's competencies and skill set, and the involvement of service organizations, among other things. (See the "Client Acceptance and Continuance" section of this practice aid for additional information on factors an auditor may need to consider when assessing the competencies and capabilities of management.)

The following table provides examples of questions the auditor may consider inquiring of management, those charged with governance, or others within the entity who may have information that is likely to assist in identifying risks of material misstatement due to fraud or error as part of the risk assessment process to gain an understanding of the entity and its environment. The list is not intended to be all-inclusive, and the example questions should only be viewed as a starting point. Additional follow-up inquiries will likely be needed depending on the entity's facts and circumstances. In addition, the auditor may have obtained a preliminary understanding of some of these topics as part of the client acceptance and continuance process. In those cases, the auditor enhances the understanding obtained during client acceptance and continuance throughout the risk assessment process.

General — Nature of the entity	
1	What is the entity's business purpose related to current and future anticipated holding or transacting in digital assets, and what is the entity's role in the digital asset ecosystem?
Digital assets held and custody considerations	
2	What types of digital assets does the entity hold? How did the entity acquire these digital assets? What are the entity's controls around safeguarding of assets, including the protection of private keys?
3a	How does the entity maintain custody of its digital assets? Does it use a third party (for example, to secure private keys)?

3b	If a third party is used to maintain custody of digital assets • are the digital assets stored in segregated or commingled wallets? • does the service organization have adequate controls in place, how is management assessing the controls in place, and will the auditor be able to obtain sufficient evidence of the effectiveness of relevant controls either by performing direct testing of third-party controls or by obtaining a service auditor's report? • does management have complementary user entity controls? • what type of analysis has the entity performed to determine whether the entity or the third party is the owner of the digital assets? • does the custodian have the right to sell, transfer, loan, encumber, or pledge the digital assets for its purposes without the depositor's consent or notice, or both?
4a	Does the entity hold digital assets on behalf of others (for example, customers) or only on the entity's behalf?
4b	What are the entity's policies and controls for determining which entity (the depositor or the custodian) has control of the digital asset based on the specific facts and circumstances of the agreement between the depositor and custodian and applicable laws and regulations? Does the entity have a process in place to perform appropriate legal analysis to evaluate the aspects of the agreement between the depositor and custodian, including legal ownership?
4c	If digital assets are held on behalf of others, how does the entity track customer assets separately from the entity's assets?
5	What is the entity's policy for claiming, recording, and valuing forked digital assets and air-dropped digital assets received by the entity? If the entity has unclaimed or unrecorded digital assets, or both, how does the entity evaluate the potential effect on the financial statements?
6	Does the entity hold digital assets that are illiquid or thinly traded? If so, what are the entity's policies to determine whether these assets are illiquid or thinly traded and the policies for accounting for such assets? How does the entity value these digital assets, and what are the sources that the entity uses to measure and determine the value? What are the entity's accounting policies for recording these digital assets?
7	What types of wallets does the entity (or the third party that holds the entity's digital assets) use to store the digital assets? For example, a hot wallet that is connected to the internet, cold storage that is offline, single signature vs. multi-signature wallets? What are the controls that management has in place for wallet management, access, and other wallet control-related attributes? What is the entity's process for a key generation?

8	Does the entity have controls and policies in place at the entity and any entities holding assets on its behalf to evaluate whether the appropriate insurance coverage exists to cover potential digital asset losses? If so, do these policies cover the entirety of the digital assets held or only a portion? What types of losses are covered by the policies, and what evidence exists to prove ownership?

Digital assets transactions

9	What is the nature, frequency, types, volume, and value of the entity's digital asset transactions? • What types of counterparties (for example, exchanges, custodians, validators) are involved with the entity's digital asset transactions? • Does the entity exchange digital assets for cash, other digital assets or other goods and services (for example, to pay vendors, employees, contractors)?
10	Are digital asset transactions recorded on the blockchain? What is the entity's method of maintaining its books and records and reconciling it to the external blockchain to support its books and records? If there are off-chain transactions, how are they managed, recorded and reconciled?
11	Does the entity engage in digital–asset–based derivatives, or has it made investments in digital assets or other entities or ventures related to digital assets? If so • are there aspects of the entity's operations that might present risks that are hedged using derivatives? • are there any anticipated changes to the entity's investment activities? If so, how will the changes affect its financial reporting processes? • what are the entity's due diligence policies on reviewing investments in new digital assets, including evaluating the integrity of the underlying blockchains and the software used to interact with the blockchains?

Industry, regulatory and other external factors

12	Are there any legal, regulatory, tax, or reporting requirements that apply to the entity given its involvement with digital assets? How does the entity comply with the requirements, and have there been any instances of noncompliance (for example, with money transmitter licenses) or communications with regulators (for example, SEC inquiries, Office of Foreign Assets Control [OFAC] sanctions, and so on) about the entity's digital asset activities?
13	What are the entity's policies for complying with applicable regulations such as the following: • International regulations if the entity has foreign operations; • Know your customer (KYC); and • Anti-money laundering (AML) requirements to prevent criminal activity.

14	What are the entity's views related to the potential market risks affecting valuation of the digital asset (for example, considerations such as volatility and level of maturity of the entity's digital asset market)?
15	If the entity transacts or is otherwise involved in effecting transactions in digital asset securities for customers or its own account, has the entity complied with applicable registration requirements? If so, what are the entity's policies to comply with the appropriate regulatory requirements?
16	What potential financial statement risks related to unexpected technology has the entity considered that may affect its operations or those of its clients, vendors, or other partners?
Financing	
17	How does the entity finance its activities, and what are its plans for raising funds (for example, working capital loans, crowdfunding, token sale, security offerings, equity)?
Financial reporting	
18	What are the entity's significant accounting policies for digital assets? Refer to the "Accounting Subgroup" section of this practice aid for examples of accounting considerations.

In addition to inquiries, the auditor's risk assessment procedures should include analytical procedures as well as observation and inspection. In accordance with paragraph .A14 of AU-C section 315, analytical procedures performed as risk assessment procedures may identify aspects of the entity of which the auditor was unaware and may assist in assessing the risks of material misstatement in order to provide a basis for designing and implementing responses to the assessed risks. For example, the auditor may consider using information obtained from a blockchain to perform analytics related to transaction volumes to identify unusual transactions. (See the "Laws and Regulations and Related Parties" section of this practice aid for other procedures the auditor may perform to identify unusual transactions.) Paragraph .A18 of AU-C section 315 states that observation and inspection may support inquiries of management, those charged with governance, and others and also may provide information about the entity and its environment.

III. Understanding and evaluating the entity's risk assessment process

The digital asset ecosystem presents challenges that may threaten an entity's ability to achieve its objectives of maintaining reliable financial reporting, effective and efficient operations, and compliance with applicable laws and regulations. Paragraphs .16–.17 of AU-C section 315 address the auditor's responsibility to obtain an understanding of the entity's risk assessment process. In particular, the auditor is required to, among other things, obtain an understanding of whether the entity has a process for identifying and assessing business risks relevant to financial reporting, and if so, obtain an understanding of such process and the results thereof. Paragraph .17 of AU-C section 240 also requires the auditor to make inquiries of management, among other things, regarding management's process for identifying, responding to, and monitoring the risks of fraud in the entity.

The auditor may look to applicable internal control frameworks, such as the *Internal Control — Integrated Framework (2013)* published by the Committee of Sponsoring Organizations of the Treadway Commission (COSO), to understand and evaluate the entity's risk assessment process.

The auditor may consider performing the following in understanding and evaluating the entity's risk assessment process:

- Review management's governing documents to understand policies, procedures, and other information relevant to digital assets (for example, valuation policies, processes for onboarding new digital assets, and performing due diligence over exchanges, custodians, or other service organizations).
- Inquire of management or those charged with governance about the entity's risk assessment process for identifying objectives and risks related to digital assets, including the process for identifying, assessing and mitigating those risks.
- Evaluate whether the entity's risk assessment process enables the entity to identify new risks in a timely manner related to, for example, changes in applicable laws and regulations that affect compliance, changes in GAAP that affect accounting policies, and changes in blockchain-related technology that affect the safeguarding of digital assets.
- Evaluate how the entity assesses risks related to changes in management or key personnel, including consideration of appropriate skill sets and competencies to fulfill their responsibilities related to, for example, safeguarding of digital assets, establishing digital asset accounting policies that are appropriate under existing GAAP, providing oversight of service organizations, and understanding the applicable regulatory environment and changes in laws and regulations.
- Inquiring of management or those charged with governance about identified business risks, and along with the unique financial reporting risks related to digital assets, including those related to the identification of transactions with related parties, the existence of digital assets, and the rights to digital assets (see the "Laws and Regulations and Related Parties" section of this practice aid).
- If the auditor identifies risks of material misstatement that management failed to identify, paragraph .17 of AU-C section 315 requires the auditor to evaluate whether an underlying risk existed that the auditor expects would have been identified by the entity's risk assessment process. If such a risk exists, the auditor should obtain an understanding of why that process failed to identify it and evaluate whether the process is appropriate to its circumstances or if a significant deficiency or material weakness exists in internal control regarding the entity's risk assessment process.

In addition, because many entities in the digital asset ecosystem are emerging entities, a formal risk assessment may not have been performed by management. In accordance with paragraph .18 of AU-C section 315, if the entity has not established a risk assessment process or has an ad hoc process, the auditor should

- discuss with management whether business risks relevant to financial reporting objectives have been identified and how they have been addressed.
- evaluate whether the absence of a documented risk assessment process is appropriate in the circumstances or determine whether it represents a significant deficiency or material weakness in the entity's internal control.

IV. Understanding the entity's processes and controls

The characteristics, complexity, and evolving nature of digital assets and the underlying technologies create the need for tailored processes and controls that are important for the auditor to consider when identifying and assessing risks of material misstatement. As previously stated in the "Client Acceptance and Continuance" section of this practice aid, a client acceptance and continuance determination includes an assessment of any gaps in the skill sets of the firm's personnel and whether the firm can satisfactorily address those gaps. For example, some of the concepts discussed in this section are highly technical in nature and may require specialized skills that are not found in the common IT audit practitioner.

This section does not include specific auditor responses; however, in many cases, substantive procedures alone may not provide sufficient appropriate audit evidence (for example, ownership of digital assets). When this is the case, the auditor is required to evaluate the design, determine implementation, and test operating effectiveness of an entity's relevant controls over digital assets.

This section provides an overview of the following concepts, and the related processes and controls unique to the digital asset ecosystem, and identifies some risk assessment considerations that auditors may need to take into account as part of their audits:

A. Digital asset safeguarding

B. Transacting in digital assets

C. Digital asset transaction monitoring and reporting

D. Digital asset valuation

E. Digital assets held by third parties

F. Digital assets held on behalf of others

A. Digital asset safeguarding

1. Overview of concepts, processes, and controls

One of the essential elements of asserting ownership of digital assets is demonstrating control of the digital assets (for example, through access to the private key associated with the public address where the digital assets reside). Developing processes and controls that mitigate the risk of inappropriate access to this private key also presents challenges.

The concepts, processes, and controls relating to digital asset safeguarding are most relevant to the existence and rights, and obligations assertions. Given the extensive efforts entities often take to safeguard private keys, challenges may arise in evaluating whether the storage environment is properly controlled. Methods of safeguarding private keys may include the following:

- Security procedures surrounding the key generation;
- Physical security of the facilities and infrastructure storing the private keys;
- Encryption or splitting (also known as *sharding*) of private keys; and
- Multi-signature addresses.

Key generation

Many digital asset blockchains, including the largest blockchains such as Bitcoin and Ethereum, consist of public addresses analogous to bank account numbers. The public and private keys needed to access digital assets in the public address, referred to as *key pairs*, are generated using cryptographic algorithms beginning with a "seed" phrase, which may be generated randomly or by other means. The underlying cryptographic technology makes it virtually impossible (with currently available computing power) to determine the private key using the public key or public address. Possession of the private key, or the "seed" inputs to the generation of the private key, is required to access the digital assets held and to transfer digital assets from an address. Thus, generating a sufficiently robust private key and maintaining security of private keys or the "seed" inputs to the generation of the private key is essential to mitigating the risk of misappropriation or loss of digital assets.

Entities that have ownership and control of their private keys may generate the key pair themselves using off-the-shelf or customized hardware and software. This hardware or software may include random number generators, computers, hardware security modules, and physical storage. Access to the aforementioned hardware, software, or key pairs that enable the movement of digital assets should be limited to authorized personnel. Additional risk factors exist when personnel involved in the key-generation process are also involved in financial or technology roles.

As the key-generation process results in the information needed to initiate transactions on the blockchain (that is, the private keys), access at each stage of the key generation process should be properly controlled. Personnel with access to private keys created during the key-generation process should be monitored to verify that duties are compatible with their other responsibilities. For example, it may be inappropriate for individuals with financial reporting responsibilities to have access to private keys, giving them the ability to transfer digital assets held by the entity.

Physical security

Although digital assets are virtual in nature and do not exist in a physical sense, private keys may be generated and stored on a physical device. Private keys may be stored in the entity's facilities either digitally, physically in the form of physical printouts, or both, and they can also be stored off-site or in a cloud storage infrastructure not owned by the entity, such as within third-party cloud data centers. Typically, an entity will store multiple copies of this data to prevent the entity from losing access to the data if one of the copies is lost or damaged. Controls over the entity's ability to hold, copy, or transmit private keys should be considered in developing and maintaining physical security. For example, access to physical locations where private keys are stored may be controlled through the following measures:

- Limiting approved access to personnel with compatible duties;
- Logging of individuals visiting the site;
- Use of badges, physical keys, or other measures to verify appropriate segregation of duties; and
- Utilization of third parties (for example, data centers or other secure facilities).

Encryption or "sharding" of private keys

An entity may encrypt its private keys to provide additional security of the private keys. An entity may use hardware or software, or a combination of the two, to encrypt the private keys, and require a pass phrase or other information to decipher the private key, so that it can be used to authorize a transaction.

To provide additional security, entities may also separate their private keys into multiple components, which is known as *sharding*. Sharding of private keys means using cryptographic techniques to split the private key into multiple parts. Because a transaction cannot be initiated without a private key, splitting up and separately storing the pieces of private keys requires an additional step, the "reassembling" of the private key, to occur prior to using the private key to initiate a transaction. These "shards" can be distributed to various physical or virtual locations and maintained under the control of different individuals. For example, shards of the private keys may be held in various safety deposit boxes geographically isolated, with access to those safety deposit boxes monitored and logged. The cryptographic parameters determine the number of shards required to reassemble the private keys.

Distributing these shards to multiple individuals requires these individuals to work together to reassemble the private keys. Misappropriation of digital assets using private keys that are sharded and held by multiple individuals would likely require collusion between these individuals or an external cyberattack. The security surrounding these private keys can be further enhanced by encryption of the individual shards.

Multi-signature addresses

The entity may also rely on multi-signature wallets or addresses to require consensus of multiple parties to initiate a transaction. These multi-signature addresses are similar to sharded private keys in that they require multiple pieces of information (for example, multiple private keys) to initiate the transaction. Multi-signature transactions require a minimum number of signatures to authorize a transaction. For example, a "3 of 5" multi-signature address would require three distinct private keys to initiate a transaction, of the five total private keys associated with that multi-signature address.

2. Auditor risk assessment considerations

Note:

Examples of risks

An inherent risk exists that the private keys could be lost, destroyed, stolen, or misused by either internal or external parties. The financial statement implications of this risk may include the following:

- If the private key has been stolen or inappropriately accessed, the entity's digital assets likely will have been lost or moved to an address the entity does not control (that is, the assets no longer exist in the entity's addresses).
- If the private key has been lost or destroyed, the entity may no longer have the ability to access its digital assets (that is, the entity no longer has rights to the assets).

Auditors may also consider risks of material misstatement due to fraud resulting from private key loss or theft. Examples include the following:

- The loss or theft of the private key may be intentionally hidden to mask financial losses.
- Management asserts to the loss of private keys, records those losses in the books and records, and misappropriates assets from the related public addresses.

Additionally, if an entity enlists a third party to hold its digital assets on the entity's behalf, the third party may fail to effectively safeguard the digital assets from hacking and maintain access to the private key.

Lastly, if multiple parties have access to the private keys, the risk exists that each party could claim to "control" the digital assets.

Examples of risk assessment procedures

An initial step in identifying and assessing risks of material misstatement relating to the entity's rights and ownership of digital assets is understanding how the risk of loss or theft of the private keys is mitigated through storage and access controls.

Obtaining an understanding of how digital assets are stored includes understanding whether the assets are held in "self-custody" or by a third party, whether the assets are stored in segregated or commingled public addresses, and to what extent private keys are stored offline (cold storage) or online (hot storage). Entities may have different methods of storage for different digital assets, may use a combination of storage methods, and may change methods from time to time. This understanding may be obtained via observation and inquiry of appropriate personnel and inspection of internal control documentation.

When obtaining an understanding of the internal controls that the entity has implemented to safeguard digital assets, the auditor will likely determine it is important to obtain an understanding of controls that address the following:

- Hardware and software procurement & deployment (including management's due diligence over the technology);
- Initial generation of private key;
- Ongoing safeguarding of the private key;
- Backups or other recovery mechanisms;
- Access to perform digital asset transactions;
- Segregation of incompatible duties;
- IT general controls with respect to the digital wallet software; and
- Cybersecurity.

It is important for the auditor to understand these controls regardless of whether the digital assets are held in self-custody or by a third party. If the digital assets are held by a third party and an adequate service auditor's report is not available, and the controls are relevant to the audit, the auditor should perform additional procedures to obtain an understanding of the controls, such as making inquiries of the third party and observing control activities taking place. In accordance with AU-C section 700, *Forming an Opinion and Reporting on Financial Statements,* the auditor is required to consider the effect on the audit report (such as a scope limitation) if sufficient audit evidence cannot be obtained about the third party's controls. Refer to section E, "Digital Assets Held by Third Parties," for further discussion.

Understanding of the following factors, usually through a combination of inquiry of management or those charged with governance, observation of control performance, and inspection of documentation produced by the entity, assists the auditor in understanding management's controls over private keys:

- Which personnel are involved in the key-generation process and what their roles are within the entity and within the key-generation process. The auditor, including a member of the engagement team with adequate skills and understanding of the technical configuration of the systems used, may need to observe the key-generation process to determine the role of those individuals involved in the key generation.
- The entity's onboarding and offboarding processes for employees with access to private keys, including whether background checks are performed.
- How the entity transfers private keys after they are generated into storage, and who can view or obtain the private keys during transfer.

- Where the entity's private keys are stored, including the safeguards that exist at each location. The auditor may consider observing the physical storage locations, which may involve the following:
  - Inquiring of security personnel to determine who has access to the media the keys are stored on, how an employee's access is managed upon hiring or termination, whether access to private key databases is logged, and whether logs are reviewed. The auditor may consider inspecting the logs for evidence of the reviews.
  - Observing the physical security in place, such as access badges or key codes, including determining how long those controls have been implemented and what evidence is available for inspecting historical access (for example, logs).
- The encryption process, including procedures used when those procedures are performed, the encryption methods used, and who is responsible for the encryption. The encryption procedures may be performed soon after the process of generating the private keys to prevent the keys from being accessible in an unencrypted format.
- Whether the information needed to decrypt the private keys is appropriately controlled, including where and how the tools and information used to decrypt the private keys are stored. For example, if a private key is encrypted and an employee has access to the tools needed to decrypt the private key, the auditor may consider management's process for determining what information the employee could retain if the employee was terminated or if the employee's duties no longer require the ability to decrypt the private key.
- The controls in place to verify proper segregation of duties with respect to access and recording of digital assets, considering the competency and background of the individuals involved.
- If private keys are sharded, management's process and controls related to the following:
  - Who has access to the sharded private keys;
  - The number of individuals necessary to reassemble the private keys;
  - Whether these shards are encrypted and where they are stored;
  - The process of initiating the reassembly of the private keys and how the sharded information is reassembled. The entity may rely on specific IT systems to manage this process.
- Control over multi-signature addresses, considering similar factors as for sharded private keys because the security procedures often share similar attributes regarding the dissemination of information needed to acquire the relevant data to authorize transactions using private keys.

Effective risk assessment procedures may include consideration of the potential for loss or theft of the private key after the balance sheet date, so that the auditor can design appropriate subsequent events procedures.

B. Transacting in digital assets

1. Overview of concepts, processes, and controls

An entity may transact in digital assets through several means and for a variety of purposes. Different means of transacting in digital assets may reflect differences in intended uses of the assets and result in different accounting considerations and risks. Although some methods of transacting in digital assets are similar to transacting in securities and financial instruments, such as acquiring assets on an exchange or through an over the counter (OTC) desk, some means of transacting in digital assets, especially in the acquisition of digital assets, are unique to digital assets. Methods of transacting in digital assets may include the following:

- Acquiring or transferring digital assets using a third-party exchange or OTC desk;
- Acquiring digital assets as payment for selling products or services to customers;

- Transferring digital assets for payments to vendors or employees;
- Acquiring from a token issuer;
- Acquiring through forks and air drops (discussed later) from existing digital assets owned by the entity; and
- Acquiring through validating activities, such as mining and staking.

Effective and timely communication among software engineering, security, accounting, operations, and any applicable service organizations is necessary for an entity to sufficiently design a control environment responsive to each transaction method.

The concepts, processes, and controls relating to transacting in digital assets are often most relevant to the rights and obligations, occurrence, and completeness assertions. It is important for the entity to establish specific processes and controls focused on key aspects of digital asset transactions, including the following:

- Verifying that transactions are authorized by appropriate individuals, including reviewing the intended address of the transaction;
- Considering the use of manual approvals prior to authorizing transactions above certain monetary values, similar to controls that may be in place over fiat disbursements; and
- Understanding the identities of the counterparties, including whether a particular counterparty subjects the entity to additional regulations.

This section provides additional details on some methods of acquiring assets that are unique to the digital asset industry: forks, airdrops, and mining and staking activities. The next section (Section C, "Digital Asset Transaction Monitoring and Reporting") provides an overview on controls related to monitoring and reporting digital asset transactions, which is applicable for each type of transaction method.

Acquisition through forks and airdrops

Two acquisition methods unique to the digital asset ecosystem are *forks* and *airdrops*. The blockchains on which digital assets exist can be "forked" by other entities and developers. Forks occur when changes are made to the blockchain's software, but not all network participants adopt the changes. These forks are classified as either *hard forks* or *soft forks*. Soft forks do not require network participants to adopt the new software to continue to participate in the network, whereas hard forks cause the updated software to be incompatible with the previous version of the software, resulting in two types of digital assets that are incompatible with one another's respective blockchain. Technical changes in the underlying infrastructure may result in incompatibility with an entity's means of tracking or transferring the digital asset. Therefore, it is important for the entity to have qualified individuals with the requisite technical means of understanding and implementing changes to the digital asset's infrastructure, including responding to changes made to the blockchain network.

Airdrops occur when blockchain developers distribute digital assets, often for free, to blockchain addresses. Airdrops are commonly used to promote a particular digital asset and spur a greater user base or increase trading volume.

Both forks and airdrops may result in new digital assets owned by the entity or its customers for no consideration paid. Internal systems and processes must be designed to capture instances of forks and airdrops to determine completeness and accuracy of digital assets held by the entity as well as determine appropriate accounting treatments.

Validating activities

Another acquisition method unique to digital assets is the concept of *validating*. Certain blockchains use models such as "proof of work" or "proof of stake" to validate transactions on the blockchain and reward the validators with digital assets as compensation for their participation in the network. Validators participating on blockchains with a "proof of work" model compete to successfully complete complex computations needed to validate blockchain transactions and earn mining fees in the form of digital assets. A validator's ability to earn mining fees in a "proof of stake" model depends less on computing power and more on the validator's designated holdings (or "stake") of digital assets on a particular blockchain. This determines how rewards will be allocated for participation in the cryptographic processes to maintain integrity of the blockchain network and its transactions.

Similar to forks and airdrops, validating activities result in digital assets acquired, the primary evidence of which is the blockchain activity itself. Because of the importance of technical capabilities in appropriately identifying and monitoring digital asset acquisitions from these and other similar methods, an entity may need to involve several departments, including accounting, legal, engineering, and compliance, to appropriately design its controls.

2. Auditor risk assessment considerations

Because digital assets may have different properties than those of other assets, it is important for the auditor to consider the manner in which management and those charged with governance have adapted the entity's controls. The controls need to be responsive to potential additional risks and considerations relating to these digital assets. It is necessary to gain an understanding of the processes and controls related to digital asset transactions, which may include the following:

- The entity's process to assess the risks posed from the acquisition and transacting in digital assets;
- The ongoing monitoring of the entity's controls as new digital assets with new properties are added, including the potential effect of forks, airdrops, and other means of acquiring digital assets; and
- The extent of formal documentation of the entity's processes and controls surrounding the acquisition and transacting of digital assets, including understanding of the counterparty to the transaction and evaluating related party relationships and transactions.

In addition, the acquisition of new digital assets may require the auditor to gain an understanding of the entity's process and controls that have been tailored to address the related unique risks. Understanding of the following assists the auditor in understanding management's controls over the acquisition of new digital assets:

- Classification of the digital asset under the relevant regulatory framework (for example, whether the asset is considered a security);
- Whether there are regulatory restrictions on the purchase and sale of the digital asset;
- Whether there are related parties involved in the development or governance of the digital asset;
- The means of providing consideration to pay for the digital asset (for example, through fiat via the banking system or through other digital assets); and
- Accessibility and capability of the digital assets network, including whether the blockchain is visible to the public or to the entity.

The auditor may also determine it is appropriate to understand management's policies for recognizing digital assets received resulting from hard forks, airdrops, or validating activities.

C. Digital asset transaction monitoring and reporting

1. Overview of concepts, processes, and controls

Reporting digital asset transactions involves the following processes, each of which is described in this section:

- Monitoring digital asset transactions on the blockchain;
- Evaluating the reliability of blockchain data and methods used to extract blockchain data;
- Determining the appropriate classification and measurement of digital asset transactions; and
- Determining the appropriate cutoff of digital asset transactions.

The concepts, processes, and controls relating to digital asset transaction monitoring and reporting are most relevant to the occurrence, completeness, accuracy, existence, classification, valuation and cut-off assertions.

Monitoring digital assets on the blockchain

Blockchains typically provide a level of anonymity that is not present in transactions via fiat currencies through traditional financial institutions. Digital assets and the blockchains they operate on inherently do not provide account statements in the conventional sense. Instead, blockchains typically provide a publicly observable history of all transactions on the blockchain, albeit without personally identifiable information. Specific considerations relating to transacting in digital assets should be considered by the entity.

Some types of digital assets, known as *privacy coins*, may use blockchains in which transaction data such as sending or receiving addresses, balances, or other transactional information are not publicly observable, which may require additional considerations when recording and accounting for transactions involving these digital asset types. It is important for the auditor to consider the potential implications and risks associated with privacy coins if held or used by the entity.

Due to the degree of pseudo-anonymity and immutability of transactions on blockchains, it is important for the entity to establish specific processes and controls focused on key aspects of digital assets transaction monitoring and reporting, including the following:

- Identifying and evaluating digital asset transactions on the blockchains, considering the appropriateness of the entity's IT general controls when the entity has automated processes in place;
- Considering AML, KYC, and other regulations for exchanges and other entities subject to such regulations (also see section F, "Digital Assets Held on Behalf of Others");
- Identifying related party transactions on the blockchains, including considering the entity's capabilities and controls surrounding the capturing of relevant information about blockchain addresses it is transacting with;
- Performing timely reconciliations of blockchain transactions to the entity's accounting records and other relevant off-chain information (for example, bank statements, contracts); and
- Identifying in a timely manner security breaches that could potentially result in the entity's private keys being compromised.

An entity's control in these areas is often designed to detect situations in which private keys have been stolen or misused by either internal or external parties.

Evaluating the reliability of blockchain data and methods used to extract blockchain data

For digital asset transactions that are processed on a blockchain, the completeness, occurrence, and cutoff of the transactions are largely dependent on the reliability of the blockchain itself as well as any methods used to extract the information from the blockchain. Therefore, it is important that management consider the reliability, accuracy, and completeness of information it obtains from blockchains.

A blockchain's technological parameters determine what methods are available for an entity to produce a balance of digital assets from the blockchain at a point in time. For example, many blockchains consist of ledgers of transactions (ins and outs) in public addresses, the sum of which is the spendable balance at a given point in time. Blockchains often provide software applications that query the blockchain to obtain balance data for a given public address. Further, third-party online block explorers also provide similar data. An entity may also host its own "node" (or copy) of the blockchain and build its own technology infrastructure to obtain information from the blockchain. Regardless of the method used, entities should develop processes and controls to validate the reliability of the source and completeness and accuracy of the data obtained from the blockchain.

Further, reliability of the blockchain itself can pose additional risks. Certain blockchains may not provide transparency in governance or in transactions. These blockchain technologies may introduce additional risks requiring further risk assessment procedures to identify and respond to the assessed risks. For example, newer blockchains with untested or unverified properties or capabilities may represent an increased risk that the information in the blockchain is not reliable and that the blockchain can be manipulated by other parties, either within or external to the entity. Management should have processes and controls in place to assess the reliability of the blockchain and potential risks associated with manipulation of the blockchain data. Having processes and controls in place to reconcile blockchain data to entity records may support the accuracy and completeness of transactions and balances. For digital assets new to the entity, management may consider reviewing the underlying technical documentation of the blockchain and the extent of the decentralization of the validators in the network.

Determining the appropriate classification of digital asset transactions

Many accounting systems are not designed to accommodate digital asset transactions. As part of management's reconciliation of digital assets from the related blockchains to the entity's own internal records, management is responsible for determining the appropriate classification of transactions in the entity's accounting systems. Therefore, incremental processes may be necessary to properly record these transactions in the entity's accounting system, for example, distinguishing entity-owned assets from those held on behalf of customers. These incremental processes may introduce additional risks. Understanding the substance of the transaction is necessary for the entity to determine the accounting treatment. The entity should also design and implement policies and procedures to address how or whether digital assets are recorded in the entity's financial records.

An entity should have competent members of the finance and accounting teams to determine appropriate accounting treatment of digital assets. Different digital assets may have different properties warranting varying classifications in the financial statements and disclosure in the notes to the financial statements. Processes should be in place to assess the proper classification and tracking of digital assets. Additionally, the nature of the transaction may affect how the transaction is recorded. For example, if the entity's primary activities include facilitating customer exchanges of digital assets in an agency capacity, the entity may determine it is not appropriate to record the gross settlement of digital assets but, rather, to record the transaction fees associated with that digital asset transaction as revenue. Understanding the business purpose of the entity's primary activities and transactions in assessing the proper classification of digital assets can often present unique challenges. (See the "Accounting Subgroup" section of this practice aid for guidance related to classification of digital assets.)

Determining the appropriate cutoff of digital asset transactions

Due to the decentralized nature of blockchains and digital assets, transactions may occur at any time and are not restricted to normal business hours. In addition, blockchains may vary significantly in the speed with which they process transactions, which could result in cut-off issues if there are significant delays. It is important for the entity to have formal policies in place to determine the period in which transactions occur and that controls be implemented to determine that these policies are consistently applied. If the entity has operations spanning multiple time zones, using one time zone when recording transactions across the entire entity may help prevent errors that result in inaccurate or incomplete cutoff in the period-end recording of digital asset transactions and balances.

2. Auditor risk assessment considerations

As part of the auditor's risk assessment process, it is important for the auditor to understand how management records digital asset transactions and balances in its books and records, including how it determines that the information being recorded is complete, accurate, appropriately classified, and recorded in the appropriate period. As part of obtaining this understanding, the auditor would consider the methods used to extract the information from the blockchain, including the risk that the methods used to extract the information do not function as expected.

When digital asset transactions are not processed on a blockchain (for example, processed off-chain by an exchange), it is important for auditors to consider the risk that information obtained from a third party (for example, an exchange) is not reliable. Refer to section E, "Digital Assets Held by Third Parties," for further discussion.

As part of understanding whether the entity is consistently applying its accounting policies, it also may be relevant for the auditor to understand who drafts and approves accounting documentation and who posts and reviews journal entries. The auditor considers the types of disclosures related to the entity's digital asset activities that may be appropriate to include in the financial statements and may make inquiries of management or those charged with governance about its planned disclosures that may be appropriate or required.

Management's processes and controls over digital asset transactions and reporting may differ depending on the characteristics of a particular blockchain. An auditor should possess the necessary knowledge and technical capabilities to identify and assess the risks related to each relevant blockchain and digital asset. These capabilities include understanding the technical parameters of the data output by the blockchain, such as the definition of various fields and components of amounts presented in transaction data. Management inquiries to aid in the auditor's understanding may include the following:

- What technical analysis, including the assessment of reliability, integrity, and availability of information obtained from the blockchain, does the entity perform prior to acquiring a new digital asset?
- What tools are used to extract transaction and balance data from each relevant blockchain?
- How does management consider reliability of each relevant blockchain and tools used to extract data from the blockchain?
- Do the parameters of the blockchain obscure digital assets transactions or cause complexities in determining a point in time balance (for example, privacy coins)?
- How does management validate that cut-off times for digital asset balances have been appropriately established and are consistently applied?
- How does management confirm accuracy in preparation of digital asset reconciliations?
- What controls are in place over completeness and accuracy of information used in the reconciliations?
- What volume of public addresses does the entity control for each digital asset, and how are digital asset balances dispersed among the public addresses?
- How does management validate that all digital asset transactions are authorized by appropriate individuals?
- How does management identify related party transactions on the blockchain?
- How would management know if a security breach occurred that did (or could) compromise the entity's private keys?
- How does management record digital asset transactions and balances in its books and records?
- How does management assess the reliability of information obtained from a third party when digital asset transactions are not processed on a blockchain?
- How does the entity determine that its accounting policies are consistently applied?

In addition, the entity may develop its own IT infrastructure systems, databases, and applications for tracking and reporting digital assets held by the entity, or it may purchase third-party software to perform some or all the functions needed by the entity. Evaluating IT general controls and application controls relating to these systems may be relevant to the audit.

Depending on the results of the auditor's risk assessment, consideration of management's controls over completeness of digital asset addresses may be relevant, including understanding how key pairs are generated and the controls in place to determine that the address listing is complete. The auditor may also consider management's controls over maintaining an inventory of addresses, such as rollforwards performed by the entity or comparing the address population at year-end with prior periods, to understanding additions or removals to the address population. In addition, it is important for auditors to consider whether there is a risk of material misstatement that an entity did not record all its digital assets, including those that resulted from hard forks or airdrops and validation rewards.

D. Digital asset valuation

1. Overview of concepts, processes, and controls

Fair value measurements of digital assets are necessary when an entity measures digital assets at fair value or for an impairment analysis. See FASB ASC 820, which provides guidance that applies to all entities, transactions, and instruments that require or permit fair value measurements. Also, see Q&As 16–21 in the "Accounting Subgroup" section of this practice aid for more detailed discussion of the fair value accounting considerations related to digital assets.

The digital asset ecosystem consists of a large number of marketplaces with operations that may not have been fully developed, institutionalized, or regulated. This exposes entities to challenges in valuing digital assets. Digital assets are commonly traded on multiple exchanges, which may result in inconsistent pricing across the various marketplaces, and not all marketplaces may be designed to prohibit self-dealing. Processes and controls should be in place to make sure that the valuation of digital assets is consistently and appropriately applied in accordance with GAAP and the entity's accounting policies.

This section provides an overview of the following unique attributes of digital assets, which often make valuation (including the identification of impairment indicators, when applicable) more complex:

- The lack of intrinsic value of many types of digital assets;
- Challenges in identifying and accessing the principal (or most advantageous) market for digital assets given that multiple marketplaces often exist globally for the same assets;
- The decentralized nature of blockchain and the ability for transactions to occur between parties at any time; and
- Variation in levels of regulation in digital asset marketplaces.

Lack of intrinsic value

Most traditional asset classes have clearly defined benefits or underlying cash flows that provide a basis for assessing fair value when market data is limited. For example, financial assets often carry defined cash flow streams, which can be discounted at appropriate discount rates to estimate fair value. Digital assets often lack even unobservable inputs from which fair values can be independently measured aside from market transactions. This lack of intrinsic value can pose challenges when estimating fair value for thinly traded digital assets. These factors likely result in higher inherent risk that these types of assets are misstated because they are not appropriately valued.

Lack of a clear principal (or most advantageous) market

The valuation of digital assets requires entities to determine which sources of the value or pricing of the digital assets should be used. Fair value of digital assets determined in accordance with FASB ASC 820 should reflect the price at which a transaction would take place between marketplace participants in the principal (or, in its absence, the most advantageous) market. The *principal market* is defined as the market with the greatest volume and level of activity for the asset or liability. In the absence of a principal market, an entity should determine the *most advantageous market* that an asset could be sold in, which is defined as the market that maximizes the amount that would be received to sell the asset or minimizes the amount that would be paid to transfer the liability, after taking into account transaction costs and transportation costs. FASB ASC 820-10-35-5A states that in the absence of evidence to the contrary, the market in which the reporting entity normally would enter into a transaction to sell the asset or transfer the liability is presumed to be the principal market or, in the absence of a principal market, the most advantageous market.

In circumstances in which a market is immature, the following characteristics can make the principal (or most advantageous) market for digital assets difficult to substantiate or identify:

- Pricing information reported to an entity may not be representative of orderly transactions (for example, when related party considerations are present).
- Volume data reported by sources may be unreliable (for example, pricing sources may engage in wash trading to inflate volume).
- The principal (or most advantageous) market can change frequently due to current market fragmentation and the ability to transfer assets across marketplaces instantly, in many cases.

These characteristics increase the risk that an entity is unable to properly identify the principal (or most advantageous) market, whether erroneously or intentionally (that is, "cherry-picking" pricing sources).

Valuation measurement date and time

Unlike traditional markets, the market for digital assets does not close, and an entity may inappropriately value its digital assets at times of the day that are not consistent across reporting periods and not in accordance with its valuation policies. This, in combination with the significant intra-day volatility of digital assets, could result in a material misstatement of valuation.

Regulation

The regulatory framework of a marketplace can influence the efficacy and transparency of underlying transactions and reporting in that market. Because the same digital assets trade in disparate markets around the world with varying levels of regulation and oversight, determining the level of pricing reliability requires diligence on the part of the entity.

2. Auditor risk assessment considerations

It is important for the auditor to understand management's process for pricing digital assets to evaluate whether accounting and disclosure requirements were appropriately considered and addressed. When gaining an understanding of processes and controls surrounding the valuation of digital assets, it is important for the auditor to consider the facts and circumstances of the entity.

This understanding may be obtained by inspecting management's valuation policies and documentation and making inquiries of management or those charged with governance that address various considerations, including the following:

- How the entity identifies the principal (or most advantageous) market for each digital asset, including how it considers the reliability of information about the volume and level of activity in various markets;

- How the entity considers the reliability of pricing information obtained;
- Whether, and if so, how, the entity evaluates variances between prices used and other available third-party price data, including the precision of any variance thresholds;
- The time of day used for valuing digital assets;
- Whether any changes have been made to valuation policies and the reasons for any changes;
- How the entity measures illiquid investments in digital assets, including how it determines the amount of weight placed on observable trades for the digital asset and how it identifies digital assets that are similar (if pricing of similar digital assets is used as part of the valuation);
- Whether the entity uses a specialist to measure the value of digital assets, and if so, the competency and objectivity of management's specialist; and
- If the entity applies an accounting policy that requires evaluation of asset impairment (for example, digital assets accounted for as intangible assets), how the entity identifies and assesses impairment indicators in accordance with GAAP and the entity's accounting policies.

E. Digital assets held by third parties

1. Overview of concepts, processes, and controls

Entities that use a third party to maintain custody of their digital assets are responsible for making sure that the third party has designed appropriate controls related to digital asset safeguarding and any other relevant processes that exist at the third party (for example, transaction monitoring and reporting). One way to do this is to obtain and review an appropriate SOC report from the third party that provides assurance about the effectiveness of the controls in place at the third party to address the relevant risks.

The concepts, processes, and controls relating to digital assets held by third parties are most relevant to the existence, completeness, accuracy, and rights and obligations assertions.

Commingling of digital assets

For operational and security purposes, entities holding digital assets in custody for customers often pool customer digital assets into consolidated addresses on the blockchain. Thus, each customer's digital assets are not determinable simply by viewing publicly available blockchain activity. Likewise, not all digital asset transactions result in transactions recorded on blockchains. These third parties maintain a customer database separate from the blockchain to track and monitor individual customer activity and balances with batched transaction activity being broadcasted to the blockchain when necessary.

For example, an exchange, acting as a custodian on behalf of its customers, may purchase digital assets directly from customers wishing to sell their digital assets. In this situation, the net position of the entity's digital assets remains unchanged, and no blockchain transactions are necessary to fulfill these transactions. In this scenario, the only changes are the amount of digital assets held on behalf of its customers and the amount held by the entity and to which it has rights. These transactions are recorded only on the third party's internal ledger. Alternatively, if the entity has assigned addresses to its individual customers, this transaction may result in a blockchain event (for example, sending the digital asset from the address assigned to the customer to an address assigned to the entity).

2. Auditor risk assessment considerations

It is important for the auditor to inquire of management or those charged with governance whether any digital assets recognized by the entity are held on other platforms outside of the entity's control. In accordance with AU-C section 402, *Audit Considerations Relating to an Entity Using a Service Organization*, the auditor obtains an understanding of how the entity uses the services of a service organization in its operations, including the following:

- The nature of the services provided by the service organization and the significance of those services to the user entity, including their effect on the user entity's internal control;
- The nature and materiality of the transactions processed or accounts or financial reporting processes affected by the service organization;
- The degree of interaction between the activities of the service organization and those of the user entity; and
- The nature of the relationship between the user entity and the service organization, including the relevant contractual terms for the activities undertaken by the service organization.

If the services provided by a service organization are relevant to the audit of an entity's financial statements, obtaining an understanding of management's processes and controls, as well as the controls established by the service organization, will be relevant. In obtaining an understanding of controls implemented by the entity over service organizations, used in relation to digital assets and digital asset transactions, the auditor may consider the following:

- Who initiates and authorizes transactions with the third party and what processes the entity has in place over the initiation of transactions with the third party;
- How transactions with the third party are recorded and reconciled in the entity's accounting records;
- How the entity validates that the third party maintains control of the digital assets in its custody, particularly when digital assets are commingled by the custodian;
- How the entity monitors the effectiveness of the third party's internal controls (for example, review of SOC reports); and
- How the entity validates the effective design and implementation of relevant complementary user entity controls.

An understanding of the controls implemented by the service organizations may be obtained through review of a SOC report. However, it is important for the auditor to determine what reliance can be placed on the SOC reports. If the auditor is unable to obtain sufficient understanding of the nature and significance of the services provided by the service organization from the user entity or through review of SOC or other attestation reports (for example, due to unavailability or unreliability), the auditor will likely need to perform additional procedures to assess the risk of material misstatement related to the transactions and balances. Paragraph .12 of AU-C section 402 provides additional procedures that may be performed in such cases, including the following:

- Contacting the service organization, through the user entity, to obtain specific information;
- Visiting the service organization and performing procedures that will provide the necessary information about the relevant controls at the service organization; and
- Using another auditor to perform procedures that will provide the necessary information about the relevant controls at the service organization.

In the event that sufficient understanding of the nature and significance of the services provided by the service organization and their effect on the audit cannot be obtained at the third party, the auditor may need to consider the impact on the audit report (for example, a scope limitation).

F. Digital assets held on behalf of others

1. Overview of concepts, processes, and controls

Entities that hold digital assets on behalf of others need to have processes and controls in place to track customer balances separately from entity balances. They also should have policies in place to onboard new customers.

Tracking customer balances separately from entity balances

As explained in the previous section on commingling of digital assets, digital asset custodians and exchanges often maintain a customer database separate from the blockchain to track and monitor individual customer activity and balances. Some of these entities may also combine customer and entity digital assets into the same consolidated addresses. The digital assets held by the entity are periodically reconciled to the digital assets held on the blockchain. Because the reconciliation process only validates that total (customer and entity) digital assets in the database agree to the blockchain, entities should effectively design and implement controls over the IT applications and databases to verify accurate segregation of customer and entity digital assets as well as individual customers' digital assets.

Customer onboarding and due diligence

Storing assets on behalf of customers introduces additional legal and regulatory risks and responsibilities for the entity, including the entity's responsibility to validate that their customers' identities are properly verified as part of customer onboarding.

The jurisdictions in which the entity, its subsidiaries, and its customers are located may have regulations in place requiring the entity to perform customer due diligence (CDD) procedures as part of the customer onboarding process. These procedures verify that the entity knows the true identity of the customer and that the customer is not subject to sanctions or other situations that may restrict the customer from transacting with the entity or its products.

When this is the case, it is important for the entity to have formalized CDD policies with sufficiently designed and operating controls in place. Differences in jurisdictions, whether local, state, federal, or international, require the entity to have robust processes in place prior to expanding its operations into new jurisdictions as well as existing processes in place to continuously monitor changes to existing customers or customer base. An entity may be subject to civil or criminal penalties for not complying with these policies, resulting in increased financial statement risks.

2. Auditor risk assessment considerations

If an entity is holding digital assets on behalf of others as well as for their own purposes, it is generally important for the auditor to understand the following:

- How the digital assets are segregated and what procedures are performed by the entity to determine whether the segregation of the digital assets is appropriate;
- If digital assets held on behalf of others and for the entity are held within commingled addresses, the reconciliation procedures performed;
- Whether the entity has controls in place to verify that enough digital assets are available to meet customer obligations; and
- The legal and regulatory framework the entity operates under. (See the "Laws and Regulations and Related Parties" section of this practice aid.)

The following considerations assist the auditor in understanding the processes and controls surrounding customer onboarding and due diligence:

- *Obtaining an understanding of applicable laws and regulations (see the "Laws and Regulations and Related Parties" section of this practice aid and how the entity's processes and controls are tailored to each jurisdiction in which they operate as well as to the unique characteristics of their customer base).* For example, an entity transacting with institutions will likely require different background verification than those required for individual users. The auditor may reperform the review of KYC information provided to the entity as part of the auditor's onboarding procedures. For example, certain types of KYC information may include drivers' licenses or banking information from individual users and entity documents and other forms from institutional customers.
- *Whether transactions between related parties have been appropriately recorded and disclosed.* AU-C section 550, *Related Parties*, requires the auditor to identify, assess, and respond to the risks of material misstatement that could result if the entity fails to appropriately account for or disclose related party relationships, transactions, or balances. This includes whether the transactions reported in the financial statements include related party transactions and whether the financial statements include disclosures required by GAAP. Transactions between related parties may give rise to additional fraud risks because the transactions often lack an arms-length nature. The pseudo-anonymity of blockchain addresses and pseudo-anonymous digital asset transactions heighten this risk. (See the "Laws and Regulations and Related Parties" section of this practice aid.)

Laws and regulations and related parties

Introduction

AU-C section 250, *Consideration of Laws and Regulations in an Audit of Financial Statements*, addresses the auditor's responsibility to consider laws and regulations in an audit of financial statements. The requirements in AU-C section 250 are designed to assist the auditor in identifying material misstatement of the financial statements due to noncompliance with laws and regulations. It is the responsibility of management, with the oversight of those charged with governance, to ensure that the entity's operations are conducted in accordance with the provisions of laws and regulations, including compliance with the provisions of laws and regulations that determine the reported amounts and disclosures in an entity's financial statements.

AU-C section 550, *Related Parties,* addresses the auditor's responsibilities relating to related party relationships and transactions in an audit of financial statements. Paragraph .04 of AU-C section 550 states that the auditor has the responsibility to perform audit procedures to identify, assess, and respond to the risks of material misstatement arising from the entity's failure to appropriately account for or disclose related party relationships, transactions, or balances.

This section of the practice aid addresses the unique challenges and potential procedures to consider surrounding both laws and regulations as well as related parties when auditing an entity that holds or transacts with digital assets. Because related party transactions may reflect a risk of material misstatement due to noncompliance, these topics are considered in the same section.

Laws and regulations

Relevant professional standards

Paragraph .10 of AU-C section 250 states that the objectives of the auditor are to

a. obtain sufficient appropriate audit evidence regarding material amounts and disclosures in the financial statements that are determined by the provisions of those laws and regulations generally recognized to have a direct effect on their determination;

b. perform specified audit procedures that may identify instances of noncompliance with other laws and regulations that may have a material effect on the financial statements; and

c. respond appropriately to noncompliance or suspected noncompliance with laws and regulations identified during the audit.

Challenges specific to digital assets

The auditor is required to obtain a general understanding of how the entity is complying with the legal and regulatory framework applicable to the entity and the industry or sector in which the entity operates. Given the evolving nature of the regulation of digital assets, it is important to understand the entity's identification, monitoring, and adherence to existing laws and regulations that apply in the digital asset ecosystem, which may require significant judgment and expertise. Inherent in the design of most digital asset ecosystems is the potential for the pseudo-anonymity of the transacting participants. Although pseudo-anonymity may have benefits to certain elements of the ecosystem, it increases the risk that participants are seeking to conceal illegal activities, such as money laundering.

Some of the challenges of meeting the requirements or objectives of GAAS, specific to the digital asset ecosystem, may include the following:

- The maturity of the legal and regulatory environments related to digital assets differs across jurisdictions. These differences may make it difficult for the auditor to obtain an understanding of the legal and regulatory framework applicable to the entity, which may include compliance with regulatory requirements, including those addressing internal control, market surveillance, custody, financial statement disclosures, tax, securities law, and investor or consumer protection. Additional difficulty arises from the evolving nature of the legal and regulatory environment related to digital assets (for example, regulations may change, previously unregulated activity may become regulated, and so on).
- The pseudo-anonymity of participants in public blockchain transactions may make it difficult for the auditor to identify transactions with related parties or with entities who have or may have illegal intentions.
- For entities that facilitate customer transactions of digital assets (for example, custodians and exchanges), the pseudo-anonymity of parties involved in public blockchain transactions may make it difficult for the auditor to understand the business purpose of the transactions (or lack thereof).

Procedures to consider specific to digital assets

Procedures to address the risk of material misstatement of the financial statement due to noncompliance with laws and regulations include the following:

- Inquire with management to understand its processes (and controls, as applicable) to identify, stay current with, comply with, and monitor compliance with laws and regulations.
- Inquire with management to understand the applicable laws and regulations, including understanding whether management has obtained regulatory licenses, as applicable.
- Inquire with management to understand and evaluate its business purpose related to transactions involving digital assets, including considering whether there are any indicators of fraud, asset concealment, or money laundering.
- Understand the entity's business strategy and intentions (for example, acquiring a broker-dealer to transact in the digital asset ecosystem or investment in an initial coin offering [ICO]) and understand the nature and extent of management's communications or formal agreements with appropriate regulators (for example, the Financial Industry Regulatory Authority [FINRA], SEC, Commodity Futures Trading Commission [CFTC], state money transmitter authorities, and state attorney general).
- Inquire with management, legal counsel (internal and external), and those charged with governance concerning the entity's compliance with laws and regulations and knowledge of noncompliance (potential or actual).
- Inquire with management to understand its policies and procedures to onboard new customers or enter into relationships with other players in the digital asset ecosystem. These may include performing know your customer (KYC), anti-money laundering, and other due diligence procedures to understand the identity and integrity of the counterparty.

- Inquire with management to understand how the entity identifies transactions with entities who have or may have illegal intentions. For entities that facilitate customer transactions of digital assets, auditors may also inquire with management to understand how the entity evaluates the integrity of trading, including procedures to identify and investigate:
  - fraud and market manipulation;
  - compliance with applicable laws and regulations (including security regulations); and
  - suspicious transactions, which may be subject to monitoring and reporting regulatory requirements.
- Evaluate underlying transactions, for example, identifying whether there are patterns that may be indicative of legal violations, either by the entity or by others, which the entity may be required to identify and report.
- Consider whether the laws and regulations permit or prohibit self-dealing.
- Read external sources of information (for example, through media searches and other sources) and remain alert for any contradictory information.
- Evaluate legal letters (internal or external) and determine whether it is necessary to obtain specific legal representations.
- Inquire with management regarding any regulatory inquiries or other similar matters and related responses or communications. Inspect correspondence, if any, with the relevant licensing or regulatory authorities.
- Evaluate whether recorded accruals or the disclosure of possible loss contingencies arising from digital asset activities, including those related to pending or threatened litigation and noncompliance with laws and regulations, are appropriate.
- Read minutes of board of director and audit committee meetings.
- Obtain written representation from management specific to the circumstances.
- Engage legal or other specialists when needed. For example, in some cases, a legal specialist may be engaged to assist with a required procedure.

Certain of these procedures may have been performed during the client or engagement acceptance and continuance process and may also be used to satisfy the requirements of AU-C section 250.

In addition, the auditor is required to respond appropriately to noncompliance or suspected noncompliance with laws and regulations identified during the audit in accordance with AU-C section 250.

Related parties

Relevant professional standards

Paragraph .09 of AU-C section 550 states that the objectives of the auditor are to

a. obtain an understanding of related party relationships and transactions sufficient to be able to
   i. recognize fraud risk factors, if any, arising from related party relationships and transactions that are relevant to the identification and assessment of the risks of material misstatement due to fraud.
   ii. conclude, based on the audit evidence obtained, whether the financial statements, insofar as they are affected by those relationships and transactions, achieve fair presentation.

b. obtain sufficient appropriate audit evidence about whether related party relationships and transactions have been appropriately identified, accounted for, and disclosed in the financial statements.

Challenges specific to digital assets

Not only does the pseudo-anonymity of participants in digital asset transactions create challenges for considerations related to AU-C section 250, but it also creates unique challenges when considering the requirements of AU-C section 550. The pseudo-anonymity creates challenges in obtaining sufficient appropriate audit evidence about whether related party relationships and transactions have been appropriately identified, accounted for, and disclosed in the financial statements. Related party relationships and transactions may present risk of error, illegal acts, or fraud. For example, an auditor may identify a risk of material misstatement related to the entity conducting market activities to manipulate the value of a thinly traded digital asset issued by the entity. As another example, management may seek to materially misstate its financial position or results of operations by concealing related party transactions or "double-counting" by asserting ownership of the same digital assets across entities (for example, in a fund complex).

Some of the challenges of meeting the requirements or objectives of GAAS, specific to the digital asset ecosystem, may include the following:

- The pseudo-anonymity of participants in public blockchain transactions may make it difficult to identify transactions with related parties. For example, an auditor may be unable to determine if a digital asset transaction is also a related party transaction if an entity does not perform KYC or other procedures that assist with determining the specific names and identities of counterparties.
- Management may not have the ability or the related processes and controls to properly identify, account for, and disclose transactions with related parties.
- Sufficient appropriate evidence may not be available to demonstrate that a transaction management asserts to be arms-length is, in fact, arms-length. Potential risks may exist around self-dealing or "round trip transactions."
- For entities that facilitate customer transactions of digital assets (for example, custodians and exchanges), management may not have the ability or the related processes and controls to
  - distinguish between transactions on the entity's behalf and those that are on the customer's behalf;
  - identify employee or platform trading (for example, conflicts of interest, self-dealing).

Procedures to consider specific to digital assets

Procedures to obtain sufficient appropriate audit evidence about whether related party relationships and transactions have been identified, accounted for, and disclosed in the financial statements specific to the digital asset ecosystem include the following:

- Consider the results of client or engagement acceptance or continuance.
- Inquire with management to understand and evaluate its business purpose related to the transactions involving digital assets, including possible related party considerations.
- Evaluate management's policies and procedures for identifying, recording, summarizing, and disclosing related party transactions related to digital assets and perform additional procedures, including testing relevant controls, as necessary.
- Evaluate management's policies and procedures for obtaining appropriate knowledge of the parties with whom the entity is entering into digital asset transactions and perform additional procedures, including testing relevant controls, as necessary.
- Evaluate management's policies and procedures for identifying those transactions that are self-dealing or potential conflicts of interest and perform additional procedures, including testing relevant controls, as necessary.

- Examine the entity's digital asset transactions and consider whether management has appropriately identified all related party transactions. This may include substantive procedures related to the completeness of related party transactions identified by management. For example, obtain a listing of all entity-owned wallets and search for transactions with entity-owned wallets, obtain evidence of the counterparty to digital asset transactions by examining off-chain evidence (for example, digital asset transaction agreements and contracts) and determine whether the counterparty is a related party.
- Test management's controls for identifying, recording, summarizing, and disclosing related party transactions related to digital assets, if substantive procedures alone cannot provide sufficient appropriate audit evidence at the assertion level.

Note:

Paragraph .A25 of AU-C section 330, *Performing Audit Procedures in Response to Assessed Risks and Evaluating the Audit Evidence Obtained*, states that in some cases, the auditor may find it impossible to design effective substantive procedures that, by themselves, provide sufficient appropriate audit evidence at the relevant assertion level. This may occur when an entity conducts its business using IT, and no documentation of transactions is produced or maintained, other than through the IT system. In such cases, paragraph .08b of AU-C section 330 requires the auditor to perform tests of relevant controls.

- Consider related disclosures.

Appendix A

Blockchain Universal Glossary

Appendix B

Staff Accounting Bulletin No. 121

Questions and Answers

Introduction and background:

On March 31, 2022, the SEC staff released Staff Accounting Bulletin No. 121 (SAB No. 121), which expresses the staff's views on how an entity that has an obligation to safeguard "**crypto-assets**"[1] for another party should account for that obligation. The SEC staff believes these safeguarding arrangements "involve unique risks and uncertainties not present in arrangements to safeguard assets that are not crypto-assets, including technological, legal, and regulatory risks and uncertainties." The SEC staff further believes the guidance in SAB No. 121 "will enhance the information received by investors and other users of financial statements about these risks, thereby assisting them in making investment and other capital allocation decisions."

Under SAB No. 121, an entity with a safeguarding obligation recognizes a safeguarding liability with an accompanying safeguarding asset, both initially measured at the fair value of the safeguarded "**crypto-assets.**" SAB No. 121 also discusses certain quantitative and qualitative information the staff would expect to see disclosed, both inside and outside the financial statements, about the safeguarding obligation.

The following questions and answers (Q&As) focus on interpretive matters arising from SAB No. 121 based on recent discussions with the SEC staff:

Question 1:

SAB No. 121 discusses the accounting for entities that have obligations to safeguard "**crypto-assets.**" What does the SAB No. 121 definition of a "**crypto-asset**" include?

Response 1:

Footnote 3 of SAB No. 121 explains that "[f]or purposes of this SAB, the term 'crypto-asset' refers to a digital asset that is issued and/or transferred using distributed ledger or blockchain technology using cryptographic techniques." As a result, as used in SAB No. 121, the term "**crypto-asset**" should be interpreted more broadly than the term crypto asset defined in appendix A, "Blockchain Universal Glossary", of this practice aid and used elsewhere in this practice aid (see Accounting Q&A 1). As used in SAB No. 121, the term "**crypto-asset**" includes, but is not limited to, crypto assets (as defined in Accounting Q&A 1), stablecoins (see Accounting Q&As 22 and 23), non-fungible tokens (NFTs), and other tokens (collectively similar to "digital assets" as used in the practice aid.)

Some "**crypto-assets**" can have differences that may warrant further analysis to determine if they are in scope of SAB No. 121. For example, "**crypto-assets**" on a public permissionless blockchain likely present many of the risks outlined in SAB No. 121. However, "**crypto-assets**" on a private permissioned blockchain may not contain those same risks and may be out of the scope of SAB No. 121 if, for example, the ability to amend, correct, or cancel transactions exists. Consultation with your professional adviser or the SEC is recommended for such fact patterns.

[1] Accounting Question & Answer 1 in this practice aid defines crypto assets for the purposes of this practice aid. The use of the term crypto assets in this appendix is based on the definition used in Staff Accounting Bulletin No. 121 (SAB No. 121), which should be interpreted more broadly than the term crypto assets used elsewhere in this practice aid. The SAB No. 121 definition is herein and after referred to as "**crypto-assets**" within this appendix.

Question 2:

Must all the risks identified in SAB No. 121 be present for an entity to have an obligation to safeguard "**crypto-assets**"?

Response 2:

No. Although SAB No. 121 references various risks — technological, legal, and regulatory — that can arise from an entity's arrangement to safeguard "**crypto-assets**," there is no requirement for all the risks to be present for an entity to have an obligation to safeguard the "**crypto-assets**." In addition, the risks referenced in SAB No. 121 are not all-inclusive; therefore, entities should also consider whether their "**crypto-asset**" safeguarding activities give rise to other types of risks or uncertainties that indicate a safeguarding obligation exists under SAB No. 121.

Question 3:

Must an entity operate a platform to be subject to the potential recognition of a safeguarding liability?

Response 3:

No. Although SAB No. 121 uses the example of an entity that "safeguard[s] crypto-assets held for [its] platform users," an entity need not operate a platform to be subject to recognition of a safeguarding liability.

Question 4:

If an entity determines that it controls "**crypto-assets**", and therefore recognizes them on its balance sheet, must the entity also recognize a safeguarding liability under SAB No. 121?

Response 4:

No. When an entity concludes that it controls "**crypto-assets**" (see Accounting Q&A 10), SAB No. 121 does not apply because the "**crypto-assets**" are recognized on the entity's balance sheet and treated as its own assets. Consequently, the entity would not record a liability to safeguard its own assets under SAB No. 121.

Question 5:

If an entity only provides wallet software tools to a customer whereby the customer generates and controls the private key information, would the entity's transaction with the customer give rise to a safeguarding obligation within the scope of SAB No. 121?

Response 5:

No. If the entity only provides software tools to the customer, who then generates and controls the private key information, the transaction does not give rise to a safeguarding obligation.

Question 6:

Could two entities recognize a safeguarding liability and safeguarding asset for the same "**crypto-asset**" being safeguarded?

Response 6:

Yes. All entities that conclude they have an obligation to safeguard the "**crypto-assets**" of a third party must recognize a safeguarding liability and a safeguarding asset in accordance with SAB No. 121. For example, a custodian of a third party's "**crypto-assets**" may, as part of its custodial relationship, engage a sub-custodian. In such cases, both the custodian and the sub-custodian might conclude they have a safeguarding obligation and therefore need to recognize a safeguarding asset and safeguarding liability for the safeguarding of the same population of "**crypto-assets**" regardless of which entity holds the private key information.

Question 7:

How does an entity determine if it has a safeguarding obligation to a third party, either directly or through an agent and, therefore, must recognize a safeguarding liability and a safeguarding asset under SAB No. 121?

Response 7:

The determination of whether an entity is responsible for safeguarding "**crypto-assets**" will depend on the totality of the facts and circumstances, including consideration of the involvement of the entity's agents and other third parties. The following should all be considered and, depending on the facts and circumstances, may *individually or in combination* suggest a safeguarding obligation exists (this list is not intended to be exhaustive):

- The nature of the entity's involvement (including that of its agents) with the safeguarded assets.
- The entity's level of involvement (including that of its agents) with the safeguarded assets.
- The contractual terms of the arrangement with the third party whose assets are being safeguarded.
- The contractual terms of any arrangement between the entity and other parties involved in the safeguarding of the assets.
- The perception of the third parties whose "**crypto-assets**" are being safeguarded. For example, would the third party believe the entity is responsible for safeguarding the "**crypto-assets**"?
- The degree to which the entity can transact in the "**crypto-assets**" without the involvement of other parties (for example, move them between wallets).
- The level of involvement the entity has in handling complaints and resolving disputes.
- The entity's involvement with recordkeeping, including whether the entity knows the public key information or balances, or both of "**crypto-assets**" safeguarded for third parties.
- The degree of the entity's involvement with transactions involving the safeguarded "**crypto-assets**," including who controls the flow of transactions.

Question 8:

How are changes in the fair value measurement of the safeguarding liability and safeguarding asset recognized under SAB No. 121 presented in an entity's statement of operations?

Response 8:

SAB No. 121 explains that the safeguarding liability is measured "at each reporting date at the fair value of the crypto-asset that [the entity] is responsible for." The safeguarding asset is measured at "each reporting date at the fair value of the crypto assets held…." The changes in the fair value of the safeguarding liability and the safeguarding asset can be presented in the same line item in the statement of operations. When the changes in the fair value of the safeguarding liability and safeguarding asset are the same in a reporting period, there would be no net effect in the statement of operations. If, however, an entity incurs a loss on the safeguarding asset (for example, "crypto-assets" held for third parties are lost), then any difference between the change in the fair value of the safeguarding liability and safeguarding asset would be reflected in the entity's statement of operations, and accordingly, would not net to zero.

Question 9:

When an entity's financial statements are filed with the SEC in accordance with Rule 3-09 and Rule 3-05 of Regulation S-X, are those financial statements subject to SAB No. 121?

Response 9:

Yes. Although SAB No. 121 does not specifically reference these types of entities, the financial statements of these entities are subject to SAB No. 121.

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