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Hong Kong Auditing Practice Guidance 1000

Special Considerations in Auditing Financial Instruments

HKAPG 1000 has been updated for conforming and consequential amendments (“amendments”) as a result of the new and revised quality management standards. However, HKAPG 1000 has not been updated for changes to HKSA 540 (Revised). This is aligned with the International Auditing Practice Note 1000.



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HONG KONG AUDITING PRACTICE GUIDANCE 1000

SPECIAL CONSIDERATIONS IN AUDITING FINANCIAL INSTRUMENTS

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Hong Kong Auditing Practice Guidance (HKAPG) 1000, *Special Considerations in Auditing Financial Instruments*, should be read in conjunction with the *Preface to the Hong Kong Quality Management, Auditing, Review, Other Assurance, and Related Services Pronouncements*. HKAPGs do not impose additional requirements on auditors beyond those included in the Hong Kong Standards on Auditing (HKSAAs), nor do they change the auditor’s responsibility to comply with all HKSAAs relevant to the audit. HKAPGs provide practical assistance to auditors. They also provide material that firms can use in developing their training programs and internal guidance.

Introduction

1. Financial instruments may be used by financial and non-financial entities of all sizes for a variety of purposes. Some entities have large holdings and transaction volumes while other entities may only engage in a few financial instrument transactions. Some entities may take positions in financial instruments to assume and benefit from risk while other entities may use financial instruments to reduce certain risks by hedging or managing exposures. This Hong Kong Auditing Practice Guidance (HKAPG) is relevant to all of these situations.
2. The following Hong Kong Standards on Auditing (HKSA) are particularly relevant to audits of financial instruments:
 - (a) HKSA 540¹ deals with the auditor's responsibilities relating to auditing accounting estimates, including accounting estimates related to financial instruments measured at fair value;
 - (b) HKSA 315 (Revised 2019)² and HKSA 330³ deal with identifying and assessing risks of material misstatement and responding to those risks; and
 - (c) HKSA 500⁴ explains what constitutes audit evidence and deals with the auditor's responsibility to design and perform audit procedures to obtain sufficient appropriate audit evidence to be able to draw reasonable conclusions on which to base the auditor's opinion.
3. The purpose of this HKAPG is to provide:
 - (a) Background information about financial instruments (Section I); and
 - (b) Discussion of audit considerations relating to financial instruments (Section II).

HKAPGs provide practical assistance to auditors. They are intended to be disseminated by those responsible for national standards, or used in developing corresponding national material. They also provide material that firms can use in developing their training programs and internal guidance.

4. This HKAPG is relevant to entities of all sizes, as all entities may be subject to risks of material misstatement when using financial instruments.
5. The guidance on valuation⁵ in this HKAPG is likely to be more relevant for financial instruments measured or disclosed at fair value, while the guidance on areas other than valuation applies equally to financial instruments either measured at fair value or amortized cost. This HKAPG is also applicable to both financial assets and financial liabilities. This HKAPG does not deal with instruments such as:
 - (a) The simplest financial instruments such as cash, simple loans, trade accounts receivable and trade accounts payable;
 - (b) Investments in unlisted equity instruments; or
 - (c) Insurance contracts.

¹ HKSA 540, *Auditing Accounting Estimates, Including Fair Value Accounting Estimates, and Related Disclosures*

² HKSA 315 (Revised 2019), *Identifying and Assessing the Risks of Material Misstatement*

³ HKSA 330, *The Auditor's Responses to Assessed Risks*

⁴ HKSA 500, *Audit Evidence*

⁵ In this HKAPG, the terms "valuation" and "measurement" are used interchangeably.

6. Also, this HKAPG does not deal with specific accounting issues relevant to financial instruments, such as hedge accounting, profit or loss on inception (often known as “Day 1” profit or loss), offsetting, risk transfers or impairment, including loan loss provisioning. Although these subject matters can relate to an entity’s accounting for financial instruments, a discussion of the auditor’s consideration regarding how to address specific accounting requirements is beyond the scope of this HKAPG.
7. An audit in accordance with HKAs is conducted on the premise that management and, where appropriate, those charged with governance have acknowledged certain responsibilities. Such responsibilities subsume making fair value measurements. This HKAPG does not impose responsibilities on management or those charged with governance nor override laws and regulation that govern their responsibilities.
8. This HKAPG has been written in the context of general purpose fair presentation financial reporting frameworks, but may also be useful, as appropriate in the circumstance, in other financial reporting frameworks such as special purpose financial reporting frameworks.
9. This HKAPG focuses on the assertions of valuation, and presentation and disclosure, but also covers, in less detail, completeness, accuracy, existence, and rights and obligations.
10. Financial instruments are susceptible to estimation uncertainty, which is defined in HKSA 540 as “the susceptibility of an accounting estimate and related disclosures to an inherent lack of precision in its measurement.”⁶ Estimation uncertainty is affected by the complexity of financial instruments, among other factors. The nature and reliability of information available to support the measurement of financial instruments varies widely, which affects the estimation uncertainty associated with their measurement. This HKAPG uses the term “measurement uncertainty” to refer to the estimation uncertainty associated with fair value measurements.

Section I—Background Information about Financial Instruments

11. Different definitions of financial instruments may exist among financial reporting frameworks. For example, Hong Kong Financial Reporting Standards (HKFRS) define a financial instrument as any contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity.⁷ Financial instruments may be cash, the equity of another entity, the contractual right or obligation to receive or deliver cash or exchange financial assets or liabilities, certain contracts settled in an entity’s own equity instruments, certain contracts on non-financial items, or certain contracts issued by insurers that do not meet the definition of an insurance contract. This definition encompasses a wide range of financial instruments from simple loans and deposits to complex derivatives, structured products, and some commodity contracts.
12. Financial instruments vary in complexity, though the complexity of the financial instrument can come from different sources, such as:
 - A very high volume of individual cash flows, where a lack of homogeneity requires analysis of each one or a large number of grouped cash flows to evaluate, for example, credit risk (for example, collateralized debt obligations (CDOs)).
 - Complex formulae for determining the cash flows.
 - Uncertainty or variability of future cash flows, such as that arising from credit risk, option contracts or financial instruments with lengthy contractual terms.

The higher the variability of cash flows to changes in market conditions, the more complex and uncertain the fair value measurement of the financial instrument is likely to be. In addition, sometimes financial instruments that, ordinarily, are relatively easy to value become complex to value because of particular circumstances, for example, instruments for which the market has

⁶ HKSA 540, paragraph 7(c)

⁷ Hong Kong Accounting Standard (HKAS) 32, *Financial Instruments: Presentation*, paragraph 11

become inactive or which have lengthy contractual terms. Derivatives and structured products become more complex when they are a combination of individual financial instruments. In addition, the accounting for financial instruments under certain financial reporting frameworks or certain market conditions may be complex.

13. Another source of complexity is the volume of financial instruments held or traded. While a “plain vanilla” interest rate swap may not be complex, an entity holding a large number of them may use a sophisticated information system to identify, value and transact these instruments.

Purpose and Risks of Using Financial Instruments

14. Financial instruments are used for:
 - Hedging purposes (that is, to change an existing risk profile to which an entity is exposed). This includes:
 - The forward purchase or sale of currency to fix a future exchange rate;
 - Converting future interest rates to fixed rates or floating rates through the use of swaps; and
 - The purchase of option contracts to provide an entity with protection against a particular price movement, including contracts which may contain embedded derivatives;
 - Trading purposes (for example, to enable an entity to take a risk position to benefit from short term market movements); and
 - Investment purposes (for example, to enable an entity to benefit from long term investment returns).
15. The use of financial instruments can reduce exposures to certain business risks, for example changes in exchange rates, interest rates and commodity prices, or a combination of those risks. On the other hand, the inherent complexities of some financial instruments also may result in increased risk.
16. Business risk and the risk of material misstatement increase when management and those charged with governance:
 - Do not fully understand the risks of using financial instruments and have insufficient skills and experience to manage those risks;
 - Do not have the expertise to value them appropriately in accordance with the applicable financial reporting framework;
 - Do not have sufficient controls in place over financial instrument activities; or
 - Inappropriately hedge risks or speculate.
17. Management’s failure to fully understand the risks inherent in a financial instrument can have a direct effect on management’s ability to manage these risks appropriately, and may ultimately threaten the viability of the entity.

18. The principal types of risk applicable to financial instruments are listed below. This list is not meant to be exhaustive and different terminology may be used to describe these risks or classify the components of individual risks.
- (a) Credit (or counterparty) risk is the risk that one party to a financial instrument will cause a financial loss to another party by failing to discharge an obligation and is often associated with default. Credit risk includes settlement risk, which is the risk that one side of a transaction will be settled without consideration being received from the customer or counterparty.
 - (b) Market risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market prices. Examples of market risk include currency risk, interest rate risk, commodity and equity price risk.
 - (c) Liquidity risk includes the risk of not being able to buy or sell a financial instrument at an appropriate price in a timely manner due to a lack of marketability for that financial instrument.
 - (d) Operational risk relates to the specific processing required for financial instruments. Operational risk may increase as the complexity of a financial instrument increases, and poor management of operational risk may increase other types of risk. Operational risk includes:
 - (i) The risk that confirmation and reconciliation controls are inadequate resulting in incomplete or inaccurate recording of financial instruments;
 - (ii) The risks that there is inappropriate documentation of transactions and insufficient monitoring of these transactions;
 - (iii) The risk that transactions are incorrectly recorded, processed or risk managed and, therefore, do not reflect the economics of the overall trade;
 - (iv) The risk that undue reliance is placed by staff on the accuracy of valuation techniques, without adequate review, and transactions are therefore incorrectly valued or their risk is improperly measured;
 - (v) The risk that the use of financial instruments is not adequately incorporated into the entity's risk management policies and procedures;
 - (vi) The risk of loss resulting from inadequate or failed internal processes and systems, or from external events, including the risk of fraud from both internal and external sources;
 - (vii) The risk that there is inadequate or non-timely maintenance of valuation techniques used to measure financial instruments; and
 - (viii) Legal risk, which is a component of operational risk, and relates to losses resulting from a legal or regulatory action that invalidates or otherwise precludes performance by the end user or its counterparty under the terms of the contract or related netting arrangements. For example, legal risk could arise from insufficient or incorrect documentation for the contract, an inability to enforce a netting arrangement in bankruptcy, adverse changes in tax laws, or statutes that prohibit entities from investing in certain types of financial instruments.

19. Other considerations relevant to risks of using financial instruments include:
- The risk of fraud that may be increased if, for example, an employee in a position to perpetrate a financial fraud understands both the financial instruments and the processes for accounting for them, but management and those charged with governance have a lesser degree of understanding.
 - The risk that master netting arrangements⁸ may not be properly reflected in the financial statements.
 - The risk that some financial instruments may change between being assets or liabilities during their term and that such change may occur rapidly.

Controls Relating to Financial Instruments

20. The extent of an entity's use of financial instruments and the degree of complexity of the instruments are important determinants of the necessary level of sophistication of the entity's internal control. For example, smaller entities may use less structured products and simple processes and procedures to achieve their objectives.
21. Often, it is the role of those charged with governance to set the tone regarding, and approve and oversee the extent of use of, financial instruments while it is management's role to manage and monitor the entity's exposures to those risks. Management and, where appropriate, those charged with governance are also responsible for designing and implementing a system of internal control to enable the preparation of financial statements in accordance with the applicable financial reporting framework. An entity's internal control over financial instruments is more likely to be effective when management and those charged with governance have:
- (a) Established an appropriate control environment, active participation by those charged with governance in controlling the use of financial instruments, a logical organizational structure with clear assignment of authority and responsibility, and appropriate human resource policies and procedures. In particular, clear rules are needed on the extent to which those responsible for financial instrument activities are permitted to act. Such rules have regard to any legal or regulatory restrictions on using financial instruments. For example, certain public sector entities may not have the power to conduct business using derivatives;
 - (b) Established a risk management process relative to the size of the entity and the complexity of its financial instruments (for example, in some entities a formal risk management function may exist);
 - (c) Established information systems that provide those charged with governance with an understanding of the nature of the financial instrument activities and the associated risks, including adequate documentation of transactions;
 - (d) Designed, implemented and documented a system of internal control to:
 - Provide reasonable assurance that the entity's use of financial instruments is within its risk management policies;
 - Properly present financial instruments in the financial statements;

⁸ An entity that undertakes a number of financial instrument transactions with a single counterparty may enter into a master netting arrangement with that counterparty. Such an agreement provides for a single net settlement of all financial instruments covered by the agreement in the event of default of any one contract.

- Ensure that the entity is in compliance with applicable laws and regulations; and
- Monitor risk.

The Appendix provides examples of controls that may exist in an entity that deals in a high volume of financial instrument transactions; and

- (e) Established appropriate accounting policies, including valuation policies, in accordance with the applicable financial reporting framework.
22. Key elements of risk management processes and internal control relating to an entity's financial instruments include:
- Setting an approach to define the amount of risk exposure that the entity is willing to accept when engaging in financial instrument transactions (this may be referred to as its "risk appetite"), including policies for investing in financial instruments, and the control framework in which the financial instrument activities are conducted;
 - Establishing processes for the documentation and authorization of new types of financial instrument transactions which consider the accounting, regulatory, legal, financial and operational risks that are associated with such instruments;
 - Processing financial instrument transactions, including confirmation and reconciliation of cash and asset holdings to external statements, and the payments process;
 - Segregation of duties between those investing or trading in the financial instruments and those responsible for processing, valuing and confirming such instruments. For example, a model development function that is involved in assisting in pricing deals is less objective than one that is functionally and organizationally separate from the front office;
 - Valuation processes and controls, including controls over data obtained from third-party pricing sources; and
 - Monitoring of controls.
23. The nature of risks often differs between entities with a high volume and variety of financial instruments and those with only a few financial instrument transactions. This results in different approaches to internal control. For example:
- Typically, an institution with high volumes of financial instruments will have a dealing room type environment in which there are specialist traders and segregation of duties between those traders and the back office (which refers to the operations function that data-checks trades that have been conducted, ensuring that they are not erroneous, and transacting the required transfers). In such environments, the traders will typically initiate contracts verbally over the phone or via an electronic trading platform. Capturing relevant transactions and accurately recording financial instruments in such an environment is significantly more challenging than for an entity with only a few financial instruments, whose existence and completeness often can be confirmed with a bank confirmation to a few banks.
 - On the other hand, entities with only a small number of financial instruments often do not have segregation of duties, and access to the market is limited. In such cases, although it may be easier to identify financial instrument transactions, there is a risk that management may rely on a limited number of personnel, which may increase the risk that unauthorized transactions may be initiated or transactions may not be recorded.

Completeness, Accuracy, and Existence

24. Paragraphs 25–33 describe controls and processes which may be in place in entities with a high volume of financial instrument transactions, including those with trading rooms. By contrast, an entity that does not have a high volume of financial instrument transactions may not have these controls and processes but may instead confirm their transactions with the counterparty or clearing house. Doing so may be relatively straightforward in that the entity may only transact with one or two counterparties.

Trade Confirmations and Clearing Houses

25. Generally, for transactions undertaken by financial institutions, the terms of financial instruments are documented in confirmations exchanged between counterparties and legal agreements. Clearing houses serve to monitor the exchange of confirmations by matching trades and settling them. A central clearing house is associated with an exchange and entities that clear through clearing houses typically have processes to manage the information delivered to the clearing house.
26. Not all transactions are settled through such an exchange. In many other markets there is an established practice of agreeing the terms of transactions before settlement begins. To be effective, this process needs to be run separately from those who trade the financial instruments to minimize the risk of fraud. In other markets, transactions are confirmed after settlement has begun and sometimes confirmation backlogs result in settlement beginning before all terms have been fully agreed. This presents additional risk because the transacting entities need to rely on alternative means of agreeing trades. These may include:
- Enforcing rigorous reconciliations between the records of those trading the financial instruments and those settling them (strong segregation of duties between the two are important), combined with strong supervisory controls over those trading the financial instruments to ensure the integrity of the transactions;
 - Reviewing summary documentation from counterparties that highlights the key terms even if the full terms have not been agreed; and
 - Thorough review of traders' profits and losses to ensure that they reconcile to what the back office has calculated.

Reconciliations with Banks and Custodians

27. Some components of financial instruments, such as bonds and shares, may be held in separate depositories. In addition, most financial instruments result in payments of cash at some point and often these cash flows begin early in the contract's life. These cash payments and receipts will pass through an entity's bank account. Regular reconciliation of the entity's records to external banks' and custodians' records enables the entity to ensure transactions are properly recorded.
28. It should be noted that not all financial instruments result in a cash flow in the early stages of the contract's life or are capable of being recorded with an exchange or custodian. Where this is the case, reconciliation processes will not identify an omitted or inaccurately recorded trade and confirmation controls are more important. Even where such a cash flow is accurately recorded in the early stages of an instrument's life, this does not ensure that all characteristics or terms of the instrument (for example, the maturity or an early termination option) have been recorded accurately.

29. In addition, cash movements may be quite small in the context of the overall size of the trade or the entity's own balance sheet and may therefore be difficult to identify. The value of reconciliations is enhanced when finance, or other back office staff, review entries in all general ledger accounts to ensure that they are valid and supportable. This process will help identify if the other side to cash entries relating to financial instruments has not been properly recorded. Reviewing suspense and clearing accounts is important regardless of the account balance, as there may be offsetting reconciling items in the account.
30. In entities with a high volume of financial instrument transactions, reconciliation and confirmation controls may be automated and, if so, adequate IT controls need to be in place to support them. In particular, controls are needed to ensure that data is completely and accurately picked up from external sources (such as banks and custodians) and from the entity's records and is not tampered with before or during reconciliation. Controls are also needed to ensure that the criteria on which entries are matched are sufficiently restrictive to prevent inaccurate clearance of reconciling items.

Other Controls over Completeness, Accuracy, and Existence

31. The complexity inherent in some financial instruments means that it will not always be obvious how they should be recorded in the entity's systems. In such cases, management may set up control processes to monitor policies that prescribe how particular types of transactions are measured, recorded and accounted for. These policies are typically established and reviewed in advance by suitably qualified personnel who are capable of understanding the full effects of the financial instruments being booked.
32. Some transactions may be cancelled or amended after initial execution. Application of appropriate controls relating to cancellation or amendment can mitigate the risks of material misstatement due to fraud or error. In addition, an entity may have a process in place to reconfirm trades that are cancelled or amended.
33. In financial institutions with a high volume of trading, a senior employee typically reviews daily profits and losses on individual traders' books to evaluate whether they are reasonable based on the employee's knowledge of the market. Doing so may enable management to determine that particular trades were not completely or accurately recorded, or may identify fraud by a particular trader. It is important that there are transaction authorization procedures that support the more senior review.

Valuation of Financial Instruments

Financial Reporting Requirements

34. In many financial reporting frameworks, financial instruments, including embedded derivatives, are often measured at fair value for the purpose of balance sheet presentation, calculating profit or loss, and/or disclosure. In general, the objective of fair value measurement is to arrive at the price at which an orderly transaction would take place between market participants at the measurement date under current market conditions; that is, it is not the transaction price for a forced liquidation or distressed sale. In meeting this objective, all relevant available market information is taken into account.
35. Fair value measurements of financial assets and financial liabilities may arise both at the initial recording of transactions and later when there are changes in value. Changes in fair value measurements that occur over time may be treated in different ways under different financial reporting frameworks. For example, such changes may be recorded as profit or loss, or may be recorded in the other comprehensive income. Also, depending on the applicable financial reporting framework, the whole financial instrument or only a component of it (for example, an embedded derivative when it is separately accounted for) may be required to be measured at fair value.

36. Some financial reporting frameworks establish a fair value hierarchy to develop increased consistency and comparability in fair value measurements and related disclosures. The inputs may be classified into different levels such as:
- Level 1 inputs—Quoted prices (unadjusted) in active markets for identical financial assets or financial liabilities that the entity can access at the measurement date.
 - Level 2 inputs—Inputs other than quoted prices included within level 1 that are observable for the financial asset or financial liability, either directly or indirectly. If the financial asset or financial liability has a specified (contractual) term, a level 2 input must be observable for substantially the full term of the financial asset or financial liability. Level 2 inputs include the following:
 - Quoted prices for similar financial assets or financial liabilities in active markets.
 - Quoted prices for identical or similar financial assets or financial liabilities in markets that are not active.
 - Inputs other than quoted prices that are observable for the financial asset or financial liability (for example, interest rates and yield curves observable at commonly quoted intervals, implied volatilities and credit spreads).
 - Inputs that are derived principally from, or corroborated by, observable market data by correlation or other means (market-corroborated inputs).
 - Level 3 inputs—Unobservable inputs for the financial asset or financial liability. Unobservable inputs are used to measure fair value to the extent that relevant observable inputs are not available, thereby allowing for situations in which there is little, if any, market activity for the financial asset or financial liability at the measurement date.

In general, measurement uncertainty increases as a financial instrument moves from level 1 to level 2, or level 2 to level 3. Also, within level 2 there may be a wide range of measurement uncertainty depending on the observability of inputs, the complexity of the financial instrument, its valuation, and other factors.

37. Certain financial reporting frameworks may require or permit the entity to adjust for measurement uncertainties, in order to adjust for risks that a market participant would make in the pricing to take account of the uncertainties of the risks associated with the pricing or cash flows of the financial instrument. For example:
- Model adjustments. Some models may have a known deficiency or the result of calibration may highlight the deficiency for the fair value measurement in accordance with the financial reporting framework.
 - Credit-risk adjustments. Some models do not take into account credit risk, including counterparty risk or own credit risk.
 - Liquidity adjustments. Some models calculate a mid-market price, even though the financial reporting framework may require use of a liquidity adjusted amount such as a bid/offer spread. Another, more judgmental, liquidity adjustment recognizes that some financial instruments are illiquid which affects the valuation.
 - Other risk adjustments. A value measured using a model that does not take into account all other factors that market participants would consider in pricing the financial instrument may not represent fair value on the measurement date, and therefore may need to be adjusted separately to comply with the applicable financial reporting framework.

Adjustments are not appropriate if they adjust the measurement and valuation of the financial instrument away from fair value as defined by the applicable financial reporting framework, for example for conservatism.

Observable and Unobservable Inputs

38. As mentioned above, financial reporting frameworks often categorize inputs according to the degree of observability. As activity in a market for financial instruments declines and the observability of inputs declines, measurement uncertainty increases. The nature and reliability of information available to support valuation of financial instruments varies depending on the observability of inputs to its measurement, which is influenced by the nature of the market (for example, the level of market activity and whether it is through an exchange or over-the-counter (OTC)). Accordingly, there is a continuum of the nature and reliability of evidence used to support valuation, and it becomes more difficult for management to obtain information to support a valuation when markets become inactive and inputs become less observable.
39. When observable inputs are not available, an entity uses unobservable inputs (level 3 inputs) that reflect the assumption that market participants would use when pricing the financial asset or the financial liability, including assumptions about risk. Unobservable inputs are developed using the best information available in the circumstances. In developing unobservable inputs, an entity may begin with its own data, which is adjusted if reasonably available information indicates that (a) other market participants would use different data or (b) there is something particular to the entity that is not available to other market participants (for example, an entity-specific synergy).

Effects of Inactive Markets

40. Measurement uncertainty increases and valuation is more complicated when the markets in which financial instruments or their component parts are traded become inactive. There is no clear point at which an active market becomes inactive, though financial reporting frameworks may provide guidance on this issue. Characteristics of an inactive market include a significant decline in the volume and level of trading activity, available prices vary significantly over time or among market participants or the prices are not current. However, assessing whether a market is inactive requires judgment.
41. When markets are inactive, prices quoted may be stale (that is, out of date), may not represent prices at which market participants may trade or may represent forced transactions (such as when a seller is required to sell an asset to meet regulatory or legal requirements, needs to dispose of an asset immediately to create liquidity or the existence of a single potential buyer as a result of the legal or time restrictions imposed). Accordingly, valuations are developed based on level 2 and level 3 inputs. Under such circumstances, entities may have:
 - A valuation policy that includes a process for determining whether level 1 inputs are available;
 - An understanding of how particular prices or inputs from external sources used as inputs to valuation techniques were calculated in order to assess their reliability. For example, in an active market, a broker quote on a financial instrument that has not traded is likely to reflect actual transactions on a similar financial instrument, but, as the market becomes less active, the broker quote may rely more on proprietary valuation techniques to determine prices;
 - An understanding of how deteriorating business conditions affect the counterparty, as well as whether deteriorating business conditions in entities similar to the counterparty may indicate that the counterparty may not fulfill its obligations (that is, non-performance risk);

- Policies for adjusting for measurement uncertainties. Such adjustments can include model adjustments, lack of liquidity adjustments, credit risk adjustments, and other risk adjustments;
 - The capability to calculate the range of realistic outcomes given the uncertainties involved, for example by performing a sensitivity analysis; and
 - Policies for identifying when a fair value measurement input moves to a different level of the fair value hierarchy.
42. Particular difficulties may develop where there is severe curtailment or even cessation of trading in particular financial instruments. In these circumstances, financial instruments that have previously been valued using market prices may need to be valued using a model.

Management's Valuation Process

43. Techniques that management may use to value their financial instruments include observable prices, recent transactions, and models that use observable or unobservable inputs. Management may also make use of:
- (a) A third-party pricing source, such as a pricing service or broker quote; or
 - (b) A valuation expert.

Third-party pricing sources and valuation experts may use one or more of these valuation techniques.

44. In many financial reporting frameworks, the best evidence of a financial instrument's fair value is found in contemporaneous transactions in an active market (that is, level 1 inputs). In such cases, the valuation of a financial instrument may be relatively simple. Quoted prices for financial instruments that are listed on exchanges or traded in liquid over-the-counter markets may be available from sources such as financial publications, the exchanges themselves or third-party pricing sources. When using quoted prices, it is important that management understand the basis on which the quote is given to ensure that the price reflects market conditions at the measurement date. Quoted prices obtained from publications or exchanges may provide sufficient evidence of fair value when, for example:
- (a) The prices are not out of date or "stale" (for example, if the quote is based on the last traded price and the trade occurred some time ago); and
 - (b) The quotes are prices at which dealers would actually trade the financial instrument with sufficient frequency and volume.
45. Where there is no current observable market price for the financial instrument (that is, a level 1 input), it will be necessary for the entity to gather other price indicators to use in a valuation technique to value the financial instrument. Price indicators may include:
- Recent transactions, including transactions after the date of the financial statements in the same instrument. Consideration is given to whether an adjustment needs to be made for changes in market conditions between the measurement date and the date the transaction was made, as these transactions are not necessarily indicative of the market conditions that existed at the date of the financial statements. In addition it is possible that the transaction represents a forced transaction and is therefore not indicative of a price in an orderly trade.

- Current or recent transactions in similar instruments, often known as “proxy pricing.” Adjustments will need to be made to the price of the proxy to reflect the differences between them and the instrument being priced, for example, to take account of differences in liquidity or credit risk between the two instruments.
 - Indices for similar instruments. As with transactions in similar instruments, adjustments will need to be made to reflect the difference between the instrument being priced and the instrument(s) from which the index used is derived.
46. It is expected that management will document its valuation policies and model used to value a particular financial instrument, including the rationale for the model(s) used, the selection of assumptions in the valuation methodology, and the entity’s consideration of whether adjustments for measurement uncertainty are necessary.

Models

47. Models may be used to value financial instruments when the price cannot be directly observed in the market. Models can be as simple as a commonly used bond pricing formula or involve complex, specifically developed software tools to value financial instruments with level 3 inputs. Many models are based on discounted cash flow calculations.
48. Models comprise a methodology, assumptions and data. The methodology describes rules or principles governing the relationship between the variables in the valuation. Assumptions include estimates of uncertain variables which are used in the model. Data may comprise actual or hypothetical information about the financial instrument, or other inputs to the financial instrument.
49. Depending on the circumstances, matters that the entity may address when establishing or validating a model for a financial instrument include whether:
- The model is validated prior to usage, with periodic reviews to ensure it is still suitable for its intended use. The entity’s validation process may include evaluation of:
 - The methodology’s theoretical soundness and mathematical integrity, including the appropriateness of parameters and sensitivities.
 - The consistency and completeness of the model’s inputs with market practices, and whether the appropriate inputs are available for use in the model.
 - There are appropriate change control policies, procedures and security controls over the model.
 - The model is appropriately changed or adjusted on a timely basis for changes in market conditions.
 - The model is periodically calibrated, reviewed and tested for validity by a separate and objective function. Doing so is a means of ensuring that the model’s output is a fair representation of the value that marketplace participants would ascribe to a financial instrument.
 - The model maximizes the use of relevant observable inputs and minimizes the use of unobservable inputs.
 - Adjustments are made to the output of the model to reflect the assumptions marketplace participants would use in similar circumstances.

- The model is adequately documented, including the model's intended applications and limitations and its key parameters, required data, results of any validation analysis performed and any adjustments made to the output of the model.

An Example of a Common Financial Instrument

50. The following describes how models may be applied to value a common financial instrument, known as an asset backed security.⁹ Because asset backed securities are often valued based on level 2 or 3 inputs, they are frequently valued using models and involve:
- Understanding the type of security—considering (a) the underlying collateral; and (b) the terms of the security. The underlying collateral is used to estimate the timing and amounts of cash flows such as mortgage or credit card interest and principal payments.
 - Understanding the terms of the security—this includes evaluating contractual cash flow rights, such as the order of repayment, and any default events. The order of repayment, often known as seniority, refers to terms which require that some classes of security holders (senior debt) are repaid before others (subordinated debt). The rights of each class of security holder to the cash flows, frequently referred to as the cash flow “waterfall,” together with assumptions of the timing and amount of cash flows are used to derive a set of estimated cash flows for each class of security holder. The expected cash flows are then discounted to derive an estimated fair value.
51. The cash flows of an asset backed security may be affected by prepayments of the underlying collateral and by potential default risk and resulting estimated loss severities. Prepayment assumptions, if applicable, are generally based on evaluating market interest rates for similar collateral to the rates on the collateral underlying the security. For example, if market interest rates for mortgages have declined then the underlying mortgages in a security may experience higher prepayment rates than originally expected. Estimating potential default and loss severity involves close evaluation of the underlying collateral and borrowers to estimate default rates. For example, when the underlying collateral comprises residential mortgages, loss severities may be affected by estimates of residential housing prices over the term of the security.

Third-Party Pricing Sources

52. Entities may use third-party pricing sources in order to obtain fair value information. The preparation of an entity's financial statements, including the valuation of financial instruments and the preparation of financial statement disclosures relating to these instruments, may require expertise that management does not possess. Entities may not be able to develop appropriate valuation techniques, including models that may be used in a valuation, and may use a third-party pricing source to arrive at a valuation or to provide disclosures for the financial statements. This may particularly be the case in smaller entities or in entities that do not engage in a high volume of financial instruments transactions (for example, non-financial institutions with treasury departments). Even though management has used a third-party pricing source, management is ultimately responsible for the valuation.
53. Third-party pricing sources may also be used because the volume of securities to price over a short timeframe may not be possible by the entity. This is often the case for traded investment funds that must determine a net asset value each day. In other cases, management may have their own pricing process but use third-party pricing sources to corroborate their own valuations.

⁹ An asset backed security is a financial instrument which is backed by a pool of underlying assets (known as the collateral, such as credit card receivables or vehicle loans) and derives value and income from those underlying assets.

54. For one or more of these reasons most entities use third-party pricing sources when valuing securities either as a primary source or as a source of corroboration for their own valuations. Third-party pricing sources generally fall into the following categories:
- Pricing services, including consensus pricing services; and
 - Brokers providing broker quotes.

Pricing services

55. Pricing services provide entities with prices and price-related data for a variety of financial instruments, often performing daily valuations of large numbers of financial instruments. These valuations may be made by collecting market data and prices from a wide variety of sources, including market makers, and, in certain instances, using internal valuations techniques to derive estimated fair values. Pricing services may combine a number of approaches to arrive at a price. Pricing services are often used as a source of prices based on level 2 inputs. Pricing services may have strong controls around how prices are developed and their customers often include a wide variety of parties, including buy and sell side investors, back and middle office functions, auditors and others.
56. Pricing services often have a formalized process for customers to challenge the prices received from the pricing services. These challenge processes usually require the customer to provide evidence to support an alternative price, with challenges categorized based on the quality of evidence provided. For example, a challenge based on a recent sale of that instrument that the pricing service was not aware of may be upheld, whereas a challenge based on a customer's own valuation technique may be more heavily scrutinized. In this way, a pricing service with a large number of leading participants, both buy and sell side, may be able to constantly correct prices to more fully reflect the information available to market participants.

Consensus pricing services

57. Some entities may use pricing data from consensus pricing services which differ from other pricing services. Consensus pricing services obtain pricing information about an instrument from several participating entities (subscribers). Each subscriber submits prices to the pricing service. The pricing service treats this information confidentially and returns to each subscriber the consensus price, which is usually an arithmetical average of the data after a data cleansing routine has been employed to eliminate outliers. For some markets, such as for exotic derivatives, consensus prices might constitute the best available data. However, many factors are considered when assessing the representational faithfulness of the consensus prices including, for example:
- Whether the prices submitted by the subscribers reflect actual transactions or just indicative prices based on their own valuation techniques.
 - The number of sources from which prices have been obtained.
 - The quality of the sources used by the consensus pricing service.
 - Whether participants include leading market participants
58. Typically consensus prices are only available to subscribers who have submitted their own prices to the service. Accordingly not all entities will have direct access to consensus prices. Because a subscriber generally cannot know how the prices submitted were estimated, other sources of evidence in addition to information from consensus pricing services may be needed for management to support their valuation. In particular, this may be the case if the sources are providing indicative prices based on their own valuation techniques and management is unable to obtain an understanding of how these sources calculated their prices.

Brokers providing broker quotes

59. As brokers provide quotes only as an incidental service for their clients, quotes they provide differ in many respects from prices obtained in pricing services. Brokers may be unwilling to provide information about the process used to develop their quote, but may have access to information on transactions about which a pricing service may not be aware. Broker quotes may be executable or indicative. Indicative quotes are a broker's best estimate of fair value, whereas an executable quote shows that the broker is willing to transact at this price. Executable quotes are strong evidence of fair value. Indicative quotes are less so because of the lack of transparency into the methods used by the broker to establish the quote. In addition the rigor of controls over the brokers' quote often will differ depending on whether the broker also holds the same security in its own portfolio. Broker quotes are often used for securities with level 3 inputs and sometimes may be the only external information available.

Further considerations relating to third-party pricing sources

60. Understanding how the pricing sources calculated a price enables management to determine whether such information is suitable for use in its valuation, including as an input to a valuation technique and in what level of inputs the security should be categorized for disclosure purposes. For example, third-party pricing sources may value financial instruments using proprietary models, and it is important that management understands the methodology, assumptions and data used.
61. If fair value measurements obtained from third-party pricing sources are not based on the current prices of an active market, it will be necessary for management to evaluate whether the fair value measurements were derived in a manner that is consistent with the applicable financial reporting framework. Management's understanding of the fair value measurement includes:
- How the fair value measurement was determined—for example, whether the fair value measurement was determined by a valuation technique, in order to assess whether it is consistent with the fair value measurement objective;
 - Whether the quotes are indicative prices, indicative spread, or binding offers; and
 - How frequently the fair value measurement is estimated by the third-party pricing sources—in order to assess whether it reflects market conditions at the measurement date.

Understanding the bases on which third-party pricing sources have determined their quotes in the context of the particular financial instruments held by the entity assists management in evaluating the relevance and reliability of this evidence to support its valuations.

62. It is possible that there will be disparities between price indicators from different sources. Understanding how the price indicators were derived, and investigating these disparities, assists management in corroborating the evidence used in developing its valuation of financial instruments in order to evaluate whether the valuation is reasonable. Simply taking the average of the quotes provided, without doing further research, may not be appropriate, because one price in the range may be the most representative of fair value and this may not be the average. To evaluate whether its valuations of financial instruments are reasonable, management may:
- Consider whether actual transactions represent forced transactions rather than transactions between willing buyers and willing sellers. This may invalidate the price as a comparison;
 - Analyze the expected future cash flows of the instrument. This could be performed as an indicator of the most relevant pricing data;

- Depending on the nature of what is unobservable, extrapolate from observed prices to unobserved ones (for example, there may be observed prices for maturities up to ten years but not longer, but the ten year price curve may be capable of being extrapolated beyond ten years as an indicator). Care is needed to ensure that extrapolation is not carried so far beyond the observable curve that its link to observable prices becomes too tenuous to be reliable;
- Compare prices within a portfolio of financial instruments to each other to make sure that they are consistent among similar financial instruments;
- Use more than one model to corroborate the results from each one, having regard to the data and assumptions used in each; or
- Evaluate movements in the prices for related hedging instruments and collateral.

In coming to its judgment as to its valuation, an entity may also consider other factors that may be specific to the entity's circumstances.

Use of Valuation Experts

63. Management may engage a valuation expert from an investment bank, broker, or other valuation firm to value some or all of its securities. Unlike pricing services and broker quotes, generally the methodology and data used are more readily available to management when they have engaged an expert to perform a valuation on their behalf. Even though management has engaged an expert, management is ultimately responsible for the valuation used.

Issues Related to Financial Liabilities

64. Understanding the effect of credit risk is an important aspect of valuing both financial assets and financial liabilities. This valuation reflects the credit quality and financial strength of both the issuer and any credit support providers. In some financial reporting frameworks, the measurement of a financial liability assumes that it is transferred to a market participant at the measurement date. Where there is not an observable market price for a financial liability, its value is typically measured using the same method as a counterparty would use to measure the value of the corresponding asset, unless there are factors specific to the liability (such as third-party credit enhancement). In particular, the entity's own credit risk¹⁰ can often be difficult to measure.

Presentation and Disclosure about Financial Instruments

65. Most financial reporting frameworks require disclosures in the financial statements to enable users of the financial statements to make meaningful assessments of the effects of the entity's financial instrument activities, including the risks and uncertainties associated with financial instruments.
66. Most frameworks require the disclosure of quantitative and qualitative information (including accounting policies) relating to financial instruments. The accounting requirements for fair value measurements in financial statement presentation and disclosures are extensive in most financial reporting frameworks and encompass more than just valuation of the financial instruments. For example, qualitative disclosures about financial instruments provide important contextual information about the characteristics of the financial instruments and their future cash flows that may help inform investors about the risks to which entities are exposed.

¹⁰ Own credit risk is the amount of change in fair value that is not attributable to changes in market conditions.

Categories of Disclosures

67. Disclosure requirements include:
- (a) Quantitative disclosures that are derived from the amounts included in the financial statements—for example, categories of financial assets and liabilities;
 - (b) Quantitative disclosures that require significant judgment—for example, sensitivity analysis for each type of market risk to which the entity is exposed; and
 - (c) Qualitative disclosures—for example, those that describe the entity’s governance over financial instruments; objectives; controls, policies and processes for managing each type of risk arising from financial instruments; and the methods used to measure the risks.
68. The more sensitive the valuation is to movements in a particular variable, the more likely it is that disclosure will be necessary to indicate the uncertainties surrounding the valuation. Certain financial reporting frameworks may also require disclosure of sensitivity analyses, including the effects of changes in assumptions used in the entity’s valuation techniques. For example, the additional disclosures required for financial instruments with fair value measurements that are categorized within level 3 inputs of the fair value hierarchy are aimed at informing users of financial statements about the effects of those fair value measurements that use the most subjective inputs.
69. Some financial reporting frameworks require disclosure of information that enables users of the financial statements to evaluate the nature and extent of the risks arising from financial instruments to which the entity is exposed at the reporting date. This disclosure may be contained in the notes to the financial statements, or in management’s discussion and analysis within its annual report cross-referenced from the audited financial statements. The extent of disclosure depends on the extent of the entity’s exposure to risks arising from financial instruments. This includes qualitative disclosures about:
- The exposures to risk and how they arise, including the possible effects on an entity’s future liquidity and collateral requirements;
 - The entity’s objectives, policies and processes for managing the risk and the methods used to measure the risk; and
 - Any changes in exposures to risk or objectives, policies or processes for managing risk from the previous period.

Section II—Audit Considerations Relating to Financial Instruments

70. Certain factors may make auditing financial instruments particularly challenging. For example:
- It may be difficult for both management and the auditor to understand the nature of financial instruments and what they are used for, and the risks to which the entity is exposed.
 - Market sentiment and liquidity can change quickly, placing pressure on management to manage their exposures effectively.
 - Evidence supporting valuation may be difficult to obtain.
 - Individual payments associated with certain financial instruments may be significant, which may increase the risk of misappropriation of assets.

- The amounts recorded in the financial statements relating to financial instruments may not be significant, but there may be significant risks and exposures associated with these financial instruments.
- A few employees may exert significant influence on the entity's financial instruments transactions, in particular where their compensation arrangements are tied to revenue from financial instruments, and there may be possible undue reliance on these individuals by others within the entity.

These factors may cause risks and relevant facts to be obscured, which may affect the auditor's assessment of the risks of material misstatement, and latent risks can emerge rapidly, especially in adverse market conditions.

Professional Skepticism¹¹

71. Professional skepticism is necessary to the critical assessment of audit evidence and assists the auditor in remaining alert for possible indications of management bias. This includes questioning contradictory audit evidence and the reliability of documents, responses to inquiries and other information obtained from management and those charged with governance. It also includes being alert to conditions that may indicate possible misstatement due to error or fraud and considering the sufficiency and appropriateness of audit evidence obtained in light of the circumstances.
72. Application of professional skepticism is required in all circumstances, and the need for professional skepticism increases with the complexity of financial instruments, for example with regard to:
 - Evaluating whether sufficient appropriate audit evidence has been obtained, which can be particularly challenging when models are used or in determining if markets are inactive.
 - Evaluating management's judgments, and the potential for management bias, in applying the entity's applicable financial reporting framework, in particular management's choice of valuation techniques, use of assumptions in valuation techniques, and addressing circumstances in which the auditor's judgments and management's judgments differ.
 - Drawing conclusions based on the audit evidence obtained, for example assessing the reasonableness of valuations prepared by management's experts and evaluating whether disclosures in the financial statements achieve fair presentation.

Planning Considerations¹²

73. The auditor's focus in planning the audit is particularly on:
 - Understanding the accounting and disclosure requirements;
 - Understanding the financial instruments to which the entity is exposed, and their purpose and risks;
 - Determining whether specialized skills and knowledge are needed in the audit;

¹¹ HKSA 200, paragraph 15

¹² HKSA 300, *Planning an Audit of Financial Statements*, deals with the auditor's responsibility to plan an audit of financial statements.

- Understanding and evaluating the system of internal control in light of the entity's financial instrument transactions and the information systems that fall within the scope of the audit;
- Understanding the nature, role and activities of the internal audit function;
- Understanding management's process for valuing financial instruments, including whether management has used an expert or a service organization; and
- Assessing and responding to the risk of material misstatement.

Understanding the Accounting and Disclosure Requirements

74. HKSA 540 requires the auditor to obtain an understanding of the requirements of the applicable financial reporting framework relevant to accounting estimates, including related disclosures and any regulatory requirements.¹³ The requirements of the applicable financial reporting framework regarding financial instruments may themselves be complex and require extensive disclosures. Reading this HKAPG is not a substitute for a full understanding of all the requirements of the applicable financial reporting framework. Certain financial reporting frameworks require consideration of areas such as:
- Hedge accounting;
 - Accounting for "Day 1" profits or losses;
 - Recognition and derecognition of financial instrument transactions;
 - Own credit risk; and
 - Risk transfer and derecognition, in particular where the entity has been involved in the origination and structuring of complex financial instruments.

Understanding the Financial Instruments

75. The characteristics of financial instruments may obscure certain elements of risk and exposure. Obtaining an understanding of the instruments in which the entity has invested or to which it is exposed, including the characteristics of the instruments, helps the auditor to identify whether:
- Important aspects of a transaction are missing or inaccurately recorded;
 - A valuation appears appropriate;
 - The risks inherent in them are fully understood and managed by the entity; and
 - The financial instruments are appropriately classified into current and non-current assets and liabilities.
76. Examples of matters that the auditor may consider when obtaining an understanding of the entity's financial instruments include:
- To which types of financial instruments the entity is exposed.
 - The use to which they are put.

¹³ HKSA 540, paragraph 8(a)

- Management's and, where appropriate, those charged with governance's understanding of the financial instruments, their use and the accounting requirements.
- Their exact terms and characteristics so that their implications can be fully understood and, in particular where transactions are linked, the overall impact of the financial instrument transactions.
- How they fit into the entity's overall risk management strategy.

Inquiries of the internal audit function, the risk management function, if such functions exist, and discussions with those charged with governance may inform the auditor's understanding.

77. In some cases, a contract, including a contract for a non-financial instrument may contain a derivative. Some financial reporting frameworks permit or require such "embedded" derivatives to be separated from the host contract in some circumstances. Understanding management's process for identifying, and accounting for, embedded derivatives will assist the auditor in understanding the risks to which the entity is exposed.

*Using Those with Specialized Skills and Knowledge in the Audit*¹⁴

78. A key consideration in audits involving financial instruments, particularly complex financial instruments, is the competence of the auditor. HKSA 220 (Revised)¹⁵ requires the engagement partner to determine that members of the engagement team, and any auditor's experts who are not part of the engagement team, collectively have the competence and capabilities, including sufficient time, to perform the audit engagement. Further, relevant ethical requirements require the auditor to determine whether acceptance of the engagement would create any threats to compliance with the fundamental principles, including the professional competence and due care. Paragraph 79 below provides examples of the types of matters that may be relevant to the auditor's considerations in the context of financial instruments.
79. Accordingly, auditing financial instruments may require the involvement of one or more experts or specialists, for example, in the areas of:
- Understanding the financial instruments used by the entity and their characteristics, including their level of complexity. Using specialized skills and knowledge may be needed in checking whether all aspects of the financial instrument and related considerations have been captured in the financial statements, and evaluating whether adequate disclosure in accordance with the applicable financial reporting framework has been made where disclosure of risks is required.
 - Understanding the applicable financial reporting framework, especially when there are areas known to be subject to differing interpretations, or practice is inconsistent or developing.

¹⁴ When such a person's expertise is in auditing and accounting, regardless of whether the person is from within or external to the firm, this person is considered to be part of the engagement team and is subject to the requirements of HKSA 220 (Revised), *Quality Management for an Audit of Financial Statements*. When such a person's expertise is in a field other than accounting or auditing, such person is considered to be an auditor's expert, and the provisions of HKSA 620, *Using the Work of an Auditor's Expert*, apply. HKSA 620 explains that distinguishing between specialized areas of accounting or auditing, and expertise in another field, will be a matter of professional judgment, but notes the distinction may be made between expertise in methods of accounting for financial instruments (accounting and auditing expertise) and expertise in complex valuation techniques for financial instruments (expertise in a field other than accounting or auditing).

¹⁵ HKSA 220 (Revised), paragraph 26

- Understanding the legal, regulatory, and tax implications resulting from the financial instruments, including whether the contracts are enforceable by the entity (for example, reviewing the underlying contracts), may require specialized skills and knowledge.
 - Assessing the risks inherent in a financial instrument.
 - Assisting the engagement team gather evidence to support management's valuations or to develop a point estimate or range, especially when fair value is determined by a complex model; when markets are inactive and data and assumptions are difficult to obtain; when unobservable inputs are used; or when management has used an expert.
 - Evaluating information technology controls, especially in entities with a high volume of financial instruments. In such entities information technology may be highly complex, for example when significant information about those financial instruments is transmitted, processed, maintained or accessed electronically. In addition, it may include relevant services provided by a service organization.
80. The nature and use of particular types of financial instruments, the complexities associated with accounting requirements, and market conditions may lead to a need for the engagement team to consult¹⁶ with other accounting and audit professionals, from within or outside the firm, with relevant technical accounting or auditing expertise and experience, taking into account factors such as:
- The capabilities and competence of the engagement team, including the experience of the members of the engagement team.
 - The attributes of the financial instruments used by the entity.
 - The identification of unusual circumstances or risks in the engagement, as well as the need for professional judgment, particularly with respect to materiality and significant risks.
 - Market conditions.

Understanding Internal Control

81. HKSA 315 (Revised 2019) establishes requirements for the auditor to understand the entity and its environment, including its internal control. Obtaining an understanding of the entity and its environment, including the entity's internal control, is a continuous, dynamic process of gathering, updating and analyzing information throughout the audit. The understanding obtained enables the auditor to identify and assess the risks of material misstatement at the financial statement and assertion levels, thereby providing a basis for designing and implementing responses to the assessed risks of material misstatement. The volume and variety of the financial instrument transactions of an entity typically determines the nature and extent of controls that may exist at an entity. An understanding of how financial instruments are monitored and controlled assists the auditor in determining the nature, timing and extent of audit procedures. The Appendix describes controls that may exist in an entity that deals in a high volume of financial instrument transactions.

¹⁶ HKSA 220 (Revised), paragraph 35, requires the engagement partner to determine that members of the engagement team have undertaken appropriate consultation during the audit engagement, both within the engagement team and between the engagement team and others at the appropriate level within or outside the firm.

Understanding the Nature, Role and Activities of the Internal Audit Function

82. In many large entities, the internal audit function may perform work that enables senior management and those charged with governance to review and evaluate the entity's controls relating to the use of financial instruments. The internal audit function may assist in identifying the risks of material misstatement due to fraud or error. However, the knowledge and skills required of an internal audit function to understand and perform procedures to provide assurance to management or those charged with governance on the entity's use of financial instruments are generally quite different from those needed for other parts of the business. The extent to which the internal audit function has the knowledge and skill to cover, and has in fact covered, the entity's financial instrument activities, as well as the competence and objectivity of the internal audit function, is a relevant consideration in the external auditor's determination of whether the internal audit function is likely to be relevant to the overall audit strategy and audit plan.
83. Areas where the work of the internal audit function may be particularly relevant are:¹⁷
- Developing a general overview of the extent of use of financial instruments;
 - Evaluating the appropriateness of policies and procedures and management's compliance with them;
 - Evaluating the operating effectiveness of financial instrument control activities;
 - Evaluating systems relevant to financial instrument activities; and
 - Assessing whether new risks relating to financial instruments are identified, assessed and managed.

Understanding Management's Methodology for Valuing Financial Instruments

84. Management's responsibility for the preparation of the financial statements includes applying the requirements of the applicable financial reporting framework to the valuation of financial instruments. HKSA 540 requires the auditor to obtain an understanding of how management makes accounting estimates and the data on which accounting estimates are based.¹⁸ Management's approach to valuation also takes into account the selection of an appropriate valuation methodology and the level of the evidence expected to be available. To meet the objective of a fair value measurement, an entity develops a valuation methodology to measure the fair value of financial instruments that considers all relevant market information that is available. A thorough understanding of the financial instrument being valued allows an entity to identify and evaluate the relevant market information available about identical or similar instruments that should be incorporated into the valuation methodology.

Assessing and Responding to the Risks of Material Misstatement*Overall Considerations Relating to Financial Instruments*

85. HKSA 540¹⁹ explains that the degree of estimation uncertainty affects the risk of material misstatement of accounting estimates. The use of more complex financial instruments, such as those that have a high level of uncertainty and variability of future cash flows, may lead to an increased risk of material misstatement, particularly regarding valuation. Other matters affecting the risk of material misstatement include:

¹⁷ Work performed by functions such as the risk management function, model review functions, and product control, may also be relevant.

¹⁸ HKSA 540, paragraph 8(c)

¹⁹ HKSA 540, paragraph 2

- The volume of financial instruments to which the entity is exposed.
- The terms of the financial instrument, including whether the financial instrument itself includes other financial instruments.
- The nature of the financial instruments.

*Fraud Risk Factors*²⁰

86. Incentives for fraudulent financial reporting by employees may exist where compensation schemes are dependent on returns made from the use of financial instruments. Understanding how an entity's compensation policies interact with its risk appetite, and the incentives that this may create for its management and traders, may be important in assessing the risk of fraud.
87. Difficult financial market conditions may give rise to increased incentives for management or employees to engage in fraudulent financial reporting: to protect personal bonuses, to hide employee or management fraud or error, to avoid breaching regulatory, liquidity or borrowing limits or to avoid reporting losses. For example, at times of market instability, unexpected losses may arise from extreme fluctuations in market prices, from unanticipated weakness in asset prices, through trading misjudgments, or for other reasons. In addition, financing difficulties create pressures on management concerned about the solvency of the business.
88. Misappropriation of assets and fraudulent financial reporting may often involve override of controls that otherwise may appear to be operating effectively. This may include override of controls over data, assumptions and detailed process controls that allow losses and theft to be hidden. For example, difficult market conditions may increase pressure to conceal or offset trades as they attempt to recover losses.

Assessing the Risk of Material Misstatement

89. The auditor's assessment of the identified risks at the assertion level in accordance with HKSA 315 (Revised 2019) includes evaluating the design and implementation of internal control. It provides a basis for considering the appropriate audit approach for designing and performing further audit procedures in accordance with HKSA 330, including both substantive procedures and tests of controls. The approach taken is influenced by the auditor's understanding of internal control relevant to the audit, including the strength of the control environment and any risk management function, the size and complexity of the entity's operations and whether the auditor's assessment of the risks of material misstatement include an expectation that controls are operating effectively.
90. The auditor's assessment of the risk of material misstatement at the assertion level may change during the course of the audit as additional information is obtained. Remaining alert during the audit, for example, when inspecting records or documents may assist the auditor in identifying arrangements or other information that may indicate the existence of financial instruments that management has not previously identified or disclosed to the auditor. Such records and documents may include, for example:
 - Minutes of meetings of those charged with governance; and
 - Specific invoices from, and correspondence with, the entity's professional advisors.

²⁰ See HKSA 240, *The Auditor's Responsibilities Relating to Fraud in an Audit of Financial Statements*, for requirements and guidance dealing with fraud risk factors.

Factors to Consider in Determining Whether, and to What Extent, to Test the Operating Effectiveness of Controls

91. An expectation that controls are operating effectively may be more common when dealing with a financial institution with well-established controls, and therefore controls testing may be an effective means of obtaining audit evidence. When an entity has a trading function, substantive tests alone may not provide sufficient appropriate audit evidence due to the volume of contracts and the different systems used. Tests of controls, however, will not be sufficient on their own as the auditor is required by HKSA 330 to design and perform substantive procedures for each material class of transactions, account balance and disclosure.²¹
92. Entities with a high volume of trading and use of financial instruments may have more sophisticated controls, and an effective risk management function, and therefore the auditor may be more likely to test controls in obtaining evidence about:
- The occurrence, completeness, accuracy, and cutoff of the transactions; and
 - The existence, rights and obligations, and completeness of account balances.
93. In those entities with relatively few financial instrument transactions:
- Management and those charged with governance may have only a limited understanding of financial instruments and how they affect the business;
 - The entity may only have a few different types of instruments with little or no interaction between them;
 - There is unlikely to be a complex control environment (for example, the controls described in the Appendix may not be in place at the entity);
 - Management may use pricing information from third-party pricing sources to value their instruments; and
 - Controls over the use of pricing information from third-party pricing sources may be less sophisticated.
94. When an entity has relatively few transactions involving financial instruments, it may be relatively easy for the auditor to obtain an understanding of the entity's objectives for using the financial instruments and the characteristics of the instruments. In such circumstances, much of the audit evidence is likely to be substantive in nature, the auditor may perform the majority of the audit work at year-end, and third-party confirmations are likely to provide evidence in relation to the completeness, accuracy, and existence of the transactions.
95. In reaching a decision on the nature, timing and extent of testing of controls, the auditor may consider factors such as:
- The nature, frequency and volume of financial instrument transactions;
 - The strength of controls, including whether controls are appropriately designed to respond to the risks associated with an entity's volume of financial instrument transactions and whether there is a governance framework over the entity's financial instrument activities;

²¹ HKSA 330, paragraph 18

- The importance of particular controls to the overall control objectives and processes in place at the entity, including the sophistication of the information systems to support financial instrument transactions;
- The monitoring of controls and identified deficiencies in control procedures;
- The issues the controls are intended to address, for example, controls related to the exercise of judgments compared with controls over supporting data. Substantive tests are more likely to be effective than relying on controls related to the exercise of judgment;
- The competency of those involved in the control activities, for example whether the entity has adequate capacity, including during periods of stress, and ability to establish and verify valuations for the financial instruments to which it is exposed;
- The frequency of performance of these control activities;
- The level of precision the controls are intended to achieve;
- The evidence of performance of control activities; and
- The timing of key financial instrument transactions, for example, whether they are close to the period end.

Substantive Procedures

96. Designing substantive procedures includes consideration of:

- The use of analytical procedures²²—While analytical procedures undertaken by the auditor can be effective as risk assessment procedures to provide the auditor with information about an entity’s business, they may be less effective as substantive procedures when performed alone. This is because the complex interplay of the drivers of the valuation often mask any unusual trends that might arise.
- Non-routine transactions—Many financial transactions are negotiated contracts between an entity and its counterparty (often known as “over the counter” or OTC.) To the extent that financial instrument transactions are not routine and outside an entity’s normal activities, a substantive audit approach may be the most effective means of achieving the planned audit objectives. In instances where financial instrument transactions are not undertaken routinely, the auditor’s responses to assessed risk, including designing and performing audit procedures, have regard to the entity’s possible lack of experience in this area.
- Availability of evidence—For example, when the entity uses a third-party pricing source, evidence concerning the relevant financial statement assertions may not be available from the entity.
- Procedures performed in other audit areas—Procedures performed in other financial statement areas may provide evidence about the completeness of financial instrument transactions. These procedures may include tests of subsequent cash receipts and payments, and the search for unrecorded liabilities.

²² HKSA 315 (Revised 2019), paragraph 14(b), requires the auditor to apply analytical procedures as risk assessment procedures to assist in assessing the risks of material misstatement in order to provide a basis for designing and implementing responses to the assessed risks. HKSA 520, *Analytical Procedures*, paragraph 6, requires the auditor to use analytical procedures in forming an overall conclusion on the financial statements. Analytical procedures may also be applied at other stages of the audit.

- Selection of items for testing—In some cases, the financial instrument portfolio will comprise instruments with varying complexity and risk. In such cases, judgmental sampling may be useful.
97. For example, in the case of an asset-backed security, in responding to the risks of material misstatement for such a security, the auditor may consider performing some of the following audit procedures:
- Examining contractual documentation to understand the terms of the security, the underlying collateral and the rights of each class of security holder.
 - Inquiring about management’s process of estimating cash flows.
 - Evaluating the reasonableness of assumptions, such as prepayment rates, default rates and loss severities.
 - Obtaining an understanding of the method used to determine the cash flow waterfall.
 - Comparing the results of the fair value measurement with the valuations of other securities with similar underlying collateral and terms.
 - Reperforming calculations.

Dual-Purpose Tests

98. Although the purpose of a test of controls is different from the purpose of a test of details, it may be efficient to perform both at the same time by, for example:
- Performing a test of controls and a test of details on the same transaction (for example, testing whether a signed contract has been maintained and whether the details of the financial instrument have been appropriately captured in a summary sheet; or
 - Testing controls when testing management’s process of making valuation estimates.

*Timing of the Auditor’s Procedures*²³

99. After assessing the risks associated with financial instruments, the engagement team determines the timing of planned tests of controls and substantive audit procedures. The timing of planned audit procedures varies depending on a number of factors, including the frequency of the control operation, the significance of the activity being controlled, and the related risk of material misstatement.
100. While it is necessary to undertake most of the audit procedures in relation to valuation and presentation at the period end, audit procedures in relation to other assertions such as completeness and existence can usefully be tested at an interim period. For example tests of controls may be performed at an interim period for more routine controls, such as IT controls and authorizations for new products. Also, it may be effective to test the operating effectiveness of controls over new product approval by gathering evidence of the appropriate level of management sign-off on a new financial instrument for an interim period.
101. Auditors may perform some tests on models as of an interim date, for example, by comparing the output of the model to market transactions. Another possible interim procedure for instruments with observable inputs is to test the reasonableness of the pricing information provided by a third-party pricing source.

²³ Paragraphs 11–12 and 22–23 of HKSA 330 establish requirements when the auditor performs procedures at an interim period and explains how such audit evidence can be used.

102. Areas of more significant judgment are often tested close to, or at, the period end as:
- Valuations can change significantly in a short period of time, making it difficult to compare and reconcile interim balances with comparable information at the balance sheet date;
 - An entity may engage in an increased volume of financial instrument transactions between an interim period and year-end;
 - Manual journal entries may only be made after the end of the accounting period; and
 - Non-routine or significant transactions may take place late in the accounting period.

Procedures Relating to Completeness, Accuracy, Existence, Occurrence and Rights and Obligations

103. Many of the auditor's procedures can be used to address a number of assertions. For example, procedures to address the existence of an account balance at period end will also address the occurrence of a class of transactions, and may also assist in establishing proper cut-off. This is because financial instruments arise from legal contracts and, by verifying the accuracy of the recording of the transaction, the auditor can also verify its existence, and obtain evidence to support the occurrence and rights and obligations assertions at the same time, and confirm that transactions are recorded in the correct accounting period.
104. Procedures that may provide audit evidence to support the completeness, accuracy, and existence assertions include:
- External confirmation²⁴ of bank accounts, trades, and custodian statements. This can be done by direct confirmation with the counterparty (including the use of bank confirmations), where a reply is sent to the auditor directly. Alternatively this information may be obtained from the counterparty's systems through a data feed. Where this is done, controls to prevent tampering with the computer systems through which the information is transmitted may be considered by the auditor in evaluating the reliability of the evidence from the confirmation. If confirmations are not received, the auditor may be able to obtain evidence by reviewing contracts and testing relevant controls. External confirmations, however, often do not provide adequate audit evidence with respect to the valuation assertion though they may assist in identifying any side agreements.
 - Reviewing reconciliations of statements or data feeds from custodians with the entity's own records. This may necessitate evaluating IT controls around and within automated reconciliation processes and to evaluate whether reconciling items are properly understood and resolved.
 - Reviewing journal entries and the controls over the recording of such entries. This may assist in, for example:
 - Determining if entries have been made by employees other than those authorized to do so.
 - Identifying unusual or inappropriate end-of-period journal entries, which may be relevant to fraud risk.
 - Reading individual contracts and reviewing supporting documentation of the entity's financial instrument transactions, including accounting records, thereby verifying existence

²⁴ HKSA 505, *External Confirmations*, deals with the auditor's use of external confirmation procedures to obtain audit evidence in accordance with the requirements of HKSA 330 and HKSA 500, *Audit Evidence*.

and rights and obligations. For example, an auditor may read individual contracts associated with financial instruments and review supporting documentation, including the accounting entries made when the contract was initially recorded, and may also subsequently review accounting entries made for valuation purposes. Doing so allows the auditor to evaluate whether the complexities inherent in a transaction have been fully identified and reflected in the accounts. Legal arrangements and their associated risks need to be considered by those with suitable expertise to ensure that rights exist.

- Testing controls, for example by reperforming controls.
- Reviewing the entity's complaints management systems. Unrecorded transactions may result in the entity's failure to make a cash payment to a counterparty, and may be detected by reviewing complaints received.
- Reviewing master netting arrangements to identify unrecorded instruments.

105. These procedures are particularly important for some financial instruments, such as derivatives or guarantees. This is because they may not have a large initial investment, meaning it may be hard to identify their existence. For example, embedded derivatives are often contained in contracts for non-financial instruments which may not be included in confirmation procedures.

Valuation of Financial Instruments

Financial Reporting Requirements

106. Fair presentation financial reporting frameworks often use fair value hierarchies, for example those used in IFRS, HKFRS and U.S. GAAP. This usually means that the volume and detail of the required disclosures increases as the level of measurement uncertainty increases. The distinction between the levels in the hierarchy may require judgment.
107. The auditor may find it useful to obtain an understanding of how the financial instruments relate to the fair value hierarchy. Ordinarily, the risk of material misstatement, and the level of audit procedures to be applied, increases as the level of measurement uncertainty increases. The use of level 3, and some level 2, inputs from the fair value hierarchy may be a useful guide to the level of measurement uncertainty. Level 2 inputs vary from those which are easily obtained to those which are closer to level 3 inputs. The auditor evaluates available evidence and understands both the fair value hierarchy and the risk of management bias in management's categorization of financial instruments in the fair value hierarchy.
108. In accordance with HKSA 540,²⁵ the auditor considers the entity's valuation policies and methodology for data and assumptions used in the valuation methodology. In many cases, the applicable financial reporting framework does not prescribe the valuation methodology. When this is the case, matters that may be relevant to the auditor's understanding of how management values financial instruments include, for example:
- Whether management has a formal valuation policy and, if so, whether the valuation technique used for a financial instrument is appropriately documented in accordance with that policy;
 - Which models may give rise to the greatest risk of material misstatement;

²⁵ HKSA 540, paragraph 8(c)

- How management considered the complexity of the valuation of the financial instrument when selecting a particular valuation technique;
- Whether there is a greater risk of material misstatement because management has internally developed a model to be used to value financial instruments or is departing from a valuation technique commonly used to value the particular financial instrument;
- Whether management made use of a third-party pricing source;
- Whether those involved in developing and applying the valuation technique have the appropriate skills and expertise to do so, including whether a management's expert has been used; and
- Whether there are indicators of management bias in selecting the valuation technique to be used.

Assessing the Risk of Material Misstatement Related to Valuation

109. When evaluating whether the valuation techniques used by an entity are appropriate in the circumstances, and whether controls over valuation techniques are in place, the factors considered by the auditor may include:

- Whether the valuation techniques are commonly used by other market participants and have been previously demonstrated to provide a reliable estimate of prices obtained from market transactions;
- Whether the valuation techniques operate as intended and there are no flaws in their design, particularly under extreme conditions, and whether they have been objectively validated. Indicators of flaws include inconsistent movements relative to benchmarks;
- Whether the valuation techniques take account of the risks inherent in the financial instrument being valued, including counterparty creditworthiness, and own credit risk in the case of valuation techniques used to measure financial liabilities;
- How the valuation techniques are calibrated to the market, including the sensitivity of the valuation techniques to changes in variables;
- Whether market variables and assumptions are used consistently and whether new conditions justify a change in the valuation techniques, market variables or assumptions used;
- Whether sensitivity analyses indicate that valuations would change significantly with only small or moderate changes in assumptions;
- The organizational structure, such as the existence of an internal department responsible for developing models to value certain instruments, particularly where level 3 inputs are involved. For example, a model development function that is involved in assisting in pricing deals is less objective than one which is functionally and organizationally segregated from the front office; and
- The competence and objectivity of those responsible for the development and application of the valuation techniques, including management's relative experience with particular models that may be newly developed.

The auditor (or auditor's expert) may also independently develop one or more valuation techniques to compare its output with that of the valuation techniques used by management.

Significant Risks

110. The auditor's risk assessment process may lead the auditor to identify one or more significant risks relating to the valuation of financial instruments, when any of the following circumstances exist:
- High measurement uncertainty related to the valuation of financial instruments (for example, those with unobservable inputs).²⁶
 - Lack of sufficient evidence to support management's valuation of its financial instruments.
 - Lack of management understanding of its financial instruments or expertise necessary to value such instruments properly, including the ability to determine whether valuation adjustments are needed.
 - Lack of management understanding of complex requirements in the applicable financial reporting framework relating to measurement and disclosure of financial instruments, and inability of management to make the judgments required to properly apply those requirements.
 - The significance of valuation adjustments made to valuation technique outputs when the applicable financial reporting framework requires or permits such adjustments.
111. For accounting estimates that give rise to significant risks, in addition to other substantive procedures performed to meet the requirements of HKSA 330, HKSA 540²⁷ requires the auditor to evaluate the following:
- (a) How management has considered alternative assumptions or outcomes, and why it has rejected them, or how management has otherwise addressed measurement uncertainty in making the accounting estimate;
 - (b) Whether the significant assumptions used by management are reasonable; and
 - (c) Where relevant to the reasonableness of the significant assumptions used by management, or the appropriate application of the applicable financial reporting framework, management's intent to carry out specific courses of action and its ability to do so.
112. As markets become inactive, the change in circumstances may lead to a move from valuation by market price to valuation by model, or may result in a change from one particular model to another. Reacting to changes in market conditions may be difficult if management does not have policies in place prior to their occurrence. Management may also not possess the expertise necessary to develop a model on an urgent basis, or select the valuation technique that may be appropriate in the circumstances. Even where valuation techniques have been consistently used, there is a need for management to examine the continuing appropriateness of the valuation techniques and assumptions used for determining valuation of financial instruments. Further, valuation techniques may have been selected in times where reasonable market information was available, but may not provide reasonable valuations in times of unanticipated stress.

²⁶ Where the auditor determines that the high estimation uncertainty related to the valuation of complex financial instruments gives rise to a significant risk, HKSA 540 requires the auditor to perform substantive procedures and evaluate the adequacy of the disclosure of their estimation uncertainty. See HKSA 540, paragraphs 11, 15 and 20.

²⁷ HKSA 540, paragraph 15(a)-(b)

113. The susceptibility to management bias, whether intentional or unintentional, increases with the subjectivity of the valuation and the degree of measurement uncertainty. For example, management may tend to ignore observable marketplace assumptions or data and instead use their own internally-developed model if the model yields more favorable results. Even without fraudulent intent, there may be a natural temptation to bias judgments towards the most favorable end of what may be a wide spectrum, rather than the point in the spectrum that might be considered to be most consistent with the applicable financial reporting framework. Changing the valuation technique from period to period without a clear and appropriate reason for doing so may also be an indicator of management bias. Although some form of management bias is inherent in subjective decisions relating to the valuation of financial instruments, when there is intention to mislead, management bias is fraudulent in nature.

Developing an Audit Approach

114. In testing how management values the financial instrument and in responding to the assessed risks of material misstatement in accordance with HKSA 540,²⁸ the auditor undertakes one or more of the following procedures, taking account of the nature of the accounting estimates:
- (a) Test how management made the accounting estimate and the data on which it is based (including valuation techniques used by the entity in its valuations).
 - (b) Test the operating effectiveness of the controls over how management made the accounting estimate, together with appropriate substantive procedures.
 - (c) Develop a point estimate or a range to evaluate management's point estimate.
 - (d) Determine whether events occurring up to the date of the auditor's report provide audit evidence regarding the accounting estimate.

Many auditors find that a combination of testing how management valued the financial instrument, and the data on which it is based, and testing the operating effectiveness of controls, will be an effective and efficient audit approach. While subsequent events may provide some evidence about the valuation of financial instruments, other factors may need to be taken into account to address any changes in market conditions subsequent to the balance sheet date.²⁹ If the auditor is unable to test how management made the estimate, the auditor may choose to develop a point estimate or range.

115. As described in Section I, to estimate the fair value of financial instruments management may:
- Utilize information from third-party pricing sources;
 - Gather data to develop their own estimate using various techniques including models; and
 - Engage an expert to develop an estimate.

Management often may use a combination of these approaches. For example, management may have their own pricing process but use third-party pricing sources to corroborate their own values.

²⁸ HKSA 540, paragraphs 12–14

²⁹ Paragraphs A63-A66 of HKSA 540 provide examples of some of the factors that may be relevant.

Audit Considerations When Management Uses a Third-Party Pricing Source

116. Management may make use of a third-party pricing source, such as a pricing service or broker, in valuing the entity's financial instruments. Understanding how management uses the information and how the pricing service operates assists the auditor in determining the nature and extent of audit procedures needed.
117. The following matters may be relevant where management uses a third-party pricing source:
- *The type of third-party pricing source* – Some third-party pricing sources make more information available about their process. For example, a pricing service often provides information about their methodology, assumptions and data in valuing financial instruments at the asset class level. By contrast, brokers often provide no, or only limited, information about the inputs and assumptions used in developing the quote.
 - *The nature of inputs used and the complexity of the valuation technique* – The reliability of prices from third-party pricing sources varies depending on the observability of inputs (and accordingly, the level of inputs in the fair value hierarchy), and the complexity of the methodology for valuing a specific security or asset class. For example, the reliability of a price for an equity investment actively traded in a liquid market is higher than that of a corporate bond traded in a liquid market that has not traded on the measurement date, which, in turn, is more reliable than that of an asset-backed security that is valued using a discounted cash flow model.
 - *The reputation and experience of the third-party pricing source* – For example, a third-party pricing source may be experienced in a certain type of financial instrument, and be recognized as such, but may not be similarly experienced in other types of financial instruments. The auditor's past experience with the third-party pricing source may also be relevant in this regard.
 - *The objectivity of the third-party pricing source* – For example, if a price obtained by management comes from a counterparty such as the broker who sold the financial instrument to the entity, or an entity with a close relationship with the entity being audited, the price may not be reliable.
 - *The entity's controls over the use of third-party pricing sources* – The degree to which management has controls in place to assess the reliability of information from third-party pricing sources affects the reliability of the fair value measurement. For example, management may have controls in place to:
 - Review and approve the use of the third-party pricing source, including consideration of the reputation, experience and objectivity of the third-party pricing source.
 - Determine the completeness, relevance and accuracy of the prices and pricing-related data.
 - *The third-party pricing source's controls* – The controls and processes over valuations for the asset classes of interest to the auditor. For example, a third-party pricing source may have strong controls around how prices are developed, including the use of a formalized process for customers, both buy and sell side, to challenge the prices received from the pricing service, when supported by appropriate evidence, which may enable the third-party pricing source to constantly correct prices to more fully reflect the information available to market participants.

118. Possible approaches to gathering evidence regarding information from third-party pricing sources may include the following:
- For level 1 inputs, comparing the information from third-party pricing sources with observable market prices.
 - Reviewing disclosures provided by third-party pricing sources about their controls and processes, valuation techniques, inputs and assumptions.
 - Testing the controls management has in place to assess the reliability of information from third-party pricing sources.
 - Performing procedures at the third-party pricing source to understand and test the controls and processes, valuation techniques, inputs and assumptions used for asset classes or specific financial instruments of interest.
 - Evaluating whether the prices obtained from third-party pricing sources are reasonable in relation to prices from other third-party pricing sources, the entity's estimate or the auditor's own estimate.
 - Evaluating the reasonableness of valuation techniques, assumptions and inputs.
 - Developing a point estimate or a range for some financial instruments priced by the third-party pricing source and evaluating whether the results are within a reasonable range of each other.
 - Obtaining a service auditor's report that covers the controls over validation of the prices.³⁰
119. Obtaining prices from multiple third-party pricing sources may also provide useful information about measurement uncertainty. A wide range of prices may indicate higher measurement uncertainty and may suggest that the financial instrument is sensitive to small changes in data and assumptions. A narrow range may indicate lower measurement uncertainty and may suggest less sensitivity to changes in data and assumptions. Although obtaining prices from multiple sources may be useful, when considering financial instruments that have inputs categorized at levels 2 or 3 of the fair value hierarchy, in particular, obtaining prices from multiple sources is unlikely to provide sufficient appropriate audit evidence on its own. This is because:
- (a) What appear to be multiple sources of pricing information may be utilizing the same underlying pricing source; and
 - (b) Understanding the inputs used by the third-party pricing source in determining the price may be necessary in order to categorize the financial instrument in the fair value hierarchy.
120. In some situations, the auditor may be unable to gain an understanding of the process used to generate the price, including any controls over the process of how reliably the price is determined, or may not have access to the model, including the assumptions and other inputs used. In such cases, the auditor may decide to undertake to develop a point estimate or a range to evaluate management's point estimate in responding to the assessed risk.

³⁰ Some pricing services may provide reports for users of its data to explain their controls over pricing data, that is, a report prepared in accordance with Hong Kong Standard on Assurance Engagements (HKSAE) 3402, *Assurance Reports on Controls at a Service Organization*. Management may request, and the auditor may consider obtaining, such a report to develop an understanding of how the pricing data is prepared and evaluate whether the controls at the pricing service can be relied upon.

Audit Considerations When Management Estimates Fair Values Using a Model

121. Paragraph 13(b) of HKSA 540 requires the auditor, if testing management's process of making the accounting estimate, to evaluate whether the method of measurement used is appropriate in the circumstances and the assumptions used by management are reasonable in light of the measurement objectives of the applicable financial reporting framework.
122. Whether management has used a third-party pricing source, or is undertaking its own valuation, models are often used to value financial instruments, particularly when using inputs at levels 2 and 3 of the fair value hierarchy. In determining the nature, timing and extent of audit procedures on models, the auditor may consider the methodology, assumptions and data used in the model. When considering more complex financial instruments such as those using level 3 inputs, testing all three may be a useful source of audit evidence. However, when the model is both simple and generally accepted, such as some bond price calculations, audit evidence obtained from focusing on the assumptions and data used in the model may be a more useful source of evidence.
123. Testing a model can be accomplished by two main approaches:
- (a) The auditor can test management's model, by considering the appropriateness of the model used by management, the reasonableness of the assumptions and data used, and the mathematical accuracy; or
 - (b) The auditor can develop their own estimate, and then compare the auditor's valuation with that of the entity.
124. Where valuation of financial instruments is based on unobservable inputs (that is, level 3 inputs), matters that the auditor may consider include, for example, how management supports the following:
- The identification and characteristics of marketplace participants relevant to the financial instrument.
 - How unobservable inputs are determined on initial recognition.
 - Modifications it has made to its own assumptions to reflect its view of assumptions marketplace participants would use.
 - Whether it has incorporated the best input information available in the circumstances.
 - Where applicable, how its assumptions take account of comparable transactions.
 - Sensitivity analysis of models when unobservable inputs are used and whether adjustments have been made to address measurement uncertainty.
125. In addition, the auditor's industry knowledge, knowledge of market trends, understanding of other entities' valuations (having regard to confidentiality) and other relevant price indicators informs the auditor's testing of the valuations and the consideration of whether the valuations appear reasonable overall. If the valuations appear to be consistently overly aggressive or conservative, this may be an indicator of possible management bias.
126. Where there is a lack of observable external evidence, it is particularly important that those charged with governance have been appropriately engaged to understand the subjectivity of management's valuations and the evidence that has been obtained to support these valuations. In such cases, it may be necessary for the auditor to evaluate whether there has been a thorough review and consideration of the issues, including any documentation, at all appropriate management levels within the entity, including with those charged with governance.

127. When markets become inactive or dislocated, or inputs are unobservable, management's valuations may be more judgmental and less verifiable and, as result, may be less reliable. In such circumstances, the auditor may test the model by a combination of testing controls operated by the entity, evaluating the design and operation of the model, testing the assumptions and data used in the model, and comparing its output to a point estimate or range developed by the auditor or to other third-party valuation techniques.³¹
128. It is likely that in testing the inputs used in an entity's valuation methodology,³² for example, where such inputs are categorized in the fair value hierarchy, the auditor will also be obtaining evidence to support the disclosures required by the applicable financial reporting framework. For example, the auditor's substantive procedures to evaluate whether the inputs used in an entity's valuation technique (that is, level 1, level 2 and level 3 inputs) are appropriate, and tests of an entity's sensitivity analysis, will be relevant to the auditor's evaluation of whether the disclosures achieve fair presentation.

Evaluating Whether the Assumptions Used by Management Are Reasonable

129. An assumption used in a model may be deemed to be significant if a reasonable variation in the assumption would materially affect the measurement of the financial instrument.³³ Management may have considered alternative assumptions or outcomes by performing a sensitivity analysis. The extent of subjectivity associated with assumptions influences the degree of measurement uncertainty and may lead the auditor to conclude there is a significant risk, for example in the case of level 3 inputs.
130. Audit procedures to test the assumptions used by management, including those used as inputs to models, may include evaluating:
- Whether, and if so, how, management has incorporated market inputs into the development of assumptions, as it is generally preferable to seek to maximize the use of relevant observable inputs and minimize unobservable inputs;
 - Whether the assumptions are consistent with observable market conditions, and the characteristics of the financial asset or financial liability;
 - Whether the sources of market-participant assumptions are relevant and reliable, and how management has selected the assumptions to use when a number of different marketplace assumptions exist; and
 - Whether sensitivity analyses indicate that valuations would change significantly with only small or moderate changes in assumptions.

See paragraphs A77 to A83 of HKSA 540 for further considerations relative to evaluating the assumptions used by management.

131. The auditor's consideration of judgments about the future is based on information available at the time at which the judgment is made. Subsequent events may result in outcomes that are inconsistent with judgments that were reasonable at the time they were made.

³¹ HKSA 540, paragraph 13(d) describes requirements when the auditor develops a range to evaluate management's point estimate. Valuation techniques developed by third parties and used by the auditor may, in some circumstances be considered the work of an auditor's expert and subject to the requirements in HKSA 620.

³² See, for example, paragraph 15 of HKSA 540 for requirements relative to the auditor's evaluation of management's assumption regarding significant risks.

³³ See HKSA 540, paragraph A107

132. In some cases, the discount rate in a present value calculation may be adjusted to account for the uncertainties in the valuation, rather than adjusting each assumption. In such cases, an auditor's procedures may focus on the discount rate, by looking at an observable trade on a similar security to compare the discount rates used or developing an independent model to calculate the discount rate and compare with that used by management.

Audit Considerations When a Management's Expert Is Used by the Entity

133. As discussed in Section I, management may engage a valuation expert to value some or all of their securities. Such experts may be brokers, investment bankers, pricing services that also provide expert valuation services, or other specialized valuation firms.

134. Paragraph 8 of HKSA 500 contains requirements for the auditor when evaluating evidence from an expert engaged by management. The extent of the auditor's procedures in relation to a management's expert and that expert's work depend on the significance of the expert's work for the auditor's purposes. Evaluating the appropriateness of management's expert's work assists the auditor in assessing whether the prices or valuations supplied by a management's expert provide sufficient appropriate audit evidence to support the valuations. Examples of procedures the auditor may perform include:

- Evaluating the competence, capabilities and objectivity of management's expert for example: their relationship with the entity; their reputation and standing in the market; their experience with the particular types of instruments; and their understanding of the relevant financial reporting framework applicable to the valuations;
- Obtaining an understanding of the work of the management's expert, for example by assessing the appropriateness of the valuation technique(s) used and the key market variables and assumptions used in the valuation technique(s);
- Evaluating the appropriateness of that expert's work as audit evidence. At this point, the focus is on the appropriateness of the expert's work at the level of the individual financial instrument. For a sample of the relevant instruments, it may be appropriate to develop an estimate independently (see paragraphs 136 to 137 on developing a point estimate or range), using different data and assumptions, then compare that estimate to that of the management's expert; and
- Other procedures may include:
 - Modeling different assumptions to derive assumptions in another model, then considering the reasonableness of those derived assumptions.
 - Comparing management's point estimates with the auditor's point estimates to determine if management's estimates are consistently higher or lower.

135. Assumptions may be made or identified by a management's expert to assist management in valuing its financial instruments. Such assumptions, when used by management, become management's assumptions that the auditor needs to consider in the same manner as management's other assumptions.

Developing a Point Estimate or Range

136. An auditor may develop a valuation technique and adjust the inputs and assumptions used in the valuation technique to develop a range for use in evaluating the reasonableness of management's valuation. Paragraphs 106 to 135 of this HKAPG may assist the auditor in developing a point estimate or range. In accordance with HKSA 540,³⁴ if the auditor uses

³⁴ HKSA 540, paragraph 13(c)

assumptions, or methodologies that differ from management's, the auditor shall obtain an understanding of management's assumptions or methodologies sufficient to establish that the auditor's range takes into account relevant variables and to evaluate any significant differences from management's valuation. The auditor may find it useful to use the work of an auditor's expert to evaluate the reasonableness of management's valuation.

137. In some cases, the auditor may conclude that sufficient evidence cannot be obtained from the auditor's attempts to obtain an understanding of management's assumptions or methodology, for example when a third-party pricing source uses internally developed models and software and does not allow access to relevant information. In such cases, the auditor may not be able to obtain sufficient appropriate audit evidence about the valuation if the auditor is unable to perform other procedures to respond to the risks of material misstatement, such as developing a point estimate or a range to evaluate management's point estimate.³⁵ HKSA 705³⁶ describes the implications of the auditor's inability to obtain sufficient appropriate audit evidence.

Presentation and Disclosure of Financial Instruments

138. Management's responsibilities include the preparation of the financial statements in accordance with the applicable financial reporting framework.³⁷ Financial reporting frameworks often require disclosures in the financial statements to enable users of the financial statements to make meaningful assessments of the effects of the entity's financial instrument activities, including the risks and uncertainties associated with these financial instruments. The importance of disclosures regarding the basis of measurement increases as the measurement uncertainty of the financial instruments increases and is also affected by the level of the fair value hierarchy.
139. In representing that the financial statements are in accordance with the applicable financial reporting framework, management implicitly or explicitly makes assertions regarding the presentation and disclosure of the various elements of financial statements and related disclosures. Assertions about presentation and disclosure encompass:
- (a) Occurrence and rights and obligations—disclosed events, transactions, and other matters have occurred and pertain to the entity.
 - (b) Completeness—all disclosures that should have been included in the financial statements have been included.
 - (c) Classification and understandability—financial information is appropriately presented and described, and disclosures are clearly expressed.
 - (d) Accuracy and valuation—financial and other information are disclosed fairly and at appropriate amounts.

The auditor's procedures around auditing disclosures are designed in consideration of these assertions.

³⁵ HKSA 540, paragraph 13(d)

³⁶ HKSA 705 (Revised), *Modifications to the Opinion in the Independent Auditor's Report*

³⁷ See paragraphs 4 and A2 of HKSA 200.

Procedures Relating to the Presentation and Disclosure of Financial Instruments

140. In relation to the presentation and disclosures of financial instruments, areas of particular importance include:

- Financial reporting frameworks generally require additional disclosures regarding estimates, and related risks and uncertainties, to supplement and explain assets, liabilities, income, and expenses. The auditor's focus may need to be on the disclosures relating to risks and sensitivity analysis. Information obtained during the auditor's risk assessment procedures and testing of control activities may provide evidence in order for the auditor to conclude about whether the disclosures in the financial statements are in accordance with the requirements of the applicable financial reporting framework, for example about:
 - The entity's objectives and strategies for using financial instruments, including the entity's stated accounting policies;
 - The entity's control framework for managing its risks associated with financial instruments; and
 - The risks and uncertainties associated with the financial instruments.
- Information may come from systems outside traditional financial reporting systems, such as risk systems. Examples of procedures that the auditor may choose to perform in responding to assessed risks relative to disclosures include testing:
 - The process used to derive the disclosed information; and
 - The operating effectiveness of the controls over the data used in the preparation of disclosures.
- In relation to financial instruments having significant risk,³⁸ even where the disclosures are in accordance with the applicable financial reporting framework, the auditor may conclude that the disclosure of estimation uncertainty is inadequate in light of the circumstances and facts involved and, accordingly, the financial statements may not achieve fair presentation. HKSA 705 provides guidance on the implications for the auditor's opinion when the auditor believes that management's disclosures in the financial statements are inadequate or misleading.
- Auditors may also consider whether the disclosures are complete and understandable, for example, all relevant information may be included in the financial statements (or accompanying reports) but it may be insufficiently drawn together to enable users of the financial statements to obtain an understanding of the position or there may not be enough qualitative disclosure to give context to the amounts recorded in the financial statements. For example, even when an entity has included sensitivity analysis disclosures, the disclosure may not fully describe the risks and uncertainties that may arise because of changes in valuation, possible effects on debt covenants, collateral requirements, and the entity's liquidity. HKSA 260³⁹ contains requirements and guidance about communicating with those charged with governance, including the auditor's views about significant qualitative aspects of the entity's accounting practices, including accounting policies, accounting estimates and financial statement disclosures.

³⁸ HKSA 540, paragraph 20, requires the auditor to perform further procedures on disclosures relating to accounting estimates that give rise to significant risks to evaluate the adequacy of the disclosure of their estimation uncertainty in the financial statements in the context of the applicable financial reporting framework.

³⁹ HKSA 260, *Communication with Those Charged with Governance*

141. Consideration of the appropriateness of presentation, for example on short-term and long-term classification, in substantive testing of financial instruments is relevant to the auditor's evaluation of the presentation and disclosure.

Other Relevant Audit Considerations

Written Representations

142. HKSA 540 requires the auditor to obtain written representations from management and, where appropriate, those charged with governance whether they believe significant assumptions used in making accounting estimates are reasonable.⁴⁰ HKSA 580⁴¹ requires that if, in addition to such required representations, the auditor determines that it is necessary to obtain one or more written representations to support other audit evidence relevant to the financial statements or one or more specific assertions in the financial statements, the auditor shall request such other written representations. Depending on the volume and degree of complexity of financial instrument activities, written representations to support other evidence obtained about financial instruments may also include:

- Management's objectives with respect to financial instruments, for example, whether they are used for hedging, asset/liability management or investment purposes;
- Representations about the appropriateness of presentation of the financial statements, for example the recording of financial instrument transactions as sales or financing transactions;
- Representations about the financial statement disclosures concerning financial instruments, for example that:
 - The records reflect all financial instrument transactions; and
 - All embedded derivative instruments have been identified;
- Whether all transactions have been conducted at arm's length and at market value;
- The terms of transactions;
- The appropriateness of the valuations of financial instruments;
- Whether there are any side agreements associated with any financial instruments;
- Whether the entity has entered into any written options;
- Management's intent and ability to carry out certain actions;⁴² and
- Whether subsequent events require adjustment to the valuations and disclosures included in the financial statements.

⁴⁰ HKSA 540, paragraph 22. Paragraph 4 of HKSA 580, *Written Representations*, states that written representations from management do not provide sufficient appropriate audit evidence on their own about any of the matters with which they deal. If the auditor is otherwise unable to obtain sufficient appropriate audit evidence, this may constitute a limitation on the scope of the audit that may have implications for the auditor's report (see HKSA 705, *Modification to the Opinion in the Independent Auditor's Report*).

⁴¹ HKSA 580 paragraph 13

⁴² Paragraph A80 of HKSA 540 provides examples of procedures that may be appropriate in the circumstances.

Communication with Those Charged with Governance and Others

143. Because of the uncertainties associated with the valuation of financial instruments, the potential effects on the financial statements of any significant risks are likely to be of governance interest. The auditor may communicate the nature and consequences of significant assumptions used in fair value measurements, the degree of subjectivity involved in the development of the assumptions, and the relative materiality of the items being measured at fair value to the financial statements as a whole. In addition, the need for appropriate controls over commitments to enter into financial instrument contracts and over the subsequent measurement processes are matters that may give rise to the need for communication with those charged with governance.
144. HKSA 260 deals with the auditor's responsibility to communicate with those charged with governance in an audit of financial statements. With respect to financial instruments, matters to be communicated to those charged with governance may include:
- A lack of management understanding of the nature or extent of the financial instrument activities or the risks associated with such activities;
 - Significant deficiencies in the design or operation of the systems of internal control or risk management relating to the entity's financial instrument activities that the auditor has identified during the audit;⁴³
 - Significant difficulties encountered when obtaining sufficient appropriate audit evidence relating to valuations performed by management or a management's expert, for example, where management is unable to obtain an understanding of the valuation methodology, assumptions and data used by the management's experts, and such information is not made available to the auditor by management's expert;
 - Significant differences in judgments between the auditor and management or a management's expert regarding valuations;
 - The potential effects on the entity's financial statements of material risks and exposures required to be disclosed in the financial statements, including the measurement uncertainty associated with financial instruments;
 - The auditor's views about the appropriateness of the selection of accounting policies and presentation of financial instrument transactions in the financial statements;
 - The auditor's views about the qualitative aspects of the entity's accounting practices and financial reporting for financial instruments; or
 - A lack of comprehensive and clearly stated policies for the purchase, sale and holding of financial instruments, including operational controls, procedures for designating financial instruments as hedges, and monitoring exposures.

The appropriate timing for communications will vary with the circumstances of the engagement; however, it may be appropriate to communicate significant difficulties encountered during the audit as soon as practicable if those charged with governance are able to assist the auditor to overcome the difficulty, or if it is likely to lead to a modified opinion.

⁴³ HKSA 265, *Communicating Deficiencies in Internal Control to Those Charged with Governance and Management*, establishes requirements and provides guidance on communicating deficiencies in internal control to management, and communicating significant deficiencies in internal control to those charged with governance. It explains that deficiencies in internal control may be identified during the auditor's risk assessment procedures in accordance with HKSA 315 (Revised 2019) or at any other stage of the audit.

Communications with Regulators and Others

145. In some cases, auditors may be required,⁴⁴ or may consider it appropriate, to communicate directly with regulators or prudential supervisors, in addition to those charged with governance, regarding matters relating to financial instruments. Such communication may be useful throughout the audit. For example, in some jurisdictions, banking regulators seek to cooperate with auditors to share information about the operation and application of controls over financial instrument activities, challenges in valuing financial instruments in inactive markets, and compliance with regulations. This coordination may be helpful to the auditor in identifying risks of material misstatement.

Conformity and Compliance with International Auditing Practice Notes

146. As of March 2023, this HKAPG is, in all material respects, in accordance with International Auditing Practice Note (IAPN) 1000, *Special Considerations in Auditing Financial Instruments* except that references to IESBA's *Code of Ethics for Professional Accountants (including International Independence Standards)* are replaced by HKICPA's *Code of Ethics for Professional Accountants*. With the exception of the foregoing difference, compliance with the requirements of this HKAPG ensures compliance with IAPN 1000.

⁴⁴ For example, HKSA 250 (Revised), *Consideration of Laws and Regulations in an Audit of Financial Statements*, requires auditors to determine whether there is a responsibility to report identified or suspected non-compliance with laws and regulations to parties outside the entity. In addition, requirements concerning the auditor's communication to banking supervisors and others may be established in many countries either by law, by supervisory requirement or by formal agreement or protocol.

Examples of Controls Relating to Financial Instruments

1. The following provides background information and examples of controls that may exist in an entity that deals in a high volume of financial instrument transactions, whether for trading or investing purposes. The examples are not meant to be exhaustive and entities may establish different control environments and processes depending on their size, the industry in which they operate, and the extent of their financial instrument transactions. Further information on the use of trade confirmations and clearing houses is contained in paragraphs 25–26.
2. As in any control system, it is sometimes necessary to duplicate controls at different control levels (for example, preventative, detective and monitoring) to avoid the risk of material misstatement.

The Entity's Control Environment

Commitment to Competent Use of Financial Instruments

3. The degree of complexity of some financial instrument activities may mean that only a few individuals within the entity fully understand those activities or have the expertise necessary to value the instruments on an ongoing basis. Use of financial instruments without relevant expertise within the entity increases the risk of material misstatement.

Participation by Those Charged with Governance

4. Those charged with governance oversee and concur with management's establishment of the entity's overall risk appetite and provide oversight over the entity's financial instrument activities. An entity's policies for the purchase, sale and holding of financial instruments are aligned with its attitude toward risk and the expertise of those involved in financial instrument activities. In addition, an entity may establish governance structures and control processes aimed at:
 - (a) Communicating investment decisions and assessments of all material measurement uncertainty to those charged with governance; and
 - (b) Evaluating the entity's overall risk appetite when engaging in financial instrument transactions.

Organizational Structure

5. Financial instrument activities may be run on either a centralized or a decentralized basis. Such activities and related decision making depend heavily on the flow of accurate, reliable, and timely management information. The difficulty of collecting and aggregating such information increases with the number of locations and businesses in which an entity is involved. The risks of material misstatement associated with financial instrument activities may increase with greater decentralization of control activities. This may especially be true where an entity is based in different locations, some perhaps in other countries.

Assignment of Authority and Responsibility

Investment and Valuation Policies

6. Providing direction, through clearly stated policies approved by those charged with governance for the purchase, sale, and holding of financial instruments enables management to establish an effective approach to taking and managing business risks. These policies are most clear when they state the entity's objectives with regard to its risk management activities, and the investment and hedging alternatives available to meet these objectives, and reflect the:
 - (a) Level of management's expertise;
 - (b) Sophistication of the entity's internal control and monitoring systems;
 - (c) Entity's asset/liability structure;
 - (d) Entity's capacity to maintain liquidity and absorb losses of capital;
 - (e) Types of financial instruments that management believes will meet its objectives; and
 - (f) Uses of financial instruments that management believes will meet its objectives, for example, whether derivatives may be used for speculative purposes or only for hedging purposes.
7. Management may design policies aligned with its valuation capabilities and may establish controls to ensure that these policies are adhered to by those employees responsible for the entity's valuation. These may include:
 - (a) Processes for the design and validation of methodologies used to produce valuations, including how measurement uncertainty is addressed; and
 - (b) Policies regarding maximizing the use of observable inputs and the types of information to be gathered to support valuations of financial instruments.
8. In smaller entities, dealing in financial instruments may be rare and management's knowledge and experience limited. Nevertheless, establishing policies over financial instruments helps an entity to determine its risk appetite and consider whether investing in particular financial instruments achieves a stated objective.

Human Resource Policies and Practices

9. Entities may establish policies requiring key employees, both front office and back office, to take mandatory time off from their duties. This type of control is used as a means of preventing and detecting fraud, in particular if those engaged in trading activities are creating false trades or inaccurately recording transactions.

Use of Service Organizations

10. Entities may also use service organizations (for example asset managers) to initiate the purchase or sale of financial instruments, to maintain records of transactions for the entity or to value financial instruments. Some entities may be dependent on these service organizations to provide the basis of reporting for the financial instruments held. However, if management does not have an understanding about the controls in place at a service organization, the auditor may not be able to obtain sufficient appropriate audit evidence to rely on controls at that service organization. See HKSA 402¹, which establishes requirements for the auditor to obtain sufficient appropriate audit evidence when an entity uses the services of one or more service organizations.

¹ HKSA 402, *Audit Considerations Relating to an Entity Using a Service Organization*

11. The use of service organizations may strengthen or weaken the control environment for financial instruments. For example, a service organization's personnel may have more experience with financial instruments than the entity's management or may have more robust internal control over financial reporting. The use of the service organization also may allow for greater segregation of duties. On the other hand, the service organization may have a poor control environment.

The Entity's Risk Assessment Process

12. An entity's risk assessment process exists to establish how management identifies business risks that derive from its use of financial instruments, including how management estimates the significance of the risks, assesses the likelihood of their occurrence and decides upon actions to manage them.
13. The entity's risk assessment process forms the basis for how management determines the risks to be managed. Risk assessment processes exist with the objective of ensuring that management:
 - (a) Understands the risks inherent in a financial instrument before management enters into it, including the objective of entering into the transaction and its structure (for example, the economics and business purpose of the entity's financial instrument activities);
 - (b) Performs adequate due diligence commensurate with the risks associated with particular financial instruments;
 - (c) Monitors the entity's outstanding positions to understand how market conditions are affecting the entity's exposures;
 - (d) Has procedures in place to reduce or change risk exposure if necessary and for managing reputational risk; and
 - (e) Subjects these processes to rigorous supervision and review.
14. The structure implemented to monitor and manage exposure to risks should:
 - (a) Be appropriate and consistent with the entity's attitude toward risk as determined by those charged with governance;
 - (b) Specify the approval levels for the authorization of different types of financial instruments and transactions that may be entered into and for what purposes. The permitted instruments and approval levels should reflect the expertise of those involved in financial instrument activities, demonstrating management's commitment to competence;
 - (c) Set appropriate limits for the maximum allowable exposure to each type of risk (including approved counterparties). Levels of allowable exposure may vary depending on the type of risk, or counterparty;
 - (d) Provide for the objective and timely monitoring of the financial risks and control activities;
 - (e) Provide for the objective and timely reporting of exposures, risks and the results of financial instrument activities in managing risk; and
 - (f) Evaluate management's track record for assessing the risks of particular financial instruments.

15. The types and levels of risks an entity faces are directly related to the types of financial instruments with which it deals, including the complexity of these instruments and the volume of financial instruments transacted.

Risk Management Function

16. Some entities, for example large financial institutions with a high volume of financial instrument transactions, may be required by law or regulation, or may choose, to establish a formal risk management function. This function is separated from those responsible for undertaking and managing financial instrument transactions. The function is responsible for reporting on and monitoring financial instrument activities, and may include a formal risk committee established by those charged with governance. Examples of key responsibilities in this area may include:
 - (a) Implementing the risk management policy set by those charged with governance (including analyses of the risks to which an entity may be exposed);
 - (b) Designing risk limit structures and ensuring these risk limits are implemented in practice;
 - (c) Developing stress scenarios and subjecting open position portfolios to sensitivity analysis, including reviews of unusual movements in positions; and
 - (d) Reviewing and analyzing new financial instrument products.
17. Financial instruments may have the associated risk that a loss might exceed the amount, if any, of the value of the financial instrument recognized on the balance sheet. For example, a sudden fall in the market price of a commodity may force an entity to realize losses to close a forward position in that commodity due to collateral, or margin, requirements. In some cases, the potential losses may be enough to cast significant doubt on the entity's ability to continue as a going concern. The entity may perform sensitivity analyses or value-at-risk analyses to assess the future hypothetical effects on financial instruments subject to market risks. However, value-at-risk analysis does not fully reflect the extent of the risks that may affect the entity; sensitivity and scenario analyses also may be subject to limitations.
18. The volume and sophistication of financial instrument activity and relevant regulatory requirements will influence the entity's consideration whether to establish a formal risk management function and how the function may be structured. In entities that have not established a separate risk management function, for example entities with relatively few financial instruments or financial instruments that are less complex, reporting on and monitoring financial instrument activities may be a component of the accounting or finance function's responsibility or management's overall responsibility, and may include a formal risk committee established by those charged with governance

The Entity's Information Systems

19. The key objective of an entity's information system is that it is capable of capturing and recording all the transactions accurately, settling them, valuing them, and producing information to enable the financial instruments to be risk managed and for controls to be monitored. Difficulties can arise in entities that engage in a high volume of financial instruments, in particular if there is a multiplicity of systems that are poorly integrated and have manual interfaces without adequate controls.
20. Certain financial instruments may require a large number of accounting entries. As the sophistication or level of the financial instrument activities increases, it is necessary for the sophistication of the information system to also increase. Specific issues which can arise with respect to financial instruments include:
 - (a) Information systems, in particular for smaller entities, not having the capability or not being appropriately configured to process financial instrument transactions, especially when the entity does not have any prior experience in dealing with financial instruments. This may

result in an increased number of manual transactions which may further increase the risk of error;

- (b) The potential diversity of systems required to process more complex transactions, and the need for regular reconciliations between them, in particular when the systems are not interfaced or may be subject to manual intervention;
 - (c) The potential that more complex transactions, if they are only traded by a small number of individuals, may be valued or risk managed on spreadsheets rather than on main processing systems, and for the physical and logical password security around those spreadsheets to be more easily compromised;
 - (d) A lack of review of systems exception logs, external confirmations and broker quotes, where available, to validate the entries generated by the systems;
 - (e) Difficulties in controlling and evaluating the key inputs to systems for valuation of financial instruments, particularly where those systems are maintained by the group of traders known as the front office or a third-party service provider and/or the transactions in question are non-routine or thinly traded;
 - (f) Failure to evaluate the design and calibration of complex models used to process these transactions initially and on a periodic basis;
 - (g) The potential that management has not set up a library of models, with controls around access, change and maintenance of individual models, in order to maintain a strong audit trail of the accredited versions of models and in order to prevent unauthorized access or amendments to those models;
 - (h) The disproportionate investment that may be required in risk management and control systems, where an entity only undertakes a limited number of financial instrument transactions, and the potential for misunderstanding of the output by management if they are not used to these types of transactions;
 - (i) The potential requirement for third-party systems provision, for example from a service organization, to record, process, account for or risk manage appropriately financial instrument transactions, and the need to reconcile appropriately and challenge the output from those providers; and
 - (j) Additional security and control considerations relevant to the use of an electronic network when an entity uses electronic commerce for financial instrument transactions.
21. Information systems relevant to financial reporting serve as an important source of information for the quantitative disclosures in the financial statements. However, entities may also develop and maintain non-financial systems used for internal reporting and to generate information included in qualitative disclosures, for example regarding risks and uncertainties or sensitivity analyses.

The Entity's Control Activities

22. Control activities over financial instrument transactions are designed to prevent or detect problems that hinder an entity from achieving its objectives. These objectives may be either operational, financial reporting, or compliance in nature. Control activities over financial instruments are designed relative to the complexity and volume of transactions of financial instruments and will generally include an appropriate authorization process, adequate segregation of duties, and other policies and procedures designed to ensure that the entity's control objectives are met. Process flow charts may assist in identifying an entity's controls and lack of controls. This HKAPG focuses on control activities related to completeness, accuracy and existence, valuation, and presentation and disclosure.

Authorization

23. Authorization can affect the financial statement assertions both directly and indirectly. For example, even if a transaction is executed outside an entity's policies, it nonetheless may be recorded and accounted for accurately. However, unauthorized transactions could significantly increase risk to the entity, thereby significantly increasing the risk of material misstatement since they would be undertaken outside the system of internal control. To mitigate this risk, an entity will often establish a clear policy as to what transactions can be traded by whom and adherence to this policy will then be monitored by an entity's back office. Monitoring trading activities of individuals, for example by reviewing unusually high volumes or significant gains or losses incurred, will assist management in ensuring compliance with the entity's policies, including the authorization of new types of transactions, and evaluating whether fraud has occurred.
24. The function of an entity's deal initiation records is to identify clearly the nature and purpose of individual transactions and the rights and obligations arising under each financial instrument contract, including the enforceability of the contracts. In addition to the basic financial information, such as a notional amount, complete and accurate records at a minimum typically include:
 - (a) The identity of the dealer;
 - (b) The identity of the person recording the transaction (if not the dealer), when the transaction was initiated (including the date and time of the transaction), and how it was recorded in the entity's information systems; and
 - (c) The nature and purpose of the transaction, including whether or not it is intended to hedge an underlying commercial exposure.

Segregation of Duties

25. Segregation of duties and the assignment of personnel is an important control activity, particularly when exposed to financial instruments. Financial instrument activities may be segregated into a number of functions, including:
 - (a) Executing the transaction (dealing). In entities with a high volume of financial instrument transactions, this may be done by the front office;
 - (b) Initiating cash payments and accepting cash receipts (settlements);
 - (c) Sending out trade confirmations and reconciling the differences between the entity's records and replies from counterparties, if any;
 - (d) Recording of all transactions correctly in the accounting records;
 - (e) Monitoring risk limits. In entities with a high volume of financial instrument transactions, this may be performed by the risk management function; and
 - (f) Monitoring positions and valuing financial instruments.
26. Many organizations choose to segregate the duties of those investing in financial instruments, those valuing financial instruments, those settling financial instruments and those accounting/recording financial instruments.
27. Where an entity is too small to achieve proper segregation of duties, the role of management and those charged with governance in monitoring financial instrument activities is of particular importance.

28. A feature of some entities' internal control is an independent price verification (IPV) function. This department is responsible for separately verifying the price of some financial instruments, and may use alternative data sources, methodologies and assumptions. The IPV provides an objective look at the pricing that has been developed in another part of the entity.
29. Ordinarily, the middle or back office is responsible for establishing policies on valuation and ensuring adherence to the policy. Entities with a greater use of financial instruments may perform daily valuations of their financial instrument portfolio and examine the contribution to profit or loss of individual financial instrument valuations as a test of the reasonableness of valuations.

Completeness, Accuracy, and Existence

30. Regular reconciliation of the entity's records to external banks' and custodians' records enables the entity to ensure transactions are properly recorded. Appropriate segregation of duties between those transacting the trades and those reconciling them is important, as is a rigorous process for reviewing reconciliations and clearing reconciling items.
31. Controls may also be established that require traders to identify whether a complex financial instrument may have unique features, for example embedded derivatives. In such circumstances, there may be a separate function that evaluates complex financial instrument transactions at their initiation (which may be known as a product control group), working in connection with an accounting policy group to ensure the transaction is accurately recorded. While smaller entities may not have product control groups, an entity may have a process in place relating to the review of complex financial instrument contracts at the point of origination in order to ensure they are accounted for appropriately in accordance with the applicable financial reporting framework.

Monitoring of Controls

32. The entity's ongoing monitoring activities are designed to detect and correct any deficiencies in the effectiveness of controls over transactions for financial instruments and their valuation. It is important that there is adequate supervision and review of financial instrument activity within the entity. This includes:
 - (a) All controls being subject to review, for example, the monitoring of operational statistics such as the number of reconciling items or the difference between internal pricing and external pricing sources;
 - (b) The need for robust information technology (IT) controls and monitoring and validating their application; and
 - (c) The need to ensure that information resulting from different processes and systems is adequately reconciled. For example, there is little benefit in a valuation process if the output from it is not reconciled properly into the general ledger.
33. In larger entities, sophisticated computer information systems generally keep track of financial instrument activities, and are designed to ensure that settlements occur when due. More complex computer systems may generate automatic postings to clearing accounts to monitor cash movements, and controls over processing are put in place with the objective of ensuring that financial instrument activities are correctly reflected in the entity's records. Computer systems may be designed to produce exception reports to alert management to situations where financial instruments have not been used within authorized limits or where transactions undertaken were not within the limits established for the chosen counterparties. However, even a sophisticated computer system may not ensure the completeness of the recording of financial instrument transactions. Accordingly, management frequently puts additional procedures in place to increase the likelihood that all transactions will be recorded.