KAEG-I [INTL VERSION 2024]: ISA 520 Analytical Procedures

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ISA 520 Analytical Procedures

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ISA 520 *Analytical Procedures*

(Effective for audits of financial statements for periods beginning on or after December 15, 2009)

Introduction, Objectives and Definition

International Standards on Auditing: ISA 520.01-04

Introduction

Scope of this ISA

1. This International Standard on Auditing (ISA) deals with the auditor's use of analytical procedures as substantive procedures ("substantive analytical procedures"). It also deals with the auditor's responsibility to perform analytical procedures near the end of the audit that assist the auditor when forming an overall conclusion on the financial statements. ISA 315 (Revised)[1] deals with the use of analytical procedures as risk assessment procedures. ISA 330 includes requirements and guidance regarding the nature, timing and extent of audit procedures in response to assessed risks; these audit procedures may include substantive analytical procedures.[2]

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1 ISA 315 (Revised), *Identifying and Assessing the Risks of Material Misstatement through Understanding the Entity and Its Environment,* paragraph 6(b)

2 ISA 330, *The Auditor's Reponses to Assessed Risks,* paragraphs 6 and 18

Effective Date

2. This ISA is effective for audits of financial statements for periods beginning on or after December 15, 2009.

Objectives

3. The objectives of the auditor are:

(a) To obtain relevant and reliable audit evidence when using substantive analytical procedures; and

(b) To design and perform analytical procedures near the end of the audit that assist the auditor when forming an overall conclusion as to whether the financial statements are consistent with the auditor's understanding of the entity.

Definition

4. For the purposes of the ISAs, the term "analytical procedures" means evaluations of financial information through analysis of plausible relationships among both financial and non-financial data. Analytical procedures also encompass such investigation as is necessary of identified fluctuations or relationships that are inconsistent with other relevant information or that differ from expected values by a significant amount. (Ref: Para. A1-A3)

ISA Application and Other Explanatory Material: ISA 520.A1-A3

Application and Other Explanatory Material

Definition of Analytical Procedures (Ref: Para. 4)

A1. Analytical procedures include the consideration of comparisons of the entity's financial information with, for example:

- Comparable information for prior periods.
- Anticipated results of the entity, such as budgets or forecasts, or expectations of the auditor, such as an estimation of depreciation.
- Similar industry information, such as a comparison of the entity's ratio of sales to accounts receivable with industry averages or with other entities of comparable size in the same industry.

A2. Analytical procedures also include consideration of relationships, for example:

- Among elements of financial information that would be expected to conform to a predictable pattern based on the entity's experience, such as gross margin percentages.
- Between financial information and relevant non-financial information, such as payroll costs to number of employees.

A3. Various methods may be used to perform analytical procedures. These methods range from performing simple comparisons to performing complex analyses using advanced statistical techniques. Analytical procedures may be applied to consolidated financial statements, components and individual elements of information.

Substantive Analytical Procedures and Analytical Procedures

International Standards on Auditing: ISA 520.05-07

Requirements

Substantive Analytical Procedures

5. When designing and performing substantive analytical procedures, either alone or in combination with tests of details, as substantive procedures in accordance with ISA 330,[3] the auditor shall: (Ref: Para. A4-A5)

(a) Determine the suitability of particular substantive analytical procedures for given assertions, taking account of the assessed risks of material misstatement and tests of details, if any, for these assertions; (Ref: Para. A6-A11)

(b) Evaluate the reliability of data from which the auditor's expectation of recorded amounts or ratios is developed, taking account of source, comparability, and nature and relevance of information available, and controls over preparation; (Ref: Para. A12-A14)

(c) Develop an expectation of recorded amounts or ratios and evaluate whether the expectation is sufficiently precise to identify a misstatement that, individually or when aggregated with other misstatements, may cause the financial statements to be materially misstated; and (Ref: Para. A15)

(d) Determine the amount of any difference of recorded amounts from expected values that is acceptable without further investigation as required by paragraph 7. (Ref: Para. A16)

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3 ISA 330, paragraph 18

Analytical Procedures that Assist When Forming an Overall Conclusion

6. The auditor shall design and perform analytical procedures near the end of the audit that assist the auditor when forming an overall conclusion as to whether the financial statements are consistent with the auditor's understanding of the entity. (Ref: Para. A17-A19)

Investigating Results of Analytical Procedures

7. If analytical procedures performed in accordance with this ISA identify fluctuations or relationships that are inconsistent with other relevant information or that differ from expected values by a significant amount, the auditor shall investigate such differences by:

(a) Inquiring of management and obtaining appropriate audit evidence relevant to management's responses; and

(b) Performing other audit procedures as necessary in the circumstances. (Ref: Para. A20-A21)

ISA Application and Other Explanatory Material: ISA 520.A4-A21

Substantive Analytical Procedures (Ref: Para. 5)

A4. The auditor's substantive procedures at the assertion level may be tests of details, substantive analytical procedures, or a combination of both. The decision about which audit procedures to perform, including whether to use substantive analytical procedures, is based on the auditor's judgment about the expected effectiveness and efficiency of the available audit procedures to reduce audit risk at the assertion level to an acceptably low level.

A5. The auditor may inquire of management as to the availability and reliability of information needed to apply substantive analytical procedures, and the results of any such analytical procedures performed by the entity. It may be effective to use analytical data prepared by management, provided the auditor is satisfied that such data is properly prepared.

Suitability of Particular Analytical Procedures for Given Assertions (Ref: Para. 5(a))

A6. Substantive analytical procedures are generally more applicable to large volumes of transactions that tend to be predictable over time. The application of planned analytical procedures is based on the expectation that relationships among data exist and continue in the absence of known conditions to the contrary. However, the suitability of a particular analytical procedure will depend upon the auditor's assessment of how effective it will be in detecting a misstatement that, individually or when aggregated with other misstatements, may cause the financial statements to be materially misstated.

A7. In some cases, even an unsophisticated predictive model may be effective as an analytical procedure. For example, where an entity has a known number of employees at fixed rates of pay throughout the period, it may be possible for the auditor to use this data to estimate the total payroll costs for the period with a high degree of accuracy, thereby providing audit evidence for a significant item in the financial statements and reducing the need to perform tests of details on the payroll. The use of widely recognized trade ratios (such as profit margins for different types of retail entities) can often be used effectively in substantive analytical procedures to provide evidence to support the reasonableness of recorded amounts.

A8. Different types of analytical procedures provide different levels of assurance. Analytical procedures involving, for example, the prediction of total rental income on a building divided into apartments, taking the rental rates, the number of apartments and vacancy rates into consideration, can provide persuasive evidence and may eliminate the need for further verification by means of tests of details, provided the elements are appropriately verified. In contrast, calculation and comparison of gross margin percentages as a means of confirming a revenue figure may provide less persuasive evidence, but may provide useful corroboration if used in combination with other audit procedures.

A9. The determination of the suitability of particular substantive analytical procedures is influenced by the nature of the assertion and the auditor's assessment of the risk of material misstatement. For example, if

controls over sales order processing are deficient, the auditor may place more reliance on tests of details rather than on substantive analytical procedures for assertions related to receivables.

A10. Particular substantive analytical procedures may also be considered suitable when tests of details are performed on the same assertion. For example, when obtaining audit evidence regarding the valuation assertion for accounts receivable balances, the auditor may apply analytical procedures to an aging of customers' accounts in addition to performing tests of details on subsequent cash receipts to determine the collectability of the receivables.

Considerations Specific to Public Sector Entities

A11. The relationships between individual financial statement items traditionally considered in the audit of business entities may not always be relevant in the audit of governments or other non-business public sector entities; for example, in many public sector entities there may be little direct relationship between revenue and expenditure. In addition, because expenditure on the acquisition of assets may not be capitalized, there may be no relationship between expenditures on, for example, inventories and fixed assets and the amount of those assets reported in the financial statements. Also, industry data or statistics for comparative purposes may not be available in the public sector. However, other relationships may be relevant, for example, variations in the cost per kilometer of road construction or the number of vehicles acquired compared with vehicles retired.

The Reliability of the Data (Ref: Para. 5(b))

A12. The reliability of data is influenced by its source and nature and is dependent on the circumstances under which it is obtained. Accordingly, the following are relevant when determining whether data is reliable for purposes of designing substantive analytical procedures:

(a) Source of the information available. For example, information may be more reliable when it is obtained from independent sources outside the entity;[4]

(b) Comparability of the information available. For example, broad industry data may need to be supplemented to be comparable to that of an entity that produces and sells specialized products;

(c) Nature and relevance of the information available. For example, whether budgets have been established as results to be expected rather than as goals to be achieved; and

(d) Controls over the preparation of the information that are designed to ensure its completeness, accuracy and validity. For example, controls over the preparation, review and maintenance of budgets.

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4 ISA 500, *Audit Evidence,* paragraph A31

A13. The auditor may consider testing the operating effectiveness of controls, if any, over the entity's preparation of information used by the auditor in performing substantive analytical procedures in response to assessed risks. When such controls are effective, the auditor generally has greater confidence in the reliability of the information and, therefore, in the results of analytical procedures. The operating effectiveness of controls over non-financial information may often be tested in conjunction with other tests of controls. For example, in establishing controls over the processing of sales invoices, an entity may include controls over the recording of unit sales. In these circumstances, the auditor may test the operating effectiveness of controls over the recording of unit sales in conjunction with tests of the

operating effectiveness of controls over the processing of sales invoices. Alternatively, the auditor may consider whether the information was subjected to audit testing. ISA 500 establishes requirements and provides guidance in determining the audit procedures to be performed on the information to be used for substantive analytical procedures.[5]

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5 ISA 500, paragraph 10

A14. The matters discussed in paragraphs A12(a)-A12(d) are relevant irrespective of whether the auditor performs substantive analytical procedures on the entity's period-end financial statements, or at an interim date and plans to perform substantive analytical procedures for the remaining period. ISA 330 establishes requirements and provides guidance on substantive procedures performed at an interim date.[6]

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6 ISA 330, paragraphs 22 - 23

Evaluation Whether the Expectation Is Sufficiently Precise (Ref: Para. 5(c))

A15. Matters relevant to the auditor's evaluation of whether the expectation can be developed sufficiently precisely to identify a misstatement that, when aggregated with other misstatements, may cause the financial statements to be materially misstated, include:

- The accuracy with which the expected results of substantive analytical procedures can be predicted. For example, the auditor may expect greater consistency in comparing gross profit margins from one period to another than in comparing discretionary expenses, such as research or advertising.
- The degree to which information can be disaggregated. For example, substantive analytical procedures may be more effective when applied to financial information on individual sections of an operation or to financial statements of components of a diversified entity, than when applied to the financial statements of the entity as a whole.
- The availability of the information, both financial and non-financial. For example, the auditor may consider whether financial information, such as budgets or forecasts, and non-financial information, such as the number of units produced or sold, is available to design substantive analytical procedures. If the information is available, the auditor may also consider the reliability of the information as discussed in paragraphs A12-A13 above.

Amount of Difference of Recorded Amounts from Expected Values that Is Acceptable (Ref: Para. 5(d))

A16. The auditor's determination of the amount of difference from the expectation that can be accepted without further investigation is influenced by materiality[7] and the consistency with the desired level of assurance, taking account of the possibility that a misstatement, individually or when aggregated with other misstatements, may cause the financial statements to be materially misstated. ISA 330 requires the auditor to obtain more persuasive audit evidence the higher the auditor's assessment of risk.[8] Accordingly, as the assessed risk increases, the amount of difference considered acceptable without investigation decreases in order to achieve the desired level of persuasive evidence.[9]

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7 ISA 320, *Materiality in Planning and Performing an Audit,* paragraph A14

8 ISA 330, paragraph 7(b)

9 ISA 330, paragraph A19

Analytical Procedures that Assist When Forming an Overall Conclusion (Ref: Para. 6)

A17. The conclusions drawn from the results of analytical procedures designed and performed in accordance with paragraph 6 are intended to corroborate conclusions formed during the audit of individual components or elements of the financial statements. This assists the auditor to draw reasonable conclusions on which to base the auditor's opinion.

A18. The results of such analytical procedures may identify a previously unrecognized risk of material misstatement. In such circumstances, ISA 315 (Revised) requires the auditor to revise the auditor's assessment of the risks of material misstatement and modify the further planned audit procedures accordingly.[10]

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10 ISA 315 (Revised), paragraph 31

A19. The analytical procedures performed in accordance with paragraph 6 may be similar to those that would be used as risk assessment procedures.

Investigating Results of Analytical Procedures (Ref: Para. 7)

A20. Audit evidence relevant to management's responses may be obtained by evaluating those responses taking into account the auditor's understanding of the entity and its environment, and with other audit evidence obtained during the course of the audit.

A21. The need to perform other audit procedures may arise when, for example, management is unable to provide an explanation, or the explanation, together with the audit evidence obtained relevant to management's response, is not considered adequate.

How do we comply with the Standards?

[ISA | KAEGHDWC]

1 Determine which procedures can provide the desired level of assurance [ISA | 3867]

What do we do?

Determine which substantive audit procedures can provide the desired level of assurance.

Why do we do this?

The persuasiveness of evidence obtain varies based on the nature of the audit procedures. This is because not all audit procedures are equal and some provide more persuasive audit evidence than

others. Adjusting the nature of our procedures is one way to increase the persuasiveness of evidence commensurate with an increased level of combined assessed risk (CAR).

Although we may choose to perform several different types of substantive procedures, not all of them are appropriate in every circumstance. Our procedures are only effective when they are responsive to the RMM they are addressing and the types of potential misstatements that could result from those risks.

Execute the Audit

How do we design and perform substantive procedures whose nature is based on and responsive to the CAR of the RMM? [ISA | 3867.1400]

To design and perform substantive procedures whose nature is based on and responsive to the CAR of the RMM, we think about:

- the type of procedure;
- the source of the evidence the procedure provides - e.g. evidence obtained from a knowledgeable source that is independent of the entity may be more persuasive than evidence obtained only from sources internal to the entity;
- the nature of the RMM - i.e. how a misstatement could occur;
- the population and the types of transactions that the procedure covers e.g. substantive analytical procedures (SAPs) may be more effective when dealing with RMMs related to accounts that contain large volumes of transactions with a pattern of being predictable over time.
- whether the procedure is designed to address RMM(s) related to balance sheet accounts, income statement accounts or both;
- the assertions to which the RMM is linked - e.g. tests of details may be more responsive to the Existence and/or Accuracy assertions; and
- the specific objective of the procedure.

> For example, when we have assessed inherent risk of RMMs associated with the existence of a prepaid asset as base, the nature of our procedures might simply include inspecting supporting documentation for transactions selected that we obtain from the entity to evaluate whether:
>
> (1) the amount is capitalizable,
> (2) the right amount was capitalized, and
> (3) the amortization and current carrying value are appropriate.
>
> However, if we have assessed the inherent risk as elevated or significant (perhaps because the asset is unusual and the contract with the counterparty is unclear), then we may also communicate directly with the counterparty or the entity's legal counsel to understand the contract terms, thus altering the nature of our procedures to respond to the risk.

What audit procedures may we perform to obtain sufficient appropriate audit evidence? [ISA | 3867.1300]

The table below describes the audit procedures that we may perform and the factors we think about when obtaining sufficient appropriate audit evidence:

Audit procedure	What is it?	Example

Inspection	Involves an examination (being physically present or using remote observation tools) of an asset or an examination of records or documents (internal and external) on paper, in electronic or other media. Inspection of records and documents provides audit evidence of varying degrees of reliability, depending on their nature and source and, in the case of internal records and documents, on the effectiveness of the controls over their production.	Inspection of records, using manual or automated techniques, for evidence of authorization. For example, the use of text-recognition programs to examine large populations of documents, such as contracts, to identify items for further audit consideration.
Observation	Observation consists of looking at a process or procedure being performed by others. Observation provides audit evidence about the performance of a process or procedure but is limited to the point in time at which the observation takes place and by the fact that the act of being observed may affect how the process or procedure is performed.	Observation of an entity's physical inventory count. Remote observation tools (e.g. a camera mounted on a drone or a video transmission) may aid in performing an inspection or an observation procedure, such as management's physical inventory count.
Inquiry	Inquiry consists of seeking information from knowledgeable persons in financial or nonfinancial roles within or outside the entity. Inquiries may range from formal written inquiries to informal oral inquiries.	Inquiries with management regarding related party relationships and transactions
External confirmation	An external confirmation represents audit evidence obtained as a direct written response to us from a third party (the confirming party) on paper or by electronic or other medium - e.g. through our direct access to information held by a third party.	Confirmation of accounts receivable balances with customers.
Recalculation	Recalculation consists of checking the mathematical accuracy of documents or records. Recalculation may be performed manually or electronically.	Recalculating fees in accordance with contractual terms.

	By using automated tools and techniques, we may be able to perform recalculation procedures on 100% of a population.	Recalculating the gross margin for each product sold for an entity's product line.
Reperformance	Reperformance involves our independent execution of procedures or controls that were originally performed as part of the entity's internal control and entails using the same information as the control operator/IT system and seeing if we came to the same result. We separately consider the reliability of the information used in the control and cannot infer the performance of the control by comparison to independent information.	Reperformance of a bank reconciliation.
Analytical procedures	Analytical procedures consist of evaluations of financial information through analysis of plausible relationships among both financial and non-financial data. Analytical procedures also encompass the investigation of identified fluctuations or relationships that are inconsistent with other relevant information or deviate significantly from predicted amounts.	Substantive analytical procedures over interest expense based on expected relationships with debt terms.

Do we perform tests of details, Substantive Analytical Procedures (SAPs) or both to respond to the level of CAR? [ISA | 3867.1700]

To respond to the level of CAR, we may perform tests of details, SAPs or a combination of both. Performing more than one procedure may increase the persuasiveness of evidence we obtain, as long as each procedure is responsive to the RMM and provides sufficient appropriate audit evidence on its own.

There are benefits to combining a SAP and test of details, including:

- having the big picture that the SAP provides, while still obtaining evidence from examining individual transactions;
- having the ability to potentially reduce the extent of our test of details because we are also obtaining audit evidence from a SAP performed to address the same RMM. This is also helpful when performing audit procedures to address risks related to accounts with large balances and where audit sampling may result in large sample sizes.

2 Design substantive analytical procedures [ISA | 3868]

What do we do?

Design substantive analytical procedures taking into account the relevant factors.

Why do we do this?

We undertake various steps to design substantive analytical procedures (SAPs) before performing and evaluating them. These steps help us determine whether performing a SAP is appropriate in the circumstances and will provide us the level of assurance desired from the procedure.

Execute the Audit

What are analytical procedures? [ISA | 3868.1300]

Analytical procedures use plausible relationships among both financial and nonfinancial data to evaluate financial information. Analytical procedures range from simple comparisons to the use of complex models involving many relationships and elements of data.

How is a SAP different from other types of analytical procedures? [ISA | 3868.1400]

There are different types of analytical procedures that we can perform, and they typically fall into one of the following categories:

- Substantive analytical procedures
- Planning analytical procedures (see activity 'Perform analytical procedures' for further information); and
- Final analytical procedures (see activity 'Perform final analytical procedures' for further information).

SAPs are used to obtain audit evidence about relevant assertions or for other purposes, such as gaining evidence about the relevance or reliability of data. To do this, we:

- develop a sufficiently precise expectation of the recorded amount or ratio;
- evaluate the reliability of the data from which our expectation is developed; and
- investigate differences between the expected value and the recorded amount.

Conversely, planning and final analytical procedures are not designed with the objective of providing substantive audit evidence. Planning analytical procedures are used during risk assessment to assist us in identifying and assessing the risks of material misstatement to provide a basis for designing and implementing responses to those assessed risks. Final analytical procedures are used near the end of an audit to assist when forming an overall conclusion about whether the financial statements are consistent with our understanding of the entity.

How do we design SAPs? [ISA | 3868.1600]

We perform the following procedures to design SAPs:

- Determine the suitability of the SAP for given assertions;
- Develop an expectation;
- Evaluate the precision of the expectation;
- Determine the acceptable difference; and
- Evaluate the data used.

2.1 Determine the suitability of the SAP [ISA | 3869]

What do we do?

Determine the suitability of substantive analytical procedures, taking into account the assessed risks of material misstatement, any tests of details and the plausibility and predictability of relationships amongst relevant data.

Why do we do this?

We execute substantive analytical procedures (SAP) after we consider whether the SAP we intend to perform is suitable to respond to a particular risk of material misstatement (RMM) and we are confident that the relationships that are to be used in the SAP are plausible and sufficiently predictable to develop an expectation. This helps us determine upfront that we have an appropriate basis to conclude on the RMM upon completion of the SAP.

Execute the Audit

What methods can we use to design and perform a SAP? [ISA | 3869.1300]

There are four methods that may be used in designing and performing a SAP:

SAP Method	Description
Predictive analysis	Involves the development of an expectation using items of data from one or more time periods and/or sources to calculate an amount.
Trend analysis	Involves the development of an expectation through analysis of the same items of data between different time periods or sources.
Ratio analysis	Involves the development of an expectation of a ratio between two or more items of data using data from different time periods or sources. Ratio analysis includes developing an expectation of: • the ratio between two accounts or disclosures • the ratio of an account to non-financial information
Data analysis	Involves analyzing accounting data to identify unusual items and subsequently perform further audit procedures on those items that have been deemed to be unusual.

	For a data analysis to provide substantive audit evidence as a SAP, we set an expectation for each item.

Are any of the methods inherently more precise than the others? [ISA | 3869.12985]

Generally speaking, predictive analysis and data analysis provide the highest level of precision, because an explicit expectation is formed using multiple sources of data, both financial and nonfinancial, across time. Ratio and trend analysis SAPs typically provide less precision because they do not take into consideration changes in specific factors that affect the account.

For example, assume that we have determined we will use a trend analysis to test current year sales, but the entity has introduced new products this year. Using prior year's sales (or an average of the past few years) as the expectation for current sales does not provide a precise expectation because it excludes relevant information about additional products and changes in the economic environment.

There are many factors that can impact the precision of a SAP. So there can be instances where the design of a trend analysis results in a more precise SAP than a predictive SAP. For example, a trend analysis performed at a fairly disaggregated level could result in a more precise expectation than a predictive analysis performed over the consolidated balance.

How do we select the appropriate SAP method to use? [ISA | 3869.1400]

Understanding the nature of the method, along with factors that affect the sufficiency of the evidence provided, helps us select the appropriate method for developing an expectation in a SAP. We can perform one or a combination of the SAP methods over the same RMM.

When is it appropriate to use a predictive analysis SAP? [ISA | 3869.12988]

A Predictive Analysis is most appropriate when we can develop an expectation using more than one input to develop that expectation.

What might we think about when determining whether to use a predictive analysis SAP? [ISA | 3869.12990]

When determining whether to use a predictive analysis SAP, we think about:

- In contrast to both trend and ratio analyses (which assume more stable relationships when developing an expectation), a predictive analysis uses more than one input to develop an expectation of the account balance or relationship of interest.
- In some cases, even an unsophisticated predictive model may be effective as an analytical procedure.

For example, where an entity has a known number of employees at fixed rates of pay throughout the period, it may be possible for us to use this data (after evaluating its reliability) to estimate the total payroll costs for the period with a high degree of accuracy, thereby providing audit evidence for a significant item in the financial statements and may reduce the nature, timing and extent of tests of details we perform on payroll.

- A predictive analysis relies on knowledge of the relevant data and the relationships among that data. An expectation is calculated based on the identified relationships, with appropriate adjustments being made to the calculation to allow for the factors that influence those relationships (e.g., operational, industry and economic factors). Accordingly, knowledge of the factors that influence those relationships, along with our understanding of the entity, helps us to develop assumptions for each of the factors (e.g., industry and economic factors).

For example, an expectation for hotel revenues may be developed using the prior year average room rate, a relevant current year industry rate increase per a reliable third-party industry report and the entity's current period total number of overnight stays per the entity's internal occupancy report.

When is it appropriate to use a trend analysis SAP? [ISA | 3869.12993]

Because a trend analysis relies on predictability of an amount over a number of periods, it is more appropriate when the entity has not experienced significant operating or accounting changes, or when an account is stable over time. Stability in an account can be present either through consistency in the total, or consistent growth or decline over time that we expect to continue consistently.

What might we think about when determining whether to use a trend analysis SAP? [ISA | 3869.12994]

When determining whether to use a trend analysis SAP, we think about:

- A trend analysis relies on drawing inferences from a series of correlated data points to develop an expectation about a current period amount. Trend analyses may also take into consideration other factors that we reasonably expect to impact the trend.

Examples of SAPs performed using an expectation based on a trend include:

- trend analysis of sales returns by month during and shortly after the reporting period.
- trend analysis of payroll by month compared with average headcount each month.
- a trend analysis of a retailer's current period and prior period(s) same store revenues, cost of sales and gross margin.

- If we determine that the patterns or trends observed in prior periods may not be indicative of what we expect in the current period, we may determine that a different SAP method is more appropriate than a trend analysis.

For example, the historical trend may suggest a continued nominal increase in revenues, while other factors, such as current year industry trends, the loss of a key customer, etc., may suggest a decline in revenues is expected.

- The number of periods (annual, monthly, etc.) used in the trend analysis is a function of the stability of operations. The more stable the operations over time, the more predictable the relationships and the more appropriate the use of multiple time periods.
- A trend analysis performed over fewer time periods generally provides less audit evidence.
- A trend analysis performed at an aggregate level, for an account balance, is relatively imprecise and therefore a SAP trend analysis is often performed at a disaggregated level (e.g. by segment, product or location; and/or monthly or quarterly rather than on an annual basis).

For example, a company operates five hotels, which are well established in their respective markets. A trend analysis could be performed by setting an expectation for current year room revenue by using average historical room revenue by hotel over the three-year period. Alternatively, we could disaggregate room revenue by hotel even further into occupancy rates and room rates and set an expectation based on historical trends for each rate. This would result in a higher level of precision than a trend analysis performed over total room revenue.

- A simple trend analysis typically involves using only prior period internal data to develop an expectation of the current period amount. We may develop a more sophisticated trend analysis by incorporating other relevant information such as historical data for multiple time periods, forecast data, external data and information on current period factors that influence the trend.
- Some forms of regression analysis are a type of trend analysis that uses statistical models to estimate an amount in dollar terms using other independent variables, with measurable risk and precision levels. The AICPA Analytical Procedures guide https://alex.kpmg.com/AROWeb/document/lfc/US_AICPA_AAG_ANP_2017_0000/toc/US_AICPA_AAG_ANP_2017_0000?tocref= provides additional information on using regression analysis.

When is it appropriate to use a ratio analysis SAP? [ISA | 3869.12995]

A ratio analysis is most appropriate when the *relationship between accounts* is fairly predictable and stable. A ratio analysis is less appropriate when the entity has experienced significant operating or accounting changes, relationships are not predictable or stable and direct comparisons to published industry information do not exist.

What might we think about when determining whether to use a ratio analysis SAP? [ISA | 3869.12998]

When determining whether to use a ratio analysis SAP, we think about:

- In many circumstances, ratio analysis can be more effective than trend analysis because relevant ratios between accounts in the balance sheet and accounts in the income statement can often reveal unusual fluctuations that an analysis of the individual accounts would not.
- The use of widely recognized trade ratios (such as profit margins for different types of retail entities) can often be used effectively in substantive analytical procedures to provide evidence to support the reasonableness of recorded amounts.
- We may use industry averages or companies in the same industry. This is most useful when operating factors are comparable.

For example, if we identify, from a gross margin comparison between an entity and its peers, that a gross margin of 60% is usual for the industry, our expectation may be that the gross margin for the entity is also 60%.

Alternatively, after considering other factors that influence the ratio (such as entity specific factors, industry changes, cost inflation, etc.), we may determine that our expectation is for gross margin to be higher than the industry average, at for example 63% for the current period.

- Ratio analysis at an aggregate level (that is, consolidated operating units or across product lines) may be relatively imprecise because a material misstatement is often small relative to the natural

variations in the ratios. We consider performing a ratio analysis on a disaggregated level (for example, by segment, product or location).

The ratio analysis SAP method can be used in various ways:

Type of ratio analysis	Example
Ratio between two accounts or disclosures	An expectation of the current period ratio of shipping costs or other selling expenses to revenue, based on the prior period actual ratio and the budget ratio for the current period.
Ratio of an account to non-financial information	An expectation of the current period ratio of revenue per square meter (of selling space) for a retailer, based on this historical trend in the ratio for the past three years.
Trend analysis using ratios from external sources	Developing an expectation of shipping costs to sales based on the ratio for a comparable entity in the same industry. OR Developing an expectation of the entity's ratio of revenue to receivables based on industry averages or other entities of comparable size in the same industry.
Trend analysis using ratios from the entity's historical information	Developing an expectation of key performance indicator ratios for the current period (for example, receivables turnover or days' sales outstanding, inventory turnover, depreciation expense to average plant, property and equipment, gross profit percentage and net income percentage) based on the trend in those ratios from prior periods. OR Developing an expectation of the monthly ratio for the current year based on the trend in the monthly ratios from the prior year of gross profit by product line and operating segment, expense by type as a percentage of sales and percentage of change in sales to percentage of change in receivables from the prior period.

When is it appropriate to use a data analysis SAP? [ISA | 3869.13001]

A data analysis is most appropriate when there are large populations of transactions that have common characteristics such that we can identify anomalies. A data analysis is less appropriate when the population does not have similar enough characteristics such that we could identify anomalies

that may indicate a misstatement, or in situations where our criteria for what is anomalous yields a significant number of items that require further substantive audit procedures.

What might we think about when determining whether to use a data analysis SAP? [ISA | 3869.13003]

When determining whether to use a data analysis SAP, we think about:

- Data analysis may include searching for large or unusual items in the accounting records (e.g., nonstandard journal entries) or transaction data (e.g., suspense accounts and adjusting journal entries) for indications of misstatements that may have occurred. Data analysis often involves the analysis of a large volume of data.
- A data analysis as a SAP is designed and evaluated in the same way as for all SAPs (including setting an expectation that is sufficiently precise and an acceptable difference) and by its nature is generally at a highly disaggregated level.
- Any items that do not meet our expectation (i.e. those that are outside the acceptable difference) are considered unusual (outliers) and investigated further. Our expectation is often in the form of an expected range, and may be expressed in monetary amounts, as percentage variances or as another characteristic of what we expect to find in the data.
- An effectively designed data analysis SAP may provide audit evidence about the items not identified as unusual because these items are within our expectation.
- Computer-assisted audit techniques (CAATs) may assist us in identifying significant or unusual items (see activity 'Plan and perform CAATs ' for further information on the usage of CAATs)).

Are we able to perform a data analysis SAP without the use of CAATs? [ISA | 3869.13004]

Yes. The identification of unusual individual items - i.e., items that do not meet our expectation - may be performed through the reading or analysis of entries in transaction listings, subsidiary ledgers, general ledger control accounts, adjusting entries, suspense accounts, reconciliations, and other detailed reports. We can execute these procedures manually, or through the use of other CAATs.

What if a SAP only addresses some RMMs related to an assertion and not all of them? [ISA | 3869.13005]

We perform additional substantive procedures to address the RMMs that are not addressed by the SAP.

What if SAP isn't sufficient to address an RMM on its own? [ISA | 3869.13006]

When a SAP isn't sufficient to address an RMM on its own, it may be appropriate to perform a SAP in combination with other tests of details.

How do we determine the suitability of the selected SAP for the given assertions and RMMs? [ISA | 3869.1500]

We consider the following when determining the suitability of the SAP for the given assertions and RMMs:

- the assessed risks of material misstatement, specifically thinking about our combined assessed risk (CAR) for the RMM(s) we plan to address with the SAP;
- tests of details, if any, that are otherwise being performed for these assertions; and
- the relationship identified and whether it is plausible and sufficiently predictable to develop an expectation.

How do we design a SAP that is responsive to CAR? [ISA | 3869.1600]

As our assessment of CAR increases, so does the level of audit evidence we seek to obtain from our SAP(s), or the combination of SAP and test of details.

The persuasiveness of the audit evidence provided by our SAP is influenced by:

- Whether the relationship we have identified is plausible and sufficiently predictable to predict the balance being tested;
- Timing of our performance of the SAP (as determined when performing the activity, 'Design and perform substantive procedures whose timing is responsive to CAR'); and
- Precision of the expectation (see question 'What do we mean by 'the precision of the expectation' when designing SAPs?' for additional information).

How do we consider tests of details when determining the suitability of the SAP for the given assertions and RMMs? [ISA | 3869.1700]

There may be instances in which a SAP is not suitable to address a particular RMM on its own. However, it might be considered suitable when combined with a test of details performed in response to the same RMM and assertions. This may be the case when either we expect a higher level of assurance in response to the RMM than the SAP alone provides (because of a higher CAR and/or less predictability inherent in the amount) or because the SAP does not fully address the RMM.

> For example, when obtaining audit evidence in response to RMMs relating to the valuation assertion for accounts receivable, we may apply analytical procedures to an aging of customers' accounts, in addition to performing tests of details on subsequent cash receipts, to determine the collectability of the receivables. The analytical procedure may not provide sufficient and appropriate audit evidence alone, but could be a suitable response when coupled with the tests of details.

What does it mean for the relationship we have identified to be plausible and sufficiently predictable when designing a SAP? [ISA | 3869.1800]

A basic premise underlying the application of analytical procedures is that plausible relationships among data are reasonably expected to exist and continue in the absence of known conditions to the contrary. In more simple terms, developing an appropriate expectation depends on the use of a relationship that makes sense. Considering the factors that make relationships plausible helps us identify whether data really is related - because data sometimes appears to be related when it is not. Without considering the relationships among data, we may reach inappropriate conclusions. In addition, the presence of an unexpected relationship may provide important evidence when appropriately scrutinized.

> For example, we may observe that Selling, General & Administrative (SG&A) costs have increased over the prior three fiscal years and at the same time headcount has also increased. While payroll expense, which may be increasing because of an increase in headcount, is included in the entity's SG&A balance, it isn't all that comprises SG&A. An inappropriate conclusion that there is a direct correlation between headcount and SG&A expense could cause us to make inappropriate conclusions about the SG&A balance recorded in the current year when using headcount as the basis for our conclusions.

How do we determine whether the relationship we have identified is plausible and sufficiently predictable when designing a SAP? [ISA | 3869.13009]

Once we have identified the relationships among data that we plan to use in our SAP, we compare those relationships to what we know about the entity's business, its industry, the current economic environment, and any other factors that could have an impact on the relationship we have identified.

In particular, we may think about:

- Relationships in a stable environment are usually more predictable than relationships in a dynamic or unstable environment.
- Relationships involving income statement accounts tend to be more predictable than relationships involving only balance sheet accounts because income statement accounts represent transactions over a period of time, while balance sheet accounts represent amounts as of a point in time.
- Relationships involving transactions more susceptible to management discretion may be less predictable.

> For example, repairs and maintenance expenditures may be more susceptible to management discretion as management may elect to incur maintenance expense rather than replace plant and equipment, or can choose to delay those expenditures altogether. Conversely, a utility expense may have a higher level of predictability as management does not have the ability to influence how much it costs to keep the lights on each month.

- Conditions may exist that may make predictability difficult such as specific unusual transactions or events, accounting changes, business changes, random fluctuations, a lack of homogeneity in the account or transactions, misstatements in the data used in the estimate, or known misstatements in the balance.

When more persuasive audit evidence is desired from a SAP, we use more predictable relationships to develop the expectation.

Relationships among data are often influenced by numerous factors that may affect the amount of an account balance or disclosure. These factors are frequently the same factors that management considers in preparing budgets, forecasts or financial reports. These factors vary among industries and between entities in a single industry, and may be either financial or non-financial.

How can we alter the timing of the SAP to be responsive to CAR? [ISA | 3869.1900]

Our considerations around the timing of the performance of a SAP are the same as those relevant to designing and performing a test of details. See activity, 'Design and perform substantive procedures whose timing is responsive to CAR ' for more information.

SAPs that are performed closer to period end often provide more persuasive audit evidence than those performed during interim, because they can be designed to cover the entire period. As our assessment of CAR increases, we may determine that is more appropriate to perform our SAP at period end to minimize the audit risk that is associated with the remaining population. However, we may still decide to perform a SAP at an interim period and then determine what procedures to perform over the remaining population. We may choose to do this because it can help us to identify significant matters at an early stage of the audit and resolve them with the assistance of management.

How can we influence the precision of the SAP to be responsive to CAR? [ISA | 3869.2000]

There are several different ways we may change the precision of a SAP, including identifying data with a closer relationship (taking dependence into consideration - see activity 'Consider the source of the data ' for additional information on dependence) or performing the SAP at a disaggregated level. Disaggregation involves splitting the population into sub-populations and developing our expectation over each sub-population (i.e. developing an expectation of revenue for each month or quarter instead of for the entire period). Generally, the more disaggregated the SAP, the more precise our expectation will be.

> For example, consider a multi-national consumer products company that has three reporting and operating segments, comprised of eight reporting units. A SAP designed to respond to the RMMs related to the CEA assertions of revenue that is disaggregated by reporting unit will generally have a higher level of precision than a SAP that is designed at the reporting segment level or at the overall account level.

The appropriate level of detail may be influenced by the nature of the entity, its size, and its complexity. The risk that material misstatements may be obscured by offsetting factors increases as an entity's operations become more complex and diversified. Disaggregation of the information helps reduce this risk.

Examples

What is an example of a predictive analysis SAP? [ISA | 3869.2100]

Fact Pattern

The engagement team is performing an audit of a services firm. All company locations are located in the same geographical region and have similar pay structures. Additionally, the Board of Directors reviews and approves the average pay rate increase across all functions each year, which is then enacted on the first day of the following fiscal year.

The team has tested and found controls relating to the relevant RMMs to be operating effectively throughout the period under audit. Performance materiality for the engagement is $17.5 million.

Analysis

The engagement team has determined that a predictive analysis SAP will be performed by developing an expectation of current year payroll expense based on prior year payroll expense per FTE (full time equivalent employee), adjusted for expected pay increases (which are effective for the full year under audit), multiplied by the number of current year FTEs at period end. The team concluded that the relationship between the prior year average pay per FTE and the number of current year FTEs is plausible and sufficiently predictable once adjusted for pay rate increases approved by the Board. They considered whether employee turnover or new hires throughout the year could have a material impact on this relationship such that the analytical procedure may not be sufficiently precise to address the RMMs related to the CEA assertions of payroll expense; however, based on their risk assessment and control procedures, the team determined that the fluctuation in headcount in the current year as compared to the prior year was not significant in a way that would materially impact the predictability of the relationship identified.

Given the high predictability expected from the relationship identified by the team to develop the expectation for payroll expense (a single pay raise rate used across the entity and low levels of fluctuation in headcount), the acceptable difference was determined to be 30% of PM ($5.25 million) to be commensurate with the expected precision of the SAP.

The results of the SAP are as follows:

Payroll predictive analysis SAP example:	
Prior year payroll expense	$410,368,920
Prior year FTEs	11,290
Prior year payroll expense per FTE	$36,348
Current year pay increase	3.50%
Adjusted payroll expense per FTE	$37,620
Current year FTEs	11,320
Expected current year payroll expense	$425,858,400
Recorded payroll expense	$421,447,821
Difference	$4,410,579
Acceptable difference	+/- $5,250,000
Within acceptable difference?	Yes

What is an example of a trend analysis SAP? [ISA | 3869.2200]

Fact Pattern

The engagement team for a privately held manufacturing company, is planning to perform a SAP to test certain RMMs relating to the CEA assertions of Cost of Goods sold (COGs) for the year under audit.

The Company is a manufacturer of widgets. The Company's business is stable as is the overall widget industry. The Company has one operating segment, one manufacturing facility and its product mix is consistent from year to year (i.e., the volume of sales of products A, B and C as a percentage of total revenue remains consistent year to year).

The Company does not have complex revenue recognition transactions.

KPMG has audited the financial statements of the Company in the prior year and in the current year there have been no significant changes in the business, including reorganizations, acquisitions or dispositions, or significant new capital improvements such as a new production facility.

Analysis

The engagement team noted that COGs and revenue are positively correlated based on the nature of the business and the Company's historical trends. Gross margin has not varied significantly: 45.4%, 45.6%, 45.2%, 45.9% and 45.7% during 20X7, 20X6, 20X5, 20X4 and 20X3, respectively. Gross margin is a key indicator for the Company and is generally consistent even in periods of fluctuating revenue as management is able to manage costs.

Given this understanding, the engagement team designed a trend analysis SAP to develop an expectation of current year COGs as follows:

Current year gross margin expectation = Average of prior five years gross margin percentage

Current year COGS expectation = Current year revenue - (current year revenue * current year gross margin expectation)

The team determined the prior five years to be an appropriate period to use as the Company introduced a new product seven years ago (product C was introduced in 20X1) and the mix of products sold did not stabilize again until approximately one year after the introduction of the new product, making 20X1 the first full year of a stable product mix. A trend analysis SAP based on these factors was determined to be appropriate for this SAP given the stable environment in which the Company operates. Additionally, given the stability of the environment and the tight range within which the gross margin rate has stayed over the past five years, the team concluded that an acceptable difference of 50% of PM ($1,000,000) is commensurate with the precision of the SAP and that the precision of the SAP provides sufficient audit evidence to respond to the RMMs relating to the CEA of COGs.

The results of the SAP are as follows:

Historical Audited Results	20X3	20X4	20X5	20X6	20X7
COGs	$57,178,226	$59,737,274	$63,631,349	$65,818,995	$69,686,253
Sales revenue	$105,300,600	$110,420,100	$116,115,600	$120,990,800	$127,630,500
Gross Margin %	45.7%	45.9%	45.2%	45.6%	45.4%

Average gross margin 20X3 - 20X7: 45.56%

Expectation for 20X8 COGs:	
Actual 20X8 sales revenue	$135,160,900
Average gross margin	45.56%
Expected 20X8 gross margin	$61,579,306
Expected 20X8 COGs	$73,581,594
Recorded 20X8 COGs	$74,160,900
Difference	$(579,306)
Acceptable difference	+/- $1,000,000
Within acceptable difference?	Yes

What is an example of a ratio analysis SAP? [ISA | 3869.2300]

Fact Pattern

The entity under audit manufactures uniforms, jerseys, helmets and other athletic gear and sells those products to schools. The company employs sales associates who earn commission on each sale. The rate of commission earned depends on the product sold, but there are generally three categories that each include a small range of commission rates: footwear, clothing and hardware (comprised of athletic gear like helmets, bats, balls, etc.). The engagement team determined through their walkthroughs and other risk assessment procedures that there have not been any changes in the commission structure in the current year as compared to the prior year, and as a result determined that a ratio analysis SAP using revenues and sales commissions is an appropriate procedure to perform in response to the RMMs relating to the CEA assertions for commission expense.

Analysis

Because there are varying commission rates among the product categories, the engagement team determined it is appropriate to perform a disaggregated ratio analysis SAP, comparing the ratio of sales commission expense to revenue from the prior year to the current year ratio for each product line with an acceptable difference of +/- 100 basis points. Note that the prior year balances were audited by the engagement team and the team has performed separate procedures over the RMMs relating to current year revenue. The results of the SAP are as follows:

Product line	Prior year ratio (PY commission/ PY revenue)	Current year ratio (CY commission/ CY revenue)	Difference	Difference less than 100 basis points?
Footwear	5.5%	6%	50 basis points	Yes
Clothing	7.1%	6.8%	30 basis points	Yes
Hardware	3.2%	3.5%	30 basis points	Yes

Based on the SAP performed and the team's consideration of the differences noted individually and in combination (see activity, 'Evaluate differences from disaggregated SAPs and consider unusual patterns '), the team concluded that the ratio analysis SAP provides sufficient and appropriate audit evidence to respond to the RMMs relating to the CEA of commission expense.

What is an example of a data analysis SAP? [ISA | 3869.2400]

Fact Pattern

The engagement team for a large retail company that operates 100 stores reviewed same-store revenue fluctuations on a store by store basis over the past 5 fiscal years and determined that same-store revenue has remained relatively consistent year-over-year for a majority of the stores. Based on this determination, the engagement team decided to perform a data analysis SAP to identify individual stores exhibiting high or low period over period changes in same store sales in response to the RMMs relating to the CEA assertions of revenue. For stores outside a designated historical range (expectation), additional substantive audit procedures will be performed.

Analysis

The team developed an expectation of annual same store sales and determined that the expected range (and acceptable range) for each store is between +2% and +4% sales growth. They examined the actual same store sales data and identified that 92 stores were within the acceptable range while five stores had sales growth in excess of 4% and three stores had a decline in sales or growth of less than 2%.

The engagement team used the data analysis SAP to obtain substantive audit evidence over the sales revenue for the 92 stores that were within the acceptable range. For the 8 stores that were identified as having growth in same store sales that was higher or lower than the acceptable range, the engagement team performed tests of details over revenue recognized at those locations in order to address the RMMs related to revenue for those stores. The team concluded that the combination of the data analysis SAP and the tests of details performed for the stores that fell outside the range provided sufficient and appropriate audit evidence to respond to the RMMs related to the CEA of revenue.

How might we consider whether it is appropriate to use a SAP to test an RMM relating to revenue? [ISA | 3869.2500]

Fact pattern

An established company with a 30-year history, retrofits military helicopters into high performance helicopters for sale and use by the National Forest Service, law enforcement and other organizations. The Company also provides repair and turbine engine overhaul services.

Helicopter sales revenue stream:

Sales of high performance helicopters typically number from 25 to 35 per annum and account for between 40% and 85% of total annual Company revenue depending on quantity sold and the value of customer specified upgrades added to the base model. The Company recognizes revenue on sales of helicopters at the date of delivery.

Helicopter maintenance revenue stream:

All repair and engine overhaul services are on an as-needed basis priced using published price lists. Revenue for these services is recognized as the services are provided. The Company maintains a database of statistics on each high performance helicopter sold that includes, among other things, date sold, selling price and repair and engine overhaul records. Maintaining these records enables the Company to track by production year the nature and amount of repair and engine overhaul services provided for each specific helicopter. The Company is able to use information in the database on an aggregated level to forecast succeeding year repair and overhaul revenue due to the highly correlated relationship between vintage year and repair and overhaul services performed.

Note: The engagement team has identified a fraud risk relating to revenue cut-off and has separately designed and performed tests of details specifically responsive to that fraud risk .

Analysis

Helicopter sales revenue stream:

Because of the significant dollar value of each sale coupled with a high degree of uncertainty surrounding the timing and extent of high performance helicopter sales in any given year, the engagement team determined that performing a test of details of all items in the population is the most effective and efficient audit procedure to obtain evidence over the RMMs relating to helicopter sales.

Helicopter maintenance revenue stream:

Based on the detailed records maintained by the Company, the engagement team concluded that it could design a predictive analysis SAP and develop an expectation to provide sufficient substantive audit evidence over the RMMs relating to repair and overhaul revenue using historical helicopter sales by vintage year, repair and overhaul services by year of service and current published repair and overhaul price lists. The SAP is designed with a level of precision such that the acceptable difference is within performance materiality (PM).

What might we consider when determining if a SAP is an appropriate procedure to use when the population that comprises the balance to be tested is not comprised of transactions that are homogeneous? [ISA | 3869.2600]

Fact Pattern

The company under audit fabricates specialty stainless steel products for use in many applications across multiple industries. The Company incurs significant shipping costs to deliver the products to each customer, at which time revenue is recognized. Shipping costs are a significant line item on the Company's financial statements. Shipping costs are based on a per-pound rate and the rates vary depending on the total pounds being shipped, dimensions of the products and location. Shipping prices also vary by carrier and not all carriers can transport to all customer destinations

Analysis

The engagement team performed procedure to determine that the mix of products shipped during the year was similar to the mix of products shipped in the prior year. Also, the shipping destinations and carriers were also consistent to the prior year. Because the mix of product is consistent year over year, the engagement team determined that the SAP could be designed to achieve the desired level of precision.

A predictive analysis SAP was designed based on the engagement team's development of an expectation using the prior year relationship of shipping costs to pounds shipped to arrive at an average shipping cost per pound. The prior year average shipping cost per pound was then used in a predictive analysis SAP to estimate the current year shipping costs. Relevant additional inputs included current year pounds shipped per the third-party carriers' billing information, shipping prices published by carriers and an estimate of pounds shipped by higher cost carriers during the current year.

How might we determine whether a relationship is plausible and sufficiently predictable? [ISA | 3869.2700]

Fact Pattern

KPMG has audited the financial statements of a manufacturing entity in the prior year and in the current year there have been no significant changes in the business. The entity does not have complex revenue recognition transactions.

The engagement team is designing a SAP to respond to the RMMs relevant to the CEA assertions of administrative expense and has determined that a trend analysis SAP may be appropriate to develop an expectation of current year administrative expense based on the average of each of the previous three years' administrative expense as a percentage of net sales. Administrative expense for the Company is generally a variable cost and its relationship with net sales is expected to be consistent from year to year.

Analysis

To evaluate whether the relationship identified between administrative expenses and net sales revenue is plausible and sufficiently predictable, the engagement team performed procedures to review the history of these balances specific to the Company, as well as whether a similar relationship between the balances also exists for the Company's competitors.

The team reviewed the Company's prior year annual reports, noting administrative expense as a percentage of sales was 23.6%, 24.1%, and 23.4% for 20X7, 20X6, and 20X5, respectively.

Additionally, the team reviewed the same metric for the Company's main competitors noting Company A had a ratio of 22% for each of the previous three years and Company B had ratios of 24%, 25%, and 25% for 20X7, 20X6, and 20X5, respectively, which corroborates that the industry in which the

Company operates realizes an administrative expense as a percentage of net sales that is relatively consistent from year to year.

Finally, the team considered the differences in the ratios noted between the Company and the competitors reviewed. The small variation noted in administrative expenses as a percent of net sales in the Company versus its competitors was found to be indicative of differences amongst the organizations' cost structures rather than an indication that we would expect the same rates to be observed across companies.

Based on the procedures performed as described above, coupled with the engagement team's risk assessment procedures and prior knowledge of the entity and its operations, the engagement team concluded that the relationship between administrative expense and net sales is plausible and sufficiently predictable and therefore appropriate to use as the basis for the design of a trend analysis SAP to respond to the RMMs related to the CEA assertions of administrative expense.

2.2 Develop an expectation [ISA | 3871]

What do we do?

Develop an expectation of recorded amounts or ratios including an expectation for each portion when performing a disaggregated SAP.

Why do we do this?

The substance of a substantive analytical procedure (SAP) is developing an expectation of the balance, account or amount subject to testing. Developing an expectation allows us to compare that amount with what is recorded by the entity to test whether the total recorded by management is appropriate.

Execute the Audit

What is an expectation developed using a SAP? [ISA | 3871.1300]

In an analytical procedure, our expectation is our estimate of the amount that we expect the entity to have recorded (the correct amount).

How do we develop an expectation as part of our SAP? [ISA | 3871.1400]

We use relationships among data and the factors that influence those relationships to develop our expectation as a single amount (point estimate) or as a range of expected amounts (expected range).

The data used in developing our expectation, may be:

- From different time periods (historical, current or forecast)
- From different sources, which may be internal or external sources
- Financial or non-financial.

What factors may we consider in the development of our expectation when using a SAP?

Relationships among data are often influenced by numerous factors that may affect the amount of an account balance, such as specific unusual transactions or events, accounting changes, business and industry factors, market and economic factors, and management incentives. We consider which factors are relevant to our procedure when developing our expectation.

What do we do when we are performing a disaggregated SAP?

Disaggregation involves the separate analysis of portions of an account balance or disclosure and factors that affect an account balance or disclosure, for example, by segment, product, location or time period. When we perform a SAP for disaggregated account balances, we develop an expectation for each disaggregated portion following the same steps as those employed when performing a SAP that is not disaggregated.

When might we develop an expectation using a SAP as a single amount versus a range of expected amounts? [ISA | 3871.1500]

We often develop our expectation as a point estimate when we are designing a more precise SAP, but we may use an expected range when it is not possible to determine a precise point estimate. Developing our expectation as an expected range means we do not identify a point estimate within that range, since any amount that falls within the range is expected. Therefore, when designing a less precise procedure, it may be more appropriate to identify the likely upper and lower limits for a range of expected amounts than identifying where within that expected range the actual amount is likely to fall.

Examples

When might we develop an expectation as a range of expected amounts? [ISA | 3871.1600]

Fact pattern

An entity has a portfolio of fixed-rate loans that have varying interest rates. The engagement team has assessed the inherent risk for the RMMs for interest expense relating to this portfolio of loans as Base and has found the relevant controls to be designed and operating effectively for the period under audit.

Analysis

Because of the lower risk assessment for the RMMs for interest expense, the engagement team determined that a less precise SAP would provide sufficient and appropriate audit evidence for them to conclude and would be more efficient for them to perform. The team developed their expectation as an expected range by identifying the highest and lowest interest rates that would have been applicable across the portfolio of loans during the period (which they identified by inspecting the relevant loan documentation) and applying those rates to the average loan balance for the period to come up with an expected range for interest expense.

2.3 Evaluate the precision of the expectation [ISA | 3872]

What do we do?

Consider specific matters to evaluate whether the expectation is sufficiently precise to identify differences, individually or in aggregate, that may be potential material misstatements.

Why do we do this?

In order to determine the acceptable difference, or the amount of difference from our expectation that can be accepted without further investigation, we understand the precision of our expectation. If we

have developed a substantive analytical procedure (SAP) that very closely predicts an amount being tested, but do not acknowledge that the analytical procedure is precise, we may use a larger acceptable difference than is appropriate. Doing this would directly reduce the level of assurance received from the procedure and could result in us missing the identification of misstatements that we otherwise would have found.

Execute the Audit

What do we mean by 'the precision of the expectation' when designing SAPs? [ISA | 3872.1300]

The precision is a measurement of how accurate our expectation of the recorded amount or ratio will be. The precision of a SAP affects our ability to correctly identify whether there is a material misstatement in an account balance. The more precisely a SAP is designed, the more likely a difference is the result of a misstatement. Precision is implicit in the design of the SAP.

The precision of a SAP is the primary determinant of the level of assurance obtained from the procedure. Given this, it is a key consideration in determining whether the desired level of assurance from a SAP is achieved. Generally, the more precise the procedure, the more persuasive the audit evidence obtained.

How do we evaluate whether the SAP is designed with sufficient precision? [ISA | 3872.1400]

There are various matters relevant to our evaluation of whether the expectation can be developed with sufficient precision to identify a misstatement that, when aggregated with other misstatements, may cause the financial statements to be materially misstated.

How does CAR impact our determination of whether the SAP is designed with sufficient precision?

As the risk for an RMM increases, so does the extent of audit evidence necessary to appropriately respond to the RMM (see additional discussion related to this concept in activity 'Design and perform substantive procedures to respond to the level of CAR'). Generally, the higher the risk, the more precise the SAP is to provide sufficient audit evidence in response to the risk.

The following table shows how we may think about CAR when determining whether the expectation is sufficiently precise for a SAP that is the only planned substantive response to an RMM. As you move left to right (from a no controls reliance approach to a controls reliance approach) or top to bottom (from a higher inherent risk to a lower inherent risk) in the table below, the SAP may be designed with less precision and a higher acceptable difference.

To illustrate, we'll use the example of a SAP that is designed to respond to the RMMs relevant to the CEA assertions of depreciation expense. While it may not be likely that we will identify a significant inherent risk related to depreciation expense, we'll use the same account, assertions and RMMs to demonstrate how the SAP may be designed with more or less precision to provide sufficient evidence in each CAR scenario.

Inherent Risk	**Control Risk**	
Inherent Risk	**No Controls Reliance**	**Controls Reliance**

Significant	Due to Fraud	SAPs alone are not sufficient but may be used in combination with tests of details.		
Significant	Due to Error	SAPs alone are not sufficient but may be used in combination with tests of details so the acceptable difference is affected by the amount of evidence from substantive procedures.	We may use a data analysis SAP with a high level of precision to respond to the RMMs: We develop an expectation for each asset using the gross value of each individual fixed asset and the average useful life assigned to the relevant asset category (there are a handful of asset types and lives in each major asset category). Any asset with actual depreciation expense that falls outside of the acceptable range will be investigated. Given our understanding of the nature of the fixed assets, the tight range of useful lives that exists in each category, and the fixed asset activity at the entity during the year, we expect a high level of precision from this SAP. We judgmentally

				determine that an acceptable difference of +/- 5% for each asset, which equates to +/-10% of PM on a consolidated basis, is appropriate to respond to the RMMs and commensurate with the precision of the procedure.
Elevated			A disaggregated predictive analysis SAP may be designed with a high level of precision to respond to the RMMs: Disaggregate by fixed asset category, use the fixed asset lives per category (tested for reliability), and the average fixed asset balance per category to predict depreciation expense with a high level of precision. Given the high level of precision of this SAP, we judgmentally determine the acceptable difference to be 25% of PM.	We have concluded that the fixed asset additions and disposals in the current year are not material. Additionally, we do not expect a material number of assets to become fully depreciated in the current year. A disaggregated trend analysis SAP may be designed with a sufficient level of precision to respond to the RMMs when combined with the evidence obtained through our control testing: Disaggregate by fixed asset category, and use the average depreciation expense incurred

			per category over the past three years to predict current year depreciation. We have used three years because the entity had significant fixed asset activity four years ago that results in that year not being sufficiently comparable to use to predict expense in the current year. Given the high level of precision of this SAP, we judgmentally determine the acceptable difference to be 50% of PM.
	Base	A less precise predictive analysis SAP performed over the aggregate balance may be designed with an appropriate level of precision to respond to the RMMs: Predict aggregate depreciation expense using the average fixed asset balance held throughout the year and the average useful life	A less precise trend analysis SAP performed over the aggregate balance may be designed with a sufficient level of precision to respond to the RMMs when combined with the evidence obtained through our control testing: Predict consolidated depreciation expense using the average

	for all categories. Given the lower level of precision of this SAP, we judgmentally determine the acceptable difference to be 75% of PM.	depreciation expense incurred over the past three years. We have used three years because the entity had significant fixed asset activity four years ago that results in that year not being sufficiently comparable to use to predict expense in the current year. Given the lower level of precision of this SAP, we judgmentally determine the acceptable difference to be PM.

Are there any exceptions to the rule that a SAP is more precise with a higher CAR?

We are only able to design a SAP that is as precise as the nature of the amount being tested allows. There may be circumstances where we are able to identify a relationship that is plausible and sufficiently predictable to predict a balance that has a higher CAR assessment but with less precision given the higher risk balance is inherently less predictable.

How do tests of detail impact our evaluation of whether the expectation is sufficiently precise when designing a SAP?

We may consider whether SAPs are the only substantive procedures planned to address a particular risk of material misstatement (RMM) or whether the RMM will be addressed through a combination of SAPs and tests of details. A less precise expectation may be appropriate when evidence obtained from performing the SAP will be combined with audit evidence from performing tests of details. We use a more precise expectation, however, when the substantive analytical procedure is the only procedure planned to address a particular RMM.

For example, if we have an RMM with a CAR level of EN for which our audit response includes a combination of a SAP and test of details, we take into consideration the audit evidence provided by the test of details when determining the level of assurance expected from the SAP. In this instance, the level of assurance expected from the SAP would likely be lower than if the SAP

were to be the only substantive response to the same RMM, and therefore the expectation may be less precise and we may determine a higher acceptable difference is appropriate.

What other specific matters do we consider when evaluating whether the expectation can be developed sufficiently precisely?

We consider each of the following when evaluating whether we can develop a sufficiently precise expectation:

Matter	Example
Nature of the account or assertion	SAPs are generally more precise when performed over accounts with homogeneous transactions that tend to be predictable over time, for example, depreciation expense.
The accuracy with which the expected results of substantive analytical procedures can be predicted	We may expect greater consistency in comparing gross profit margins from one period to another than in comparing discretionary expenses, such as research or advertising.
The degree to which information can be disaggregated	SAPs may be more effective when applied to financial information on individual sections of an operation or to financial statements of components of a diversified entity, than when applied to the financial statements of the entity as a whole.
Availability of the information, both financial and non-financial	We may consider whether financial information, such as budgets or forecasts, and non-financial information, such as the number of units produced or sold, is available to design SAPs. If the information is available, we also consider the relevance and reliability of the information by performing the activity 'Evaluate the data used.'

How does disaggregating a SAP impact precision? [ISA | 3872.1600]

Expectations developed at a disaggregated level generally have a greater chance of detecting a material misstatement than do broad comparisons (i.e., at the account balance level).

For example, a SAP designed to test RMMs relating to the CEA of salary expense, which disaggregates the salary expense account balance by employee category (for example, executives, senior managers, managers, and staff) and applies an appropriate market-based salary rate to the headcount of each employee category, will generally have a higher level of precision than a SAP that is based on a blended market-based salary rate and total headcount for all employee categories combined.

How do we determine at which level to disaggregate a SAP?

Our level of disaggregation is often consistent with the way management reviews and manages its business and/or the way the business is organized. Where management operates the business as a single unit, as is often the case in smaller entities, it may be appropriate for us to develop expectations at the account balance level. Conversely, in larger, more complex entities, management may evaluate results on a product line or business unit basis, and it may similarly be appropriate for us to develop expectations at the product line or business unit level instead of the account balance level.

The level of disaggregation that is appropriate may also be influenced by the nature, size, and complexity of the account. Disaggregation is also used to remove transactions that impair predictability from the account balance, and if material, such transactions are tested separately from the predictable transactions that are tested by the SAP. Generally, the risk that a material misstatement could be obscured by offsetting factors increases as an account balance becomes more complex. The more complex the nature of the account balance (e.g., a revenue account with multiple revenue streams), the greater the demand for disaggregation to develop an expectation that is sufficiently precise.

Examples

What is an example of a SAP that has a low degree of precision? [ISA | 3872.1700]

Fact pattern

A company that provides consulting services enters into individually negotiated contracts with its customers. Under each contract the entity agrees to provide consulting services and in return the company receives a fee. The fee is based on the number of hours provided at the contract rate per hour for the level of consultant that provides the hours. The engagement team, using a predictive analysis SAP to test RMMs relating to the CEA of revenue, may develop an expectation of total revenue in the current year by:

- calculating average revenue per contract in the prior financial year;
- adjusting the prior year average revenue per contract for known factors, such as price increases; and
- multiplying this resulting average revenue per contract by the total number of contracts in the current year.

Analysis

In this illustration, the predictive analysis SAP design contains a low degree of precision and may not provide sufficient appropriate audit evidence because the amount of revenue per contract is highly variable and therefore average revenue per contract is not predictable or stable enough to be relevant

for a sufficiently precise SAP. It may be possible to increase the precision of the SAP if, for example, revenue could be disaggregated by type of contract.

2.4 Determine the acceptable difference [ISA | 3873]

What do we do?

Determine the amount of difference from the expectation that can be accepted without further investigation, including for disaggregated portions, considering performance materiality.

Why do we do this?

The acceptable difference represents the amount between our expectation and the amount being tested that we can accept without performing any additional procedures. The acceptable difference is directly related to the precision of the procedure. The more precise the procedure, the smaller the acceptable difference will be. As the precision of the procedure is the primary indicator of the amount of evidence we gain from the procedure and the acceptable difference is how we quantify the precision, it is the measure we use to determine the amount of evidence we get from our procedure.

Execute the Audit

What is the acceptable difference in a SAP? [ISA | 3873.1300]

The acceptable difference is the amount of any difference of recorded amounts from expected values that is acceptable without further investigation.

What is the acceptable difference when our expectation is developed as a point estimate? [ISA | 3873.12838]

When we develop our expectation as a point estimate, the acceptable difference may be expressed as maximum amounts above and below the point estimate that would be acceptable without further investigation.

What is the acceptable difference when our expectation is developed as a range rather than a point estimate? [ISA | 3873.12840]

When we develop our expectation as a range of expected values instead of a point estimate, any amount within that range may be acceptable without further investigation and the range of expected values is referred to as the "acceptable range".

Is the term 'acceptable range' synonymous with 'acceptable difference'? [ISA | 3873.12841]

No. In order to evaluate the extent of evidence provided by a SAP that uses an acceptable range, we may divide the numerical value of the acceptable range by 2 to determine an amount equivalent to the acceptable difference.

> For example, if the acceptable range is between $1,300 and $1,600, the numerical value of the range is $300. This is equivalent to an acceptable difference of $150.

How do we determine the amount of evidence provided by the SAP? [ISA | 3873.1500]

The amount of evidence the SAP gives us is determined by considering the acceptable difference or acceptable range compared to performance materiality (PM) or sub-population materiality (SPM), if applicable (see activity, "Determine SPM if applicable " for more information).

If the acceptable difference is more than PM / SPM or the acceptable range is more than 2 times PM / SPM, the analytical procedure provides less substantive audit evidence.

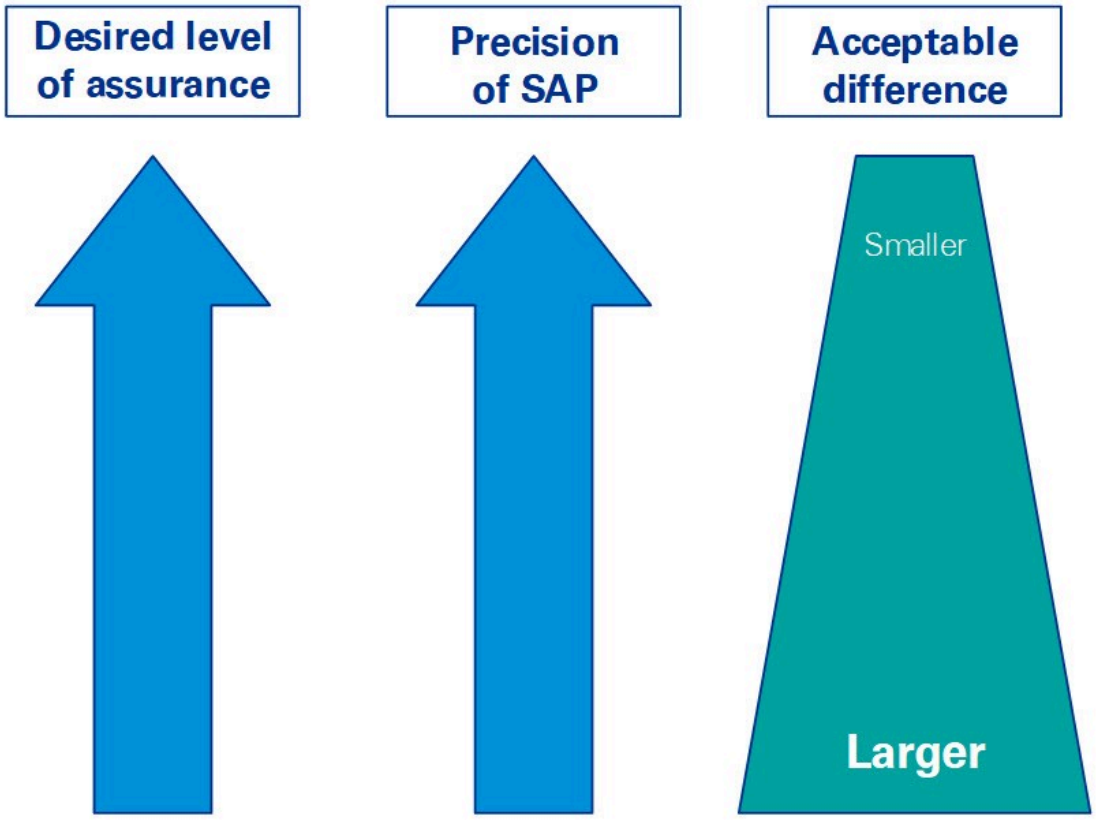
So, while the acceptable difference is driven by the design of our SAP, if we determine that the acceptable difference is not consistent with the amount of evidence we expect from the SAP, we redesign the SAP so it is more precise.

How do we determine the acceptable difference for a SAP? [ISA | 3873.1600]

The determination of the acceptable difference is influenced by PM / SPM and the desired level of assurance as depicted in the image below.

Generally, the acceptable difference is a function of the precision of the procedure, and we exercise professional judgment to determine the acceptable difference.

The more precise the procedure is designed to be (for instance in response to more persuasive evidence being expected), the closer our expectation will be to the amount the entity is anticipated to have recorded, and the narrower our acceptable difference is anticipated to be.



Can we default to using PM as the acceptable difference when designing SAPs? [ISA | 3873.12842]

No. When designing a SAP to achieve a high level of precision, we set the acceptable difference at an amount less than PM / SPM that is commensurate with the expected level of precision. In a situation in which we expect the precision of our SAP to be high (and we expect that any difference will be

much less than PM / SPM), setting the acceptable difference at an amount equal to performance materiality may fail to detect misstatements. If we do not appropriately set the acceptable difference, we may discard evidence of a non-trivial misstatements that is considered in combination with other misstatements identified in the audit or fail to detect misstatements that are indicators of more significant issues.

For example, assume that we plan to use current year cash receipts (adjusted for non-revenue related cash receipts and for the effect of prior and current year-end accruals) to predict current year revenue. We expect the SAP to be highly precise based on its design and anticipate the precision of the expectation to be $100,000. Performance materiality is $1,000,000.

If the acceptable difference was set at an amount equal to PM, (i.e., $1,000,000), it would be inconsistent with the nature of the relationship between the current year adjusted cash receipts used to design the SAP and current year revenue and, therefore, may fail to detect a misstatement. If a misstatement of $400,000 existed in the account, and we set the precision at $100,000 our SAP would have identified this misstatement.

Can we set the acceptable difference for a SAP at an amount greater than PM / SPM? [ISA | 3873.12843]

If certain criteria are met, it's possible to have an acceptable difference greater than PM / SPM for a SAP used to respond to RMMs related to an income statement account or for a SAP used to roll-forward interim conclusions.

Generally when performing SAP to test balance sheet assertions, we design each SAP so that its precision results in an acceptable difference of not more than PM.

When is it allowable to have an acceptable difference greater than PM / SPM when designing a SAP in response to RMMs related to an income statement account? [ISA | 3873.12844]

The following criteria are to be met to set an acceptable difference higher than PM / SPM when designing and performing a SAP to respond to RMMs related to an income statement account:

- the inherent risk for the relevant RMMs addressed by the substantive analytical procedure has been assessed as Base or Elevated; and
- evidence obtained by performing the substantive analytical procedure is not the only substantive audit evidence obtained for that RMM (including audit evidence obtained for other related RMMs which also provides audit evidence for that RMM).

When is it allowable to have an acceptable difference greater than PM / SPM when designing a SAP to roll-forward interim conclusions? [ISA | 3873.12845]

If we performed substantive procedures (including tests of details or SAPs) at an interim date, the acceptable difference of a SAP applied to the remaining period to respond to RMMs related to an income statement account or significant components of balance sheet roll-forward activity may be greater than PM / SPM only if all of the following criteria are met:

- based on our testing of the controls related to that RMM, we assessed control risk for that RMM as Controls Reliance; and
- the assessed inherent risk for the relevant RMMs is Base or Elevated;

Is the acceptable difference in a SAP always expressed as a monetary amount? [ISA | 3873.1800]

No. The acceptable difference may be expressed as a monetary amount, as a percentage or as a non-monetary amount.

> For example, we may perform a SAP for the ratio of receivables days and determine our expectation to be that receivables days will be 45 days. The acceptable difference may be expressed as a number of days, at ±5 days from our expectation.

How do we determine the amount of evidence for SAPs over an account balance expressed in non-monetary amounts? [ISA | 3873.12846]

When the acceptable difference is expressed as a non-monetary amount (such as in a ratio analysis), we convert the non-monetary amount to a monetary amount, in order to evaluate the extent of evidence provided by the procedure.

> For example, when using a SAP based on days revenue in accounts receivable, an acceptable difference of ±5 days is converted to a monetary amount. Where revenue is constant, one receivables day is determined to have an effect of $40,000 on the expected amount of the receivable and so the ±5 days acceptable difference is equivalent to a monetary acceptable difference of ± $200,000.

How do we determine the acceptable difference for SAPs on nonfinancial data? [ISA | 3873.12848]

When we perform a SAP on non-financial data or for other purposes (i.e. evaluating reliability of data to be used in another procedure) we do not convert our acceptable difference to a monetary amount. In these circumstances, we carefully consider what an appropriate acceptable difference is using professional judgment.

How do we determine the acceptable difference for a SAP when we disaggregate? [ISA | 3873.1900]

When we perform a SAP for disaggregated account balances, we determine an acceptable difference for each disaggregated portion.

How do we determine the acceptable difference for each disaggregated portion? [ISA | 3873.12849]

The acceptable differences for each disaggregated portion are determined separately considering performance materiality and the precision of the expectation for each portion, consistent with the method used to determine the acceptable difference for a SAP that is not disaggregated.

Is the acceptable difference for each disaggregated portion of a SAP always the same? [ISA | 3873.12850]

Each portion's acceptable difference is not necessarily the same. The methods and factors used to develop the expectations may vary among two or more portions comprising an account balance. While the acceptable difference is not the same for each portion, we may consider similarities in the portions or the way we plan to develop our estimates for each of them to think about whether it makes sense for them to be consistent. If the estimation technique is consistent for two portions, then the acceptable differences may be consistent.

For example, if we disaggregate by region and use the same model to set the expectation in each region, then the acceptable difference for each region may be similar in relation to the percentage of expectation.

How do we determine the amount of evidence provided by a disaggregated SAP? [ISA | 3873.2000]

We perform the activity 'Assess the level of audit evidence provided by a disaggregated SAP .'

2.4.1 Assess the level of audit evidence provided by a disaggregated SAP [ISA | 3874]

What do we do?

IF we perform a disaggregated substantive analytical procedure THEN assess what level of audit evidence will be provided after setting the acceptable difference for each disaggregated portion.

Why do we do this?

When performing a disaggregated substantive analytical procedure (SAP), we compare the amounts being tested to the individual portion's expectation. This gives us evidence over that individual component of an account balance. In order to conclude whether the disaggregated SAPs provide an appropriate level of audit evidence over the account balance as a whole, we assess the level of audit evidence to be provided by the SAPs in the aggregate in the context of materiality.

Execute the Audit

How do we assess the level of audit evidence provided by a disaggregated SAP? [ISA | 3874.1300]

In order to evaluate the evidence that a disaggregated SAP provides, we determine the acceptable difference at the account balance level after having determined the acceptable difference for each disaggregated portion. The acceptable difference at the account balance level is compared to performance materiality to determine if an adequate level of audit evidence may be obtained by the planned procedure.

How do we determine the acceptable difference at the account balance level for a disaggregated SAP? [ISA | 3874.12873]

To determine the acceptable difference at the account balance level for a disaggregated SAP, we divide the sum of the acceptable differences for the disaggregated portions by the appropriate factor in the following table:

Factors for Deriving the Acceptable Difference at the Account Balance Level

Number of portions	Factor	Number of portions	Factor	Number of portions	Factor
2	1.5	9 - 10	4.5	32 - 44	8.0

3	2.5	11 - 17	5.5	45 - 56	9.0
4	3.5	18 - 20	6.0	57 - 69	9.5
5 - 8	4.0	21 - 31	7.0	70	10.0

Once we have calculated the acceptable difference at the account balance level, we compare it to the largest acceptable difference of the disaggregated portions, and then raise the calculated acceptable difference at the account balance level, if necessary, such that the acceptable difference at the account balance level is greater than the largest acceptable difference for the disaggregated portions.

For example, in a disaggregated SAP with five portions with acceptable differences of 60, 10, 10, 10, 10, we calculate the acceptable difference at the account balance level as ~25 (100/4). However, because this is less than the acceptable difference for the largest portion, we set the acceptable difference at the account balance level at an amount greater than 60 using professional judgment, say 61

Consistent with a SAP that is not disaggregated, the acceptable difference at the account balance level may not be more than performance materiality as discussed in activity 'Determine the acceptable difference'.

How do we determine the acceptable difference at the account balance level when we develop an expectation for each portion as an expected range instead of a point estimate when designing a disaggregated SAP? [ISA | 3874.12876]

When we develop an expectation for each portion as an expected range, we determine the acceptable range at the account balance level by identifying the difference between the upper and lower limits of the range for each portion, aggregating these amounts and then dividing the total by the relevant factor shown in the table above. We are then able to compare the acceptable difference at the account balance level to 2 times PM to determine the amount of audit evidence to be provided by the procedure.

What if the acceptable difference at the account balance level is unacceptably high when performing a disaggregated SAP? [ISA | 3874.1400]

We may reassess the precision at which we are setting our expectations for the individual portions if we find the acceptable difference at the account balance level is unacceptably high because it is either greater than PM, or is not consistent with the level of assurance desired from the procedure. The determination of acceptable differences for the individual portions and the acceptable difference at the account balance level may be an iterative process.

After each iteration of determining the acceptable differences for the individual portions, we may recalculate the acceptable difference at the account balance level and determine if the redesigned procedure will be able to provide us with a sufficient level of audit evidence

Examples

What is an example of determining the acceptable difference at the account balance level for a disaggregated SAP? [ISA | 3874.1500]

Fact pattern

An engagement team is responding to RMMs relating to the CEA of COGS for an entity that manufactures and sells 5 models of tennis racquets (product lines). The cost to manufacture each product line and the mix of models sold each year varies significantly. Therefore, the engagement team concluded they will design a SAP disaggregated by product line to achieve an adequate level of precision. Performance materiality for this audit has been set at $20. The engagement team developed an expectation for the COGS balance for each disaggregated portion using relevant input specific to each product line including : (1) current year revenue , (2) prior year gross margin percentages, and (3) current year external information including peer group gross margin trends, product mix and commodity pricing data.

Product Line	COGS Expectation	Acceptable Difference (+/-)
A	$800	$12
B	$700	$10.5
C	$600	$9
D	$300	$6
E	$600	$11.5

The SAP model and inputs used to develop the expectation for each product line are reflective of the characteristics of each product line. The acceptable difference determined for each product line reflects the precision of each individual expectation and varies among the portions.

Analysis

Having determined the acceptable differences for each of the five product lines, the engagement team now determines the acceptable difference at the account balance level in order to assess the level of audit evidence that will be provided over the COGS account balance from the disaggregated SAPs. The engagement team adds the acceptable differences for the five individual portions and divides the total by the appropriate factor within the table of Factors for Deriving the Acceptable Difference at the Account Balance Level included above:

Sum the individual acceptable differences: 12 + 10.5 + 9 + 6 + 11.5 = 49

Divide by factor for five portions: 49 / 4 = 12.25

None of the acceptable differences for a portion are greater than 12.25, as such we do not increase it.

The engagement team has determined that the level of precision is sufficient to detect a potential error that exceeds performance materiality. As 12.25 is less than performance materiality of 20, the disaggregated SAP provides sufficient and appropriate audit evidence for COGS.

What is an example of determining the acceptable range at the account balance level for a disaggregated SAP? [ISA | 3874.1600]

Fact Pattern

An engagement team plans to perform a disaggregated predictive analysis SAP over the operating lease expenses for their client's three office buildings. PM is $3,000. The team develops an expectation for each of the three portions using an expected range as follows:

Office Building	Acceptable Range
Office A	$90,000 - $92,000
Office B	$80,000 - $84,000
Office C	$20,000 - $24,000

Analysis

The engagement team evaluates the extent of evidence that this SAP will provide by determining an acceptable range at the account balance level. The team first calculates the amount of the difference between the upper and lower ends of the acceptable range for each portion, as follows:

- Office A for which the acceptable range is between $90,000 and $92,000 = $2,000
- Office B for which the acceptable range is between $80,000 and $84,000 = $4,000
- Office C for which the acceptable range is between $20,000 and $24,000 = $4,000

Then the team divides the sum of these amounts ($10,000) by a factor of 2.5 (the factor for 3 portions per the table of Factors for Deriving the Acceptable Difference at the Account Balance Level included above) to give an acceptable range at the account balance level of $4,000. The team considers $4,000 to be consistent with the expected level of audit evidence from the SAP. As this is below two times PM (2 * $3,000 = $6,000), the disaggregated SAP provides sufficient and appropriate audit evidence over operating lease expenses.

2.4.2 Determine SPM if applicable [ISA | 4160]

What do we do?

IF performance materiality is not used as the tolerable misstatement THEN determine sub-population performance materiality.

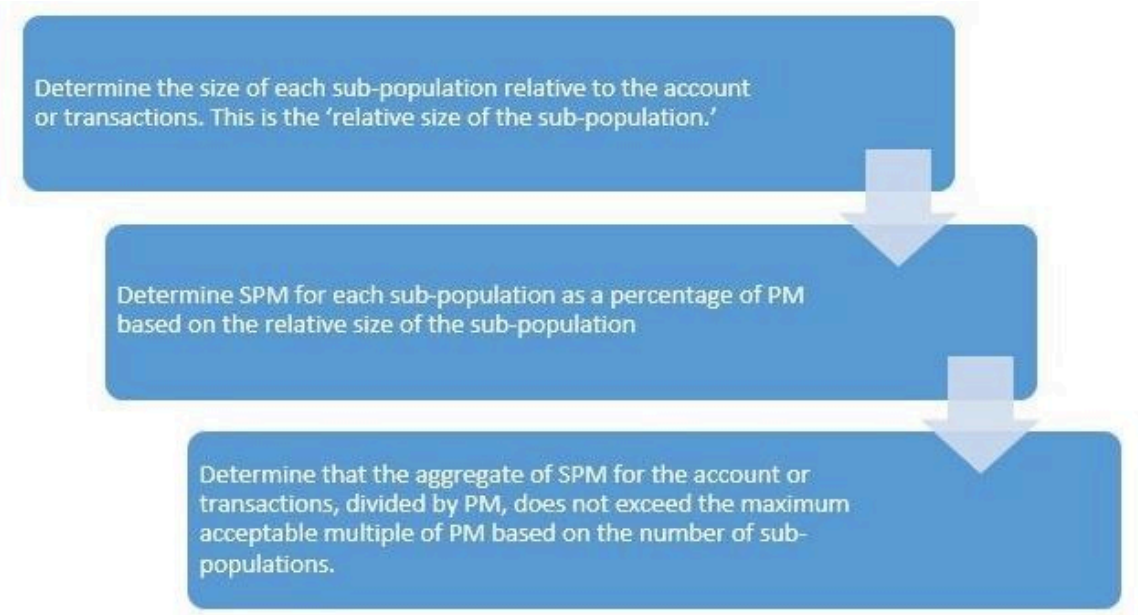
Why do we do this?

When we are testing a portion of an account or transaction class, it allows for the possibility that misstatements arising in other portions of that account or transaction class, individually or in combination with other misstatements, cause the financial statements to be materially misstated. Sub-population performance materiality helps to address this risk.

Execute the Audit

How do we determine SPM? [ISA | 4160.1400]

We determine SPM as a percentage of PM for each sub-population in the following steps:



How do we determine SPM for each sub-population as a percentage of PM based on the relative size of the sub-population? [ISA | 4160.10803]

We determine SPM for each sub-population as a percentage of PM based on the relative size of the sub-population, as follows:

- We use the 'relative size of the sub-population' to select the 'sub-population size range.'
- We determine the 'applicable range of SPM as a percentage of PM' using the 'sub-population size range.'
- We determine the percentage to apply to PM based on the 'applicable range of SPM as a percentage of PM'
- We multiply the percentage by PM to determine SPM. The amount is expressed as a whole amount to two significant digits.

> For example, if we determine SPM as 344,627, we express SPM as 340,000 not 300,000 or 345,000. Similarly, if SPM is determined as 3,475,275, we express this as 3,500,000 million not 3,000,000 or 3,480,000 million.

What are the 'applicable ranges of SPM as a percentage of PM' for each 'sub-population size range'? [ISA | 4160.10805]

The following table sets out the applicable range of SPM as a percentage of PM for each sub-population size range:

Sub-population size range	Sub-population performance materiality as a percentage of performance materiality
<10%	<50%
10 - 25%	25% - 60%
26 - 50%	40% - 80%
51 - 85%	60% - 90%
> 85%	Pro rata plus or minus 5% and < 100%
For example, if the relative size of the sub-population is 87%, then the 'sub-population size range' that includes >85% applies. The 'applicable range of SPM as a percentage of PM' is 82% (87%-5%) to 92% (87% + 5%). As such, SPM is set at an amount between 82-92% of PM.	

How do we determine the amount of SPM as a percentage of PM within the applicable range to use? [ISA | 4160.10806]

The following table sets out the factors we think about and how those factors affect the amount of SPM as a percentage of PM we use:

Factor	Consideration
The relative size of the sub-population within the sub-population's size range.	The closer the relative size of the sub-population to the lower or upper end of the range, the closer the percentage of PM is to the lower or upper end of the corresponding range, respectively.
The size of the untested sub-population(s)	The larger the size of the untested population(s) the lower in the range the percentage of PM will be

Can we determine SPM as a percentage of PM outside of the applicable range? [ISA | 4160.10807]

We do not exceed the upper end of the applicable range of SPM as a percentage of PM. We may go below the low end of the corresponding range of SPM when there is a combination of a sub-population

with a relative size at the low end of the sub-population size range and specific factors that indicate establishing SPM at the lowest end of the range.

How do we determine that the aggregate of SPM is acceptable? [ISA | 4160.1500]

We determine that the aggregate of SPM is acceptable by performing the following 5 steps:

(1) Calculate the aggregate of SPMs for the account or transactions (i.e. add together the SPM amounts for each sub-populations).
(2) Divide the aggregate of SPM by PM to calculate the actual multiple of PM.
(3) Compare the actual multiple of PM with the maximum multiple of PM based on the number of sub-populations, in the 'Maximum PM Multiple table'.
(4) If the actual multiple of PM does not exceed the maximum multiple, then the aggregate of SPM is acceptable.
(5) If the actual multiple of PM exceeds the maximum multiple, we evaluate whether SPM for certain sub-populations has been set too high and where we determine it has been set too high, we reduce it accordingly so that the maximum multiple is not exceeded.

> For example, we have 8 sub-populations making up one account. We plan to perform a substantive sample on 4 of these subpopulations, and the remaining 4 will be untested.
>
> The Maximum PM multiple is 3.5XPM (4 portions).

What is the 'Maximum PM Multiple table'? [ISA | 4160.10809]

The 'Maximum PM Multiple table' sets out the maximum multiple of PM based on the number of sub-populations:

No. of sub-populations	Max. PM multiple
2	1.5
3	2.5
4	3.5
5 - 8	4.0
9 - 10	4.5

If on further consideration we feel that more than 9 sub-populations is appropriate see the activity 'Determine that the aggregate of component materiality is acceptable' for what an appropriate maximum PM multiple is.

Can the aggregate of SPMs for all sub-populations of an account or transactions exceed PM for the financial statements? [ISA | 4160.1600]

Yes, the aggregate of SPMs for all sub-populations of an account or transactions can exceed PM for the financial statements. SPM isn't an arithmetical portion of PM for the financial statements as a whole.

Examples

Do we use PM or SPM as the tolerable misstatement when sampling a set of transactions which form part of an account? [ISA | 4160.1700]

Fact Pattern

An engagement team is using substantive sampling to test RMMs related to existence and accuracy of PPE additions (the population).

Analysis

If the engagement team uses 100% of additions across asset classes as their population, then this is not considered a sub-population. The entire additions listing represents a set of transactions that constitute a population and therefore they use PM for the tolerable misstatement.

If the engagement team intends to run separate samples for additions by asset class, then the additions by asset class are separate sub-populations. Therefore, they use a separate SPM for each sub-population and evaluate them separately.

How do we determine the tolerable misstatement? [ISA | 4160.1800]

Fact pattern

The engagement team are testing fixed asset additions by asset class. PM for the engagement is 1,000,000 CU. The asset classes within fixed asset additions and the relative size of each sub-population is:

- Software (60%)
- Fixtures and Fittings (35%)
- Leasehold Improvements (5%). The engagement does not intend to perform any testing over this asset class.

Analysis

As the engagement team is testing 2 different sub-populations, they calculate SPM as the tolerable misstatement for each subpopulation separately.

(1) They determine the size of each sub-population relative to the account or transactions;
(2) They determine SPM for each population as a percentage of PM based on the relative size of the sub-population;

Asset Class and relative size of each sub-population	Sub-population size range	Applicable range of SPM as a % of PM	SPM % for the sub-population	Calculated SPM

Software (60%)	51 - 85%	60 - 90	70%	700,000 CU
Fixtures and Fittings (35%)	>26 - 50%	40 - 80	55%	550,000 CU

(1) They determine that the aggregate of SPM for the balance or transactions, divided by PM, does not exceed the maximum multiple of PM based on the number of sub-populations.
- Aggregate SPM = 1,250,000 CU
- Number of sub-populations = 2
- Actual multiple of PM = 1,250,000 / 1,000,000 = 1.250
- Maximum multiple of PM = 1.5

As the actual multiple of PM is less than maximum multiple of PM, the aggregate of SPM is acceptable.

2.5 Evaluate the data used [ISA | 3875]

What do we do?

Evaluate the reliability of the data used to develop our expectation for the substantive analytical procedure.

Why do we do this?

When performing a substantive analytical procedure (SAP), we develop our own expectation of what the correct balance should be. Using data that is enables our expectation to be an appropriate indication of what the tested balance should be.

Execute the Audit

What does 'reliability' of data mean relating to SAPs? [ISA | 3875.1300]

Data is reliable for use in the development of our SAP when it is relevant to the SAP and is accurate and complete. While this sounds simple, there are many considerations applicable to concluding that the data is reliable when designing our SAP. Based on audit risk and evidence obtained from other procedures, the level of evidence we may expect from a SAP may vary; however, the quality of those expectations depends on the reliability of the data we use to develop them.

What procedures do we perform to evaluate the reliability of the data used to develop our expectation for a SAP? [ISA | 3875.1400]

We:

- Consider the relevance of data;
- Consider the reliability of data
  - Consider the source of the data;
  - Test the accuracy and completeness of internally generated data;

- Perform certain procedures when using a dependent input; and
- Test certain data when performing a cash to revenue SAP.

Do we do anything different when evaluating data to be used in a disaggregated SAP? [ISA | 3875.1500]

When we develop expectations at a disaggregated level and use the same data and data source for each expectation, we may evaluate the relevance and reliability of that data, including the data elements important to the method of disaggregation, once for all the data, rather than separately for each disaggregated portion. If each portion uses different data, we treat each portion as an individual SAP, and evaluate the data following the guidance in this section.

2.5.1 Consider the relevance of data [ISA | 3876]

What do we do?

Consider the relevance of the data used in the substantive analytical procedure to develop our expectation, including its nature and comparability.

Why do we do this?

The first thing we do when evaluating whether data is reliable for use in our substantive analytical procedure (SAP) is consider the relevance of the data, which includes considering the nature and comparability of the data. We determine whether data is relevant because relevance of the data to the amount being tested is directly tied to the precision of the procedure.

Execute the Audit

What does it mean for the data used in our SAP to be 'relevant'? [ISA | 3876.1300]

Relevance relates to the logical connection with, or bearing upon, the purpose of the SAP and the risk of material misstatement (RMM) and assertion under consideration. We evaluate the nature of the internal and external input data to determine whether they are sufficiently comparable and therefore relevant to the expectation being developed for the assertions addressed by the SAP.

> For example, broad national industry data supporting increased sales volume obtained from a reputable external source may not be a relevant input to develop the unit sales expectation for an entity experiencing a decline in sales due to local market conditions. However, sales volume information obtained from a primary local competitor that operates in a similar industry may provide relevant input data to develop the expectation.

We don't use an input that is not sufficiently relevant to set the expectation in a SAP.

Are there varying degrees of relevance relating to the inputs to be used in the design of our SAP? [ISA | 3876.12862]

Yes. The more closely related the input is to the amount being tested, the higher the degree of precision of the SAP.

What might we think about when determining whether data is relevant to our SAP? [ISA | 3876.12863]

Type of data	Things to think about
Historical information	When inputs from a number of historical periods are used in the SAP, we think about the relevance of those specific periods. For example, if we have used the trailing 3 fiscal periods of financial information, why? Why not 2? Or 5?
Mix of inputs	For certain inputs obtained from sources such as competitors, peer groups or prior year entity information (e.g., average sales price, total units sold, average yield, etc.), we think about whether the mix of items included in the input is representative of the mix of items characteristic of the entity for the period covered by the SAP.
External Data	While external data (i.e., data obtained from independent sources outside the entity) is often considered to be more reliable than data from internal sources, there may be increased risk that such external information is not sufficiently relevant to meet the objectives the SAP. Factors we may think about that impact whether external data has sufficient relevance include the following: • Whether the relationship identified between the external data and the information we are testing is sufficiently predictable to provide the desired level of precision • Whether to make adjustments to the external data to account for entity specific considerations in order for it to be relevant. • Whether the period of time covered by the external data is aligned with the period covered by the SAP. • Whether information provided by the external source simply consists of entity specific information provided to that external source by the entity subject to the SAP.

Is there anything else we might consider when determining whether data is relevant for use in our SAP? [ISA | 3876.12867]

As with all other areas of the audit, we think about whether there is evidence that contradicts an assessment that inputs to a SAP may otherwise be relevant. When such contradictory evidence indicates a particular input is not relevant, we redesign our SAP.

In some instances determining that an input is not relevant may also provide contradictory evidence as to management's assertions relative to the account balance. If we identify information that is contradictory or inconsistent with our final conclusion regarding significant findings and issues, we include it in our audit documentation and document how we addressed the contradiction or inconsistency in the activity 'Document our resolution of information that is inconsistent with our conclusions.'

Examples

What is an example of determining whether data is relevant to the SAP? [ISA | 3876.1400]

Fact Pattern

An entity operates a world-wide hotel group. The entity operates one hotel in each of country X's four regions. Industry occupancy rates and average room rates are compiled by the Hotel Federation in Country X for each region. The engagement team is considering designing a predictive analysis SAP by:

- disaggregating total hotel room revenue into subpopulations for each region;
- developing an expectation of the recorded amounts of hotel revenue for each of these subpopulations by multiplying the applicable industry average room rate by the industry average occupancy rate and the entity's total number of available hotel rooms in the region.

Analysis

The engagement team considers the comparability of the industry average information and determines that the hotel group under audit operates in a niche sector of the industry and typically achieves significantly higher room rates than the industry average in Country X, although occupancy rates are similar. Therefore, the engagement team concluded that an expectation based on applicable industry average room rates is not sufficiently comparable and relevant to develop an expectation that is precise enough to provide the level of audit evidence expected from the SAP. That is, using the industry data could result in the development of an expectation that does not actually tell us anything about the amount being tested, because it is not an appropriate predictor of the amount being tested given its lack of relevance to the entity.

However, if the engagement team were to identify historical trends relating to the incremental premium in rate achieved by the hotel group when compared with industry room rate averages, it may determine that it has comparable and relevant information to perform a sufficiently precise SAP. For example, if the engagement team determined that over the previous four years the premium in rate realized was approximately 15% above the industry average, this information may be used as an additional data point to predict the current year hotel revenue. These adjustments would likely result in a more precise expectation with a lower acceptable difference that provides a higher level of audit evidence.

How might we redesign a SAP when encountering contradictory evidence regarding the relevance of data? [ISA | 3876.1500]

Fact Pattern

Consider an entity that manufactures and sells men's dress shirts to retail stores. The entity sells both casual and formal dress shirts. The engagement team designs a predictive analysis SAP by multiplying price by quantity to predict revenue and selects the following inputs:

- P x Q = expected sales
- P = PY average price, adjusted for CY national average percentage increase per external industry reports
- Q = quantity sold per internal report, appropriately evaluated for reliability

P	$16.50
Q	100

Expected amount (PxQ)	$1,650
Recorded amount	$1,680
Difference O/(U) expectation	$30
Acceptable difference	$100

The engagement team initially believed they had designed an effective SAP because the difference between their estimate of the correct amount and recorded amount was within acceptable difference (i.e., $30 < $100). However, after discussions with management and reading drafts of the entity's annual report, which the engagement team failed to do during SAP design, they discovered there was a significant increase in formal wear shirt sales and a reduction in casual wear shirt sales from the prior year. As a result, the broad internal and external inputs used in the SAP did not reflect current year trends and sales mix changes at the entity. Therefore, this SAP was not designed at an adequate level of precision to detect a potential material error.

Analysis

Based on the above facts, the engagement team redesigned its SAP by disaggregating the inputs to improve relevance. This was done by obtaining and assessing the reliability of prior and current year sales data for the two different shirt styles, and developing expectations at a disaggregated level for the casual and formal streams.

The re-designed SAP using more relevant inputs disaggregated by product type was performed as follows:

- P x Q = expected sales
- P = PY average price disaggregated by product type, adjusted for CY national average percentage increase per external industry reports by product type
- Q = quantity sold disaggregated by product type per internal report, appropriately evaluated for reliability

	Casual	Formal
P	$12	$22
Q	61	39
Expected amount (PxQ)	$732	$858
Recorded amount	$720	$960

Difference O/(U) expectation	$(12)	$102
Acceptable difference	$50	$60

The increased precision of the redesigned SAP led the engagement team to identify a difference in excess of the acceptable difference, ($102 > $60), for formal shirts portion that would not have been identified under the initially designed, aggregated SAP.

2.5.2 Consider the source of the data [ISA | 3877]

What do we do?

Consider the source of the data used to develop our expectation for the substantive analytical procedure.

Why do we do this?

Considering the source of the data to be used in a substantive analytical procedure (SAP) helps us determine whether the amount being tested is independent from, or dependent on, the data we plan to use. Understanding the source of the data and the conditions under which it was gathered also drives the kind of procedures to perform over the data in order to determine whether or not it is reliable for use in the SAP.

Execute the Audit

How do we consider the source of the data used to develop our expectation for the SAP? [ISA | 3877.1300]

We evaluate the reliability of the data by considering the source of the data and the conditions under which it was gathered. Information may be available from sources external to the organization (external information) or generated internally by the organization we are auditing.

How do we determine whether data used in developing our expectation for the SAP is independent or dependent? [ISA | 3877.12906]

Information used in the SAP	Related guidance
Independent data - external or internal	Data is independent when it is not used by the entity to derive the financial statement amount being tested. For example, prior period data is ordinarily independent of the data that is used to derive the current period financial statement amount. Data maintained by the production department on machine hours ordinarily is independent of costs of products sold in the financial statement accounts.

Dependent data - generally internal	Data is dependent when it is used by the entity to derive the financial statement amount being tested. For example, quantities of items sold is dependent data when it is the same data that is used in the revenue system, and, when multiplied by prices for those specific quantities, determines the amount of revenue recorded for the period.

It is not appropriate to assume internal data is independent without understanding its source and its connection to the balance being tested, and evaluating information by testing it for completeness and accuracy does not make it independent data.

Can we automatically conclude information to be used to develop our expectation for the SAP is reliable or unreliable dependent on its source? [ISA | 3877.12910]

Information identified as independent does not necessarily mean that we can pronounce it to be reliable without evaluating the information appropriately. Likewise, information that is identified as dependent does not preclude it from being reliable. For example:

Example input	External/ Internal	Independent/ Dependent	Can the input be reliable?
Data from industry publication about average price of products	External	Independent	It depends. A well-known industry publication that provides information on the source of the information obtained may be reliable. However, information obtained from an obscure publication or from an unknown source may not be reliable in that it may be incomplete or contain bias.
Current year unit quantity report or employee headcount* information from the company's system	Internal	Dependent *: employee headcount information may be Independent/ Dependent depending on how it is maintained by the entity	Generally, yes, assuming we can test the reliability of system-generated information for completeness and accuracy.
Prior year unit quantity or headcount	Internal	Independent. Generally, prior year data is not	Generally, yes. We may have already tested the reliability of this information in the prior year. If we have not tested

information from the company's system		being used by the company to generate current year account balances.	reliability in a prior year, then we perform these tests prior to using the data in a current year SAP. If not adequately tested, the prior year data is not to be used as a reliable input in the current year SAP.

What do we think about when the data to be used in the SAP is sourced externally? [ISA | 3877.12916]

Information may be more reliable when it is obtained from independent sources outside the entity, but we still consider the source when determining whether the information is reliable. See activity 'Understand the source and nature of the information and the circumstances under which it is obtained' for more information).

What factors might we consider when determining the reliability of externally sourced data to be used in the SAP? [ISA | 3877.12917]

We assess the objectivity of the source (e.g., the independence of the publisher of the data from the intended users and the entity under audit), and the manner in which the information is developed. In some cases, we may not do any further investigation after determining that the source is reputable (e.g., CPI published by a governmental agency, industry data compiled by a reputable financial institution, etc.). In other cases we may gain a better understanding of the source of the information, for example, through internet searches or other research. See activity 'Determine the approach to evaluate the reliability of external information' for further information).

What sources of external information might we use when determining our expectation for the SAP? [ISA | 3877.12918]

Example sources of external information:

- Company pricing information obtained from third parties (catalogs, distributors)
- Competitor pricing information
- Industry and/or company analyst reports
- Government publications, competitor publications or trade journals
- Industry studies and reports (including information about total available market and market share)
- Commodity prices coupled with information about an entity's ability to pass through cost increases to customers
- Relevant macro-economic information (e.g., GDP growth/retraction)
- Published interest rates (T-bills, LIBOR, or company-specific rates)
- Customer/vendor press releases or announcements
- Shipping information obtained from third-party sources (third-party carrier)
- Expected annual auto sales
- In retail-related industries, information published by third-parties about period-over-period regional or same-store sales, sales by product or product categories, Nielsen ratings, etc.
- In the entertainment industry, information published by a third-party about weekly movie box office or album sales

- In the pharmaceutical industry, information published by third-parties about prescriptions filled by drug or therapeutic area

What do we think about when the data to be used in the SAP to determine our expectation is derived internally? [ISA | 3877.12924]

Generally, information derived internally is more relevant to the organization than external information; however, we exercise caution to appropriately identify whether the data is dependent and to avoid circular logic when using such information.

What sources of internal information might we use when determining our expectation for the SAP? [ISA | 3877.12925]

Example sources of internal information:

- Prior year price per unit information
- Published price lists
- Average of prices offered to customers in master supply arrangements
- Forecasts and budgets
- Board presentations
- Announcements/communications by management and board of directors about price changes
- Forecasted purchases in master supply agreements with vendors
- Information about production capacity
- Company press releases or web site information
- For a service organization, changes in headcount (full-time equivalents)
- Changes in costs of raw material identified through price testing of inventory
- New product releases or discontinuances from the R&D department
- Unit sales price increases from the sales department
- Number of stores in a retail organization
- Customer additions or attrition

What is circular logic? [ISA | 3877.12926]

Circular logic arises when an amount derived directly from the amount being tested is used to prove the value being tested, by reversing the derivation. Said another way, circular logic is when we use the amount being tested in some way to develop our expectation for that same amount. If A = B*C, and we develop an expectation for A by using an amount for C that is derived by calculating A/B, we have used circular logic.

A SAP that uses circular logic does not provide audit evidence.

For example, assume we are auditing the financial statements of a retail entity that operates several coffee shops. The entity's management team monitors revenue on the basis of sales per square foot. We plan to perform a SAP over RMMs relating to the CEA of revenue, which is designed as follows:

- Total square feet × sales per square foot = expected revenue; and
- Compare expected revenue to the actual recorded amount of revenue.

The data used in developing the expectation is derived from the following sources:

- Total square feet is taken from leases for the entity's coffee shops (tested and found to be reliable); and
- Sales per square foot is calculated by dividing the actual recorded amount of revenue by the total square feet.

We think twice about the design of this SAP. Because the data used to determine sales per square foot is derived from the current year actual account balance (revenue), the SAP contains circularity in its design and, therefore, provides little or no substantive audit evidence.

Alternatively, we could develop an expectation using prior year audited revenue divided by prior year square feet (audited and tested for reliability in prior year) and multiply that rate by current year square feet.

How is dependence of data different from using circular logic when developing our expectation for the SAP? [ISA | 3877.12927]

While circular logic arises from using the amount we are testing as an input to develop an expectation for that same amount, data is dependent when it the entity uses it to derive the financial statement amount we are testing.

When data inputs used to develop a SAP include information from the same source as the data used to determine the amount being tested, the SAP may contain an element of dependence. The persuasiveness of the audit evidence provided by the SAP is influenced by the degree of dependence in its design.

For example, when multiplying price by quantity to predict revenue, if both inputs are from the same data used to derive the account balance being tested, such as in the case when data inputs are derived from the company's ERP system, this procedure principally addresses the accumulation and processing of the data used to generate the account balance being tested (two dependent inputs), and generally does not provide sufficient substantive audit evidence. Conversely, a SAP that includes two independent inputs does not contain circularity or dependence and, depending on its design, may be highly precise and provide sufficient evidence.

Can we design an effective SAP with a dependent input? [ISA | 3877.12929]

Yes, we can design an effective SAP with one dependent input. However, to conclude that the design of the SAP is appropriate for our audit objective and that we have obtained sufficient audit evidence over the balance, we perform certain additional procedures (see activity 'Perform certain procedures when using a dependent input' for additional information). We cannot design an effective SAP with more than one dependent input.

Can we take steps that allow us to treat a dependent input as independent? [ISA | 3877.12930]

Yes. We may perform substantive audit procedures (either a test of details or SAP) to test the data inputs, which can allow us to treat dependent inputs as if they were independent and use those inputs in a SAP that provides persuasive audit evidence. This is because we have performed audit procedures over the otherwise dependent data using independent source information (e.g., signed shipping documentation for revenue quantities, or independent inputs when we have performed a SAP over the input) and establishing an audit base. If we are successful in establishing a sufficient audit base, the SAP we have designed no longer includes one dependent input.

Why can't we use substantive attribute sampling to establish an audit base over dependent data in order to treat it as independent? [ISA | 3877.12932]

When we refer to 'establishing an audit base,' we mean having the ability to reach a monetary conclusion about a population. We are not able to use substantive attribute sampling to establish an audit base because it is not able to provide a monetary conclusion about a population. Dependent data is by definition directly related to the monetary amount in the financial statements (i.e., it is an input into the calculation of the monetary amount). In order for us to establish an audit base for such data, we perform substantive audit procedures (either a test of details or SAP) on the account balance to test the data. In many circumstances, we will use MUS to select a sample to perform our testing over (i.e. price and quantity for revenue) rather than using substantive attribute sampling.

See activity, 'Determine whether to use a KPMG substantive sampling technique, obtaining concurrence if relevant' for additional information about sampling techniques.

How does the nature of the inputs (i.e., dependent versus independent) impact the design of the SAP? [ISA | 3877.12937]

The following table summarizes the impact of the nature of the inputs on the design of out SAP.

Type of information used in the SAP	Related guidance
All data inputs used in the SAP are independent	If data inputs are all independent, we may perform the SAP, assess the adequacy of the evidence and conclude on the assertion(s) using the guidance in this chapter.
The SAP has one dependent input	A SAP designed with one dependent input provides less persuasive audit evidence than a SAP with only independent inputs. However, when the criteria are met, the audit evidence provided from a SAP designed with one dependent input, when combined with the audit evidence obtained from a substantive test of details (as discussed in activity, 'Perform a test of details') using the minimum sample sizes, may provide sufficient audit evidence. For example, in a predictive revenue SAP, quantity or price may be dependent, but not both.
More than one data input used in the SAP dependent	Multiplying price by quantity, when two or more inputs are dependent (and even if tested for reliability), principally addresses the accumulation and processing of the data used to generate the account balance being tested and does not provide substantive audit evidence to address even a lower risk audit objective.

	When this occurs, redesign the SAP to eliminate the circularity and/or perform other substantive audit procedures in accordance with the chapter on responding to risks of material misstatement (AS 2301, ISA 330, AU-C 330). Alternatively we may be able to treat a dependent variable as independent when we have substantively tested the CEA of that data as explained in the question, 'Can we take steps that allow us to treat a dependent input as independent?'

2.5.3 Test the accuracy and completeness of internally generated data [ISA | 3878]

What do we do?

IF data is internally generated THEN test the design and operating effectiveness of controls over the accuracy and completeness of the data to be used in the substantive analytical procedure OR perform other procedures to directly test the accuracy and completeness of the underlying data.

Why do we do this?

If the data we use to develop our expectation is not accurate and complete, our expectation may not be accurate and complete either. This could result in the substantive analytical procedure (SAP) providing evidence that is unreliable.

Execute the Audit

What procedures do we perform to test the accuracy and completeness of internally generated data to be used in the SAP? [ISA | 3878.1300]

We perform the activity,

- Design and perform procedures to directly test the accuracy and completeness of the internal information based on the determined risk; or
- Test management's controls over the accuracy and completeness of internal information.

As discussed in the referenced activity, we either test controls over the accuracy and completeness of the information or directly test the accuracy and completeness of the information.

When controls over the accuracy and completeness of the data are tested and found to be effective, we may have greater confidence in the reliability of the information and, therefore, in the results of the SAP. The operating effectiveness of controls over nonfinancial information may often be tested in conjunction with tests of controls over financial data.

> For example, in establishing controls over the processing of sales invoices, an entity may include controls over the recording of unit sales. In these circumstances, we may test the operating effectiveness of controls over the recording of unit sales in conjunction with tests of the operating effectiveness of controls over the recording of sales invoices.

Is directly testing the completeness and accuracy of information used in the audit the same as the test of details over the account balance when we perform a SAP with one dependent output? [ISA | 3878.1400]

The objective of the direct testing of the accuracy and completeness and of information used in the SAP is not the same as the objective of the test of details over the account balance when performing a SAP containing one dependent input that is discussed in the activity, 'Perform a test of details.' However, it may be effective to expand our procedures to meet both objectives with the same sample.

How can we expand procedures to meet the objectives of testing both information used in the audit and account balances containing one dependent input with the same sample? [ISA | 3878.12941]

We carefully design specific tests of details sufficient to meet both of the following objectives:

- The objectives related to the substantive testing of the account balance assertion subject to the SAP, and
- The objectives related to the accuracy of the internal data used in the SAP.

How might we test data such as budgets or forecasts to be used in a SAP? [ISA | 3878.1500]

When using budgets or forecasts in developing an expectation to be used in connection with a SAP, we may evaluate the reliability of the information by obtaining an understanding of the process used by management in producing these budgets or forecasts. In doing so, we may consider the:

- Completeness of management's analysis and its impact on our expectation;
- Extent that budgets or forecasts are put together as realistic expectations, as opposed to production targets or financial targets for senior management;
- Relationship of budgets and forecasts to historical results;
- Process used to develop the budgets and forecasts as being top-down or bottom-up; and
- Use of disaggregated data.

2.5.4 Perform certain procedures when using a dependent input [ISA | 3879]

What do we do?

IF designing a substantive analytical procedure with a dependent input THEN perform certain procedures.

Why do we do this?

When using a dependent input to perform a substantive analytical procedure (SAP), we are using data that is used by management to record the balance being tested. Because we are using data that is so closely related to the balance being tested, a SAP with a dependent input provides less audit evidence than if we used all independent inputs. Therefore, we perform additional procedures to determine that the audit evidence obtained is sufficient to conclude over the balance being tested.

Execute the Audit

What procedures do we perform when designing a SAP with a dependent input? [ISA | 3879.1300]

We perform the following procedures when designing a SAP with a dependent input:

- Determine that certain criteria are met, and
- Perform a test of details.

2.5.4.1 Determine that certain criteria are met [ISA | 3880]

What do we do?

Determine that certain criteria are met when designing a substantive analytical procedure with a dependent input.

Why do we do this?

Because we are using data that is so closely related to the balance we are testing, a substantive analytical procedure (SAP) with a dependent input provides less audit evidence than if we used all independent inputs. Therefore, we determine that the balance we are testing has a lower risk, so that the evidence obtained from the SAP is commensurate with the risk of the balance tested.

Execute the Audit

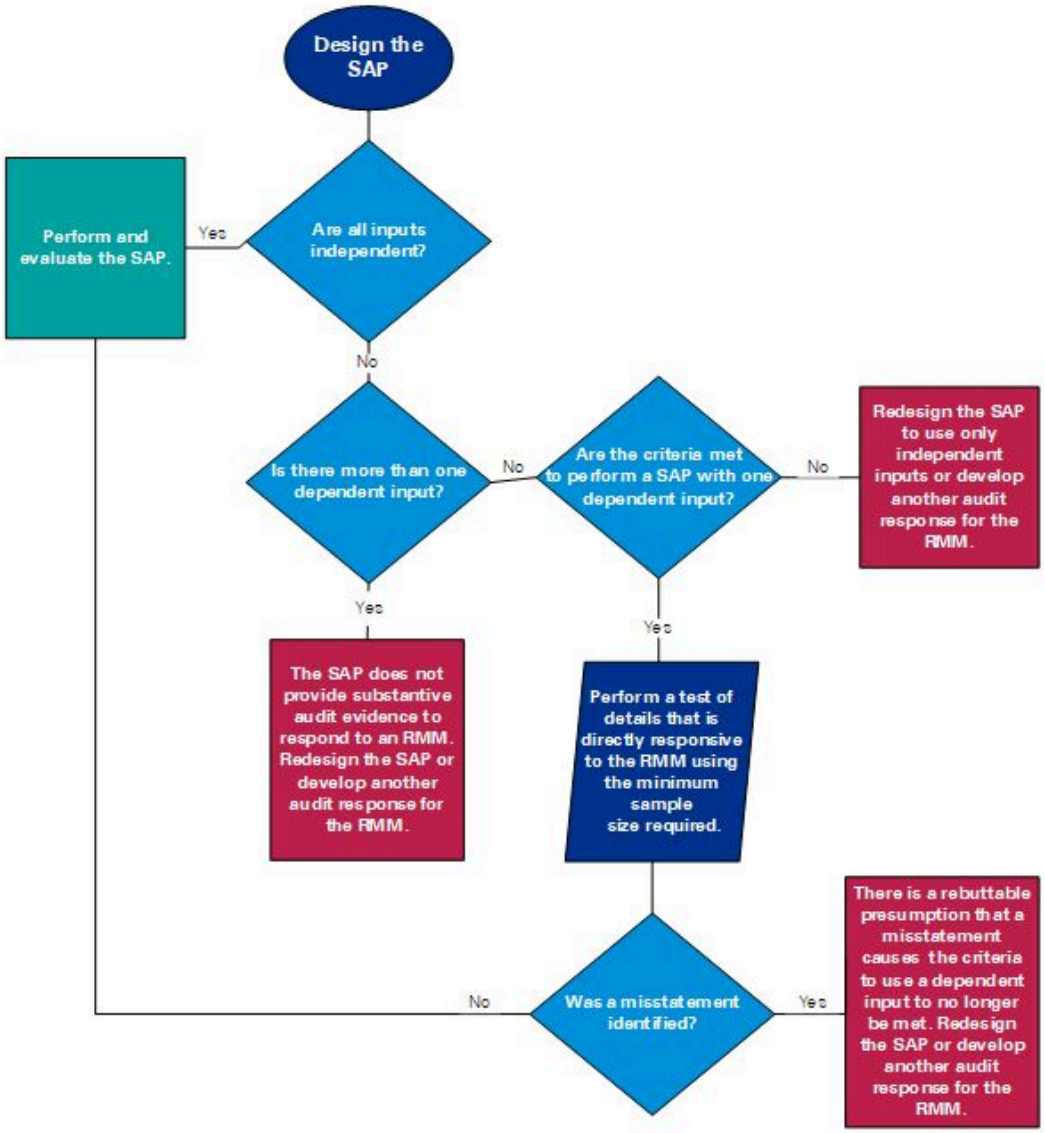
What criteria do we meet in order to perform a SAP with one dependent input? [ISA | 3880.1300]

When we plan to design a SAP with one dependent input all of the following criteria are met:

- the significant account balance is comprised of routine, non-complex transactions;
- the inherent risk for the relevant risk of material misstatements (RMMs) addressed by the SAP has been assessed as Base or Elevated; and
- When we are placing reliance on controls, the controls relating to the RMM(s) the SAP is designed to address have been tested and found to be operating effectively throughout the period covered by the SAP.

Can we perform a SAP using more than one dependent input? [ISA | 3880.1400]

No. The following decision tree provides an illustration of the process we follow in assessing whether our SAP design is appropriate in relation to the use of dependent inputs.



2.5.4.2 Perform a test of details [ISA | 3881]

What do we do?

Perform a test of details over the relevant account balance using the minimum sample sizes when performing a substantive analytical procedure with one dependent input.

Why do we do this?

Because we are using data that is so closely related to the balance we are testing, a substantive analytical procedure (SAP) with a dependent input provides less audit evidence than if we used all independent inputs. Therefore, we additionally perform a test of details over the balance using the prescribed sample size so that the cumulative audit evidence obtained is sufficient.

Execute the Audit

What do we think about when designing the test of details over the relevant account balance when we perform a SAP with one dependent input? [ISA | 3881.1300]

The tests of details we perform in conjunction with a SAP with one dependent input represent an additional substantive test designed to address the risks of material misstatement (RMMs) for the account balance we are testing. They are not the procedures we perform to evaluate the reliability of information.

> For example, if we perform a SAP with one dependent input that is addressing the RMMs related to the CEA assertions of revenue, we perform a tests of details by vouching a sample of sales transactions to the sales order, invoice, third-party shipping documentation, proof of delivery, and cash receipt. This provides substantive audit evidence over revenue. In contrast, we do not simply test the accuracy of the price for a sample of the data used in the SAP following our guidance over testing the accuracy and completeness of internally generated data.

Is it possible to combine the test of details with our testing over the reliability of the dependent input to the SAP? [ISA | 3881.12928]

Yes. We may decide to expand the objective of the substantive tests of details as described in this activity to test the reliability of the dependent input to the SAP. However, we carefully determine that the procedures performed are sufficient to meet both objectives (i.e., objectives related to substantive testing of the account balance and objectives related to the reliability of inputs). Additionally, we think about what the minimum sample size is for each test to determine whether we have tested a sufficient number of items to conclude on both objectives.

What are the minimum sample sizes for the test of details over the relevant account balance when we perform a SAP with one dependent input? [ISA | 3881.1400]

The sample size we test is dependent upon our inherent risk assessment of the RMM and whether or not we have tested the relevant controls and found them to be operating effectively. We determine the appropriate sample size for testing using the following table:

RMM inherent risk assessment	Controls tested and effective	Controls not tested for operating effectiveness or ineffective
Base	0	25
Elevated	25	40

How do we select items for the test of details over the relevant account balance when we perform a SAP with one dependent input? [ISA | 3881.12931]

In selecting items to substantively test the account balance or component, we ordinarily select items from throughout the period under audit if the balance is made up of accumulated transactions, and do not limit our selections of items to particular periods. These samples are selected randomly or haphazardly. Because the purpose of sampling is to provide a reasonable basis for us to draw conclusions about the population from which the sample is selected, we select a representative

sample without bias, by choosing sampling units which have characteristics typical of the population. For example, when we are testing the revenue for the full fiscal year, we may select samples from each month as it will represent the characteristics of the full fiscal year.

How do we select items for the test of details over the relevant account balance when we perform a disaggregated SAP with one dependent input? [ISA | 3881.12933]

The way the SAP is disaggregated has no effect on our selection of sample items. Our test of detail is designed to address the account balance we are testing, not specific portions of a disaggregated SAP.

What if we identify a misstatement when performing the test of details when we perform a SAP with one dependent input? [ISA | 3881.1500]

We evaluate misstatements identified in performing the tests of details when one data input is dependent as to their nature and impact on our risk assessments and effect on internal control over financial reporting by performing the activity, 'Evaluate whether uncorrected misstatements are material and the implications.' There is also a rebuttable presumption that the existence of misstatements causes us to no longer meet the criteria to design and perform a SAP with one dependent input.

When we identify a misstatement in connection with the performance of these tests of details, we may determine that the audit procedures performed, including the SAP, do not provide us with sufficient appropriate audit evidence to conclude on the RMMs without modifying the nature, timing and extent of our audit procedures.

In these situations, we may redesign our SAP so that it provides more persuasive audit evidence (e.g., a SAP based on all independent inputs with greater precision) and/or perform additional substantive tests of details.

2.5.5 Test certain data when performing a cash to revenue SAP [ISA | 3882]

What do we do?

IF we are performing a cash to revenue substantive analytical procedure, THEN perform procedures to consider the relevance and test the reliability of the cash receipts used to predict revenue.

Why do we do this?

A cash to revenue substantive analytical procedure (SAP) can provide excellent audit evidence relating to the revenue balance. However, the relevance and reliability of the data used to create our expectation (the cash totals) are critically important. Often times cash streams from revenue are commingled in bank accounts with many other types of transactions. We determine that the cash we are using to predict revenue is comprised only of cash directly related to revenue in order to achieve our audit objectives addressing RMMs related to revenue from this SAP.

Execute the Audit

What is a cash to revenue SAP? [ISA | 3882.1300]

A cash to revenue SAP uses cash received for revenue transactions, adjusted as appropriate for accrual basis activity recorded during the year, to predict the correct amount of accrual basis revenue. It is different than a 'proof of cash' which is a roll forward of each line item in a bank reconciliation from one accounting period to the next, incorporating all cash receipts and disbursements for the period. A 'proof of cash' is not an appropriate procedure to use to test RMMs relating to revenue.

When is it appropriate to perform a cash to revenue SAP? [ISA | 3882.1400]

When there is a close correlation between cash receipts and revenue a cash to revenue SAP may be effective. This relationship often exists with routine, non-complex revenue transactions such as retail sales that are readily converted to cash. On the other hand, a cash to revenue SAP often will not provide an appropriate level of audit evidence for more complex revenue transactions including those with less predictable deferred revenue considerations. For example, if deferred revenue converts to revenue in a systematic and timely manner, we may be able to identify and incorporate that trend into our SAP, in which case the correlation between cash receipts and revenue will be sufficiently close for us to perform a cash to revenue SAP.

We are less likely to perform a cash to revenue SAP when the entity's revenue contracts include:

- more than one performance obligation;
- any variable consideration; or
- performance obligations that will be satisfied over time rather than at a point in time.

Examples of transactions that are likely not appropriate for a cash to revenue SAP include the following:

- Bill and hold transactions;
- Contracts accounted for using percentage of completion accounting; or
- Amounts determined from complex processes or subjective judgments.

For example, consider an entity that receives cash from revenue transactions net of a 1% fee withheld by a credit card processor. We may be able to obtain sufficient evidence supporting the 1% fee and may conclude there is a sufficient correlation between cash receipts and revenue recognition. The 1% collection fee is an additional input in setting the expectation for the SAP.

Conversely, consider an entity that sells consigned goods and retains and records a net commission anywhere between 3% and 8% depending on the customer and product. In this case, we determine that there is not a sufficient correlation between cash receipts and recognized revenue given the variability in the commission to be collected depending on the terms of each contract.

We also avoid using a cash-to-revenue SAP in situations where the cash receipt is the input used to record revenue in the general ledger, which might be the case in a very simple retail environment. In such situations, revenue is not independent of cash receipts.

How do we consider the relevance and test the reliability of cash receipts when designing a cash to revenue SAP? [ISA | 3882.1500]

When designing a cash to revenue SAP, we test the reliability of the cash receipts used to develop our expectation of revenue by determining the accuracy, completeness and relevance of the cash receipts through performing the activity, 'Evaluate the relevance and reliability of information used as audit evidence.'

When performing a cash to revenue SAP, these procedures include obtaining specific evidence that the receipts are revenue related.

How do we evaluate the relevance of the cash receipts in a cash to revenue SAP? [ISA | 3882.1600]

The relevance of cash receipts to the prediction of revenue is something we evaluate first when determining whether it is appropriate to perform a cash to revenue SAP (see question 'When is it appropriate to perform a cash to revenue SAP?' for additional information). If cash receipts are not closely correlated with revenue, they are not relevant to the prediction of revenue and will not provide sufficient appropriate audit evidence.

In addition to evaluating whether cash receipts are closely related to revenue, we think about which of the entity's cash receipts (from which bank accounts, or which receipts within a bank account) we will use to predict revenue. We first identify the population of bank accounts and then consider the relevance of the individual cash receipts that exist within those accounts when designing our procedures over the reliability of the cash receipts.

How might we determine that we are using a complete population of bank accounts and whether the transactions are revenue related when designing a cash to revenue SAP? [ISA | 3882.12889]

Determining the complete population of bank accounts to use in the development of our expectation and whether the cash receipts within those accounts are related to revenue transactions or a mix of revenue and non-revenue transactions go hand in hand.

To help us in determining which cash streams are relevant for the purposes of our SAP, we may:

- Obtain an understanding of and examine the entity's cash flows, the treasury function, and arrangements with related parties, customers, vendors, banks and other third parties to identify potential sources and types of non-revenue related cash receipts. Examples may include income tax refunds, proceeds from the disposal of property or financing transactions, and intercompany cash transfers. This can be often be achieved by understanding the entity's processes (e.g., by performing a walkthrough). We may also use the account analysis capability (see activity 'Perform analytical procedures, including those related to revenue' for further information about the account analysis capability) to assist us in obtaining an understanding.
- Consider procedures performed over the entity's controls over cash receipts.
- Consider the entity's revenue recognition policies to identify situations where cash received may not be predictive of revenue tested via the SAP. Examples may include cash receipts from the sale of gift cards or cash received for sales taxes, when revenue is recorded net of sales tax.
- Consider whether it may be effective, and sometimes even necessary, to use data analysis techniques to extract the revenue related cash transactions from the bank statement data where the bank statement contains a mix of transactions.

During this process, we may identify:

- certain bank accounts that are not used for receiving cash receipts for revenue transactions (e.g., payroll), which we exclude from the expectation,

- certain accounts that are mixed use, which we separate out the revenue related transactions from non-revenue related transactions, and
- certain accounts that are comprised of solely revenue related transactions, which we include in our expectation.

How might we consider the relevance of the cash receipts that comprise the listing in designing our audit procedures? [ISA | 3882.12890]

Once we have determined which bank accounts are relevant for our procedures, we consider the relevance of the underlying cash receipts in designing our procedures to test the reliability of the data.

The extent of our consideration of the relevance of the cash receipts that comprise the receipts listing depends on the risk. For some bank accounts, it may be readily apparent from our understanding of the treasury function and examination of the bank statements that there are not revenue-related cash receipts in an excluded account or that an included account is only comprised of revenue-related cash.

For example, we have determined through our process walkthroughs, control testing and understanding of the entity's revenue recognition policies that the 3 bank accounts that we will use to develop our expectation of revenue include revenue related receipts in addition to non-revenue transaction related receipts. Furthermore, management has indicated that each receipt included within the schedule that is revenue related includes an 'R' at the beginning of the receipt identifier.

With this understanding, we designed procedures to test the reliability of the client prepared schedule using a direct testing approach as follows:

(1) Completeness: Agree the total of the deposits for each month and each bank account to the 3rd party bank statements to ascertain completeness of the schedule.
(2) Accuracy: Select an appropriate number of individual receipts for testing from the schedule based on the attribute sampling guidelines (see activity, 'Use attribute sample size tables for attribute sampling, seeking assistance if relevant' for additional information) and perform the following for each item selected for testing:
   - Agree the receipt total to the bank statement to determine whether the monetary amount reflected is accurate
   - Test whether the receipt is accurately reflected as revenue related or non-revenue related. For selections with an 'R' in the identifier (which management has asserted are revenue related), agree the amount to a valid customer contract and determine whether the related performance obligation has been satisfied. For receipts without an 'R' in the identifier, agree the amount to relevant supporting documentation and determine whether the receipt is appropriately reflected as not revenue related.

How is the design of our procedures to test reliability affected when the cash receipts are sourced directly from the bank statement in a cash to revenue SAP? [ISA | 3882.1700]

When the source of the cash receipts used in the SAP is the bank statement itself, it may not be necessary to perform additional testing to determine the listing is accurate and complete. However, we do perform the activity, 'Determine the approach to evaluate the reliability of external information.'

Additionally, the source of the cash receipts does not affect our consideration of the relevance of the underlying cash receipts. We may design procedures to test that all transactions in the bank statement

are revenue related, or to test how management identifies the revenue related cash transactions depending on our consideration of the relevance of the cash receipts included within the bank statement See question, 'How might we consider the relevance of the cash receipts that comprise the listing in designing our audit procedures?' for additional information.

What do we consider if information from the entity's system is used, such as the cash book or the receivables ledger? [ISA | 3882.12891]

When the information is taken from the entity's system we perform certain procedures to assess reliability (see activity "Test the accuracy and completeness of internally generated data" for more details on performing procedures on reliability). If the cash receipts information is taken from the receivables ledger, it is subject to additional processing by management, which increases the risk that the information is not a complete population of sales related cash receipts. In these circumstances, we address this risk in our testing of the reliability of the information.

Are there inputs outside of cash receipts used to form our expectation in a cash to revenue SAP? [ISA | 3882.1800]

Yes. In addition to cash receipts, we often consider other inputs to form an appropriate expectation of recognized revenue. These inputs typically include the beginning and ending balances of relevant balance sheet accounts as well as other adjustments which help us to accurately predict revenue.

Examples of common accrual basis adjustments and other inputs to a cash to revenue SAP include:

Increase to expectation of revenue	Decrease to expectation of revenue
Accounts receivable, end of period	Accounts receivable, beginning of period
Deferred revenue, beginning of period	Deferred revenue, end of period
Sales return reserve, beginning of period	Sales return reserve, end of period
Bad debt expense charged to administrative expense	
Fees withheld by credit card processors	

How do we evaluate the reliability of inputs outside of cash receipts used to form our expectation in a cash to revenue SAP? [ISA | 3882.12892]

We evaluate the reliability of all these inputs in the SAP by performing the activity, 'Test the accuracy and completeness of information produced by the entity' in accordance with the audit evidence topic.

For example, for balance sheet accounts as of the beginning and end of the period, the procedures performed in response to the RMMs related to the CEA of accounts receivable can provide sufficient evidence over the reliability of this data.

When we have sufficiently tested the item elsewhere in the audit, we may not perform further procedures. However, the procedures performed over each input are independent of the SAP. Reliance on the cash to revenue SAP to establish completeness and/or accuracy of any of the balances used as an input into the SAP (e.g. deferred revenue) would create circular logic.

Examples

What is an example of a Cash to revenue SAP? [ISA | 3882.1900]

Fact Pattern

The entity under audit is a fast food restaurant chain that sells burgers, fries, soft drinks and other similar items. All of the stores are company owned and operated (there are no franchises).

Revenue process:

As the Company's revenue is comprised solely of food and beverage sales, there are not formal contracts or agreements for the revenue transactions. The customer placing an order at the store constitutes the agreement. Sales data is captured throughout each day on the store's Point of Sale (POS) terminal. At the end of each day, through an automated process, the data is loaded into the Back Office Cash & Sales application and a journal entry is automatically posted to record revenue to the GL based on the data received. Management has a control whereby all cash deposits to the entity's depository accounts are reconciled to POS data on a weekly basis, which the engagement team tested and found to be operating effectively. Any variances noted through the performance of this control (within certain thresholds) are posted to administrative expense in the Cash over/short account.

Analysis

Is performing a cash to revenue SAP appropriate? [ISA | 3882.12893]

The engagement team concluded that given the close correlation that exists between cash receipts and revenue, and the non-complex, routine nature of the revenue transactions, a cash to revenue SAP is an appropriate response for certain RMMs relating to revenue.

RMM	Conditions that may indicate applicability of risk	How does the cash to revenue SAP address this RMM?
The applicable revenue accounting standard is applied to an arrangement that does not meet the definition of a contract under the standard (Existence of Revenue)	Consideration received is recognized as revenue for a contract that does not meet, or has not yet met, the contract existence criteria and the contract has not met one of the	Because the engagement team is using cash receipts that they have determined are solely related to revenue transactions (food and beverage purchases at each store) to predict the revenue balance, the SAP will allow them to determine whether

	alternative recognition criteria.	revenue has been recorded relating to non-revenue related cash receipts if a significant unexpected difference in excess of the expectation is found.
Arrangements that meet the definition of a contract are not completely identified (Completeness of Revenue)	N/A	The engagement team will use a complete population of cash receipts related to revenue transactions to predict the revenue balance. Therefore, the SAP will allow them to identify an understatement in revenue as the result of a failure to record revenue relating to cash receipts if a significant unexpected difference below the expectation is found.
For performance obligations satisfied at a point in time, revenue is not recognized when control is transferred to the customer, resulting in revenue not being recognized in the correct period (Completeness and Accuracy of Revenue)	The entity does not sufficiently evaluate whether and when control has passed to the customer when recognizing revenue for performance obligations satisfied at a point in time.	Each store deposits the cash received from all sales transacted on a daily basis. Each deposit is tagged with the store number and date on the bank statement, allowing the engagement team to determine the population of revenue related cash receipts that is specific to the period under audit. A significant unexpected difference would be found and investigated if a material total of transactions were recorded as revenue in the incorrect period.
Elements of the transaction price are not completely and accurately identified (Existence and Accuracy of Revenue)	The entity includes elements in the transaction price that do not represent amounts owed under the contract including amounts collected on behalf of third parties, consideration from future exercise of options and future changes orders.	While all deposits within the depository accounts are related to revenue transactions, some of the cash received for each transaction relates to sales tax that will be remitted to government entities and it is not be recorded as revenue. The engagement team will include this factor in its development of the expectation of revenue such that if the entity inaccurately recorded revenue (either because the transaction total was simply recorded incorrectly or because cash received

		for sales tax was inappropriately recorded as revenue), a significant unexpected difference would be found.

How will the expectation be developed? [ISA | 3882.12895]

A cash to revenue SAP will be used to develop an expectation of YTD Restaurant Sales based on cash collections throughout the year. The team considered whether to make any adjustments to the cash receipts total to accurately predict revenue. Based on the engagement team's understanding of the entity's revenue recognition policies and walkthroughs performed over the revenue recognition process, sales tax is also factored into the expectation.

Sales tax is collected for each transaction and remitted to the appropriate governmental agency. The cash collected for sales tax is not recorded as revenue and is deducted from total cash collected to determine the expectation for revenue.

As noted in the process discussion above, the Company reconciles sales to cash deposits each week with any variances (within certain thresholds) posted to the cash over/short account. This account represents either cash deposits that were not recorded as sales (if in a credit position) or sales recorded for which no cash was received (if in a debit position). Given the limited circumstances expected in which there will be a difference between the cash collected and revenue recorded, the engagement team made no adjustment relating to cash over/short in their development of the expectation for sales. To corroborate their expectation and understanding, the team reviewed the balance within the cash over/short account as of year end, noting it to be approximately $30,000, which is clearly immaterial. No adjustment to their expectation relating to cash over/short was made.

The revenue expectation will be developed as follows:

Expected revenue = Total cash receipts from depository accounts - sales tax

What is the precision of the SAP? [ISA | 3882.12896]

The engagement team considered the matters impacting precision as follows:

Matter	Consideration
Nature of the account or assertion	Revenue is comprised of homogeneous, non-complex transactions.
The accuracy with which the expected results of substantive analytical procedures can be predicted	Given the close relationship identified between cash receipts and revenue, and only one reconciling item relating to sales tax cash receipts, the team expects the revenue prediction to have a high level of accuracy. Additionally, the team has noted a high level of accuracy in the revenue prediction using cash receipts in prior year audits.

The degree to which information can be disaggregated	The revenue account is comprised of only one kind of transaction, and there is no difference in the nature or predictability of any one transaction compared to another within the account. Additionally, management reviews and manages its business using revenue as a whole. Therefore, there was no disaggregation.
Availability of the information, both financial and non-financial	The revenue related cash receipts and the sales tax rates to be used to predict the revenue balance are readily available. The team has determined all inputs to be reliable as discussed below.

Based on the above considerations, the team concluded that the cash to revenue SAP can be performed with a high degree of precision.

What is the acceptable difference? [ISA | 3882.12897]

The engagement team considered the following in determining the acceptable difference for the SAP:

- Desired level of assurance - moderate given the elevated inherent risk associated with the RMMs being tested (CAR is EC for all relevant RMMs)
- Precision of the SAP - high, as discussed above.
- PM - $10,000,000

The engagement team considered the nature of the procedure and its precision and determined that the only factor that lead to imprecision in the estimate was from variability in sales tax rate. As a result, the engagement team considers that any variation or more than $1,000,000 in total is likely to arise from a misstatement and set the acceptable difference at this level. As this acceptable difference is 10% of performance materiality, the engagement team determine that the SAP meets the desired level of assurance.

Is the data to be used by the team reliable? [ISA | 3882.12898]

The engagement team evaluated each input as documented below. All inputs are independent and were determined to be relevant and reliable.

Input: Cash receipts	
Relevance	As a result of the engagement team's walkthroughs, control testing (including the control noted above relating to the reconciliation of depository data to revenue recorded), and understanding of the entity from the prior year, the team has determined that the entity's depository bank account is used solely for deposits from each store for the sales transactions processed each day. The team additionally confirmed this understanding through scanning three monthly bank statements for the depository account,

	noting that each deposit has the associated store number indicated and that there were no deposits that appeared to be from a source other than a store deposit. There is a separate payroll specific bank account and a concentration account where any non-revenue related receipts are deposited and all payments are processed from. All deposits received into the depository accounts are swept to the concentration account on a nightly basis. Based on the above, the team concluded that deposits per the depository bank account are sufficiently relevant to use in the development of the expectation of revenue.
Source	Third party bank statements
Is the input dependent or independent?	Independent: Cash receipts per the bank statement are not used to record revenue.
Procedures to test reliability	*Are the cash receipts revenue related?* The team considered the relevance of the cash receipts that comprise the bank statements in designing their procedures over reliability of the data. Based on the team's conclusions that the depository accounts are solely comprised of cash receipts relating to revenue transactions as noted above, the procedures to test reliability do not include specific testing over whether individual cash receipts are revenue related. *Is the listing of cash receipts accurate and complete?* As the engagement team will use the cash receipts sourced directly from the external bank statements, they determined the cash receipts are accurate and complete. *Is the external source reliable?* They validated that the statements were sourced directly from the bank, which is a large and well known banking institution, by observing management download the pdf files of the statements from the bank website. The

	bank statements represent a source of record for a third party transaction, so no additional procedures were performed.
Reliable?	Based on the above, cash receipts from the depository bank account are a reliable input.
Input: Sales tax	
Relevance	Sales tax is relevant to consider in the SAP as the Company collects cash that it then remits to the appropriate governmental agency as part of each revenue transaction. This cash is included in the deposits made by each store on a daily basis and therefore we remove it to determine an accurate expectation of the revenue total.
Source	The engagement team determined an expectation for the sales tax total using the weighted average sales tax rate effective during the period and the cash receipts from the third party bank statements discussed above.
Is the input dependent or independent?	Independent: The engagement team has developed an independent expectation of the sales tax total that was removed from the cash receipts to predict revenue.
Procedures to test reliability	The engagement team developed an independent expectation for the sales tax total using cash receipts and the weighted average sales tax rate in effect throughout the period. *Cash receipts*: Tested for reliability as documented above *Weighted average sales tax rate*: The engagement team calculated the weighted average sales tax rate using the tax rates in effect in each state where the entity operates (per the relevant government agency website) and the number of stores open in each state. The team performed procedures over the reliability of the external source of the tax rates

	and over the completeness and accuracy of the number of stores open in each state as documented separately in the work papers.
Reliable?	Based on the above, sales tax is a reliable input.

What are the results of the SAP? [ISA | 3882.12899]

Based on the design reflected above, the engagement team performed and evaluated the SAP, noting no significant unexpected differences, as follows:

Cash to revenue SAP execution	
Cash receipts per depository bank statements	$749,588,652
Sales tax	$(48,723,262)
Revenue expectation	$700,865,390
Recorded revenue	$700,955,478
Difference	$(90,088)
Acceptable difference	$1,000,000
Within acceptable difference?	**Yes**

3 Perform and evaluate substantive analytical procedures [ISA | 3883]

What do we do?

Perform substantive analytical procedures, evaluate the results and perform additional procedures in response to significant unexpected differences.

Why do we do this?

Once we have designed the substantive analytical procedure (SAP) and determined that the design of the procedure is appropriate to achieve the related audit objective, we perform the procedure to test the balance recorded by management. Evaluating the results of the procedure in accordance with the

auditing standards allows us to conclude whether our audit objective has been achieved (i.e. that the financial statement assertion is or is not correct).

Execute the Audit

How do we perform and evaluate the SAPs we have designed? [ISA | 3883.1300]

We perform the following:

- Compare the expectation to the recorded amount;
- Evaluate significant unexpected differences; and
- Evaluate differences from disaggregated SAPs and consider unusual patterns.

3.1 Compare the expectation to the recorded amount [ISA | 3884]

What do we do?

Compare the expectation for the substantive analytical procedure to the recorded amounts or ratios developed from recorded amounts.

Why do we do this?

We compare the expectation for the substantive analytical procedure (SAP) to the recorded amount to enable us to conclude on whether the amount recorded by management is appropriate.

Execute the Audit

What do we do once we have appropriately designed a SAP? [ISA | 3884.1300]

Once we have concluded that our SAP is appropriately designed to address the risks of material misstatement (RMMs), we perform the SAP and identify and evaluate differences from our expected amount. We do this by comparing our expectation with the recorded amount(s).

Recorded amount is within the acceptable difference	Recorded amount is outside the acceptable difference
When the entity's recorded amount falls within the acceptable difference around our expectation, the procedure is complete and we have obtained the audit evidence we planned to obtain from the SAP.	When the entity's recorded amount differs from our expectation by more than the acceptable difference, we investigate further.

How do we compare our expectation to the recorded amount when performing a disaggregated SAP?

When we perform a disaggregated SAP, we compare the expectation to the recorded amounts for each disaggregated portion. In order to conclude, we perform the activity, 'Evaluate differences from disaggregated SAPs and consider unusual patterns.'

3.2 Evaluate significant unexpected differences [ISA | 3885]

What do we do?

Evaluate significant unexpected differences between our expectation and the recorded amount and perform additional procedures when relevant.

Why do we do this?

Once we have identified a significant unexpected difference between the developed expectation for our substantive analytical procedure (SAP) and the amount recorded by management, we perform procedures to determine whether that difference is acceptable. We inquire of management and perform other procedures as necessary to understand why the difference might exist. We do this in order to determine whether the difference is indicative of an audit misstatement.

Execute the Audit

What is a significant unexpected difference between our expectation and the recorded amount when evaluating the result of a SAP? [ISA | 3885.1300]

Any difference outside the acceptable difference is treated as a significant unexpected difference.

What do we do when we have identified a significant unexpected difference following the performance of a SAP? [ISA | 3885.1400]

When we have identified a significant unexpected difference, we investigate that difference by:

- inquiring of management and obtaining appropriate audit evidence relevant to management's responses; and
- performing other audit procedures which are appropriate in the circumstances.

The extent of test work performed to investigate differences is a matter of professional judgment.

How might we obtain audit evidence relevant to management's responses to a significant unexpected difference identified though the performance of a SAP?

Inquiry alone does not provide sufficient substantive evidence. When we inquire of management, we may obtain substantive audit evidence relevant to management's responses by:

- Evaluating those responses and taking into account our understanding of the entity and its environment, as well as other audit evidence obtained during the course of the audit;
- Corroborating the explanation to external sources; and/or
- Applying other audit procedures to substantiate management's responses.

What if we are unable to obtain audit evidence relevant to management's responses to a significant unexpected difference identified through the performance of a SAP?

We think about whether our inability to substantiate management's responses with other audit procedures indicates that the difference is the result of an audit misstatement.

What might we conclude as a result of investigating significant unexpected differences identified through the performance of a SAP? [ISA | 3885.1500]

We may determine that the difference between our SAP estimate and the recorded amount exceeds the acceptable difference because of:

- Imprecision in the design of the SAP; or
- Misstatement of the account balance or amount being tested.

What do we do if we believe the significant unexpected difference is a result of imprecision in the design of the SAP?

If we conclude that the difference is caused by imprecision in the design of the SAP (e.g., due to a failure to identify a relevant factor, the use of an inappropriate amount for a data input or an inappropriate level of disaggregation when developing our expectation(s)), we:

- Revise our expectation to take into account what we have learned;
- Compare the entity's recorded amount to our revised expectation; and
- Consider if the difference is now less than the acceptable difference.

What else might we think about if we decided to revise our expectation?

In addition to revising our expectation as described above, we may also revise the acceptable difference to be consistent with the level of precision of the revised expectation. In this case, we may consider if the difference between the entity's recorded amount and our revised expectation is now less than the revised acceptable difference.

What do we do if we believe the difference between our expectation and the recorded amount for our SAP is a result of a misstatement?

If we conclude the difference is a result of a misstatement, we perform the activity, 'Evaluate whether uncorrected misstatements are material and the implications.'

If the SAP indicates that a misstatement might exist in an account balance or disclosure, but not its approximate amount, we may request management to investigate and may expand our audit procedures to enable us to determine whether a misstatement exists.

We perform other audit procedures particularly when, for example, management is unable to provide an explanation, or the explanation together with the audit evidence obtained relevant to management's response, is not considered adequate. This situation may be indicative of fraud (refer to activity 'Perform additional procedures when we identify or suspect a fraud' for additional information).

A SAP is designed to obtain audit evidence over the entire population subject to the procedure. Unlike substantive sampling test of details, identified misstatements are not projected over the population, and the concept of extending the sample size is not applicable. However, we analyze the misstatement(s) identified to determine whether those misstatements identified are systematic and indicative of other misstatements within the population or other populations.

Examples

How might we revise our expectation after concluding a significant unexpected difference is the result of imprecision in the design of the SAP? [ISA | 3885.1700]

Fact pattern

An engagement team developed an expectation for annual payroll expense based on the relationship of number of employees to total payroll expense. In developing its expectation, the team identified the prior period head count and prior period payroll expense to determine an average salary per employee. They adjusted the average salary for the effect of an annual pay rise and then multiplied this amount by the current period head count number. The team compared the entity's recorded amount to its expectation and determined that the recorded amount was higher by an amount greater than the acceptable difference.

As part of investigating the difference, the engagement team:

- Made further inquiries of management, who advised that payroll expense also included a charge from the parent company for the cost of employees who were seconded/loaned to the entity during the period to assist with a large IT project. These employees' salaries were included in the entity's total payroll expense but not included in the headcount numbers or in the engagement team's expectation.
- Corroborated management's explanation by inspecting documentation relating to the occurrence of the large IT project and agreeing the cost of the seconded/loaned employees to an inter-company confirmation and traced the charge through to the general ledger payroll expense account.

Analysis

Using this information, the engagement team revised its expectation to include this additional charge. They considered revising the acceptable difference but determined that the information did not substantially change the precision of the procedure and that they did not revise the acceptable difference. They compared the revised expectation to the recorded amount, and determined that the difference was within the acceptable difference.

3.3 Evaluate differences from disaggregated SAPs and consider unusual patterns [ISA | 3886]

What do we do?

IF performing a disaggregated substantive analytical procedure THEN evaluate differences individually and in combination AND consider if there are unusual patterns or trends for further investigation.

Why do we do this?

When we perform disaggregated substantive analytical procedures (SAPs) there is a risk that if misstatements arise in one portion then misstatements of the same nature will also arise in other portions. There is risk that such misstatements will be lower than the acceptable difference in each portion but may be higher than the acceptable difference at the account balance level. In order to address this risk we evaluate the results of the disaggregated substantive analytical approach in combination, in addition to the disaggregated level.

Execute the Audit

How do we evaluate the results of a disaggregated SAP? [ISA | 3886.1300]

When we perform a SAP and we disaggregate, we first evaluate the results individually for each disaggregated portion. We investigate any differences that are greater than the relevant acceptable difference for each disaggregated portion following the same procedures as that used when performing a SAP where we do not disaggregate (see activity, 'Evaluate significant unexpected differences' for additional information).

Next, we evaluate the results of the disaggregated substantive analytical approach in combination.

How do we evaluate the results of a disaggregated SAP in combination? [ISA | 3886.12972]

When evaluating the results of a disaggregated SAP, we consider whether the recorded amounts for the disaggregated portions of an account balance compared to our expectations are indicative of unusual patterns or trends which we investigate. When we disaggregate we typically expect that the recorded amounts for the individual portions will be "normally distributed" around our expectations. If we identify unusual patterns or trends in the results, we investigate further to determine if the results are an indication of management bias or an indicator that we have not gained a sufficient understanding of the drivers of the individual portions of the account balance.

For example, where the expectation is developed as an expected range, if the recorded amounts for each month fall consistently at the upper end or consistently at the lower end of the expected range, we may consider this to be unusual and investigate it further.

Another example may be where individual portions or combinations of certain portions are greater or less than the account balance level expectation, even though the net differences do not exceed the account balance level expectation. We may consider this to be unusual and investigate it further.

We may also decide to perform further investigation where individual portions or certain combinations of individual portions are greater or less than the account balance level expectation, even though the net differences do not exceed the account balance level expectation.

For example, we performed a disaggregated substantive analytical procedure over personnel expenses, disaggregated into ten different geographical locations. The aggregate acceptable difference for all ten portions was $350,000, which we determined to be an acceptable difference at the account balance level of $100,000. In six instances, the recorded amount was greater than our expectation for the disaggregated portion, and those differences aggregated to $180,000. In four instances the recorded amount was less than our expectation for the disaggregated portion, and those differences aggregated to $125,000. We decide to investigate further, even though the net of the differences between the expectations and recorded amounts did not exceed the acceptable difference at the account balance level of $100,000.

Do we do anything differently to evaluate a disaggregated SAP where we develop a point estimate versus an expected range? [ISA | 3886.1400]

Yes. When the expectation for each disaggregated portion is a point estimate, we perform further investigation when the recorded amount of the total account balance differs from the sum of our expectations for all of the individual portions by an amount that exceeds our acceptable difference at the account balance level. Said another way, we perform further investigation when the net of the differences between the expected and recorded amounts of all portions exceeds the acceptable

difference at the account balance level, regardless of whether each individual difference was within the acceptable difference for that disaggregated portion.

How do we perform further investigation when the net of the differences for all portions of a disaggregated SAP exceeds the acceptable difference at the account level? [ISA | 3886.12973]

We perform the same procedures as those used to investigate differences for the individual portions or for a SAP that is not disaggregated (see activity, 'Evaluate significant unexpected differences' for additional information).

What if we have developed an expected range for each portion instead of a point estimate? [ISA | 3886.12974]

When we have developed an expected range instead of a point estimate, considerations beyond whether the actual amounts fall within our expected range for each portion are not relevant. This is because there is no difference between a recorded amount that falls within the range and our expectation. By definition, all amounts within our developed range are expected.

Examples

How do we evaluate the results of a disaggregated SAP for the individual portions and in combination? [ISA | 3886.1600]

Fact pattern

An engagement team is responding to RMMs relating to the CEA of COGS for an entity that manufactures and sells five models of tennis racquets (product lines). The cost to manufacture each product line and the mix of models sold each year varies significantly. Therefore, the engagement team concluded they will design a SAP disaggregated by product line to achieve an adequate level of precision. Performance materiality for this audit has been set at $20. The engagement team developed an expectation for the COGS balance for each disaggregated portion using relevant input specific to each product line including : (1) current year revenue , (2) prior year gross margin percentages, and (3) current year external information including peer group gross margin trends, product mix and commodity pricing data.

Product Line	COGS Expectation	Acceptable Difference (+/-)
A	$800	$12
B	$700	$10.5
C	$600	$9
D	$300	$6
E	$600	$11.5

The SAP model and inputs used to develop the expectation for each product line are reflective of the characteristics of each product line. The acceptable difference determined for each product line reflects the precision of each individual expectation and varies among the portions. The acceptable difference at the account balance level was determined to be $12.25.

Analysis

The following tables present three scenarios, whereby three different sets of recorded amounts are compared to the engagement team's expectations.

Evaluation Scenario 1:

Product Line	COGS Expectation	COGS Recorded Amount	Difference O / (U) Expectation	Acceptable Difference (+/-)	Within AD for Product Line?
A	$800	$808	$8	$12	**Yes**
B	$700	$698	$(2)	$10.5	**Yes**
C	$600	$593	$(7)	$9	**Yes**
D	$300	$299	$(1)	$6	**Yes**
E	$600	$612	$12	$11.5	**No**
Total	**$3,000`**	**$3,010**	**$10**	**$12.25**	
Within AD at account balance level?			**Yes**		

The difference between the recorded amount for product line E's COGS and our expectation ($12) does not fall within the acceptable difference for product line E's COGS ($11.5). Therefore, we investigate this difference further.

Evaluation Scenario 2:

Product Line	COGS Expectation	COGS Recorded Amount	Difference O / (U) Expectation	Acceptable Difference (+/-)	Within AD for Product Line?
A	$800	$789	$(11)	$12	**Yes**
B	$700	$697	$(3)	$10.5	**Yes**

C	$600	$595	$(5)	$9	**Yes**
D	$300	$300	$0	$6	**Yes**
E	$600	$596	$(4)	$11.5	**Yes**
Total	**$3,000`**	**$3,010**	**$(23)**	**$12.25**	
Within AD at account balance level?			**No**		

The difference between each of the recorded amounts for the five product lines and our expectations falls within each product line's acceptable difference. However, the difference between the total recorded amount of the COGS account and our total expectation ($23) does not fall within the acceptable difference at the account balance level ($12.25). Therefore, we investigate this difference further. Until we investigate further we do not have sufficient audit evidence to conclude on the COGS account balance as a whole.

Evaluation Scenario 3:

Product Line	COGS Expectation	COGS Recorded Amount	Difference O / (U) Expectation	Acceptable Difference (+/-)	Within AD for Product Line?
A	$800	$808	$8	$12	**Yes**
B	$700	$698	$(2)	$10.5	**Yes**
C	$600	$593	$(7)	$9	**Yes**
D	$300	$299	$(1)	$6	**Yes**
E	$600	$609	$9	$11.5	**Yes**
Total	**$3,000`**	**$3,010**	**$7**	**$12.25**	
Within AD at account balance level?			**Yes**		

In this scenario the difference between each of the recorded amounts for the five product lines and our expectation falls within each product line's acceptable difference. Additionally, the difference

between the total recorded amount of the COGS account and our total expectation ($7) falls within the acceptable difference at the account balance level ($12.25).

Further, the engagement team assesses whether the recorded amounts for the disaggregated portions of the account balance compared to their expectations are indicative of unusual patterns or trends that to investigate further. In this scenario, the pattern of differences does not appear unusual to the engagement team based on their understanding of the entity's business. Therefore, the engagement team concludes that this SAP has provided sufficient audit evidence to conclude on the relevant assertions for the COGS account balance.

4 Perform final analytical procedures and evaluate the results [ISA | 4425]

What do we do?

Perform final analytical procedures and evaluate the results.

Why do we do this?

We perform final analytical procedures to assist us in assessing the overall reasonableness of the financial statements and the sufficiency of our audit evidence.

Execute the Audit

How do we perform our final analytical procedures and evaluate the results? [ISA | 4425.1300]

To perform our final analytical procedures and evaluate the results, we:

- read the financial statements and disclosures ;
- perform final analytical procedures, including those relating to revenue ; and
- investigate the results of the final analytical procedures .

4.1 Read the financial statements and disclosures

[ISA | 4426]

What do we do?

Read the financial statements and disclosures.

Why do we do this?

Reading the financial statements and disclosures can better prepare us to perform the activities to evaluate the audit results. More specifically, reading the financial statements before performing our final analytical procedures and other concluding procedures gives us the opportunity to:

- have a thorough knowledge of all the elements of the financial statements, and
- focus on information that:

- may be missing; or
- highlight a potential risk, unusual transaction or other observation that we may have been unaware of.

4.2 Perform final analytical procedures, including those relating to revenue [ISA | 4427]

What do we do?

Perform final analytical procedures, including (but not limited to) analytical procedures relating to revenue, using final balances.

Why do we do this?

In our planning analytical procedures, we identify risks and unusual items to address during the audit. In our final analytical procedures, we evaluate whether we have missed anything. The final analytical procedures help us identify whether there are a) risks or unusual items that we did not previously identify or b) areas in which we may not have obtained sufficient audit evidence.

Among our final analytical procedures, those relating to revenue are particularly helpful because revenue is a metric that users of the financial statements often focus on and that has an increased susceptibility to fraud. Performing these analytical procedures at the end of the audit can reveal risks or unusual trends, events or relationships that we may not have initially identified.

Execute the Audit

What are the common final analytical procedures, including analytical procedures relating to revenue? [ISA | 4427.1300]

There is a wide variety of analytical procedures we can perform. The final analytical procedures may include comparing:

- final current-period balance sheet amounts with those of the prior period;
- final current-period income statement, cash flows statement and statement of comprehensive income amounts with those of the prior period;
- final current-period disclosures with those of the prior period - e.g. contingency disclosures, lease disclosures, fair value and key assumptions disclosures; and/or
- final current-period amounts with industry data.

We could also analyze changes in interrelationships between:

- accounts - e.g. working capital ratio, quick asset ratio, relationship between profits and cash flows from operating activities, effective tax rate, average depreciation rate, ratio of selling expenses to revenues.
- financial information and, when available and relevant, non-financial information - e.g. the relationship between sales and square footage of selling space, volume of goods sold, volume of goods produced, or number of employees.

The final analytical procedures targeted at revenue may include:

- specific analysis of revenue by product line, division or location;
- analysis of key ratios - e.g. days sales outstanding, gross margin, inventory turnover; and/or
- examining and analyzing revenue trends over several historical periods - i.e. monthly or quarterly.

> For example, we may analyze the overall trend of revenues recorded by month versus sales returns recorded by month and identify an unusual trend in either revenue or sales returns at or near the end of the reporting period. This may suggest that a new risk exists or that a change in our assessment of a previously identified risk is necessary.

What do we do when there are adjustments to the financial statements after we performed the final analytical procedures? [ISA | 4427.1400]

If there are adjustments to the financial statements after we performed the final analytical procedures, we may either:

- adjust the financial statement amounts over which we performed the analytical procedures and re-perform the final analytical procedures for the line items affected; or
- include a reference to where the adjustments are dealt with in the audit documentation and re-perform the final analytical procedures for the line items affected.

Explaining what the adjustments are and how we audited them is not an appropriate analytical procedure.

What are the similarities and differences between planning analytical procedures and final analytical procedures? [ISA | 4427.1500]

When we perform final analytical procedures, we generally use the same plausible relationships and make the same comparisons as we did when performing planning analytical procedures during risk assessment (see activities 'Perform analytical procedures, including those related to revenue ' and 'Use our understanding of the entity to develop expectations about plausible relationships ' for further information about planning analytical procedures).

Although planning and final analytical procedures are similar in many ways, they are different in certain aspects, including:

	Planning analytical procedures	Final analytical procedures
Purpose	• Enhance our understanding of the entity's business • Enhance our understanding of significant transactions and events that occurred since the prior period • Identify risks and unusual items that warrant investigation during the audit.	• Evaluate the conclusions we formed about significant accounts and disclosures • Assist in forming an opinion about the financial statements • Evaluate whether the evidence gathered in the audit is sufficient • Evaluate whether there are risks of material misstatement

		that we did not identify previously.
Responses to issues identified	When comparing our expectations with the recorded amounts yields unusual or unexpected results, we take those results into account in identifying and assessing risks of material misstatement.	If we discover a previously unidentified risk of material misstatement or conclude that the evidence gathered during the audit is not sufficient, we modify or perform additional audit procedures as necessary.
Timing	We perform the procedure(s) earlier in the audit.	We perform the procedure(s) toward the end of the audit.
Procedures performed	We usually perform comparisons using preliminary current-period balances.	We perform comparisons using the final current-period balances.

4.3 Investigate the results of the final analytical procedures [ISA | 4428]

What do we do?

Investigate the results of the final analytical procedures.

Why do we do this?

We perform final analytical procedures to assist us in assessing the overall reasonableness of the financial statements and the sufficiency of our audit evidence.

Execute the Audit

How do we investigate the results of the final analytical procedures? [ISA | 4428.15860]

To investigate the results of the final analytical procedures, we:

- evaluate the evidence gathered in response to items previously identified ;
- evaluate whether the final analytical procedures indicate new RMMs ;
- corroborate management's explanations regarding significant items ; and
- perform procedures when management's responses are not adequate .

4.3.1 Evaluate the evidence gathered in response to items previously identified [ISA | 4429]

What do we do?

Evaluate whether the evidence gathered in response to unusual or unexpected items that we previously identified during the audit is sufficient AND perform additional procedures as necessary.

Why do we do this?

When we come across unusual or unexpected items that we previously identified during planning or throughout the audit during our final analytical procedures, we evaluate whether the evidence gathered in response to those unusual or unexpected items is sufficient. We do this mainly to determine that the evidence we have already obtained is sufficient to address those unusual or unexpected items.

Execute the Audit

What do we focus on when we identify an unusual or unexpected item during our final analytical procedures that we already knew about? [ISA | 4429.1300]

If we identify an unusual or unexpected item that we already knew about during our final analytical procedures, we focus on:

- considering the audit evidence already gathered during the audit; and
- evaluating whether that evidence is sufficient to address the unusual or unexpected item.

If we determine that the evidence we already have does not fully address the unusual or unexpected item, we perform additional audit procedures to obtain further audit evidence.

Example

What does an engagement team do when they identify an unusual or unexpected item during final analytical procedures that they previously identified during the audit? [ISA | 4429.1400]

Fact pattern

During risk assessment, an engagement team discovers that management made a strategic decision to launch a new product line and capital spending was expected to increase in the current period. As a result, the engagement team identified a risk of material misstatement related to recording these capital additions.

During the audit, the engagement team designs and performs audit procedures to address that risk, which includes:

- inspecting Board of Directors minutes addressing the decision and how the entity plans to implement that decision;
- inspecting invoices that correspond to the capital additions;
- evaluating the reasonableness of the useful lives management assigns to the new capital additions; and
- inspecting other supporting documents regarding the strategic decision.

While performing the final analytical procedures, the engagement team identifies an unusual relationship: property, plant and equipment (PP&E) increased significantly from the prior period.

Analysis

The engagement team considers the evidence obtained during the audit and evaluates whether that evidence is sufficient to address the significant increase in PP&E.

If they determine it is sufficient, they may conclude that no further procedures are necessary. However, if they determine the evidence is not sufficient to address the increase in PP&E, they perform additional procedures to obtain additional evidence.

4.3.2 Evaluate whether the final analytical procedures indicate new RMMs [ISA | 4430]

What do we do?

Evaluate whether unusual or unexpected items indicate previously unidentified risks of material misstatement, in particular fraud risks, AND perform additional procedures as necessary.

Why do we do this?

While performing our final analytical procedures, we evaluate whether unusual or unexpected items indicate previously unidentified risks of material misstatement, including fraud risks, to determine that we have not missed anything.

Execute the Audit

How might unusual or unexpected items impact risk assessment? [ISA | 4430.1300]

The identification of unusual or unexpected transactions, events, amounts, or relationships may cause changes to initial assessment of risks of material misstatement as well as fraud risks.

How do we know whether an unusual or unexpected item indicates a fraud risk? [ISA | 4430.1400]

Whether an unusual or unexpected item indicates a fraud risk depends on the relevant facts and circumstances, including the nature of the account(s) involved.

> For example, certain unusual or unexpected items could indicate a fraud risk if the account(s) and disclosure(s) involved are those that management has incentives or pressures to manipulate.

Unusual relationships involving period-end revenue or income can be particularly relevant, as they often indicate that there may be a fraud risk.

The table below sets out examples of unusual or unexpected relationships and the fraud risks they may indicate.

Possible types of unusual or unexpected relationships we may identify	Possible fraud risks

Uncharacteristically large amounts of revenue being reported in the last few weeks of the reporting period	• a risk that fictitious revenue transactions are recorded at or near the end of the period
Unusual relationship between net income and cash flows from operations	• a risk that fictitious revenue transactions are recorded during the period • a risk that management made inappropriate entries to accrual or liability accounts to manipulate net income during the period
Inconsistent changes in inventory, accounts payable, sales and cost of sales from the prior period to the current period	• a risk of employee theft of inventory items during the period (i.e. misappropriation of assets) • a risk that fictitious revenue transactions are recorded during the period
Unusual discrepancies between the entity's profitability and industry trends	• a risk that fictitious revenue transactions are recorded during the period
Unusual discrepancies between the entity's bad debt write-offs and industry data	• a risk of employee theft of cash receipts during the period (i.e. misappropriation of assets) • a risk that fictitious revenue transactions are recorded during the period
Unexpected or unexplained relationships between sales volume as determined from the accounting records and production statistics maintained by operations personnel	• a risk that fictitious revenue transactions are recorded during the period • a risk that fictitious items are listed in inventory

What do we include in our documentation regarding the new fraud risks and our responses? [ISA | 4430.15833]

We include in our documentation:

- the analytical relationships or other conditions that caused us to identify a new RMM or fraud risk and to believe that additional audit procedures or other responses were necessary; and
- the audit procedures or other responses we concluded were appropriate to address the new risks or other conditions.

Examples

How does an engagement team determine that there is a new fraud risk? [ISA | 4430.1500]

Scenario 1:

Fact pattern

An engagement team is performing a December year-end audit. During the month of September, the entity sold subsidiary B, which represented approximately half of the entity's consolidated operations. In performing final analytical procedures, the team expects payroll expense to decrease by approximately 10-15% in the current period (approximately one half the payroll expense from the last quarter of the year) taking into account the sale of subsidiary B. However, they identify a 2% increase in payroll expense from the prior year instead. This difference represents an unexpected amount that they did not previously identify.

Analysis

When the engagement team inquires of management about this unexpected relationship, their responses are imprecise and/or lack a sufficient level of detail - e.g. management cites 'timing differences' and 'normal changes in salaries that occurred during the period'. In response, the engagement team performs additional procedures to address the unexpected item and discovers that management recorded an unsupported amount in the payroll expense account during the last week of the reporting period.

Based on the circumstances, the engagement team determines that there is an additional fraud risk - e.g. finance personnel may be using payroll accounts to misappropriate cash. In response, the engagement team designs and performs additional procedures to address this new fraud risk.

Scenario 2:

Fact pattern

When performing final analytical procedures over revenue at a manufacturing entity, an engagement team observes that there is an unusual increase in revenue during the last two months of the period. When the engagement team inquires of management, they respond that the increase in revenue is the result of 'increased production'.

The engagement team determines that management's response is not precise enough to help them understand the nature of the increase. Additionally, based on the revenue recognition model, production does not drive revenue recognition, which also makes management's explanation implausible.

Analysis

These facts are an indicator of a fraud risk associated with revenue that the engagement team may not have previously identified. If they determine that a fraud risk exists, they design and perform additional procedures to address this newly identified risk.

4.3.3 Corroborate management's explanations regarding significant items [ISA | 4431]

What do we do?

Obtain appropriate audit evidence to corroborate management's explanations regarding any significant unusual or unexpected item.

Why do we do this?

We perform corroborating procedures and do not rely solely on management's representations regarding significant unusual or unexpected items because these significant items may be more susceptible to risks. In addition, by performing corroborating procedures, we are exercising professional skepticism.

Execute the Audit

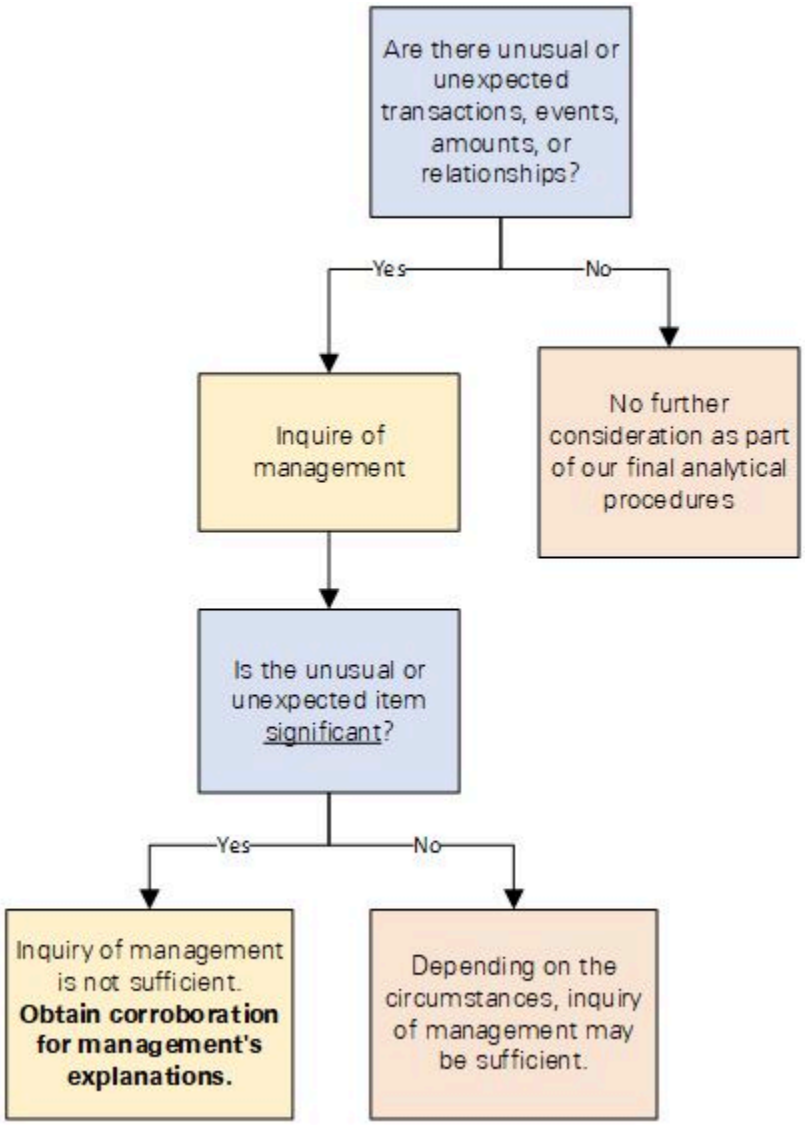
What is our first step when we identify unusual or unexpected items as part of our final analytical procedures? [ISA | 4431.1300]

When we identify unusual or unexpected items as part of our final analytical procedures, our first step is to inquire of management to obtain more information about the matter and to help us determine its significance. This is especially true when the matter was not previously identified - i.e. it is a new unusual or unexpected item - and we have not already obtained information about it.

When do we obtain appropriate audit evidence to corroborate management's explanations as part of our final analytical procedures? [ISA | 4431.1400]

We obtain appropriate audit evidence to corroborate management's explanation when the unusual or unexpected item is significant, as inquiry alone is not enough.

The following chart illustrates the process we follow when we decide whether to corroborate management's explanations.



What factors do we think about when determining whether an unusual or unexpected item is significant?

An unusual or unexpected item may be determined to be significant:

- based on the specific circumstances of the engagement; and
- thinking about:
  - quantitative factors - e.g. relative magnitude; and
  - qualitative factors - e.g. nature of the item, how important the item is for the users of the financial statements or whether the item is consistent with other relevant information.

In practice, we may establish dollar values, percentage changes or both to help us better identify items that may be significant. For example, we may use an amount in reference to performance materiality (e.g., ½ of performance materiality) or a percentage of assets, revenues or income as a starting point to identify significant items.

How do we obtain appropriate audit evidence to corroborate management's explanations as part of our final analytical procedures? [ISA | 4431.1500]

We may obtain audit evidence to corroborate management's explanation:

- from the results of audit procedures already performed, particularly if we are evaluating a significant unusual or unexpected item previously identified during the audit; or
- by performing additional procedures, if management's explanations together with the audit evidence already obtained during the audit is not adequate.

What are examples of when the unusual or unexpected item is not significant and inquiry of management is not sufficient?

Examples of when inquiry of management is not sufficient for unusual or unexpected item that are not significant include:

- if management's responses are implausible, inconsistent, imprecise or not detailed enough; or
- if we identify a new risk or reassess an existing risk associated with the unusual or unexpected item that we believe is necessary to address further.

Example

How does an engagement team obtain appropriate audit evidence to corroborate management's explanations? [ISA | 4431.1700]

Fact pattern

An engagement team is performing a December year-end audit. During the month of September, the entity sold subsidiary B, which represented approximately half of the entity's consolidated operations. The transaction is not considered to be 'discontinued operations'.

In performing final analytical procedures, the team expects payroll expense to decrease by approximately 10-15% in the current period (approximately one half the payroll expense from the last quarter of the year) taking into account the sale of subsidiary B. However, they identify a 2% increase in payroll expense from the prior year instead. This difference represents an unexpected amount that they did not previously identify.

After inquiring of management about this unexpected amount, the engagement team learns that the entity continued to pay the salaries of subsidiary B's employees through the end of the period as part of the sale agreement.

Analysis

As the engagement team considers this unexpected item to be significant, they corroborate management's explanations. They inspect the sale agreement and observe that one of the terms of the sale is the payment of subsidiary B's employees through the end of the period. The engagement team concludes that the item is consistent with management's response.

4.3.4 Perform procedures when management's responses are not adequate [ISA | 4432]

What do we do?

IF management's responses to our inquiries appear implausible, inconsistent, imprecise, or not at a sufficient level of detail, **THEN** perform procedures to address the matter.

Why do we do this?

We perform additional procedures and do not rely solely on management's responses to our inquiries when management's responses appear implausible, inconsistent, imprecise, or not at a sufficient level of detail. This is because we are not satisfied with a response that is not adequate and we exercise professional skepticism.

Execute the Audit

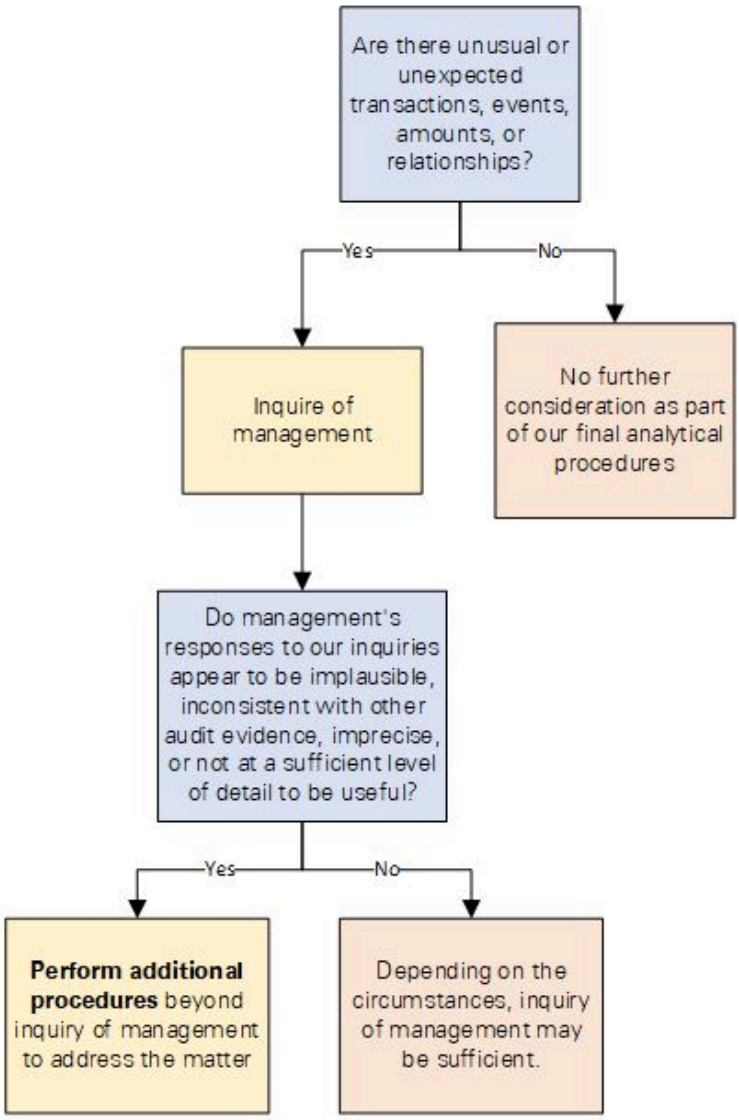
What is our first step when we identify unusual or unexpected items as part of our final analytical procedures? [ISA | 4432.15823]

When we identify unusual or unexpected items as part of our final analytical procedures, we first inquire of management to obtain more information about the matter. This is especially true when the matter was not previously identified - i.e. it is a new unusual or unexpected item - and we have not already obtained information about it.

When do we perform additional procedures as part of our final analytical procedures? [ISA | 4432.15825]

When management's responses are implausible, inconsistent with other audit evidence, imprecise or not at a sufficient level of detail to be useful, we perform additional procedures to address the items.

The following chart illustrates the process we follow when we decide to perform additional procedures.



If management's responses are plausible, consistent, precise and at a sufficient level of detail, is our inquiry of management sufficient? [ISA | 4432.15826]

If management's responses are plausible, consistent with other audit evidence, precise, and at a sufficient level of detail to be useful, our inquiries of management *may* be sufficient for us to understand the nature of the unusual or unexpected item. However, there may be situations where additional audit evidence is necessary, such as:

- when the unusual or unexpected item is significant, in which case we corroborate management's explanations; and
- when we identify a new risk or reassess an existing risk associated with the unusual or unexpected item that we believe is necessary to address further.

Example

How does an engagement team perform additional procedures? [ISA | 4432.15829]

Fact pattern

When performing final analytical procedures over revenue at a manufacturing entity, the engagement team observes that there is an unusual increase in revenue during the last two months of the period compared with the last two months of the prior period. When the engagement team inquires of management, management responds that the increase in revenue is the result of 'increased production'.

The engagement team determines that management's response is not precise enough to help them understand the nature of the increase. Additionally, based on the revenue recognition model, production does not drive revenue recognition, which also makes management's explanation implausible.

Analysis

In view of these factors, the engagement team performs additional procedures to understand the nature of the unusual increase, for example inspecting:

- sales documentation during the last two months of the period; and
- production documentation.

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