CPA CHARTERED PROFESSIONAL ACCOUNTANTS CANADA

Audit Client Briefing

AUDIT DATA ANALYTICS

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Why CFOs Should Support the Use of Data Analytics in the Audit of Their Financial Statements

Purpose of This Publication

A recent survey of Canadian audit practitioners and its related research paper show that a significant number of companies in Canada expect their external auditors (herein, auditors) to use audit data analytics (ADAs), regardless of the size of the audit firm. Further, it shows that auditors perceive a significant positive relationship between auditor use of ADAs and confidence in the auditor's opinion.[1]

CPA Canada has developed this *Audit Client Briefing (Briefing)* to encourage CFOs to work with their organization's auditors to promote more frequent and effective use of ADAs in the audit of the financial statements.[2] Sample questions CFOs may wish to ask their auditors about ADAs are set out in this paper. The American Institute of Certified Public Accountants (AICPA) has defined audit data analytics as the science and art of discovering and analyzing

1 Hampton, Clark and Stratopoulos, Theophanis C., *Audit Data Analytics Use: An Exploratory Analysis* (November 29, 2016). Available at SSRN: https://ssrn.com/abstract=2877358

2 For purposes of brevity in this publication, the term CFO is used to describe any representative of an entity's management involved in the preparation of financial statements and having significant involvement with external auditors.

patterns, identifying anomalies, and extracting other useful information in data underlying or related to the subject matter of an audit through analysis, modeling, and visualization for the purpose of planning or performing the audit.[3]

By using ADAs, auditors are able to discover and analyze patterns, identify anomalies, and obtain other information from relevant data populations that may be very useful to an organization.[4] The potential organizational benefits include:

- deeper insights into the organization's systems and controls
- more robust performance information for management
- more effective and efficient interactions among auditors and finance staff
- an increase in audit quality.

There is a companion piece to this publication directed at auditors: ***Talking to Your Clients About Data Analytics***.

Why CFOs Should Discuss Use of ADAs with Auditors

CFOs are aware of the continuing significant advances in information technology (IT). These advances are enabling organizations of all types and sizes to better use data to improve their strategic, financial and operational decision making. In deciding on the appropriate nature, timing and extent of use of ADAs for their organization, a key consideration for CFOs is whether efforts within the organization are being complemented by efforts of their auditors to keep pace. Anecdotal evidence suggests that many organizations expect auditors to include ADAs in their audit plans today.

Potential Significant Benefits of an Auditor's Use of ADAs

A main objective of auditors who make use of ADAs is to improve audit quality. For example, some ADAs may allow the auditor to use more complex data models to increase the rigour of audit procedures. Their use may, for example, improve the auditor's assessments of the risks of material misstatement in various accounts through analysis of up to 100% of relevant data for those accounts.[5] With an increased use of ADAs, there is also the potential to provide significant additional value to management that may not otherwise be available. Examples are set out below.

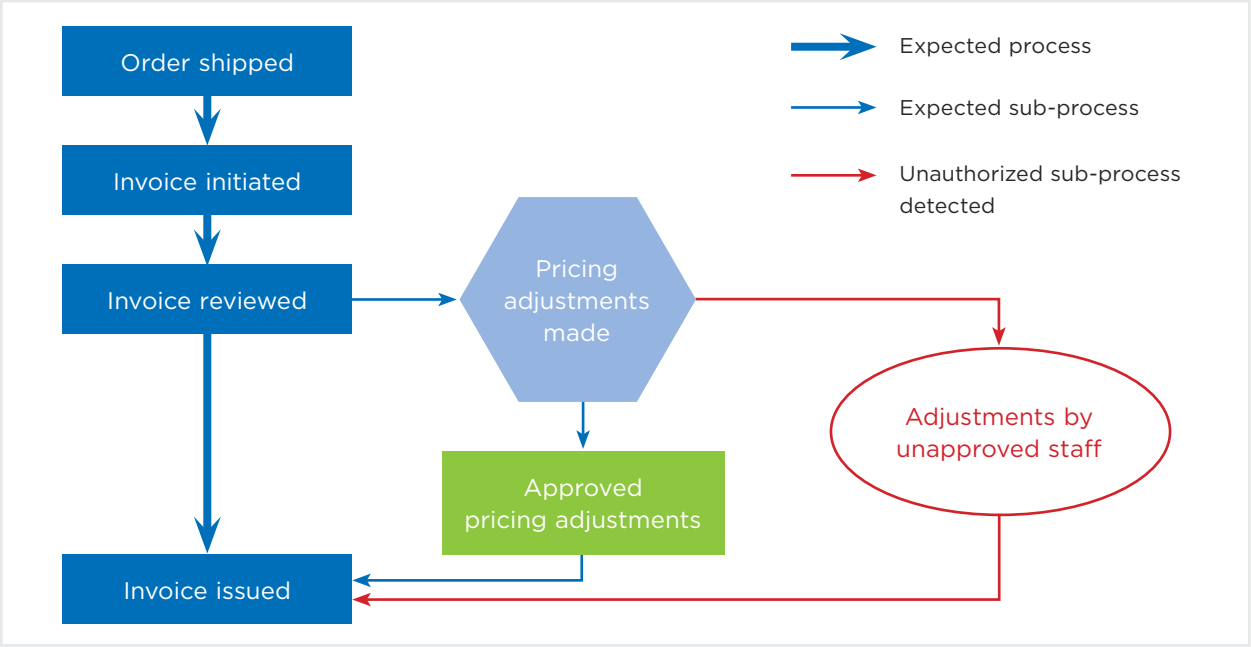
3 American Institute of Certified Public Accountants, Inc., *Audit Analytics and Continuous Audit, Looking Toward the Future*. (New York: AICPA, 2015), pp 92-93. **www.aicpa.org/interestareas/frc/assuranceadvisoryservices/downloadabledocuments/auditanalytics_lookingtowardfuture.pdf**
This definition originally appeared in the AICPA White Paper "Reimagining Auditing in a Wired World", August 2014, authored by Paul Byrnes, Tom Criste, Trevor Stewart and Miklos Vasarhelyi. **www.aicpa.org/InterestAreas/FRC/AssuranceAdvisoryServices/DownloadableDocuments/Whitepaper_Blue_Sky_Scenario-Pinkbook.pdf**

4 CPA Canada's Audit Data Analytics Alert (**www.cpacanada.ca/en/business-and-accounting-resources/audit-and-assurance/canadian-auditing-standards-cas/publications/audit-data-analytics-alert-pace-of-change**) provides information on issues related to use of data analytics by external auditors.

5 Because of the inherent limitations of any audit, the auditor obtains a high (but not absolute) level of assurance that financial statements are not materially misstated. Examining 100% of items in a population does not enable the auditor to obtain absolute assurance that there is no material misstatement in that population.

Deeper Insights into an Organization's Systems and Controls

Some auditors use various types of process mining to obtain a more in-depth understanding of how the organization processes significant classes of transactions. For example, the auditor may use event logs from the organization's enterprise resource planning (ERP) system to trace actions performed by the system (including those initiated by employees) for a significant transaction stream. The main objective may be to assess control risk (a key component of the risk of material misstatement of the financial statements). However, this ADA may also be quite revealing from a systems efficiency viewpoint. The number and types of transaction flows and sub-flows may be quite different from what the organization intended and the way they may be described in systems documentation. An example provided below demonstrates the detection of an unauthorized sub-process using process mining.



ADAs may also identify, for example, aspects of the system requiring an unusual amount of manual intervention in processing (e.g., manual journal entries) or other aspects of process flows that do not make sense, based on the auditor's knowledge of those flows in similar organizations.

Other types of ADAs may reveal information of significant use to management regarding their systems that may not be revealed by other audit approaches. For example, using advanced analytical tools, auditors may examine up to 100% of journal entries to reveal relationships and patterns in the account codes affected. This type of data analytic may provide insights into who authorized and posted the entries, including the timing and amounts.

The ADA may reveal how the entries were posted and give insights into where automation could be implemented to increase organizational efficiency.

As another example, the auditor may perform a three-way match procedure to compare the quantities, prices and product identifiers in up to 100% of customer purchase orders, sales invoices and shipping documents for the period under audit. Mismatches may indicate, for

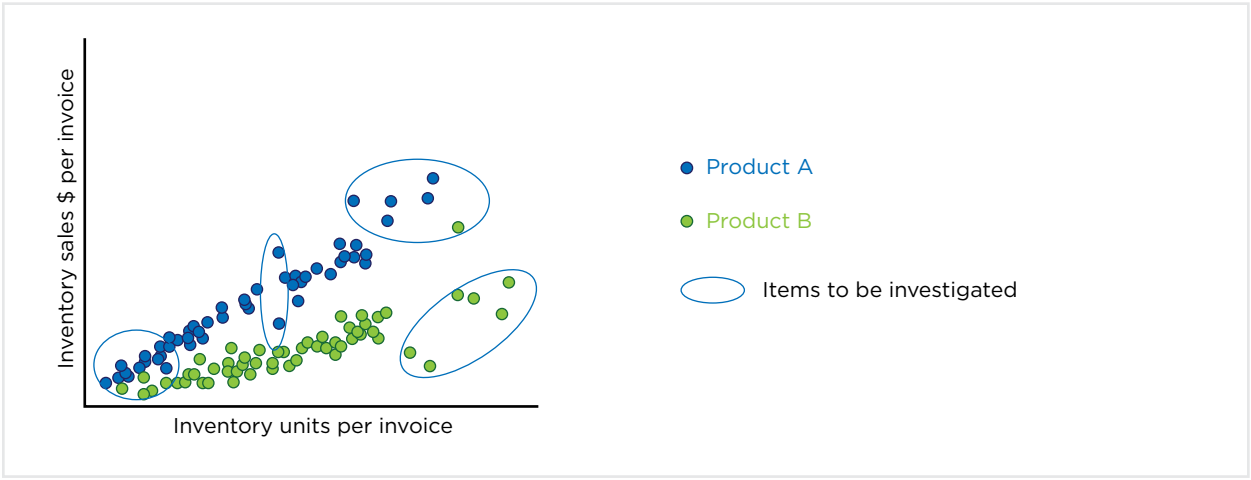
example, a control weakness that may not otherwise have been identified such as pricing errors or goods shipped without having been invoiced. When all, or virtually all, transactions have been covered by the data analytic, more specific and insightful information is likely to be revealed.

Another ADA used by some auditors is segregation of duties analysis through automated examination of user identifier fields for one or more types of transactions. The auditor is readily able to identify instances when the same individual performed incompatible functions. For example, the ADA could be applied to all sales transactions for the year to identify whether there were any instances of the same individual executing sales orders, processing delivery documents, and applying cash receipts.

More Robust Performance Information for Management

Many auditors have long used analytical procedures to calculate ratios and other performance indicators particularly relevant to the organization and the environment in which it operates. When practicable, these indicators are often compared to those of previous periods, industry averages or those of peer organizations. The use of IT enables the auditor to develop more robust ADAs involving greater amounts of disaggregated data over longer relevant time periods. For example, rather than focusing primarily on ratios or other indicators based on annual data, some auditors use various forms of pattern analysis (e.g., data mining, trend analysis, regression analysis) which may incorporate highly disaggregated data (e.g., monthly, weekly, daily, hourly) for multiple periods.

An example is depicted in the graphic below. A company sells two main products, A and B. The sales prices were expected to be stable during the period under audit. Each dot on the graph represents an invoice, with its position determined by sales dollars and sales units from the invoice. Most invoices should appear on a straight line (i.e., the pattern expected), with the slope for the higher-priced product (product A) being steeper. Those invoices significantly above the straight line may represent overbillings; those significantly below the straight line may represent underbillings. The ADA links each invoice to underlying data to help enable efficient and effective follow-up audit work on outliers. Even though the graphic shown is simplified, the ADA could also be used to analyze very large invoice populations.



One of the auditor's main objectives is to assess and respond effectively and efficiently to risks of material misstatement of financial statements. However, these more robust ADAs will often also reveal insights about the entity's operations, or even strategic decision-making processes. For example, in auditing accounting estimates such as allowances for doubtful accounts, inventory obsolescence or warranty provisions by using ADAs that have more breadth and depth, the auditor may be able to obtain valuable information on many aspects of transaction flows (e.g., product inflows and outflows, customer behaviours in terms of purchases, payments and returns of goods). This may include, when practicable, comparisons to performance measures used by the organization's peers that operate in a similar environment. The auditor is then able to convey useful insights to management.

More Effective and Efficient Interactions Among Auditors and Finance Staff

CFOs sometimes express concern about the amount of time finance staff have to spend dealing with questions from auditors. More extensive use of ADAs may improve the relevance and specificity of questions asked by the auditor. Further, rather than focusing on what happened, questions may often focus more productively on why a significant matter has arisen and its consequences. Reasons why ADAs may result in higher quality dialogue include the following:

- ADAs may often be developed in consultation with the organization's IT department to define the types of information and reports needed. These consultations often result in more consistent data requests from year to year and fewer follow-up requests for information from the finance team.

- Expectations, including what types of anomalies to expect, will typically be clearly defined in advance.

- Management and auditors are more likely to be talking the same language and be on the same page when discussing audit matters. However, they are also likely to bring somewhat different perspectives to the table, which is useful. Management will have its own in-depth knowledge of operations based in part on performing its own data analytics. The auditor's perspective will be objective and based on experience with other entities and informed by a knowledge of processes and controls that may not be available to the organization internally. The breadth and depth of information that may be available to the auditor through use of ADAs will often make the discussions with management and related outcomes more robust.

- As the auditor explores further and expands use of ADAs, requests may be made to management to provide data regarding matters relevant to both management and the auditor, for which the existing data sets are incomplete or otherwise of poor quality. Over time, management may decide that there is merit in closing these data gaps. The availability of better-quality data may help enable the organization to improve its own data analytics and performance reporting.

Sample Questions CFOs May Ask Auditors About Data Analytics

Can Your Auditors Use ADAs to Give You, the CFO, More Value from Your Audit?

Auditors' use of ADAs falls across a broad spectrum: some make extensive use of ADAs at a sophisticated level; others currently use them little or not at all. As a result, answers received to this question may vary significantly.

For auditors already making use of ADAs at a sophisticated level, the dialogue may focus on opportunities to go even further. The emphasis will be on continuing to improve audit quality and also on considering ways to provide even more and better insights to management as a result of the audit. This may be accomplished, for example, by capturing and analyzing new types of useful data, or looking at data in new ways.

For auditors making little, if any, use of ADAs, there will be significant opportunities to move forward. The dialogue in this case may focus on an implementation plan for appropriately integrating more ADAs into the audit over time, with the co-operation of management of the organization, particularly its finance and IT departments. Examples of low-hanging fruit, when contemplating integration of ADAs into your audits, might include procedures such as automated journal entry analysis and three-way matching of information in documents in key business processes. These types of ADAs may be relatively easy to implement but have the potential for substantial payback in terms of both audit quality and valuable insights that can be provided to management.

How Could You, the CFO, Help Your Auditors Increase Their Use of ADAs?

In some cases, a key barrier to overcome is the accessibility of relevant data by the auditor. To overcome this barrier, the co-operation and support of key personnel within the organization, including in particular IT personnel, is needed. For example, there often may be technical complexities to be addressed before the auditor can obtain data in a format suitable for performing the audit. These relate, for example, to data file and data field definitions, and data validation routines needed to assess the data completeness and integrity. This can be more complex in cases where an organization uses many different legacy systems that vary significantly in the way data is captured, managed and reported.

An effective and efficient transition to an increased use of ADAs requires both management and auditors to be open to changing processes. These changes may include, for example, management responding positively to more specific or extensive requests by auditors for data and to the auditor's use of different data-access tools.

In addition, CFOs, and IT personnel, may want to know how the auditor will maintain the integrity, security, and confidentiality of the data to which the auditor is given access, including any personal identifiable information required for audit purposes.

These matters may be addressed by timely and effective dialogue among the CFO, IT personnel and the auditor. Issues can be clearly set out and specific steps agreed upon to address them.

What About Audit Time and Costs?

Increased use of ADAs will not necessarily result in increased time and costs of the audit. In part, time and costs will depend on the nature and extent of the transition required to increase the use of ADAs. Realistically, in the period of transition, there may be more time and costs required to implement the changes. The benefits of the changes, to both management and auditors, will in most cases be realized in subsequent years.

Specific steps can be taken to help control audit time and costs. For example, auditors may, in some cases, have to spend considerable time "cleaning" data (i.e., dealing with missing or inaccurate data) before it is in a usable format for audit purposes. It is in the interests of the organization to ensure its data is "clean" prior to the audit.

The use of data analytics is a journey to be undertaken by both management and auditor. It is important to have open lines of communication and discuss ways ADAs can benefit management as well as the auditor. For more information on ADAs, please refer to **CPA Canada's Audit Data Analytics Committee webpage**.

Additional Resources

- **CPA Canada Audit Data Analytics Committee Landing Page**
- CPA Canada Publication — **Audit Data Analytics Alert: Talking to Your Clients about Data Analytics**
- CPA Canada Publication — **Audit Data Analytics Alert: Keeping Up with the Pace of Change**
- CPA Canada Webinar — **Business Analytics Part 1: An Introduction to Analytical Thinking**
- CPA Canada Webinar — **Business Analytics Part 2: Implementing Analytics in Your Organization**
- CPA Canada Webinar — **New Insights, New Models: The Power of Big Data and Analytics**
- AICPA **Audit Data Standards** — Voluntary, recommended data standards for the extraction of information. These data extract standards do not represent authoritative auditing or accounting standards.
- AICPA Publication — **Audit Analytics and Continuous Audit: Looking Toward the Future**

CPA Canada Audit Data Analytics Committee Members

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Members
(as of the date of publication)

Eric Au, CPA, CA, CBV, CIA, MAcc, BMath
Grant Thornton LLP
Toronto, ON

Neil Currie, CPA, CA
PricewaterhouseCoopers LLP
Toronto, ON

Malik Datardina, CPA, CA, CISA
Deloitte LLP
Toronto, ON

Sarah deGuzman, CPA, CA
KPMG LLP
Toronto, ON

Nicole Deschamps, CPA, CA
Deloitte LLP
Windsor, ON

Kam Grewal, CPA, CA, CPA (Colorado)
Ernst & Young LLP
Toronto, ON

Kieng Iv, CPA, CA, CMA, MAcc
Real Matters
Toronto, ON

Travis Leppky, FCPA, FCA, CISA
BDO Canada LLP
Winnipeg, MB

May Leung, CPA, CA, MAcc
Deloitte Touche Tohmatsu Limited
New York, NY

Theo Stratopoulos, PhD
University of Waterloo
Waterloo, ON

Author

Gregory P. Shields, CPA, CA

Staff

Birender Gill, CPA, CA

Juli-ann Gorgi, CPA, CA, MAcc

Kaylynn Pippo, CPA, CA

Comments

Comments on this *Audit Client Briefing*, or suggestions for future Audit Data Analytics guidance should be sent to:

Kaylynn Pippo, CPA, CA
Principal, Research, Guidance and Support
Audit & Assurance
Chartered Professional Accountants of Canada
277 Wellington Street West
Toronto ON M5V 3H2
Email: kpippo@cpacanada.ca