Generative AI for Advanced Data Analytics: Transforming Finance – Part 2

Examples of GenAI in Action

Following up in my previous blog a few days ago, consider a simple dataset of accounting journal entries. In my demonstration, I uploaded a General Ledger journal entry transactions file to Google Colab and prompted Gemini to "create a bubble chart about the source journals in this transaction file, show the best way both quantity of transactions and dollar amounts and focus on cash accounts."

In response, Gemini:

- Outlined its plan to load, explore, filter, analyze, visualize and summarize the data. This transparent approach provides users with a clear understanding of the steps involved in the analytical process, enhancing trust and confidence in the results.

- Wrote and executed Python code to perform the analysis and generate the visualizations. The ability to automatically generate and execute code is a key differentiator of GenAI tools, significantly streamlining the analytical workflow.

- Identified cash accounts by searching for the word "cash." While seemingly simple, this demonstrates GenAI's ability to understand the nuances of financial data and apply relevant domain knowledge.

- Created a bubble chart showing the quantity of transactions and dollar amounts for different source journals. This visualization provides a clear and concise summary of the data, enabling users to quickly identify key trends and outliers.

- Provided a summary of the key findings, insights and next steps, suggesting a focus on cash receipts and journal entries. This proactive guidance helps users to focus their attention on the most important areas of the analysis, improving efficiency and effectiveness.

This example illustrates how GenAI can automate the analytical process, from data loading to insight generation, making it more accessible to users with varying levels of technical expertise. I also demonstrated the ability of these tools to go beyond simple visualization, for example by comparing purchase orders and invoices, and identifying discrepancies in quantities and costs using different models within ChatGPT. This highlights the versatility of GenAI tools and their potential to address a wide range of analytical tasks in finance.

Platform Considerations: Copilot, Gemini, and More
It is important to understand the positioning of different platforms:

- **Microsoft Copilot:** Copilot aims to integrate AI across the Microsoft 365 suite, suggesting a future where users might leverage natural language within familiar applications such as Excel and Power BI, rather than switching to dedicated analytics tools for every task. In my testing, Copilot was able to generate an outline for a presentation and explain a chart, showcasing its potential to enhance productivity within the Microsoft ecosystem. This deep integration has the potential to transform the way finance professionals interact with their data and applications, making them more efficient and effective.

- **Gemini Data Science Agent:** As I experienced, this provides a powerful, free environment

for working with data, particularly within the Colab ecosystem. My demonstration highlighted its ability to handle Excel files, reason about data and generate code for analysis and visualization. The accessibility of Gemini in Colab, combined with its powerful analytical capabilities, makes it a valuable tool for students, researchers and professionals alike. However, it requires the ability to see past the Jupyter Notebook interface, which may be intimidating to some, even if the process is wizard-driven and started with pushing a simple on-screen button.

- **Other Platforms:** My demonstrations with ChatGPT, Deepseek, and Claude highlight the varying capabilities and reliability of different GenAI tools for data analysis. The differences I observed underscore the importance of understanding the strengths and weaknesses of each platform and selecting the tool that is most appropriate for the task at hand.

The Blurring Lines: When to Use What?
The increasing capabilities of GenAI raise a crucial question: When should analysts use GenAI tools, traditional analytics platforms, or productivity suites?

- **GenAI Tools:** Ideal for:
  - Exploratory data analysis and quick insights. GenAI tools excel at rapidly processing large volumes of data and identifying key trends and patterns, making them ideal for initial data exploration and gaining a quick understanding of the data landscape.
  - Tasks that require natural language interaction and automated code generation. The ability to interact with data using natural language and automate the generation of code makes GenAI tools particularly well-suited for users who lack advanced technical skills or who want to streamline their workflow.
  - Situations where users need contextual feedback and interpretations. GenAI tools can provide users with valuable context and interpretations of the data, helping them to understand the implications of their findings and make more informed decisions.
  - Rapid prototyping and experimentation. GenAI tools enable users to quickly test different analytical approaches and experiment with different data visualizations, facilitating rapid prototyping and innovation.

- **Traditional Analytics Platforms (Tableau, Alteryx, etc.):** Best for:
  - Complex data transformations and modeling. Traditional analytics platforms provide a wide range of tools and functions for performing complex data transformations, building sophisticated models, and conducting in-depth analysis.
  - Building robust, interactive dashboards and reports. These platforms offer powerful capabilities for creating visually appealing and interactive dashboards and reports that can be used to communicate insights to a wide audience.
  - Automating repetitive analytical workflows. Traditional analytics platforms enable users to automate repetitive tasks and create standardized workflows, improving efficiency and reducing the risk of errors.
  - Collaborative projects that require version control and governance. These platforms

provide features for collaboration, version control and data governance, ensuring that analytical projects are conducted in a controlled and auditable manner.

- ○ In-depth analysis and visualization for specific business needs. Traditional analytics platforms are often tailored to specific industries or business functions, providing specialized tools and capabilities for addressing unique analytical challenges.

- **Productivity Suites (Microsoft 365):** Suitable for:

  - ○ Standard reporting and data entry. Productivity suites provide the basic tools for creating standard reports and entering data, which are essential for many routine tasks in finance.

  - ○ Basic data manipulation and calculations. These suites offer fundamental capabilities for manipulating data and performing calculations, such as creating spreadsheets and performing simple analyses.

  - ○ Integration with other office applications. Productivity suites are designed to integrate seamlessly with other office applications, such as word processors and presentation software, facilitating the creation of comprehensive documents and presentations.

  - ○ Everyday tasks that don't require advanced analytical capabilities. Productivity suites are well-suited for everyday tasks that do not require advanced analytical capabilities, such as managing budgets, tracking expenses, and creating basic charts and graphs.

The Evolving Ecosystem

The lines between these categories are becoming increasingly blurred. Microsoft's rebranding of "Office" to Microsoft 365 and the integration of Copilot Chat exemplify this trend. Copilot aims to transform the traditional office suite into an agentic platform, where users interact with their data and applications through natural language. This shift suggests a future where users may start their analytical journey within a chat interface rather than by opening Excel or Power BI directly. This represents a fundamental shift in the way people interact with technology, moving away from a tool-centric approach to a more human-centric, conversational paradigm.

Furthermore, collaboration platforms like Zoom are expanding their offerings to include document editing ("Docs"), workflow automation ("Workflows") and AI assistants. These developments suggest that these platforms may also play a role in the future of data analysis, potentially competing with traditional tools and GenAI solutions. As these platforms evolve, they may offer users a more integrated and streamlined experience for accessing and analyzing data, further blurring the lines between different types of software and platforms.

Conclusion

Generative AI is poised to revolutionize data analytics in finance, offering new ways to explore data, gain insights and make decisions. From agentic AI in Colab to Copilot in Microsoft 365, the integration of GenAI into existing workflows and platforms is accelerating. As I pointed out, tools such as Gemini in Colab are making advanced data analytics more accessible to a wider audience, including students and those new to the field. While traditional tools will continue to play a vital role, GenAI is emerging as a powerful complement, particularly for exploratory analysis, natural language interaction and automated code generation. As the technology

evolves, we can expect even greater integration of AI into the financial analyst's toolkit, further blurring the lines between different types of software and platforms. The key for finance professionals will be to embrace these new tools and learn how to leverage them effectively alongside their existing workflows. This will require a commitment to continuous learning and adaptation, as the field of data analytics continues to evolve at a rapid pace.