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Advanced analytics in finance

Addressing investment management challenges with analytics and predictive modeling

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Introduction

The investment management industry continues to undergo rapid change. Higher interest rates are driving investors to lower-margin, passively managed products and shorter-duration, fixed income investments, which is intensifying pressure on profitability.

Recent geopolitical conflicts have led to uncertainty across markets. More stringent regulations and potential ESG reporting mandates, the push to innovate and align products to the latest market trends, and the opportunity to invest in technology to support new capabilities in Generative AI (GenAI) are inflating costs. As firms navigate these dynamics, finance leaders are increasingly looked to as beacons of forward-looking insights that can inform the path ahead, especially as spending on artificial intelligence, and data analytics expected to increase in 2024 and beyond.

To bring your business into the future with a transformation strategy that covers all bases, this paper outlines the various challenges in data, tools, and skills CFOs may face as they incorporate advanced analytics in their organizations. Through use cases, we highlight how investment management CFOs use leading capabilities to transform the way they drive their firms and support their business partners. We offer thoughts on more advanced capabilities, including scenario-based predictive analytics to forecast AUM, net flows and revenue. The findings in the paper are based on Deloitte's experience in helping clients build these capabilities, as well as proprietary surveys of investment management firms across the world and interviews with subject-matter specialists.

Common finance analytics challenges

Navigating the complex landscape of finance analytics, several challenges stand in the way of firms seeking to optimize their operations and harness the full potential of their data. From dealing with fragmented finance data and the inertia of legacy systems to the pressing need for next-gen skills and overcoming resistance to change, these issues present substantial obstacles. Understanding these challenges can help CFOs to formulate strategies to overcome them:

Fragmented finance data

The lack of compartmentalization and inconsistent data-labeling practices across departments creates reconciliation and harmonization needs at the firmwide level. Unorganized data can result in unreliable turnaround times for deliverables, leading to confusion, mistrust, and uninformed decision-making. Additionally, there could be multiple versions of product masters kept in legacy systems, leading to inconsistency in product definitions across the front, middle, and back offices.

Dependency on legacy systems and processes

It is common for many asset managers to rely on manually intensive data processes. In a recent CFO Signals' *Crunch time* report, Deloitte found that most organizations are spending less than 20% of their time on predictive and insightful work and less than 15% of resources time on cognitive-enabled activities, such as machine learning, that can handle large amounts of data (unlike spreadsheets). Additionally, machine learning allows for constant learning and updates to models, facilitating higher output accuracy.

Recruiting and retaining next-gen skills

To make the transition from a traditional reporting and analytics approach to more dynamic capabilities that leverage big data analytics, companies need resources who are well-versed in the appropriate tools and skills, such as python scripting, machine learning, and Alteryx. This need for next-gen skills has created an imbalance between workforce demand and supply.

Resistance to change and securing funding

As with many attempts to make significant modifications to an organization's processes, there will be resistance to change. Some resources, for example, are used to doing manual and repetitive tasks and may feel threatened by the potential for automation. At the more senior level, managers and executives may be accustomed to making decisions based on limited data and their instincts. Relying on datasets and analytics that are not entirely within their control may cause concern and frustration. Firms need a carefully designed change management plan to address these concerns. Additionally, to secure funding for analytics initiatives, finance teams must clearly articulate their business cases with qualitative and quantitative benefits (e.g., cost reduction, fewer manual errors, freeing up resources to provide more value-add services).

Potential solutions and Deloitte use cases

Solving for these challenges requires investment in current technology and better-trained resources. Finance organizations need to identify tools and leading practices that can help them build advanced analytical capabilities. To assist, Deloitte has built predictive analytics tools, such as PrecisionView™ (see appendix for additional information), to help clients improve finance processes, adopt modern practices, increase forecasting accuracy and timeliness, and deliver analyses that help make important business decisions. The following two use cases show how two firms automate their costing allocations and migrate from archaic forecasting methods to predictive analytics.

USE CASE 1

Automated costing allocation: *Insights into product, sales, and team profitability*

Challenge

A top-10 investment manager, was struggling with an automated cost allocation solution for its fund products. The root cause of this struggle was linked to the use of manual spreadsheets to attribute costing measures. This methodology increased the time to refresh the model, which led to manual errors and issues with cost-driver accuracy. The final costing results were also compromised.

The client defined data management hierarchies for its products by placing them at the lowest nodes, while roll-ups of investment teams were allocated to higher-level nodes. It did not, however, have a product/client master tying the primary identifiers across financial and nonfinancial data sources. Additionally, there was no data acquisition strategy to support the automation of a costing solution.

We also observed that the advanced costing drivers, such as sales data through its customer relationship management (CRM) system and total cost of ownership (TCO) drivers for technology expenses, were either not fully developed or not present in an automated source system. Lastly, there was reluctance among the FP&A resources to change, as they were more comfortable using their manual spreadsheet-based model, which they had been using for years.

Proposed solution

Thinking big, starting small

In the first phase of the project, we built a proof-of-concept (PoC) costing solution for one region—North America Retail Funds. Once the process was established, the solution could be adapted to other regions.

Costing tool selection

The critical decision was to identify the technology that would be used to deliver mutual fund product costing. Based on our recommendation, the client chose a leading cost management tool due to its compatibility with the client's existing data architecture and source systems. This choice allowed for the design and creation of a model containing all the logic in one central application.

Laying down the core costing methodology

The team next focused on cost allocation accuracy, which is dependent on selecting the appropriate value driver for each spend category (investment management, product development, etc.) in the expense baseline. These drivers are used to allocate costs from cost centers to specific fund products.

Drivers were chosen that would allow for meaningfully influenced decision-making and were readily available from a source system in a repeatable, consistent, and automated format.

Data strategy to tie up model inputs, tools, and outputs

The next key step was to develop a data strategy that allowed for the sourcing of the cost model inputs (drivers, hierarchies, baseline, etc.). We recommended the creation of a central data lake to house firmwide data and to connect the lake directly to the costing tool, which helped reduce the risk of manual errors and time-consuming data transformation.

Model implementation and validation

The team then created allocation rules for the tool. Once allocation rules were established, the team coded the rules into the tool and ran the model.

Model outputs were then socialized with a broader set of stakeholders for review. This step can be one of the most time consuming because it takes time for the business to "trust" the outputs from an automated costing tool after being accustomed to manual spreadsheets and ad hoc models.

Generating actionable insights from the model

Once the stakeholders were confident with the model, we worked to transform the outputs so they were both easily digestible and readily available. We engaged closely with the business to design reports and dashboards to help ensure the data addressed end-user needs.

Building flexibility into the model

While the original cost allocation model was designed to address specific needs, the team created the model in a way to allow for the additional functionality. Examples could include enterprise cost reduction analytics, transfer pricing for tax compliance and audit readiness, and streamlining of intercompany transactions.

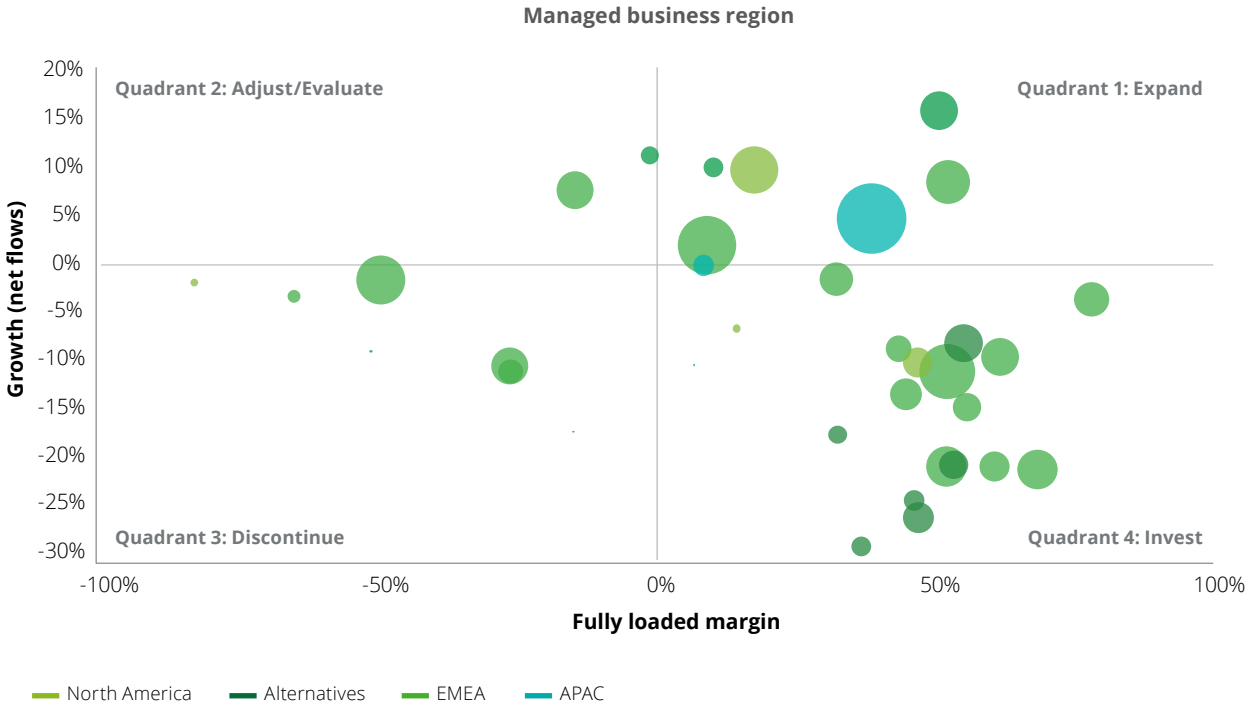
Results

The profitability and cost allocation data were used to gain more transparency in servicing, distribution, and production of investment management products (e.g., mutual funds, ETFs, separate accounts). Once the cost-transparency results were validated, multiple use cases across regulatory reporting, product portfolio management, and sales strategy were built on top of the data.

Regulatory reporting: This use case relates to the annual 15(c) reporting for mutual funds, which requires firms to report profitability at adviser, distributor, and transfer agency legal-entity levels to ensure funds are not overcharging their investors. The 15(c) reports generated using the costing tool were presented to the board, which appreciated the transparency and accuracy of these reports. Further, the report generation took just two days to refresh using the tool, compared to three to four weeks when prepared manually.

Product portfolio management: The costing results from the tool were layered in with product revenues and gross sourced sales to allow for comparison of profitability margins (direct and net margins) and AUM/revenue growth across product classes (e.g., equity, ETFs, separate accounts) and regions (e.g., China, United States, Latin America). These management reporting views provided leadership with a strategic view of their product groups' performance and allowed them to focus their resources on high-growth product lines, ramp down unprofitable businesses and undertake cost rationalization measures.

As an example, the chart below plotted the year-over-year growth of net flows (y-axis) with fully loaded margin (x-axis) for select products across regions. The graph was divided into four broad quadrants to group products with similar characteristics, and the client then made decisions based on the results:



Quadrant 1 (Expand): Client launched an additional suite of equity ETFs in emerging markets (where it was already operating) due to the high margin and overall growth of ETFs as an asset class.

Quadrant 2 (Adjust/Evaluate): Client reevaluated the price points of SMA mandates and adjusted resources bonuses.

Quadrant 3 (Discontinue): Organization reduced the number of active mutual funds and redirected resources to better-performing categories (e.g., equity ETFs, separate accounts in certain regions).

Quadrant 4 (Invest): Firm reduced distribution fees to encourage its partners to focus on selling ESG funds.

USE CASE 2
Forecasting using predictive modeling

Challenge

Investment management firms have traditionally leveraged basic historical data (e.g., expenses, revenue, cash flows) to make business decisions. They have, however, struggled to forecast key metrics, such as AUM and net flows, and to perform scenario and "what-if" analyses.

The first constraint a top US-based Investment Management firm faced was the use of manual spreadsheet models to prepare forecasts. The client estimated future AUM and revenue growth at a general level (e.g., AUM of US retail funds will grow by 4% per year for the next two years) rather than at a more precise level (e.g., US retail equity mutual funds focused on large-cap value will grow by 4% per year for the next two years). The organization was unable to provide clear and accurate forecasts because its estimates' limited granularity and its finance team expending effort to manually prepare and maintain the data.

Secondly, the client did not have the tools and technology required to incorporate more sophisticated scenarios and driver-based predictive forecasting. Scenario-based forecasting allows for a range of forecasts across different metrics and market cycles. It also enables the business to stress-test its viability for potential bearish scenarios.

Proposed solution

To assist the client in addressing these challenges, we leveraged Deloitte's proprietary tool, PrecisionView™ (see appendix for additional information). This application enables systematic data aggregation and predictive modeling using historical driver data combined with regression analysis, data mining techniques, and machine learning.

Predictive modeling was leveraged to forecast key performance indicators such as AUM and net flows using a combination of internal and external factors. The suite of capabilities offered by PrecisionView™ facilitated scenario modeling and sensitivity analysis that challenged the client's assumptions about the future and plan its business strategy. Exploring a range of alternative scenarios allowed business leaders to identify potential risks, including possible long-tail events.

Results

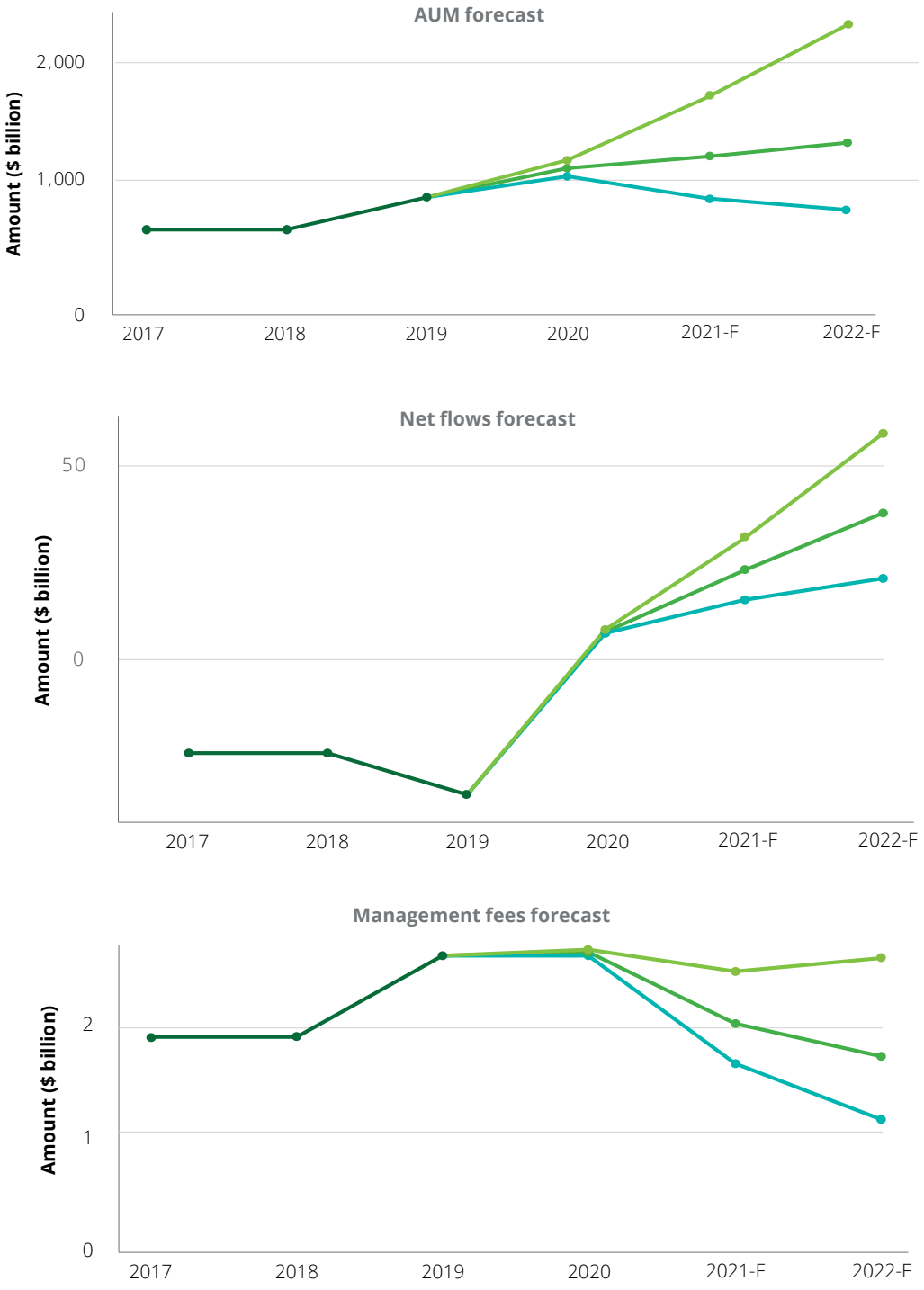
The tool implemented at the client enabled multiple use cases, such as scenario modeling, identifying key drivers that help in predicting model outputs, and sensitivity analyses.

Scenario modeling: With PrecisionView, model outputs were forecasted across three scenarios:

- **Base scenario:** Used the "as-is" model forecast values.
- **Bullish scenario:** Increased forecasted values by 1% per month for expense ratio, fund alpha, GDP, certain market index returns, and the Treasury rate.
- **Bearish scenario:** Decreased forecasted values by 1% per month for expense ratio, fund alpha, GDP, certain market index returns, and the Treasury rate.

PrecisionView outputs: Scenario modeling

The duration of the forecast was two years (January 2021 to December 2022). Outputs were directly fed into the valuation model and helped the CFO estimate the company's stock price across scenarios and perform modeling to assist with stress-testing.



Note: The scenarios are easily customizable depending on client requirements.

Driver identification:

The tool also helped in identify the most significant drivers to metric forecasts. The table below shows the top drivers that helped predict ETF AUM.

Rank list	Driver category	Driver	p-value
1	External driver	US Real Estate Index	.023
2	Internal driver	Active products	.036
3	Internal driver	Inflows - new sales	.047

Sensitivity analysis:

Sensitivity analyses helped the client better understand changes in outputs (AUM, net flows and revenue) relative to changes in input drivers (e.g., expense ratio, fund alpha). This information allowed the client to quantify the impact of drivers on the segment's top line and to focus resources in areas that would create maximum impact. Using the sensitivity analysis, the client understood the range of revenue and net flows by varying the "expense ratio" driver. This analysis was used as an input in adjusting ETF product pricing in future quarters.

The table below shows how the quarterly revenue forecast for the ETFs equity segment changed as the "expense ratio" driver was modified.

Expense ratio

Time period	0.1%	0.2%	0.3%	0.4%	0.5%
FY21 - Q1	$59.5	$86.3	$99.2	$103.2	$94.9
FY21 - Q2	$60.2	$87.3	$100.4	$104.4	$96.0
FY21 - Q3	$63.0	$91.4	$105.1	$109.3	$100.5
FY21 - Q4	$64.3	$93.2	$107.2	$111.5	$102.6
FY22 - Q1	$66.0	$95.7	$110.1	$114.5	$105.3
FY22 - Q2	$67.7	$98.2	$112.9	$117.4	$108.0
FY22 - Q3	$70.5	$102.2	$117.6	$122.3	$112.5
FY22 - Q4	$70.9	$102.8	$118.2	$123.0	$113.1

Revenue forecast (millions)

We can help

The investment management industry is undergoing significant changes. CFOs should consider adapting to the new environment by leveraging the power of analytics and GenAI, and plan better for an increasingly dynamic future. The analytics use cases demonstrate the tangible benefits our clients achieved in two situations. There are many other analytics initiatives that can also be compelling value-adds, which could lead to significant cost-reduction benefits.

Due to the multitude of opportunities available, it is important to prioritize initiatives that focus on business impact, budget, and resource availability. Once prioritized, it is critical to have a clear implementation strategy and use pilots to assess progress and better ensure success.

Predictive analytics contributes to an overarching strategy that can enable organizations to proceed with informed decision-making. Data automation allows data that is typically unorganized, to be automatically sorted and compartmentalized. This technology assists managers by helping to cut down on time-consuming manual processes, and it can also alleviate the stress on common spreadsheet software by breaking up the data into more manageable chunks. This will also better position organizations to take advantage of leading AI and GenAI tools and capabilities.

The case studies we shared provide examples of how analytics and predictive modeling help solve complicated business problems and encourage leaders to gradually incorporate these practices into their workflow. All of this could seem daunting at first, but we can help on this journey by leveraging our client experience, network of subject-matter specialists, and strong analytics execution capabilities.

Appendix

PrecisionView™ can offer several advantages over standard enterprise performance management (EPM) tools in multiple ways. First, most EPM tools can only consume discrete inputs on company-specific drivers to compute forecasts. Second, they typically cannot leverage external drivers and, as a result, the predictions are less sensitive to the changes in the economy. Third, sophisticated modeling techniques, such as regression and time-series analysis, are not available in the standard EPM tools. Most forecasting is based on trend analysis, rather than computing scientific correlations with a set of relevant internal and external drivers. Fourth, standard EPM tools lack the ability to perform scenario modeling and sensitivity analysis. Finally, with most EPM solutions, there is a massive time and resource requirement to make the solution compatible with existing data architecture.

When rolling out any standard EPM solution for achieving analytics proficiency, there is a need to replace existing legacy systems and processes or to choose from only a small subset of compatible options, which may not always be optimal and could take a while. PrecisionView™ saves on time due to its preexisting compatibility with most leading EPM tools and applications. It is an end-to-end solution with built-in capabilities for data aggregation, predictive analytics, scenario modeling, data visualization, and data reporting.

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