Spreadsheets and Capital Markets:

The State of the Enterprise

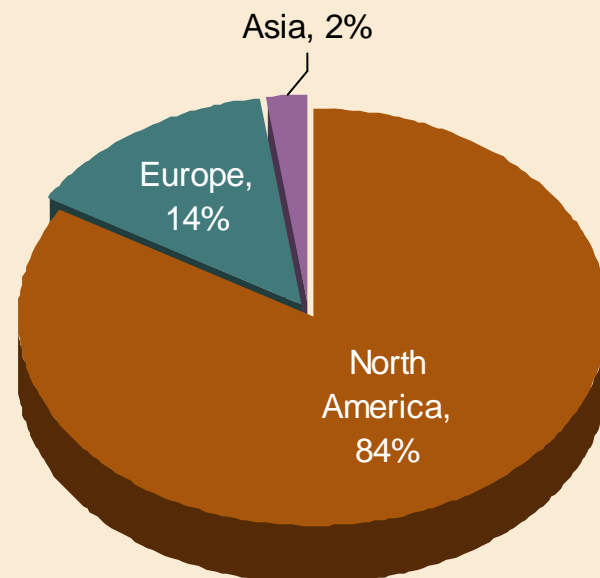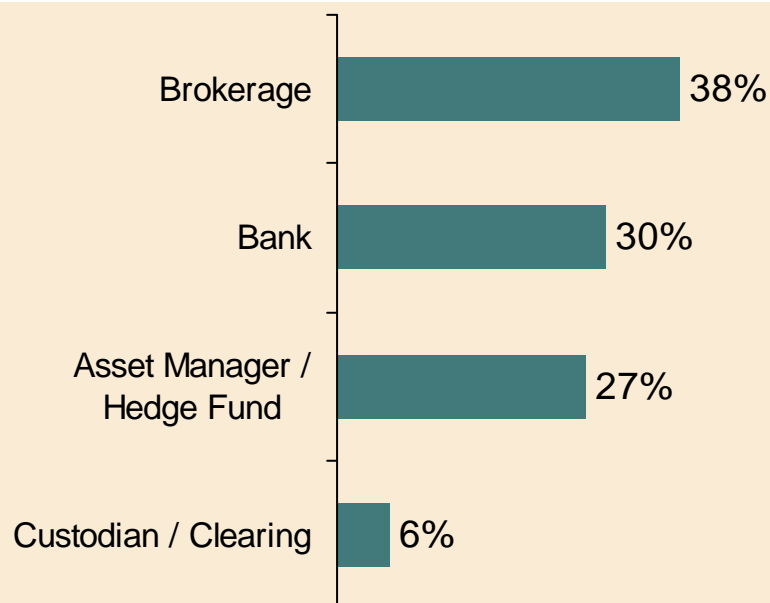**Adam Sussman | Cheyenne Morgan**

65 responses from a broad range of capital markets organizations

Survey Demographics

Brokerage — 38%
Bank — 30%
Asset Manager / Hedge Fund — 27%
Custodian / Clearing — 6%

Asia, 2%
Europe, 14%
North America, 84%

Participants' Roles

IT — 29%
Product Manager — 26%
Trading — 22%
Risk Management — 14%
Quantitative Research — 6%
Clearing & Settlement — 3%
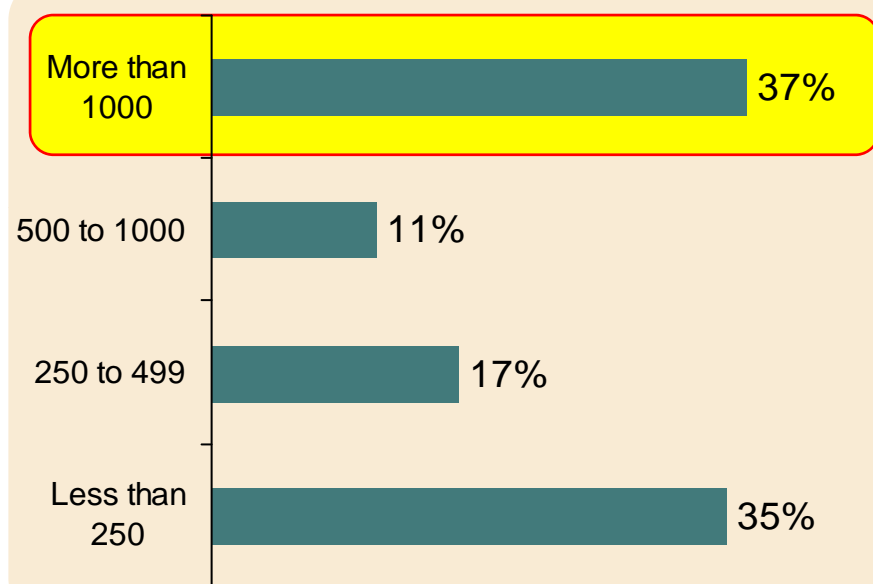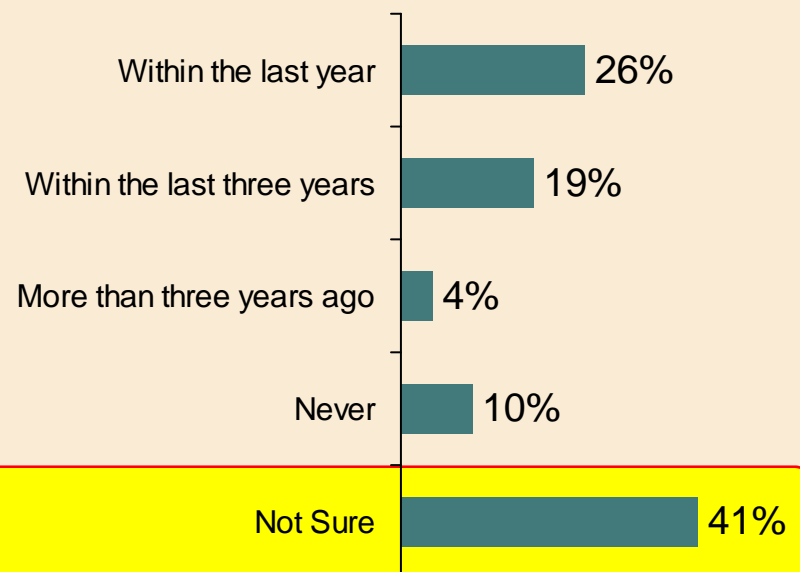
The number of spreadsheets that are essential for day to day operations is often in the thousands

How many business critical spreadsheets exist in your organization?

More than 1000	37%
500 to 1000	11%
250 to 499	17%
Less than 250	35%

When did you last audit the complexity and potential cost of errors of spreadsheets?

|	
Within the last year	26%
Within the last three years	19%
More than three years ago	4%
Never	10%
Not Sure	41%

Best practices in spreadsheet management

▲ These processes will focus on cataloging, auditing and managing thousands of spreadsheets packed with complex financial contracts, P&L statements, and links to external databases and market data.
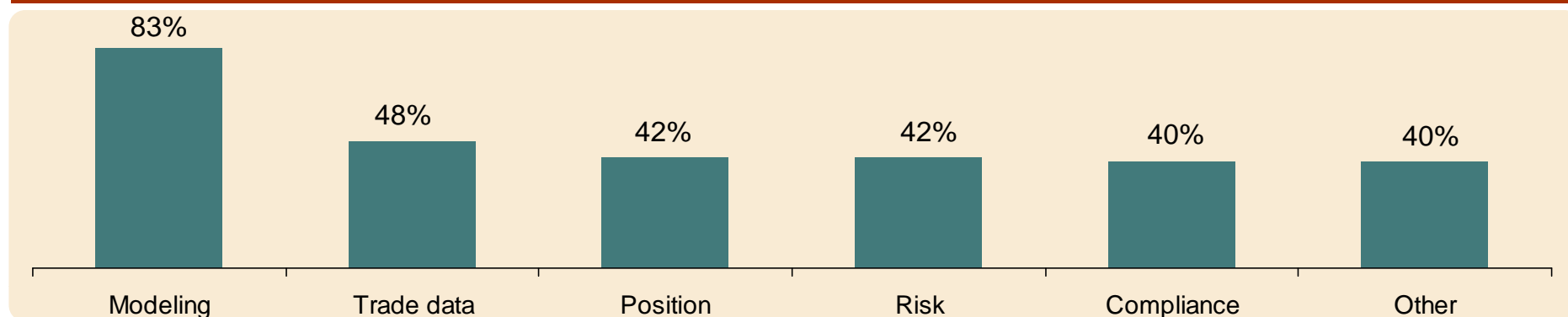
Spreadsheets are often used as reporting tools, pulling in data from different parts of the enterprise

Do you use Excel to retrieve data from other applications for reporting purposes?

No, 16%

In Progress, 10%
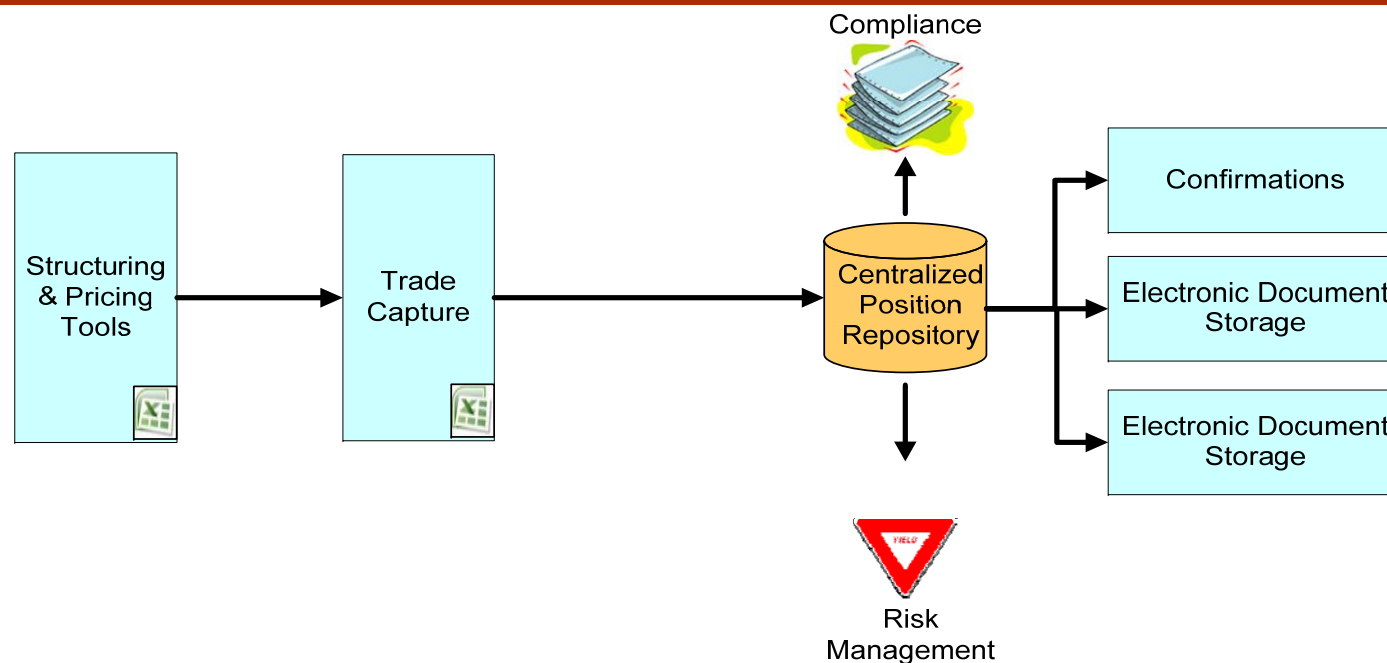
Yes, from multiple sources, 74%
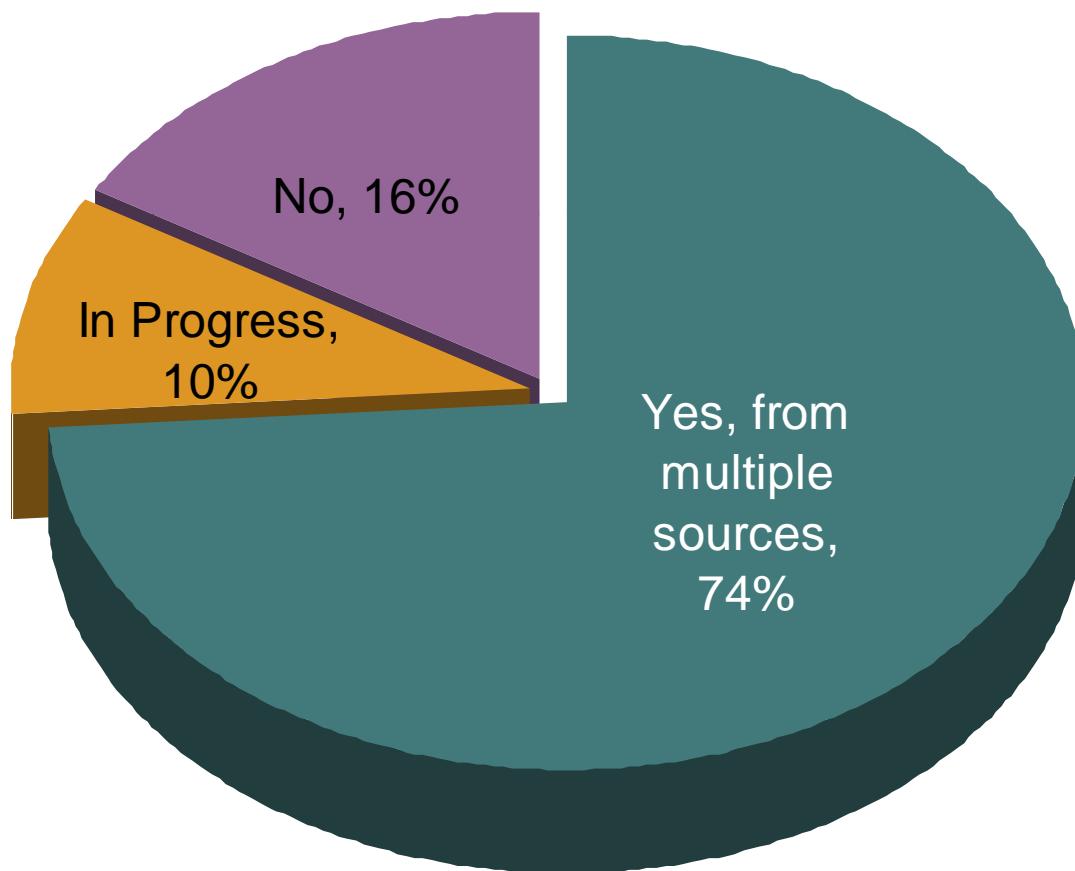
The front-office is heavily dependent on spreadsheets though usage is found across the workflow

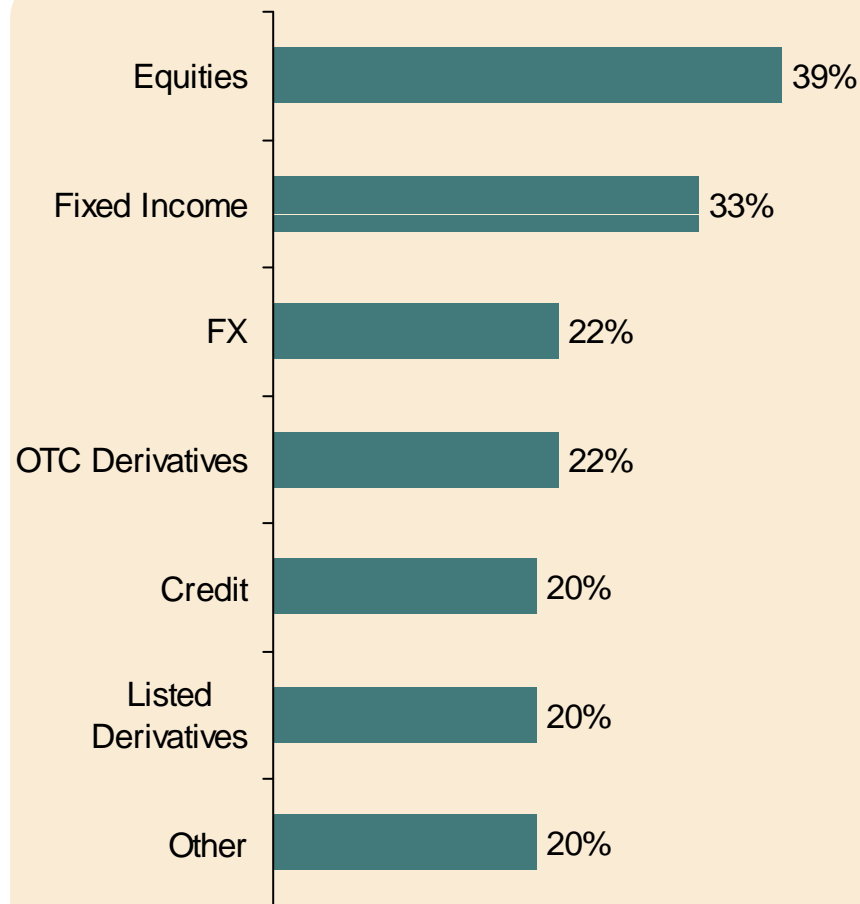## Where in the trade workflow are spreadsheets used?

Modeling	Trade data	Position	Risk	Compliance	Other
83%	48%	42%	42%	40%	40%

Trade Workflow

Compliance

Structuring & Pricing Tools → Trade Capture → Centralized Position Repository

Centralized Position Repository → Confirmations

Centralized Position Repository → Electronic Document Storage

Centralized Position Repository → Electronic Document Storage
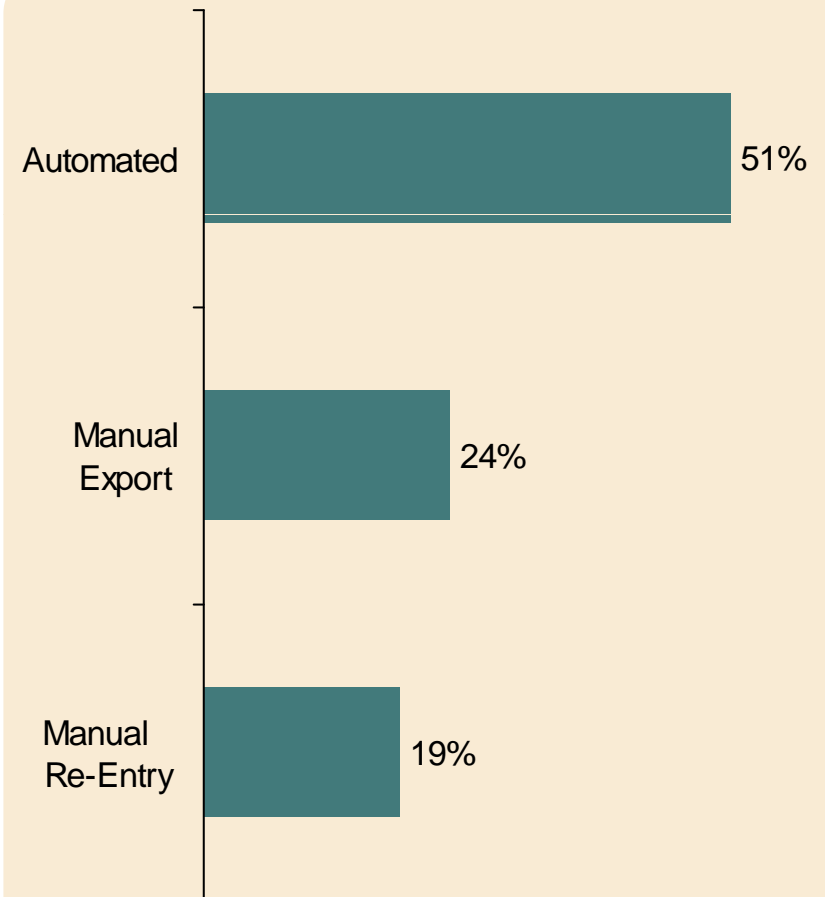
Risk Management

Small firms use Excel for trade capture in equities, others use it for custom products

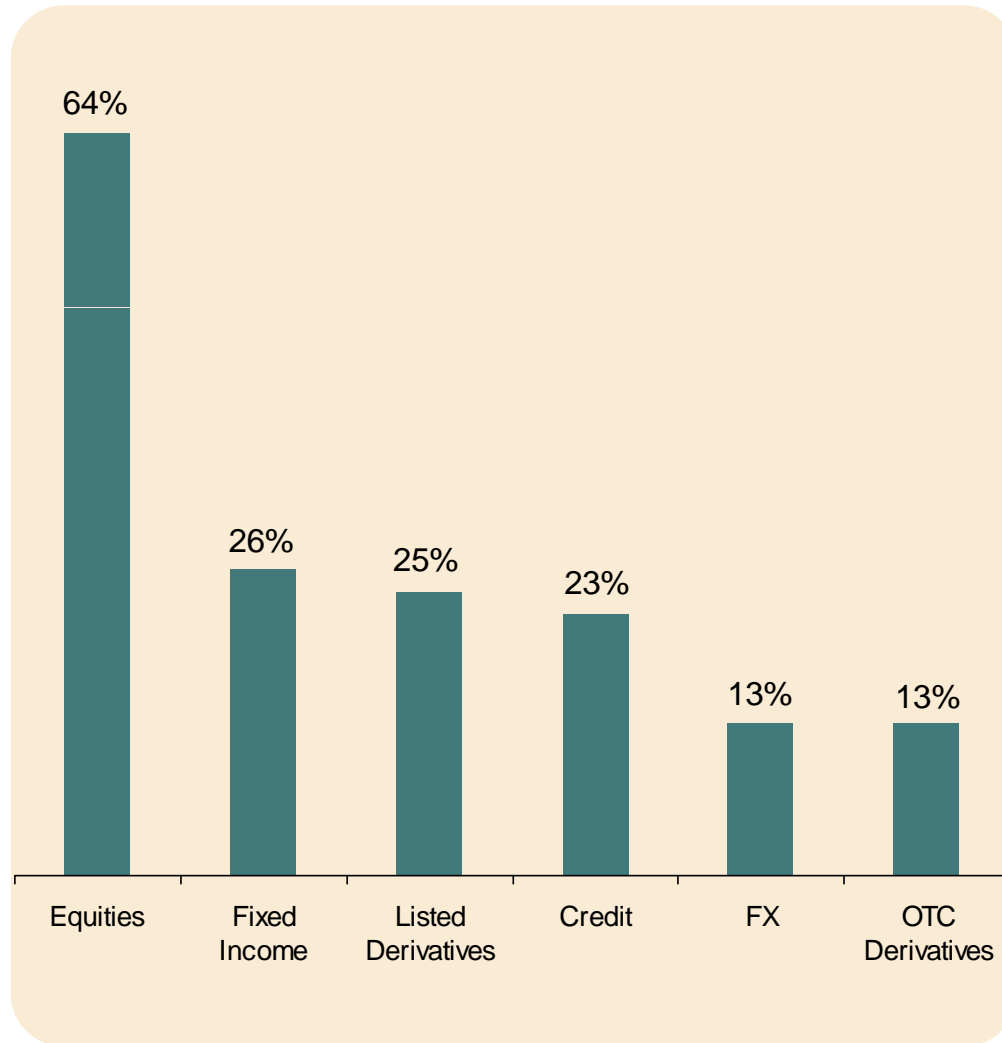## Asset Classes for Which Spreadsheets are Used to Capture Trade Data

Asset Class	Percentage
Equities	39%
Fixed Income	33%
FX	22%
OTC Derivatives	22%
Credit	20%
Listed Derivatives	20%
Other	20%

How is the trade data pulled from Excel?

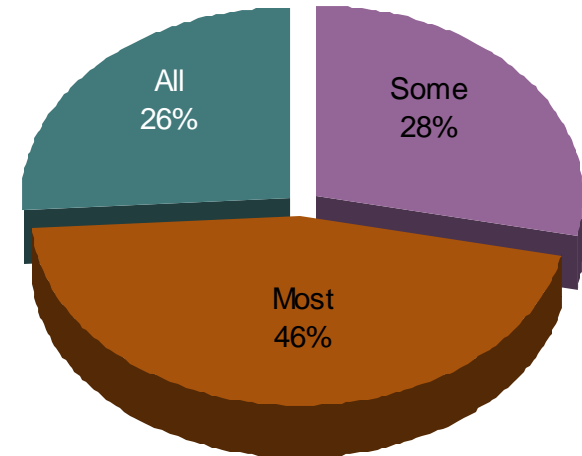| Method	Percentage
Automated	51%
Manual Export	24%
Manual Re-Entry	19%

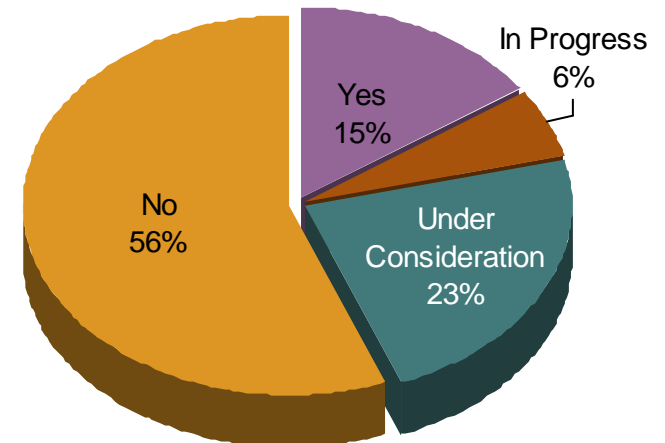# 83% of participating organizations use spreadsheets for modeling, analyzing and pricing financial instruments

Asset Classes for Which Excel is Used for Modeling

- Equities: 64%
- Fixed Income: 26%
- Listed Derivatives: 25%
- Credit: 23%
- FX: 13%
- OTC Derivatives: 13%

How much is done in Excel?

- All: 26%
- Some: 28%
- Most: 46%

Do you integrate analytics providers?

- No: 56%
- Yes: 15%
- In Progress: 6%
- Under Consideration: 23%

In order to facilitate modeling, over three-quarters of users bring market data into the spreadsheet

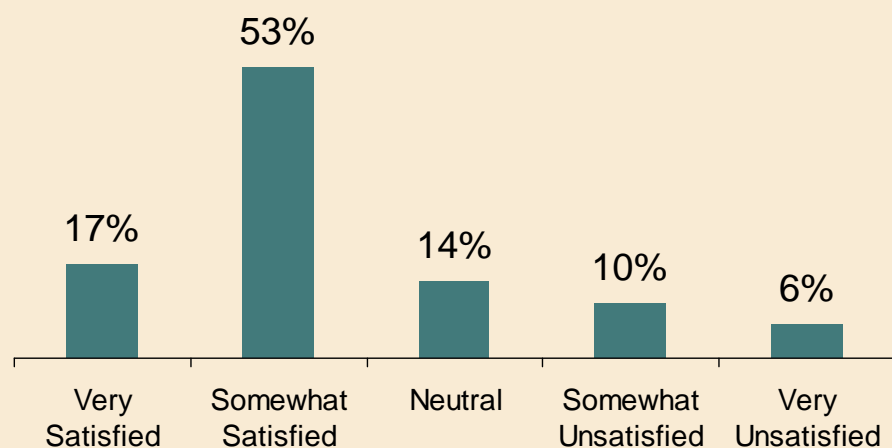**When using spreadsheets that pull in real-time market data, what is the source of the data?**

- Bloomberg: 51%
- Reuters: 40%
- Proprietary: 34%
- Public Domain (Google/Yahoo): 22%
- Other: 12%
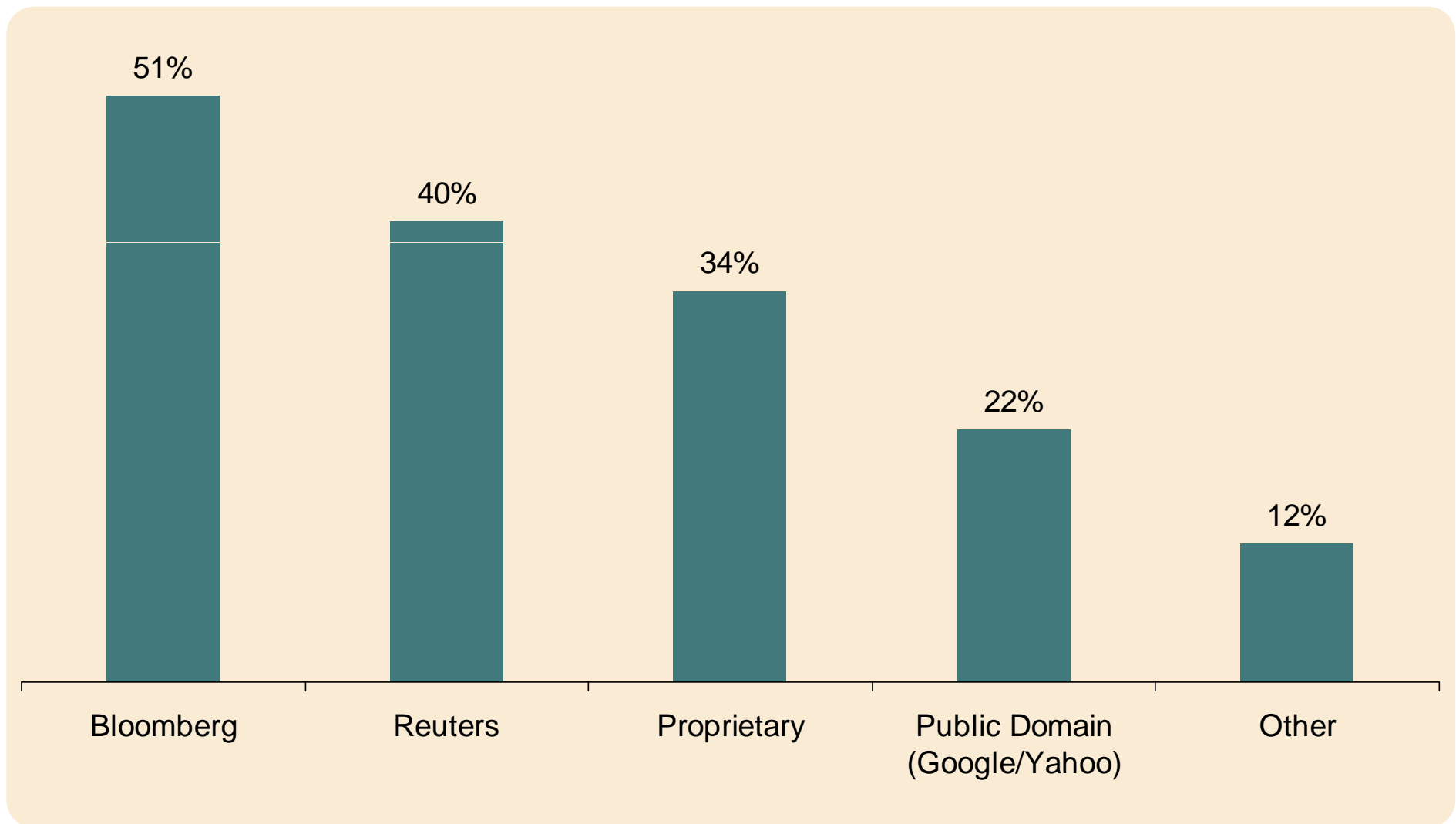
At the same time, modeling needs to keep up with growing amounts of data

10 Years of US Equity Options Messages = Over 57 Terabytes

CAGR 50%

CAGR 80%

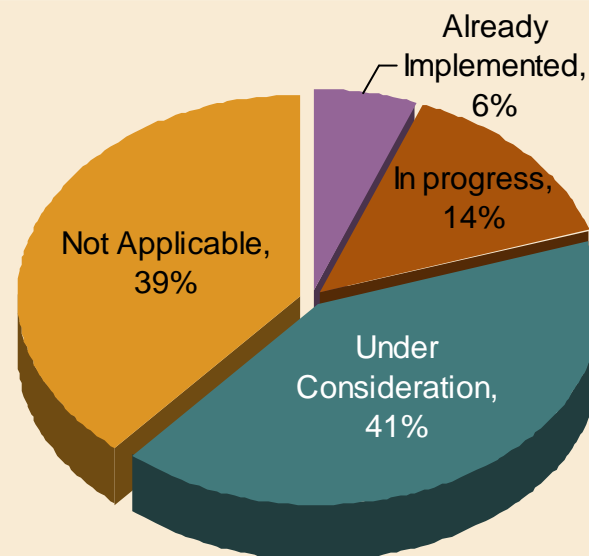| Year	Value
2000	172
2001	263
2002	340
2003	516
2004	1,221
2005	2,996
2006	5,785
2007	9,091
2008	18,309
2009e	19,072
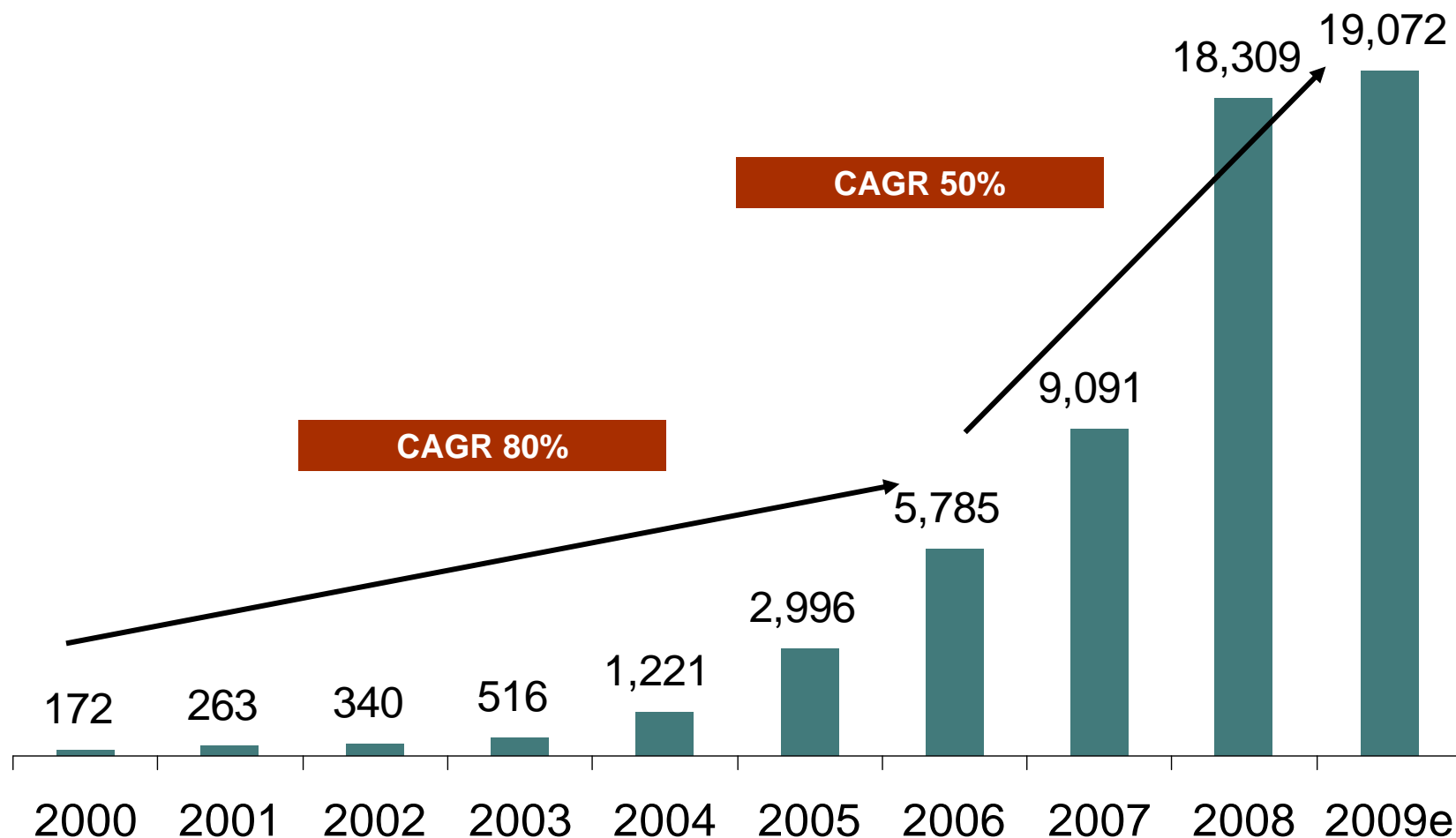
While satisfaction with current state of apps is high, 20% of firms will have HPC-powered spreadsheets

Satisfaction with Spreadsheet Applications

- Very Satisfied: 17%
- Somewhat Satisfied: 53%
- Neutral: 14%
- Somewhat Unsatisfied: 10%
- Very Unsatisfied: 6%

Attitudes Toward Running Excel on HPC

- Already Implemented, 6%
- In progress, 14%
- Under Consideration, 41%
- Not Applicable, 39%

Maximizing Functionality

▲ Spreadsheets often become crowded with Excel-based formulas, pivot tables, user-defined links to data and customized macros.

▲ For complex analysis perhaps running off of an HPC cluster with Excel services may be most appropriate.

▲ Excel has become one of the most popular tools used by firms to price financial securities.

▲ Integrated analytics allow for customers to quickly price securities and implement strategy without ever leaving a spreadsheet.

# Managing shared spreadsheets is often done manually which creates risk of overwriting critical information

How Do You Manage Multiple Users of a Spreadsheet?

- Manually, 33%
- Microsoft Sharepoint, 25%
- Internal Solution, 11%
- Not used simultaneously, 31%
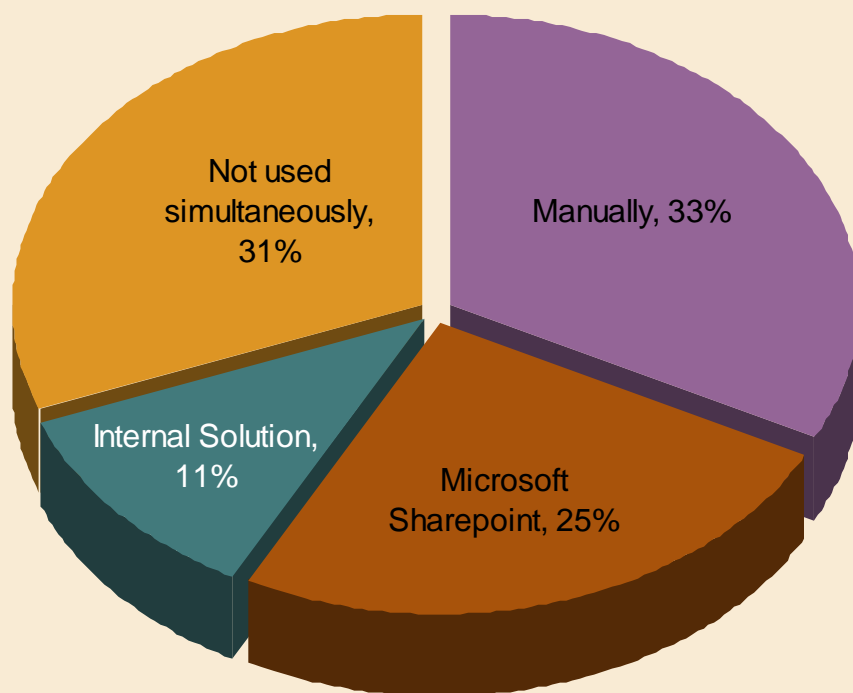
Spreadsheet Collaboration

- ▲ Spreadsheets often move from front-office to back-office and from clients to banks

- ▲ Changes should be tracked in an effort to detect erroneous changes or intentional fraudulent updates

- ▲ Manual auditing increases the risk of deleted workbooks and files or changes to data or formulas

- ▲ ECM functionality can help implement authentication and modification protocols

Level of interest in a consolidated portal for Excel-driven reports?

- Implemented, 17%
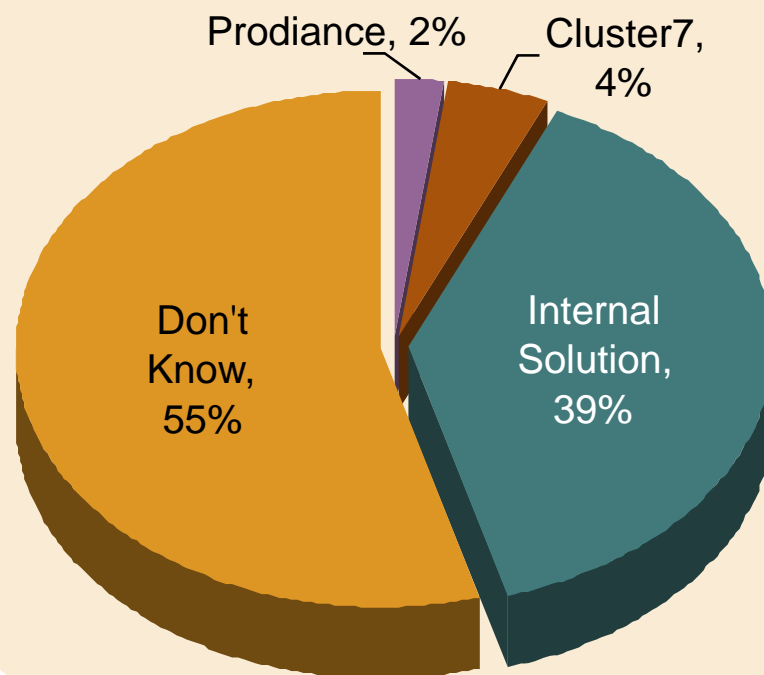- In Progress, 20%
- Under Consideration, 63%
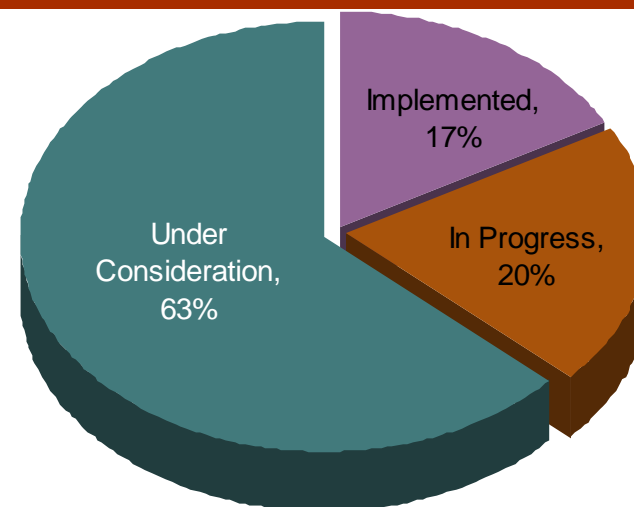
Concerns over operational risk are driving more folks to increase enterprise controls over business critical spreadsheets

Current Level of Interest in Spreadsheet Auditing

Already implemented, 9%

In progress, 17%

Not interested, 39%

Under Consideration, 35%
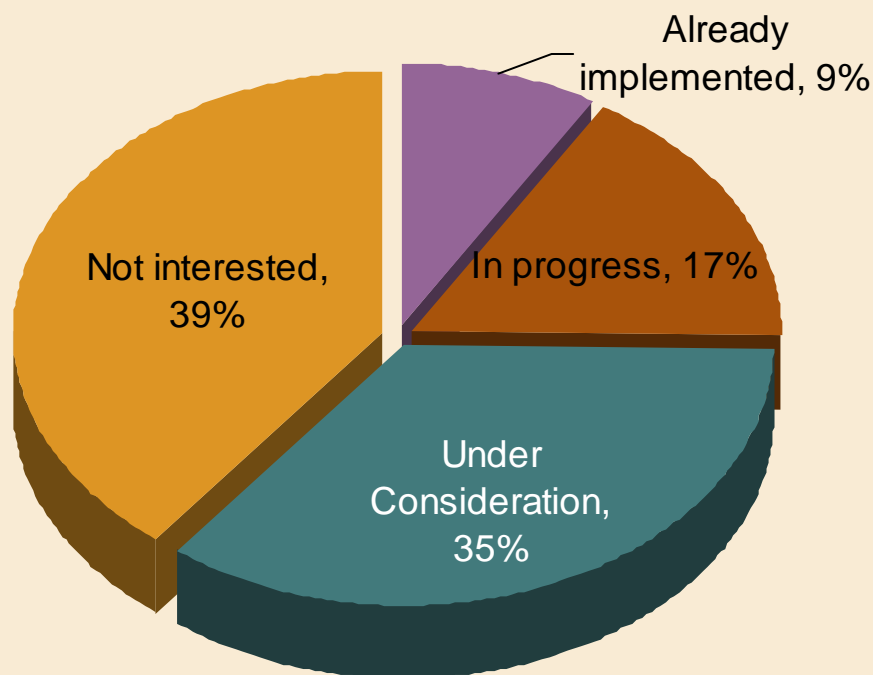
How is spreadsheet auditing done?

Prodiance, 2%

Cluster7, 4%

Don't Know, 55%

Internal Solution, 39%

Tracking and auditing changes

- ▲ The first step is knowing how many spreadsheets are out there that can have meaningful impact on its financial health
- ▲ Over the last five years, independent service vendors (ISVs) such as ClusterSeven, Finsbury and Prodiance have introduced advanced tracking, alerting and management functionality for spreadsheets. Trades are automatically confirmed on trade date as details are agreed electronically upon execution
- ▲ These systems track an exhaustive number of file characteristics, any of which could drastically change the pricing, valuation and settlement outcomes of any security

There is now a greater need for more flexible computational power rather than enterprise controls

	Formulas	Computing	Management	Storage	Market Data
Structuring	Excel-based formulas & User Defined Functions		File-based	File back-up on user request	Manual inputs or user-defined links
Pricing	XLLs, DLLs, & other external code	Determined by time constraints and complexity	Cell-based	File-back up on user request	Limited manual inputs; links controlled
Trade Details	NA		Cell-based	Central database	NA
Reporting	XLLs, DLLs, & other external code		File-based	NA	All administered links
Valuation / Settlement	XLLs, DLLs, & other external code		Cell-based	Central database	All administered links

User Flexibility ————————————————————————→ Enterprise Controls

TABB
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