Middle Office Product Control

An Integrated Approach from Accenture
and Oracle Corporation

High performance. Delivered.

Industry Challenges – Product Control

Capital markets have changed rapidly since the financial markets crisis in 2008. Financial institutions have seen their return on equity drop, and these returns have not rebounded to levels seen prior to the financial crisis. This has forced financial institutions to reduce their cost structure to maintain profitability. Increased regulatory demands have also forced institutions to re-organize and upgrade their technology to support evolving regulatory controls and reporting. These technology upgrades come on top of generations of legacy product evolutions and market consolidations that have increased the complexity of operating model and technology integration.

Multiple regulatory authorities imposing new reporting and control transparency rules are forcing financial institutions to re-think their product control functions and the operating model in which they are housed.

External Regulatory and Market Pressures

- Regulations such as Sarbanes-Oxley, Basel Committee on Banking Supervision (BCBS) 239 Principles for Data Aggregation and Risk Reporting, and Basel III Reporting are designed to help increase transparency in financial reporting and manage institution-wide risk.

- In our view, regulatory scrutiny with regard to operational risk reduction within finance, can lead to significant investment programs to help reduce manual processes, ledger adjustments for profit and loss (P&L), reporting and automation of independent price verification.

- Foreign banks with over $50 billion in assets are establishing Intermediate Holding Companies (IHCs) to comply with the Enhanced Prudential Standards under Section 165 of the Dodd-Frank Act. We have seen this lead to operating model, capital, liquidity and governance changes at global investment banks.

- Comprehensive Capital Analysis and Review (CCAR) – the capital planning and stress testing program of the Federal Reserve is designed to help large financial institutions benefit from forward looking capital planning processes with sufficient capital levels to continue operations through times of economic and financial stress.

- There have been changes in derivative trading and clearing rules to use exchanges to comply with Title VII of Dodd-Frank.

- Regulators have influenced the product control function to provide enhanced attribution for risk-based P&L reporting.

Internal Pressures

- In the current climate of reduced return on equity (RoE), chief financial officers (CFOs) are being pressured to reduce operational costs across the board. This has led to financial institutions leveraging offshore captive services and vendor business process outsourcing (BPO) services to help achieve cost reductions through labor arbitrage. We are now seeing a secondary consequence with onshore skill shortages and lack of subject matter experts (SMEs) with institutional knowledge and broad front to back office business experience.

- The finance infrastructure has traditionally been siloed across specific business lines. This has resulted in costly, non-standard, and overly complex infrastructure, including multiple product subledgers and general ledgers. In some cases the existing legacy infrastructure has not kept pace with trading processes and product development, which has led to deficient platforms and offline manual processes.

- In the 1990s, some financial institutions made significant investments in finance infrastructure by building centralized front-to-back integrated platforms and reducing manual processes, whereas others chose not to invest and now face extreme operational inefficiencies and large headcounts.

In our view, the responses to these external and internal pressures require increased accuracy, transparency and control within finance and risk from the front to the back office. The product control and middle office function is pivotal to help capture and verify the accuracy of data, and make it available to downstream finance and risk processes.

A major barrier to addressing these problems is the duplicative black-box accounting and reporting infrastructures that have proliferated over the past two decades. Many packaged trade processing applications have disparate posting engines, price sources, adjustment facilities, data mapping and data sources leading to multiple platforms that are affected by business or regulatory change. These disparate platforms result in manual, time-consuming and costly involvement of resources to address transparency and aggregated reporting across lines of business and geographies. In addition, the reconciliation of risk and finance data at different aggregation levels becomes unmanageable, requiring complex manual analysis and adjustments.

Product control is the first point of entry to improve data accuracy and completeness for the finance and risk functions.

Sourcing data once through a consistent framework simplifies processing and helps reduce complexity across finance and risk.

Detailed trade data can be sourced, accounted and adjusted in real-time, and then reported at a line-of-business (LoB) or enterprise-wide level. Furthermore, our understanding is that the BCBS 239 Principles require the risk function to have a clear picture of where their data is sourced, to explain to regulators in transparent terms the data's lineage, which processes act on the data, and where it is produced and consumed. In response to regulatory demands, we are seeing many financial institutions invest in single sourcing of data, implementing a single logical data repository with cleansed and adjusted data which is reconciled to finance.

We have observed that the increased headcount and reporting infrastructure to support these new complexities is receiving intense attention from institutions eager to cut costs. They recognize that the legacy of an outdated decentralized infrastructure is costly in the new regulatory environment.

Product Control Trends

An effective comprehensive architecture should address the full scope of the product control function. Figure 1 depicts the key functions of the Product Controller role in the context of a centralized product control architecture. Some product control offerings address only a subset of these needs, leaving users straddling the old and new system, and never realizing their full efficiency potential.

One approach institutions take is to embed all of this functionality in the trade capture platforms. This leads to data aggregation becoming more complex and difficult across asset classes, businesses and regions. Multiple charts of accounts, posting rules and reference data within each trade capture platform may lead to high levels of error and inconsistency. The cost of redundant functions, people and technology could increase exponentially as the business grows.

Another approach some financial institutions take is to build a common trade subledger across trading platforms. We often see the implementation of these programs stall and fail in the early stages due to the complexities inherent in such large change programs, and because building a detailed balancing and posting engine from the ground up is a time-consuming and costly proposition.

One of the big upfront challenges is the lack of common data formats. Single-sourcing data to standard formats—with quality data from multiple sources—is challenging at large capital markets firms. Contract-level accounting is complex and requires resources, time and commitment to implement product by product across the business. Consequently, projects often lose momentum or fail over time as costs increase and stakeholders see little return on the effort they have invested. This is not

surprising, as balancing and posting engines dedicated to processing corporate ledger-level accounting took decades to evolve and stabilize. In our view, this is a compelling reason to use mature approaches that now exist in the market.

We have seen many clients realize this and take the easier path of buying an accounting rules engine and subledger trade repository off the shelf.

Implementing a vendor-packaged centralized trade subledger can be a challenging endeavor. The program and stakeholder management required for implementation is significant, extending beyond finance into the business, operations, risk management, and reporting functions. It is also complicated by decisions to keep legacy platforms and downstream systems operating in parallel.

Figure 1. Day in the Life of a Product Controller
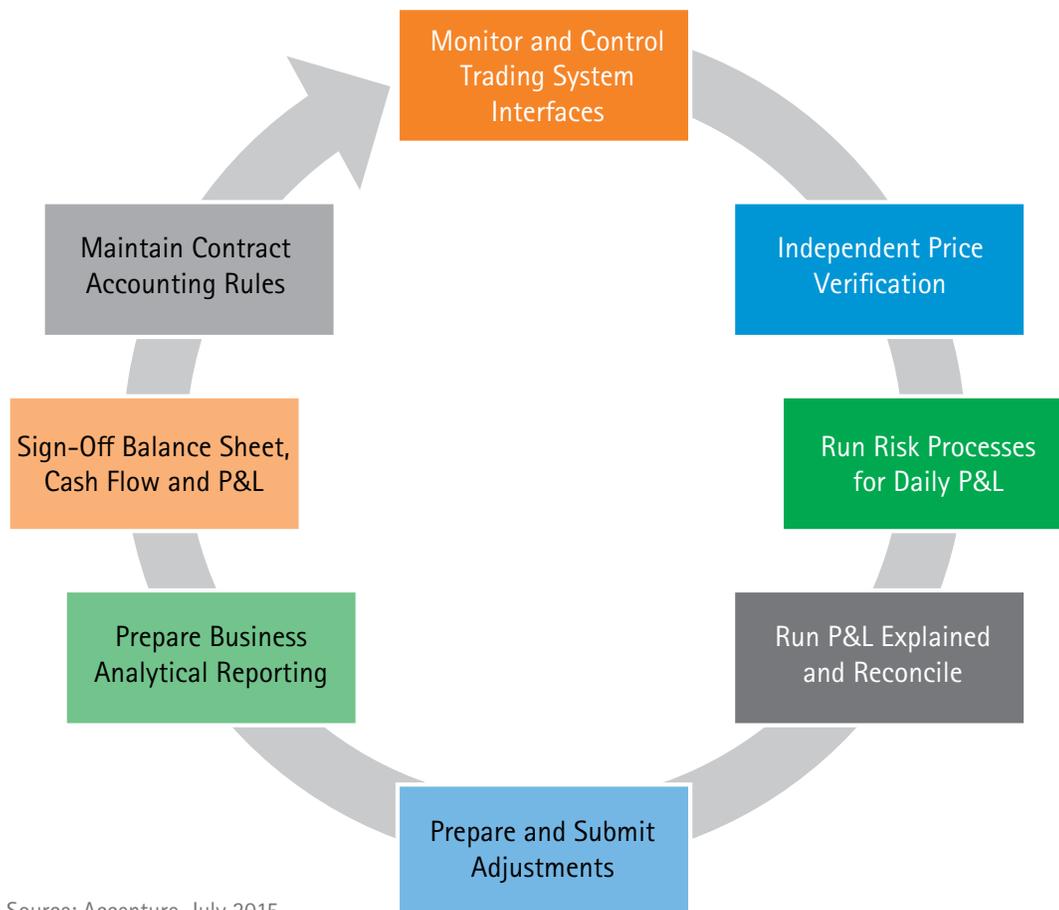
Requirement for Centralized Data Repository

With these concerns in mind, Accenture and Oracle have developed an innovative approach that combines Oracle Financial Accounting Hub offering and Accenture's finance and risk capabilities to help clients capture more value from their investment. Oracle Financial Accounting Hub acts as the contract subledger or trade repository, as well as the accounting rules repository and the contract-level balancing and posting engine. This approach streamlines the product control function. It helps provide seamless, controlled, automated access to co-mingled trade and accounting data, automated desk versus ledger P&L reconciliation, and adjustment capabilities.

The product control subledger and rules engine is the foundation of a product control function and, ultimately, of an integrated finance and risk platform. This common trade subledger approach helps promote a product control shared services or center of excellence (CoE) using a common technology hub, which can source data from trading platforms and provide common access to data for reporting purposes. The product control architecture can support greater data transparency and accuracy for the enterprise. This, in turn, could lead to a more mature, standardized, efficient business operating model, with lower infrastructure costs and provision of value-add services through more insightful data analysis.

Many firms have looked into creating a centralized trade subledger in the past, but they recognized that the available software and technology was not at a level of maturity to support the transaction volumes at large financial institutions. Apart from a few notable exceptions, where large multi-year finance transformation programs have been undertaken to build bespoke platforms, most institutions have been tactically enhancing their current disparate architectures. As a result, data collection and reporting mechanisms have remained largely decentralized across business areas, and are proving increasingly costly to support. In order to meet new regulatory requirements, finance and risk functions are having to reconsider their overall architecture and are looking to strategically source and hold accurate data on a "one and done" basis.

Regulations such as BCBS 239 are forcing firms to understand their data lineage; to identify where key reporting fields are being sourced and which processes and roles are acting on the data. BCBS 239 also stipulates that risk data should be reconciled with bank's sources, including accounting data where appropriate. Consistent data sourcing, data quality controls and standardized tools can help deliver more accurate and transparent reporting and compliance regulations. These principles are essential for investment and commercial banks as well as asset management firms.

Speed to Market

The Oracle and Accenture Middle Office Product Control approach offers an accelerated path to comprehensive product control, leveraging Oracle Financial Accounting Hub platform to stand up a subledger. Oracle Financial Accounting Hub is a mature balancing and posting engine that has been on the market for a decade and is live at many financial institutions. This platform helps negate extensive technology design and build, as the accounting engine provides an open architecture that takes existing source data formats and loads them into a common contract subledger data store. It also automates all of the balancing and posting, intercompany processing, and general ledger reference data integration.

The approach brings together information from a variety of sources into a contract subledger, giving product controllers instant access to all contracts, trades, cash flows, valuations relevant to business transaction and accounting data for all asset classes.

Figure 2 illustrates the business architecture for a product control center of excellence.

With Oracle Financial Accounting Hub, Oracle Exadata and other leading edge vendor products that perform in-memory processing, firms with large daily volumes can now look to vendor offerings to facilitate trade subledgers.

This approach provides a significant advantage through automatic reconciliation of trade P&L to finance P&L by facilitating real-time access to finance reference data. This creates an unbroken audit trail between the front office and the back office. The rules engine retrieves finance code block reference data (entities, centers, and accounts) and posts to them, while also posting to contract subledger fields such as Desk, Trader, Contract, or CUSIP (Committee on Uniform Securities Identification Procedures).

With the out-of-the-box subledger data and rules engine in place, Accenture can more rapidly harness Oracle technology to implement its high performance product control operating models and processes. Oracle Financial Accounting Hub can be implemented initially for a particular line of business, asset class or geography, to help stabilize and streamline the foundation. Other businesses can subsequently be onboarded as required, with reduced effort and cost.

Figure 2. Product Control Business Architecture

AML: Anti-Money Laundering
IPV: Independent Price Verification
FTP: Funds Transfer Pricing
KYC: Know Your Customer
FX: Forex
OTC: Over-the-Counter
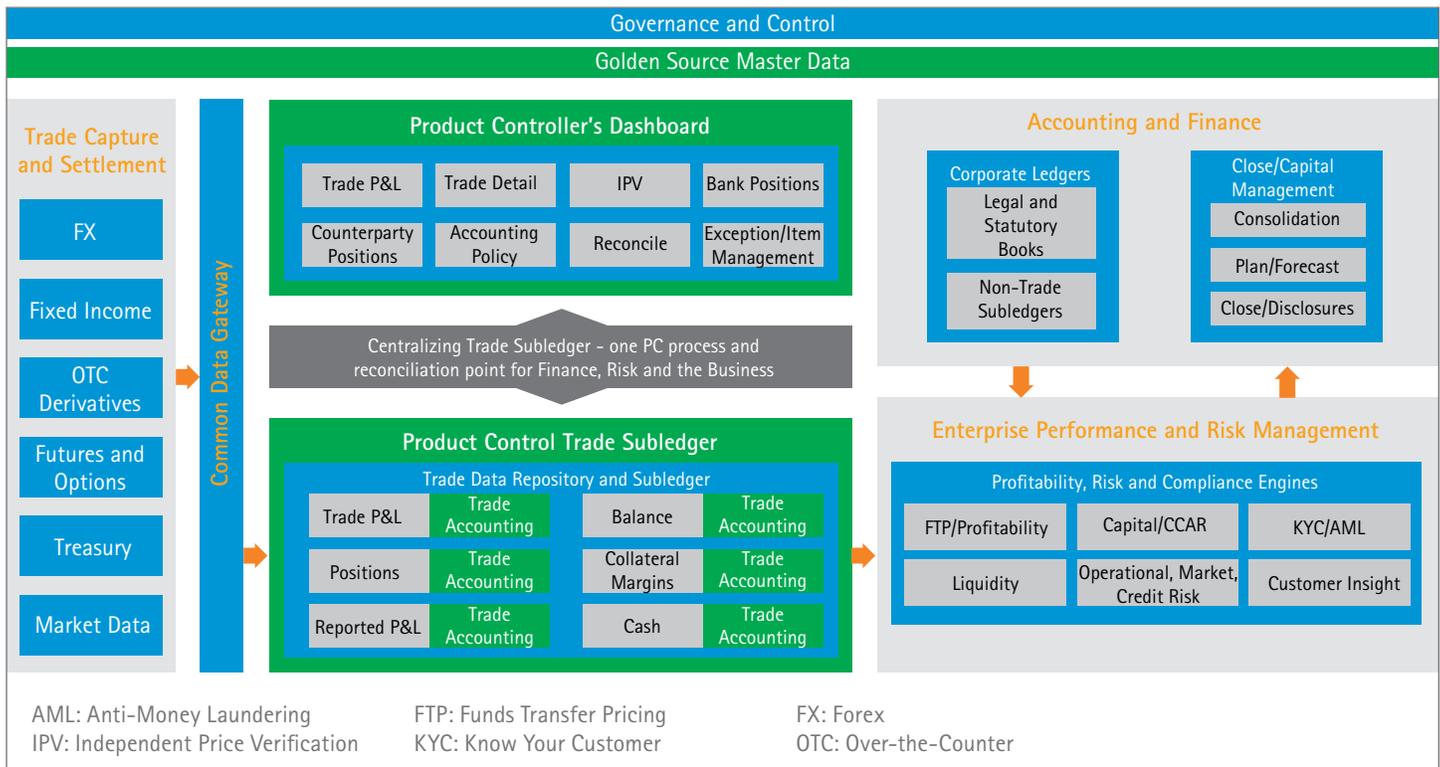
Key Product Control Challenges Addressed

The key challenges related to product control activities that the Oracle and Accenture approach address include:

- Drill down to detailed transaction data, data lineage and common data dictionaries.
- Further standardization and automation of product control architecture.
- Improved data quality for liquidity and collateral reporting requirements.

- Easier reconciliation between daily P&L and trade P&L, as well as between different GAAP (Generally Accepted Accounting Principles) representations.
- Reduced adjustment processing for daily and month-end close.
- Clear identification of intraday price/valuation mismatches between T0 and T1 daily P&L using a single tool.

- Near real-time visibility into intraday positions to enable more insightful trading decisions.
- Improved controls and audit trail on price adjustments.
- Transparency into net cash from trading activity.

Figure 3 shows a prototype product control portal developed by Accenture using Oracle dashboard tools.

Figure 3. Product Control Dashboard Prototype with Daily P&L View

		Trade vs. Flash Daily P&L Mismatch											
		7/22/2015						7/23/2015					
		Flash P&L	Flash MTM	Daily P&L	Daily MTM	P&L Variation	MTM Variation	Flash P&L	Flash MTM	Daily P&L	Daily MTM	P&L Variation	MTM Variation
EUR IRS Total		10,337,686	10,397,686	10,337,686	10,377,686	0	−20,000	11,175,237	11,215,237	11,175,237	11,215,237	0	0
EUR IRS	Trader B	4,538,093	4,548,093	4,538,093	4,548,093	0	0	2,724,924	2,734,924	2,724,924	2,734,924	0	0
	Trader D	1,442,020	1,452,020	1,442,020	1,452,020	0	0	1,518,673	1,528,673	1,518,673	1,528,673	0	0
	Trader H	759,166	789,166	759,166	769,166	0	−20,000	5,051,063	5,061,063	5,051,063	5,061,063	0	0
	Trader K	3,598,407	3,608,407	3,598,407	3,608,407	0	0	1,880,577	1,890,577	1,880,577	1,890,577	0	0
USD IRS Total		32,117,340	32,227,340	32,117,340	32,227,340	0	0	33,400,709	32,510,709	32,400,709	32,510,709	−1,000,000	0
USD IRS	Trader B	9,364,400	9,384,400	9,364,400	9,384,400	0	0	6,821,264	5,841,264	5,821,264	5,841,264	−1,000,0000	0
	Trader D	11,269,541	11,279,541	11,269,541	11,279,541	0	0	8,981,926	8,981,926	8,981,926	8,981,926	0	0
	Trader E	4,981,446	5,001,446	4,981,446	5,001,446	0	0	4,486,375	4,506,375	4,486,375	4,506,375	0	0
	Trader F	2,197,735	2,207,735	2,197,735	2,207,735	0	0	4,681,305	4,691,305	4,681,305	4,691,305	0	0
	Trader G	402,540	412,540	402,540	412,540	0	0	857,645	867,645	857,645	867,645	0	0
	Trader I	2,891,088	2,901,088	2,891,088	2,901,088	0	0	4,582,779	4,592,779	4,582,779	4,592,779	0	0
	Trader K	1,030,590	1,040,590	1,030,590	1,040,590	0	0	2,989,415	2,999,415	2,989,415	2,999,415	0	0

Quotes				
LIBOR				
	1 Month	3 Month	6 Month	9 Month
CHF	0.23%	0.45%	0.56%	0.67%
EUR	0.34%	0.45%	0.56%	0.67%
GBP	0.54%	0.45%	0.56%	0.67%
JPY	0.76%	0.45%	0.56%	0.67%
USD	0.23%	0.45%	0.56%	0.67%

Quick Links
1. Adjustments
2. Operation Status
3. Other Reports
4. Sign-Off Cash Flows
5. Sign-Off Positions
6. Trade Accounting

Trading Activity Alerts				
Type	Subject	Status	Category	Due Date
1	Adjustment Approval Required	Not Started	Action Required	31-July-2015
2	Interco Break Trade 5899958	Not Started	Action Required	31-July-2015
3	Trade Limit Violation	Not Started	Action Required	31-July-2015

Source: Oracle and Accenture Product Control Dashboard Prototype, July 2015

Using an integrated business intelligence platform like Oracle Business Intelligence Foundation Suite, which features OBIEE (Oracle Business Intelligence Enterprise Edition), a dashboard and analytics tool, it is possible to quickly create a comprehensive dashboard and build out reporting capabilities to support the product controller's requirements. Workflows could be extended to support the various sign-off and approval requirements with a full audit trail in the database. Adjustments can be made real-time by the product controller, with a full audit trail.

Figure 4 depicts a sample accounting rule interface for easy and transparent access to the detailed posting rules for a cross currency interest rate swap trade event.

Figure 4. Sample Setup with Interest Rate Swap Accounting Event
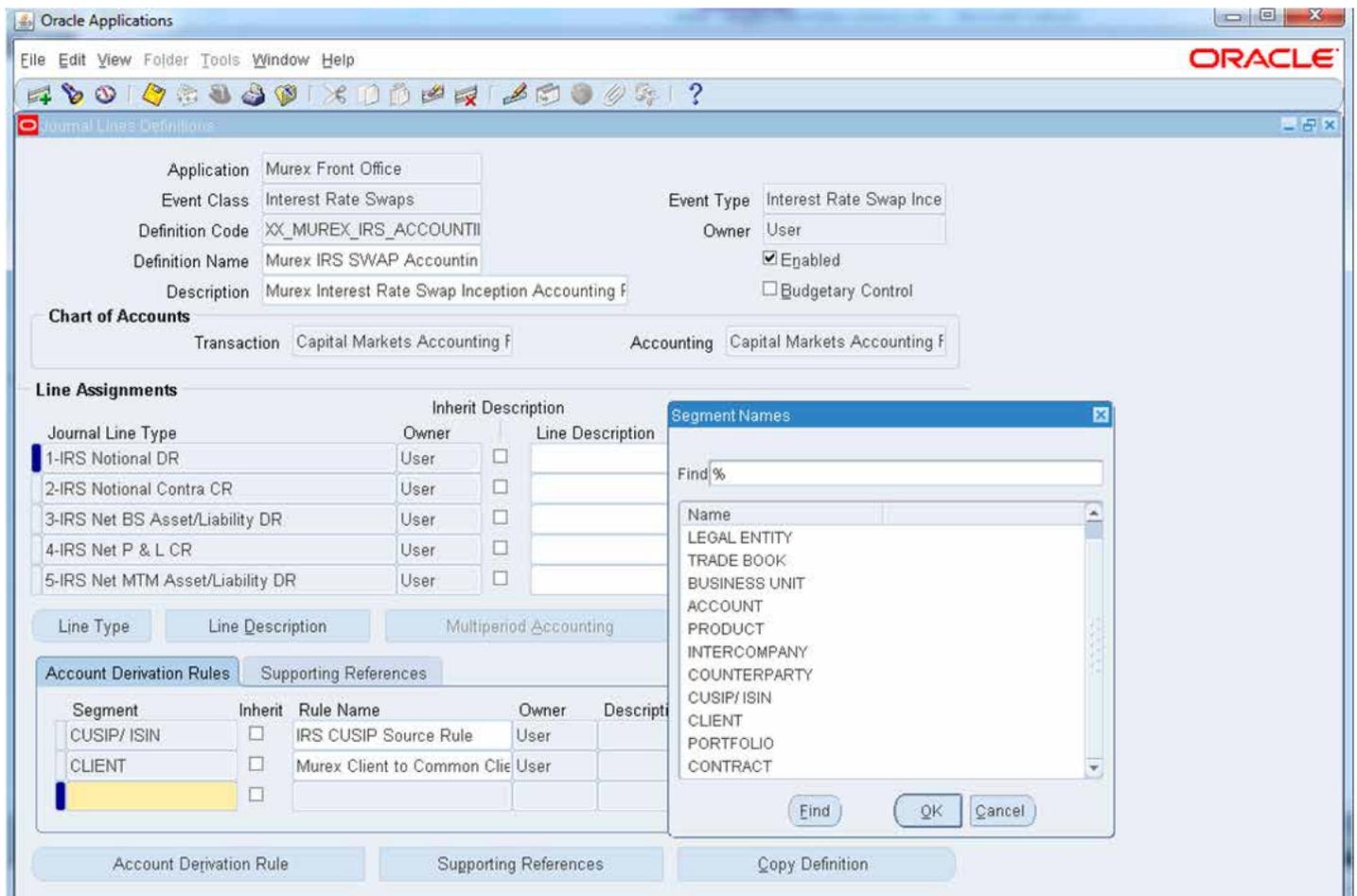
Source: Oracle and Accenture Product Control Demo Instance, July 2015

As seen in Figure 4, a product controller could configure, for an interest rate swap event, the specific six journal line rules applicable to a Swap Inception event, including notional posting lines, balance sheet posting lines and P&L posting lines.

Within each of these line rules, business rules use the trade data and chart of accounts stored in Oracle Financial Accounting Hub to generate each data dimension for each journal line. This includes corporate segments such as Legal Entity, Cost Center and General Ledger (GL) account, as well as contract segments such as CUSIP, counterparty or product. Legal entities, cost centers and GL accounts come straight from authoritative finance sources, reducing mapping issues and breaks between daily P&L and trade P&L.

Figure 5 drills down into one of the rule line assignments mentioned above, and shows the simple interface for creating an Exchange Expense line for a derivative transaction.

Figure 5. Sample Setup with Derivative Exchange Fee Journal Line
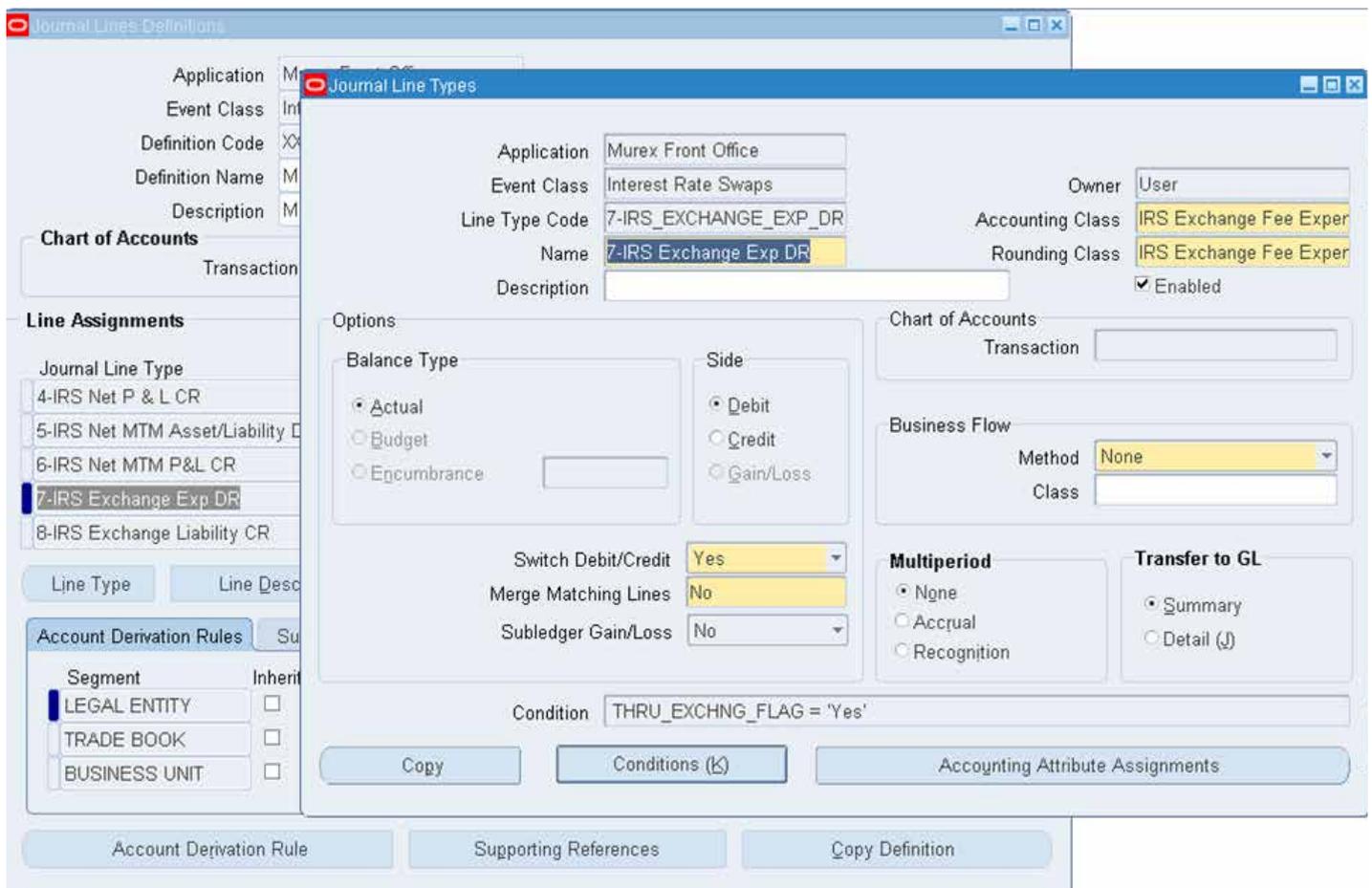
Source: Oracle and Accenture Product Control Demo Instance, June 2015

Consider, for example, that the Dodd–Frank Title VII rules for qualifying over-the-counter (OTC) derivatives require additional accounting entries when they are centrally cleared. New exchange fee journal lines are required for derivatives that qualify. This is a simple configuration change within Oracle Financial Accounting Hub.

The previous example depicts how a user could copy an existing journal line to create accounting entries for a new exchange fee. The benefit of this is that all of the existing accounting rules can be re-used with minimal change required for the ledger accounts. This can lead to quicker configuration, reduced likelihood of error and less manual effort.

Changing or adding event processing rules can now be done on the front end of the application, without code changes and time-consuming, expensive IT projects. The application can also be configured so that the individual who changes the rule is not the one who approves the change, so the segregation of duties requirement can be met.

Oracle Financial Accounting Hub also has draft accounting functionality to help create posting rules, process trades, and view shadow postings and validate rules without any real posting occurring. This can be done as many times as necessary until a rule is clean.

Figure 6 presents a prototype of a drilldown from the main product controller dashboard into a product control operational view of daily processing across asset classes and source systems.

Figure 6. Product Control Dashboard Prototype with Operations View

Operations Status – Product Control Feeds						
Source	Today's Volume	Average Volume	Accounted	Accounting Exceptions	GL Transferred	Transfer Exceptions
Murex	10,125,877	80,000,000	Yes	0	Yes	20
Calypso	1,125,080	80,000,000	Yes	0	Yes	0
GMI	8,440,001	80,000,000	Yes	0	Yes	0
Rolfe & Nolan	83,111,000	80,000,000	No	200	No	–

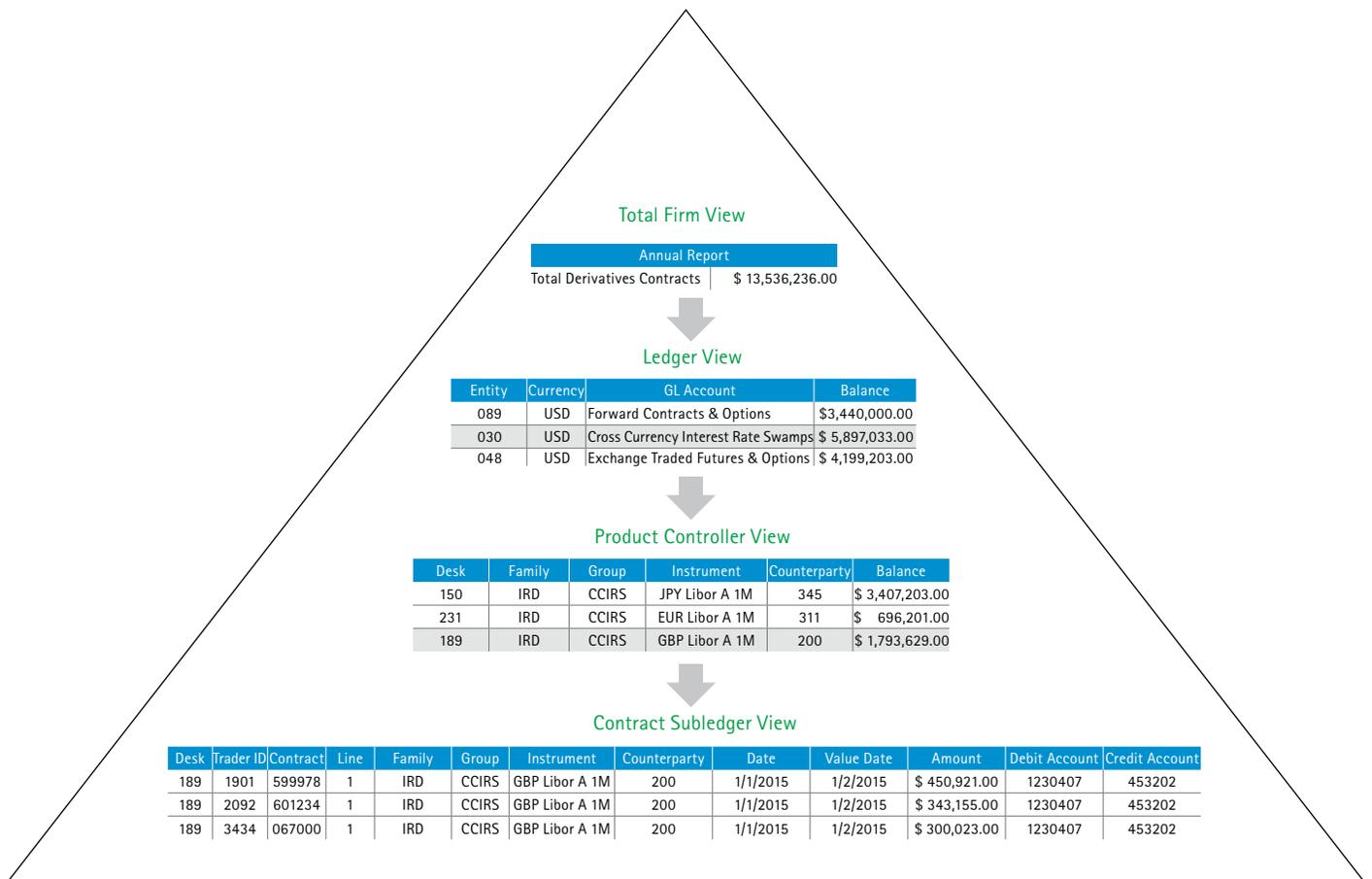| Trade Accounting Policy	Reference Data Maintenance	Close Processing
Maintain Event Model	Map Legal Entity	Close Business Day
Update Trade Attributes	Map Business Unit	Balance Sheet Sign-Off
Update Source Structures	Map Product	P & L Sign-Off
Update Trade Accounting	Refresh FX Rates	Cash Flow Sign-Off
Test Draft Accounting	Set Trade Limits	Sweep to General Ledger
Approve Accounting Updates	Set Alert Thresholds	Run EOD/EOY Reports

EOD: End of Day
EOY: End of Year

Source: Oracle and Accenture Product Control Dashboard Prototype, July 2015

From one cross-asset class central dashboard, product controllers could easily monitor daily P&L processes, make adjustments, and sign-off on positions and cash flows. The product controller could utilize that information in near real-time to achieve T0 and T+1 P&L, without waiting until the end of the day (or longer) to develop a clear view of trading and finance activity. This platform sources corporate reference data from existing golden sources.

This Accenture-Oracle approach allows the product controllers to quickly implement changes in accounting, trade limits, as well as perform detailed adjustments. The "plug and play" accounting functionality and detailed subledger data structure is also highly adaptable and could easily integrate with new trading system feeds and downstream GL platforms. It has the potential to lower implementation costs, reduce complexity and increase financial transparency.

It also facilitates an unbroken audit trail between the front and back office, providing the bidirectional drill through between accounting and business views as depicted in Figure 7.

Figure 7. Drilldown from Firm to Desk Results

Total Firm View

Annual Report	
Total Derivatives Contracts	$ 13,536,236.00

Ledger View

Entity	Currency	GL Account	Balance
089	USD	Forward Contracts & Options	$3,440,000.00
030	USD	Cross Currency Interest Rate Swamps	$ 5,897,033.00
048	USD	Exchange Traded Futures & Options	$ 4,199,203.00

Product Controller View

Desk	Family	Group	Instrument	Counterparty	Balance
150	IRD	CCIRS	JPY Libor A 1M	345	$ 3,407,203.00
231	IRD	CCIRS	EUR Libor A 1M	311	$ 696,201.00
189	IRD	CCIRS	GBP Libor A 1M	200	$ 1,793,629.00

Contract Subledger View

Desk	Trader ID	Contract	Line	Family	Group	Instrument	Counterparty	Date	Value Date	Amount	Debit Account	Credit Account
189	1901	599978	1	IRD	CCIRS	GBP Libor A 1M	200	1/1/2015	1/2/2015	$ 450,921.00	1230407	453202
189	2092	601234	1	IRD	CCIRS	GBP Libor A 1M	200	1/1/2015	1/2/2015	$ 343,155.00	1230407	453202
189	3434	067000	1	IRD	CCIRS	GBP Libor A 1M	200	1/1/2015	1/2/2015	$ 300,023.00	1230407	453202

Source: Accenture, July 2015

Summary of Features and Benefits

The Oracle and Accenture Middle Office Product Control approach has a number of key features that could benefit financial services institutions. The approach:

- Centralizes and standardizes the product control function providing complete, transparent access to cross-asset class contract accounting and corporate accounting logic, together with an automatic reconciliation of the finance books and records.

- Utilizes a built-in common data model, including critical subledger dimensions, which can integrate and consume data from a range of trading system data formats from a variety of vendors, making it possible to easily leverage existing systems and feeds.

- Facilitates accelerated implementation with out-of-the-box account balancing and posting, using a pre-established business event model, and instrument accounting rules across asset classes.

- Tightens controls on adjustment entries with an adjustment entry facility at the trade level.

- Provides the performance and scalability required to handle large volumes of near real-time data. The performance of the Oracle and Accenture Middle Office Product Control approach has been well-demonstrated, with the ability to handle 225,445,473 transactions per hour as of the latest benchmark.

- Includes a comprehensive, portal-based tool set. This product control approach provides a "one-stop shop," with holistic access to a full range of tools. Using the Oracle portal and analytics tools enables the product controller to interface with a single dashboard to monitor and reconcile source system feeds, prepare adjustments, sign-off positions and maintain accounting rules.

- Provides extensive drilldown capabilities. The approach lets controllers easily track activity and monitor alerts. Controllers have a centralized view of data, enabling drill down from financial statements into detailed trade views to identify the causes of variations and mismatched information.

- Facilitates a phased implementation. This could be initially deployed for one asset class, source system or geography, and then extended over time to include more business areas. This would allow larger companies to avoid a "big-bang" approach. It also makes it possible to target asset classes and geographies that are quick wins or early targets for improvements.

- Generates cost savings by eliminating duplicate business processes, data and tools, in both the IT and business functions.

How to Get Started

Accenture's Finance & Risk Services team has deep experience in shaping strategy and transforming the middle office, product control and finance functions.

Every financial institution has its own unique challenges and opportunities. The Oracle and Accenture Middle Office Product Control approach uses Oracle Financial Accounting Hub to provide a stable foundation for a broad product control framework.

The approach could be tailored to the client's situation in the capital markets or banking space. It can leverage Accenture and Oracle assets and templates to accelerate the design approach, including proof of concept testing in lab environments with trade subledgers configured for financial services clients. These assets, in addition to established deployment methodologies and architectures, can help clients realize near-term benefits while simultaneously establishing a strategic foundation for growth.

For more information, please contact:

Accenture

Brian Fink
brian.fink@accenture.com

Angela Borth
angela.d.borth@accenture.com

Oracle

Mark Smedley
mark.smedley@oracle.com

Bill Greene
bill.greene@oracle.com

About Accenture

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