Toward a Future-Proof Product Control Function

To address growing regulatory scrutiny, functional interconnectedness and data complexities, investment banks must rethink their product control departments by establishing a new operating model and framework.

Executive Summary

The product control (PC) department, the in-house guardian of data and information in an investment bank, shoulders a crucial role by ensuring the integrity, completeness and accuracy of all trading profit and loss (P&L) positions and related finance data. Given the breadth of responsibility that the product controllers have — including working closely with traders to understand their trading strategies and risks — they can be billed as the unsung heroes of this sector. But the growing complexity of the products traded, rogue trading incidents and prudential valuation recommendations of the Financial Service Authority (FSA) and the European Banking Authority (EBA) have spotlighted PC’s roles and transformed them from an obscure department to an important function in banks’ overall performance and reputation.

We have observed the changes in the space across major Asian, European and U.S. banks. We believe it is crucial for banks to demonstrate a focus on transparent and accurate valuations along with appropriate regulatory control on day-to-day proceedings to avoid reputational damage and to secure a competitive edge in the marketplace. This white paper focuses on the nuances of an efficient product control landscape in a typical investment bank and provides thought triggers and guidelines to achieve an enviable PC setup.

Product Control Functions, Processes and Key Entities

Product control varies in size, complexity and nature across various banks, depending on the diversity of business models and financial instruments. Though a certain degree of variation in processes, methodologies and outputs is expected, the major business capabilities for a PC setup remain nearly entirely the same. In a typical investment bank’s PC setup (see Figure 1), the data on trades, positions and prices for P&L valuation and decomposition are provided by the front office’s trade capture/trade lifecycle management applications. The P&L valuation and adjustment entries are sent to the transaction accounting systems, which send them to the financial accounting and control systems. The valuation control function verifies the fair value of the trading positions and financial instruments. It sources the positions and internal prices from the trade capture/trade lifecycle management applications and also finds the market prices independently from external independent pricing sources. It sends the independent price validation (IPV) adjustments to the product control team. That team, in turn, assesses the materiality of the adjustments and decides if any P&L adjustment is required.
P&L adjustments are also sent to the transaction accounting systems. A cost funding allocation function calculates the cost of funding and liquidity, and allocates those costs to the individual trading desks. The transfer prices are sent to the transaction accounting systems. Internal control management receives the trial balances and GL mappings from the transaction accounting systems. They attest that the balances are accurate and publish reports to the finance team. The trade capture/trade lifecycle management applications send trades to the transaction accounting system for sending accounting entries to financial accounting and control systems. Transaction accounting systems send P&L data to the financial and regulatory reporting systems. The finance team generates various internal and external reports with the data received from the trade capture/trade lifecycle management and transaction accounting applications. Some of these reports are sent to the regulator.

There are five key functions performed by the PC department:

- **Generation**: The PC unit is responsible for production, analysis, explanation and validation of daily P&L for a number of trading books according to their risk positions, market movements, new trades and other influences.
- **Validation**: The crucial job of validating trading portfolios falls within the purview of PC.
- **Alignment with regulatory requirements**: PC ensures appropriate setup, classification, assignment and maintenance of the books as per GAAP and other regulatory requirements.
- **Internal reporting**: It establishes the controls and reporting for bank-wide operational risk items and management metrics.
- **New products**: It establishes the process flow for new products in a smooth and regulatory-compliant manner.

**Product Control Pain Points and Challenges**

Investment banking firms worldwide with sizable OTC portfolios and international operations face a number of challenges in running PC processes. In our analysis, we have categorized these hurdles under four streams: people, processes, systems and data.

- **People**: The PC function essentially liaises between the front office traders and management, with roles and responsibilities varying...
from very specific duties to generic tasks. They have long been suffering from a talent shortage and absence of motivation and incentives for those working.

- **Processes**: Many banks still have fragmented processes that prevent a seamless PC function (see Figure 2). To perform the daily P&L and balance sheet control processes, the controllers have to access a number of different systems involving manual processes and often requiring dual-keying of data. The start of business (SoB) and close of business (CoB) processes are also inconsistent in different regions and lines of businesses.

- **Systems**: The banking system has grown organically, giving rise to several nonaligned systems, which makes extracting data time-consuming. Adding to the problem is the complexity of the systems architecture, which is susceptible to system breaks. It requires a high level of technical support to integrate multiple systems and trim complexities. To complete the gamut of PC duties, banks tackle a tangle of multiple systems used in everyday P&L and balance-sheet activities (see Figure 3).

- **Data**: The smooth functioning of PC is heavily reliant on data. But in many banks, multiple transaction systems and data sources and manual processes sourcing and processing of data across the lifecycle of a trade (see Figure 4) leave a lot to be desired.

### System Challenges

<table>
<thead>
<tr>
<th>Issue</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple Systems Usage</td>
<td>Multiple systems used for daily P&amp;L and balance sheet control process.</td>
</tr>
<tr>
<td></td>
<td>Time-consuming process of sourcing data from multiple systems.</td>
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<tr>
<td></td>
<td>Effort required to reconcile the systems to each other.</td>
</tr>
<tr>
<td></td>
<td>Architecture requires a high level of technology support.</td>
</tr>
<tr>
<td>Complex Systems Architecture</td>
<td>The complexity of the systems architecture means system breaks can occur.</td>
</tr>
<tr>
<td></td>
<td>Architecture requires a high level of technical support.</td>
</tr>
</tbody>
</table>

Figure 3
The Way Forward

Global banks with significant OTC operations have many chinks in their control armor. The first step is to take stock of the control framework from correctness, comprehensiveness, consistency, capacity, coverage, cost and timeliness perspectives — all with a view toward the future business and IT alignment. The banks should aim for a business entity, region-agnostic and GAAP-neutral framework with great focus on quality and timeliness of the P&L explanation and commentary.

We propose a four-pronged strategy to achieve a near-perfect, blue-sky PC function.

- Develop governance and operating model.
- Develop a data acquisition and control framework.
- Develop a single standardized P&L, IPV, funding allocation and provisioning framework.
- Develop a PCI dashboard integrated with workflow.

Develop a Governance and Operating Model

From the bank’s overall strategy, the PC function should have a defined operating strategy guided by the governance charter, touching upon the following five must-have components.

- Structure.
- Business capabilities.
- Segregation of duties.
- People and culture.
- Design principles.

Structure

Global integration under a common department head and regional alignment mirrors the best organization practice for the PC function that can be envisaged. To achieve this goal, PC needs to have a common identity, set of objectives and management structure and should also include all affiliated validation and control functions.

Business Capabilities

Business capability modeling and analysis helps evaluate what the business intends to do, rather than how the business does something and changing the way of doing that. Capability modeling identifies business domains, sub-domains and the operating model of the organization.

From our own analysis framework, we have gathered that the FOBO reconciliation and adjustments functions are not exactly capabilities; rather, these are inefficiencies in the existing setups.

Segregation of Duties

As an extension of the capabilities modeling activities, there has to be a clear definition of roles and responsibilities. In many banks, PC professionals spend the majority of their time picking over trade booking and data reconciliation issues that are most likely the realm of the operations team. Similarly, many are in the purview of risk management and model validations teams.

Our own analysis framework identifies and leverages the interaction and overlap among the risk, finance, product control and treasury functions (see Figure 5).
People and Culture

PC service is a synthesis of small functional units with distinct business purposes and disparate operational procedures. In such a situation, it is difficult and expensive to create formal training that teaches all PC services analysts the step-by-step procedures of performing their jobs. A competency model needs to be performed to examine the skills and capabilities that are important in the execution of PC services.

While there are few similarities between the procedures performed by each functional group, there are significant consistencies in needed generic skills — competencies that can be applied across different jobs such as organizational skills and basic communications skills. Across all of the functional units that participated in this project, analytical (problem-solving), interpersonal and communications skills are required new hire competencies.

From our analysis, we have come up with the GRID (Figure 6), which acts as an initial instrument for change.

PC should comprise a multiskilled team with the ability to understand the financial impact of trades and to interact with a diverse set of stakeholders. The organization structure should enable the

Representative Functions and Roles Matrix

<table>
<thead>
<tr>
<th>Function</th>
<th>Operations</th>
<th>Product Control</th>
<th>Risk Management</th>
<th>Finance</th>
<th>Accounting &amp; Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structured Trade Booking</td>
<td>Y</td>
<td>Y</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valuation of Trades</td>
<td></td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Reconciliations</td>
<td>Y</td>
<td>Y</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Model Validation</td>
<td></td>
<td></td>
<td>Y</td>
<td></td>
<td></td>
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<tr>
<td>Price Testing</td>
<td></td>
<td></td>
<td></td>
<td>Y</td>
<td></td>
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<tr>
<td>Sensitivities Generation</td>
<td>Y</td>
<td>Y</td>
<td></td>
<td></td>
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<tr>
<td>P&amp;L Decomposition &amp; Attribution</td>
<td></td>
<td></td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>Provisions</td>
<td>Y</td>
<td></td>
<td>Y</td>
<td></td>
<td></td>
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<tr>
<td>VaR Back Testing</td>
<td></td>
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<td></td>
<td>Y</td>
</tr>
</tbody>
</table>

Representative Competency Mapping

![Diagram](image-url)
### Representative Principles

<table>
<thead>
<tr>
<th>Issue</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mission</td>
<td>Control function for FO to BO data, transaction flow and for P&amp;L.</td>
</tr>
<tr>
<td>Controls</td>
<td>PC needs to be independent from FO to the maximum extent possible.</td>
</tr>
<tr>
<td></td>
<td>There should be clear segregation of duties between execution and control.</td>
</tr>
<tr>
<td></td>
<td>Controls should be integrated in the business process flow.</td>
</tr>
<tr>
<td>Data Quality</td>
<td>Key trade data should be captured up front and only once.</td>
</tr>
<tr>
<td></td>
<td>There should be only one source of trade data and reference data.</td>
</tr>
<tr>
<td>Supporting Technology</td>
<td>Automate controls whenever possible.</td>
</tr>
<tr>
<td></td>
<td>Need flexible/scalable infrastructure to sustain performance and accommodate increases in volumes, introduction of new products and commoditization of existing products.</td>
</tr>
<tr>
<td></td>
<td>Continuously upgrade IT infrastructure to support all the above guiding principles.</td>
</tr>
</tbody>
</table>

**Figure 7**

Product controllers to move easily between PC groups and simplify the training process for new recruits. This competency map is a very valuable input for the location strategy of the PC function for banks with operations and IT units in multiple geographies.

**Design Principles**

- Provide a consistent workflow model to be applied across PC.
- Amount of manual data input should be reduced by ensuring data inputs upstream in the process flow into the appropriate downstream systems.
- Provide a consistent mandatory framework for P&L variance commentary across all areas of PC.
- Provide management with efficiency metrics to allow them to identify bottlenecks or time-consuming processes.

**Develop a Data Acquisition and Control Framework**

At the heart of an efficient and streamlined product control setup is quality data. So a data acquisition and control framework has to be established to have a fairly automated PC setup. The PC function should insulate itself from the inherently complex and diverse upstream data supplying systems by establishing its own data warehouse, or preferably leveraging the finance data warehouse if one exists. This warehouse needs to contain enriched transactions, positions, valuations, trial balances and adjustments supplementing the transactional data.

Major fairly static data types enabling the warehouse are:

- Products, books and hierarchy.
- Business events and accounting models.

**Golden Source for Products, Books and Hierarchy**

The need for a golden sources for products, instruments, books and hierarchy data has never been more intense than it is today. The data should be in a standardized and bank-wide consistent canonical format. In a rapidly changing business environment, these sources enable PC to respond faster to new business initiatives enhancing automation and eliminating unwanted internal reconciliation processes.

**Business Events and Accounting Models**

A business and accounting event registry and its consistent usage has the potential to change the game of product control. When any change is required to the P&L process (an accounting policy change) these changes will only to be made in one central place, thus ensuring integrity and accuracy.
Sourcing of Transactions Data

The transactions from the front office systems form the base of all PC calculations. So coverage at first will eliminate reworks. The transactions should be suitably enriched with other statics to improve the adjustment and attribution process. The control processes, minimal dummy bookings and automated mirror bookings for internal trades will ensure the quality of the transactions data.

From our own analysis framework, the entity relationship diagram (Figure 8) drives the data acquisition strategy.

Develop a Standardized Infrastructure for P&L, IPV and Funding Allocation

Develop a P&L framework

One of the major functions of the product controllers is to prepare commentaries on the reported amounts and movements explaining the predominant contributors. All business lines should have a well-documented P&L attribution process, providing correct explanations of daily P&L with respect to the trading activities that are independently reviewed and analyzed. This must be supplemented by a methodology for distribution of P&L and balance sheet reports and obtaining traders’ sign-offs. When the attribution process deviates significantly from the agreed-upon methodologies, then an appropriate rationale and mitigation time frame should be documented.

Our analysis shows that the components indicated in Figure 9 drive the risk and activity-based P&L framework.

The following must be resolved in order to ensure a proper P&L framework:

- Is the process correctly defined and documented for each asset class/region?
- Are the controls over source data sufficiently understood along with the limitations?
- Is the ownership of mark-to-market (MTM) valuations clearly defined?
- How reliable are the front office (FO) risk systems?
- Is the P&L generation and attribution reporting automated?
- Is there resolution, explanations and treatments for flash vs. actual P&L differences?
- What are the communication methods with business?
- Are the reporting exceptions understood and documented?
- Are the market data and valuation models the same for generation and attribution?
- What are the controls for unexplained P&L?
- Are the roles of business, finance and risk teams properly defined?
Develop an IPV Framework

External regulatory bodies and internal management are driving greater transparency in every capital market organization’s approach to valuing the assets and liabilities on its balance sheet. FAS 157 and international financial reporting standards mandate banks to rank their mark-to-market and mark-to-model positions in terms of the independence and verifiability of their price sources. All positions must be classified by transparency, based on whether they are marked using directly observable prices, observable model inputs or unobservable prices and parameters. The processes used must be easily and clearly auditable.

A repeatable, documented process for pricing and independent price verification is now key within capital markets organizations to meet regulatory requirements and improve the transparency of internal management reporting. The systems should support fair valuations and prudential valuations measurements simultaneously. At a minimum, the institution’s valuation adjustment methodologies should conform to the EBA’s proposed simplified and core approaches for calculating additional valuation adjustments.

The following are the key aspects to have an efficient process for IPV.

- Is the process different for different products/geographies?
- What are the specific challenges?
- What are the region-specific regulations in IPV?
- Are pricing preferences and policy defined clearly?
- Is pricing information gathered from multiple sources?
- Is data quality check performed for pricing sources?
- Is pricing validated with the help of data from multiple sources?
- Is market consensus measured for pricing?
- Is preferred price data distributed to mission-critical systems across the enterprise?

Develop a Funding Allocation Framework

The funding attribution process aims to fairly allocate the cost of short-term interest expenses and of long-term debt to the businesses on a globally consistent basis. The processes carried out in sequence are calculation of the funding rates followed by allocation of the charges by security and position level with an aggregation by the books and finally posting of funding charges to the general ledger on a timely basis.

Develop a Provisioning Framework

One important dimension to PC’s responsibilities is provisioning for both expected and unexpected losses. The provision amounts come as outputs from the stress tests. The stress tests can be under the purview of the PC team or the risk man-
agement team. When the risk management team is the primary producer of the numbers, then PC will be the consumer. When the PC team is responsible for generation of the provision amounts, then there has to be a “provisioning framework.” The framework would need the system components and competent people running the show.

The following issues must be resolved to enable an efficient provisioning process.

- Are the provision calculation methods and reporting automated?
- Is the provision calculation centralized?
- What are the criteria and levels at which the calculations are performed across:
  - Netting criteria?
  - Netting order?
  - Sources of rules?
- Are the methodologies to calculate consistent and adequate provisions documented?
- Are the levels of allocations of provision (book, legal entity, region, etc.) clearly defined?
- Are the risk treatments across asset classes and locations consistent?
- Are the rules of allocation based on “bucketing,” netting, approximation rules exceptions and amendments protocol standardized?
- What are the level of controls for:
  - Inputs?
  - Calculations?
  - Allocations?
  - Postings?

**Develop a Product Control Dashboard Integrated with Workflow**

The key to the ongoing success of a product control setup is transparency, which is the ability to make real-time information available to stakeholders. The PC dashboard will provide a “one-stop shop” for line managers. It will provide a single interface to PC applications, reporting tools and data stores. Also, it will be uniform across product control and product controllers will be guided through their duties by a workflow engine that will ensure that tasks are carried out as required. This workflow engine will track their activities and provide management with key information regarding the status of the tasks and processes as well as metrics to aid and support management decisions.

In our view, banks need to build a product control dashboard and implement the following:

- Ensure that all the front office sources, risk systems and settlement systems feed appropriate data into the reporting component system.
- Offer real-time views to support the PC team and process participants, as well as integration into overall finance dashboards.
- Ensure notification to traders and approvers to define process requirements and support review/sign-off processes, specify recipients and current process status (approve, complete, etc.) and set dollar thresholds for the various approvals required.
- Set up consistent and consolidated management reporting through information management and business intelligence systems.
- Establish exception-and-rule-based alert management to ensure perfect control and risk management.
- Support key performance indicators and metrics and ensure that best practice processes are followed consistently.

**Looking Forward**

Product control is a pivotal function in banks, which needs to have its own target operating model (along with all affiliated validation and control functions) with a common identity, set of objectives and management structure. Close management coupling of all affiliated functions and leveraging cross-asset utility functions – thus allowing these functions to evolve into an integrated business aligned support model – is the evolutionary path. The integration of relevant clusters of skills within extended validation, control and operations functions will help in the provision of a deeper pool of talent enabling functional realignment and deployment.
References:


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