

Securities Master Management Solution: The First Step Toward Credible STP

Executive Summary

Reference data lies at the heart of the world's financial systems, be it customer and counterparty data, securities master data or transaction data. Few organizations know the real cost of poor data and inefficient data management. Without a high degree of reference data standardization, the securities industry could not process the ever-growing number of trades nor meet the demanding client service requirements required in this day of expanding volumes and contracting trading spreads. Also, reference data is the most critical aspect of a global trading system that is moving toward a straight-through processing (STP) regime and T+1 transaction settlement model.

Securities firms are increasingly adapting to a changing industry terrain characterized by new challenges:

- Data fragmentation caused by organic growth and growth via acquisition.
- A lack of consistent information across transactional applications.
- Regulatory reporting requirements, particularly critical following the failure of institutions deemed "too big to fail."

Reliable data is critical to the trade process, yet its management is often sidelined, exposing institutions to spiraling costs and incremental business risks. The case for improved management of reference data is gaining ground as the trade cycle processing framework comes under

increasing pressure from the twin forces of STP and next-day settlement. Also, in the wake of the sub-prime crisis, it has become increasingly more important to manage the risk associated with each security (CDO, PTCs, etc.) and the exposure of each counterparty/client to any of these "risky" assets.

This white paper examines the growing need for more standardized data, as well as the role of and a roadmap for creating the securities master system.

Data Integrity and Standardization

One of the largest financial institutions in the world has 43 systems containing client and counterparty data, as well as 37 systems containing securities data. This results in a higher probability of undetected errors (operational risk) and execution risk.

Most firms access data from both external and internal data sources. Smaller and medium-sized firms are primarily dependent on external data vendors, such as Bloomberg, Reuters, Telekurs, etc. The biggest challenge for such firms is that vendor data sometimes proves to be less reliable than expected, and the data cannot be completely standardized – it needs to be maintained at many levels of granularity to meet different client needs.

For bigger firms, however, standardization and management of securities data is dependent on the fidelity of data from external sources (Reuters, Bloomberg, etc.) and the internal architecture that provides disparate downstream applications with

access to stored information. In these cases, the problem lies in the inconsistencies within the definition of data entities across different applications.

Thus, the key set of challenges that firms face stem from the fact that information regarding the security master file, counterparties, accounts and customers are stored in multiple, disparate databases across the enterprise. This leads to:

- Duplication of data.
- Huge reconciliation expenses.
- Sluggish response and time-to-market.
- Multiple data standards that need to be maintained.
- Redundancy within systems.

All these factors lead to customer dissatisfaction and proliferating operating costs in “managing mistakes.” With increasing emphasis on STP of transactions, there is an imminent need for financial services firms to standardize reference data and create automated systems and dynamic business rules that govern quick and accurate decision making. To get there, firms need a holistic data management solution that creates, manages and harmonizes all master data environments, including financial instruments, customers and counterparties, consolidated transactions and exposures.

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Challenges of Managing Multiple Securities Masters

- Instrument data stored in redundant, incompatible security master applications.
- Different sources of securities (stocks, bonds, derivatives) across different geographical markets.
- Multiple repositories, resulting in the inability of the bank to get a complete picture of securities in a reasonable amount of time.
- Fixed data models with tightly coupled application logic for each securities system, with no single system able to store complete information for securities.
- Difficult identification of securities coming from various internal and external data sources, such as IDC, Bloomberg, Reuters, Telekurs, etc.
- Different identifiers (CUSIP, ISIN, SEDOL, internal identifier) used by front offices and middle offices.
- No unique identifier covering all the necessary attributes for a security throughout its trade lifecycle to enable STP.
- Incomplete point-to-point data integration, resulting in inefficiencies and expensive maintenance.

Why You Need a Securities Master System

Risk Management	Trade Execution	Regulatory Compliance	Client Experience	Profitability & Segmentation
<ul style="list-style-type: none"> • Accurately assess risk • Optimize credit policy • Reduce operational risk 	<ul style="list-style-type: none"> • Reduce trade failures • Reduce execution costs • Reduce capital expenditures 	<ul style="list-style-type: none"> • Accurately assess risk • Optimize credit policy • Reduce operational risk 	<ul style="list-style-type: none"> • Improve client satisfaction • Improve employee productivity • Automate client on-boarding 	<ul style="list-style-type: none"> • Identify total client value • Align business units • Improve client profitability

Figure 1

Securities Master System: A Solution

A security master is considered the “universe of securities” for which the trading system is responsible for processing. For a large global financial institution, it may mean all tradable securities, worldwide. While the data for a given security is reasonably static, the primary roadblock in creating a proprietary security master system is the sheer number and variety of securities on the market. Very few investors have the resources to actually research every security traded in the world, and even so, new securities are generated every day. Keeping abreast of this can be quite difficult. This is particularly true given that no single data source has information on every security – not even Reuters or Bloomberg has a truly universal master file. Thus, one must typically have multiple data sources for security information.

Creating a master solution begins with identifying the different asset classes (types of securities) that need to be mastered. A workable system should contain the following instruments:

- Bonds
- Equities
- Mutual Funds
- Derivatives
- Forex
- Credit Securities
- Money Market
- Currencies

Having multiple data sources for securities brings us to the second major issue in maintaining a security master file, apart from the obvious data quality issue: Identifying new securities that come into the system. Many times, this data may have unclear identifiers or identifiers that are from a different scheme (e.g., ISIN vs. CUSIP). Alternately, the first or second data sources queried may not return information on that identifier. Correctly identifying a new security and then retrieving the correct information can be a complex and time-consuming problem. This is particularly true for illiquid assets such as limited partnerships.

Maintenance of securities master files in the current environment remains a predominantly manual process, in which adding, deleting or editing a record in one system doesn't necessarily mean other databases will be synchronized.

This manual identification and maintenance work leads to a higher risk of mistakes, as well as higher costs and headcount. Most large investment banks have an entire department dedicated to correctly identifying assets and maintaining their company's security master database, which leads to annual overhead of millions of dollars.

The solution to address all these challenges must be an efficient, automated securities master system that is ready to use and flexible, at a fraction of the cost of managing it in-house. Such a system could have a massive ROI impact and a surprisingly quick turnaround time.

Creating a Roadmap for the Correct Solution

A critical part of designing the data model is capturing the complexity of international securities. This process is easier to understand when it is examined from the perspective of a fund manager. The fund manager needs to analyze this information on a real-time basis, as well as daily, weekly and monthly, based on data feeds from master data repositories – both internal and external. There is a need to integrate data on securities prices (and possibly even economic and other financial and qualitative data) with accounting/transactional logs of securities bought and sold. From a longer-term perspective, further detailed analysis of each data source will need to be performed to understand the state of the information contained within each source.

The state of the information in the various sources might not be very good, or it may be of different frequency, with some data stored on a daily basis and other data on a monthly basis. Scrubbing, cleansing and gap analysis may be required to bring the data into a reasonable state.

Any solution that addresses the current challenges, particularly pertaining to data quality, must be supported by a data model that defines data entities consistently in different

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applications. The data model should incorporate hierarchy structure and the entity relationships of the descriptive attributes for each security type. As new applications are linked to a centralized data repository, the variety of securities that

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must be described by the data model will increase to a point wherein all asset classes are covered.

The envisaged data model will have two primary components: The issuer and the issue (instrument). The instrument is basically categorized under the different asset classes; in

this example, there are four: equity, fixed income, derivatives and funds. Price and corporate action data (i.e., dividends, bonus, rights, splits, etc.) will again flow in the asset master data. This data flow is illustrated in Figure 2.

Once this logical flow is established, the next task is to identify the attributes associated with each data segment: The issuer and the instruments. It is important to be cognizant of the hierarchies and relationship mapping within instruments, such as equity to derivatives, bonds to funds, etc.

For a solution of this criticality and complexity, it is fairly evident that the data architecture of the tool will lie at the heart of the technology. In this light, it is important to highlight the salient features on which the architecture rests:

- The detailed architecture must clearly define data rules that take a “best of breed” approach on data sources between external and internal sources of data.

Building Blocks of a Securities Master System

- Flexible data model to store complete information for various securities across asset class (equity, bond, mutual fund, etc.).
- Ability to cleanse, standardize, match and consolidate securities from various internal and external systems.
- Ability to create a unique identifier for each security and maintain cross-reference to other external and internal identifiers.
- Data stewardship process and UI to support functionalities such as search, view, edit, create, etc.
- Integrated enrichment using third-party data adapters including: D&B, Reuters, Bloomberg, Avox, Standard & Poor.
- Various services for distributing security information to downstream systems, such as trading settlement, accounting and risk.
- Batch process to send security updates to data warehouses and analytics systems
- Ability to create and maintain metadata – market, currency and country codes.

High-Level Conceptual Data Model

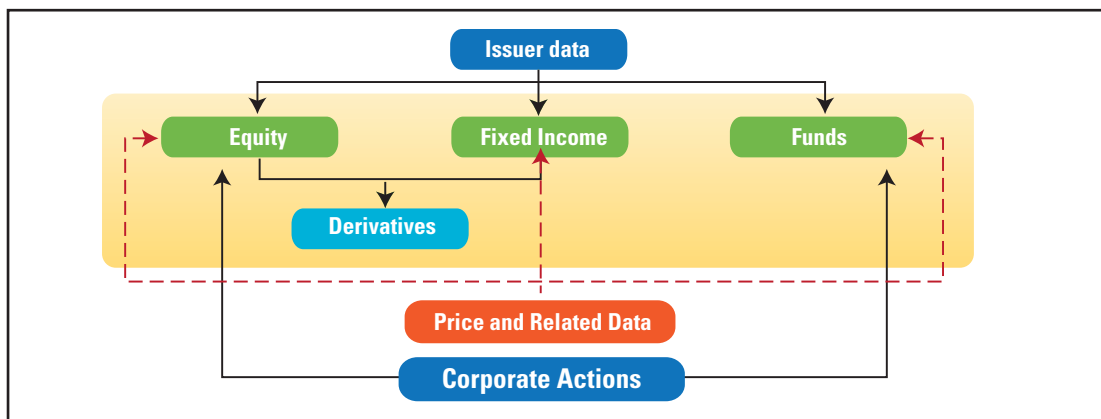


Figure 2

High-Level Architecture

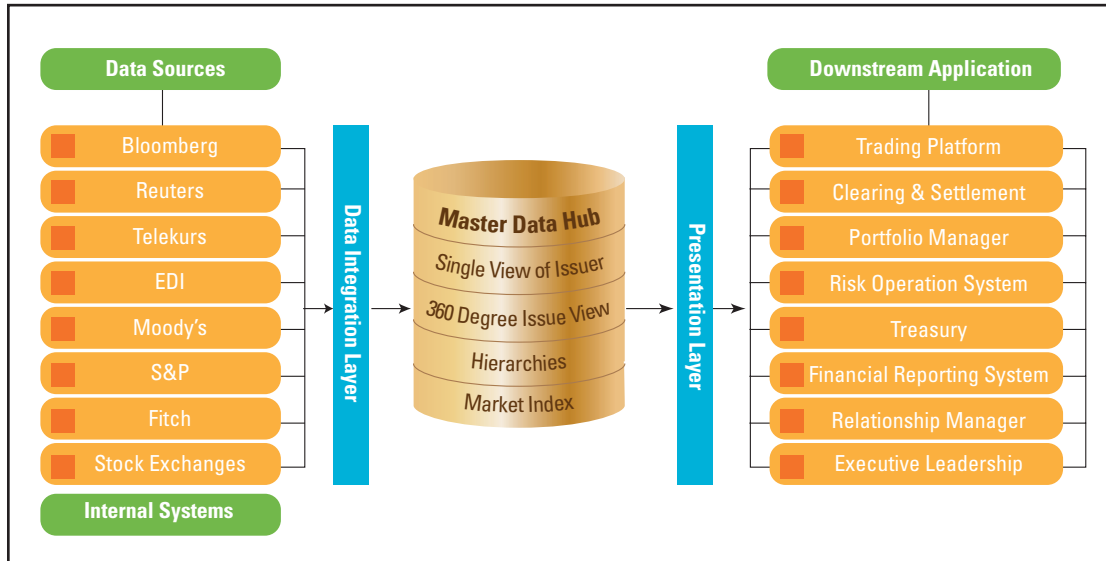


Figure 3

- Data validation rules must exist in the system to ascertain the accuracy and quality of data sources, particularly from external vendors.
- The solution must allow for performance of calculations on static and trade data.
- Security provisions must be made that create audit trails and guard against unauthorized changes in the data.

The solution will process data from both external data vendors and internal source systems and assign unique identifies for all instruments in the universe, as well as issuers. Where it will differ from traditional master data management solutions is that the solution will also capture some semi-static entity attributes – conditional master data – to infuse the solution with a 360-degree view that can accommodate any financial instrument.

A high level architecture of the envisaged solution is shown in Figure 3.

Summary of the Securities Master System

Inside the Security Hub		
Golden copy of securities with global standardized numbering/identification	Cross-referenced to other securities and their traded market information across geographies	Metadata on market, country codes and currencies
End-of-day holdings, positions and pricing for all instruments, accounts and portfolios under management	Relationship with counter-party database with cross-reference to all other identification systems	Unique matching algorithm for accurate matches

Figure 4

Conclusion

The purpose of any technological solution is two-fold: Improve process efficiencies and/or reduce costs. With increasing emphasis on regulatory compliance and price-competitiveness, the efficient handling of data with minimal operating errors has become more of a necessity than a luxury. Creating a repository of rich, harmonized securities information is at the forefront of addressing this issue (see Figure 4).

Without proper data management and governance processes in place, even the best solution will soon become obsolete, and the benefits will be short-lived. The solution must also ensure that all reference data pertaining to a trade is distributed to all applications that use it, both within and outside the enterprise. If any solution can incorporate all these features, it will soon be a reality to realize error-free STP and settlement.

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