



## Meeting Today's Unique Financial Risk Challenges

Business Whitepaper

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The financial markets have become increasingly interconnected over the last couple decades, and the potential for contagion has caused industry participants and regulators to think about risk differently. In today's economic climate, risk management is being taken very seriously. To this end, financial institutions are making every effort to comply with regulations and adopt best practices in corporate governance. As a result of the recent financial crisis, new regulations are being introduced requiring them to understand their risks more holistically and on an aggregated level.

Three problems undermine efforts to achieve a responsive risk management program. Data is stored in disparate systems within silos across the enterprise. The computational complexity is a major challenge. Perhaps most important, risk managers' performance is limited by the static models and tools they use to do their job. Financial institutions have been more apt to provide cutting-edge models and tools to profit centers than to efforts such as risk management. Simply stated, risk managers do not have sufficiently flexible tools that, when combined with their domain expertise, enable them to understand the complex array of risks that financial institutions are facing.

**Risk managers need a new generation of tools to prepare for any scenario, comply with regulations including Basel III, Dodd-Frank and EMIR, and achieve best practices in governance.**

Consider the examples of Greece, Spain, Portugal and Ireland—all of which are in difficult economic straits. Financial institutions have to prepare for a scenario whereby one or more countries will withdraw from the European Union. Should that occur, the impact will be felt worldwide. A set of static reports cannot possibly answer all their questions as some questions have not even been considered yet. Risk managers have to determine how the contagion might spread and affect the financial institution's business lines and legal entities globally. New questions will need to be answered, and those answers will lead to additional questions.

Financial institutions cannot wait to react to the impact of a given event because it will be too late; the markets will have already moved. They want a dynamic environment that allows them to look at and understand all the potential outcomes before the event occurs. The only way to produce correct answers is through an intellectual process involving iterative questioning and complex analyses, and that takes speed, scale, analytic capacity, transparency and flexibility.

### The Drawbacks of Existing Tools

Financial institutions tend to compute risk in a narrow way. To deal with the computational and technological complexity of risk calculations, they rely on pre-aggregation techniques. Cube-based and OLAP solutions, for example, aggregate risk and bucket data along pre-defined dimensions. Novel questions often arise that risk managers had not thought about before, yet the static reports based on the pre-aggregated data do not address them. In addition, batch processing on an overnight or over-the-weekend cycle is the norm, and the delay hinders the ability to execute quick decisions.

Risk managers are working with a much larger, more varied data set that comes from multiple silos within the enterprise, and obtaining a single, integrated view is problematic. Suppose, for example, risk managers at a large bank want to perform stress tests to determine the

impact of an event across every line of business and legal entity globally. Typically, they pre-aggregate the data into smaller sets, which takes hours, and they lose all granularity making it impossible to analyze the impact across all holdings.

Financial institutions can purchase a variety of tools—among them are ETL, database and business intelligence software—to create a data warehouse. However, it is difficult to develop a set of rules for creating a data warehouse from many source systems. Even if it can be done, it requires huge amounts of research and analysis up front. Further, the rule set produced by this approach would be so rigid that it may not allow the firm to comply with regulations or provide the right information to answer questions and run the business.

According to Shawn Rogers, Vice President Research for Business Intelligence at Enterprise Management Associates, these and other



issues are driving companies across all industries to move away from an enterprise data warehouse ecosystem. Instead, they are migrating to a hybrid data ecosystem comprising new technologies and systems as a foundation for today's sophisticated analytics.

Another problem is that analytical software applications on a data warehouse can only be changed by the IT department. Resources must be allocated to gathering and validating the specifications. The code has to be written, followed by multiple review and approval processes within the organization. Finally, a significant round of testing is required. Once

these hurdles have been cleared, the system can move to production. Ultimately, the time it takes to make changes will limit opportunities to mitigate risk.

The high-level summaries delivered by most technology platforms can be frustrating for risk managers. Because the summaries are disassociated from the source data, risk managers cannot drill down to see how a value is derived. There often are issues with the source data, and it is difficult to find the offending data even when the results at a high level are clearly incorrect. Ultimately, risks are miscalculated.

Finally, it is impractical to assume that there is a single solution and only one way to compute scenarios, and that the same turnkey solution will work for all financial institutions. These firms tend to be large and complicated. They each have different objectives, and their data is different.

### **A Fresh Approach to Managing Risk**

More advanced solutions allow risk managers to make good decisions much faster. They can create new calculations, generate views with custom grouping schemes and analytic scenarios, display the results in seconds and ask novel questions iteratively and on-demand. Since they have all deal, trade and cash flow data available for computation, they can create buckets along any dimension.

The optimal approach to the “big data” problem is to use massively parallel, in-memory analytics to run calculations across a vast array of computers. That way, they have the flexibility to interact with large volumes of data in the same manner one would with a small volume of data in a spreadsheet. All the data can be accessed and cached quickly from several source systems and integrated into a consistent view for the risk manager. Users can create rules, analyze the results of the aggregations and iterate on the data components to see how the aggregations change as the rules are altered. The end product is actionable information.

Risk managers can test just about every permutation as if working in their own “sandbox”. By proactively changing any input—a calculation, analytic procedure or piece of data—they can observe the result, drive the next set of questions and ultimately assess the

overall risk exposure profile. Further, risk managers can collaborate with their peers and with others across the institution to assess scenarios they have contemplated. All this can be done instantaneously and without IT involvement.

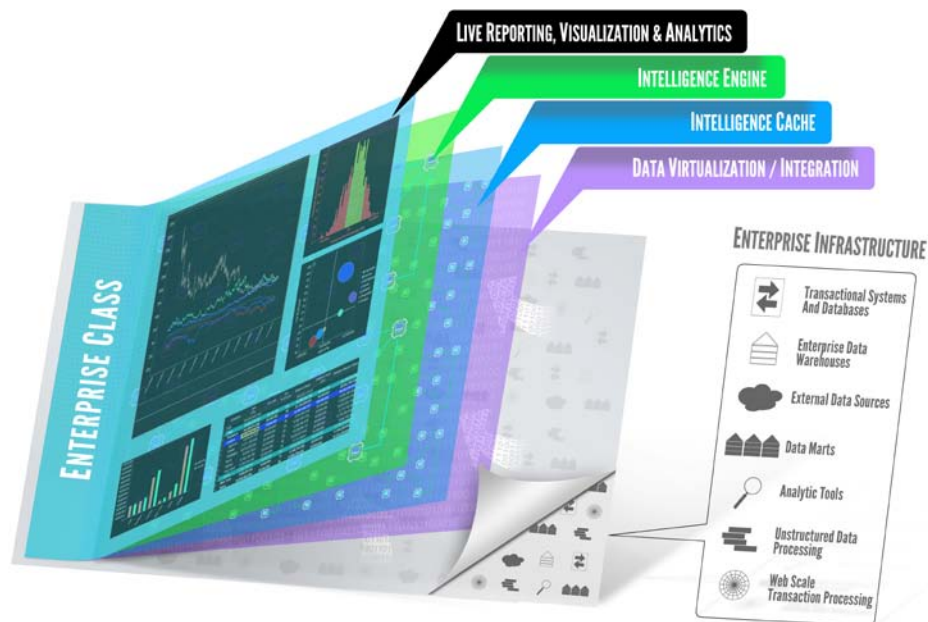
Greater transparency allows users to better understand the scope and sources of risk. They can start from high-level reports, and then drill down to a granular level of detail. These views take different forms from one day to the next. Importantly, users can drill into erroneous results, navigate all the information and calculations to find the problem with data and fix it. All the views update in real time, confirming that the problem was solved correctly. This means that data issues can be addressed right away and all users across the enterprise get correct results immediately instead of waiting until the next batch run.

By implementing an open architecture solution, financial institutions can customize to meet their specific needs. Such a solution can cope with highly specific calculations and aggregation, complex data issues, risk limits set on multiple hierarchies and calculation libraries.

Armanta has all these capabilities. It provides risk managers with end-to-end analysis, including:

- Proactive, scenario analysis with its patent pending Sandbox capabilities. This allows users to test their hypotheses in a safe environment without impacting other users.
- Integration with data in-place. This makes the process simple and quick, and includes environments where the data is in many sources.
- Dynamic and real-time aggregation of quantitative risk measures.
- Drill-down and drill-through capabilities for specific transaction level details.
- Information on demand. The live system allows users to update the data as needed; any downstream effects of this change instantly become available to all users.

## Armanta Integrated Business Intelligence and Analytics Platform



## Conclusion

Analysis of market risk, credit exposures and enterprise liquidity is mathematically complex and sensitive to the prevailing conditions. Yet existing turnkey solutions or legacy platforms used by risk managers lack the speed, scale, analytical capacity, transparency and flexibility to enable them to perform to their fullest potential, comply with regulations and implement best practices in governance.

However, advanced tools are now available that enable users to extract and aggregate all data from disparate systems throughout the enterprise, create new calculations on the fly and ask novel questions iteratively and on demand. More importantly, they can test all permutations so they are prepared for any event, no matter how unlikely it may be.

## About Armanta

The world's top financial institutions use Armanta's integrated business intelligence platform to enable their overall end-to-end analytic processes and See the Big Picture™. With Armanta, customers can leverage the entire scope of both on-premise and cloud-based data in order to visualize complex analyses instantly, evaluate all scenarios, and then act decisively.

Learn how asset managers, banks, pension funds, broker/dealers and insurance companies utilize Armanta to create their own proprietary asset management, risk management and decision-support solutions to address the broad spectrum of financial analyses including; asset management, portfolio management, liquidity risk, credit risk and market risk. Armanta brings live information and analytics of any scale directly to the fingertips of financial business users.

Visit us at [www.armanta.com](http://www.armanta.com) or email Armanta at [info@armanta.com](mailto:info@armanta.com).

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