



EDM Webinar

From Granular Financial Contract Data to Risk Analytics and Smart Financial Contracts

Live Date: May 25, 2023

Featuring:

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Mike Meriton, Moderator, COO & Co-Founder, EDM Council

<p>Recording: View webinar</p> <p>Presentation: View slide deck</p> <p>Relevant Links:</p> <p>EDM Council Website</p> <p>ACTUS Website</p>	<p>ACTUS original demo</p> <p>Deployed shiny demo</p> <p>Docker containers for R Shiny demo, and actus-webappV1.1</p>
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WEBINAR Q&A:

Thank you to ACTUS and the panelists for providing the below answers to all questions posed during the live webinar. For more information or additional questions, contact Allan I. Mendelowitz at Allan.Mendelowitz@ACTUSfrf.org

How has the ACTUS framework complied with industry specific regulations? Is it global or territory specific?

The ACTUS Standard was created as a global standard. Currently we have active engagement in the United States, Europe, and India. In addition, the ACTUS Foundation is a Liaison A to ISO/TC 68/SC9.

Is there any financial institution that adopted the SFC based on blockchain? What are the blockers in adopting such a smart contract?

Currently three blockchains are working on SFCs built around the ACTUS Standard as the computational core: CASPER Association, Cardano/IOHK, and Ethereum. Part of this process is determining what activities will take place on-chain and which will take place off-chain.

The existing asset classes that we recognize are fortuitous rather than concrete. Shouldn't we be starting from forward flow commitments (essentially contractual liabilities) rather than conventional assets, then we can define whatever assets or flows are useful to capital issuers for funding, and asset owners for liability matching?

That is what ACTUS does. A financial contract includes multiple elements. However, the core of a contract is the promised cash flow obligations. These contractual commitments are explicit and should be clear to all counterparties with respect to amounts and timing. It is these cash flow obligations that the ACTUS Contract Type algorithms compute.

In the ACTUS Standard, the algorithms are not established along typical financial product or business lines. The algorithms represent different cash flow patterns. While there are thousands of different financial products extant in the market, most of those products are differentiated by marketing, legal provisions, or other types of differentiators: not the contractual cash flow patterns. Almost all financial contracts extant in the market can be represented by less than three dozen cash flow patterns, and each of the ACTUS Contract Type algorithms represent one of those patterns, not a specific type or class of financial product. For example, the market views self-amortizing home mortgages and life annuities as very different financial products. However, viewed from the perspective of the contractual cash flow obligations, they both have the same cash flow pattern and use the same ACTUS Contract Type algorithm (ANN) to compute the payment obligations. That algorithm generates a series of payments that consist of interest and principal. The first payment is made up almost entirely of interest plus a very small amount of principal. However, the composition of each payment as regards the interest and principal

components changes over the life of the contract. Each subsequent payment for both a self-amortizing mortgage and an annuity has a little less interest and a little more principal than the payment that preceded it.

Is ACTUS being used to negotiate complex contracts among multiple deal participants?

One counterparty's asset is another counterparty's liability. However, both counterparties are parties to the same cash flow obligations save for the fact that for one counterparty the contract is a liability and payments are outflows (save for the original principle if the contract is, for example, a loan). For the other counterparty the contract is an asset and the payments are inflows (save, for example, for the original principle if the contract is a loan).

ACTUS is not intended to be a negotiating tool. Its role is to faithfully and accurately represent the contractual cash flow obligations with respect to timing and amounts. The benefit of using ACTUS for this purpose is that the contractual cash flow obligations are represented with great precision mathematically rather than in natural language, which then has to be interpreted and represented mathematically.

Is this (ACTUS) more focused only for small and medium sized banks? How can large banks benefit from these?

Collecting and analyzing consistent enterprise-level data by banks of all sizes is a challenge, although it takes different forms depending on the size of the bank. Small and medium sized banks do not typically have the budget for the types of skilled resources that are needed to manage data standardization efforts or the dedicated staff required to perform more robust analysis of such data. Banks in this category often rely upon outsourced, third-party services that are either provided by their core processor service bureaus or which are adjuncts or affiliates of such services. The adoption and use of the ACTUS standards by such banks can provide them with risk management and strategic decision support capabilities that they would otherwise not have, whether this was undertaken by the bank itself or provided via the adoption of ACTUS data and algorithmic standards and capabilities by their outsourced core processors or service providers.

Large banks, on the other hand, face a different kind of data and analytical challenge owing largely to the many diverse lines of business and systems of record that large banks have accumulated or acquired over the course of becoming a large bank via corporate actions such as

mergers and acquisitions. The larger and more complex operational footprint of a large bank does mean that there are more systems that need to be mapped to the ACTUS data standard, but the benefits of doing so in order to enable consistent enterprise-wide management of a large bank's balance sheet obligations, financial reporting reconciliation and regulatory compliance, and risk management mean that the benefits for large banks to incorporate the use of ACTUS can be an even greater benefit for a large bank than a small one.

The downstream benefits for the reporting and collection of more timely and consistent data and analytical insight of larger banks for the purpose of regulatory oversight are especially relevant given the importance and impact of significantly large financial institutions on the stability and systemic risk of the financial system.

The financial system oversight of smaller banks is itself a challenge for regulators because there are so many of them and because in general these institutions do not have skills and resources to do much forward looking risk analysis and generate quality reports for the regulator. The recent failure of Silicon Valley Bank and other small/medium institutions in the US is further evidence of the need for better quality risk detection and regulation of small and medium sized banks. For large banks and financial institutions, it is frequently the case that these are fragmented into independent departments each with siloed operational procedures and IT systems. This makes it difficult to get a combined view of the overall exposures of the enterprise. Having an ACTUS view of *all* holdings of the enterprise could give both the C-level executives of the enterprise and interested regulators an improved overall view of emerging enterprise risks - are there net exposures to specific counterparties, asset classes or risk scenarios - without requiring change on operational procedures or risk analytic methods of individual departments. The book Unified Financial Analysis, by Willi Brammertz et al, has more detailed explanations of the benefits of ACTUS within a large financial enterprise.

Why was the Casper blockchain chosen as the first blockchain for ACTUS?

Casper is the third blockchain to see the value of the ACTUS Standard and work on integrating it into smart financial contracts to run on their blockchain.

Can the ACTUS framework be adopted without blockchain implementation?

Absolutely! The applicability of the ACTUS standard for blockchain and DLT platforms is simply a reflection of the broad applicability of ACTUS in a wide variety of use cases that involve financial

contracts in one way or another. There are two broad domains of ACTUS potential use: "analytic" and "transactional". The analytic use of ACTUS is primarily predicated on deriving a robust and comprehensive forward-looking view of the future cash flows and evolution of the balance sheet business mix of a financial institution starting from the current state of an institution's balance sheet. ACTUS based risk analytics are relevant to all financial institutions and have no unique relationship to Defi or blockchain. Transactional use of ACTUS has to do with the representation and implementation of operational contracts in the ACTUS standard natively and using the algorithmic logic of ACTUS to perform operational processing of the contracts on a daily, transactional basis — i.e., what (cash) payments should be made or received at each step in the servicing of the contracts. Because blockchain systems need to store smart contract logic on a shared distributed ledger - with cash flows of the contract agreed and confirmed by all signatory counterparties -- ACTUS has a special value in providing such transaction processing capabilities for Defi and Blockchain solutions. This is a topic of significant current interest and activity - and is therefore receiving significant attention. Centralized (non-Defi, non-blockchain) transactional ACTUS banking and contract operation is also possible in principle with conventional IT systems.

Is ACTUS standard being considered by FDIC as a standard for LCR & CCAR reporting?

The LCR is a requirement that was put into place to get a regulatory handle on mitigating liquidity risks. It is the kind of regulatory requirement that is adopted in the absence of access to the granular transaction and position data in a standard like ACTUS. It is an important step forward, however, the complexity of liquidity risk makes an approach based on regulator access to a bank's balance sheet represented in ACTUS the next logical improvement. Similarly, CCAR reporting was an important regulatory advance. However, because of a number of reasons, regulators cannot compare the results of different banks subjected to the CCAR requirements other than whether or not they were determined to have passed or failed. Importantly, the CCAR does not provide insight into the interconnectedness of major nodes in the financial markets. With balance sheets in ACTUS regulators could conduct their own stress tests as needed and include in the analysis the cash flows between different banks and the potential for cascading failures.

What roles within a financial institution would be most interested in ACTUS capabilities/resources?

Every C-level executive should be interested in what ACTUS enables. The ACTUS motto is “Finance speaks one language” and that same language should be used for all applicable functions. It is of great value for CDOs because it provides the foundation for an efficient “write once, read many times” data model that is consistent across all business lines. It is of great value for CROs because it stores a financial institution’s granular data in a standard that is the starting point for analytics. It reduces the time and cost needed to transform bank data into a form that can be subjected to analysis. It is of great value for COOs, CFOs and CEOs. Two examples, one in government and one at a large financial institution, demonstrate the kind of problems that can be avoided with data in a financial contract standard like ACTUS that enables real-time forward-looking analysis. In the middle of July 2008, the director (i.e. the CEO) of OFHEO, the regulator of Fannie Mae and Freddie Mac, issued a report stating that those GSEs were well capitalized. Six weeks later both of them were deemed to be insolvent and they were put into receivership - and this happened before the collapse of Lehman Brothers. A financial regulator should have a far better forward looking view of the condition of financial institutions that they regulate than that. A second example involves JPMorgan Chase. In the middle of April 2012, the CEO of JPMorgan Chase was asked at a press conference about the “London Whale” trades. He dismissed the concern over those trades by calling them a “Tempest in a teapot.” Six weeks later, JPMorgan Chase booked a loss of more than \$6 billion on those trades. Better data systems that supported better analytics would have been of great help in this matter.

The marketplace is significantly volatile and it has become difficult to predict where things are headed. What advice can you give to those interested in starting their journey with ACTUS and how would you position the business case to top management?

This is a very good question and it goes to the heart of the challenges faced when addressing data issues in financial institutions. Every initiative requires an allocation of capital. The first in line for access to capital is always the activities that generate profits for the institution. Data systems are overhead, and as long as they are “good enough” which means they have not collapsed, it is always hard to get an allocation of capital, no matter how critical to the long-run performance of the institution. I think the best way to approach the challenge is to have a long-run vision that can be implemented in stages. The case for a better data system can be made by citing all of the benefits that can be captured when fully implemented. However, changes need to be implemented in stages that are not disruptive to the ongoing business. For example, starting by using the ACTUS Data Dictionary to define contract terms is a good start. The need for such an implementation will be well understood because of the multiple efforts

and the hundreds of millions of dollars that have been spent on data warehouses and data lakes. Despite those large expenditures, the industry has not succeeded in solving outstanding data problems. Once that is done, the stage is set to more easily link the contract-level data to the ACTUS Contract Types that are used for computing cash flow. The core systems are a challenge on an entirely different level because they are essential to the daily operation of a financial institution. Large institutions typically have multiple systems left over from past mergers and acquisitions that lack any commonality. I understand that there are still systems running in COBOL for which the programs have been lost and the computers are run with only machine language instructions - not something that can be easily fixed when the need arises. However, the well-established movement of computerization from on-site mainframes to the cloud does present an opportunity. If there is a plan to move core systems to the cloud there is an open door to make the case that it should be done the best way possible utilizing a common financial contract standard.