EIFR – IA & Compliance

Leverage advanced analytics for compliance & internal audit

by Mazars, on April 13th,2020

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Illustrative typology of use cases where Forensics x Data were the right answer

Fast iterations, quick and creative response to match inventiveness of fraudsters

Support to authorities

- Enhance their existing capabilities and skills
- Reconstruct large datasets captured during inquiries

Support to internal anti-fraud entity

- Enrich their knowledge of their counterparts
- Leverage open data & AI

Support to defenders

- Analyze and challenge inquiries made by regulatory authorities
- Support defenders in matching the capabilities available to the regulatory bodies

Foundations enhanced by Big Data & AI to process large amounts of data quickly

Blitz operation to detect money-laundering patterns for a public regulator

Intervention for a public banking institution

➢ Confidential and temporary support to the institution, fill in missing gap in skills
➢ Support upskilling, recruiting and upgrades in people/technologies

Big Data engineering at light speed

➢ Rebuilding of the IS of the bank through their exhaustive accounting and transactional data
➢ 2 weeks to completely rebuild the Information System and simulate access to the real IS for our Forensics experts

Detection of complex money-laundering and reverse-money-laundering patterns

➢ Analysis confirmed the existence of industrialized money-laundering schemes
➢ The detection process also highlighted reverse-money-laundering patterns from several accounts

Counterparts corruption risk assessment

Intervention for a public banking institution

➢ Support for a European institution in evaluating risk from their counterparts
➢ Matching of tender bidders with internal client counterparts
➢ Evaluation and risk-scoring through the analysis of publicly available information on tenders

Big Data engineering at light speed

➢ Monthly data collection on TED platform of 4M+ tenders notice and 1M+ contract award notice
➢ Creation of synthetic explanative variables: delay between start of tender and award notice, # of bidders, contract description exhaustivity, …
➢ De-duplication process to match similar company names, then matching with internal client counterparts (Methods: Levensthein, Jaro-wrinkler)

Continuous improvement of AI model: avoiding the black-box effect

➢ To improve the matching process, human experts can fill in a whitelist (to always match certain company names together) or a blacklist (to never match certain companies together)
➢ This human input is then processed in our model, so that it learns from it and continuously improves its result

Analysis of one trader's activities on market data
Context & Objectives

Intervention for a financial institution

➤ Confidential and temporary support to the institution, fill in missing gap in skills et technical capabilities

Exhaustive processing and analysis thanks to Big Data

➤ Ingestion, consolidation and processing of **65M+ market orders** and **5M+ transactions**

➤ Exploratory iterative analysis to compare interventions of market actors, build behavioral models for market actors, identify possible deviant behaviors

➤ Design and development of a trend detection module (Prophet)

Challenge hypotheses with a simulation tool

➤ Design and development of a simulation tool to allow testing new criteria and thresholds in order to challenge the parameters selected by the regulator

➤ Perform a correlation analysis to validate or invalidate criteria

Analysis of one trader's activities on market data
Characteristics of analysed Data

33 Market days

2,2M Orders / day **+** **65** Fields on Orders tables

190k Trades / day **+** **115** Fields on Trades tables

65 csv files

44 Go of data

80 Millions lines processed