Bond Buyer Matching AI

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Overbond



Fixed Income Artificial Intelligence

The financial services market is embracing digital processes and artificial intelligence applications to streamline business workflow. New bond distribution and OTC trading are one of the few areas which have a great need to embrace the trend. The current fixed income capital market data flows are inefficient in many respects, limiting precision in assigning proper value to credit risk long term and identification of traditional and non-traditional bond buyers. Markets remain heavily reliant on segregated and manual data operations between counterparties and as a consequence, disparate data sets. These disparate data sets cause the market to suffer from information asymmetry and decentralization. As a result, insight from available data is fragmented and disseminated through manual exchanges between counterparties, which furthers creation of disparate data sets.

Need for centralization of information

There is a great need for a fixed income big-data centralization where advanced analytics such as price discovery, buyer risk appetite and matching, intelligence gathering, pre-trade and post-trade analytics can be performed – to increase the overall efficiency of the fixed income market and understanding of the credit risk valuations that meet market demand. With no centralized hub, issuers and investors operate with partial awareness. AI application utilizing deep historical data records of fundamental data elements (audited statements, dealer supplied primary bond price quotations etc.) and secondary market bond trade points can solve this problem. With this, Overbond pioneered to be the first to market with a centralized big-data hub powered with AI capabilities for fixed income analytics.

Overbond AI Focus Areas:

Market Opportunity Discovery – Algorithmic matching of target buyers with fixed income opportunities, based on past buying patterns, portfolio manager preferences, rebalancing events and preferred industry sector, rating or tenor. Profiling traditional and non-traditional investors for each fixed income market opportunity.

Predictive Issuance Analytics – Proprietary machine learning algorithms systematically identify highly likely new bond issuances, providing institutional investors with exclusive pre-trade insights into the fixed income market new-supply unreached by prior analytical methods.

Tailored Portfolio Optimization – Market-optimized allocations data on investor holdings along with sophisticated bond pricing and issuance algorithms, output customized trade ideas, generating alpha for bond pricing trends and new-supply, as well as systemic audit-trail and liquidity risk management.

Custom AI Solutions

The Overbond platform delivers on these focuses by employing state of the art visualization modules on the front end and its proprietary AI engine, the Corporate Bond Intelligence (COBI) tool on the back end. Overbond's Bond Buyer Matching Algorithm, COBI-Matching, provides analytics platform for issuers, dealers and investors to discover traditional and non-traditional buyers for new bond issuances as well as profiling pricing tension in secondary market and risk appetite for target buyers, enabling systematic opportunity monitoring and market signal alerts.

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How COBI-Matching Algorithm Works

COBI-Matching is an advanced AI algorithm family which makes ongoing observations of investor behavior, buying-patterns and rebalancing events. COBI-Matching identifies a set of traditional and non-traditional buyers for each market credit opportunity. It analyzes features focusing on data variables below.

Features	Description
Sector Concentration	An investor with higher transaction volume and/or larger holdings in a specific industry sector is ranked higher when matching opportunity has issuer from the same sector. For example, if issuer is in the energy sector, opportunity is more likely to be matched with an investor who recently executed larger number of transactions in energy bonds.
Cross-Currency Classification	COBI-Matching considers the currency in which the investor's holdings are denoted as a ranking criterion. Investors who hold higher levels of GBP securities for example are ranked higher if the trade opportunity identifies issuer who is also expected to issue GBP denominated bonds.
Credit Rating Profile	COBI-Matching gauges an investor's risk tolerance by considering the quantity of investment-grade to high-yield bonds in the investor's portfolio. Issuers with lower credit ratings are more likely to be matched with investors whose portfolios hold more high-yield securities.
Traditional/Non-Traditional Investors	An investor with continuous holdings and prior transactions in bonds of the corresponding issuer is labelled as a traditional investor for opportunities of that issuer (credit type, currency, rating, industry sector). Investors without this past buying pattern are considered non-traditional.

COBI-Matching analyzes >2,900 investors' portfolios and ranks the investors' interest based on their existing holdings and quarterly rebalancing. Using the algorithms, issuers or dealer underwriters acting on their behalf can systemically identify investors who are traditional and non-traditional buyers.

Overbond's COBI-Issuance and Pricing algorithms identify issuances and pricing tension opportunities while COBI-Matching identifies how those pre-trade opportunities match with corresponding set of traditional and non-traditional buyers. For more information on COBI-Issuance and COBI-Pricing, please refer to separate whitepapers.

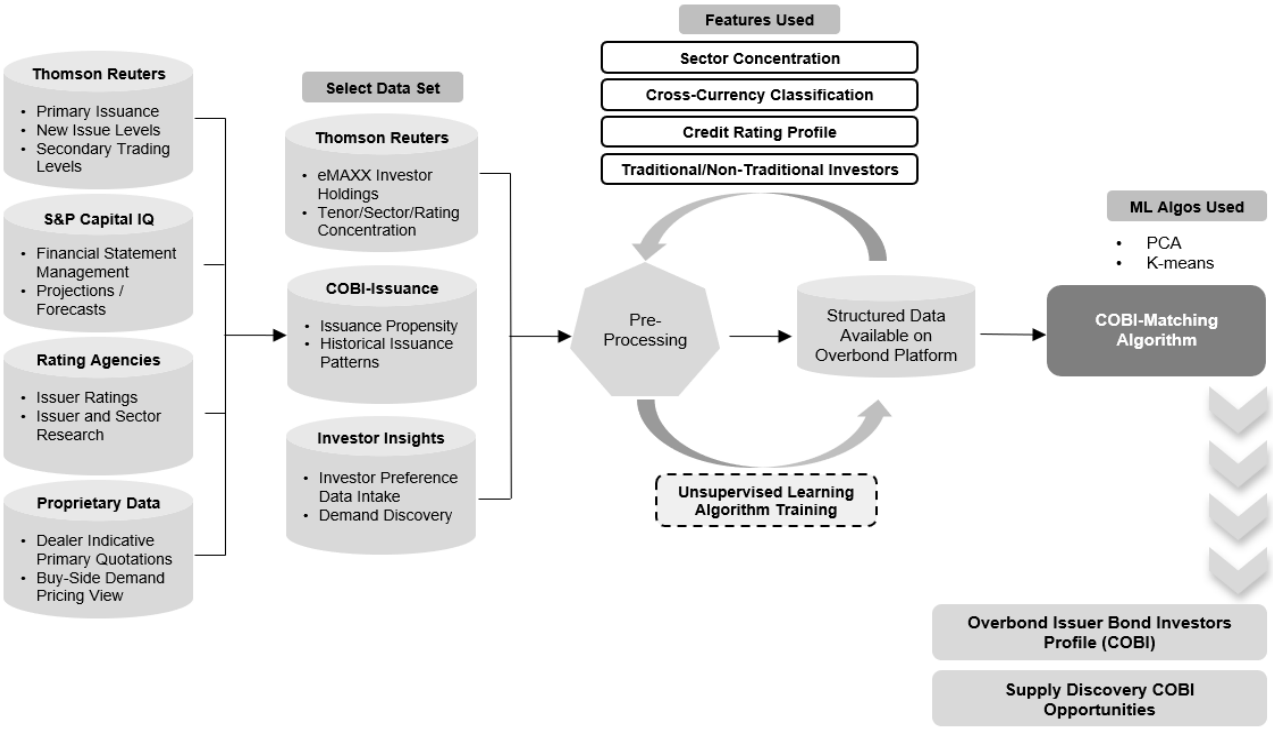
AI advantage over statistical methods

COBI-Matching AI modeling techniques share many similarities with classical statistical modeling techniques starting from the fact that they both deal with data. However, the key difference, between statistical techniques and AI models Overbond applies is in the goal of these approaches. While statisticians start with a set of known assumptions that are given to the model and best explain the expected behavior of the financial outcome in consideration, AI techniques rather aim at finding by themselves the method (with underlying assumptions that are unknown) that best predicts the outcome in consideration. AI is needed in situations like this, where it would be nearly-impossible for statistical quant to hypothesise and test 20+ years of market data from various data families.

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How COBI-Matching Algorithm Works (cont't)

The diagram below and the following paragraphs provide a description of how the Overbond COBI-Matching algorithm works.



Data Intake & Pre-Processing

The Overbond platform sources raw trading and fundamental data via automated nightly scripts. This raw data is structured in the Overbond databases. Trading data and fundamental data are structured and mapped to the appropriate issuer ID. The data is systematically scrubbed for anomalies and null values. Finally, a set of key input factors are generated based on the raw input. These include but are not limited to factors that measure sector concentration, cross-currency classification of different investor types, credit rating profile investor preference and traditional /non-traditional investors.

COBI-Matching's primary additive data input is eMAXX Investor holdings data sourced from Thomson Reuters. A data refresh is performed quarterly and algorithm monitors any changes in the investors' holdings data table. eMAXX data bundles provide issuer/investor data, security classification, and credit rating data which are pre-processed before they are inputted into the algorithm.

Model Training

The subsequent stage for the machine learning algorithm is to train and apply several models to calculate the output investor relative match scores. An Ensemble Learning strategy is used, meaning multiple models are combined to elevate overall robustness. These models are each trained using a subset of the past data, ranging from one month to a maximum of ten years. Feedback loops for machine learning have been established through investor insights campaign that runs monthly and sources on average 4 billion USD in non-executable investor credit preferences (across corporate, sovereign, supra-sovereign, municipal and provincial issuer credit). Finally, the results are back-tested against the entire ten years of data history and measured for precision and recall metrics.

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COBI-Matching Data Intake

The successful data intake and pre-processing are the key stages and pre-requisite for the COBI-Matching algorithm operation. The precision of the algorithm output is critically dependent on the accuracy, timeliness, and relevance of the pre-processed input data. Overbond sources raw data from major data suppliers in the financial sector, including Thomson Reuters, S&P Global Market Intelligence, major credit rating agencies, proprietary sources, as well as other sources. The data COBI-Matching algorithms use includes the following:

Pre-Processed Data	Source	Update Frequency	Description
eMAXX Investor Holdings Data	Thomson Reuters	Quarterly	Thomson Reuters provides security-specific data on corporate, government, municipal, and MBS bond holdings for >2,900 investor portfolios including their coupon type, maturity, credit rating, and par value.
Investor Insights Campaign	Overbond Proprietary Platform	Monthly	Community of >250 institutional investors provides indicative sector, tenor, price and size preferences for hypothetical issuance in investment grade and high yield credit. COBI-Matching algorithm applies aggregate investor preference to calibrate traditional and non-traditional buyer patterns.
Secondary Pricing Data	Thomson Reuters	Interday	The closing prices of companies' bonds are used to calculate an indicative new issuance price across tenors and isolate at-issuance investor concession and demand-driven pricing tension.
Outstanding Securities	Thomson Reuters	Interday	The outstanding securities allows for calculation if the company has upcoming maturities that need to be refinanced. The maturity schedule of the outstanding securities is used to calculated gaps which may increase issuer likelihood to issue in a specific tenor.
Historical Bond Issuance	Thomson Reuters	Interday	Issuer's past bond issuances. They indicate issuance frequency, seasonality, and propensity for specific tenors. They are used to train the models and to back-test the accuracy of COBI-Issuance's predictions.
Fundamental Data	S&P Global Market Intelligence	Weekly updates, Quarterly filing cadence	The issuer's fundamental financial data from quarterly filings is an indicator of the issuer's creditworthiness, and by extension, their cost of borrowing across tenors. In additional, fundamental metrics indicate the liquidity needs and potential short term need to raise capital. The financial profile of an issuer aids with clustering analysis of issuers with similar characteristics. It is expected that issuers with similar financial characteristics and balance sheets would have similar bond issuance patterns.
Issuer Credit Rating	S&P, Moody's, DBRS, Fitch	Periodic	The issuer's credit rating impacts cost of funding, and by extension issuer likelihood to issue new bonds. In addition, credit rating is used to cluster issuers with similar ratings.
Industry Sector Information	Thomson Reuters, Public Sources	Systematically updated	Different industry sectors have vastly different bond issuance patterns and frequencies. The models are tuned to each sector specificity and issuers are grouped to their closest peers.
Prospectus Filings	SEDAR, EDGAR, Public filings	Daily/When filed	Prospectus filings is an indicator that a issuer deterministically plans to raise additional financing.
Macro Market Data	Central Banks/Treasuries, Public Sources	Interday	Changes in interest rates and economic data has an impact on the attractiveness of the fixed-income market and the availability of credit, and by extension, likelihood for issuers to issue bonds.

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Use Cases for Issuers and Dealers

Bond Issuance Challenges

One of the important factors in establishing and running optimal borrowing program for bond issuers is that they can identify and engage investors that are willing to purchase a prospective issuance. Due to primary market fragmentation in information flow and distribution, it is harder to uncover non-traditional buyer preferences. COBI-Matching algorithm identifies extensive list of traditional and non-traditional investors for a potential issuer credit type or risk profile. At a macro level market-wide, COBI-Matching can source demand considering international cross-currency investor buying patterns, that currently could not be discovered efficiently, through manual analysis.

COBI-Matching's Solution

COBI-Matching resolves these issues by providing a methodical way to identify investor demand and extensive list of all active global buyers. COBI-Matching begins by analyzing portfolio holdings and transaction history. Based on the results of the above analysis, the algorithms generate a list of traditional investors for each issuer as they currently hold exposure to that issuer name. As a next step, based on pre-defined criteria of issuance opportunity for matching (tenor, rating, currency, sector) COBI-Matching algorithms outputs a list of additional non-traditional buyers that hold inventory positions meeting the issuance pre-defined criteria but have not yet bought bonds of the particular issuer at hand.

COBI-Matching increases liquidity and offers optimal price discovery to prospective issuers and dealer underwriter syndicates acting on their behalf. Non-traditional investor discovery and engagement increase the stability of primary issuance program through investor diversification and international markets monitoring. Issuers can achieve optimal funding and improved liquidity in the secondary market.

Several specific COBI-Matching use cases for issuers and their dealer underwriters are listed below.

Global Pre-Issuance Analytics

Issuers who want to diversify their investor base and attain additive pricing tension as well as international investor demand can access global fixed-income market analytics and monitor cross-border issuance benefits on a swap-equivalent basis.

Asian Infrastructure Bonds

Infrastructure projects in Asia are normally financed through large debt issuances, supported with global supra-sovereign issuers. Credit risk is decreasing as the project approaches completion. Depending on the investor's risk appetite and buying pattern, COBI-Matching can pinpoint the set of traditional and non-traditional buyers for both primary issuance and secondary trading in different risk tranches.

Panda Bonds

Prospective global issuers who want to issue RMB-denominated bonds may utilize COBI-Matching to generate interest in China domestic investor base. COBI-Matching analyzes cross-border issuance patterns both from supply and demand perspective enabling analytics necessary for access to liquidity in global capital markets.

Green Bond Premium

As Green Bond issuances are becoming increasingly popular, issuers need to find new ways to identify Green Bond buyers and the composition of their portfolio as well as their preference criteria. COBI-Matching helps match prospective issuers with target traditional and non-traditional green bond investors. COBI-Pricing can generate analytics on green bond price premium.

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Ranking Mechanism

COBI-Matching ranks each investor depending on their likelihood of investing in a security with the predefined criteria. The ranking is based on the quantity the investor currently has invested based on the inputted criteria, number of prior transactions in relevant category, and notional size of purchasing activity. As an example, an investor with high amount of USD bonds in their portfolio will be ranked higher when the issuance opportunity is USD denominated. The investor rank (outputted as number of stars beside investor organization name) represents the quintile in which the investor ranks after COBI-Matching ranking algorithm finished the analysis (i.e. an investor in the upper quintile will show five stars while an investor in the lower quintile will show one star).

Investor Segregation and Ranking

Using issuer credit type characteristics, COBI-Matching first identifies investors who are traditional buyers. Once these investors are identified and ranked, algorithms identify non-traditional buyers based on currency, rating or industry sector buying preferences. Each prospective investor is ranked based on the contents of their portfolio, frequency of their buying patterns, expressed preferences and rebalancing.

Pre-Issuance Analytics Example

As a first test case, assume KfW, global supra-sovereign issuer was preparing for EUR bond issuance and wanted to gauge the interest for their prospective primary bond deal. Below are insights COBI-Matching can produce pre-deal launch for KfW prospective issuance.

Test Case A: Global Supra-sovereign Issuer (KfW), EUR denominated prospective primary issuance opportunity
Objective: Identify traditional investors that hold past investments in KfW and investments in EUR currency

Quintile	Traditional	Non-Traditional
★★★★★	23	87
★★★★	22	87
★★★	23	87
★★	22	87
★	22	87
Total	112	435

Criteria: KfW, EUR

Left: As of March 05, 2019, COBI-Matching algorithms matched prospective KfW EUR denominated prospective bond issuance (across standard tenors) with 112 traditional investors and 435 non-traditional investors.

Below: The sample list of investors COBI-Matching algorithm identified and ranked for KfW's EUR bond. Below front-end visualization output showcases the result that could be readily downloaded from Overbond platform, including traditional and non-traditional segregation and ranking status.

Traditional

Investor	Rank
Dimensional Fund Advisors LP	★★★★★
Ofi Asset Management	★★★★★
Federal Finance Gestion	★★★★★
Wasatch Advisors Inc	★★★★★
EFG Bank SA	★★★★★
DNCA Investments	★★★★★
HSBC Global Asset Management (France)	★★★★★
Z-rcher Kantonalbank, Asset Management	★★★★★
Goldman Sachs Asset Management Co Ltd	★★★★★
Delta Lloyd Asset Management NV	★★★★★
La Banque Postale Asset Management	★★★★★
BlackRock Japan Co Ltd	★★★★★
Ethenea Independent Investors SA	★★★★★
Standard Life Investments Ltd	★★★★★
Wellington Management Company LLP	★★★★★
Oppenheim Kapitalanlagegesellschaft mbH	★★★★★
Security Kapitalanlage AG	★★★★★

Non-Traditional

Investor	Rank
Credit Suisse Asset Management	★★★★★
State Street Global Advisors France SA	★★★★★
Candriam SA (France)	★★★★★
Nordea Investment Management A/S (Denmark)	★★★★★
External Manager Not Disclosed (Europe)	★★★★★
AXA Investment Managers Paris	★★★★★
Fideuram Asset Management (Ireland) Limited	★★★★★
BlueBay Asset Management LLP	★★★★★
Anima SGR S.p.A.	★★★★★
ERSTE-SPARINVEST Kapitalanlagegesellschaft m.b.H.	★★★★★
Siemens Fonds Invest GmbH	★★★★★
Standish Mellon Asset Management Company LLC	★★★★★
Warburg Invest Kapitalanlagegesellschaft mbH	★★★★★
W & W Asset Management Dublin Limited (AMD)	★★★★★
AEGON Investment Management B.V.	★★★★★
Sella Gestioni SGR S.p.A.	★★★★★
Invesco PowerShares Capital Management LLC	★★★★★

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Ranking Mechanism (con't)

In the second test case below, particular issuance opportunity for supra-sovereign credit of KfW was further refined with objective to identify non-traditional investors that have invested in the past in the financial industry sector, same rating and credit type, KfW peer group, but not in the KfW credit. Based on the algorithm buying pattern analysis, resulting output can pinpoint target investors adding additional criteria.

Test Case B: Global Supra-sovereign Issuer (KfW), EUR prospective primary issuance

Objective: Identify non-traditional investors that had past investments in financial sector (KfW peer group credit, but not KfW)

Quintile	Traditional	Non-Traditional
★★★★★	0	21
★★★★	0	21
★★★	0	21
★★	0	21
★	0	20
Total	0	104

Criteria: KfW, EUR, Financials, A+

Left: As of March 05, 2019, algorithms can further dissect investors by sector and credit rating. Suppose KfW wanted to find sector-specific investors and believed the bond would be ranked A+, COBI-Matching would match KfW with 104 non-traditional investors.

Below: It is clear that as KfW's filters become more specific, COBI-Matching's output becomes more tailored to KfW's needs. COBI-Matching identified buying activity for EUR Financials A+ bonds from the following investors, which makes them likely investors for KfW's issuance.

Test Case B results show that by adding more targeted matching criteria, COBI-Matching algorithms are able to provide refined investor targeting so that more specific investor engagement strategy can be carried out. In particular, non-traditional investor list from Test Case A has reduced from 435 to 104 targeted investor matches. In other words, when matching criteria was EUR currency preference only, algorithms identified 435 prospective investors into new prospective KfW issuance, but when currency, credit rating and industry sector preference was applied, EUR, A+ and financials sector respectively, algorithms refined the matches to more targeted investor universe of 104 organizations.

Non-Traditional

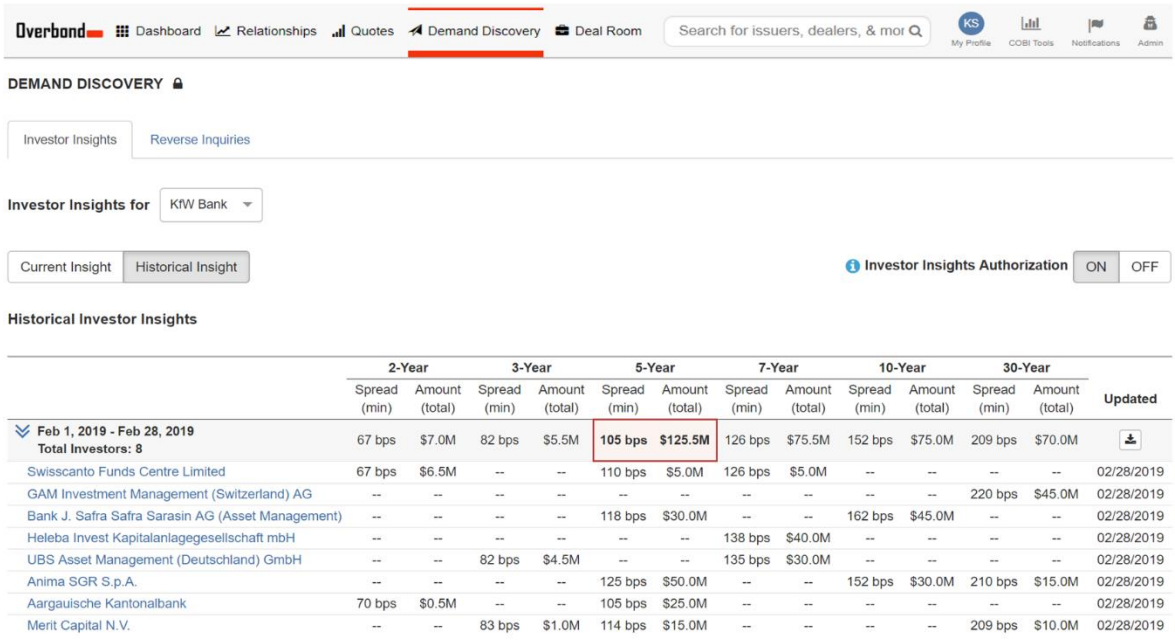
Investor	Rank
External Manager Not Disclosed (Europe)	★★★★★
Swisscanto Funds Centre Limited	★★★★★
Aletti Gestielle SGR S.p.A.	★★★★★
GAM Investment Management (Switzerland) AG	★★★★★
Ofi Asset Management	★★★★★
Bank J. Safra Sarasin AG (Asset Management)	★★★★★
LLB Asset Management AG	★★★★★
Helaba Invest Kapitalanlagegesellschaft mbH	★★★★★
Warburg Invest Kapitalanlagegesellschaft mbH	★★★★★
UBS Asset Management (Deutschland) GmbH	★★★★★
Bremer Landesbank Kreditanstalt Oldenburg-Girozentrale	★★★★★
Anima SGR S.p.A.	★★★★★
State Street Global Advisors France SA	★★★★★
Aargauische Kantonalbank	★★★★★
Trafina Privatbank AG	★★★★★
Merit Capital N.V.	★★★★★
BlackRock International Ltd	★★★★★

Whether KfW investor engagement strategy needed to look for a broad or more targeted investor universe, COBI-Matching algorithms are able to accurately identify investors that fit program objectives.

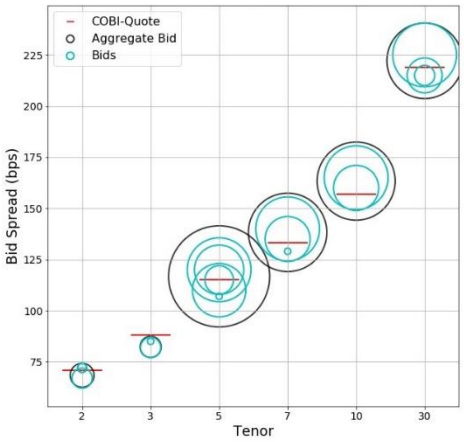
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Investor Engagement

After list of traditional and non-traditional investors has been identified, Overbond platform has digital investor engagement software module that can seamlessly intake investor preferences and appetite per credit type, tenor, size or price. The visualization below shows sample result where 8 institutional investors submitted preferences for prospective hypothetical new bond deal of KfW, including their tenor, price and investment ticket size preferences.



	2-Year		3-Year		5-Year		7-Year		10-Year		30-Year		Updated
	Spread (min)	Amount (total)	Spread (min)	Amount (total)	Spread (min)	Amount (total)	Spread (min)	Amount (total)	Spread (min)	Amount (total)	Spread (min)	Amount (total)	
Feb 1, 2019 - Feb 28, 2019 Total Investors: 8	67 bps	$7.0M	82 bps	$5.5M	**105 bps**	**$125.5M**	126 bps	$75.5M	152 bps	$75.0M	209 bps	$70.0M	
Swisscanto Funds Centre Limited	67 bps	$6.5M	--	--	110 bps	$5.0M	126 bps	$5.0M	--	--	--	--	02/28/2019
GAM Investment Management (Switzerland) AG	--	--	--	--	--	--	--	--	--	--	220 bps	$45.0M	02/28/2019
Bank J. Safra Safra Sarasin AG (Asset Management)	--	--	--	--	118 bps	$30.0M	--	--	162 bps	$45.0M	--	--	02/28/2019
Heleba Invest Kapitalanlagegesellschaft mbH	--	--	--	--	--	--	138 bps	$40.0M	--	--	--	--	02/28/2019
UBS Asset Management (Deutschland) GmbH	--	--	82 bps	$4.5M	--	--	135 bps	$30.0M	--	--	--	--	02/28/2019
Anima SGR S.p.A.	--	--	--	--	125 bps	$50.0M	--	--	152 bps	$30.0M	210 bps	$15.0M	02/28/2019
Aargauische Kantonalbank	70 bps	$0.5M	--	--	105 bps	$25.0M	--	--	--	--	--	--	02/28/2019
Merit Capital N.V.	--	--	83 bps	$1.0M	114 bps	$15.0M	--	--	--	--	209 bps	$10.0M	02/28/2019



	2 year	3 year	5 year	7 year	10 year	30 year
Aggregate Amount (MM)	7.0	5.5	125.5	75.5	75.0	70.0
Minimum Spread (bps)	67.0	82.0	105.0	126.0	152.0	209.0

The investor insights and engagement campaign can be run on the back of specific analysis from time to time, or enabled to run continuously (ie. once a month, frequency selected by the user). At the end of the campaign, summary charts are generating indicating the pricing tension across tenors, versus algorithmically optimized COBI-Price levels, or amongst investors having appetite for larger size and indicating slightly lower spread price.

Participating portfolio managers and asset managers in the investor engagement campaign can receive aggregate campaign results where they can benchmark their submission against the larger universe of participants.

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Use Cases for Investors

COBI-Matching can also be used as a powerful tool for investor portfolio managers and their teams when used in conjunction with COBI-Issuance algorithms output. COBI-Issuance generates a list of new bond deals most likely to happen in next 4-weeks (standard selected time horizon) along with their propensities to issue (measured signal strength). Selected new bond issuance opportunities from COBI-Issuance algorithms can then be inputted into COBI-Matching algorithms to identify their most likely investors. The outcome of this process is that identified investors can receive highly targeted trade ideas, systematically generated by algorithms monitoring pre-trade signals on entire global fixed income market. Trade ideas and pre-trade signals are generated prior to the issuer's actual issuance, helping portfolio management and operating efficiency. Some of key use cases are below.

Discretionary Portfolio Management

Discretionary portfolio managers can benefit from COBI-Matching by receiving a stream of target investment ideas on a weekly basis. The portfolio manager can intake trade ideas as systematic result from algorithms and perform discretionary due diligence to validate investment fit and market opportunity.

Systemic Portfolio Management

Systemic portfolio management strategies benefit from the algorithm providing additional market signals, identifying supply and demand patterns and pricing tension on the systematic basis. Covering global fixed income markets (Americas, EMEA, Asia Pacific).

New Bond Supply

COBI-Matching has profound impact precisely predicting new bond supply (COBI-Issuance algorithms output) and matching those new supply opportunities, with highest likelihood, with target investor buyers who can pro-actively make decisions regarding new bond primary bond bid or secondary market purchase/rebalancing.

Secondary Bond Trading

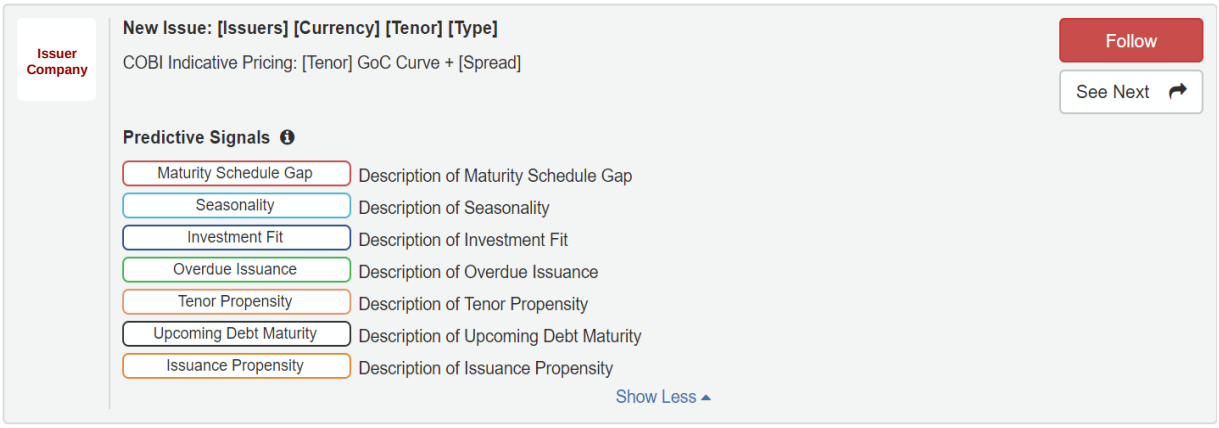
COBI-Matching combined with COBI-Pricing algorithms output identifies pricing tension in secondary market that can be immediately monetized. Algorithms optimize bond pricing and match portfolios with trade ideas depending on their past buying patterns and preferences.



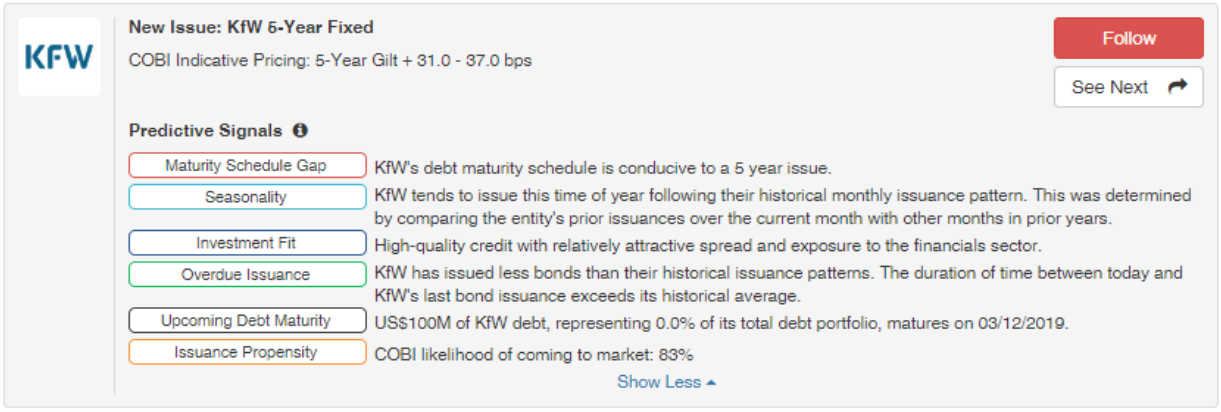
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Use Cases for Investors (con't)

The output of COBI-Matching for investors, trade ides and pre-trade signals are visualized as a match card. Match cards are provided in a standard format, which are generally structured as below.



Using the structure above, below is a sample match card for a KfW 5-year issuance:



COBI-Matching analyzes investors' current holdings as well as their historical buying patterns to determine the likelihood that the investor will invest in the profiled investment idea. In the above example, COBI-Matching would identify institutional investor with a recent holding or increase inholding of GBP investment-grade securities, in financial sector, and in KfW peer group. COBI-Matching algorithms can then make target new supply investment ideas available to investors meeting matching criteria, identified as target buyers. Since data on investor holdings is updated on a quarterly basis, COBI-Matching consistently outputs up-to-date investment recommendations that are relevant for target investors engaged.

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Business Impact

Over the past two years, we have witnessed profound changes in the fixed income marketplace with counterparties increasingly adopting quantitative investing and market monitoring techniques. These include systematic alpha and algorithmic trading, liquidity risk management strategy, merging of fundamental discretionary and quantitative investment styles, consumption of increasing amounts of alternative data, and adoption of new methods of analysis such as AI analytics like COBI-Matching algorithm.

Specific use cases for COBI-Matching algorithm application are examined to identify business objectives and key benefits below. Overbond client organizations include buy-side institutions with over $2 trillion of assets under management globally, across both passive and active strategies as well as regulatory reporting regimes. Their innovation groups actively explore new technologies that can serve as the catalyst for innovation and improve risk management, trade flow, pre-trade and post-trade analytics.

AI Application	Business Objectives	Key Benefits
Intelligent automation	• Automate credit market opportunity monitoring • Use auto-pricing, issuance signal and auto-matching to improve opportunity identification	**Intake fundamental and alternative data** (i.e. past issuance pricing across peer group, timing vs. size vs. price prediction, pricing tension based on market sentiment and fundamentals etc.) **Scale coverage and increase analysis speed** using machine learning to test correlations on large issuer coverage universe, reducing the required resources and time (cost) and improving precision (revenue)
Enhanced decision-making	• Enhance pre-trade signaling and timing • Realize higher portfolio alpha with systematic capability monitoring larger coverage universe	**Monitoring of pricing and liquidity changes** using machine learning can improve portfolio strategy and pricing shifts monitoring. Proprietary data from in-house trade flow can be infused into AI models to understand client preferences and buying patterns **Algorithmic supply-demand matching** can validate at scale pricing levels that would not otherwise be considered with high-confidence and would enter expensive external validation cross-check process
Efficient investor engagement	• Targeted investor engagement and analytics • Investor diversification and global issuance program management	**Pre-trade supply/demand analysis** can monitor impact of different trade strategies and systematically incorporate the pricing tension and likelihood of new bond issuance in profitability calculations **Continuous opportunity monitoring** enables institutions to automate global opportunity and trade idea sourcing, monitoring all underlying market exposures in near real-time and recalibrating idea pipeline **Intaking alternative datasets** with machine-learning algorithms can improve the coverage and robustness of valuation models, as well as improve the quality of data intake

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Implementation Considerations

Institutions considering AI predictive analytics implementation and big-data transformation projects, can employ acceleration utilizing externally calibrated models and market signals. Below are several key considerations and questions for executives in charge of AI roadmap:

1. What is the current state of our fixed income in-house data?
2. What are our data science and engineering capabilities?
3. Are we building AI capabilities to grow revenue or cut cost?
4. How can we redefine the boundaries of our data universe or identify alternative data sources necessary to feed AI engine?
5. Given that AI learning curve is steep where do we begin?
6. How do we create and execute AI proof of concept use cases rapidly?
7. What are key success factors for our AI roadmap?

Custom AI Services
Overbond works with clients to identify and recommend practical AI analytics use cases that are aligned with strategic goals of the financial institution. We help assess current-state AI capabilities, and define roadmap to help clients realise value from AI applications. We manage cross-channel data flows across multiple systems and enable custom font-end visualizations.

Proven Methodology
With our targeted approach and implementation methodology, we quickly demonstrate value of AI analytics to test use cases, enabling client-side change management approach and stakeholder buy-in.

Operational Acceleration
We help clients build and deploy custom AI solutions to deliver proprietary analytics and tangible business outcomes. Our experience combines calibrated models, design patterns, engineering and data science best practices, that accelerate value and reduce implementation risk.

AI Analytics As-a-Service
Overbond helps customers design and oversee mechanisms to optimize and improve existing fixed income credit valuation, issuance and pricing prediction and pre-trade opportunity monitoring using AI. Our team of world-class data scientists and engineers manage an iterative implementation approach from current state assessment to operational handover.

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About Overbond

Overbond specializes in custom AI analytics development for clients implementing risk management, portfolio modeling and quantitative finance applications. Overbond supports financial institutions in the AI model development, implementation and validation stages as well as ongoing maintenance.

Contact:

Vuk Magdelinic

Chief Executive Officer

+1 416-559-7101

vuk.magdelinic@overbond.com

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