condit.

JULY 2020

BONDIT AT A GLANCE

- BondIT is a platform for fixed income portfolio management leveraging proprietary optimization and machine learning algorithms
- The BondIT platform supports the entire fixed income portfolio lifecycle
 - Generate new portfolios
 - Analyze and rebalance existing portfolios
 - Define and manage universes
 - Leverage multiple market, analyst and quantitative data sources as well as an organization's own proprietary and strategic data
- 40 data scientists, machine learning algorithm specialists, and fixed income market professionals
- Offices in Israel and New York City



BONDIT VALUE ADD

Achieve Scale and Efficiency

- Portfolio generation, rebalancing of existing portfolios, and proposals generated in real time rather than hours
- Optimization built to be seamless and ondemand given team member workflows

Identify Opportunities

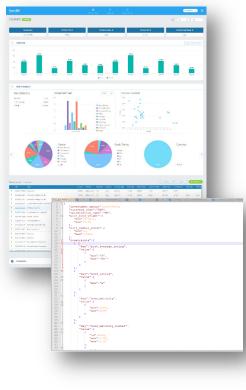
- Capture relative value opportunities leveraging optimization engine and configurable constraints
- Portfolio manager experience in intuitive UI

Digitize and Distribute

- Digitize views on Duration, Curve, Credit, Sectors, Issuers, Liquidity, ESG
- Use that data to enable access to technology-driven strategies and distribution channels



BondIT Intuitive UI + Full API Toolkit



Manage Evolving Risks

- Ability to aggregate risk characteristics across all or a subset of portfolios in BondIT dashboard view
- Drill down to individual portfolios or characteristics to identify & address the underlying source exposures

Remote (Work from Home) Capabilities

- Assign and share investment portfolios across businesses and functions in any geography
- Collaborate and re-route work based on resource availability

Diversify Your Tech Stack

- Independent, Cloud-hosted, API-ready platform
- Seamlessly integrates with internal and external data, models, and order management & execution systems

BONDIT DATA SCIENCE TECHNOLOGY

Optimization

Solving Convex Optimization problem in multi-dimensional constraints space:

- Accommodated for the special cases of Fixed Income portfolios
- Flexible configuration allows for linear and non-linear constraints.

Data Science:

- Data: Use of data regularization, anomaly detection and NLP methods to unify sources and create normalized data structures, set specifically for Fixed Income analysis
- Modelling/Value Predictions: Volatility predictions and covariance modelling used for risk estimation in cases of incomplete information, various regressions for term structures
- Additional Optimizations: Dimension reduction for accuracy and efficacy and various optimization techniques depending on sought objective





BONDIT TECHNOLOGY

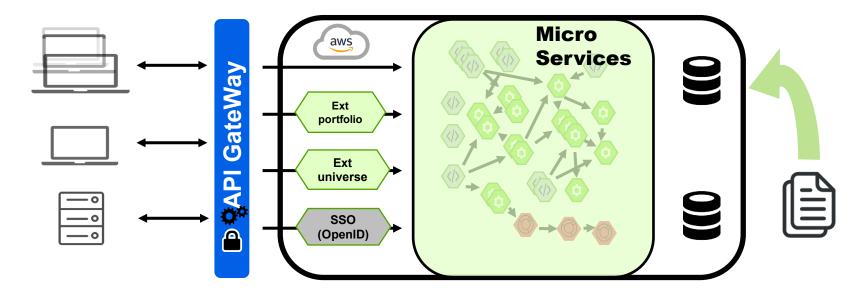
Cloud based Cloud-Deployment to assure availability and scalability

Architecture

Highly modular, micro-servicesbased architecture, to allow stability & agile development

API's

API-first approach allows easy externalization of endpoints to consume\update same content both via web-application and API's



GENERATE

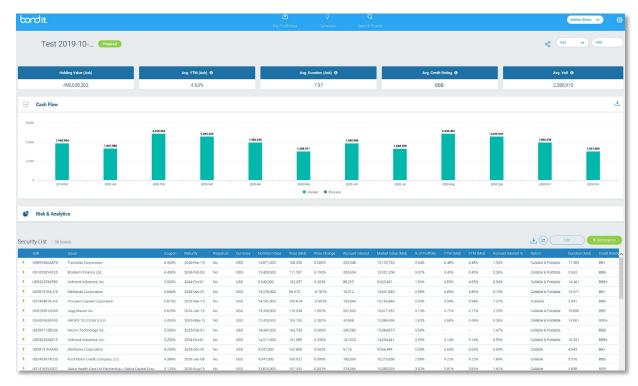
bondit.	🖨 My Portfolios	G enerate	Q Search Bonds			Adrian Dixon 🗸 🚯
Generate New Portfolio						
Objectives Constraints					Portfolio Demonstrati 150,000,000 USD	on Portfolio
Portfolio Name: (review) Investment Amunit: USD V 150,000,000					Nominal per Bond: Number of Bonds:	1.00% - 2.75% 36 - 100
	75 % USD 412500(Optimization Target:	Maximize Yield US Corporate
Number of Bonds: (required) Min 36 Max 100	Objective	5	Constraints		Portfolio Avg. Yield (Ask):	2.00% - 6.50%
Universe:	Credit Rating				Portfolio Avg. Credit Rati Portfolio Avg. Duration (A	BB to AA- 3.00 - 9.50
Target Optimization:	Duration				Credit Rating:	AA- to AAA (0.00% - 100.00%) A- to A+ (0.00% - 100.00%) BB- to BB+ (0.00% - 100.00%) BB- to BB+ (0.00% - 100.00%) B- to B+ (0.00% - 100.00%) +2 more
Portfolio Aug. Yiel.	(*) Issuer				Duration Years (Ask): Perpetuals:	0 - 50 0.00% - 100.00%
Pertificio Arg Cred	Bond Type Gurrencies			- I	Bond Type:	Corporate (0.00% - 100.00%) Government (0.00% - 100.00%) Agency (0.00% - 100.00%)
3 9.5	Countries				% Per Issuer:	100.00% USD (0.00% - 100.00%) EUR (0.00% - 100.00%)
Portfolio Avg. Dur.	Coupon Types					EUR (0.00% - 100.00%) GBP (0.00% - 100.00%) SKK (0.00% - 100.00%) AED (0.00% - 100.00%) +47 more
	+ Sectors					
	🕂 Bond Limits					
	✓ Advanced					
	Issue Types Seniority					
1 I	Include Bonds					
bondit.				-		

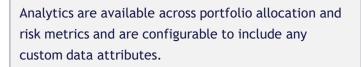
Portfolio objectives and bond level constraints are established as the inputs into the Algorithms. These can all be customized and configured.

Objectives	Constraints
Credit Rating	
AA- to AAA	
A- to A+	Min % 5 Max % 25
BBB- to BBB+	Min% 5 Max% 50
BB- to BB+	Min% 10 Max% 50
B- to B+	Min % 5 Max % 10
D to CCC+	
Non-rated	
Duration	
Duration Years (As	Min 5 Max 25
Duration rears (As	Max 25
Perpetual	Min % 5 Max % 15
Last Maturity:	2029-12-15 🗙 🇰
Last Maturity.	2029-12-15
Issuer	
% Per Issuer:	Max % 3.5
Bond Type	
Agency	Min% 5 Max% 20
Corporate	Min % 60 Max % 75
	Min % 5 Max % 20

PROPRIETARY & CONFIDENTIAL 6

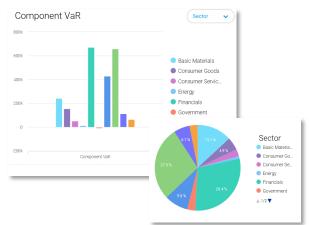
ANALYZE

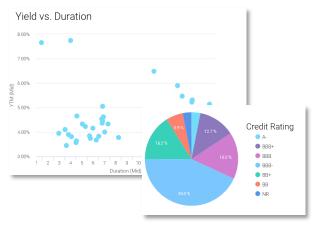




bondit.

Risk Statistics	
Risk (SD)	3.27%
YTM / Risk (SD)	1.4217
VaR 🟮	0.4793%





PROPRIETARY & CONFIDENTIAL 7

REBALANCE

Objectives	Constraints	
Portfolio Name: (required)	Test Rebalance	
Nominal per Bond: (required)	Percentage V Min 1.01	% USD 502622: Max 2.07 % USD 103012ℓ 1.01 - 2.07
Max No. of Transactions:	3	
Cash to Add / Withdraw:	250000	
Universe:	All available	•)
Target Optimization:	Maximize Yield	✓)
	2.5% 3.5%	
Portfolio Avg. Yield	0%	>30% 2.62
	A3 •	
Portfolio Avg. Res	CCC1	
Portfolio Avg. Dur	4 6 • •	
	0	>20

Rebalance a portfolio taking into account market shifts, change in portfolio strategy or revised constraints.

The number of transactions can be specified to control turnover and transaction costs, as well as taking into account increases and decreases in cash positions.

OPTIMIZATION + LADDERING

Cash Flow Ladder:

Maturity (number of years):	5	
Start Date:	2021-01-01	
Cash FLow Frequency:	Month	•
Cash Flow Type:	Principal and Interest	~

Min Cash Flow Requirements:

While utilizing optimization engine, construct and rebalance portfolios adhering to laddering of cash flows.

Decumulation of assets, unique cash flow necessities, and general liability driven investing all made possible while optimizing in real time.

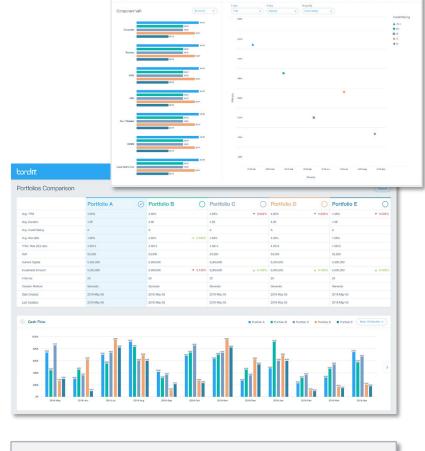
SD %) C			
	Period	Payment Period (Any)	Cash Flow (USD) 🧳	Cash Flow (%)
1	2021 JANUARY	Any Time	166,666	1
2	2021 FEBRUARY	Any Time	166,666	1

All laddering functionality built from an LDI framework allowing for detailed period by period inputs. Made to be as simple or as sophisticated as client needs dictate.

ALTERNATE SOLUTIONS

							 Constraints & 	Broken Constrai	nts				
							Generate		_				
					/		Constraints				Broken	Constraints	
							Nominal per Bond:	2.00% - 4.0	0%		Nominal	per Bond:	742741AA9 - 4.02%
							Number of Bonds:	25 - 50			Portfolio	Avg. Yield (Ask):	4.28%
			/				Optimization Target:	Minimize D	owngrade Pr	obability	% Per Iss	uer	Mondelez International, Inc 5.07%
							Universe:	All available	,				Altria Group, Inc 5.14% Lowes Companies, Inc 5.07% NEXTERA ENERGY CAPITAL HLDGS INC -
		/					Portfolio Avg. Yield (Ask	4.50% - 7.5	0%				
							Portfolio Avg. Research.						
Test Oslas A		·					Portfolio Avg. Duration (
rest Solve Al	nyway 🚥 🙆						Research Rating:	A2 to AAA					
		-	_										
Holding Value (Ask)	Ang. YTM (Ask) O		ation (Ask) 0	Avg. Research Ra	Eng A	ing. Dowrgrade Proto 6.66%	Downgrade Probability:	0.00% - >30					
39,993,8999	4.28%	1	0.00	AI		6.66%	PD (1yr):	0.00% - >2.					
Cash Flow							PD (5yr):	0.00% ->10	.00%				
1000K				928,156			Spread Per Unit Default	0.00 - >50.0	10				
7500							% Per Issuer:	5.00%					
208	221 \$35,671					121,953	152,489 135,591					1953	
0 2013-0	dec 2005an	17,738 2020-Feb	40,000 2020-Mar	2029-Ap		2005-May • interest • Pr	2025-au 2025-au	12,646 2020-Aug	48,5			1963 1040a	
	lytics			20294			2025-au 2025-au				3a 200		
	lyrics bonds	2000/ke	2000-Mar Research Rating	Econgrade Probability	y - P0 (%)	 interest Pr PD ((sr) Spread 	2020-um 2020-Jar Rocean dDref und Celearii Bak (199) Coucer	2009-Aug Maturity Perp	sui Qurreno;	e 2004	ka: 20	Petalance :	
	lysics boods Issue district oo UABHA	2000/We Ciguity Ticker DIS US	Stot-Mar Research Rating A1	Downgrate Photocolis 9.45%	y PO (154) 0.00%	• interest • Pri PD (ov) Spread 1.39% 21.90	2023-bar 2023-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 2029-bar 202	2009-Aug Maturey Perp 2008-Jun Ol No	cui Currency LSD	■ = = = = = = = = = = = = =	64: 20 64: 4127 0.042%	Retailance 1744	
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When it's infeasible to generate a portfolio due to the constraints being too restrictive the BondIT platform will "solve anyway" and produce the closest portfolio possible, highlighting which constraints were relaxed to achieve the result.



Risk

Providing trade-off analysis for multiple portfolio solutions.

TRADE SWITCH AND ANALYTICS

93.464

93.303

93.626

-0.865%

5.83%

5.84%

0.04%

5.84%

13.860

1.393

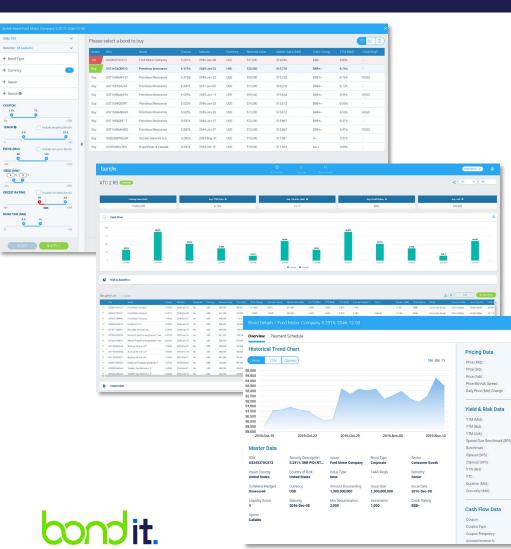
5.291%

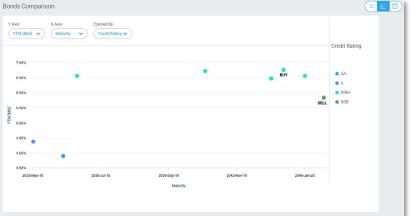
Semi-Annually

FIX

2.29%

366





Bringing capabilities to enable easy and efficient trade switch analysis using both market data and proprietary data.

CONFIGURABLE

All available	of in bond near	oke to their workflow. Starting from their Univer vestable bonds, to their target Optimization, to I level constraints. Levels of customization are ly endless, with inputs, treatments, and multi sto esses allowable in BondIT.
3. Research Recommended4. Compliance Approved	Target Optimization:	Maximize Yield
		Minimize Standard Deviation
		Minimize Standard Deviation ML
		Minimize Spread Duration
		Minimize Tracking Error
		Minimize Default Probability

BONDIT: ENABLING GROWTH

Problem

Australia's largest fixed income specialist (Broker-Dealer, Custodian), servicing 7500+ HNW with over \$10B AUD AUM

- Concerned about keeping pace with market growth
- Challenged by inconsistent sales processes and high costs to serve clients
- Aging non scalable IT systems and many manual processes
- Recognized that data must be leveraged to differentiate from competitors

Solution

BondIT was selected to create a unique offering through integration to an eco-system consisting of other market leading vendors including Simcorp, Broadridge, Markit, Bloomberg, ICE and SS&C

BondIT provides a front-office workflow solution to relationship managers and portfolio managers that allows them to:

- Connect relevant and strategic data to the portfolio construction process
- Rapidly iterate through optimal solutions to provide the best advice for clients

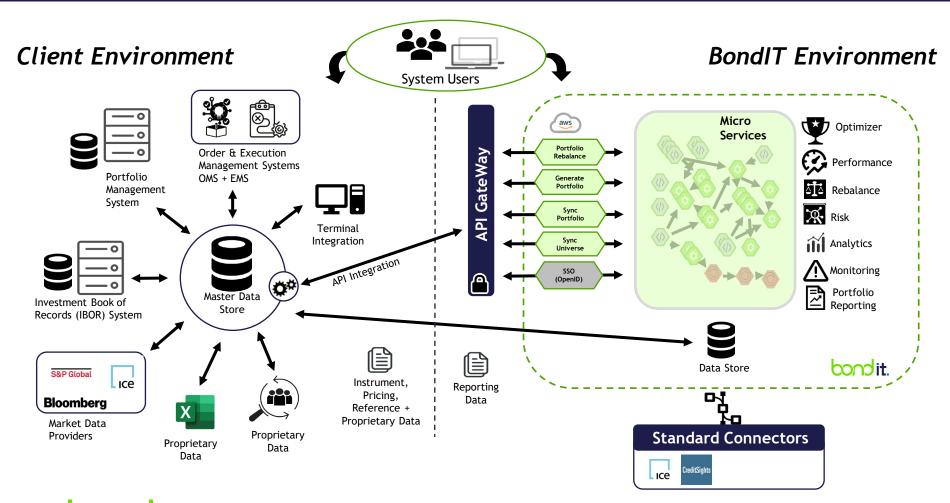
IMPACT

Efficiency gains of 2x-3x: Compared to previous tools and systems, BondIT allows RM's to service 2x-3x the current client load

Delivering right-sized proposals - faster: Proposals delivered are leading to faster and more effective client servicing

Capitalize on FI market growth: enable to grow AUM at pace of >10% per year, largely supported by these operational efficiencies

BONDIT INTEGRATION



DISCOVERY TO DELIVERY

