



ALLIANCEBERNSTEIN®

23 March 2020

Digital Disruption Meets Fixed Income

Streamlining the Investment Process and Managing Liquidity Needs

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INVESTING IN TODAY'S MACRO ENVIRONMENT



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What Should The Policy Response Look Like?

POLICY INSTRUMENT	EXECUTED?
“Flattening the Curve”, Pt. 1: Containment & Health Funding	Yes
“Flattening the Curve”, Pt. 2: Underwriting Incomes & Preventing Business Failures	Getting There
Financial System Support: The GFC Toolkit, Redux	Yes
Monetary Policy Stimulus: All-In On Unconventional Policies/Joined At the Hip	Almost
Post-Crisis Fiscal Stimulus	?

As of March 18, 2020
Source: AB

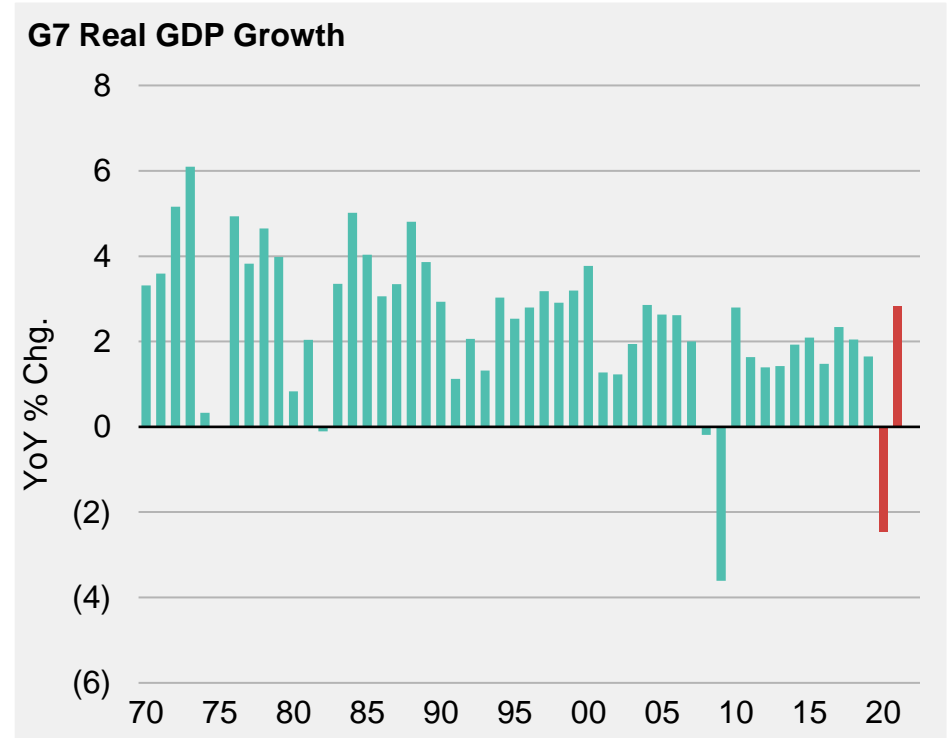


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Forecast Summary: Preliminary

Global Economy Set To Contract

	2019	2020	2021
US	2.3	-1.5	3.5
Euro Area	1.2	-3.5	2.5
Japan	0.8	-2.9	2.1
G3	1.7	-2.4	3.0
China	6.1	4.5	5.5
G3 + China	2.9	-0.5	3.7



As of March 18, 2020
Source: Haver Analytics and AB



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Summary

- The near-term hit to global growth will be very big – possibly unprecedented
- In most plausible scenarios there's likely to be a recovery in the second half of the year – but some output isn't coming back
- If bond yields rise, governments won't be able to prevent an even bigger and more protracted downturn
- Central banks will do whatever it takes to make sure they don't (aggressive QE, QE with YCC, yield caps etc: #joined.at.the.hip)



HOW TO OPERATE IN TODAY'S MARKET STRUCTURE



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The Challenges for Bond Managers Are Greater than Ever



LIQUIDITY

- + Doubling of bond market size
- + Shrinking dealer balance sheets
- + Highly fragmented trading

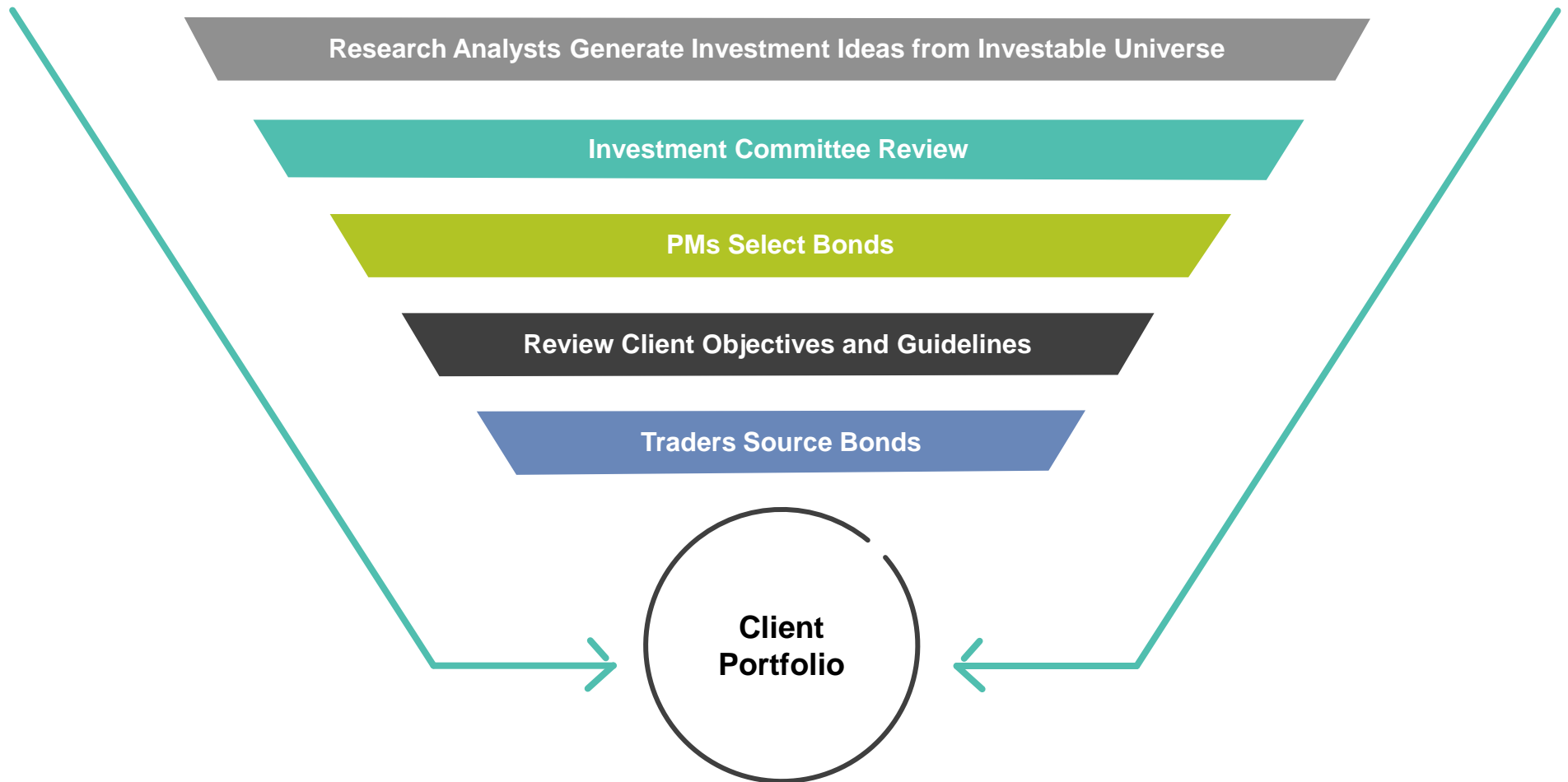


SCARCE ALPHA

- + Low prospective returns
- + Limited dispersion
- + Suppressed volatility

The Typical Fixed Income Investment Process...

Managers Generally Depict Their Processes as Disciplined, Linear and Efficient



...Is Impossible in Today's Fragmented Bond Market

The Realities of the Fixed-Income Market Requires a New Approach to Active Management

Market Structure Pre Global Financial Crisis



Market Structure Today



Successful Fixed Income Investing is Increasingly About Conquering the “Big Numbers” Challenge

	US HY Corp	US IG Corp	Municipals
Market Size	\$1.2 Trillion	\$5.0 Trillion	\$3.9 Trillion
CUSIPS	~2,000	~6,000	>1,000,000
Avg. Trades Per Day	~20,000	~42,000	~40,000
% of Trades <\$1M	85%	90%	96%

As of December 31, 2018

Municipals data references all outstanding bonds in the market. Average daily trade data uses last 3 months of 2018 calendar year.

Source: MSRB, FINRA, Bloomberg Barclays US Corporate Credit Index, Bloomberg Barclays US High Yield 2% Cap Index

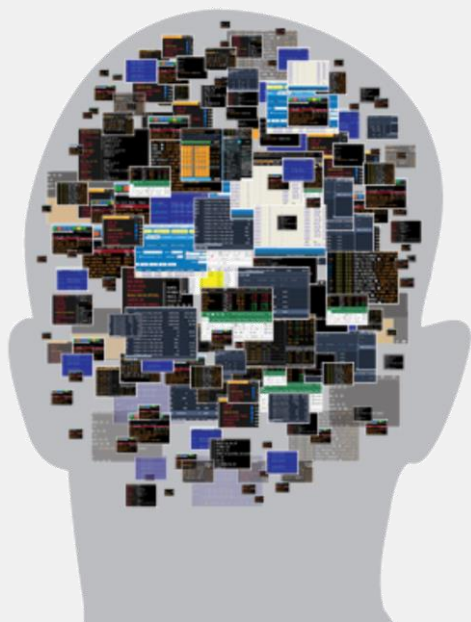


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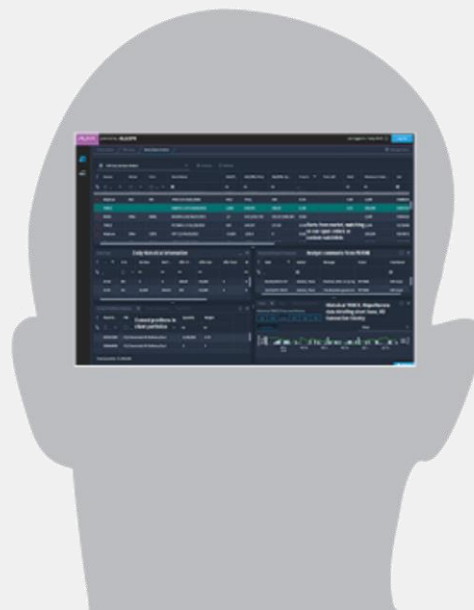
ALFA Cuts Through Market Noise and Highlights Real Liquidity Options

The Result: Superior Trade Execution and Fewer Missed Opportunities

Market Visualization for Typical FI Trader



Market Visualization for FI Trader Using ALFA



ALFA provides a comprehensive, aggregated overview of the entire bond market. In order to bring ALFA to the broader market and to develop its ability to support all-to-all trading, we have partnered with ALGOMI, which will develop, support and market the platform on an ongoing basis. Algomi was founded in 2012, and through its Honeycomb, Synchronicity and Algomi ALFA technology, creates the bond information network that enables all market participants to securely and intelligently harness data to make valuable financial trading connections. Algomi has 120 employees with offices in New York, London and Hong Kong.



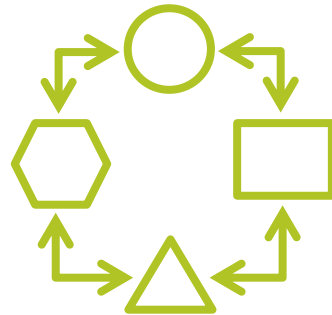
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ALFA Collects More Than Four Million Data Feeds Per Day

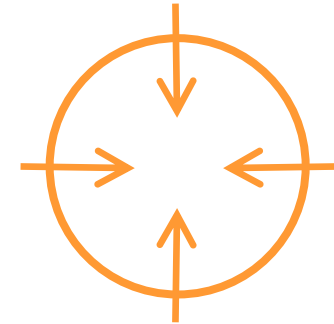
Our Investment Teams Are Constantly Finding New Ways To Utilize This Treasure Trove of Data



Proprietary
Trading Tools



Advanced Algorithmic
Pricing Models



Digital Feeds to
Portfolio Optimization
Engine (Abbie)



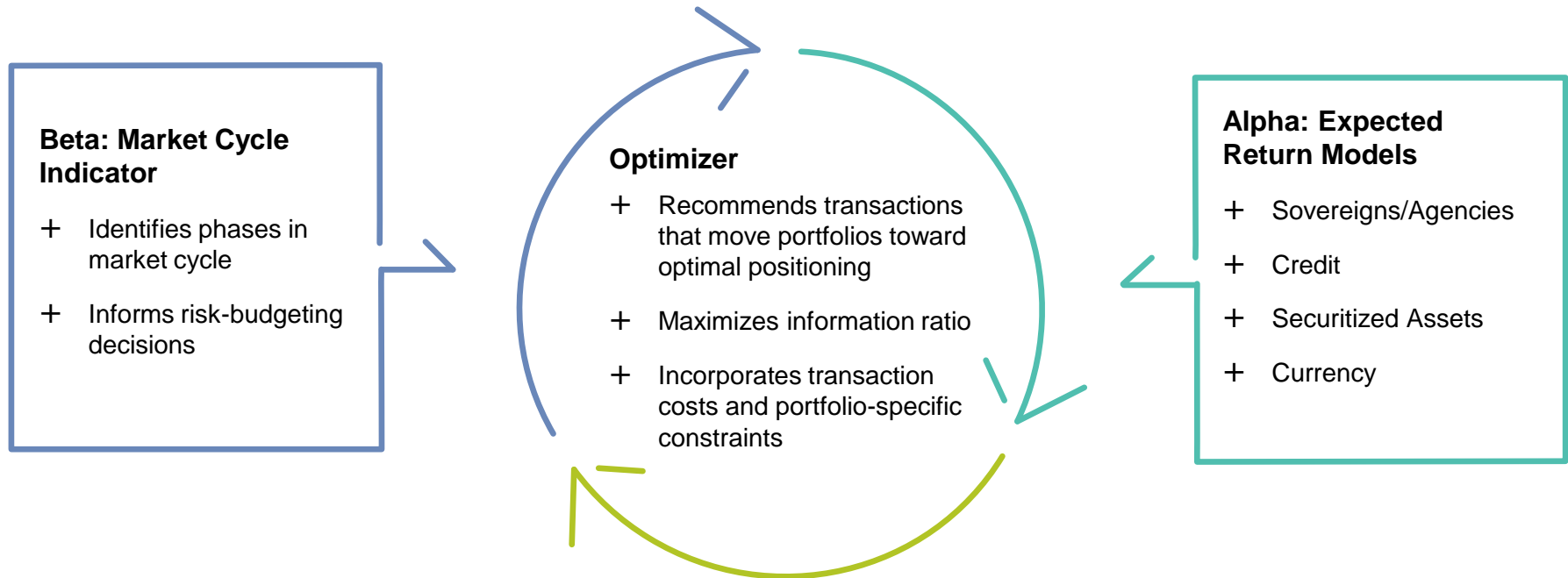


DIGITIZED RESEARCH: IMPROVED CONSISTENCY AND EFFICACY IN PORTFOLIO CONSTRUCTION



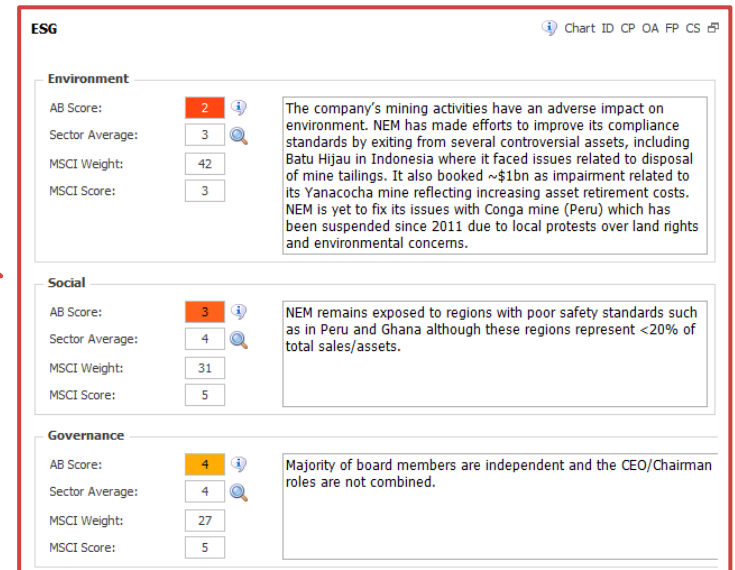
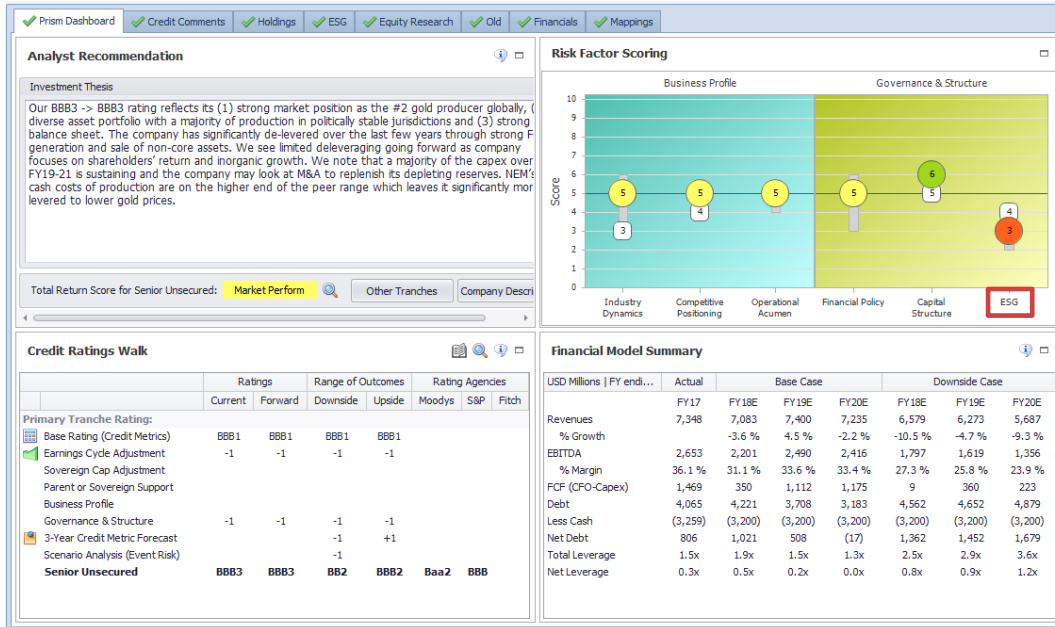
Quantitative Research Gives an Important Edge with Technology

Quantify Risk, Return and Correlations Across 70,000 Fixed-Income Securities Globally



Prism: Digitizing and Centralizing Fundamental Research

Proprietary Research Platform for Data Analytics, Risk Factor Scoring and Credit Ratings



Designed around proven credit research framework



Consistent global scoring enables cross-asset valuation



Digitized research product feeds Abbie



Dynamic learning potential as database grows



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REIMAGINING THE INVESTMENT PROCESS: LEVERAGING TECHNOLOGY TO CAPTURE “SPEED ALPHA”



Key Takeaway: Technology Platforms are an Increasingly Important Source of Investment Alpha



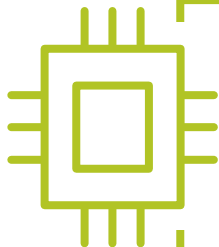
Security Selection

- + Deep fundamental credit research
- + Traditional quant research mean variance models
- + Relationship-based trading for liquidity sourcing and execution



Portfolio Structure

- + Innovative portfolio structures that capture persistent market inefficiencies
- + Dynamic beta management based on macro research
- + Active portfolio factor and sector tilts to express thematic views



Technology Platform

- + Automated market surveillance and trade execution
- + System interoperability to leverage data and speed decision making
- + Advanced robotic process automation to maximize human capital

**Traditional
Alpha Sources**

**Tech-Powered
Alpha Sources**



OCTOBER 2018

THE FUTURE OF FIXED INCOME

HOW TECHNOLOGY WILL
REVOLUTIONIZE ASSET
MANAGEMENT

Gershon M. Distenfeld
Co-Head—Fixed Income; Director—Credit

Jeff Skoglund
Chief Operating Officer—Fixed Income

Scott DiMaggio
Co-Head—Fixed Income;
Director—Global Fixed Income

James Switzer
Head—Credit Trading

IN THIS PAPER:

Fixed-income investing hasn't kept up with the rapid pace of technological innovation in the rest of the financial industry. But that's about to change. Machines will empower humans to achieve unique insights and act faster in a market where speed and alpha are inextricably linked.

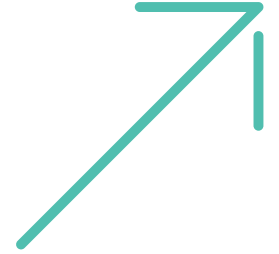
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APPENDIX



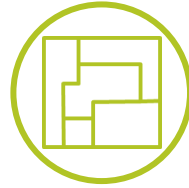
Unique Core Competencies Developed Over Two Decades

Applying Expertise and Tech-Enabled Solutions to Solve Investment Challenges



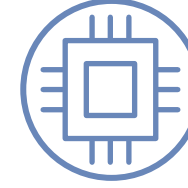
Leveraging Data

- + 15+ years of integrating quantitative research into our investment process
- + Using ALFA to scrape 4 million market-data feeds per day and utilizing them in pricing algorithms and portfolio optimizers



Market Structure Expertise

- + Pioneer in tech-driven fixed-income portfolio trading
- + All-to-all trading with next-gen O/EMS (launched January 2020)
- + Industry's first bot-to-bot trade with Abbie in August 2019



Robotic Process Automation

- + Abbie virtual assistant chatbot introduced January 2018
- + Abbie builds over 70% of orders and uses sophisticated algorithms to suggest trades to PMs
- + Abbie optimizer: the “brains” of AB’s next-generation Fixed Income investment platform



Engineering AB Fixed Income's Next-Generation Investment Platform

Leveraging Our Accumulated Learning to Move Beyond Basic Automation

Stand-Alone Investment Tools



ALFA (2015)

- Digitized FI market data
- Sold technology to Algomi in 2017
- AB ALFA remains a focus of proprietary R&D

Prism (Launched 2015, Fully Populated 2017)

- Standardized credit scoring and ratings
- ESG ratings introduced and linked to credit walk
- Digitized research feeds portfolio optimizers

Efficiency Alpha



Abbie 1.0 (2018)

- Automated order building globally

Abbie 2.0 (2019-2020)

- Curated trade suggestion
- Operational in US HY and IG

Abbie Optimizer/OEMS (2020)

- Automated front-to-back portfolio manufacturing across 12,000+ SMAs

Product Innovation



Muni and Taxable SMA Products (2021E/2022E)

- Highly-customized, mass produced SMAs

Systematic Strategies (2020E-2022E)

- Factor-based solutions in ETF or SMA wrappers
- Alternative risk premia income products

Execution Services (2020-2021E)

- Market AB's advanced trading capabilities and post-trade process as outsourced service

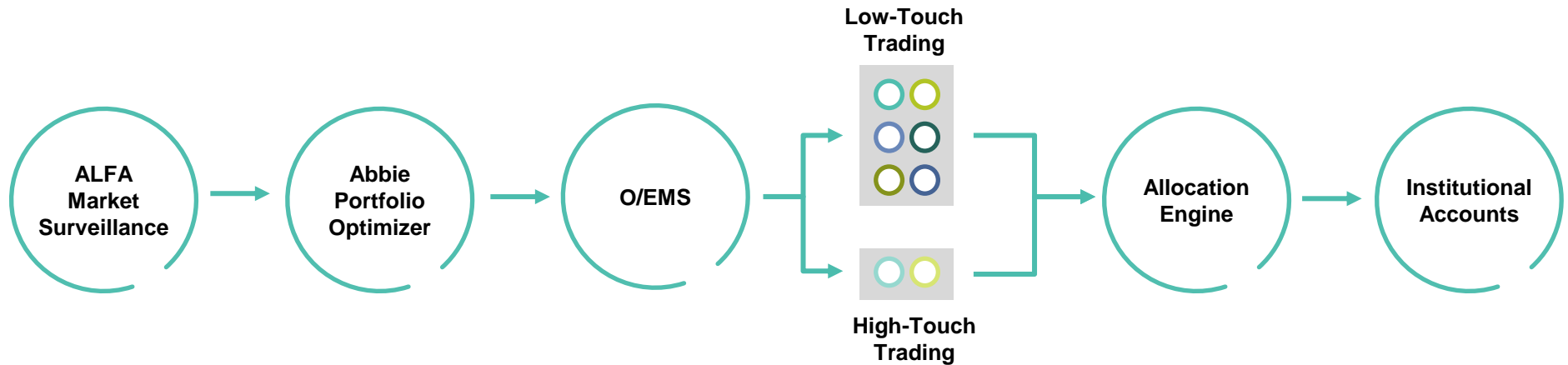
White-Label Solutions (2021E/2022E)

- Market AB's advanced portfolio construction and implementation capabilities



Portfolio Construction Powered by Abbie

New Technology Platform Features Front-to-Back RPA for Operating Efficiency and Alpha Generation



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