Nuveen ADR Statistical Models

Agenda

Background

Project

Approach

Analysis

Results

Recommendations

Background

Nuveen maintains its international headquarters in **Chicago**, with major offices in New York City, Charlotte, San Francisco, London and secondary offices in Frankfurt, Los Angeles, Shanghai, Singapore, Rio de Janeiro, Vienna, Stockholm, Minneapolis, Montreal, Washington DC, Tokyo, Luxembourg, Madrid, Milan, Paris and Miami.

Nuveen was acquired by TIAA for $6.3B from its private equity owners in April of 2014.

Nuveen is tasked with marketing and selling mutual funds through investment professionals (brokers, financial planners, financial advisors).
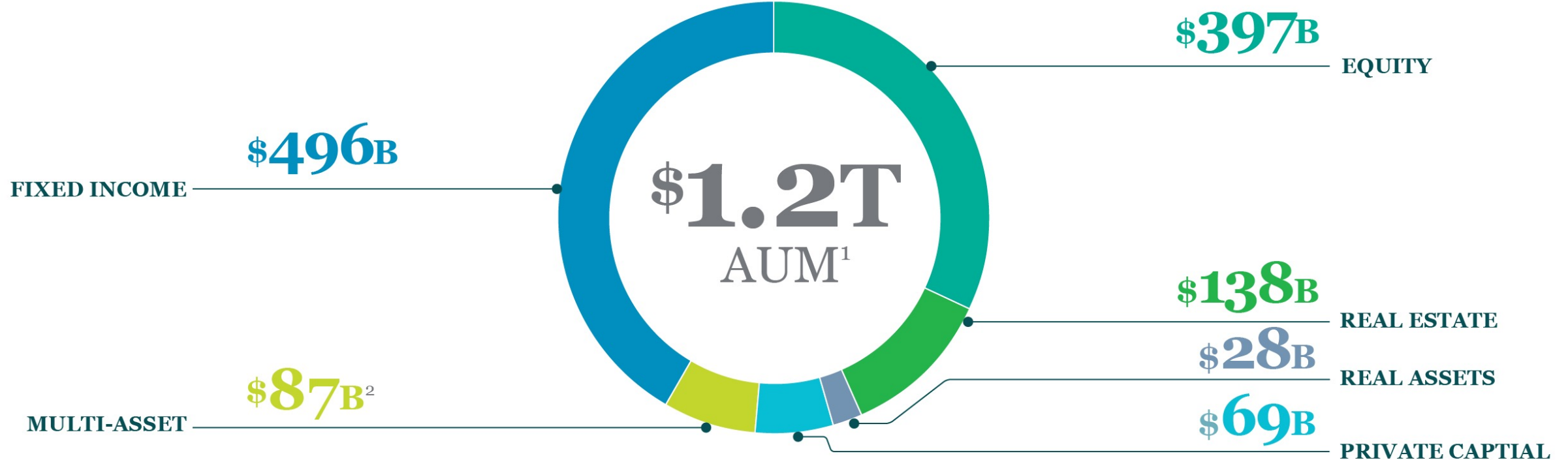
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Background

Nuveen, formerly Nuveen Investments, a subsidiary of TIAA, is an American global investment manager

Nuveen is one of the largest investment managers in the world with $1.2 trillion in assets under management

Nuveen is strongest in bond funds, ranking first specifically in tax-free municipal bonds.

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Background

$397B — EQUITY

$496B — FIXED INCOME

$138B — REAL ESTATE

$28B — REAL ASSETS

$69B — PRIVATE CAPTIAL

$87B[2] — MULTI-ASSET

$1.2T AUM[1]

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Project

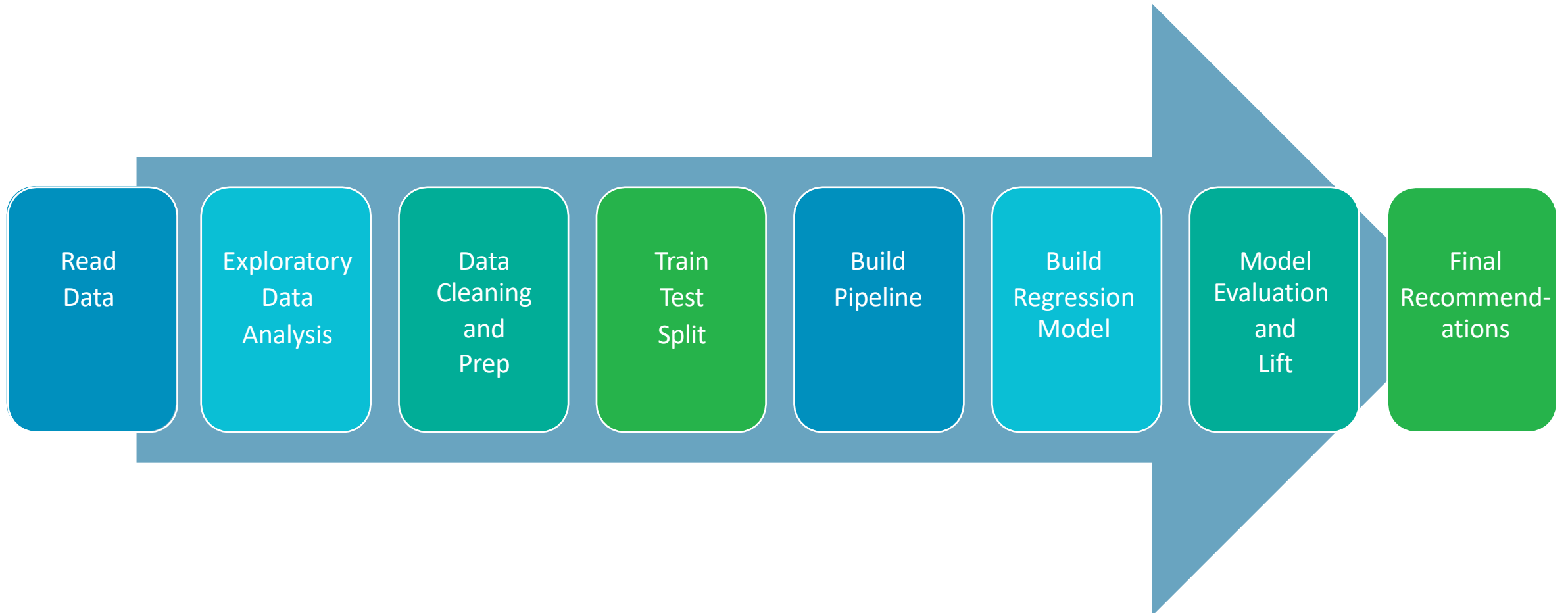## GOALS   +   OBJECTIVES

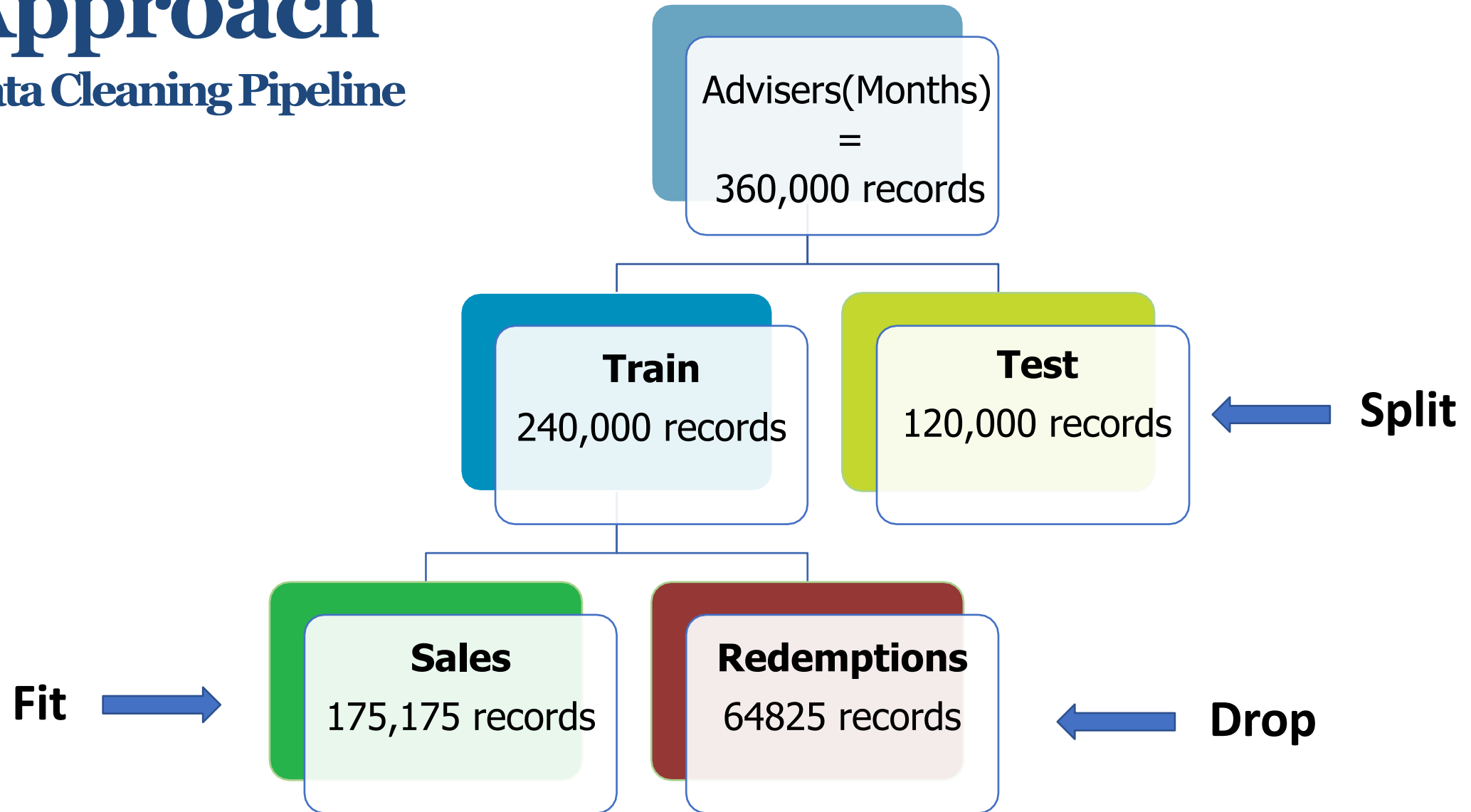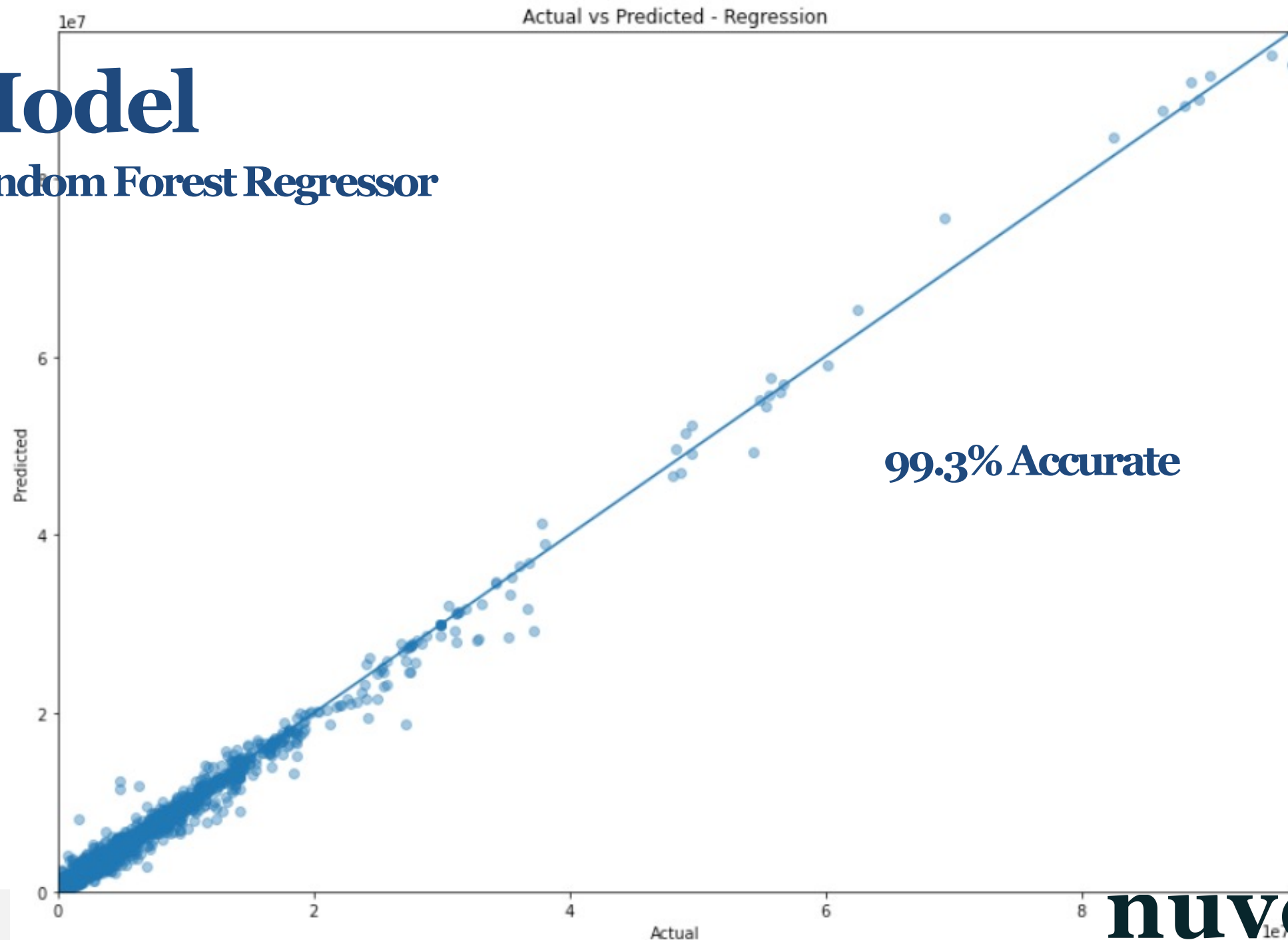| GOALS	OBJECTIVES

• Acquire new clients cost-effectively, sell more to existing clients, reduce redemptions (ADR –acquire, develop, retain)
 	
• It is likely that Nuveen has a relatively small percent of clients that account for a high percentage of their profit
	• Assist sales and marketing by improving their targeting, and allowing them to correctly assign coverage channels
	• Predict sales for 2020 using the data for 2018 and 2019
	   • Determine the optimal number of models that need to be built
	   • Develop several regression analyses and show the lift that will be achieved through your models

Approach

Approach
Data Cleaning Pipeline

Advisers(Months)
=
360,000 records

Train
240,000 records

Test
120,000 records

Split

Sales
175,175 records

Redemptions
64825 records

Fit

Drop

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Model
Random Forest Regressor

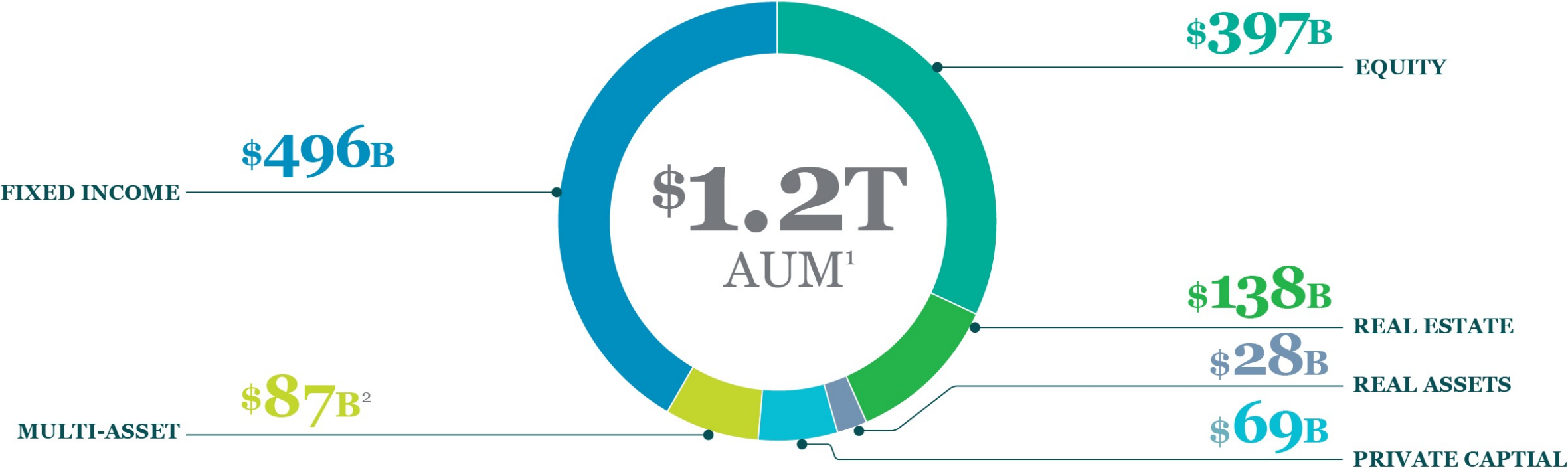Actual vs Predicted - Regression

99.3% Accurate

Lift

Decile	Number of Customers	Actual Sales Per Customer	Lift Over Average	Cumulative No. of Customers	Cumulative Sales Per Customer	Cumulative Lift
1	7508	$ 1,578,743.00	780%	7,508	$ 1,568,617.15	774%
2	7507	$ 159,601.50	-11%	15,015	$ 161,865.17	-10%
3	7508	$ 40,664.08	-77%	22,523	$ 40,033.19	-78%
4	7507	$ 10,249.59	-94%	30,030	$ 8,975.57	-95%
5	7507	$ 2,657.08	-99%	37,537	$ 1,245.04	-99%
6	7508	$ 504.50	-100%	45,045	$ -	-100%
7	7507	$ 251.77	-100%	52,552	$ -	-100%
8	7508	$ 461.99	-100%	60,060	$ -	-100%
9	7507	$ 427.19	-100%	67,567	$ -	-100%
10	7508	$ 857.92	-100%	75,075	$ -	-100%
Total	75,075	$ 179,442	0%			

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Recall

TOTAL AUM

$397B
EQUITY

$496B
FIXED INCOME

$1.2T
AUM[1]

$138B
REAL ESTATE

$28B
REAL ASSETS

$69B
PRIVATE CAPTIAL

$87B[2]
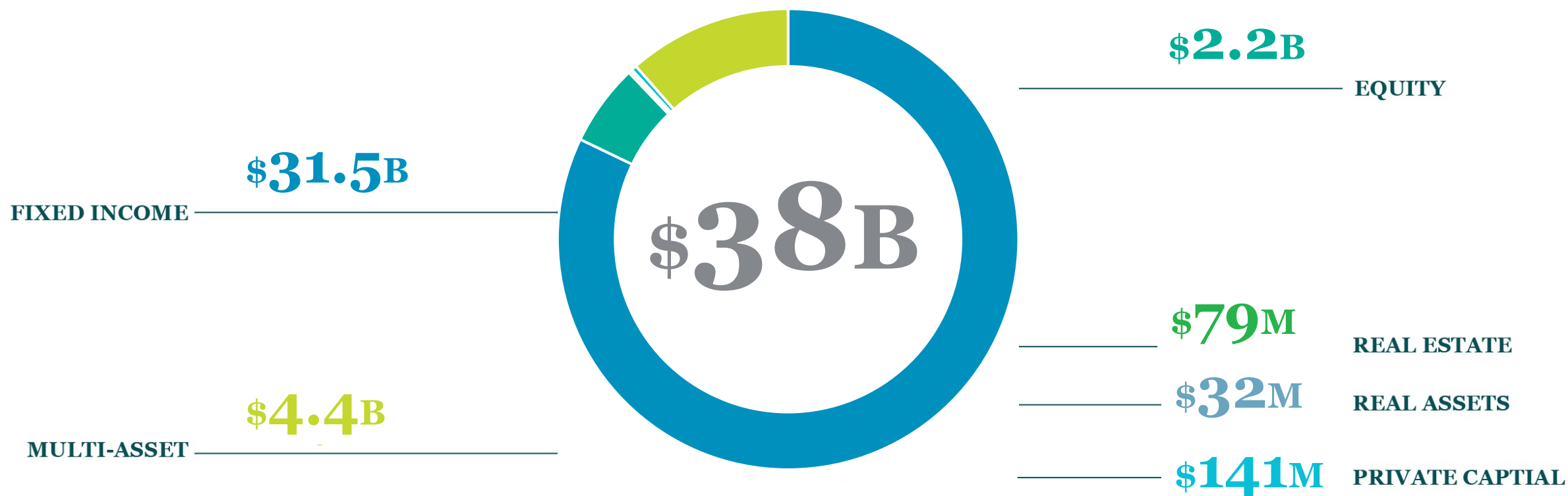MULTI-ASSET

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Grades

Grades	Number of Customers	Actual Sales Per Customer	Lift Over Average	Cumulative No. of Customers	Cumulative Sales Per Customer	Cumulative Lift
AAA	7508	$ 1,578,743.00	780%	7,508	$ 1,568,617.15	774%
AA+	7507	$ 159,601.50	-11%	15,015	$ 161,865.17	-10%
AA	7508	$ 40,664.08	-77%	22,523	$ 40,033.19	-78%
AA-	7507	$ 10,249.59	-94%	30,030	$ 8,975.57	-95%
A+	7507	$ 2,657.08	-99%	37,537	$ 1,245.04	-99%
A	7508	$ 504.50	-100%	45,045	$ -	-100%
A-	7507	$ 251.77	-100%	52,552	$ -	-100%
BBB+	7508	$ 461.99	-100%	60,060	$ -	-100%
BBB	7507	$ 427.19	-100%	67,567	$ -	-100%
BBB-	7508	$ 857.92	-100%	75,075	$ -	-100%
Total	75,075	$ 179,442	0%			

AAA

2020 Appreciation
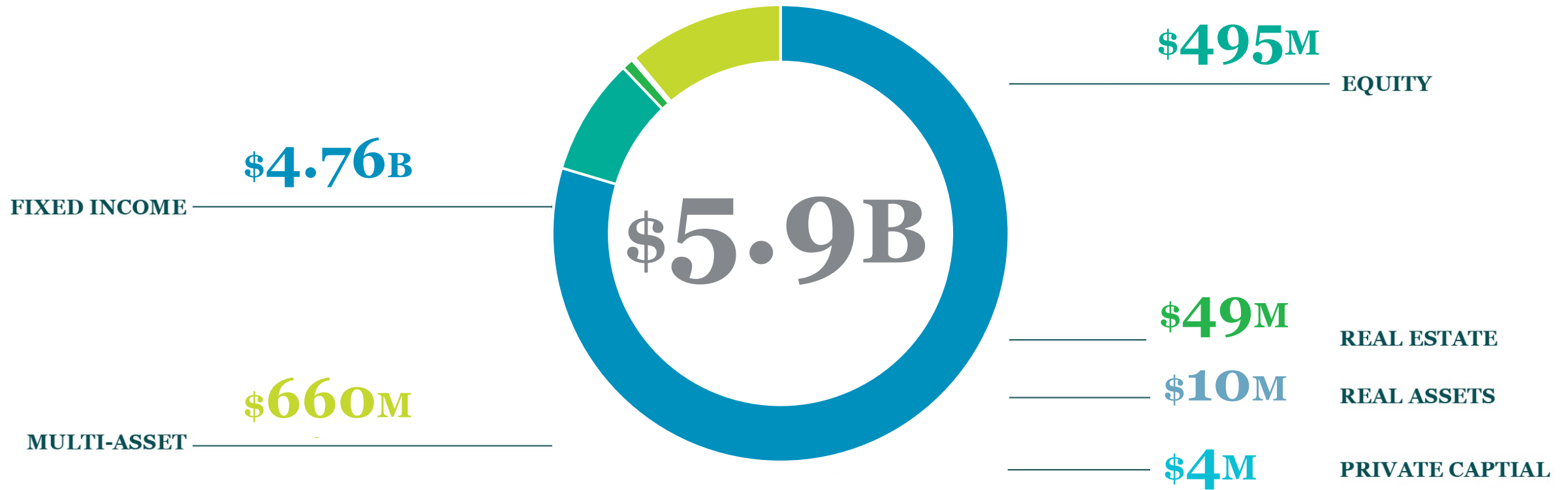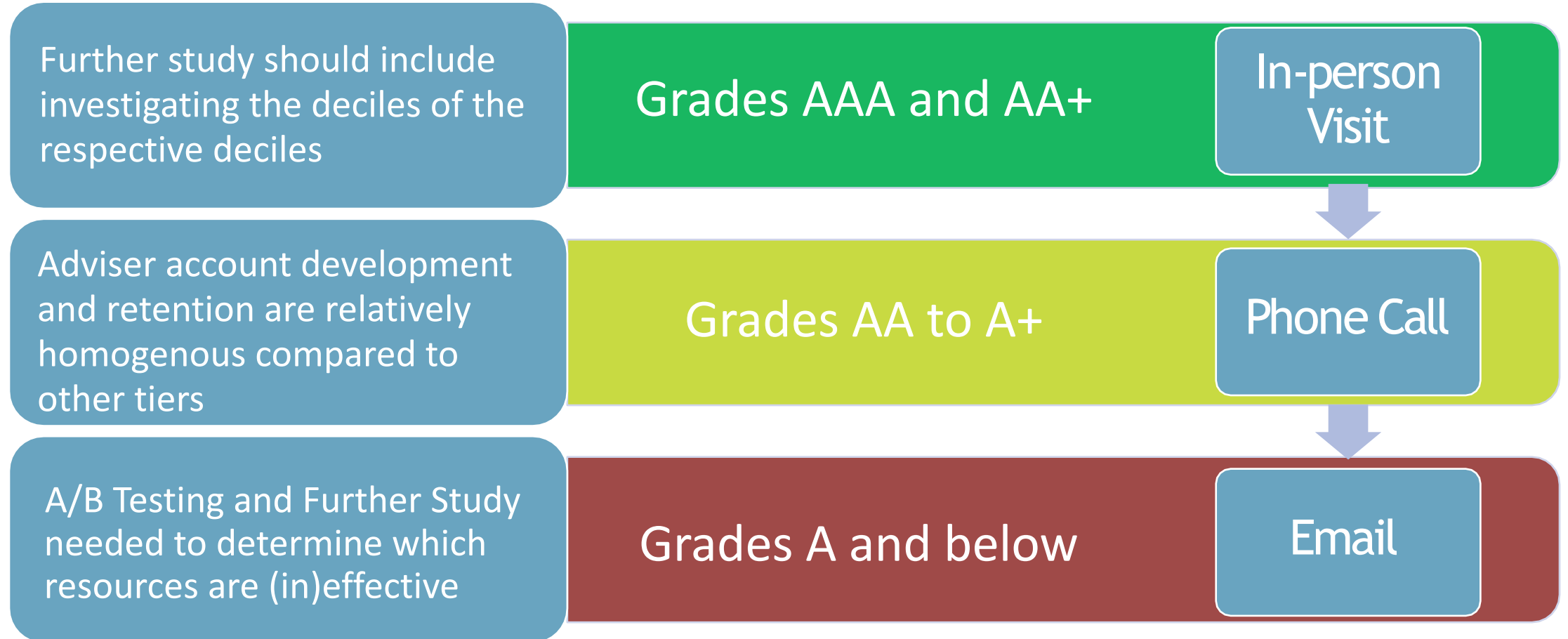
$38B

$2.2B — EQUITY

$31.5B — FIXED INCOME

$79M — REAL ESTATE

$32M — REAL ASSETS

$141M — PRIVATE CAPTIAL

$4.4B — MULTI-ASSET

AA+

2020 Appreciation

$5.9B

$495M — EQUITY

$4.76B — FIXED INCOME

$49M — REAL ESTATE

$10M — REAL ASSETS

$660M — MULTI-ASSET

$4M — PRIVATE CAPTIAL

Recommendations

Further study should include investigating the deciles of the respective deciles

Grades AAA and AA+

In-person Visit

Adviser account development and retention are relatively homogenous compared to other tiers

Grades AA to A+

Phone Call

A/B Testing and Further Study needed to determine which resources are (in)effective
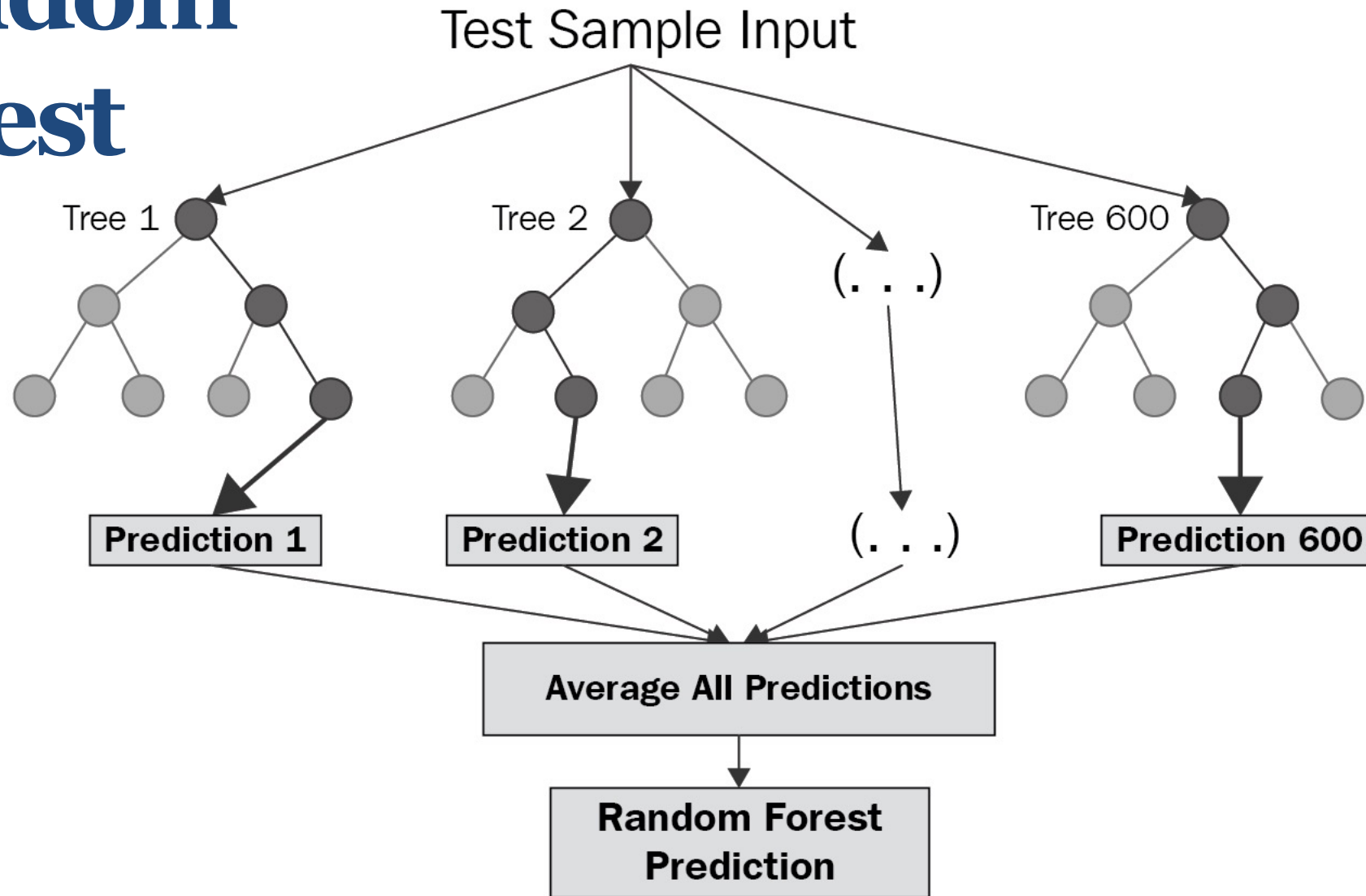
Grades A and below

Email

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Thank You

Appendix

Random Forest

Model Metrics

Mean Absolute Error (MAE): 14607.13167337936
Mean Squared Error (MSE): 12802258608.367645
Root Mean Squared Error (RMSE): 113147.06628263785
Mean Absolute Percentage Error (MAPE): 5.201444280257133e+17
Explained Variance Score: 0.9921549151570518
Max Error: 11523659.324653398
R^2: 0.9921544816941068

Actual vs Predicted - Regression