

Nuveen Project

Agenda

Background

Objectives

Methodology

Variables

Models & Findings

Recommendations

Background

- ❖ Nuveen, a subsidiary of TIAA, is a global investment manager
- ❖ Funds comprised of businesses, real estate, farmland, forests and infrastructure
- ❖ Assets under management of 1.2 trillion as of 30 Sep 2020
- ❖ Sell their funds through advisors



Objectives

Goal:

- Acquire, develop and retain clients in a cost-efficient way

Which contact method is appropriate:

- In-person coverage
- Phone coverage
- Email and web marketing

Dependent Variable:

- 12 months of sales through November 2020

Methodology



Ran summary statistics to understand the data



Cleaned the data – removed outliers



Ran decision tree to determine how many models is necessary



Separated models into training and testing sets



Ran regression analysis and validated the model using testing set

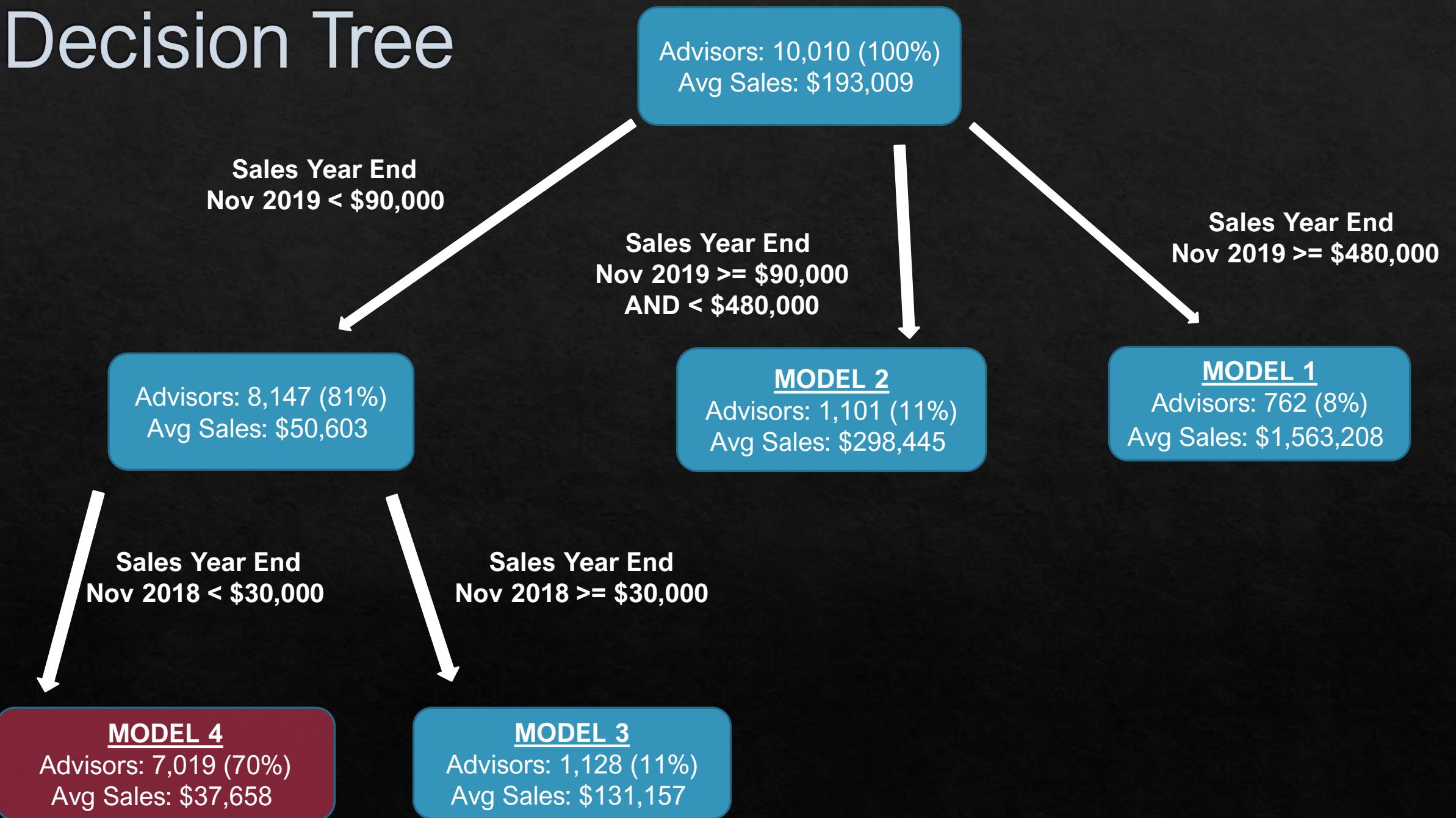


Created a lift chart for each model and provided recommendations

Cleaning the Data

- ❖ Initial issues with data:
 - ❖ Negative sales
 - ❖ Positive redemptions
 - ❖ Examples of extreme points:
 - ❖ 4,067 sales in 2018
 - ❖ 11,581 redemptions 2018
- ❖ Cleaned by cutting off at 99%

Decision Tree



Model 1

GREATER THAN OR EQUAL TO \$480,000 IN SALES
FOR YEAR ENDING NOV 2019

Independent Variables

Positive

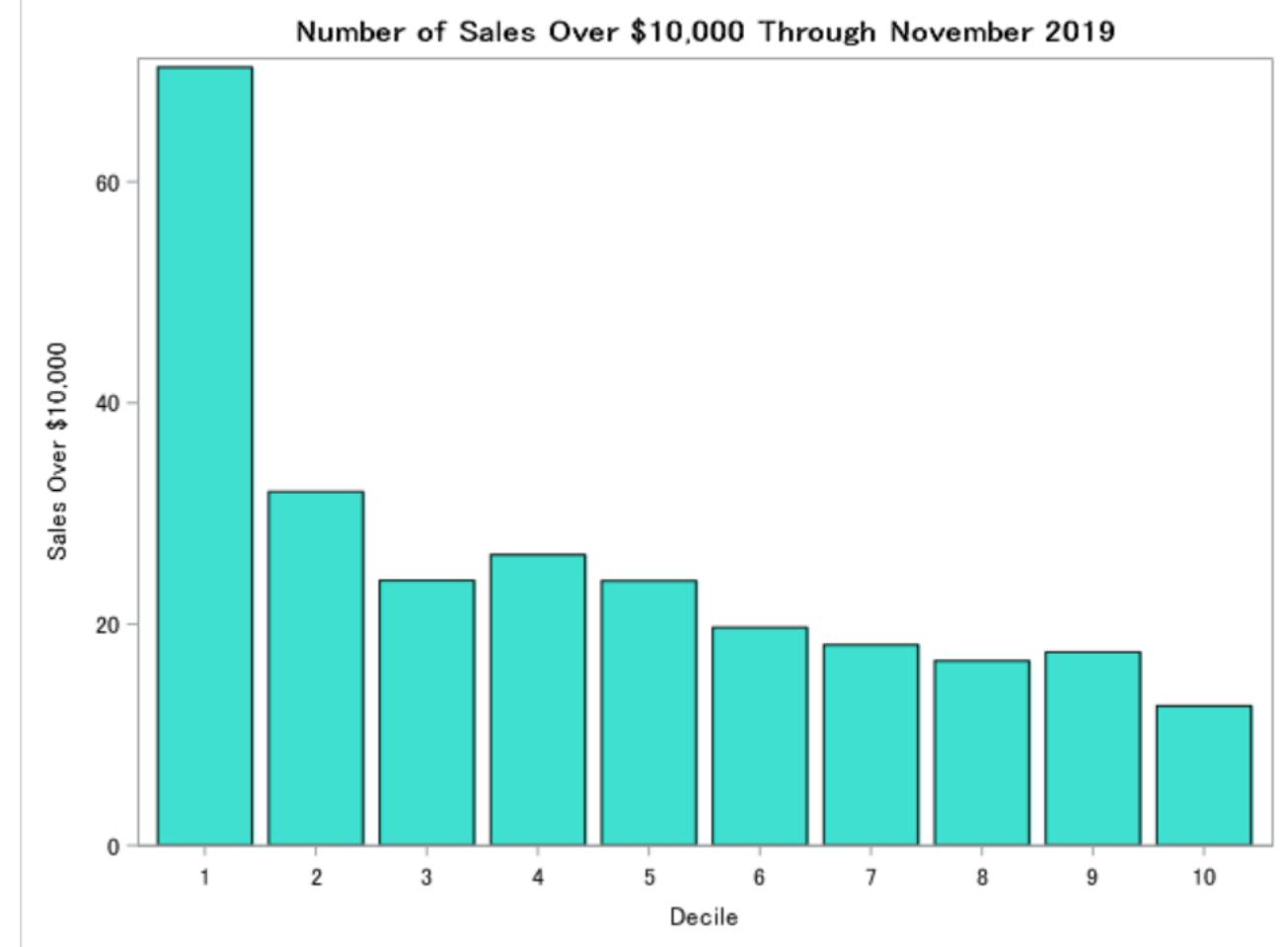
- ❖ Sales in Last 12 Months through November 2018
- ❖ AUM Asset Class Fixed Income Municipal Bonds through November 2018
- ❖ Number of Sales in Last 12 Months through November 2019
- ❖ Number of Sales in Last 12 Months over \$10,000 through November 2019
- ❖ Sales in Last 12 Months through November 2019
- ❖ AUM Asset Class Target Funds through November 2019
- ❖ Net Sales through November 2019
- ❖ 24 Month Sales

Negative

- ❖ AUM Asset Class Target Funds through November 2018
- ❖ Number of \$10,000 Redemptions through November 2019
- ❖ AUM Product Type Mutual Funds through November 2019
- ❖ Total Net Sales

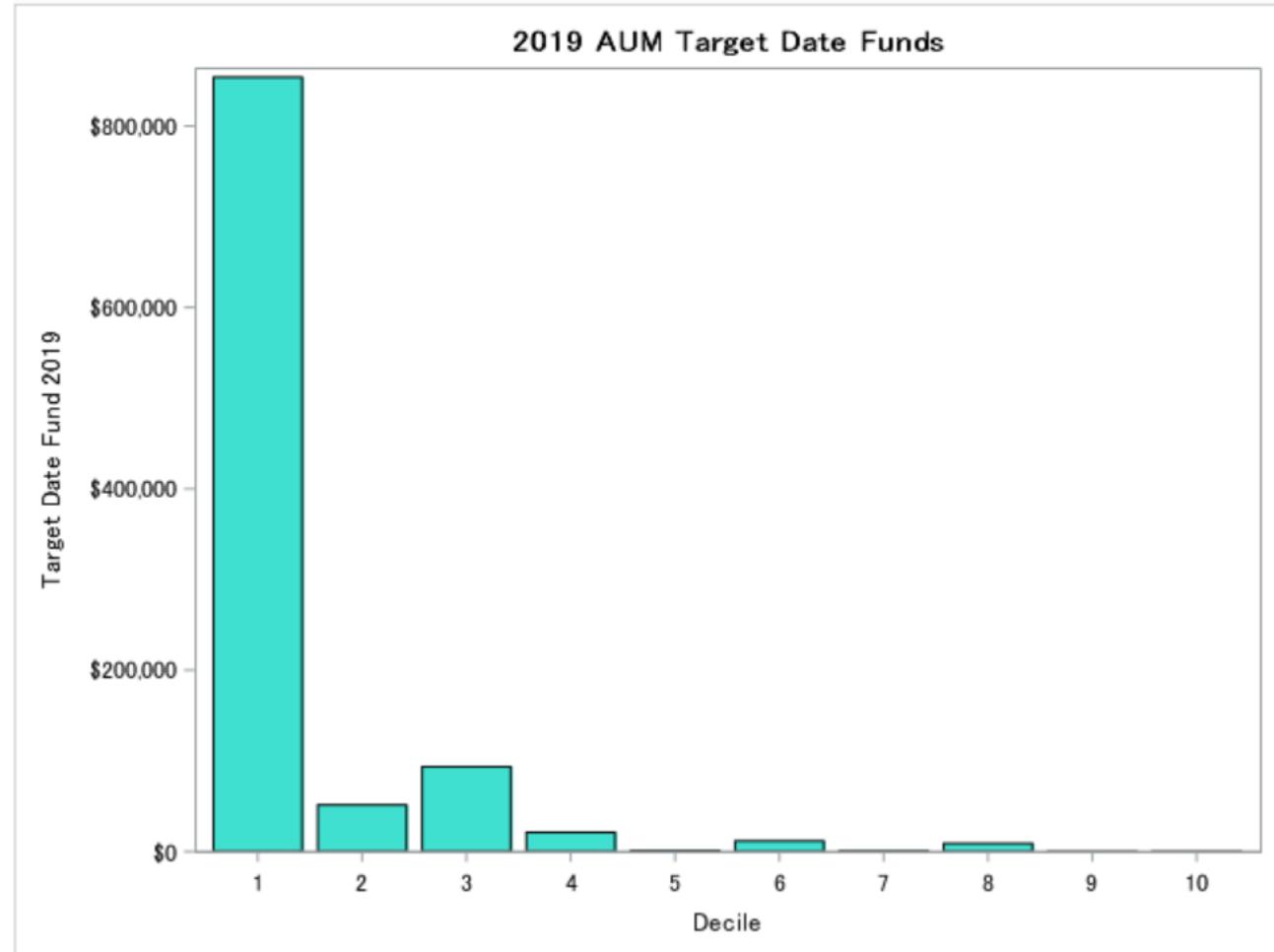
Model 1 - Variables

Advisors in decile 1 have the highest Number of Sales Over \$10,000 through November 2019



Model 1 - Variables

Advisors in decile 1 manage
the most Target Date Funds
through 2019



Lift Chart

| Decile | Number of Customers | Actual Sales Per Customer | Lift Over Average | Cumulative No. of Customers | Cumulative Sales Per Customer | Cumulative Lift |
|--------|---------------------|---------------------------|-------------------|-----------------------------|-------------------------------|-----------------|
| 1 | 44 | \$ 3,468,462 | 120% | 44 | \$ 3,468,462 | 120% |
| 2 | 32 | \$ 2,470,501 | 57% | 76 | \$ 3,048,268 | 94% |
| 3 | 38 | \$ 1,773,666 | 13% | 114 | \$ 2,623,401 | 67% |
| 4 | 38 | \$ 1,391,411 | -12% | 152 | \$ 2,315,403 | 47% |
| 5 | 38 | \$ 1,511,433 | -4% | 190 | \$ 2,154,609 | 37% |
| 6 | 38 | \$ 1,405,870 | -11% | 228 | \$ 2,029,819 | 29% |
| 7 | 39 | \$ 1,542,221 | -2% | 267 | \$ 1,958,597 | 24% |
| 8 | 38 | \$ 901,276 | -43% | 305 | \$ 1,826,865 | 16% |
| 9 | 38 | \$ 594,855 | -62% | 343 | \$ 1,690,374 | 7% |
| 10 | 38 | \$ 533,975 | -66% | 381 | \$ 1,575,038 | 0% |
| Total | 381 | \$ 1,575,038 | 0% | | | |

- Advisors from Deciles 1 through 7 have actual sales per customer over \$1,000,000
- Advisors from Deciles 8 through 10 have actual sales per customer over \$500,000

Model 2

GREATER THAN OR EQUAL TO \$90,000 AND LESS THAN
\$480,000 IN SALES FOR YEAR ENDING NOV 2019

Independent Variables

Positive

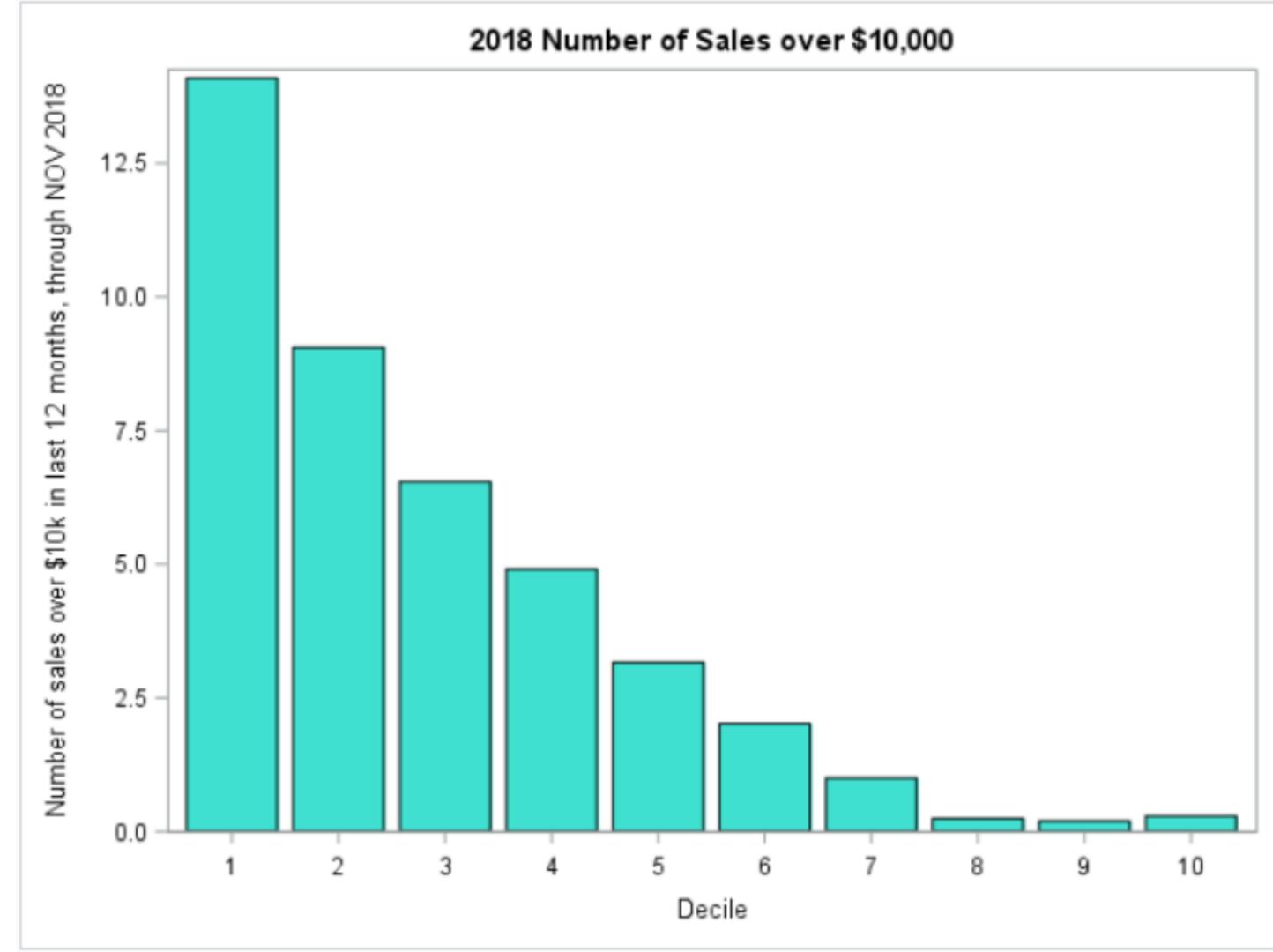
- ❖ Number of Sales in last 12 Months, over \$10,000 through November 2018
- ❖ AUM asset class real estate, through November 2018
- ❖ AUM alternative, through November 2018
- ❖ Number of funds redeemed over \$1 in the last 12 months, through November 2019
- ❖ AUM separately managed accounts, through November 2019
- ❖ Net sales 2019

Negative

- ❖ Number of Asset Classes sold over \$1 in the last 12 months, through November 2018
- ❖ AUM separately managed accounts, through November 2018

Model 2 - Variables

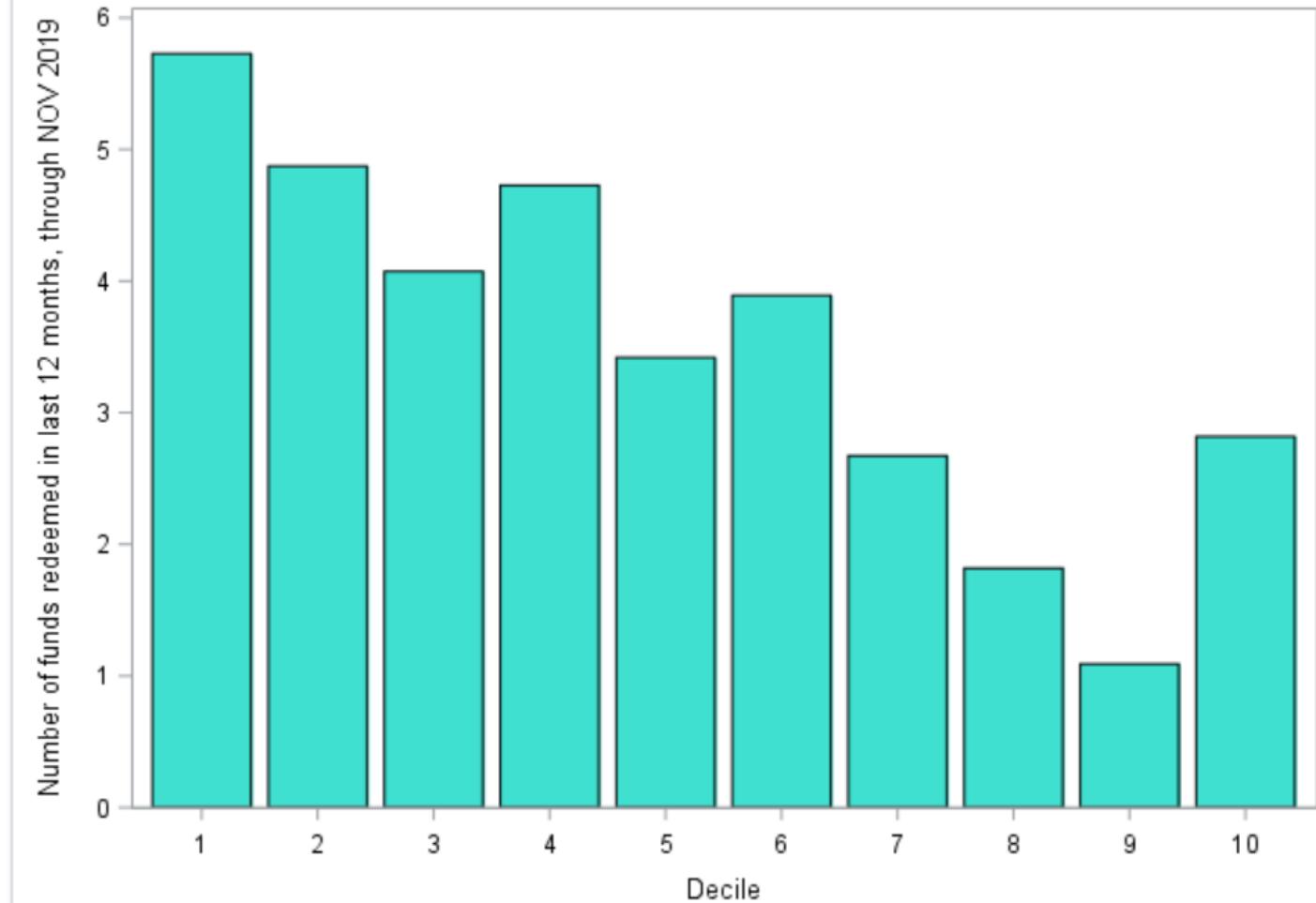
- In 2018 advisors in deciles 1, 2, & 3 have a higher number of sales greater than \$10,000



Model 2 - Variables

- The number of funds redeemed decreases among deciles in 2019

2019 Number of Funds Redeemed



Lift Chart

| Decile | Number of Customers | Actual Sales Per Customer | Lift Over Average | Cumulative No. of Customers | Cumulative Sales Per Customer | Cumulative Lift |
|--------|---------------------|---------------------------|-------------------|-----------------------------|-------------------------------|-----------------|
| 1 | 55 | \$ 355,740 | 37% | 55 | \$ 355,740 | 37% |
| 2 | 55 | \$ 296,411 | 14% | 110 | \$ 326,076 | 25% |
| 3 | 55 | \$ 280,658 | 8% | 165 | \$ 310,936 | 20% |
| 4 | 55 | \$ 357,249 | 37% | 220 | \$ 322,515 | 24% |
| 5 | 55 | \$ 361,173 | 39% | 275 | \$ 330,246 | 27% |
| 6 | 55 | \$ 294,637 | 13% | 330 | \$ 324,311 | 25% |
| 7 | 55 | \$ 148,442 | -43% | 385 | \$ 299,187 | 15% |
| 8 | 33 | \$ 102,440 | -61% | 418 | \$ 283,655 | 9% |
| 9 | 77 | \$ 160,878 | -38% | 495 | \$ 264,556 | 2% |
| 10 | 55 | \$ 219,277 | -16% | 550 | \$ 260,028 | 0% |
| Total | 550 | \$ 260,028 | 0% | | | |

- Advisors in Deciles 1 through 6 have an actual sales per customer of about \$300,000
- Advisors in Deciles 7 through 10 have greater than \$100,000

Model 3

LESS THAN \$90,000 IN SALES FOR YEAR ENDING
NOV 2019 AND GREATER THAN OR EQUAL TO
\$30,000 IN SALES FOR YEAR ENDING NOV 2018

Independent Variables

Positive

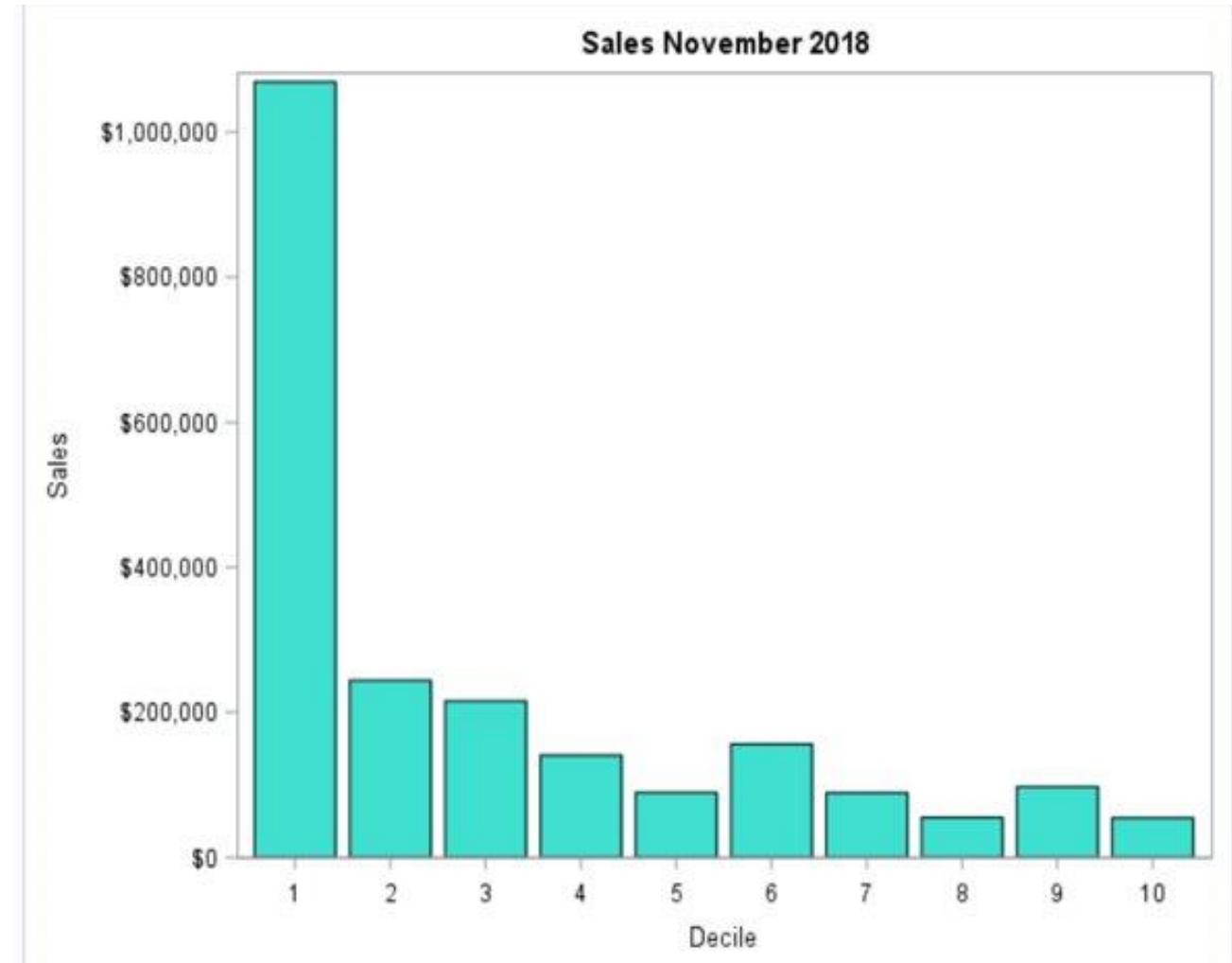
- ◊ Number of Asset Classes sold over last 12 months ending November 2018
- ◊ Sales over last 12 months ending November 2018
- ◊ Number of Asset Classes sales over \$10,000 in last 12 months ending November 2019
- ◊ AUM Assets Classes Target November 2019

Negative

- ◊ AUM Asset Classes Target November 2018

Model 3 - Variables

- Advisors in decile 1 had by far the most sales in the 12 months leading up to November 2018



Model 3 - Variables

Advisors in Deciles 1, 2 and 3 had the most asset classes sold in the last 12 months leading up to November 2018



Lift Chart

| Decile | Number of Customers | Actual Sales Per Customer | Lift Over Average | Cumulative No. of Customers | Cumulative Sales Per Customer | Cumulative Lift |
|--------|---------------------|---------------------------|-------------------|-----------------------------|-------------------------------|-----------------|
| 1 | 56 | \$ 384,328 | 212% | 56 | \$ 384,328 | 212% |
| 2 | 56 | \$ 182,450 | 48% | 112 | \$ 283,389 | 130% |
| 3 | 57 | \$ 112,547 | -9% | 169 | \$ 225,768 | 83% |
| 4 | 56 | \$ 81,359 | -34% | 225 | \$ 189,826 | 54% |
| 5 | 57 | \$ 66,309 | -46% | 282 | \$ 164,860 | 34% |
| 6 | 56 | \$ 142,417 | 15% | 338 | \$ 161,142 | 31% |
| 7 | 57 | \$ 37,057 | -70% | 395 | \$ 143,236 | 16% |
| 8 | 56 | \$ 68,657 | -44% | 451 | \$ 133,975 | 9% |
| 9 | 57 | \$ 81,722 | -34% | 508 | \$ 128,112 | 4% |
| 10 | 56 | \$ 80,412 | -35% | 564 | \$ 123,376 | 0% |
| Total | 564 | \$ 123,376 | 0% | | | |

- Advisors in Deciles 1, 2 and 6 have a positive lift
- Blue Color: \$200,000+ actual sales per customer
- Light Yellow Color: \$100,000 to \$200,000 actual sales per customer
- Outlier in Decile 6

Recommendations

nuveen
A TIAA Company

In-person Coverage

- ◊ **Sales over \$1,000,000**

- ◊ Model 1: deciles 1 - 7
- ◊ Model 2: none
- ◊ Model 3: none

Phone Coverage

- ❖ **Sales over \$500,000 (Personalized)**

- ❖ Model 1: deciles 8 - 10
- ❖ Model 2: none
- ❖ Model 3: none

- ❖ **Sales over \$300,000 (General)**

- ❖ Model 1: none
- ❖ Model 2: deciles 1 - 6
- ❖ Model 3: decile 1

Email and Web Marketing

- ◊ **Sales over \$100,000**

- ◊ Model 1: none
- ◊ Model 2: deciles 7 - 10
- ◊ Model 3: deciles 2 - 3

Thank You!

Questions?

Appendix

Regression Output Model 1

| Summary of Forward Selection | | | | | | | | | |
|------------------------------|----------------------------------|----------------------------------|----------------|------------------|----------------|---------|---------|--------|--|
| Step | Variable Entered | Label | Number Vars In | Partial R-Square | Model R-Square | C(p) | F Value | Pr > F | |
| 1 | sales_12M_NOV2019 | sales_12M_NOV2019 | 1 | 0.2241 | 0.2241 | 137.798 | 109.45 | <.0001 | |
| 2 | no_of_sales_12M_10K_NOV2019 | no_of_sales_12M_10K_NOV2019 | 2 | 0.0611 | 0.2852 | 99.2464 | 32.32 | <.0001 | |
| 3 | Netsales2019 | | 3 | 0.0398 | 0.3250 | 74.8371 | 22.23 | <.0001 | |
| 4 | aum_AC_TARGET_NOV2019 | aum_AC_TARGET_NOV2019 | 4 | 0.0245 | 0.3496 | 60.5495 | 14.19 | 0.0002 | |
| 5 | sales_12M_NOV2018 | sales_12M_NOV2018 | 5 | 0.0231 | 0.3727 | 47.1909 | 13.84 | 0.0002 | |
| 6 | aum_AC_TARGET_NOV2018 | aum_AC_TARGET_NOV2018 | 6 | 0.0194 | 0.3921 | 36.3174 | 11.94 | 0.0006 | |
| 7 | aum_AC_FIXED_INCOME_MUNI_NOV2018 | aum_AC_FIXED_INCOME_MUNI_NOV2018 | 7 | 0.0081 | 0.4002 | 32.9751 | 5.01 | 0.0258 | |
| 8 | no_of_sales_12M_1_NOV2019 | no_of_sales_12M_1_NOV2019 | 8 | 0.0069 | 0.4071 | 30.3666 | 4.36 | 0.0375 | |
| 9 | TotalNetsales | | 9 | 0.0062 | 0.4133 | 28.2585 | 3.92 | 0.0486 | |
| 10 | sales24mo | | 10 | 0.0153 | 0.4286 | 20.0874 | 9.93 | 0.0018 | |
| 11 | aum_P_MF_NOV2019 | aum_P_MF_NOV2019 | 11 | 0.0067 | 0.4353 | 17.6449 | 4.38 | 0.0371 | |
| 12 | no_of_Redemption_12M_10K_NOV2019 | no_of_Redemption_12M_10K_NOV2019 | 12 | 0.0086 | 0.4440 | 13.9144 | 5.72 | 0.0173 | |
| 13 | aum_P_MF_NOV2018 | aum_P_MF_NOV2018 | 13 | 0.0101 | 0.4540 | 9.2251 | 6.78 | 0.0096 | |

Regression Output Model 2

| Summary of Forward Selection | | | | | | | | |
|------------------------------|-------------------------------|-------------------------------|----------------|------------------|----------------|---------|---------|--------|
| Step | Variable Entered | Label | Number Vars In | Partial R-Square | Model R-Square | C(p) | F Value | Pr > F |
| 1 | aum_P_ALT_NOV2018 | aum_P_ALT_NOV2018 | 1 | 0.1468 | 0.1468 | 90.9396 | 94.47 | <.0001 |
| 2 | no_of_sales_12M_10K_NOV2018 | no_of_sales_12M_10K_NOV2018 | 2 | 0.0470 | 0.1938 | 57.8223 | 31.92 | <.0001 |
| 3 | aum_P_SMA_NOV2019 | aum_P_SMA_NOV2019 | 3 | 0.0225 | 0.2163 | 43.0017 | 15.70 | <.0001 |
| 4 | aum_P_SMA_NOV2018 | aum_P_SMA_NOV2018 | 4 | 0.0222 | 0.2385 | 28.4120 | 15.91 | <.0001 |
| 5 | no_of_funds_red_12M_1_NOV2019 | no_of_funds_red_12M_1_NOV2019 | 5 | 0.0159 | 0.2544 | 18.5150 | 11.63 | 0.0007 |
| 6 | aum_AC_REAL_ESTATE_NOV2018 | aum_AC_REAL_ESTATE_NOV2018 | 6 | 0.0106 | 0.2649 | 12.6115 | 7.82 | 0.0053 |
| 7 | no_of_ac_sold_12M_1_NOV2018 | no_of_ac_sold_12M_1_NOV2018 | 7 | 0.0102 | 0.2752 | 6.9520 | 7.67 | 0.0058 |
| 8 | Netsales2019 | | 8 | 0.0072 | 0.2824 | 3.5316 | 5.48 | 0.0196 |

Regression Output Model 3

Summary of Forward Selection

| Step | Variable Entered | Label | Number Vars In | Partial R-Square | Model R-Square | C(p) | F Value | Pr > F |
|------|--------------------------------|--------------------------------|----------------|------------------|----------------|---------|---------|--------|
| 1 | aum_AC_TARGET_NOV2019 | aum_AC_TARGET_NOV2019 | 1 | 0.1811 | 0.1811 | 156.897 | 124.28 | <.0001 |
| 2 | aum_AC_TARGET_NOV2018 | aum_AC_TARGET_NOV2018 | 2 | 0.1432 | 0.3243 | 33.5356 | 118.89 | <.0001 |
| 3 | no_of_ac_sold_12M_1_NOV2018 | no_of_ac_sold_12M_1_NOV2018 | 3 | 0.0075 | 0.3318 | 28.9775 | 6.28 | 0.0125 |
| 4 | sales_12M_NOV2018 | sales_12M_NOV2018 | 4 | 0.0072 | 0.3390 | 24.6760 | 6.09 | 0.0139 |
| 5 | no_of_ac_sales_12M_10K_NOV2019 | no_of_ac_sales_12M_10K_NOV2019 | 5 | 0.0053 | 0.3443 | 22.0400 | 4.51 | 0.0342 |

Decision Tree Version 1

