

How Discounts Shape Profits in Japan & ANZ (Australia and New Zealand) Markets

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BUSINESS UNDERSTANDING



– Business Understanding

1. What is SaaS Sales?

Software-as-a-Service (SaaS) sales involve selling cloud-based software solutions on a subscription basis. Unlike traditional software, SaaS offers:

- Recurring Revenue Model (MRR/ARR)
- Scalability & Flexibility for customers
- Lower Upfront Costs (pay-as-you-go)

2. Key Business Objectives

- Customer Acquisition: Attracting and converting leads into paying subscribers.
- Retention & Expansion: Reducing churn and upselling/cross-selling to existing customers.
- Profitability: Balancing Customer Acquisition Cost (CAC) with Lifetime Value (LTV).

3. Target

- Enterprise: High-touch, large deals (\$100K+), long cycles.
- SMB: Volume-based, fast sales (\$1K-\$50K), self-serve.
- Strategic: Growth-focused (\$50K-\$250K), expansion plays.

STAKEHOLDERS



- Stakeholders

1. Sales Manager:

A Sales Manager in SaaS Sales leads the team in acquiring, nurturing, and closing subscription-based software deals.

2. Marketing Manager:

A Marketing Manager in SaaS Sales drives demand generation and brand awareness to attract and convert leads into customers.

PROBLEM STATEMENTS



- Problem Statements

**High discount rates
reduce profit margins
in JAPN and ANZ sub
region.**

**Compare profit margin
of sub regions with
low and high discount.**

**Which products are
associated with high
discount low profit?**

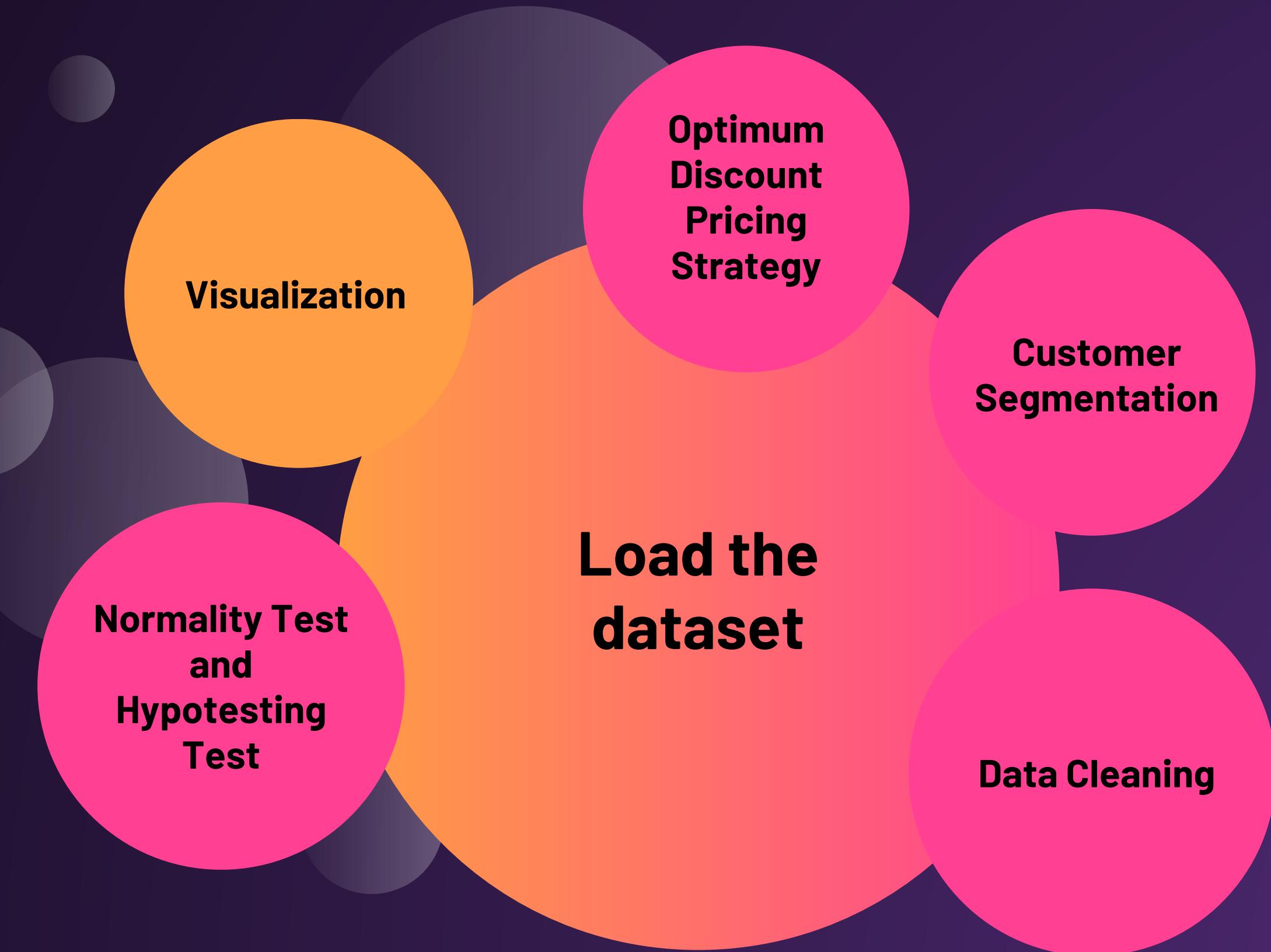
**Identify JAPN and ANZ
cities with high
discounts causing
negative margins.**

**Find discount rate that
keeps profit margin
 $>15\%$; avoid over-
discounting.**

ANALYTICAL APPROACH



- Analytical Approach



DATA UNDERSTANDING



- Data Understanding

1. Transaction Identifiers

Row ID	Unique transaction identifier
Order ID	Unique order identifier
License	Product license key

2. Date Information

Order Date	Date of order
Date Key	Numeric date (YYYYMMDD)

4. Financial Information

Sales	Total Sales Values
Discount	Discount Applied
Profit	Profit from transaction

9994 Rows and 19 Columns

- Data Understanding

5. Customer Information

Contact Name	Person placing the order
Customer	Company placing the order
Customer ID	Unique customer identifier
Industry	Customer Industry
Segment	Customer segment (Enterprise, SMB, Strategic)

6. Geographic Information

Region	Broad global area (AMER, APJ, EMEA)
Subregion	Part of region (JAPN, ANZ)
Country	Part of subregion (Japan, Australia, New Zealand)
City	Part of country (Tokyo, Brisbane, etc)

What is the optimum discount?

- ***Yields the highest profit margin***
- ***Does not cause negative profit margin***
- ***Exceeds SaaS Sales benchmark (15%)***

DATA CLEANING



- Data Cleaning

Handle Missing Values

Handle Outliers

Handle Duplicate Data

Check Data Format

Check Data Type

Drop Irrelevant Columns

Trim Whitespace

- Data Cleaning

Data Cleaning	Number	Treatment	
Missing Values	0	There is no missing values	
Duplicate Data	0	There is no duplicated data	
Data Type	4	1.) Row ID, Customer ID, Date Key → String	2.) Order Date → Date time series
Whitespace	32143	Trimm whitespace	
Data Format	9994	Use regular expression to separate first and last name of contact name	
Irrelevant Columns	2	Drop Row ID and Date Key	
Outliers	4074	Keep them:	1.) Use median 2.) Outliers represent valuable data

- Data Cleaning

Outliers

1. Boxplot

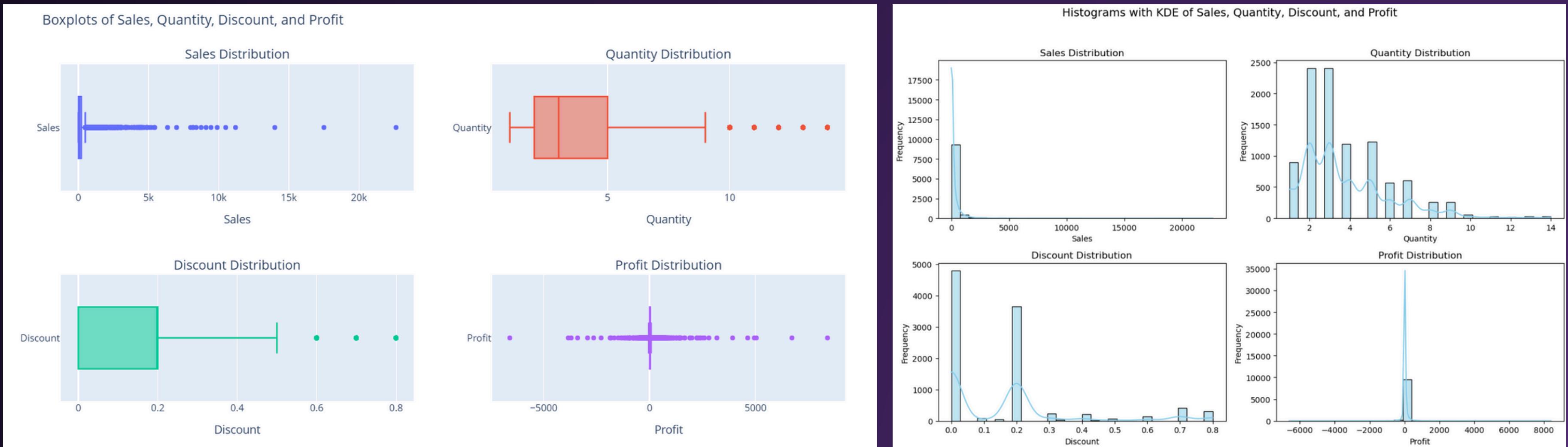
2. Histogram

3. IQR Method



- Data Cleaning

Boxplot and Histogram



- Data Cleaning

IQR Method

Column	Upper Bound	Lower Bound	High Outliers	Low Outliers	Total Outliers
Sales	498.93	-271.71	1167	0	1167
Qianity	9.50	-2.50	170	0	170
Discount	0.50	-0.30	856	0	856
Profit	70.82	-39.72	1277	604	1881

Extrapolatory Data Analysis



- Extrapolatory Data Analysis

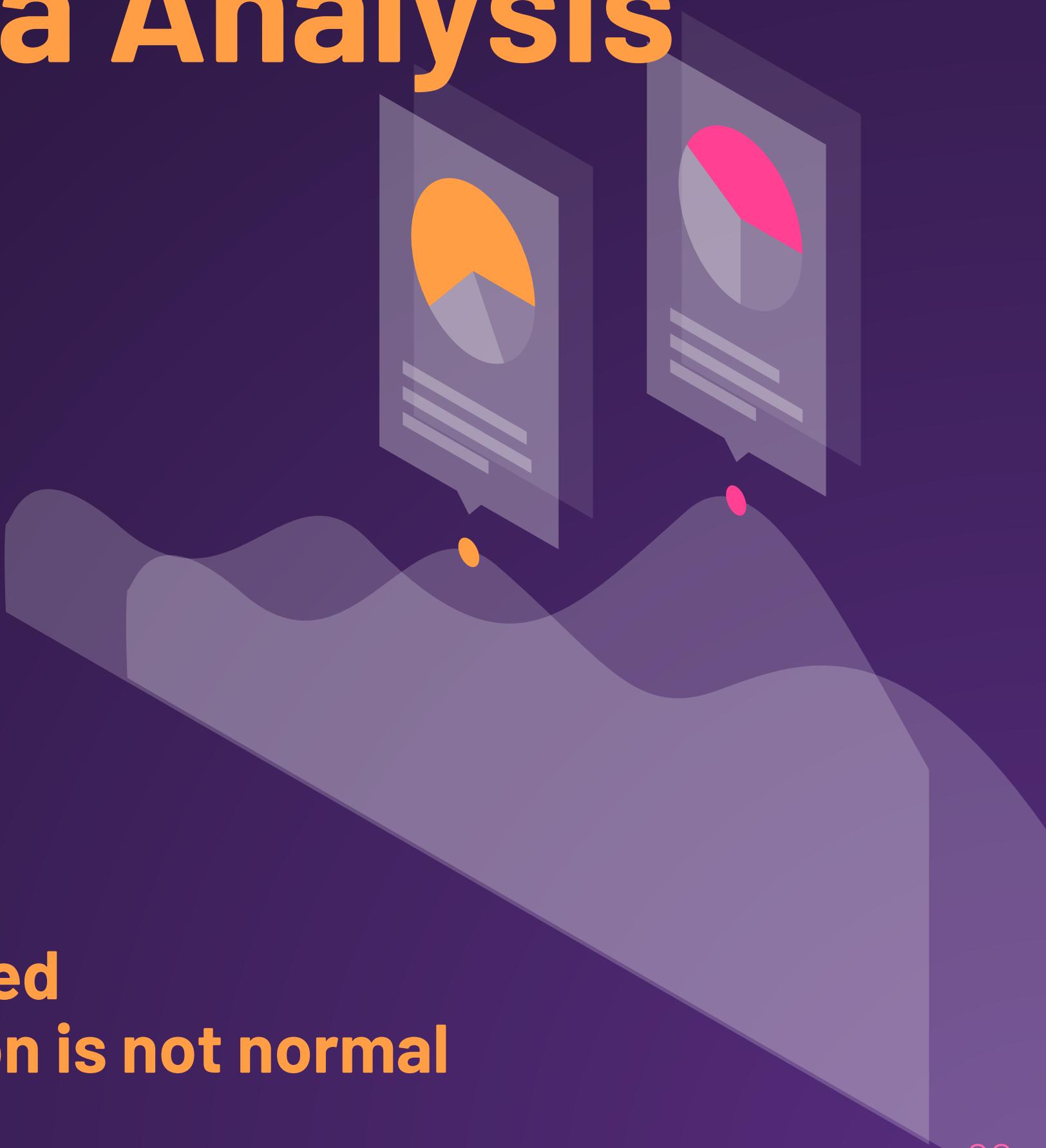
Check Data Distribution

1. Boxplot

2. Histogram

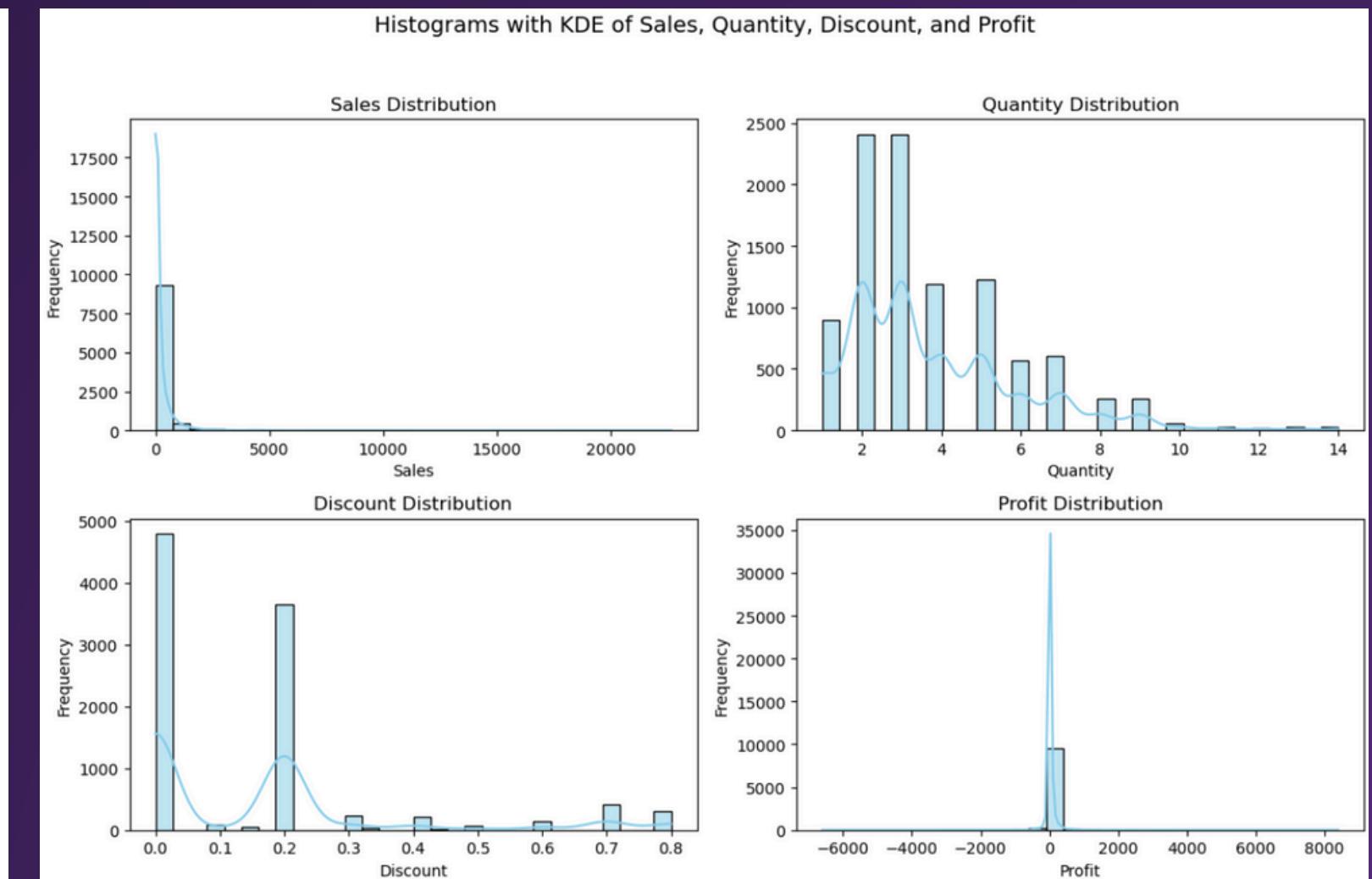
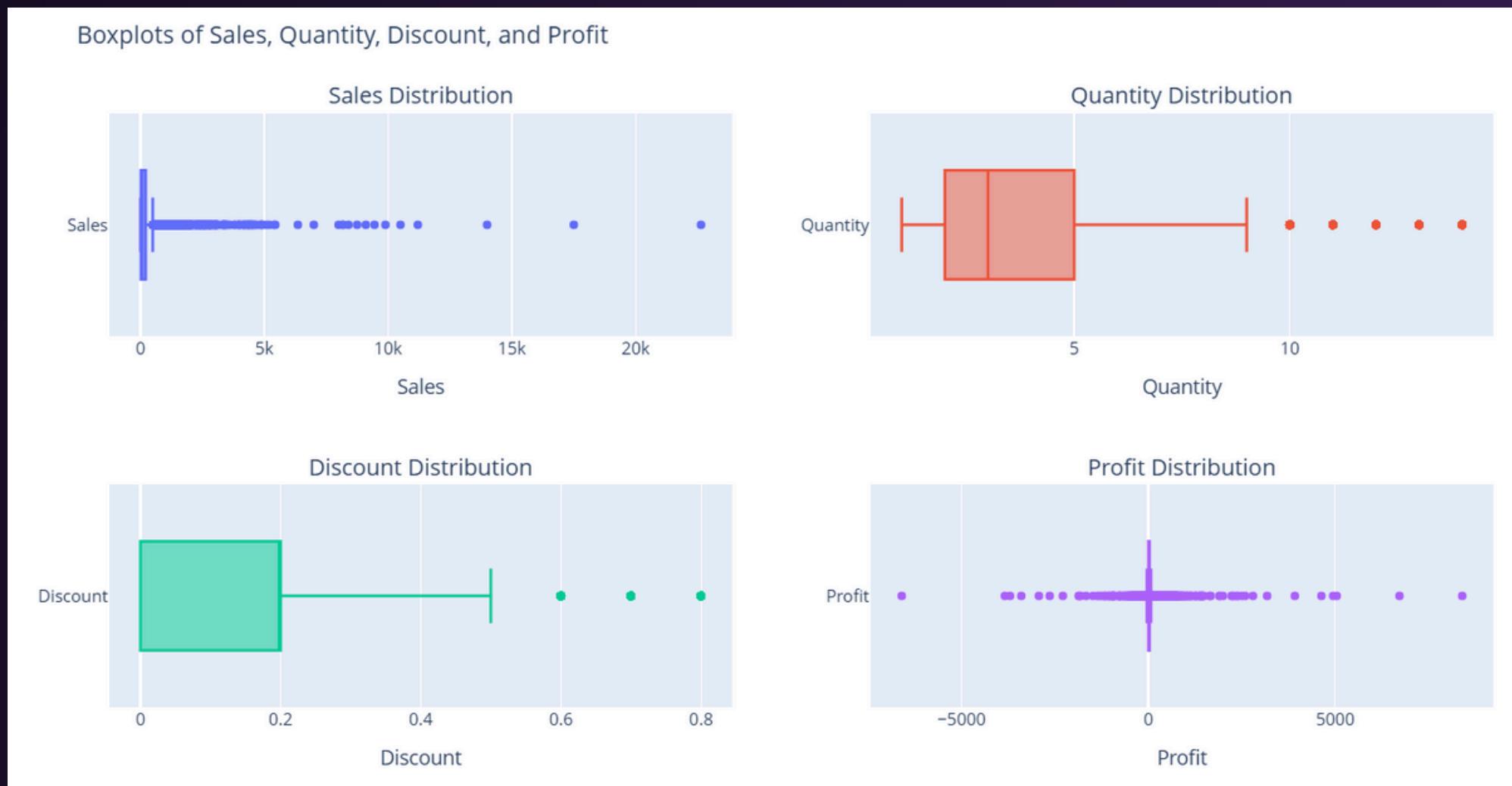
3. Normality Test

- - H_0 : Data is normally distributed
- - H_1 : Data is not normally distributed
- - Reject H_0 if $p < 0.05 \rightarrow$ Distribution is not normal



- Extrapolatory Data Analysis

Boxplot and Histogram



- Extrapolatory Data Analysis

Normality Test

Kalgomorov Smirnov			Lilliefors			Saphiro Wilk		
Column	P-value	Distribution	Column	P-value	Distribution	Column	P-value	Distribution
Sales	0.00	Not Normal	Sales	1.00e-3	Not Normal	Sales	4.22e-85	Not Normal
Quantity	0.00	Not Normal	Quantity	1.00e-3	Not Normal	Quantity	1.58e-52	Not Normal
Discount	0.00	Not Normal	Discount	1.00e-3	Not Normal	Discount	9.55e-69	Not Normal
Profit	0.000	Not Normal	Profit	1.00e-3	Not Normal	Profit	9.30e-90	Not Normal

– Measure of Central Tendency

Median

– Correlation Method

Spearman

- A lot of outliers (4074 outliers)
- Distribution is not normal (All numerical columns)
- Large Dataset (9994 Rows and 19 Columns)

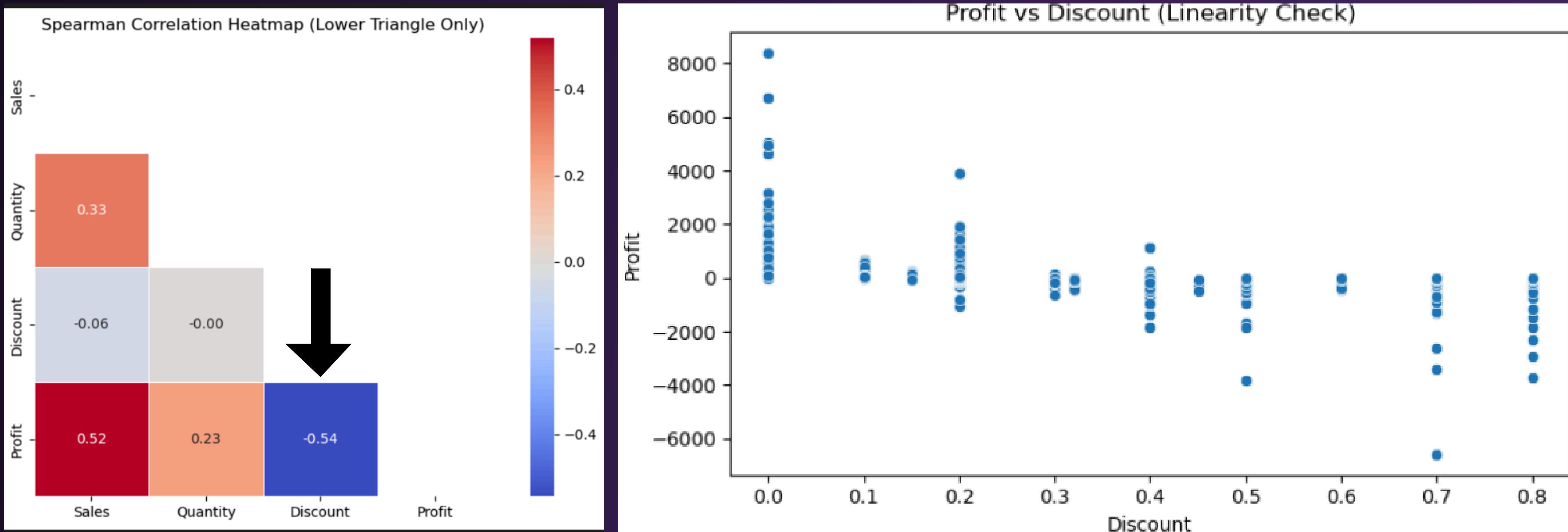
– Profit Margin Column

$\text{Profit} / (\text{Sales} - (\text{Sales} \times \text{Discount})) \times 100$



- Extrapolatory Data Analysis

Spearman Correlation



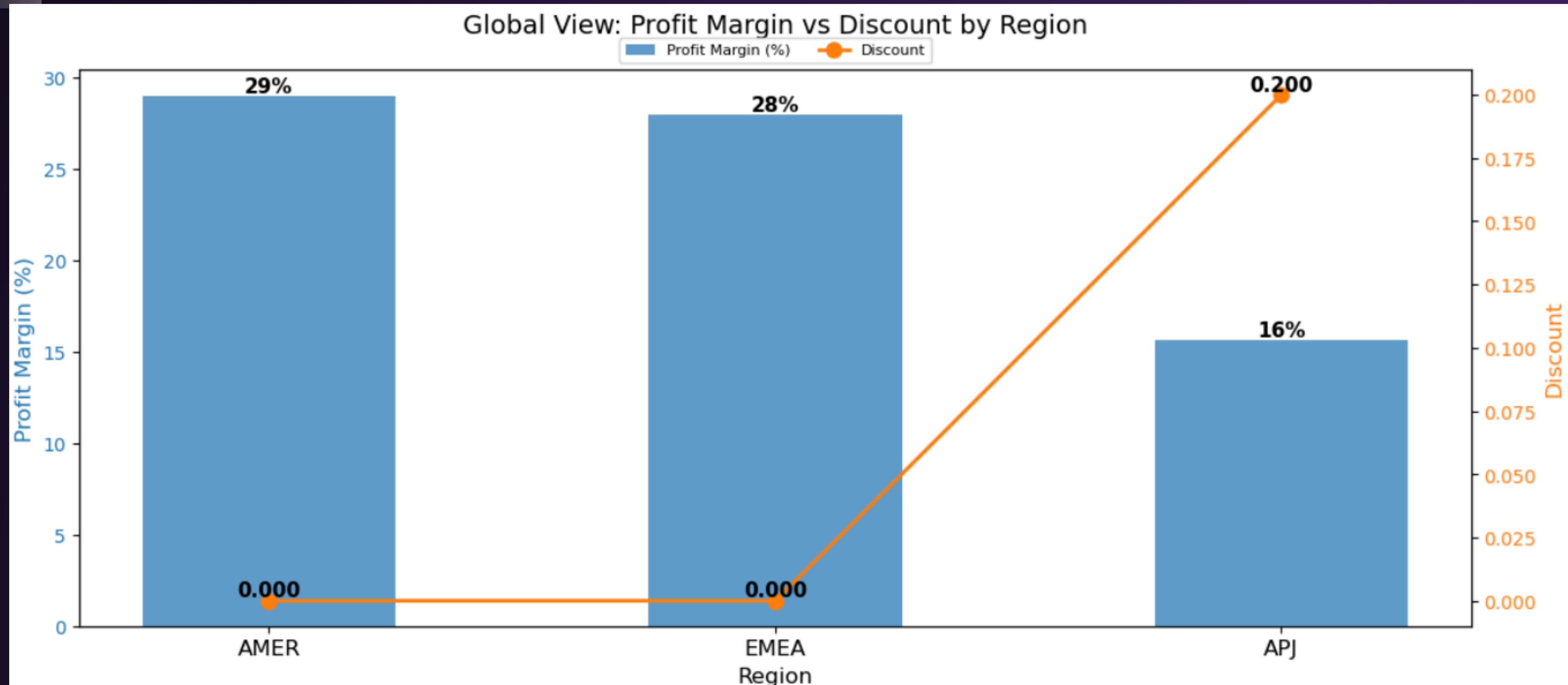
– Problem Statement 1: Discount Reduces Profit Margin in JAPN and ANZ Subregion

Kruskal-Wallis Test → Discount and Profit Margin across Region

- - H_0 : No significant difference in discount or profit margin across regions – medians are equal.
- - H_1 : Significant difference in discount or profit margin across regions – medians differ.
- - Reject H_0 if $p < 0.05 \rightarrow$ Medians differ significantly across regions.

Variable	P-Value	Interpretation
Discount	1.71e-155	Medians differ significantly across regions.
Profit Margin	2.58e-66	Medians differ significantly across regions.

– Problem Statement 1: Discount Reduces Profit Margin in JAPN and ANZ Subregion



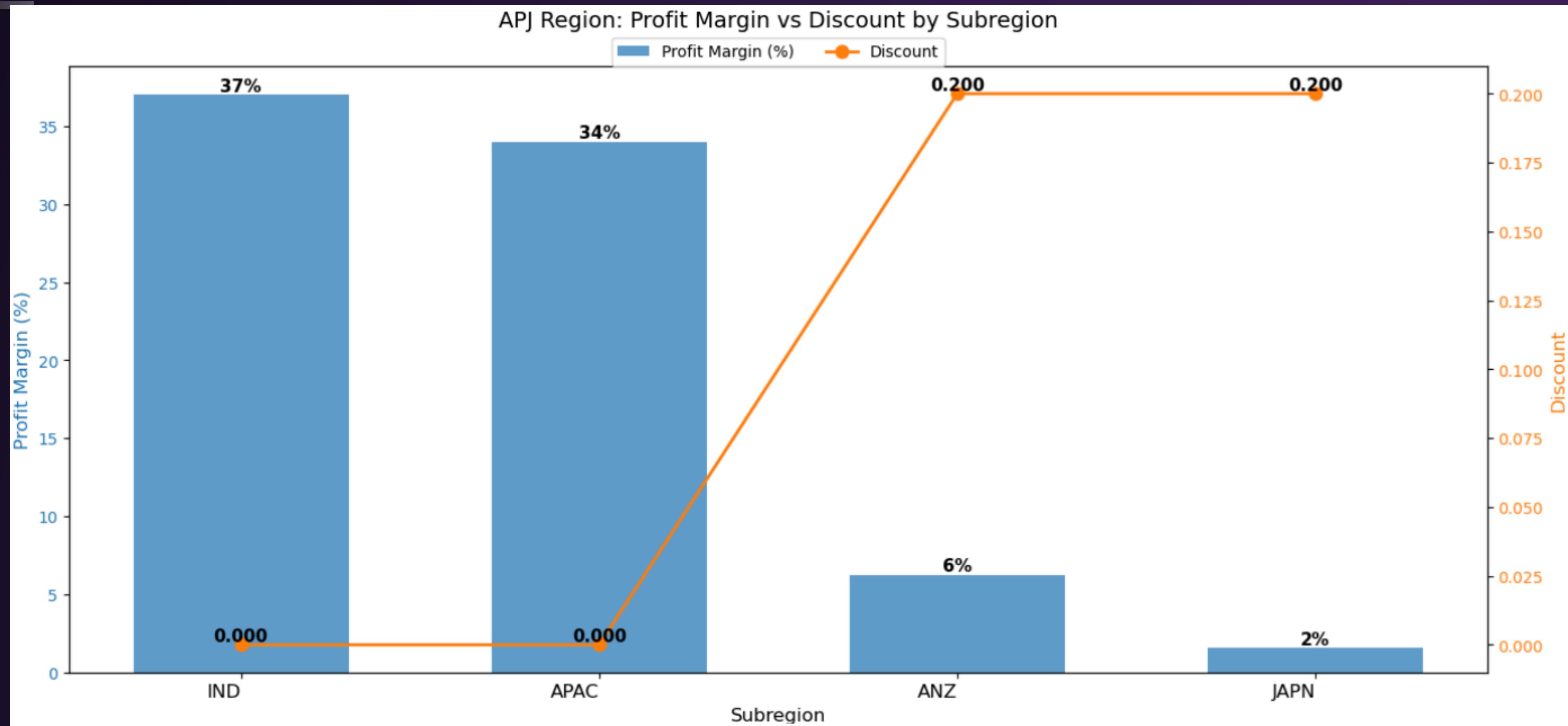
– Problem Statement 1: Discount Reduces Profit Margin in JAPN and ANZ Subregion

Kruskal-Wallis Test → Discount and Profit Margin across Subregion

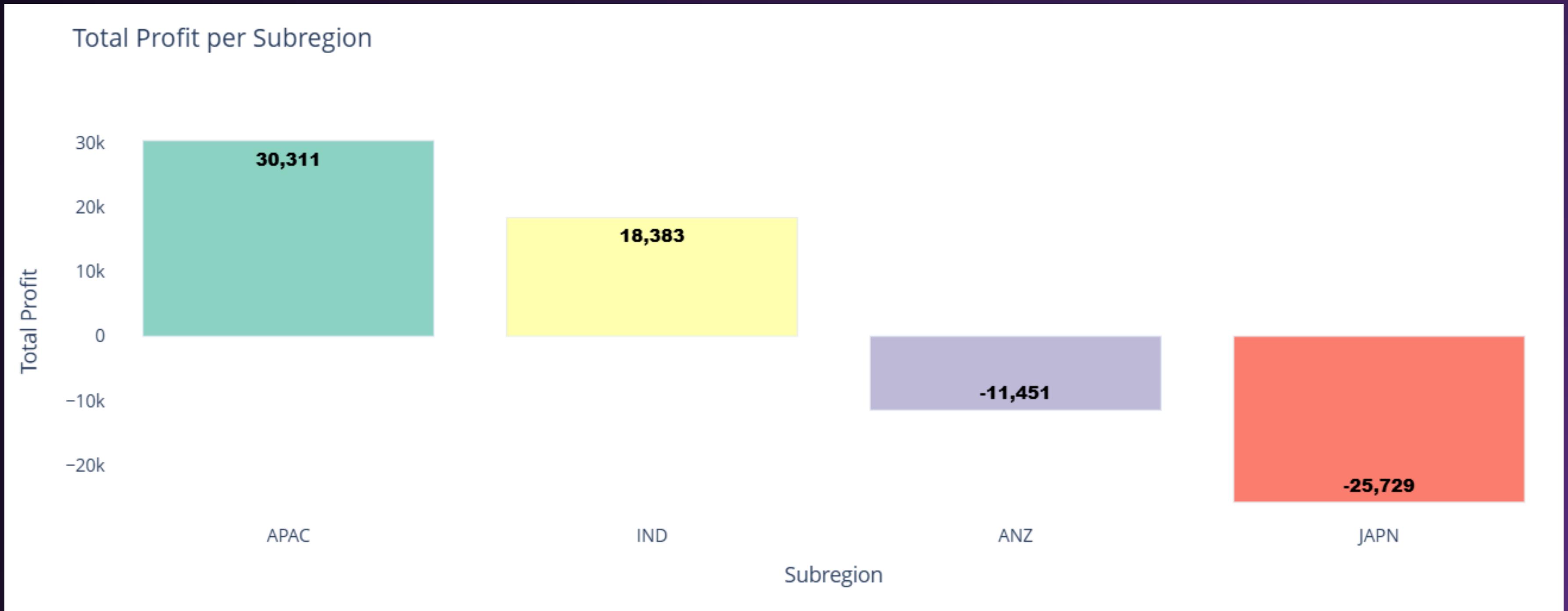
- - H_0 : No significant difference in discount or profit margin across subregions – medians are equal.
- - H_1 : Significant difference in discount or profit margin across subregions – medians differ.
- - Reject H_0 if $p < 0.05 \rightarrow$ Medians differ significantly across subregions.

Variable	P-Value	Interpretation
Discount	1.42-277	Medians differ significantly across subregions.
Profit Margin	5.2-110	Medians differ significantly across subregions.

– Problem Statement 1: Discount Reduces Profit Margin in JAPN and ANZ Subregion

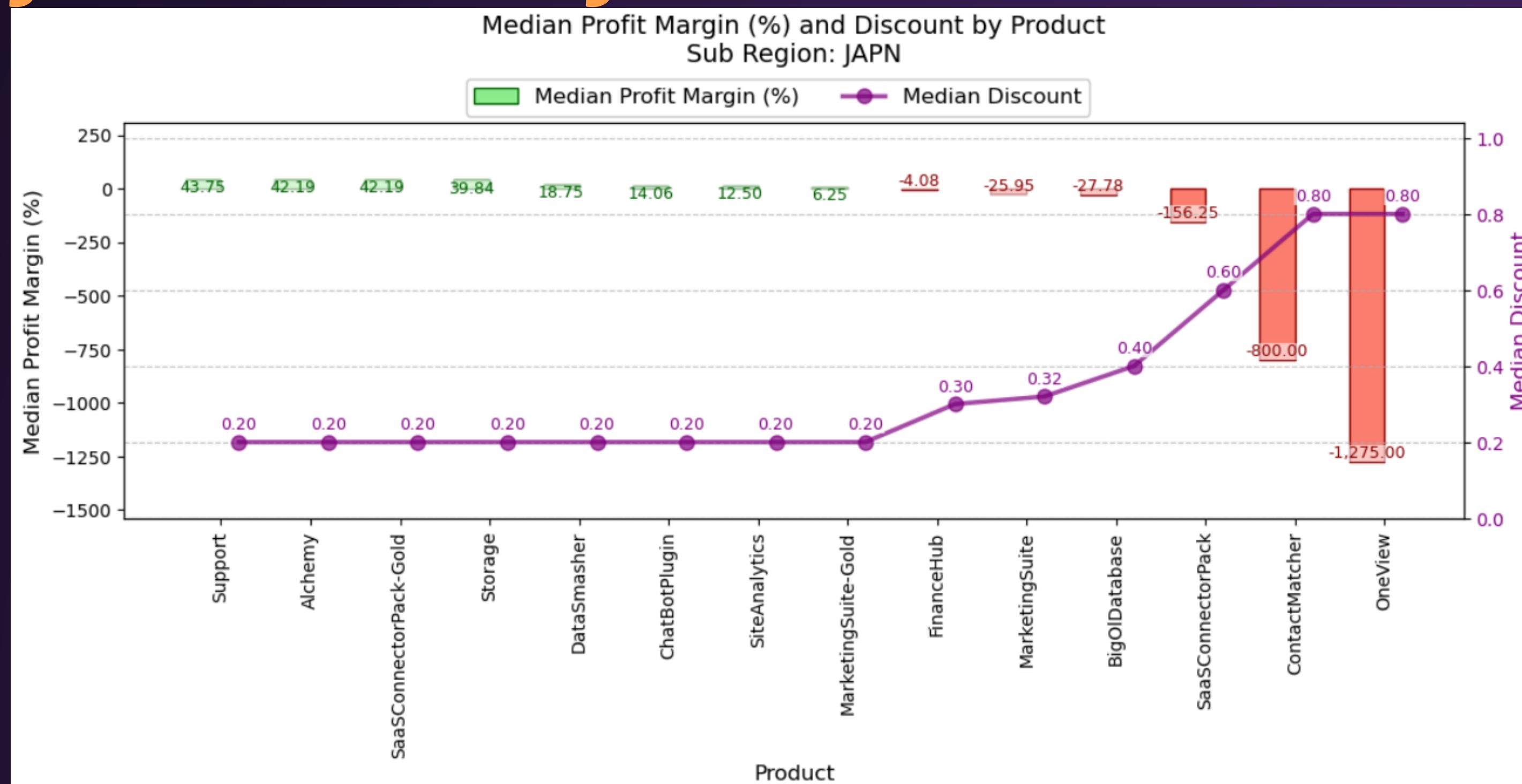


– Problem Statement 1: Discount Reduces Profit Margin in JAPN and ANZ Subregion



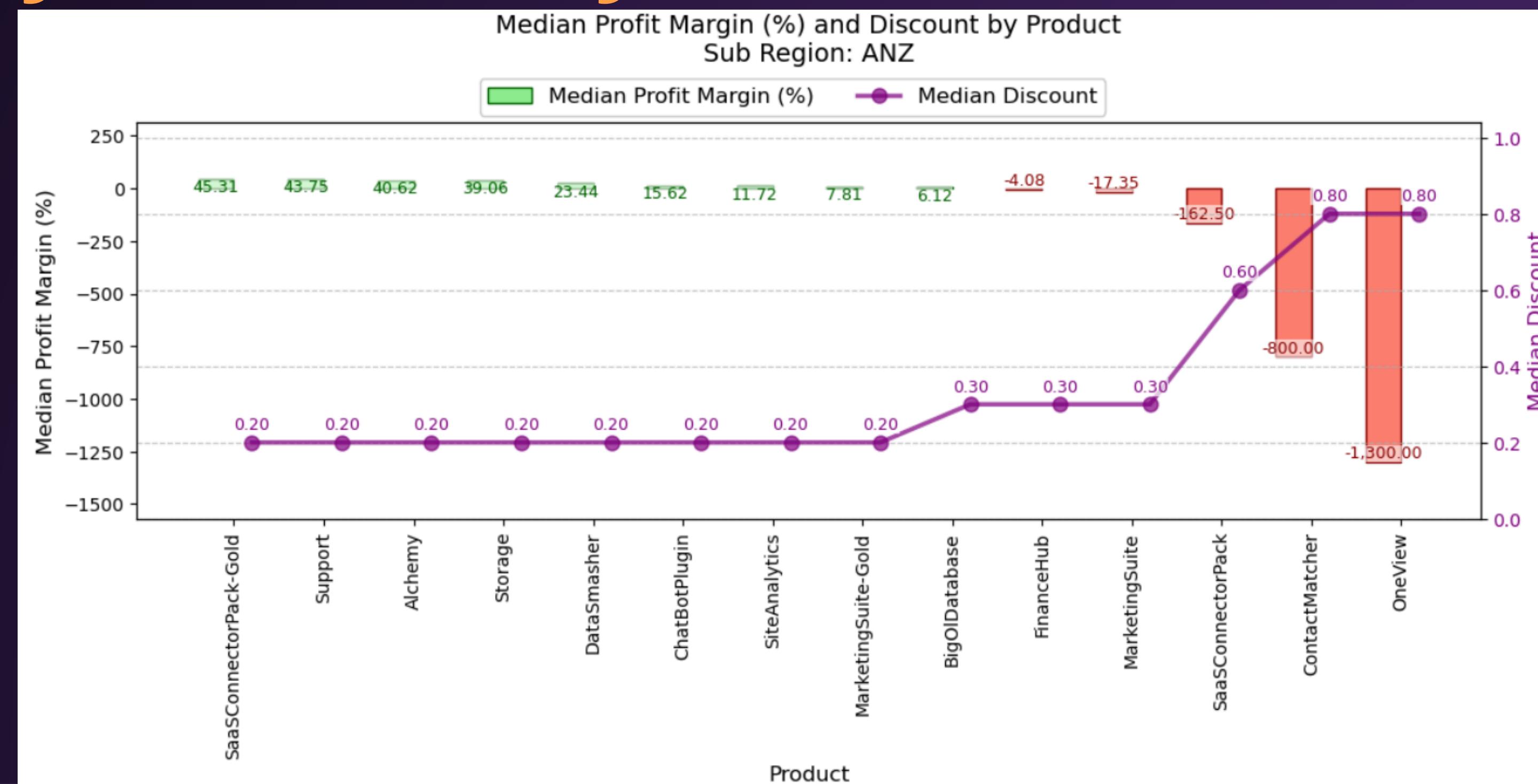
– Problem Statement 2: Subregion Profit Margin - Low Discount vs High Discount

High Discount Subregion: JAPN



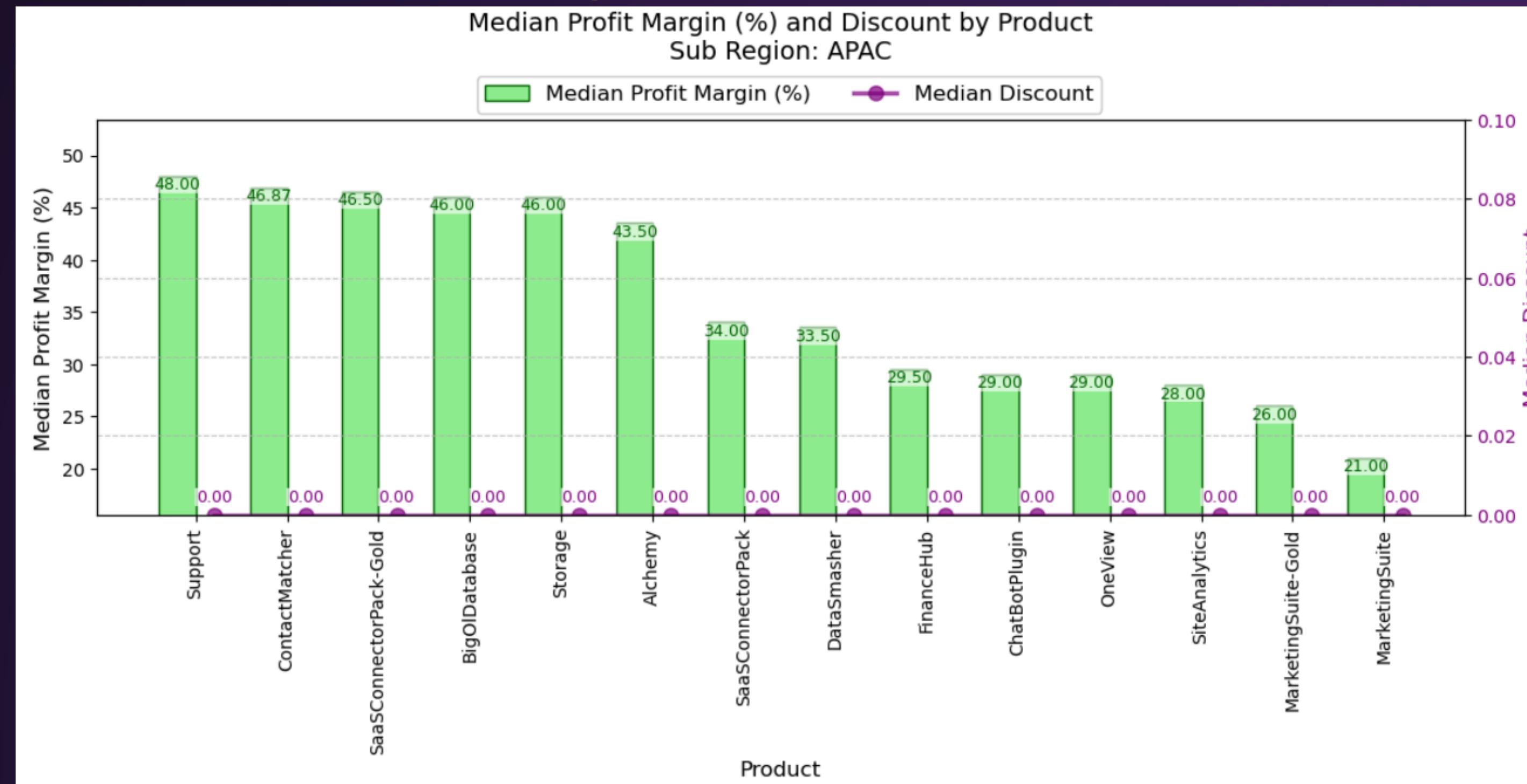
– Problem Statement 2: Subregion Profit Margin - Low Discount vs High Discount

High Discount Subregion: ANZ



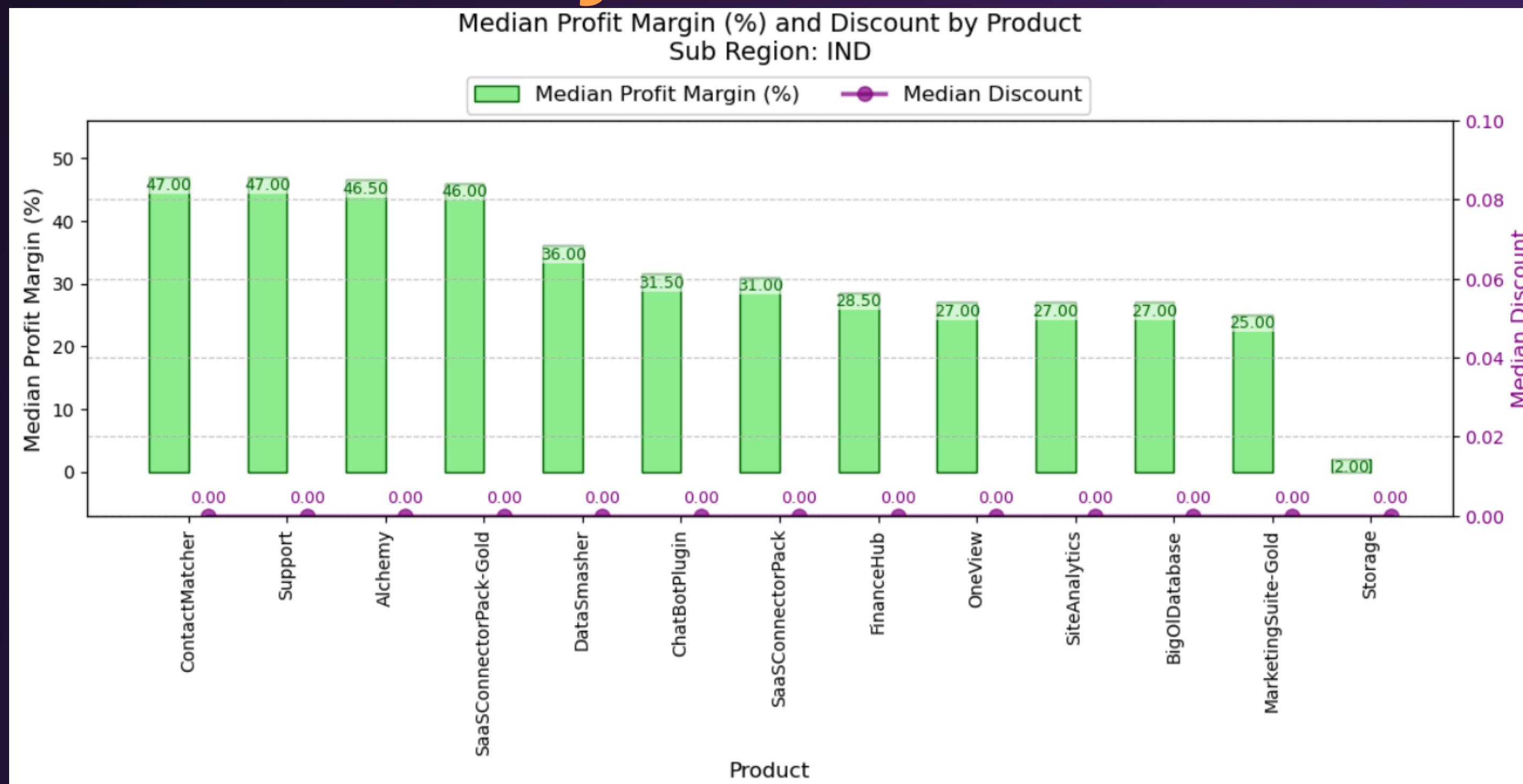
– Problem Statement 2: Subregion Profit Margin - Low Discount vs High Discount

Low Discount Subregion: APAC



– Problem Statement 2: Subregion Profit Margin - Low Discount vs High Discount

Low Discount Subregion: IND



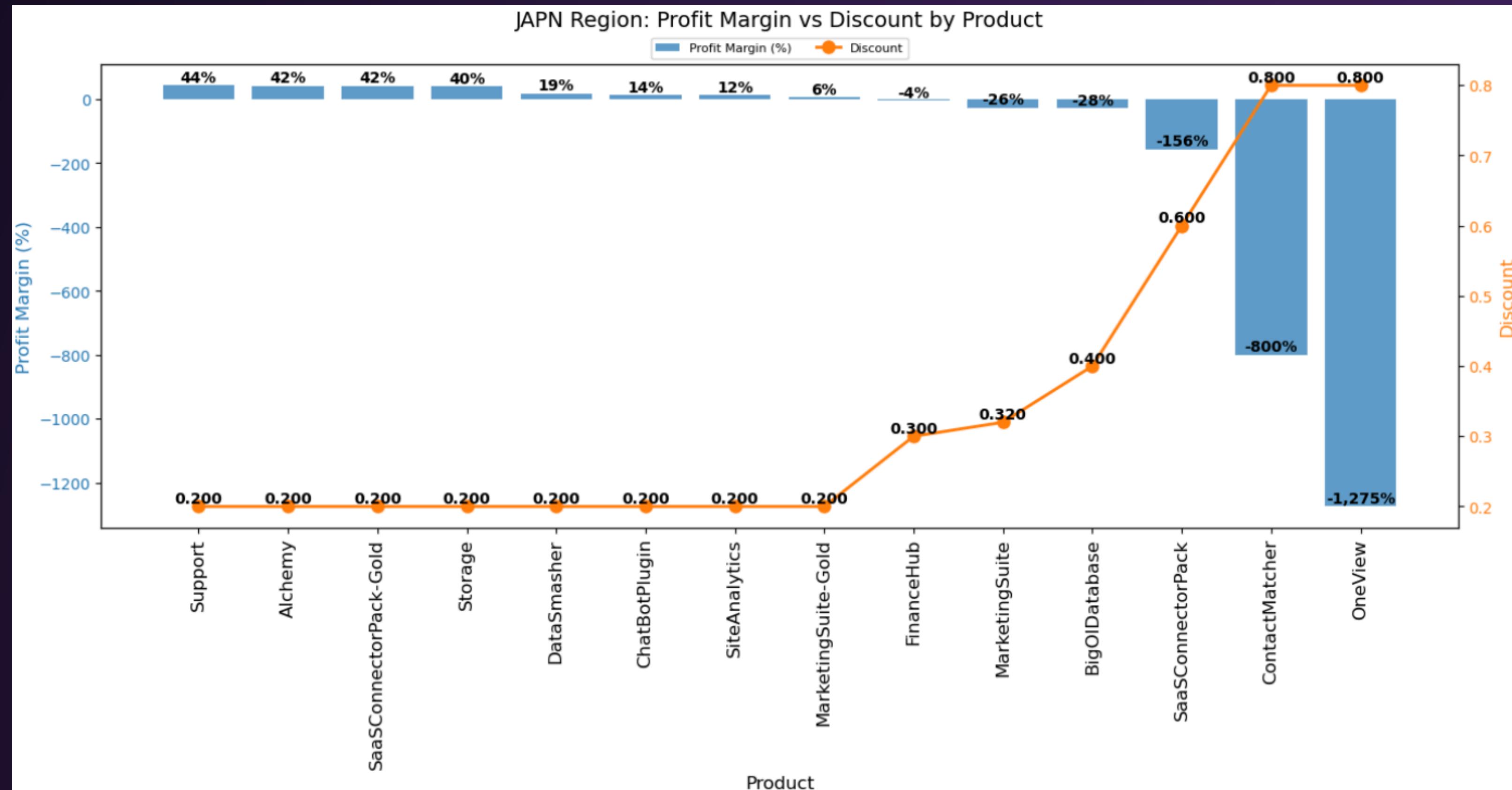
– Problem Statement 3: Products with High Discount - Low Profit

Kruskal-Wallis Test → Discount and Profit Margin across Product

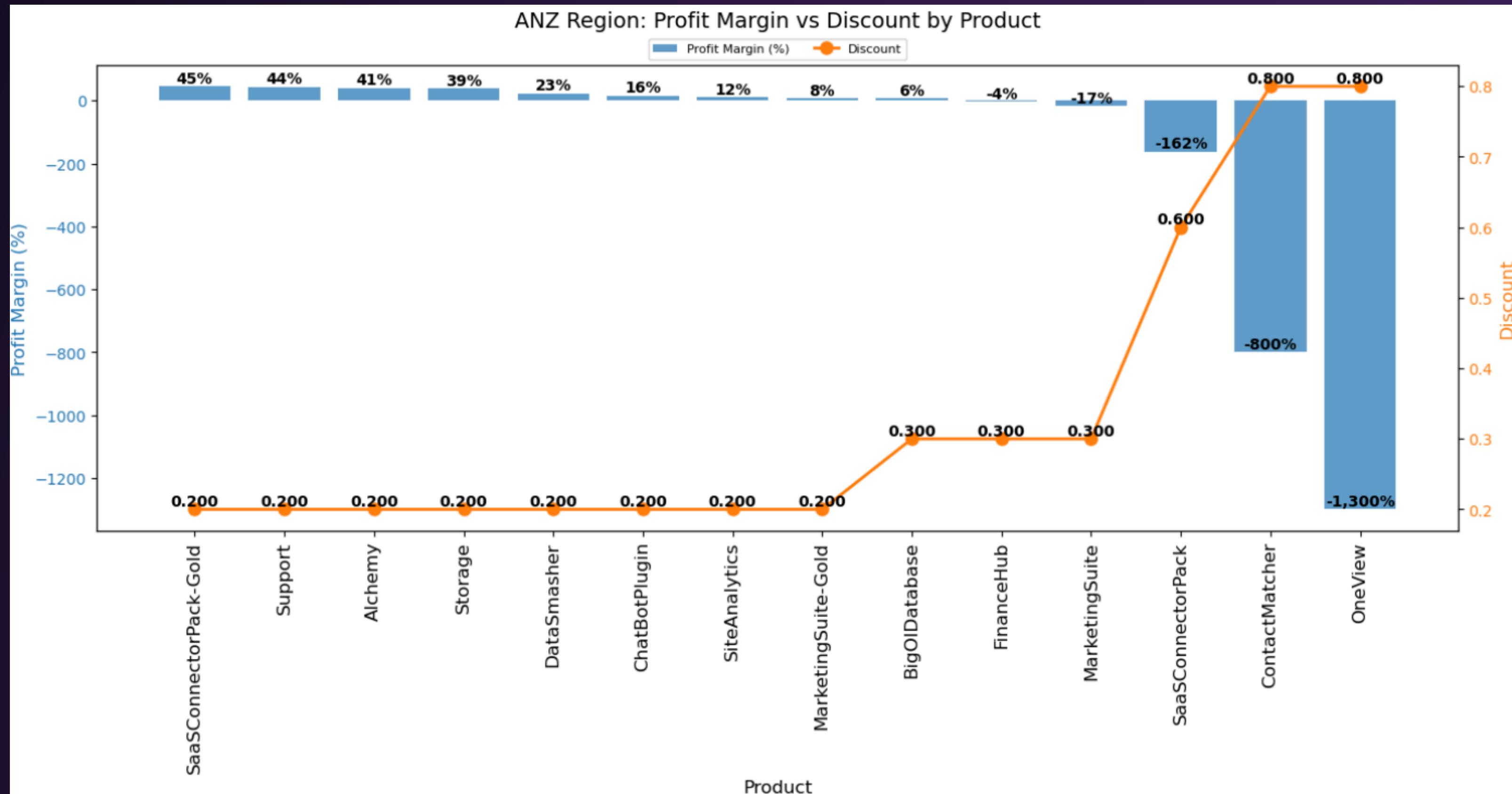
- - H_0 : No significant difference in discount or profit margin across products – medians are equal.
- - H_1 : Significant difference in discount or profit margin across products – medians differ.
- - Reject H_0 if $p < 0.05 \rightarrow$ Medians differ significantly across products.

JAPN			ANZ		
Variable	P-Value	Interpretation	Variable	P-Value	Interpretation
Discount	3.56e-188	Median differs significantly	Discount	4.14e-86	Median differs significantly
Profit Margin	1.13e-158	Median differs significantly	Profit Margin	1.39e-78	Median differs significantly

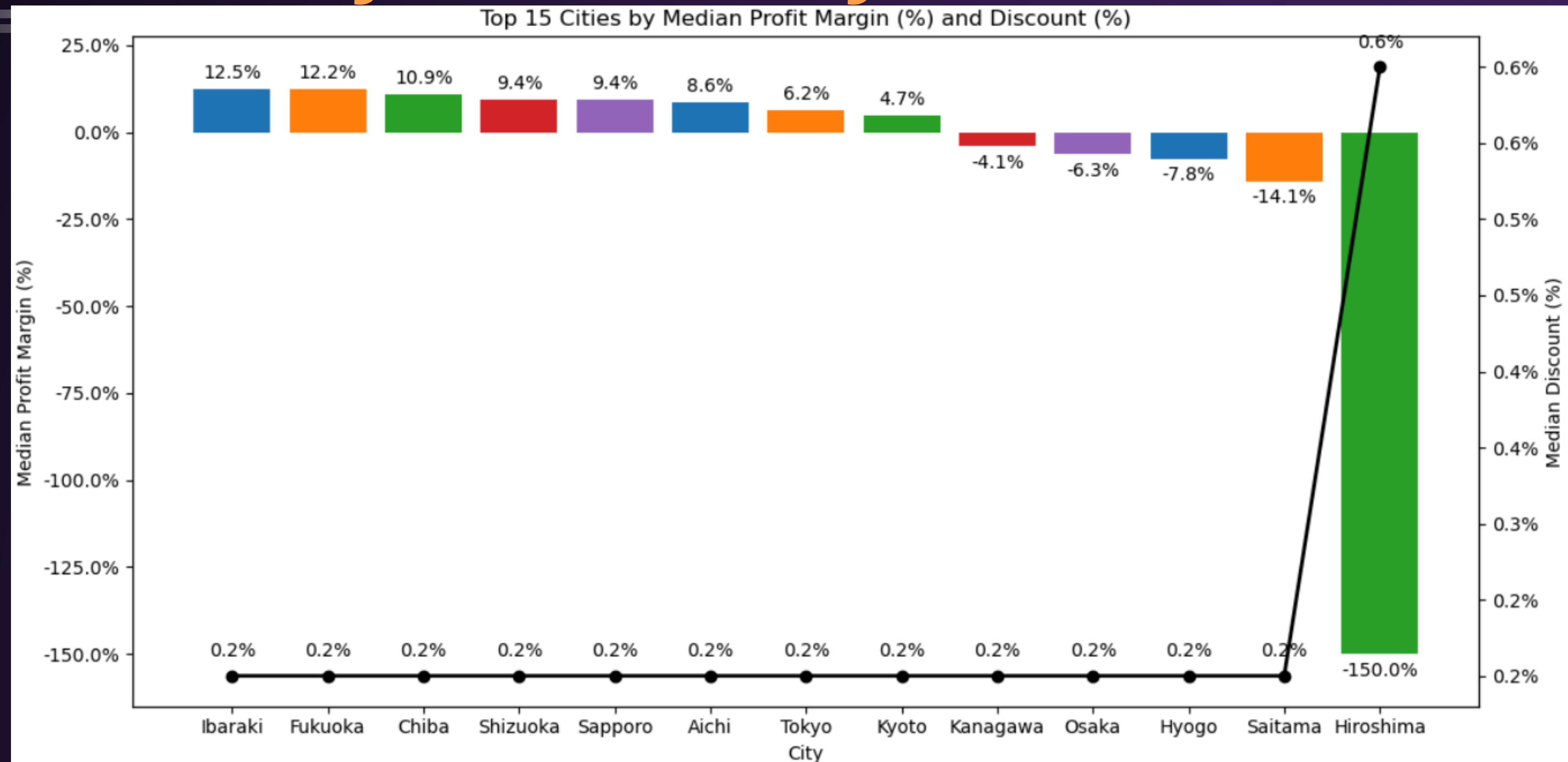
– Problem Statement 3: Products with High Discount - Low Profit: JAPN



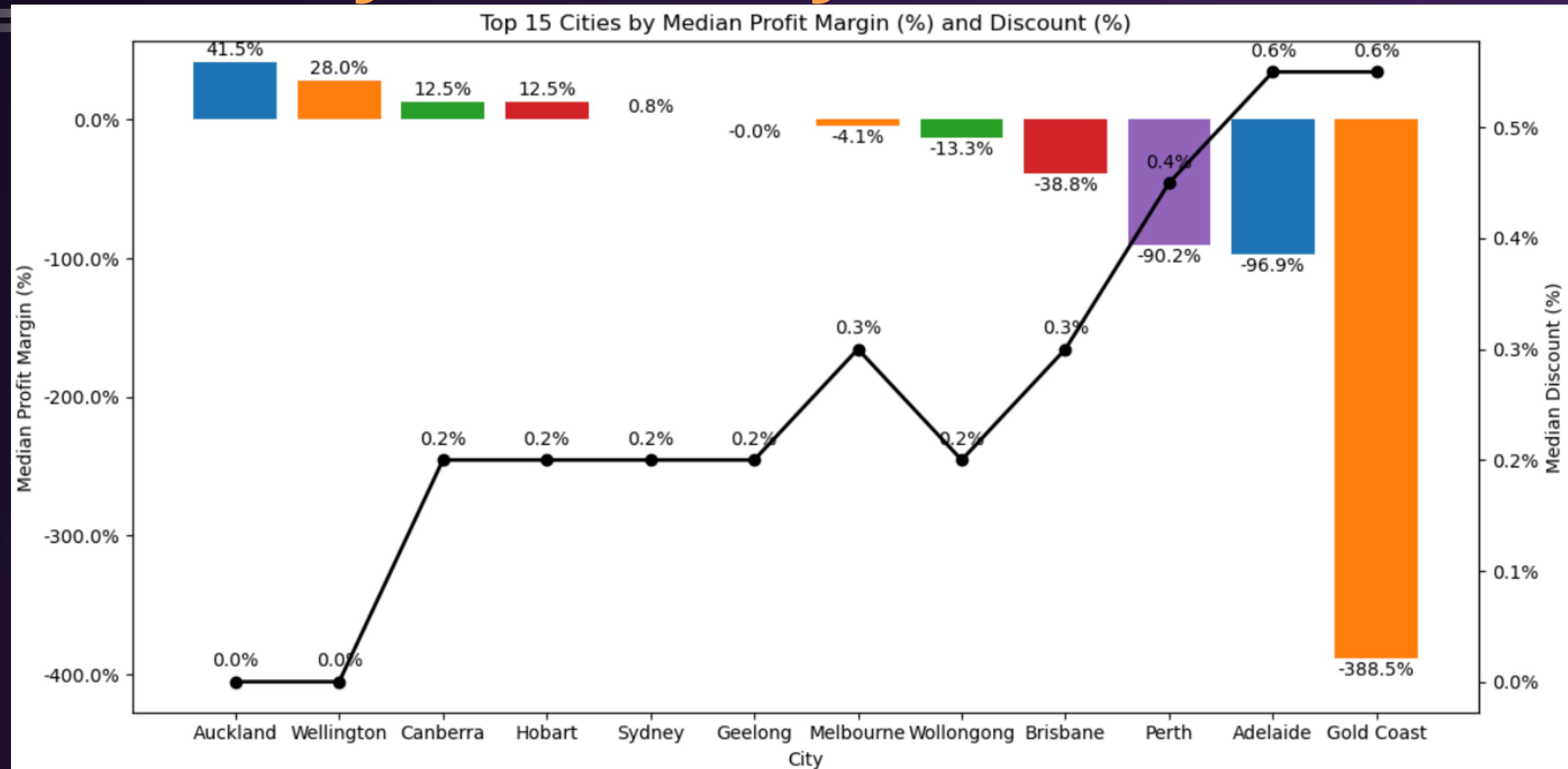
– Problem Statement 3: Products with High Discount - Low Profit: ANZ



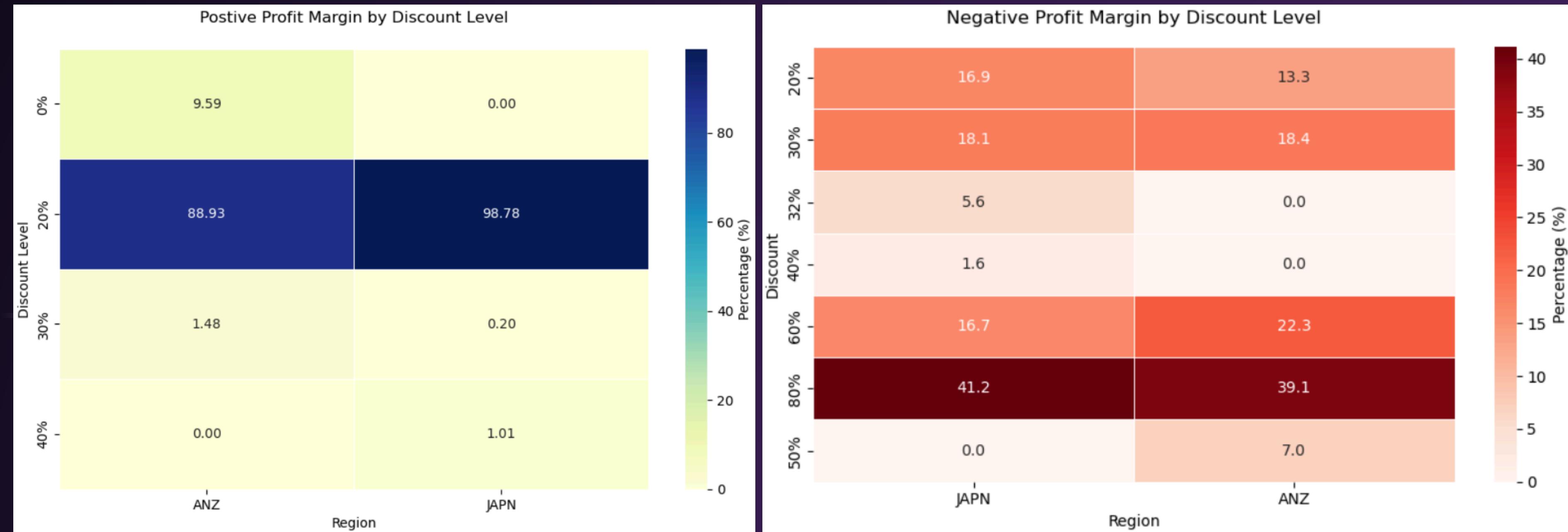
— Problem Statement 4: Cities with High Discount - Low Profit Margin → JAPN Subregion



— Problem Statement 4: Cities with High Discount - Low Profit Margin → ANZ Subregion

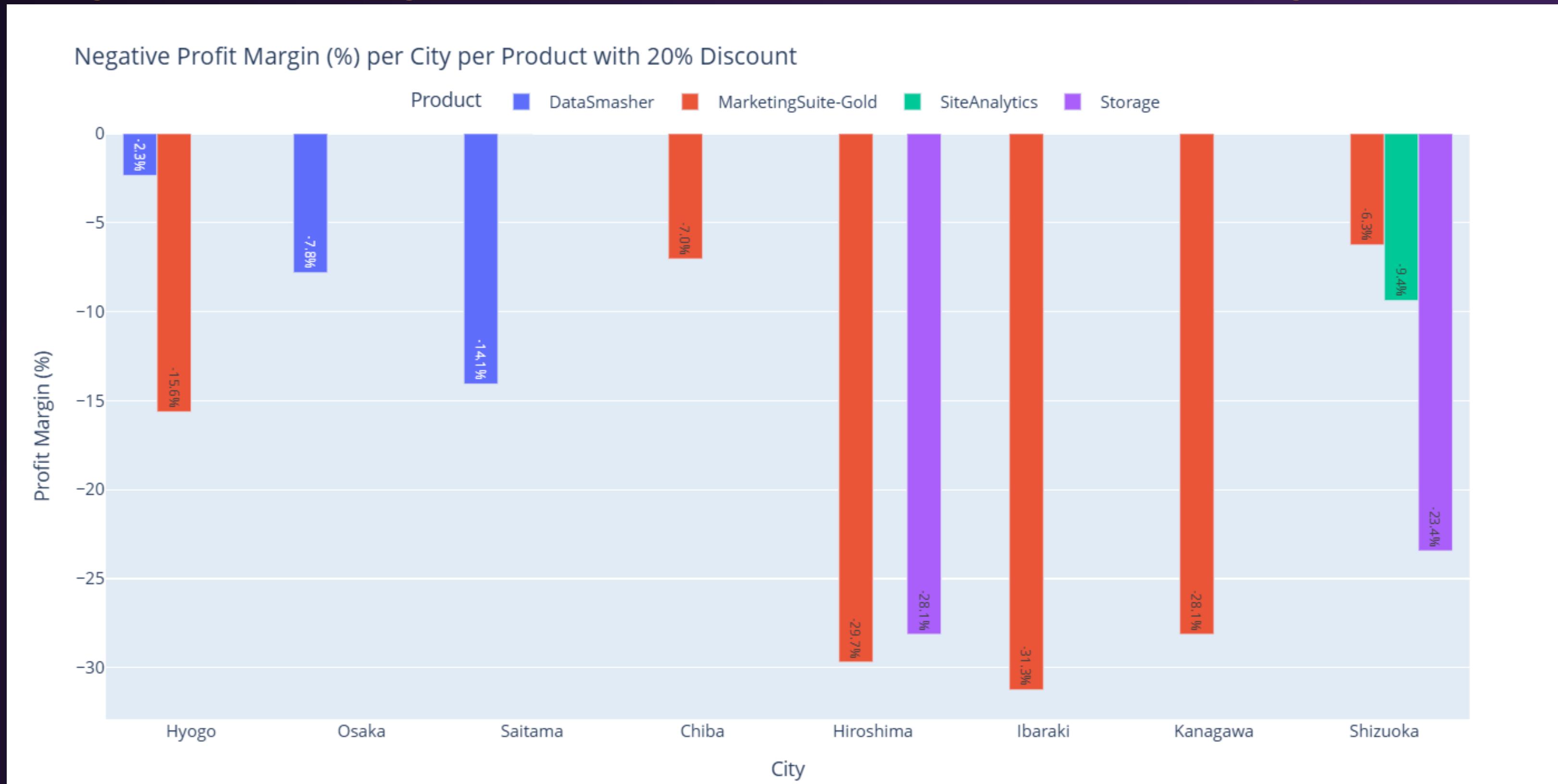


— Problem Statement 5: Optimum Discount Strategy



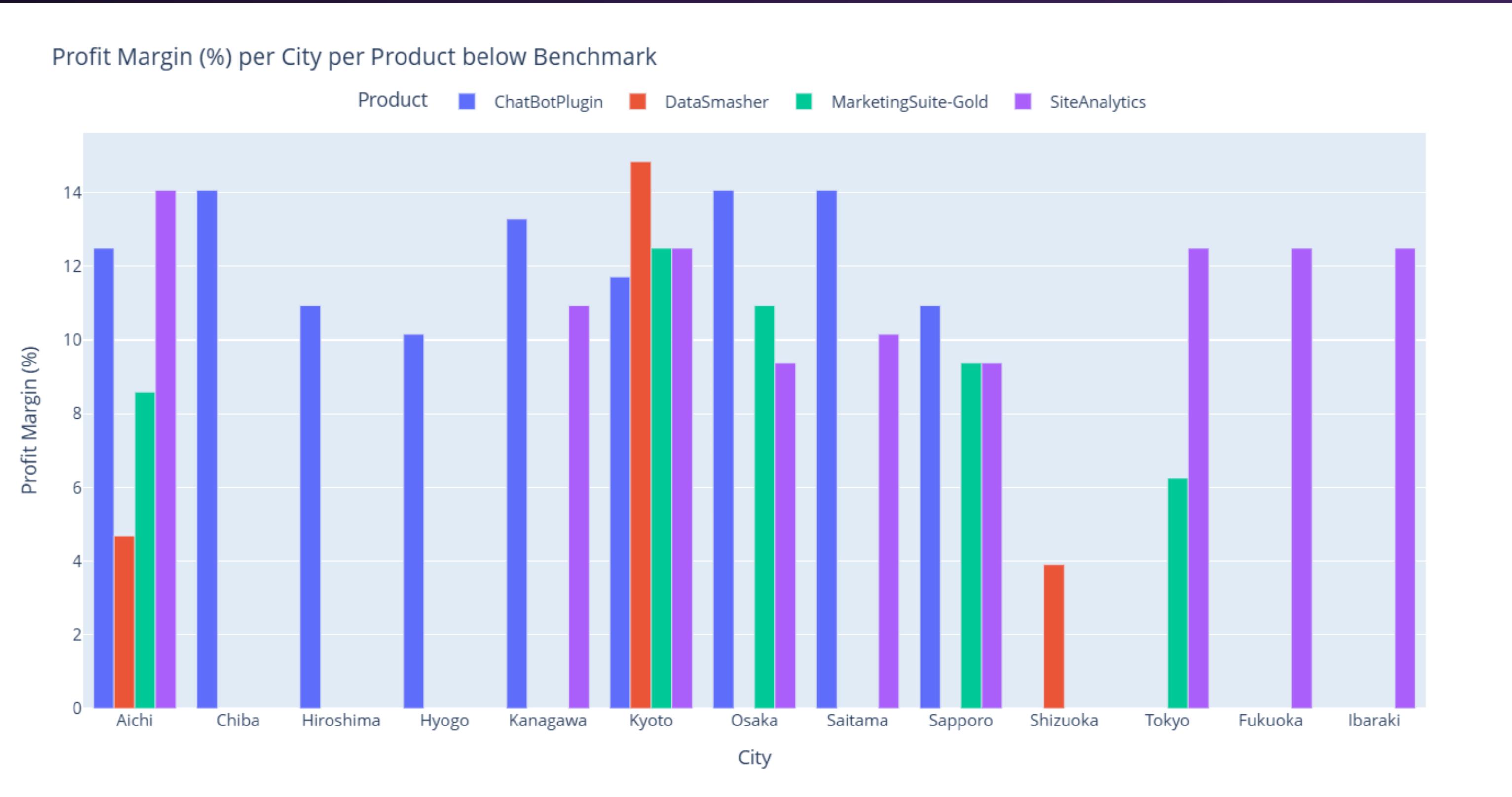
— Problem Statement 5: Optimum Discount Strategy

Negative Profit Margins for Products at 20% Discount: JAPN Subregion



— Problem Statement 5: Optimum Discount Strategy

Profit Margins below Benchmark (15%) for Products at 20% Discount: JAPN Subregion



— Problem Statement 5: Optimum Discount Strategy

Positive Profit Margins for Products at above 20% Discount: JAPN Subregion



— Problem Statement 5: Optimum Discount Strategy

Negative Profit Margins for Products at 20% Discount: ANZ Subregion



— Problem Statement 5: Optimum Discount Strategy

Profit Margins below Benchmark (15%) for Products at 20% Discount: ANZ Subregion



— Problem Statement 5: Optimum Discount Strategy

Positive Profit Margins for Products at above 20% Discount: ANZ Subregion



– Problem Statement 5: Optimum Discount Strategy



Biggest contribution to negative profit margin and the reason why JAPN and ANZ suffer losses

Negative profit margin is lower than -800%

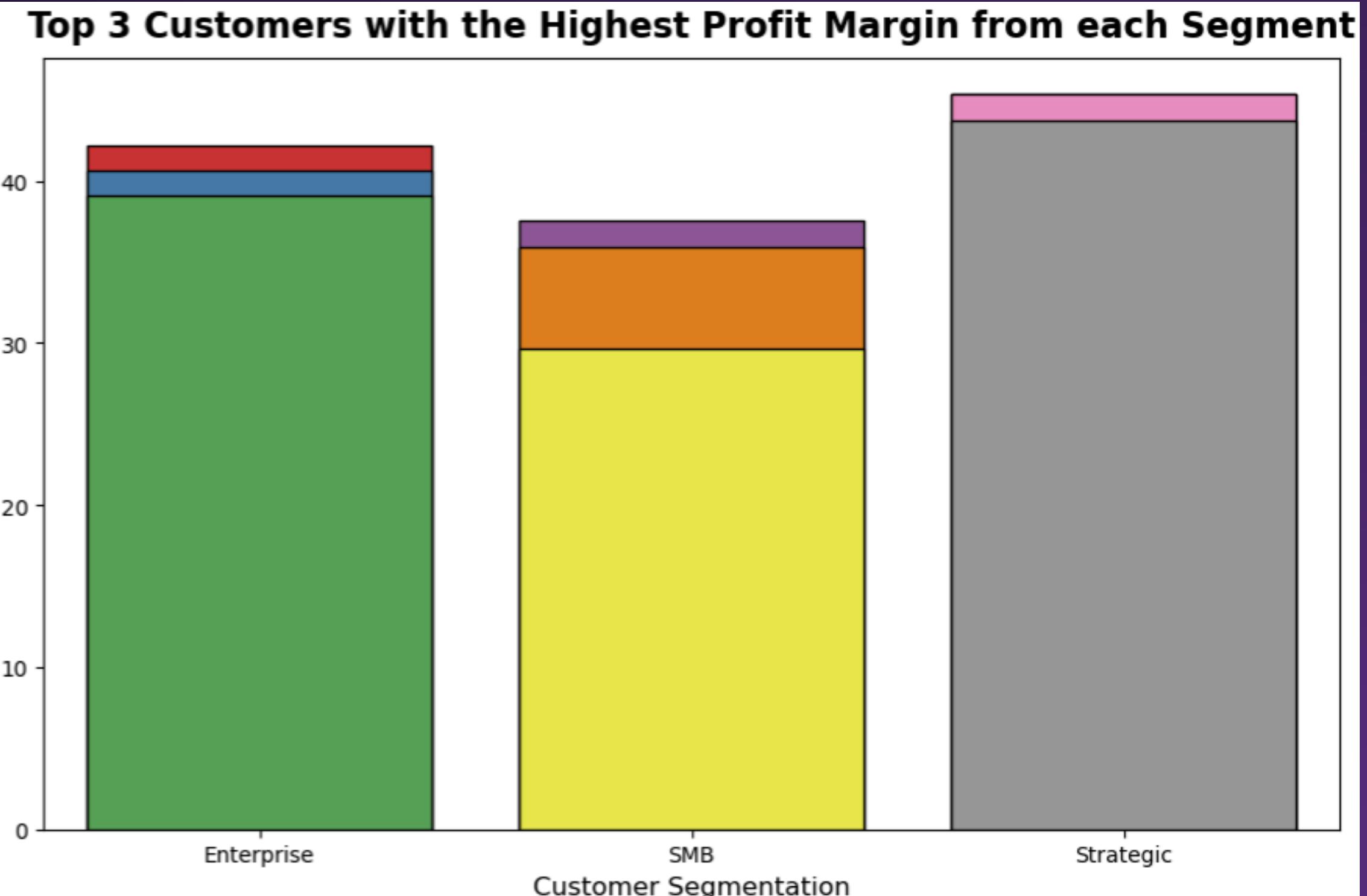
Third biggest contribution to positive profit margin. There are still negative profit margins

Contributes the most to positive profit margin but there are still negative profit margins

No negative profit margin. Profit margins are above benchmark → 15%

- Extrapolatory Data Analysis

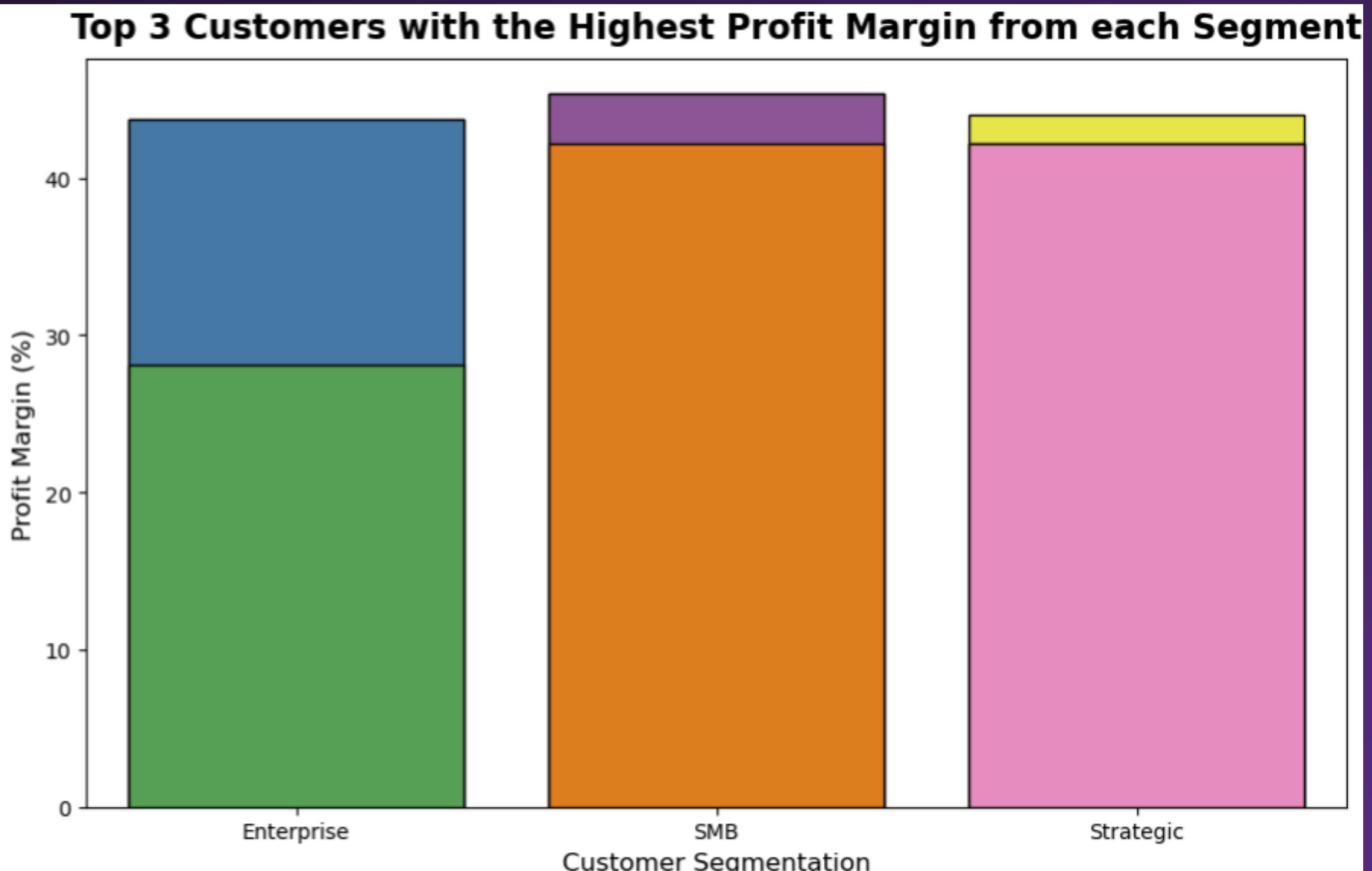
Top 3 Customers: JAPN



- Extrapolatory Data Analysis

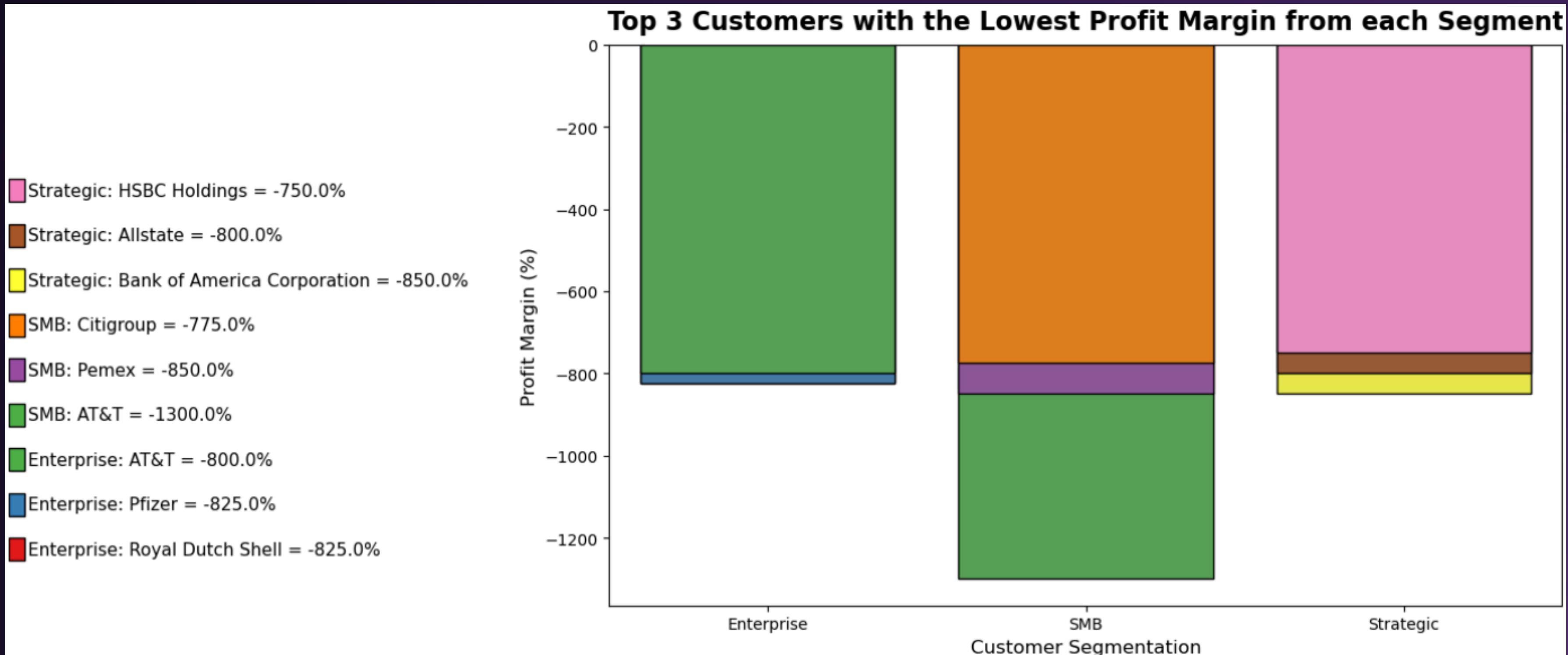
Top 3 Customers: ANZ

- Strategic: United Parcel Service = 42.2%
- Strategic: Phillips 66 = 42.2%
- Strategic: Fannie Mae = 44.0%
- SMB: Bank of America Corporation = 42.2%
- SMB: Hon Hai Precision Industry Co., Ltd. = 45.3%
- SMB: Allstate = 45.3%
- Enterprise: Prudential Financial = 28.1%
- Enterprise: Kroger = 43.8%
- Enterprise: Hon Hai Precision Industry Co., Ltd. = 43.8%



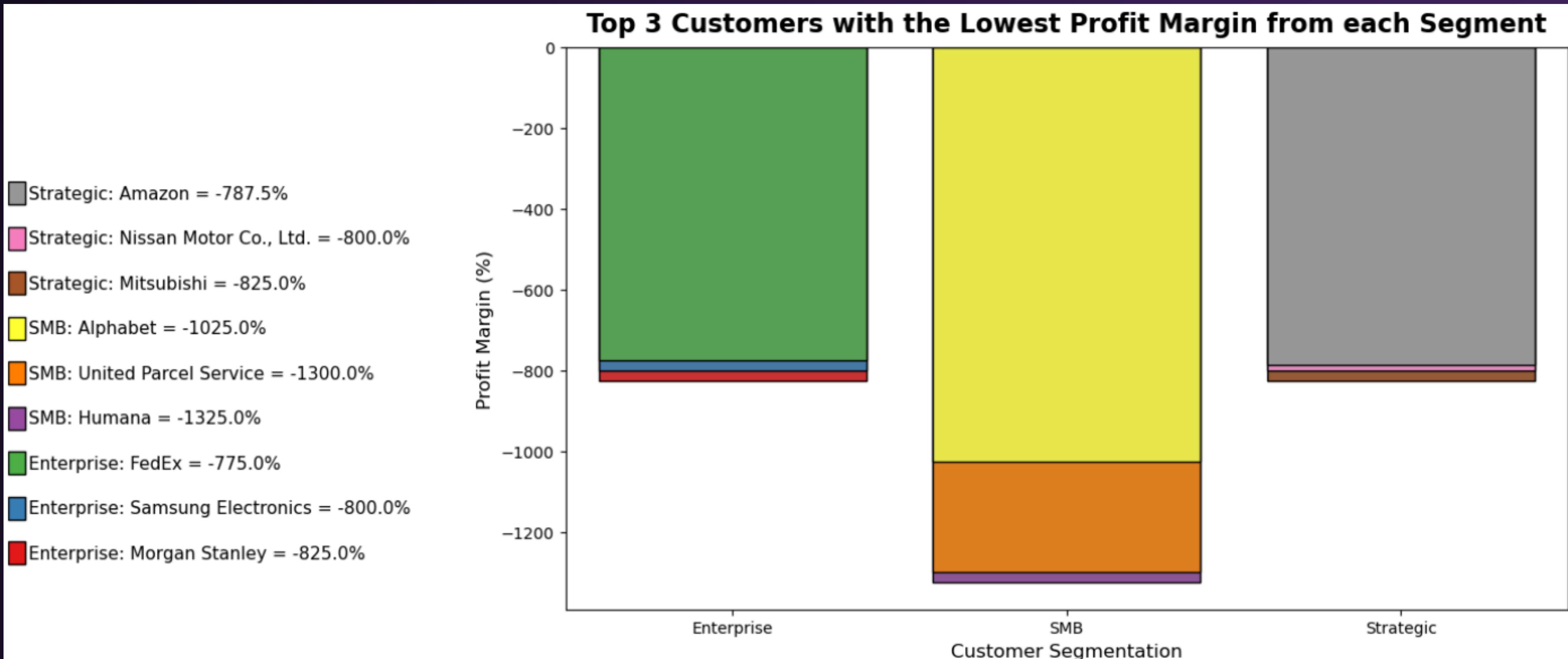
- Extrapolatory Data Analysis

Bottom 3 Customers: JAPN



- Extrapolatory Data Analysis

Bottom 3 Customers: ANZ



CONCLUSIONS



– Conclusions

1. 20% median discounts in JAPN/ANZ yield lower median profit margins than 0% in APAC/IND
– discounts reduce profitability.
2. ContactMatcher, OneView, and SaaSConnectorPack (60–80%) drive the biggest losses.
3. At 20%, all cities fall below the 15% benchmark, except Auckland and Wellington (0%).
4. 0% is optimal; 20% contributes to most to positive profit margins, >40% leads to losses – at above 20% only BigOIDatabase stays profitable in Aichi, Sydney, and Perth.
5. Losses at 20% span multiple cities and products – notably MarketingSuite-Gold, SiteAnalytics, and ChatBotPlugin.
6. Top customers:
 - JAPN: BMW (Enterprise), ExxonMobil (SMB), Phillips 66 (Strategic)
 - ANZ: Hon Hai (Enterprise), Allstate (SMB), Fannie Mae (Strategic)
7. Bottom customers:
 - JAPN: Royal Dutch Shell (Enterprise), AT&T (SMB), Bank of America (Strategic)
 - ANZ: Morgan Stanley (Enterprise), Humana (SMB), Mitsubishi (Strategic)

RECOMMENDATIONS

– Recommendations

1. Discount & Profit Control

- Cap discounts at 0-20% to protect margins.
- Avoid discounts >20% if profit margin is <15% (especially in JAPN & ANZ).
- Eliminate deep discounts (60-80%) on ContactMatcher & OneView.
- Enforce a minimum 15% profit margin rule.

2. High-Margin Focus

- Push Support & Alchemy in JAPN & ANZ (strong margins).
- Prioritize high-margin segments (e.g., BMW in JAPN, Hon Hai in ANZ).
- Expand BigOIDatabase in Aichi (40% discount)—exceptional profitability.

3. Regional Adjustments

- Tightly monitor JAPN & ANZ (weakest margins).
- Revisit discounts in underperforming areas (eg., MarketingSuite-Gold in Hyogo/Brisbane at 20\$ discount)).



THANK YOU