THE
PROFIT
PARADOX

A Financial Sales Performance Analysis

Dataset: Financial Sample (Microsoft Power BI) · 700 rows · 2013–2014

Tools: Azure Databricks · PySpark · Python · Power BI · DAX

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THE STORY

Three Questions That Drove This Analysis

01

Where is profit actually being made — and where is it being quietly lost?

Most reports show revenue. We went deeper — to find out which segments, countries and products were generating real profit, and which were hiding losses behind strong sales numbers.

02

Is discounting a smart customer acquisition and retention strategy?

Companies offer discounts to attract and keep customers. But does it work? We tested whether discounting actually builds profitable relationships — or simply gives money away.

03

Does offering a discount mean losing money — or can it drive more profit?

The uncomfortable question: when you apply a discount, does it cost you or pay you back? The answer depends entirely on volume — and the data tells a clear story.

THE DATA

About the Dataset

Financial Sample (PowerBI).xlsx — Microsoft sample financial dataset

700	16	5	5	6
Transactions	**Columns**	**Segments**	**Countries**	**Products**
Row-level sales data	*Including COGS, Discounts, Profit*	*Government, Small Business, Enterprise, Midmarket, Channel Partners*	*USA, Canada, France, Germany, Mexico*	*Paseo, VTT, Velo, Amarilla, Montana, Carretera*

KEY DATA COLUMNS

Segment · Country · Product · Discount Band · Units Sold

Manufacturing Price · Sale Price · Gross Sales · Discounts

Sales · COGS · Profit · Date · Month · Year

3 CALCULATED COLUMNS ADDED

profit_margin_pct

(profit ÷ sales) × 100

What % of each sale is kept as profit

discount_impact

gross_sales − sales

£ revenue sacrificed through discounting

cost_ratio_pct

(cogs ÷ sales) × 100

What % of revenue goes to production costs

METHODOLOGY

From Raw Data to Insight

Bronze → Silver → Gold · Azure Databricks · PySpark · Python · Power BI

RAW	BRONZE	SILVER	GOLD	REPORT
Excel File	**Bronze Layer**	**Silver Layer**	**Gold Layer (×5)**	**Outputs**
· 700 rows, 16 columns	· Loaded via pandas	· 16 columns renamed	· By segment	· 5 Python charts
· Uploaded to Databricks volume	· (PySpark cannot read Excel)	· Date type fixed	· By country	· (Matplotlib/Seaborn)
· raw_files storage layer	· Raw data preserved exactly	· 3 calculated columns added	· By product	· 5-page Power BI dashboard
	· Zero transformations applied	· Saved as Delta table	· Discount analysis	· 7 DAX measures
			· Monthly trend	

EXECUTIVE SUMMARY

The Numbers at a Glance

$119M
Total Sales
Net revenue after discounts

$17M
Total Profit
27.9% average margin

$128M
Gross Sales
Before discounts applied

$9M
Total Discounts
Given to customers

1.13M
Units Sold
Across all segments

$102M
Total COGS
Cost of goods sold

27.9%
Avg Profit Margin
Across all transactions

($614,545)
Enterprise Profit
ONLY loss-making segment

29.9%
Carretera Margin
Most efficient product — undersold

FINDING 01

Enterprise is Losing Money

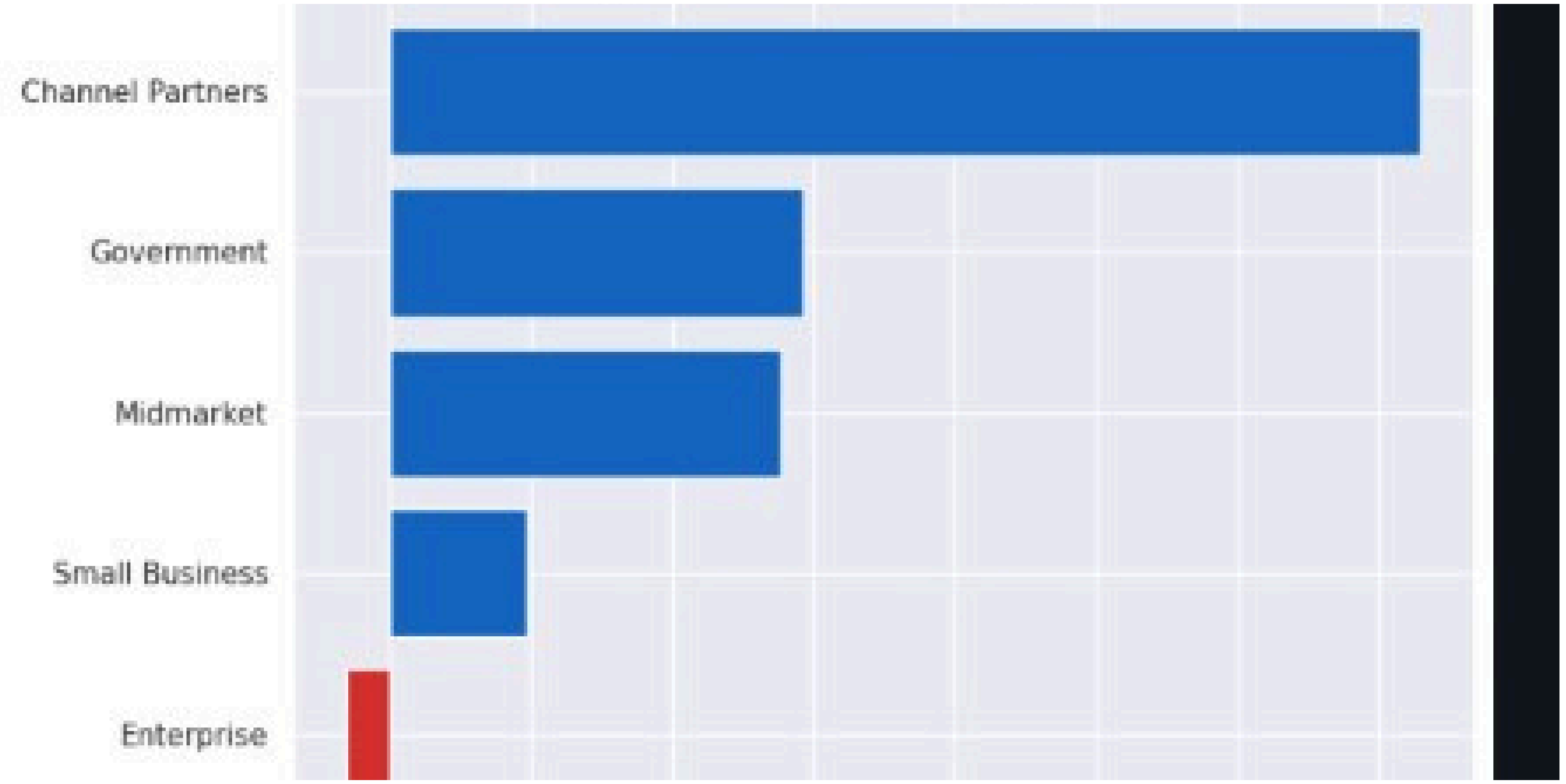
Every Enterprise sale costs more than it brings in

($614,545)

Enterprise Profit

ONLY loss-making segment

$11.4M	Government profit — the leader
$4.1M	Small Business profit
$1.5M	Channel Partners profit
~$0	Midmarket — minimal but positive



Highest Revenue ≠ Highest Profit

USA leads sales. France leads profit. They are not the same thing.

USA

#1 Revenue

Highest gross sales

#4 Profit

VS

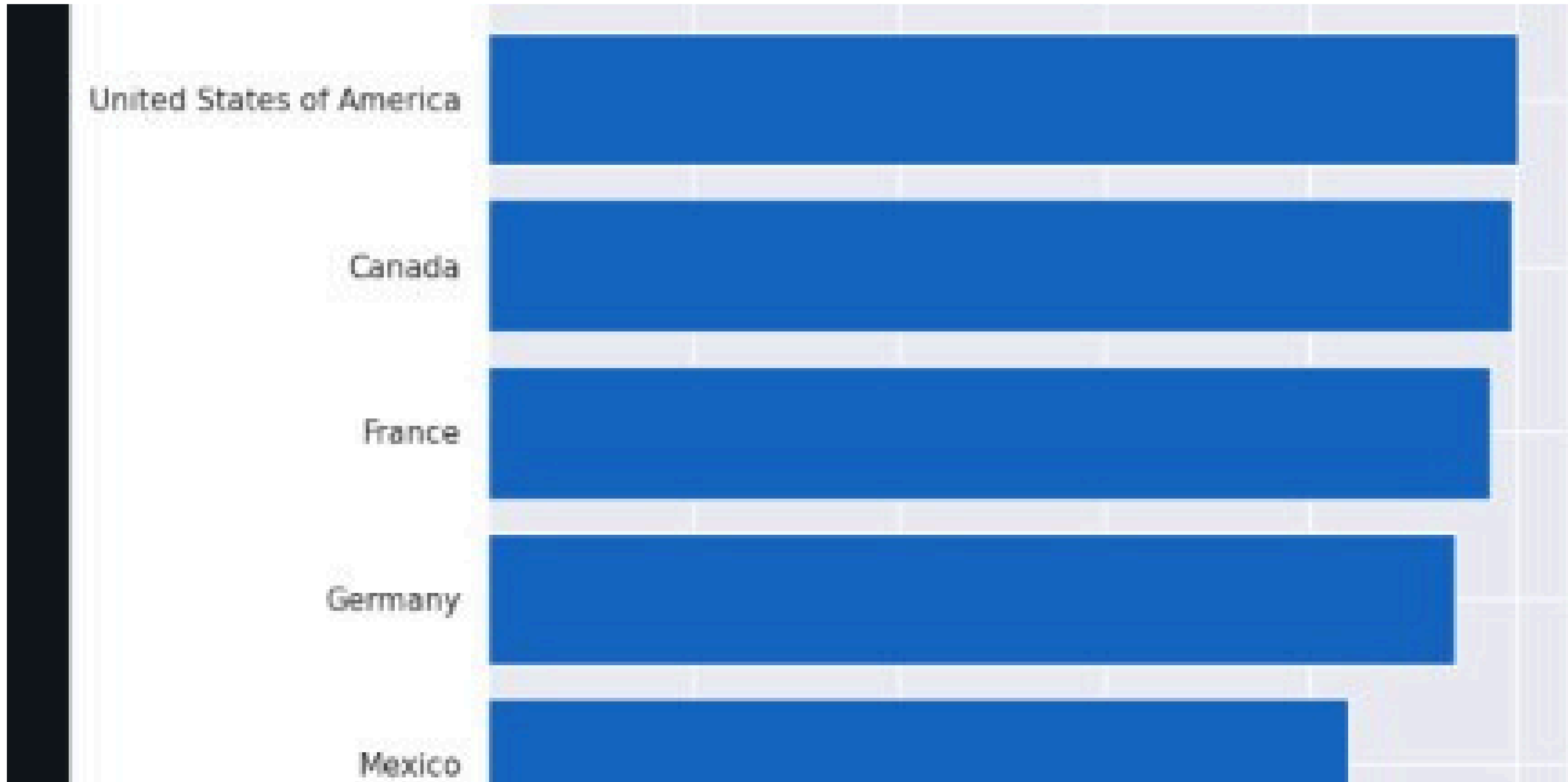
FRANCE

#3 Revenue

Not the biggest seller

#1 Profit

Why? France sold more units at similar discount levels — volume efficiency, not just revenue size, drives profitability.



FINDING 03

Carretera: The Hidden Star

Most efficient product in the portfolio — but the least sold

Product	Role	Total Profit	Margin %	Cost Ratio
Paseo	*Volume Driver*	$4.8M	28.6%	71%
Carretera	Efficiency Star ★	**$1.8M**	**29.9%**	**70%**
VTT	*High Cost / High Volume*	$3.2M	26.4%	74%
Velo	*High Cost / Mid Volume*	$2.3M	26.5%	74%
Amarilla	*Mid-Range Performer*	$2.8M	29.0%	71%
Montana	*Mid-Range Performer*	$2.1M	27.2%	73%

Recommendation: Carretera costs the least to produce and keeps the most profit per sale. A targeted marketing push could significantly increase total profit without proportionally increasing costs — the highest-leverage opportunity in the product range.

FINDING 04

October is the Profit Peak

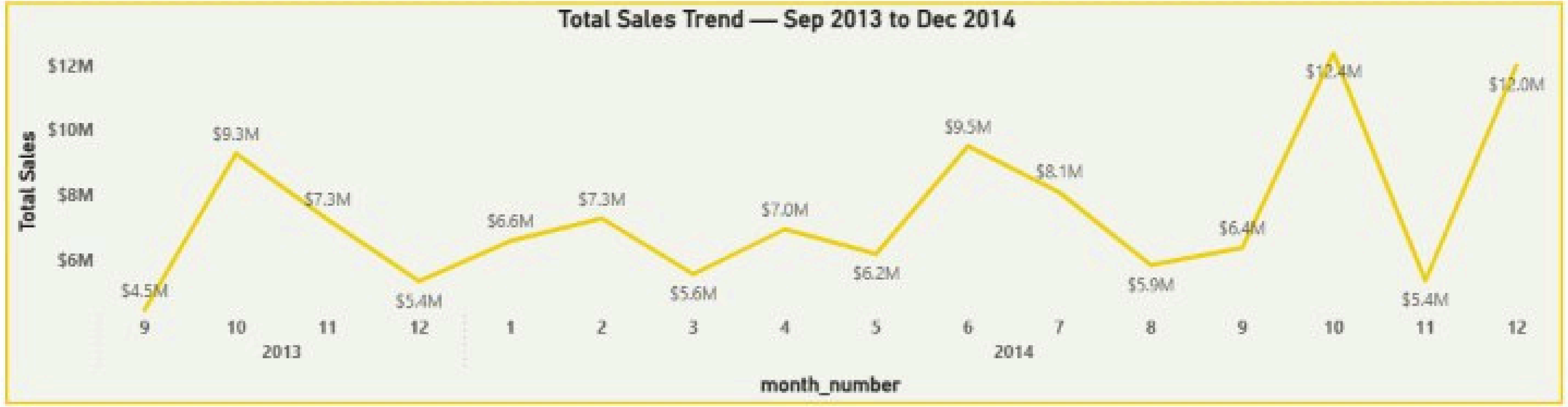
Seasonal patterns reveal when the business performs best

OCTOBER

Highest profit month

across both years combined

What drives the October peak? A combination of higher sales volume and a stronger product mix in that month. Profit does not move in lockstep with sales — the discount level and product mix sold each month creates variation independent of raw revenue.



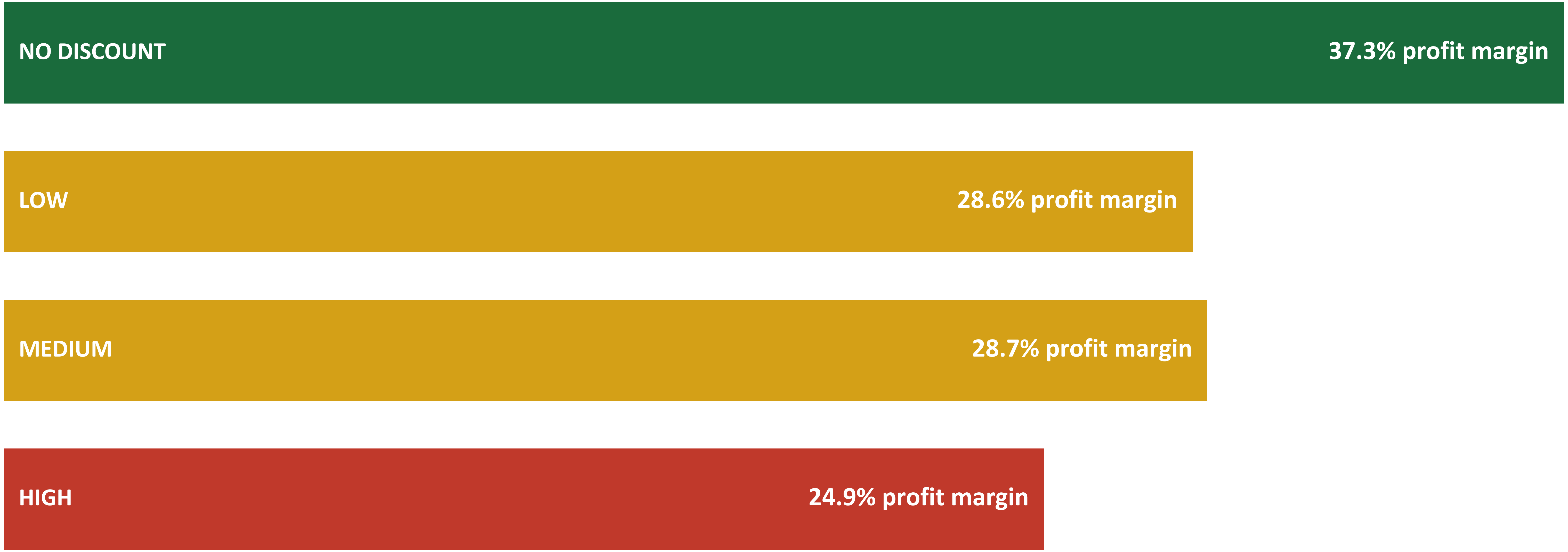
ACT 5

The Discount Deep Dive

Is discounting a smart strategy — or a margin killer?

What the Data Says About Discounting

Profit margin declines as discount level increases — but it is not that simple



Margin drops 12.4 percentage points from no discount to high discount

When Discounting Works — The Volume Argument

Government proves that volume can absorb the margin sacrifice

GOVERNMENT

$3.9M in discounts given

Most discounted segment

$11.4M PROFIT

Most profitable segment

THE VOLUME RULE

Discounting only makes sense when the volume increase covers the margin sacrifice.

Before applying a discount, ask:

Will the extra customers I attract cover the margin I am giving away?

DISCOUNT VERDICT

The Verdict: Discount Strategically, Not Emotionally

✓ **Discount when volume justifies it**

Government proves it works — but only because bulk purchasing absorbs the margin cost. If volume is low, discounting destroys value.

✓ **Make discounting seasonal**

Use discounts as a tactical lever — first quarter promotion, second quarter alternative offer. Not a permanent pricing strategy.

✓ **Low discount is the sweet spot**

Low discount band generated the most total profit at $6.2M. Enough to attract volume without destroying margin.

✗ **Do not discount low-volume products**

For Carretera and other low-volume products, the answer is marketing — not discounting. Discounting a product that already sells too little just makes margins worse.

✗ **High discounts hurt without volume**

High discount = 24.9% margin vs 37.3% without any discount. A 12.4% margin drop that is only justifiable with guaranteed volume return.

RECOMMENDATIONS

What the Business Should Do Next

1

Investigate Enterprise immediately

A loss-making segment cannot be left unaddressed. Understand whether losses are driven by pricing, discounting, high service costs or low volume.

2

Market Carretera aggressively

Highest margin (29.9%), lowest cost ratio (70%). A targeted marketing push converts efficiency into volume — highest-leverage opportunity.

3

Investigate VTT and Velo production costs

Both carry 74% cost ratio. If costs cannot be reduced, strategy must shift to volume growth to compensate. This needs a decision.

4

Make discounting strategic not habitual

Calculate volume return before applying discounts. Seasonal, segment-specific, volume-justified. Low discount is the sweet spot at $6.2M profit.

5

Plan ahead for October

October consistently delivers the highest profit. Push highest-margin products and campaigns ahead of this window to maximise the seasonal uplift.

6

Track France as a profitability model

France leads profit despite not leading revenue. Understanding France's product mix and segment focus could lift other countries.

Revenue tells you what happened.

Profit tells you why it matters.

The data tells you what to do next.

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TOOLS USED

Azure Databricks · PySpark · Python · Matplotlib · Seaborn · Power BI · DAX · Excel · Delta Lake · Medallion Architecture