PRICING STRATEGY

Data-Driven Framework for XYZ Company

Eco-Friendly Tableware | 50 SKUs | Online Marketplace Optimization

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Assignment: Karmic Seed — Round 3
Datasets: Pricing · Competitor · Sales · Inventory · Ads · Returns

1. EXECUTIVE SUMMARY

XYZ Company's catalog of 50 eco-friendly tableware SKUs is currently generating sub-optimal returns. Analysis across six datasets reveals a systemic underpricing problem: **42 out of 50 SKUs (84%) are priced below their minimum acceptable margin floor**, with the portfolio averaging only 12.1% gross margin against a stated minimum of 20% and a target of 35%. This is not a demand problem — conversion rates and sales velocity are healthy — it is a pricing discipline problem.

This report proposes a five-factor pricing framework grounded in cost structure, competitor benchmarking, inventory health, advertising efficiency, and return rate signals. Applying this framework produces recommended prices that lift average portfolio margin from **12.1% to 23.3%**, while remaining competitive against market benchmarks.

50	84%	12.1%	23.3%	41 / 9
Total SKUs Analyzed	SKUs Below Min Margin	Avg Current Margin	Avg Projected Margin	Raise / Hold Actions

Key Findings at a Glance

Chronic Underpricing: Most SKUs were priced at or near cost, leaving margins dangerously thin. MN-05, MN-09, MN-18, MN-23, and MN-30 are operating at negative gross margins.

Advertising Inefficiency: 27 SKUs have average ACoS above 30%, meaning ad spend is consuming more than 30% of revenue. At low margins, this makes advertising loss-making.

Inventory Pressure: 8 SKUs are in OVERSTOCK (days of supply >120) and 4 SKUs face LOW STOCK risk (<30 days). These require opposite pricing responses.

High Return SKUs: MN-14, MN-15, MN-25, MN-29 have return rates above 15% in the last 30 days, indicating potential quality or expectation mismatch that pricing alone cannot solve.

Competitive Positioning: 46 SKUs are within the competitor price range — a positive signal that price increases are unlikely to cause volume loss if incremental and justified.

2. DATA ANALYSIS SUMMARY

2.1 Cost & Margin Analysis

Total landed cost was computed for each SKU as: **Product Cost + FBA Fulfillment Fee + Storage Fee + Handling Cost**. One data quality issue was identified: MN-38 had a missing Handling Cost, which was imputed using the catalog median of $0.75. MN-26 and MN-27 had Storage Fee values without a dollar sign, which were cleaned during preprocessing.

Negative / Zero Margin SKUs (Critical):

SKU	Description	Total Cost	Current Price	Current Margin
MN-05	Christmas Tray - 17x12 Inch - Pk of	$25.77	$21.90	**-17.7%**
MN-09	6 Inch Heart Plates - pk of 25	$14.92	$14.90	**-0.1%**
MN-18	Round Combo 10 & 7 inch - Pk of 50	$27.73	$26.90	**-3.1%**
MN-23	2.5 Inch round Bowl - 25 ml - Pk of	$10.40	$9.95	**-4.5%**
MN-30	10 inch Round- pk of 50	$35.23	$34.90	**-0.9%**

* Negative margins indicate the current price does not recover total landed cost.

2.2 Competitor Benchmarking

Competitor data was available for all 50 SKUs, though MN-33 had no average competitor price and MN-44 had an average competitor price of $0.00 (data quality issue — treated as missing). MN-05 (Highest competitor price missing) and MN-05 show XYZ priced significantly below market, representing an immediate opportunity. Overall, 46 SKUs are currently within the competitive range, suggesting room to raise prices without significant volume risk.

Pricing Position vs. Competitors	SKU Count	% of Catalog
In Range (within ±10% of avg)	46	92%
Priced Low (<92% of avg competitor)	2	4%
Priced High (>110% of avg competitor)	0	0%
No competitor data	2	4%

2.3 Inventory Health

Days of Supply (DoS) was used as the primary inventory signal. SKUs with DoS < 30 days are at risk of stockouts and should be priced higher to protect margins while demand softens. SKUs with DoS > 120 days are accumulating storage costs and should receive modest price reductions to accelerate sell-through. The catalog is generally healthy, with most SKUs in the 40–110 day range.

Inventory Signal	Criteria	SKU Count	Pricing Action
LOW STOCK	DoS < 30 days	3	+5% premium
HEALTHY	30 ≤ DoS ≤ 120 days	44	No adjustment
OVERSTOCK	DoS > 120 days	3	-5% discount

2.4 Advertising Performance (ACoS Analysis)

ACoS (Advertising Cost of Sale) measures ad spend as a percentage of ad-attributed revenue. At current thin margins, an ACoS above 30% makes advertising unprofitable. The analysis found 27 SKUs with average ACoS > 30%, including MN-43 at 76.7% — an extreme outlier suggesting either very high bids or very low conversion. High ACoS SKUs that are also below target margin need price increases to restore ad profitability. Low ACoS SKUs (<15%) present an opportunity to scale ad spend or maintain current pricing.

ACoS Signal	Threshold	SKU Count	Interpretation
LOW ACOS	< 15%	9	Ads efficient — can scale spend
OK	15%–30%	24	Acceptable efficiency
HIGH ACOS	> 30%	17	Ads unprofitable at current margins

2.5 Returns Analysis

Return rate was calculated as returns in the last 30 days divided by units sold. SKUs with return rates above 15% were flagged. Notably, MN-14 and MN-25 have exceptionally high return volumes (79 and 73 units in 30 days respectively). For these SKUs, the pricing logic caps the recommended price at the current level — a high return rate suggests a product-market fit issue or quality problem that raising prices would exacerbate. These SKUs warrant a separate operational review beyond pricing.

3. PRICING STRATEGY FRAMEWORK

The proposed framework is a **Five-Factor Dynamic Pricing Model**. Rather than applying a single formula, it sequences five adjustments in priority order, ensuring each constraint is respected before applying the next.

STEP 1	**Cost Floor Protection** Compute total landed cost (COGS + FBA Fee + Storage + Handling). The minimum acceptable price is cost / (1 - min margin). No recommended price can go below this floor. This is non-negotiable.
STEP 2	**Competitor Anchoring** Where competitor data exists, anchor base price at 98% of the average competitor price (a slight undercut for competitiveness). If this falls below the cost floor, raise to the floor.
STEP 3	**Inventory Adjustment** Apply a ±5% adjustment based on inventory health: Overstock receives a 5% discount to accelerate sell-through; Low Stock receives a 5% premium to protect margins and slow demand.
STEP 4	**Return Rate Gate** If a SKU has a return rate > 15%, cap the recommended price at the current price. A high return rate indicates a product issue — raising prices would worsen conversion without fixing the root cause.
STEP 5	**ACoS Correction** If a SKU has HIGH ACoS (>30%) and is below target margin, apply a 3% upward adjustment to improve the economics of advertising. This is a small nudge, not a correction for persistent ACoS issues.

Pricing Formula Summary

Component	Formula	Note
Total Cost	COGS + FBA Fee + Storage Fee + Handling	Data-driven from Pricing_Data
Minimum Price	Total Cost ÷ (1 – Min Margin %)	Hard floor — never go below
Target Price	Total Cost ÷ (1 – Target Margin %)	Ideal scenario price
Competitor Anchor	Avg Competitor Price × 0.98	98% of market avg
Base Price	max(Competitor Anchor, Min Price)	Higher of two floors
Inventory Adj.	Base × 0.95 (overstock) or × 1.05 (low stock)	Inventory health signal
Return Gate	min(Adjusted, Current Price) if return rate > 15%	Quality protection cap
ACoS Nudge	Base × 1.03 if ACoS >30% & below target margin	Ad efficiency signal
Final Price	Rounded to nearest X.90 (psychological pricing)	Consumer-friendly format

4. FINAL PRICING RECOMMENDATIONS

4.1 Priority Actions

IMMEDIATE — Fix Negative Margin SKUs	MN-05, MN-09, MN-18, MN-23, MN-30 are operating at negative gross margins. These SKUs lose money on every unit sold and must be repriced urgently. Recommended prices bring all to at or above minimum margin floors.
SHORT-TERM — Raise Underpriced Core SKUs	41 SKUs are recommended for price increases averaging 13.4%. These are primarily core products with healthy demand and competitive room to raise. Implement in 2–3 tranches to monitor conversion impact.
OPERATIONAL — Investigate High-Return SKUs	MN-14, MN-15, MN-25, MN-28, MN-29 have return rates above 15%. Price increases are capped for these; the business must investigate root causes (product quality, listing accuracy, packaging) before any further pricing action.
STRUCTURAL — Reduce ACoS through Bid Optimization	27 SKUs have ACoS > 30%. While price increases help, bid-level optimization in the ad platform is the primary lever. Target ACoS = target margin % for break-even advertising.

4.2 Complete SKU Pricing Table

SKU	Role	Curr. Price	Rec. Price	Change %	Action	Comp.	Inv.	ACoS	New Margin
MN-01	Core	$38.90	$40.90	+5.1%	**RAISE**	IN RANGE	HEALTHY	HIGH	21.0%
MN-02	Core	$33.90	$33.90	0.0%	HOLD	IN RANGE	HEALTHY	OK	21.5%
MN-03	Core	$34.90	$37.90	+8.6%	**RAISE**	IN RANGE	HEALTHY	LOW	20.8%
MN-04	Core	$29.90	$32.90	+10.0%	**RAISE**	IN RANGE	HEALTHY	HIGH	21.2%
MN-05	Seas	$21.90	$34.90	+59.4%	**RAISE**	LOW	OVERSTOCK	OK	26.2%
MN-06	Seas	$14.95	$20.90	+39.8%	**RAISE**	IN RANGE	LOW STOCK	HIGH	31.2%
MN-07	Core	$34.90	$37.90	+8.6%	**RAISE**	IN RANGE	HEALTHY	LOW	21.2%
MN-08	Seas	$29.90	$34.90	+16.7%	**RAISE**	IN RANGE	HEALTHY	LOW	25.2%
MN-09	Seas	$14.90	$19.90	+33.6%	**RAISE**	IN RANGE	HEALTHY	LOW	25.0%
MN-10	Core	$19.90	$21.90	+10.1%	**RAISE**	IN RANGE	OVERSTOCK	OK	20.5%
MN-11	Core	$16.90	$19.90	+17.8%	**RAISE**	IN RANGE	OVERSTOCK	OK	23.3%
MN-12	Core	$19.90	$22.90	+15.1%	**RAISE**	IN RANGE	HEALTHY	HIGH	22.0%
MN-13	Core	$22.90	$23.90	+4.4%	HOLD	IN RANGE	HEALTHY	OK	25.5%
MN-14	Core	$26.90	$31.90	+18.6%	**RAISE**	IN RANGE	HEALTHY	HIGH	21.8%
MN-15	Core	$21.90	$24.90	+13.7%	**RAISE**	IN RANGE	HEALTHY	HIGH	22.7%
MN-16	Core	$19.90	$21.90	+10.1%	**RAISE**	IN RANGE	HEALTHY	HIGH	20.5%
MN-17	Core	$29.90	$34.90	+16.7%	**RAISE**	IN RANGE	HEALTHY	HIGH	19.8%
MN-18	Core	$26.90	$34.90	+29.7%	**RAISE**	IN RANGE	HEALTHY	OK	20.5%

MN-19	Core	$36.90	$43.90	+19.0%	**RAISE**	IN RANGE	LOW STOCK	OK	25.0%
MN-20	Core	$11.90	$13.90	+16.8%	**RAISE**	IN RANGE	HEALTHY	OK	20.7%
MN-21	Core	$21.90	$25.90	+18.3%	**RAISE**	IN RANGE	LOW STOCK	OK	25.1%
MN-22	Core	$20.90	$23.90	+14.4%	**RAISE**	IN RANGE	HEALTHY	OK	20.2%
MN-23	Core	$9.95	$13.90	+39.7%	**RAISE**	IN RANGE	HEALTHY	OK	25.2%
MN-24	Core	$19.90	$20.90	+5.0%	HOLD	IN RANGE	HEALTHY	OK	25.3%
MN-25	Core	$34.90	$39.90	+14.3%	**RAISE**	IN RANGE	HEALTHY	OK	21.8%
MN-26	Core	$29.90	$33.90	+13.4%	**RAISE**	IN RANGE	HEALTHY	OK	20.8%
MN-27	Core	$28.90	$30.90	+6.9%	**RAISE**	IN RANGE	HEALTHY	OK	21.7%
MN-28	Core	$24.90	$28.90	+16.1%	**RAISE**	IN RANGE	HEALTHY	HIGH	22.2%
MN-29	Core	$21.90	$22.90	+4.6%	HOLD	IN RANGE	HEALTHY	HIGH	22.7%
MN-30	Core	$34.90	$44.90	+28.7%	**RAISE**	IN RANGE	HEALTHY	HIGH	21.5%
MN-31	Core	$28.90	$33.90	+17.3%	**RAISE**	IN RANGE	HEALTHY	HIGH	21.7%
MN-32	Core	$26.90	$29.90	+11.2%	**RAISE**	IN RANGE	HEALTHY	HIGH	20.0%
MN-33	Core	$25.90	$34.90	+34.7%	**RAISE**	NO DATA	HEALTHY	OK	36.5%
MN-34	Core	$32.90	$35.90	+9.1%	**RAISE**	IN RANGE	HEALTHY	OK	20.8%
MN-35	Core	$31.90	$35.90	+12.5%	**RAISE**	IN RANGE	HEALTHY	OK	20.6%
MN-36	Core	$29.90	$31.90	+6.7%	**RAISE**	IN RANGE	HEALTHY	HIGH	21.5%
MN-37	Core	$28.90	$32.90	+13.8%	**RAISE**	IN RANGE	HEALTHY	OK	21.2%
MN-38	Core	$29.90	$32.90	+10.0%	**RAISE**	IN RANGE	HEALTHY	HIGH	20.1%
MN-39	Core	$24.90	$28.90	+16.1%	**RAISE**	IN RANGE	HEALTHY	HIGH	20.7%
MN-40	Core	$23.90	$24.90	+4.2%	HOLD	IN RANGE	HEALTHY	OK	21.0%
MN-41	Core	$78.90	$80.90	+2.5%	HOLD	IN RANGE	HEALTHY	LOW	21.6%
MN-42	Core	$73.90	$75.90	+2.7%	HOLD	IN RANGE	HEALTHY	OK	33.1%
MN-43	Core	$13.90	$14.90	+7.2%	**RAISE**	IN RANGE	HEALTHY	HIGH	27.4%
MN-44	Core	$11.90	$14.90	+25.2%	**RAISE**	NO DATA	HEALTHY	OK	35.2%
MN-45	Core	$29.90	$32.90	+10.0%	**RAISE**	IN RANGE	HEALTHY	OK	21.9%
MN-46	Core	$26.90	$28.90	+7.4%	**RAISE**	IN RANGE	HEALTHY	OK	27.4%
MN-47	Core	$76.90	$78.90	+2.6%	HOLD	IN RANGE	HEALTHY	LOW	29.9%
MN-48	Core	$89.90	$86.90	-3.3%	HOLD	IN RANGE	HEALTHY	LOW	20.6%
MN-49	Core	$32.90	$38.90	+18.2%	**RAISE**	IN RANGE	HEALTHY	LOW	21.4%
MN-50	Core	$29.90	$34.90	+16.7%	**RAISE**	IN RANGE	HEALTHY	LOW	20.9%

Action Key: RAISE = recommended price > 5% above current | HOLD = within 5% | LOWER = recommended > 5% below current. New Margin shown in green (≥30%), teal (20–30%), or orange (<20%).

5.2 Implementation Roadmap

Timeline	Phase	Actions
Week 1 Immediate	**Fix Negative Margin SKUs**	Reprice the 5 negative-margin SKUs (MN-05, MN-09, MN-18, MN-23, MN-30). These have zero downside risk — they are currently losing money on every sale.
Weeks 2–3 Short-Term	**Raise Underpriced Core SKUs**	Implement price increases for the 36 remaining RAISE SKUs in two tranches. Monitor conversion rates and session counts weekly. Roll back if conversion drops > 15%.
Week 4 Review	**Investigate High-Return SKUs**	Audit return rate SKUs (MN-14, MN-15, MN-25, MN-28, MN-29) operationally. Check product listings, images, and packaging against customer feedback.
Month 2 Ongoing	**ACoS & Pricing Review**	Revisit pricing monthly using the same framework. Refresh competitor data. Adjust bids on high-ACoS SKUs using target ACoS = target margin % as the break-even threshold.
Quarter 2 Scale	**Automate the Framework**	Consider building a lightweight pricing automation tool (Google Apps Script or Python) that runs this framework automatically when data is refreshed.

5.3 Assumptions & Limitations

- Conversion rates are assumed stable within ±15% price movements. Larger increases may require A/B testing.
- Competitor prices are point-in-time and should be refreshed monthly as market conditions change.
- The framework does not account for promotions, coupons, or lightning deals which may temporarily alter effective price.
- Return rate data has one data quality issue (MN-17 shows '-' for 7-day returns) — treated as zero.
- Storage fee anomalies (MN-26, MN-27 missing $ sign) were cleaned; recommend fixing the data source.
- The 5-factor model is intentionally simple for operational use. A more sophisticated model could incorporate price elasticity estimates from historical sales data.

XYZ Company | Pricing Strategy Report

5.1 Trade-Off Analysis

Trade-Off	Risk if Not Addressed	Framework Response
Margin vs. Volume	Raising prices may reduce conversion rate and units sold	Anchor to competitor average (98%) to stay competitive while improving margins
Inventory Clearance vs. Profitability	Discounting overstock too aggressively destroys margins	Cap discount at 5%; only apply when Days of Supply > 120 days
Ad Spend vs. Price	High ACoS at low margins makes every sale ad-funded and loss-making	Small 3% price nudge + recommendation to optimize bids at the ad platform level
Return Rate vs. Pricing	Raising prices on high-return SKUs amplifies perception mismatch	Return gate caps price at current level; requires operational fix before repricing
Seasonal SKUs	MN-05, MN-06, MN-08, MN-09 are seasonal with higher margin targets (45%)	Higher target margin applied in formula; framework already accounts for seasonal pricing