

Electronics Pricing Review - Sep to Dec 2024



Overview

- This report presents an analysis of **Electronics Product Pricing** in the Netherlands over the period **September to December 2024**
- It includes key retail events such as **Black Friday** and **end-of-year holiday sales**
- Offers insights to **help retailers optimize their pricing strategies**

Outline

- Methodology
- Black Friday Trend
- December Trend
- Weekly Pattern
- Discount Distribution
- Price Variability
- Key Insights



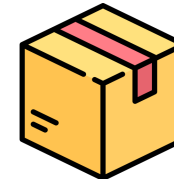
323

Total Brands



621

Total Online Stores



37.39K

Total Distinct Products



179K

Total Products across
all Stores

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Methodology

- The dataset was prepared by reshaping it into a format suitable for time-based analysis and filtering out incomplete price records
- The analysis was performed in Power BI to handle the large data volume and present clear, easy-to-understand insights

Details

- Imported the original dataset *SeptoDec024Prices.csv* into **Python** using **Pandas** to have a first look
- **Unpivoted** the dataset, converting daily price columns into a normalized structure with a single Date column and associated price values
- Selected **Power BI Desktop** for analysis to create clear visuals and effectively handle the large file size (>1GB)
- Standardized data types: Product name, Store name, Brand as **text**, Date as **date**, Price as **decimal number**
- Removed rows with missing prices and unnecessary columns
- Proceeded with exploratory analysis and visualizations in Power BI

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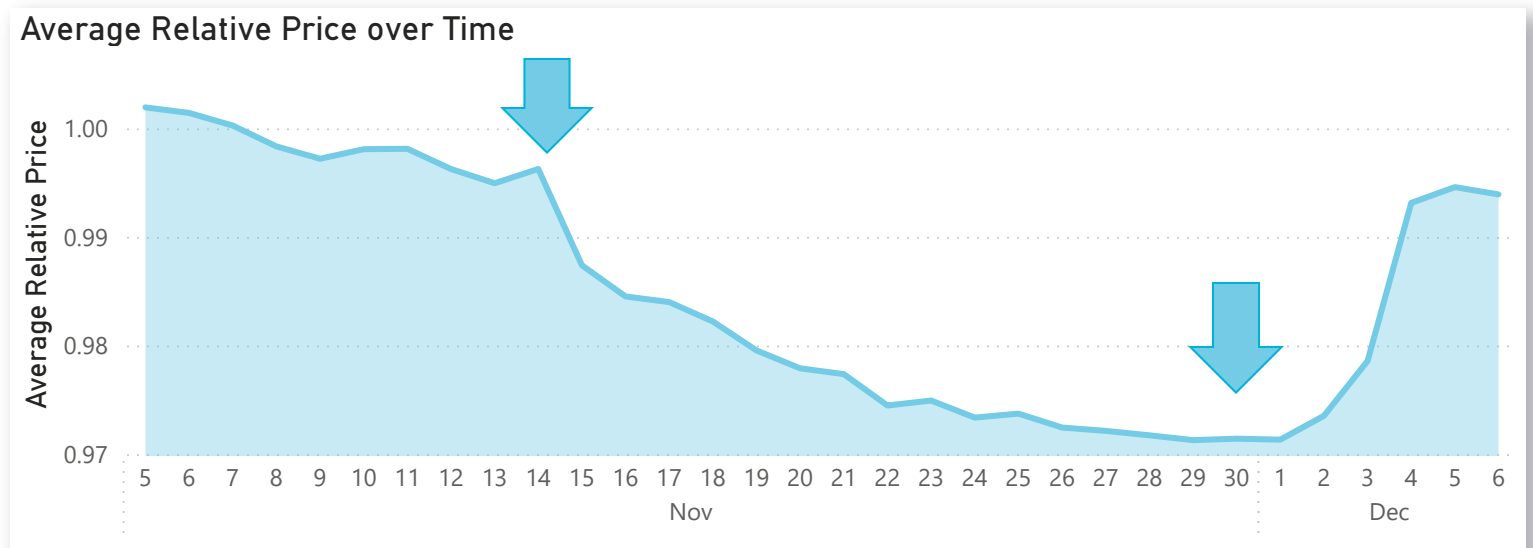
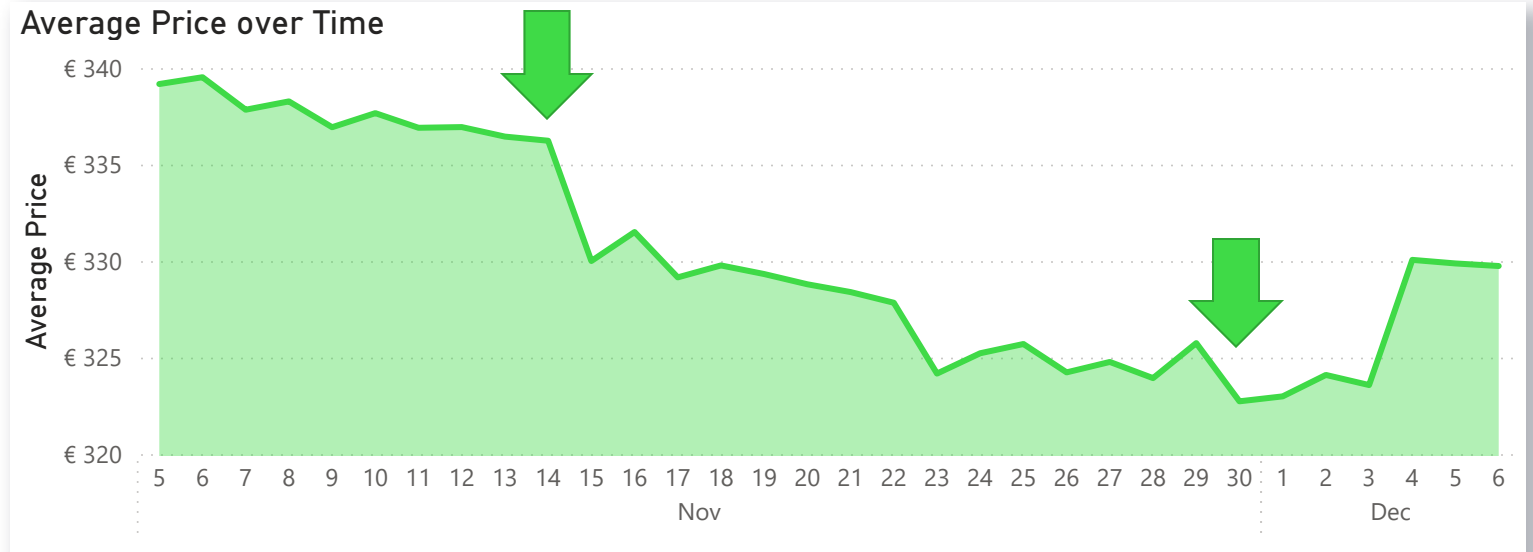
Black Friday Trend

- The **Average Price** across all products begins to **decline in mid-November**
- It reaches its **lowest point during Black Friday weekend** (November 29, 2024)
- Prices begin to **increase again after Black Friday weekend**, moving into December
- Similar trend in the **Average Relative Price**:

Relative Price = Price / (Reference Price)

(Reference price calculated as the product's average price before the discount period)

💡 Be prepared in advance!
Set your pricing strategy early to align with expected market movements



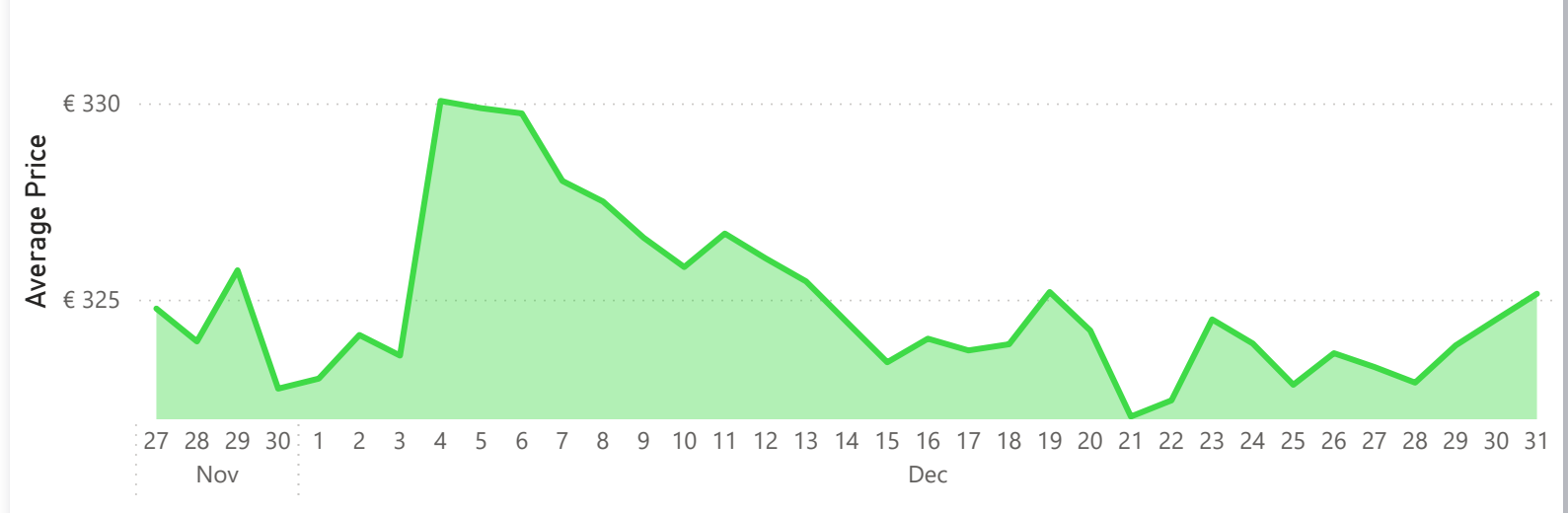
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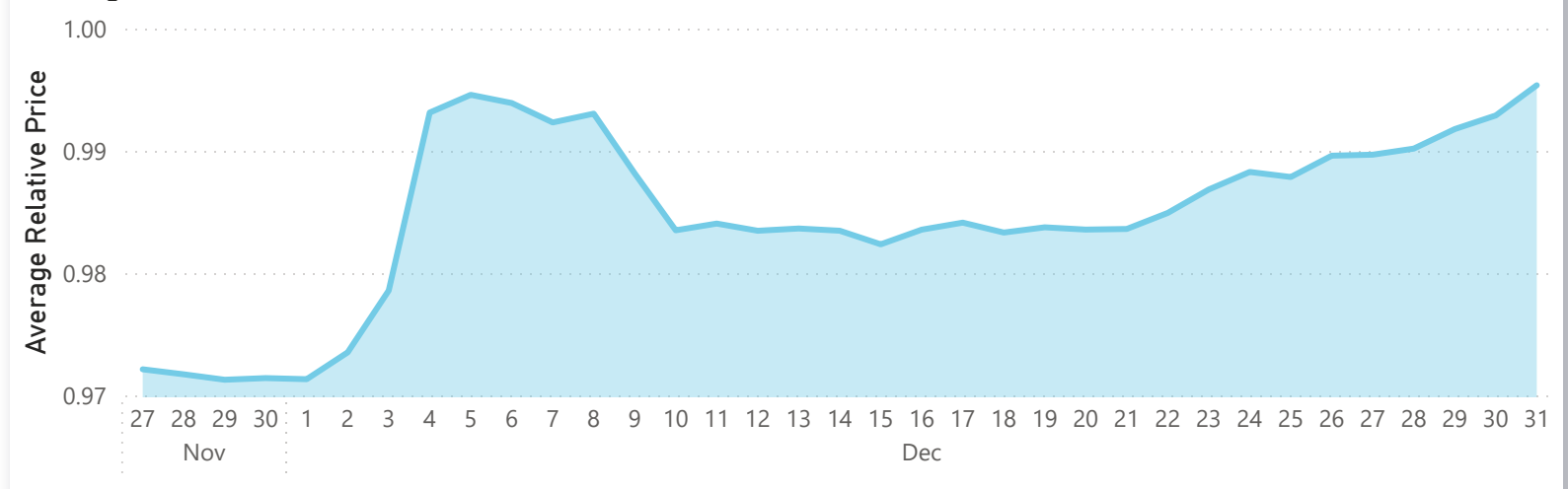
December Trend

- The Average Price **declines again in December**
- This second drop aligns with **holiday promotions** and **end-of-year clearance**
- Prices gradually **return to their Reference Price** by the end of December

Average Price over Time



Average Relative Price over Time



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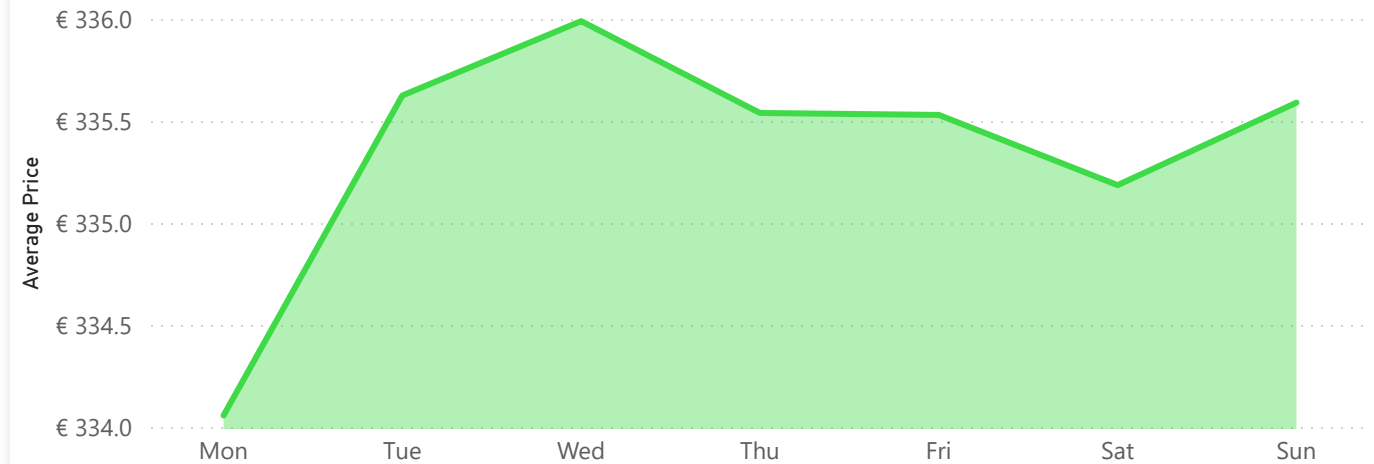


Weekly Pattern

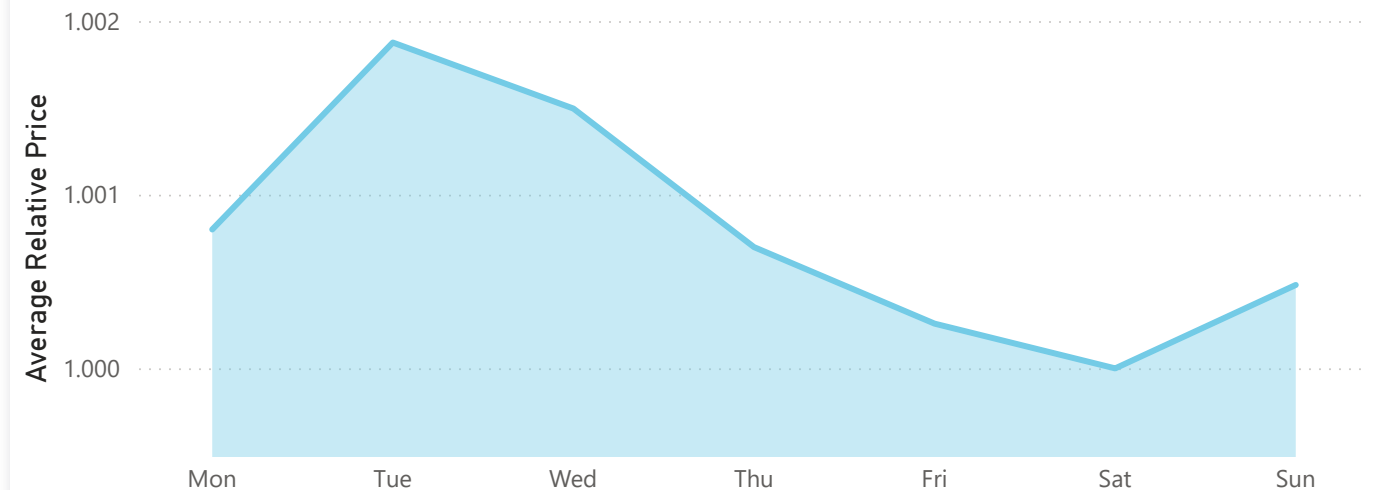
- Analysis limited to **10 weeks leading to Black Friday** (Mon, September 2 - Sun, November 10, 2024)
- The **Average Price peaks mid-week** and gradually **drops toward Saturday**
- Prices begin to **rise again on Sunday**, restarting the cycle
- Similar pattern in Relative Price
- The **weekly price variation is modest**, around **0.2%**

💡 Consider dynamic weekday pricing!
For example, higher pricing mid-week may help optimize margins

Average Price over the Week



Average Relative Price over the Week



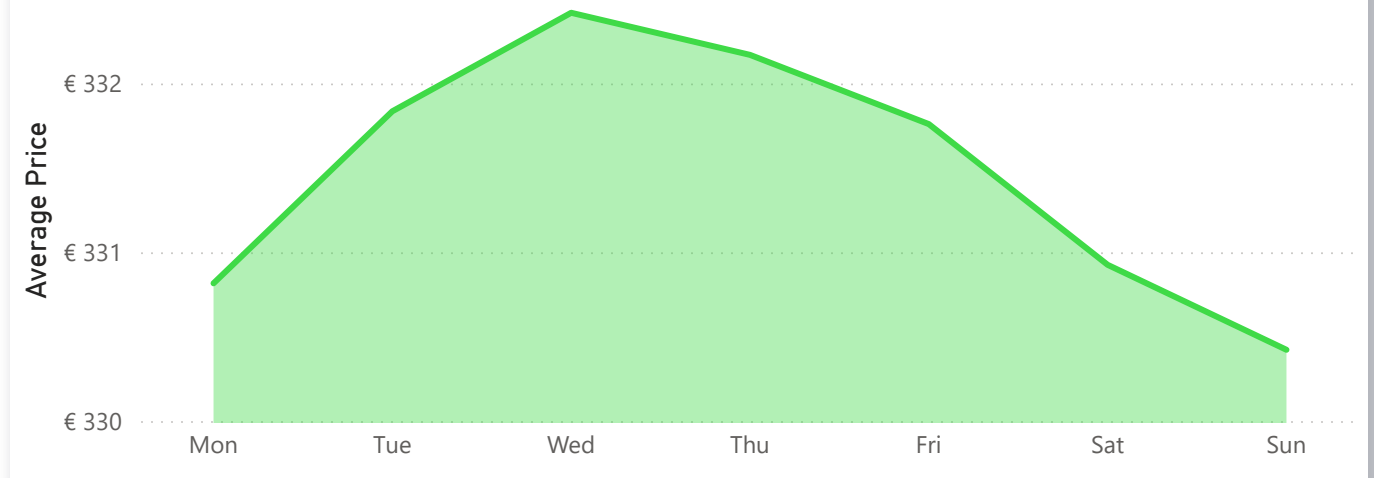
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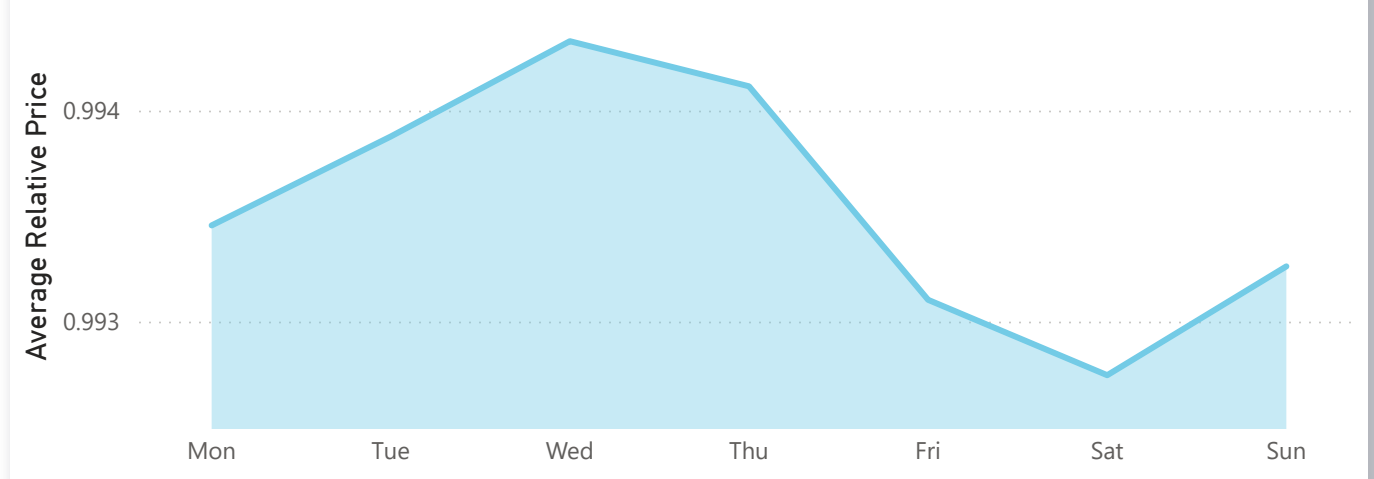
Weekly Pattern

- Considering the entire period (Sept 1 – Dec 30) the **same weekly trend persists**
- The **weekly price variation remains** around **0.2%**

Average Price over the Week



Average Relative Price over the Week



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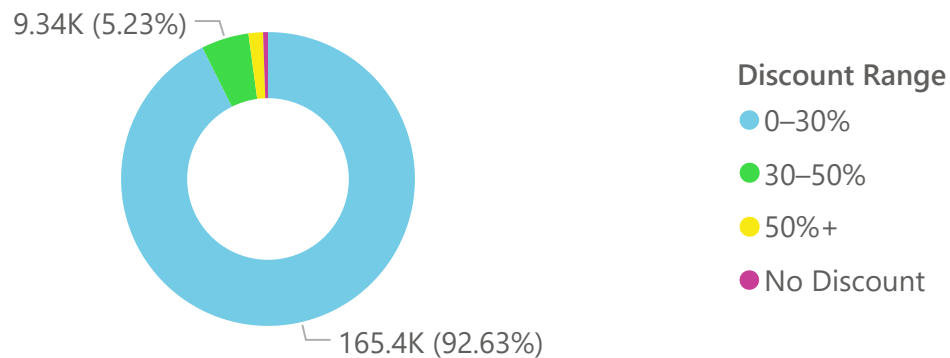


Discount Distribution

- **Nearly all products are discounted** during the Black Friday period
- **92.63% of products** fall within the **0-30%** discount range
- The **Average Discount is 13.29%**
- About **1%** of products fall within the **90-100%** discount range

💡 Aim for competitive but sustainable discounts!
Avoid over-discounting

Total Products by Discount Range



179K

Total Products across
all Stores

178K

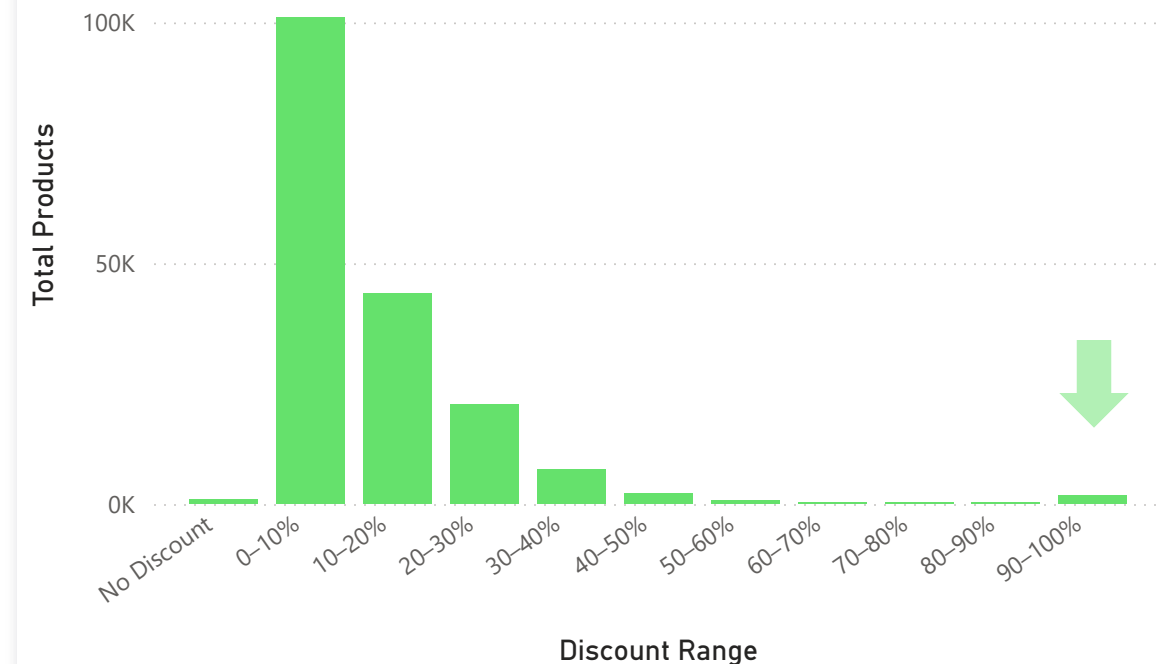
Discounted Products
across all Stores

99.46%

Discounted Products



Total Products by Discount Range



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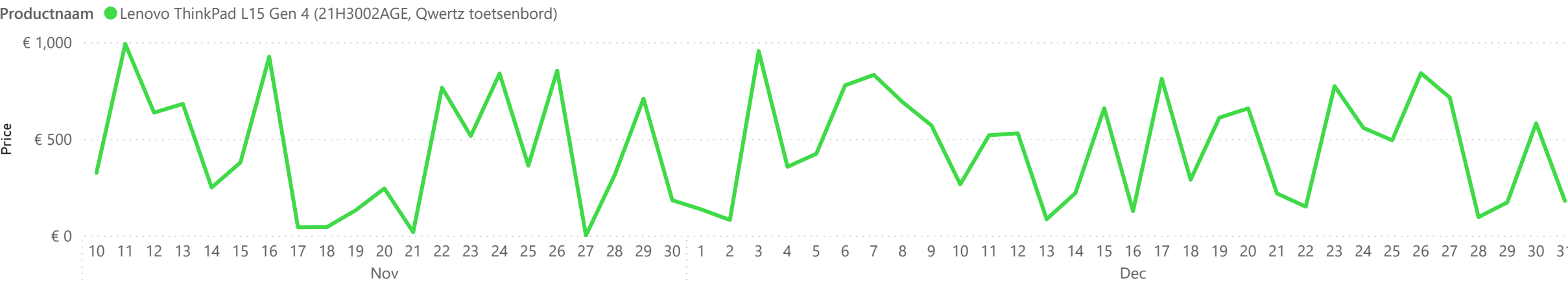


Price Variability

- Products with **higher discounts** tend to show **volatile pricing behavior** and **extreme price fluctuations**
- This indicates **frequent or erratic price changes** due to unreliable stock information, data/reporting errors, etc.
- Measure of price volatility is **Relative Price Variability (RPV): Standard Deviation of Relative Price**

Brand	Product	Min Price	Max Price	Discount	RPV
Lenovo	Lenovo V15 G4 AMN (82YU00UPPB)	€ 1.00	€ 996.00	99.90%	0.58
Samsung	WW90T4540AE/EU	€ 1.00	€ 989.00	99.90%	0.59
HP	HP 15-eg3070nd	€ 1.00	€ 987.00	99.90%	0.54
HP	PAVILION 15-EG3070ND 8Y7M5EA	€ 1.00	€ 986.02	99.90%	0.52
HP	HP Pavilion 15-eg3070nd	€ 1.00	€ 985.89	99.90%	0.51
Acer	Acer Nitro 16 AN16-41-R97T	€ 1.00	€ 977.00	99.90%	0.56
Lenovo	Lenovo IdeaPad Gaming 3 15ARH7 (82SB00Q4MH)	€ 1.00	€ 975.00	99.90%	0.57
HP	HP Pavilion 14-eh1591nd	€ 1.00	€ 972.00	99.90%	0.52
HP	PAVILION PLUS 14-EH1591ND 82F41EA	€ 1.00	€ 972.00	99.90%	0.55
Lenovo	Lenovo ThinkPad L15 Gen 4 (21H3002AGE, Qwertz toetsenbord)	€ 1.00	€ 958.69	99.90%	0.72

Price over Time



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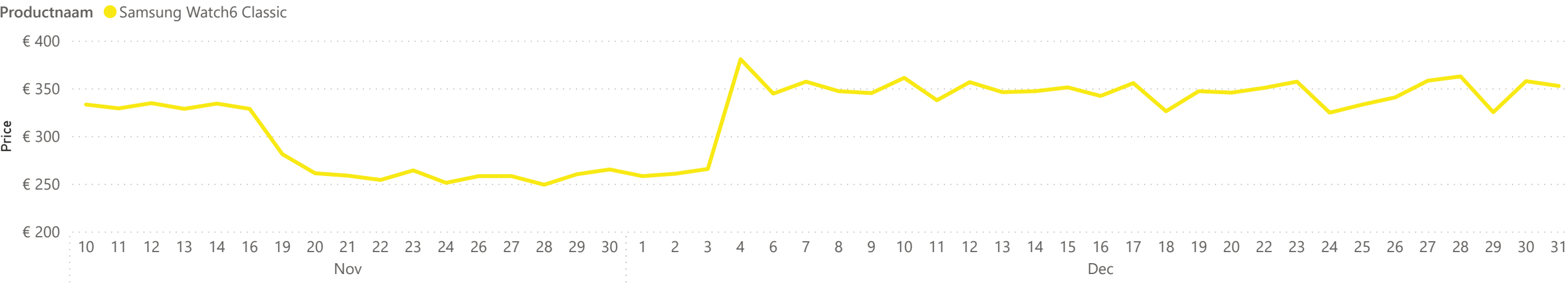
Price Variability

- Filtered products with **RPV < 0.1** (low price volatility)
- These products show **smooth and stable pricing** trends suggesting a more **deliberate and reliable pricing strategy**

💡 Focus your pricing strategies on products with low price volatility!

Brand	Product	Min Price	Max Price	Discount	RPV
Lenovo	Lenovo ThinkPad E16 Gen 1 (21JN004RGE, Qwertz toetsenbord)	€ 410.00	€ 937.00	56.24%	0.06
BlueBuilt	BlueBuilt BlueBuilt Hard Case Apple iPhone 14 Plus Back Cover Zwart	€ 4.99	€ 9.99	50.05%	0.05
JBL	JBL TOUR ONE M2 Champagne	€ 179.00	€ 347.00	48.41%	0.09
JBL	JBL Tour One M2 (Champagne)	€ 180.36	€ 347.00	48.02%	0.09
Samsung	Samsung Watch6 Classic	€ 249.00	€ 440.00	43.41%	0.10
Bosch Professional	Bosch GSS 18V-10 (zonder accu)	€ 163.00	€ 279.83	41.75%	0.06
Bosch Professional	Bosch Professional GSS 18V-10 Accu vlakschuurmachine - 18 V - Zonder accu en lader - Met L-BOXX	€ 163.00	€ 279.83	41.75%	0.06
Bosch Professional	Bosch GSS 18V-10	€ 163.00	€ 279.83	41.75%	0.07
Ledger	Ledger Nano X - Purple Amethyst	€ 93.08	€ 159.00	41.46%	0.07

Price over Time



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Key Insights

1) Seasonal Pricing Strategy Matters

- The average price begins to drop about 10-15 days before Black Friday, reaching its lowest point during the Black Friday weekend
- Prices recover in early in December and decline again toward year-end

💡 Be prepared in advance! Set your pricing strategy early to align with expected market movements

2) Weekly Price Patterns Are Consistent

- A weekly cycle is visible, with average prices peaking mid-week (Tuesday–Wednesday) and dipping toward the weekend

💡 Consider dynamic weekday pricing! For example, higher pricing mid-week may help optimize margins

3) Most Discounts Fall within 0-30%

- Nearly all products are discounted during the Black Friday period
- Most discounts stay between 0–30%. Extreme discounts are rare

💡 Aim for competitive but sustainable discount levels! Avoid over-discounting

4) Extreme Discounts Indicate Volatility

- Products with very high discounts show high price volatility, due unreliable stock information, data/reporting errors, or aggressive discount tactics
- Products with low price variability follow deliberate and consistent pricing strategies

💡 Focus your pricing strategies on products with low price variability for more reliable price comparisons!