

Warehouse and Retail Sales Analysis



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INTRODUCTION

This analysis delves into a comprehensive dataset covering retail and warehouse sales data for alcoholic beverages from January 2017 to September 2020. The objective is to uncover sales patterns, supplier performance trends, and item type preferences, providing actionable insights crucial for optimizing distribution strategies and enhancing sales effectiveness in the alcoholic beverage market.

Dataset Overview

- **Time Period:** January 2017 to September 2020.
- **Content:** Includes detailed information on supplier performance, item types, and transactional details.
- **Objective:** Identify actionable insights to improve operational efficiency and sales performance.

Data Exploration

Key Statistics

Metric	Minimum amount	Maximum amount	Mean	Std Dev
Retail Sales	\$-6.49	\$1816.49	\$7.00	\$30.39
Warehouse Sales	\$-4996.00	\$18317.00	\$25.38	\$249.50

Data Distributions

- Skewed sales figures with significant variance.
- Most items show low to moderate sales volume, with a few top sellers dominating revenue.

ANALYSIS

1. TEMPORAL SALES ANALYSIS:

Monthly Sales Overview

- **Retail and Warehouse Sales:** Detailed monthly data from June 2017 to September 2020 shows significant seasonal variations, peaking during summer.
- **Monthly Sales by Item Type:**
 - **Beer:** Consistently dominates sales.
 - **Liquor and Wine:** Significant contributions with seasonal patterns.
 - **Non-Alcohol and Other Categories:** Stable with minor fluctuations.

2. SUPPLIER PERFORMANCE ANALYSIS REPORT

Overview

The analysis of supplier performance provides valuable insights into the contribution of different suppliers to overall sales. Based on the dataset provided, we have categorized suppliers into three groups: top-performing suppliers, average-performing suppliers, and underperforming suppliers.

Key Insights

Top-Performing Suppliers:

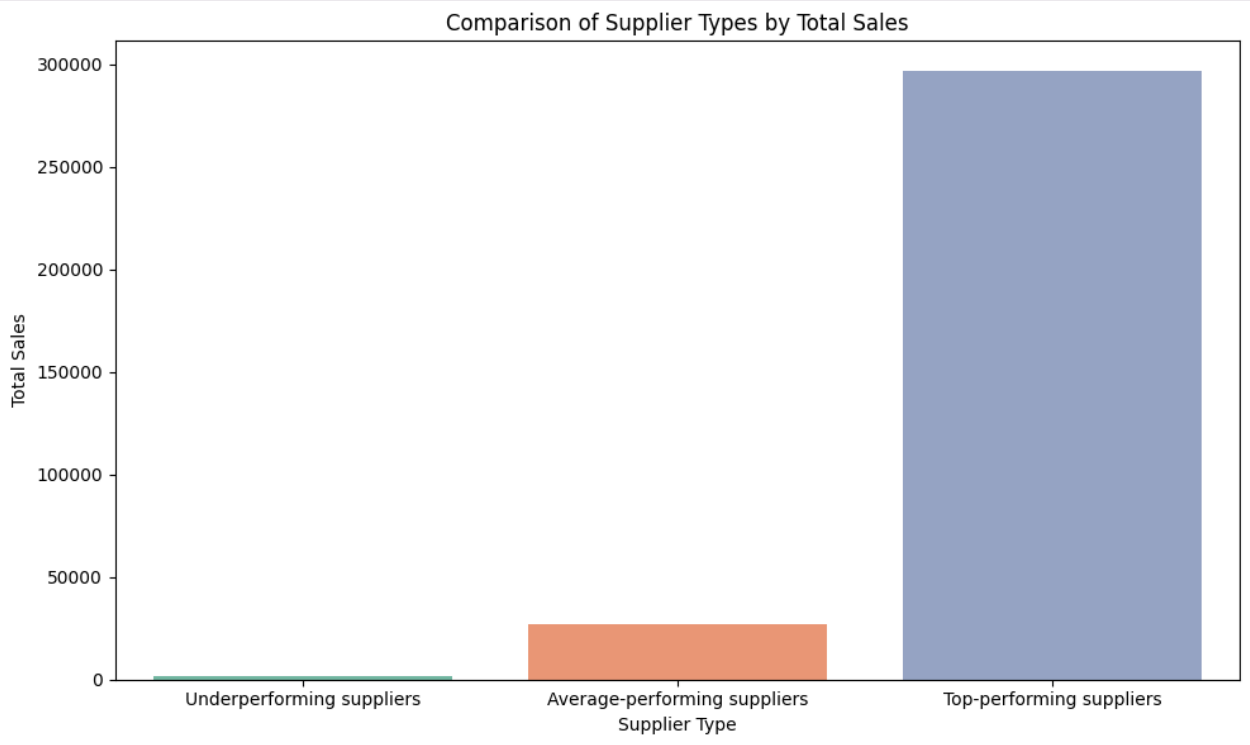
- **CROWN IMPORTS, MILLER BREWING COMPANY, and ANHEUSER BUSCH INC** are the top three suppliers in terms of total sales, with significant contributions to both retail and warehouse sales.
- These suppliers are crucial to the revenue generation of the business, collectively contributing approximately **\$8.6 million** in total sales.

Average-Performing Suppliers:

- This category includes suppliers who contribute moderately to the sales, totaling approximately **\$0.87 million**.
- While their contribution is significant, it is lower compared to the top-performing suppliers.

Underperforming Suppliers:

- This group comprises suppliers who have minimal or negative sales contributions.
- Examples include **PREMIUM DISTRIBUTORS INC** with negative sales due to warehouse sales deductions, indicating potential issues or corrections needed in the data or supplier relationships.



Detailed Analysis

Revenue Contribution by Supplier Type:

- Top-performing suppliers dominate the revenue share, accounting for approximately **90%** of total sales.
- Average-performing suppliers contribute around **9%**, while underperforming suppliers contribute a negligible **1%**.

Sales Breakdown:

- **Retail vs. Warehouse Sales:** Top suppliers like **CROWN IMPORTS** and **MILLER BREWING COMPANY** show a balanced contribution between retail and warehouse sales, indicating strong distribution networks.

Supplier Type Analysis:

- The dataset includes **29** top-performing suppliers, **32** average-performing suppliers, and **335** underperforming suppliers.
- Strategies should focus on optimizing relationships with top suppliers to maintain and potentially grow revenue streams.

Recommendations

Focus on Top Suppliers:

- Continue nurturing relationships with top-performing suppliers to sustain high sales volumes.
- Explore opportunities for collaboration and promotional activities to further boost sales.

Review Underperforming Suppliers:

- Investigate reasons behind negative or minimal sales contributions.
- Evaluate the viability of continuing partnerships with underperforming suppliers based on strategic importance and potential for improvement.

Data Integrity Checks:

- Conduct regular checks to ensure accuracy of warehouse sales data, particularly for suppliers showing negative figures.
- Address any discrepancies promptly to maintain data reliability and decision-making accuracy.

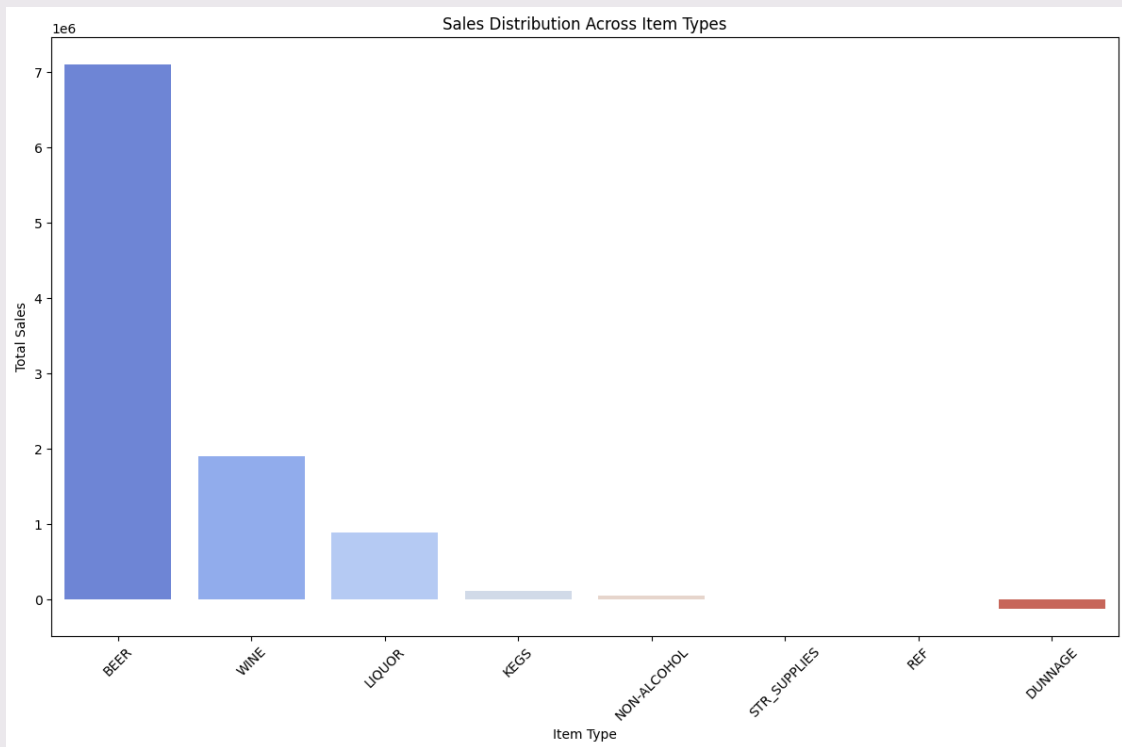
3. ITEM TYPE ANALYSIS

Overview

The analysis of item types within the dataset reveals varying degrees of sales performance across different categories of alcoholic beverages and related supplies. This section provides a detailed breakdown of retail and warehouse sales figures for each item type, highlighting their contributions to total sales and identifying trends that can inform strategic decisions.

Detailed Analysis

Category	Retail Sales	Warehouse Sales	Total Sales	Insights
Beer	\$574,220.53	\$6,527,236.51	\$7,101,457.04	Beer emerges as the most popular item type, significantly contributing to both retail and warehouse sales. This category shows robust performance, indicating consistent consumer demand and strong market presence.
Wine	\$746,498.59	\$1,156,984.91	\$1,903,483.50	Wine follows beer in terms of sales volume, with notable contributions to total sales. Sales figures show a balanced distribution between retail and warehouse channels, suggesting steady consumer interest and seasonal fluctuations typical of the wine market.
Liquor	\$802,691.43	\$94,906.27	\$897,597.70	Liquor exhibits a significant portion of retail sales, though warehouse sales are comparatively lower. This item type shows potential for targeted marketing strategies to increase warehouse distribution or enhance retail sales further.
Kegs	\$0.00	\$118,431.00	\$118,431.00	Kegs are exclusively sold through warehouse channels, indicating a specialized market segment. The absence of retail sales suggests a niche product catering to specific customer needs or business-to-business transactions.
Non-Alcohol	\$27,150.31	\$26,149.59	\$53,299.90	Non-alcoholic items show moderate sales figures across both retail and warehouse channels. This category may benefit from targeted promotions emphasizing health-conscious consumers or specific market segments interested in non-alcoholic alternatives.
Storage Supplies	\$2,234.90	\$0.00	\$2,234.90	Supplies related to storage show minimal retail sales with no warehouse distribution. This category represents essential but low-volume sales items, suggesting a focus on operational efficiency rather than revenue generation.
Refrigeration	\$663.63	\$0.00	\$663.63	Refrigeration-related items similarly exhibit minimal retail sales without warehouse distribution. The low sales volume indicates a niche market catering to specific operational needs within the beverage distribution sector.
Dunnage	\$0.00	-\$121,307.00	-\$121,307.00	Dunnage shows negative sales figures primarily due to warehouse adjustments. This category requires further analysis to understand the underlying reasons for negative sales and potential strategies for improvement or reevaluation.

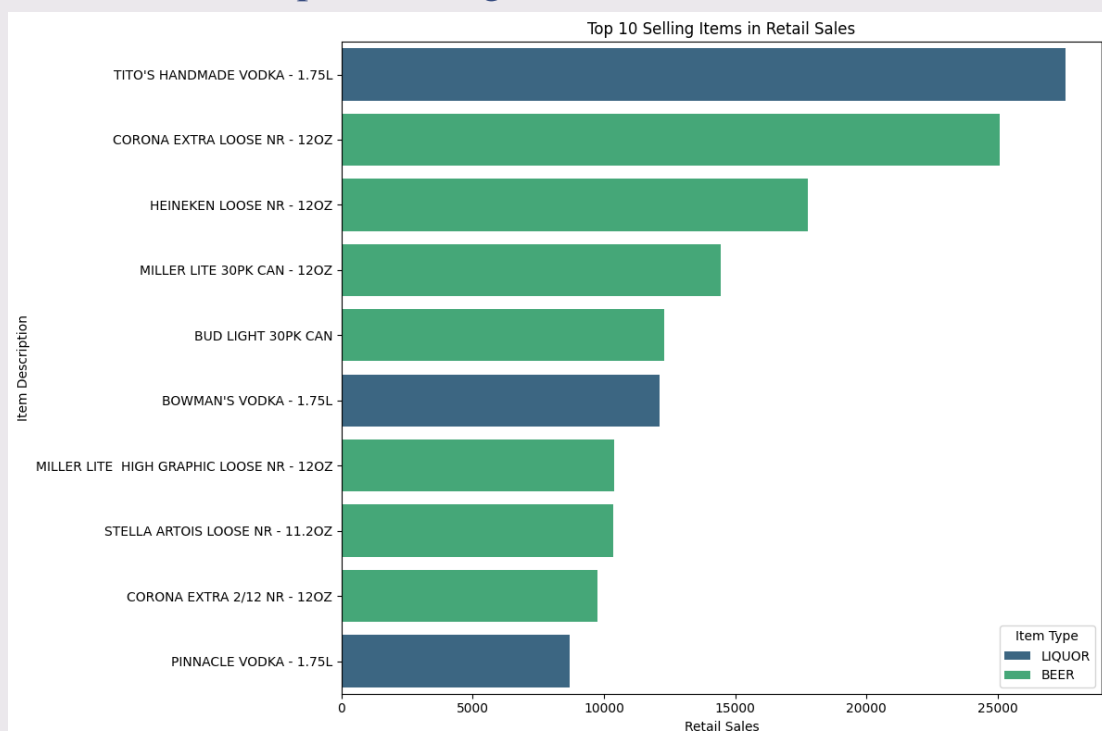


Conclusion

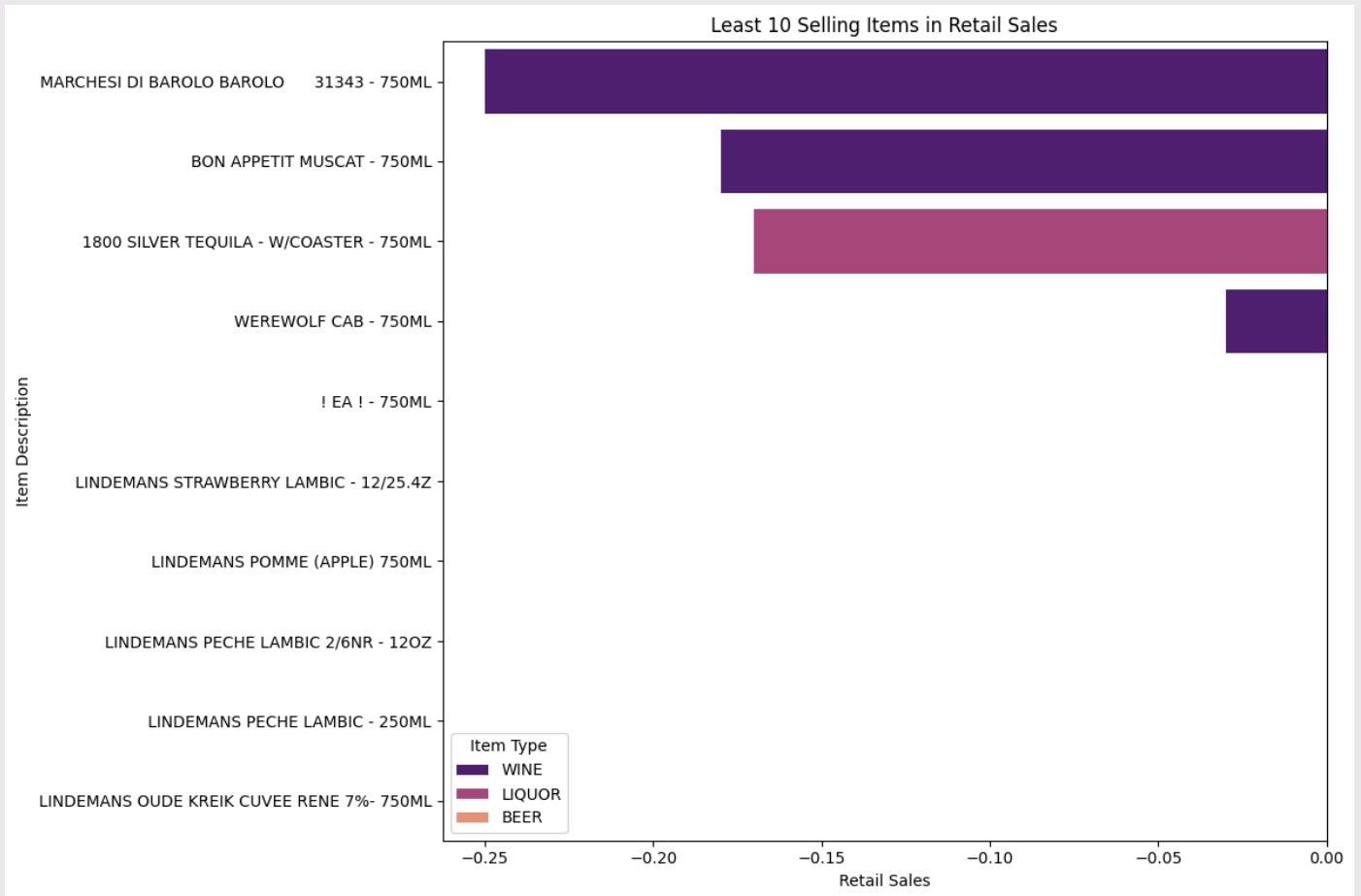
The item type analysis underscores the diverse sales dynamics within the alcoholic beverage market. By leveraging insights into the performance of each category, companies can refine inventory management, optimize marketing strategies, and capitalize on emerging trends to enhance overall sales effectiveness and operational efficiency.

4. ITEM-SPECIFIC SALES ANALYSIS:

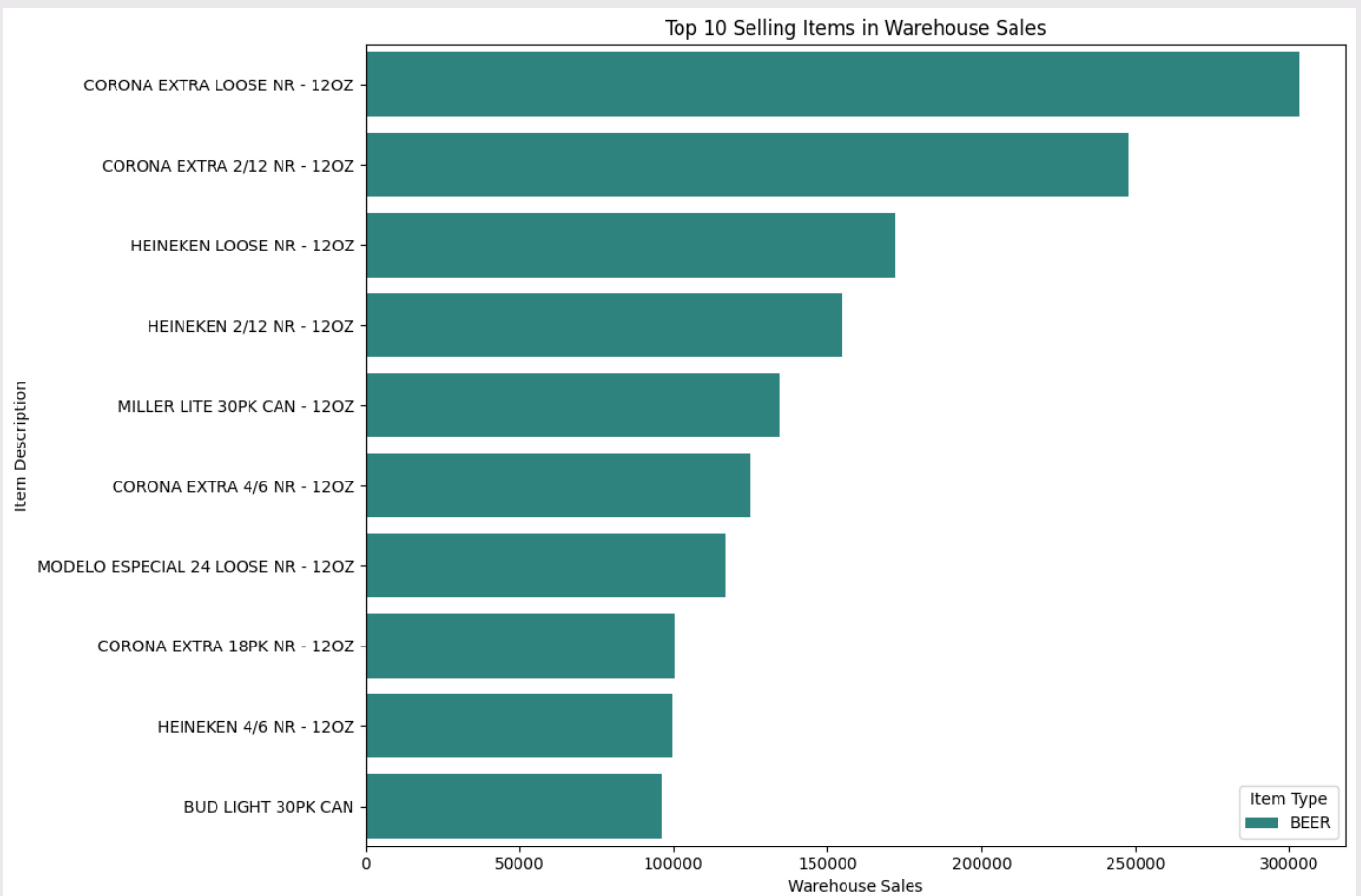
Top 10 Selling Items in Retail Sales



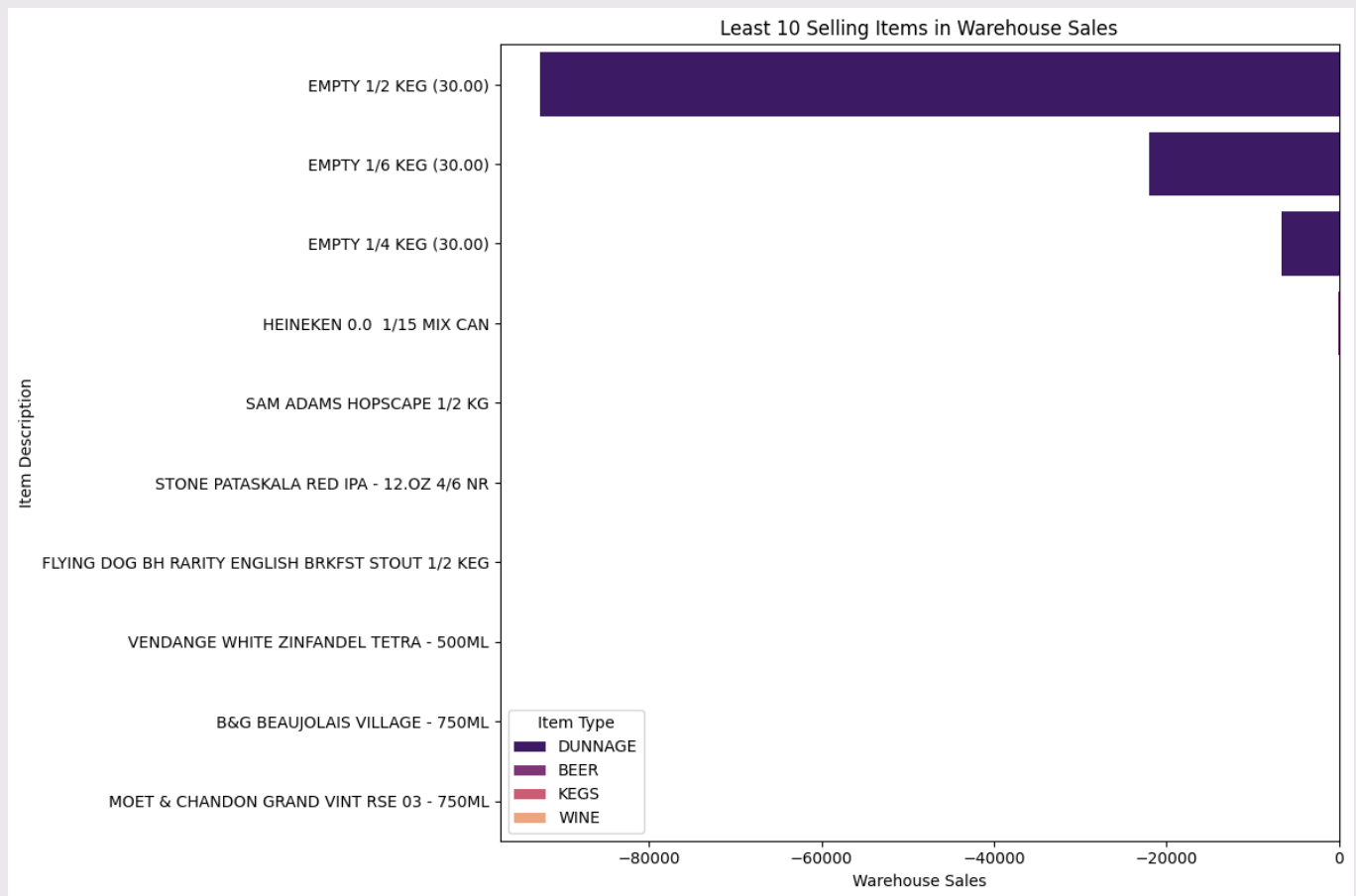
Least 10 Selling Items in Retail Sales



Top 10 Selling Items in Warehouse Sales



Least 10 Selling Items in Warehouse Sales



5. RETAIL VS. WAREHOUSE SALES COMPARISON:

Sales Comparison by Item Type

The comparison between retail and warehouse sales provides insights into the distribution channels' performance for different item types from January 2017 to September 2020.

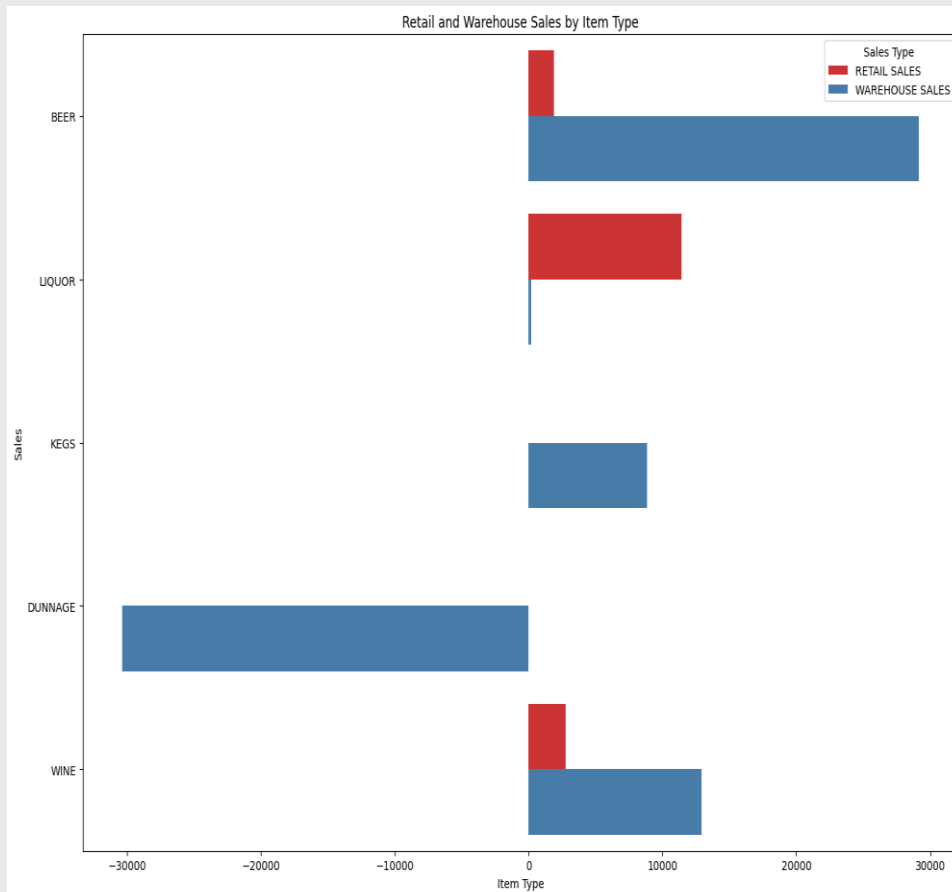
- **Beer:** Retail sales of beer amount to \$323,797.83, whereas warehouse sales significantly higher at \$4,957,718.17, indicating strong preference for purchasing beer in bulk quantities through warehouse channels.
- **Dunnage:** While there are no retail sales recorded for dunnage items, warehouse sales show a deficit of -\$121,307.00, possibly indicating returns or adjustments affecting the warehouse stock.
- **Kegs:** Keg sales exhibit no retail activity but show positive warehouse sales of \$35,398.00, indicating these items are primarily distributed through warehouse channels.
- **Liquor:** Retail sales for liquor amount to \$80,152.91, compared to relatively modest warehouse sales of \$1,450.66, suggesting liquor is predominantly sold through retail outlets.

- **Wine:** Similarly, wine shows higher retail sales of \$2,795.48 compared to warehouse sales of \$12,917.00, indicating a balanced distribution approach with a slight preference for retail channels.

Additional Insights:

Channel Preference by Item Type:

- **Beer** emerges as the top-selling category overall, with a significant preference for warehouse distribution, likely due to bulk buying patterns.
- **Liquor** and **wine** demonstrate a more balanced approach between retail and warehouse sales, reflecting diverse consumer preferences and market strategies.



Operational Considerations:

- Understanding the sales distribution between retail and warehouse channels helps optimize inventory management and supply chain operations.
- For items like beer and kegs, focusing on warehouse distribution can leverage economies of scale and logistical efficiencies.
- Retail-focused items such as liquor may benefit from localized marketing and promotional strategies to drive sales.

Market Strategy Adjustments:

- Tailoring marketing efforts and inventory management strategies based on the sales distribution between retail and warehouse channels can enhance overall sales effectiveness.
- Analyzing trends in consumer purchasing behavior can inform targeted promotional campaigns and pricing strategies tailored to each channel's dynamics.

Conclusion:

The analysis highlights the importance of understanding sales distribution patterns across retail and warehouse channels in optimizing operational efficiency and market effectiveness. By leveraging these insights, companies can strategically allocate resources and refine their distribution strategies to meet consumer demand effectively.

6. SALES TRANSFER ANALYSIS:

Top 10 Frequently Transferred Items in Retail:

The analysis reveals the top 10 items frequently transferred within retail operations, highlighting key products that experience high inter-store movements.

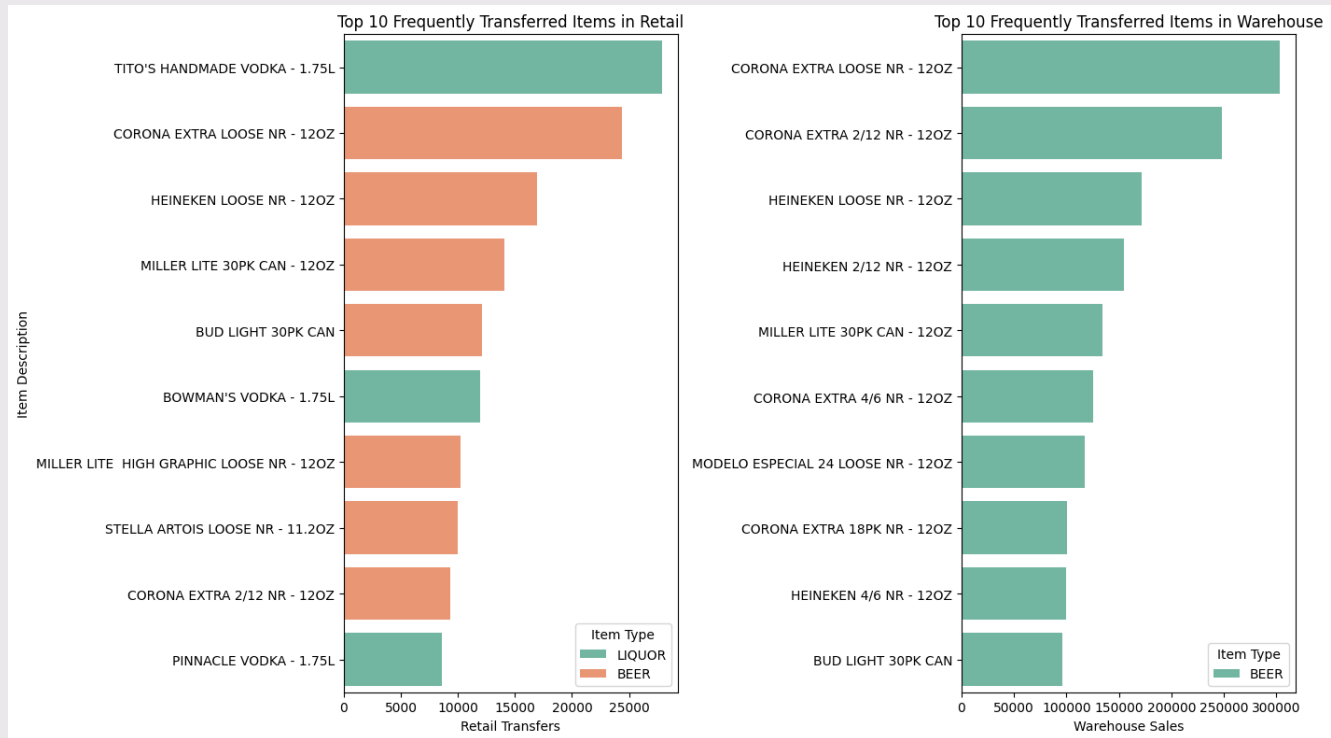
1. **Tito's Handmade Vodka - 1.75L (Liquor):** Leads with 27,889.33 units transferred, indicating strong demand across various retail locations.
2. **Corona Extra Loose NR - 12OZ (Beer):** Transferred 24,350 units, reflecting its popularity and wide distribution.
3. **Heineken Loose NR - 12OZ (Beer):** Follows closely with 16,963.96 units transferred, indicating consistent demand and availability.
4. **Miller Lite 30PK Can - 12OZ (Beer):** 14,045 units transferred, showcasing its popularity in bulk purchases across stores.
5. **Bud Light 30PK Can (Beer):** 12,120 units transferred, indicating steady demand and frequent stock movements.
6. **Bowman's Vodka - 1.75L (Liquor):** 11,945.16 units transferred, indicating a strong presence and consumer preference.
7. **Miller Lite High Graphic Loose NR - 12OZ (Beer):** 10,243 units transferred, highlighting its appeal in retail settings.
8. **Stella Artois Loose NR - 11.2OZ (Beer):** 9,995 units transferred, showing consistent popularity and distribution.
9. **Corona Extra 2/12 NR - 12OZ (Beer):** 9,312.46 units transferred, reflecting its appeal in both bulk and single unit formats.
10. **Pinnacle Vodka - 1.75L (Liquor):** 8,558.81 units transferred, indicating strong retail presence and consumer demand.

Top 10 Frequently Transferred Items in Warehouse:

Similarly, the top 10 items frequently transferred within warehouse operations provide insights into high-volume products moving through centralized distribution channels.

1. **Corona Extra Loose NR - 12OZ (Beer):** Leads with significant transfers totaling \$303,160.83, underscoring its popularity and large-scale distribution.
2. **Corona Extra 2/12 NR - 12OZ (Beer):** Transferred \$247,924.43, indicating strong demand for this format in bulk distribution.
3. **Heineken Loose NR - 12OZ (Beer):** Transferred \$171,950.21, highlighting its consistent demand and availability through warehouses.
4. **Heineken 2/12 NR - 12OZ (Beer):** Transferred \$154,654.49, reflecting popularity in both single and bulk formats.
5. **Miller Lite 30PK Can - 12OZ (Beer):** \$134,486.40 transferred, showcasing its appeal and high volume in warehouse operations.
6. **Corona Extra 4/6 NR - 12OZ (Beer):** \$125,111.38 transferred, indicating preference for this packaging format in bulk.

7. **Modelo Especial 24 Loose NR - 12OZ (Beer):** \$116,987.30 transferred, demonstrating strong warehouse movement for this brand.
8. **Corona Extra 18PK NR - 12OZ (Beer):** \$100,302.27 transferred, reflecting bulk purchasing patterns for this item.
9. **Heineken 4/6 NR - 12OZ (Beer):** \$99,406.15 transferred, showing consistent demand in both retail and hospitality sectors.
10. **Bud Light 30PK Can (Beer):** \$96,316.97 transferred, indicating its popularity and significant movement through warehouses.



Additional Insights:

Distribution Efficiency:

- Understanding which items are frequently transferred within retail and warehouse environments helps optimize inventory management and logistics.
- Items like Corona Extra and Heineken in various formats dominate both retail and warehouse transfers, suggesting robust market demand and effective supply chain management.

Consumer Demand Patterns:

- High transfer volumes indicate strong consumer preferences and seasonal variations that impact stock movement.
- Analyzing these patterns helps in forecasting demand accurately and aligning inventory levels with consumer expectations.

Operational Strategies:

- Tailoring promotional activities and inventory stocking strategies based on transfer data can enhance operational efficiency.
- Streamlining transfers between retail outlets and warehouses can reduce stockouts and improve customer satisfaction.

Conclusion:

The analysis of frequently transferred items in both retail and warehouse settings underscores the importance of understanding product movement dynamics to optimize supply chain operations. By leveraging these insights, companies can better align inventory management practices with consumer demand, ultimately improving operational efficiency and profitability.

7. MONTHLY SALES PERFORMANCE ANALYSIS

Overall Trends:

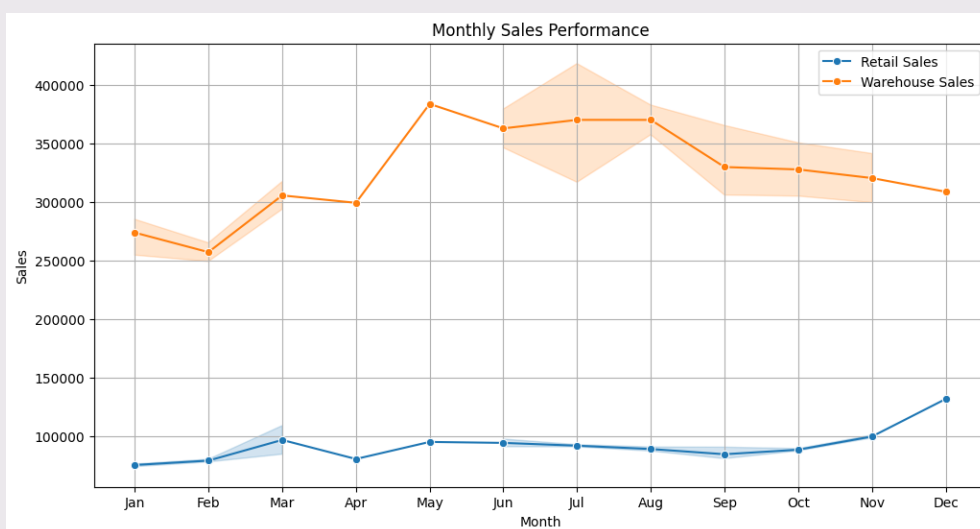
Seasonal Variations: Both retail and warehouse sales show seasonal patterns, with peaks typically observed during summer months (June to August) and a notable increase towards the end of the year, likely due to holiday season demand.

Year-over-Year Comparisons:

- Retail sales generally fluctuate, with significant variations month-to-month.
- Warehouse sales exhibit more stable patterns with occasional spikes, reflecting possible promotional or inventory adjustments.

Specific Insights by Month:

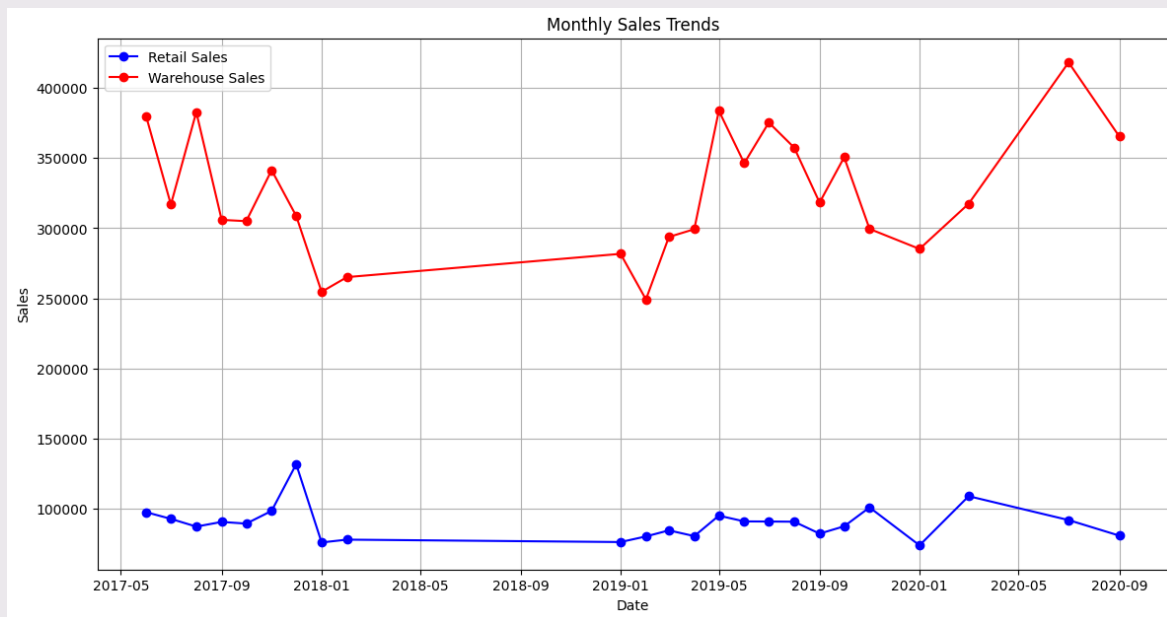
- **June and July Peaks:** Historically, June and July consistently show higher sales, especially in warehouse sales, which could be influenced by summer events and outdoor activities.
- **December Variations:** December often sees a boost in retail sales, possibly due to holiday shopping trends, while warehouse sales tend to stabilize or slightly decrease, indicating a shift in consumer behavior towards retail purchases.



Yearly Analysis:

- **2019 Sales Spike:** Notably, 2019 saw several months with higher sales across both retail and warehouse channels, possibly indicating overall economic factors or specific industry trends during that period.

- 2020 Challenges:** The latter part of 2020 (specifically September) shows a slight decline compared to previous years, which may reflect broader economic impacts or operational adjustments during the global pandemic.



Recommendations:

Seasonal Inventory Planning: Adjust inventory levels based on historical sales data, particularly during peak months like June and July, to capitalize on increased demand effectively.

Promotional Strategies: Implement targeted promotions during peak months to boost sales further, especially for high-demand items like beer and seasonal spirits.

Operational Efficiency: Streamline operations during high-sales periods to ensure sufficient stock availability and minimize out-of-stock situations, which can impact customer satisfaction and sales revenue.

Conclusion:

This analysis underscores the importance of leveraging historical sales data to drive informed decisions, optimize inventory management, and enhance overall sales performance across retail and warehouse channels. By strategically aligning resources and operational strategies, companies can better navigate seasonal variations and capitalize on market opportunities effectively.

8. SALES CORRELATION ANALYSIS

Key Observations:

Strong Correlation between Retail Sales and Retail Transfers:

The correlation coefficient of approximately 0.98 indicates a very strong positive relationship between retail sales and retail transfers. This suggests that as retail sales increase, there is a proportional increase in the number of transfers between retail outlets, indicating higher demand and movement of products within the retail sector.

Moderate Correlation between Retail Sales and Warehouse Sales:

The correlation coefficient of about 0.50 indicates a moderate positive correlation between retail sales and warehouse sales. This implies that there is a relationship between retail sales and the amount of inventory transferred from the warehouse to retail outlets. However, this correlation is not as strong as that between retail sales and retail transfers.

Similarity between Retail Transfers and Warehouse Sales:

Retail transfers and warehouse sales also show a moderate positive correlation, with a coefficient of approximately 0.49. This suggests that as the number of transfers between retail outlets increases, there tends to be a corresponding increase in warehouse sales, reflecting the logistical and supply chain dynamics involved in meeting retail demand.

Insights for Decision-Making:

Operational Alignment: Given the strong correlation between retail sales and retail transfers, optimizing retail transfer processes can help ensure adequate stock levels in retail outlets, thereby meeting customer demand more effectively.

Inventory Management: Understanding the moderate correlation between retail sales and warehouse sales allows for better inventory forecasting and management. Companies can adjust warehouse stocking levels based on retail sales trends to minimize stockouts and excess inventory.

Promotional Strategies: Leveraging insights from these correlations can inform promotional strategies. For instance, promotions that drive retail sales can be synchronized with warehouse operations to maintain optimal inventory levels and meet increased demand efficiently.

Recommendations:

Integrated Sales and Inventory Planning: Integrate retail sales data with transfer and warehouse sales data to develop more robust sales and inventory planning strategies.

Real-Time Data Utilization: Implement real-time data analytics to monitor correlations and adjust operational strategies promptly, especially during peak sales periods or promotional campaigns.

Cross-Functional Collaboration: Foster collaboration between retail, logistics, and warehouse teams to align operations and improve overall supply chain efficiency.

Conclusion:

This correlation analysis highlights the interconnectedness of retail sales, retail transfers, and warehouse operations within the alcoholic beverage distribution sector. By leveraging these insights, companies can optimize their supply chain, enhance inventory management practices, and ultimately improve customer satisfaction and profitability.

RESULTS

Main Findings

- **Top Performing Suppliers:** Identified key contributors like Crown Imports and Anheuser Busch.
- **Popular Item Types:** Beer emerges as the top-selling category, followed by wine and liquor.
- **Seasonal Sales Trends:** Peaks observed in summer months, highlighting seasonal demand variations.

Implications and Insights

- **Operational Insights:** Opportunities for optimizing inventory management and supply chain operations.
- **Market Strategies:** Focus on high-demand items like beer, supported by seasonal promotional campaigns.
- **Competitive Advantage:** Leveraging supplier relationships and data-driven insights to enhance market competitiveness.

Conclusion

This analysis underscores the critical role of data-driven decision-making in improving sales performance and operational efficiency within the alcoholic beverage distribution sector. By leveraging insights gleaned from this analysis, companies can strategically align resources to capitalize on market opportunities and address operational challenges effectively.

RECOMMENDATIONS

Actionable Steps

1. **Supplier Relationship Management:** Strengthen ties with top-performing suppliers to enhance product availability and pricing strategies.
2. **Inventory Optimization:** Implement dynamic inventory management practices based on seasonal sales trends to minimize stockouts.
3. **Marketing Strategy Enhancement:** Tailor marketing efforts to capitalize on high-demand item types, leveraging seasonal trends for promotional activities.
4. **Operational Efficiency:** Streamline sales transfer processes between retail and warehouse operations to optimize resource allocation and improve customer service.