

INVENTORY MANAGEMENT POLICIES OF GOLD JEWELRY RETAILERS

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Abstract: With the gradually increasing pressure of market competition and the diversification of consumers' choices, more and more gold jewelry retailers begin to seek the ways and means to reduce costs and improve profits, inventory management also is given more meaning and significance. Starting from the logistics characteristics of the gold jewelry, This article analyzes the prevalent inventory problems of gold jewelry retailers, such as low inventory turns, inventory structural imbalance and so on, and main reasons these problems emerge. On this basis, from supplier management, customer demand forecasting, replenishment strategy and the goods on display and other aspects respectively, putting forward the inventory management strategy of gold jewelry retailers.

1 INTRODUCTION

With the rapid development of China's economic, the increase in disposable income of residents and the change in patterns of consumption, the demand for luxury goods continues to grow. Under the shadow of the financial crisis, even if the global luxury goods consumption was significantly decreased by 10% in general in 2009, Chinese's consumption of luxury goods maintained a growth of 12%, set a record of 96 billion dollars, and accounted for 27.5% of global market shares. Because the gold jewelry has dual nature in both consumption and preservation, its growth is prominent. Therefore, the study of the inventory management of gold jewelry has a great practical significance.

2 CHARACTERISTICS OF GOLD JEWELRY IN LOGISTICS

As a special stock of goods, gold jewelry has unique characteristics in logistics that are different from the ordinary goods. These characteristics mainly reflect in these following areas:

2.1 Great Unit-value of Goods, More Funds Using

Gold jewelry is mainly produced by gold, and their purity reaches 99.95%-99.99%. With the continuous rise in the international price of gold in recent years, the market price of gold jewelry is also growing. Trading price of spot gold reached a historic high of \$ 1,366 per ounce in New York Gold Exchange on October 7, 2010, and the domestic price of gold jewelry jumped to 366 yuan per gram. The inventory of the high price of gold jewelry occupies the enterprise's more liquid capital.

2.2 Instability of the Price of Goods

Purchased price of domestic gold jewelry is based on the international gold market price of real-time transactions. The volatility in the international gold price leads to unstable market price of gold jewelry. If you encounter a significant reduction in the gold price after the purchase, the retail price of the gold jewelry will be reduced. Forced by market pressures, both the retail price and the purchased price of gold jewelry may be flat or the retail price is below the purchased price. This situation is bound to bring a certain degree of loss to the gold jewelry enterprises.

2.3 Seasonal Fluctuation in Market Demand

The demand of gold jewelry is influenced by the technology, style, price, cultural tradition, consumption habit and other factors. The largest influence comes from cultural traditions, especially in the Spring Festival, New Year and other important traditional festivals. In China's traditional culture, gold is provided with the meaning of wealth and avoiding disadvantages, so presenting gift of gold has gradually become a trend in the holiday or the special day. The role of factors such as cultural traditions, consumption habits and so on makes sales of gold jewelry obvious and seasonal volatility.

2.4 The Safety Management of Goods is the Core of its Logistics Management

Gold jewelry has strong liquidity, so the safety of gold jewelry is the core of its logistics process. The gold jewelry must be stored in the safe, and need the specialist for custody, both in the process of transportation and in the storage period.

3 PERFORMANCE OF GOLD JEWELRY RETAILERS INVENTORY PROBLEM

3.1 Low Inventory Turns

Inventory is the core asset of gold jewelry retailers, while a large proportion of the cost of business operations comes from holding stock. Under normal circumstances, Inventory complement should be based on the premise that sales are needed and product backlog is nonexistent, and the aim of the inventory reduction is to accelerate inventory turnover but not affect the sales. But through the investment of gold jewelry retailers we can find that the prevalent inventory problems of gold jewelry retailers are high inventory levels, big money occupation and low inventory turnover.

3.2 Inventory Structural Imbalance

According to the different materials of gold jewelry, they can be divided into jewelry gold, K gold jewelry, K platinum jewelry, gold jewelry covering

with gold leaf and gilded gold jewelry; according to their different functions, they can be divided into rings, necklaces, earrings, bracelets, bangles, etc. In addition, each species can be designed in different colors, patterns and so on. Therefore, gold jewelry is different from gold bars, gold coins and other offerings with a simple store of value. Besides a store of value, gold jewelry also has a strong function of consumption. The market demand of gold jewelry with different functions, color and style exists significant differences. And most gold jewelry retailers often appear unreasonable phenomena that selling goods are out of stock and slow-moving goods are overstocked.

4 REASONS FOR GOLD JEWELRY RETAILERS' INVENTORY PROBLEMS

The reasons for inventory structural imbalances and the low rate of turnover relate to many aspects, and the most important reasons are as follows:

4.1 Competitive Relationships of Supplier

Goods of gold jewelry retailers depend on a steady stream of supply from supplier. Maintaining a long-term cooperation with upstream suppliers is to ensure the supply of goods and meet the customers' needs. But through the investment of gold jewelry retailers we can find that most domestic companies still regard suppliers as their competitors, and strive by squeezing suppliers to obtain high profits. In order to obtain lower prices, enterprises replace suppliers frequently, resulting in the relations between suppliers and marketing enterprises stay in the short trading relationship. In such a short framework of supplier relationships, in order to prevent out of stock, marketing enterprises have to hold a large amount of inventory. Statistics show that the lower offer of goods, the greater probability of its occurrence of quality and process defects, resulting in the goods also increase the risk of backlog.

4.2 Empirical Commodity Procurement Policy

Since the sales companies can not accurately grasp

the time and numbers that customers need for gold jewelry, they can only use the management strategy of “several times to replenish stocks”, through the maintenance of certain inventory levels ensuring the stochastic demand of the market. At the same time, because the gold jewelry that gold jewelry retailers sell has relatively small difference in qualities, styles, varieties and so on, the customer loyalty is low. In order to avoid losing customers due to shortages, many companies can only take a more conservative strategy of procurement of goods, with sales experience of sales and understanding of the market, inevitably resulting in a phenomenon that procurement exceeds the actual needs of the market, which causes high inventory levels. C. Simple and extensive inventory policy

Many retailers lack scientific forecasts of customer demand, so inventory replenishment often choose the method of periodic replenishment, that means enterprises inspect and order all types of gold jewelry on a regular basis (monthly), and order quantity basically unchanged from last month's sales. This ordering strategy has advantages in simple operation and better stock control, so it is favoured by gold jewelry sales firms. However, this ordering policy has ignored the differences on demand of species so that it is easy to produce unreasonable consequences on the stock structure. D. Non-standard inventory management

Many gold jewelry retailers ignore the classification management of goods in the storehouse. They often only records the types of storage products, storage time, quantity (weight) of goods and price and other simple information. The original management method can only meet the basic requirements of the financial aspects, but has no benefit of reducing inventory levels, improving fund efficiency and increasing their sales revenue.

5 INVENTORY MANAGEMENT POLICIES OF GOLD JEWELRY RETAILERS

5.1 Establishing Long-term Strategic Partnerships with Suppliers

Enterprises must continue to enrich the product categories, optimize inventory and improve inventory control structure in order to meet consumers' demand. Consequently, to strengthen

communication and cooperation with suppliers is the basic strategy of rapid response to customers' demand, reducing stock and increasing the efficiency in the use of funds.

The size, strength and business strategy of suppliers directly affects the retailers management with a supply chain. Therefore, it is important to select suppliers carefully to improve overall competitiveness of gold jewelry supply chain. Supplier selection is needed to be based on the comprehensive assessment. Multi-factor selection method to select gold jewelry suppliers is a common method. The method chooses the gold jewelry price level, the capability of supplier's design and development, the quality control system, financial status and the public image, etc. as considerate factors in evaluating suppliers according to their own requirements and characteristics of gold jewelry, and assigns the appropriate weight according to the importance of the various factors. Selecting the suppliers at all levels of enterprises through comprehensive evaluation scores of each supplier.

Choice of supplier evaluation is completed, the enterprises can establish different degrees of cooperation with suppliers based on the results of assessment. In the process of establishing cooperative relationship, the signing of cooperation agreements and the standardization of process are very important. Therefore, it is necessary for enterprises to establish supplier management department that is specifically responsible for the whole process work of supplier selection, evaluation, management and so on.

5.2 Scientific Forecasts Demand

Scientific forecasts of future demand are essential to an inventory manager's decision-making and planning processes. Scientific demand forecast is not only effective in reducing inventory levels, but also timely adjust the entire inventory management system according to the change of future demand. The demand for gold jewelry is influenced by the income levels of resident and the commodity prices. Table1 is a company's statistics about the gold jewelry sales, average price and per capita disposable income of urban residents from February 2009 to February 2010. Based on these data, companies can predict future sales condition through building the prediction model.

5.2.1 The Establishment of the Model

The disposable income of urban residents and the price of gold jewelry are the important factors that affect sales. Now, assume that the sales of y , the monthly disposable

income of urban residents of x_1 and the retail price of gold jewelry have a linear relationship that can be used a linear regression model (assuming a significance level $\alpha = 0.05$):

$$y_i = \beta_0 + \beta_1 x_1 + \beta_2 x_2$$

5.2.2 The Parameter Estimation

Using the least squares method, parameter estimator can be obtained.

Table 1: an enterprise's sales related data and statistics of disposable income of urban residents.

Month	per capita disposable income (¥)	retail price (¥)	sales(¥)
2009.02	2050	215	163927.17
2009.03	2165	220	165320.69
2009.04	2204	225	165767.42
2009.05	2153	225	165913.36
2009.06	2146	230	165497.23
2009.07	2161	235	165829.52
2009.08	2183	238	166535.27
2009.09	2130	243	166369.85
2009.10	2275	250	167897.54
2009.11	2250	265	165248.52
2009.12	2172	288	161300.29
2010.01	2667	283	168919.26
2010.02	2668	283	168946.15

Source: The website of Beijing Statistics Bureau and the corporate sales reports.

$$\beta_0 = 151185.5, \beta_1 = 12.58, \beta_2 = -54.89$$

According to $R^2 = \frac{RSS}{ESS}$ and $F = \frac{v_1}{v_2} \cdot \frac{1-R^2}{R^2}$, we know

$$R^2 = 0.74, F = 14.14.$$

And statistics of T. respectively are $T_1 = 5.22$, $T_2 = -3.00$.

The result of the regression analysis is: $y = 151185.5 + 12.58 x_1 - 54.89 x_2$.

5.2.3 Model Checking

(1) Economic test

One item coefficient $\beta_1 = 12.58$, indicates that the monthly disposable income of urban residents increases 1 million, sales could increase 12.58 yuan; $\beta_2 = -54.89$ shows that retail prices increases 1 million, sales decrease 54.89 yuan. The data are consistent with the general economic law.

(2) Statistical significance tests

① The significance test of parameters

In this set of data, statistics of T. respectively are $T_1 = 5.22$, $T_2 = -3.00$. For a given significance level $\alpha = 0.05$, checking t distribution table, we obtain its critical value $t_{0.025}(13) = 2.16$, and because of $T_1 = 5.22 > t_{0.025}(13) = 2.16$ and $|T_2| = 3.00 > t_{0.025}(13) = 2.16$, so we refuse $H_0: \beta_1 = 0$ and $\beta_2 = 0$, which show the disposable income of urban residents and the retail price of gold jewelry have a significant impact on the sales.

② Goodness of fit test

In this set of data, $R^2 = 0.739489$, indicates that the explanatory power of the sample regression equation is 73.95%. At the same time in the total variation in sales of y , the explanatory variables x_1 that is the disposable income of urban residents and x_2 that is the retail prices of gold jewelry are in the interpretation of 74%, that is, changes in the enterprise sales by 74% can be explained by the sample regression equation, so the model goodness of fit is higher.

③ F-value test

In this set of data, $F = 14.19$. For a given significance level $\alpha = 0.05$, check its critical value in F distribution table. The degree of freedom is $v_1 = 3$, $v_2 = 9$, $P(F > 6.99) = 0.05$, $F = 14.19 > 6.99$, so we refuse the assumption $H_0: \beta_1 = \beta_2 = 0$ which shows that all explanatory variables x_1, x_2 has a significant impact on the explained variable y in the regression equation, that is, the general significance of the equation is strong.

5.2.4 Forecast

After testing on the parameters and the equations, we can draw the binary regression prediction equation:

$$y=151185.5+12.58x_1-54.89x_2$$

5.3 Optimizing Replenishment Policy

As the value and weight of gold jewelry are higher and the amounts of funds occupied are bigger, the inventory carrying cost is higher than the ordering cost. At the same time, the high profit margins of gold jewelry makes stockout cost relatively high. Accordingly, the basic objective of inventory replenishment policy of gold jewelry is the enterprise reduces inventory levels to an extreme, ensuring stockout not happen. For these reasons, it is more appropriate that gold jewelry retailers adopt the continuous replenishment strategy. Continuous replenishment strategy determines a reasonable level of replenishment of inventory and replenishment quantity according to the needs of different commodities and replenishment time. Once the inventory level is less than reorder point, the enterprise immediately issue orders for the economic order quantities; otherwise, there is no replenishment.

It should be noted that the replenishment strategy should be evaluated and adjusted regularly or irregularly, based on customer demand, business conditions and changes in the external environment.

5.4 Regulating the Display of Gold Jewelry and Library Management

5.4.1 Scientific Design of the Goods on Display

The display of gold jewelry of all varieties directly impact on its sales, and then influence the level of business inventories. According to the statistical analysis of different types of gold jewelry market, the profitability of various gold jewelry from strong to weak is: necklaces, pendants, rings, bracelets, ornaments, earrings (fall), and gold products.

When a customer go into the store, he does not like the corner of the store generally, and does not want to go back, but he likes to take tortuous detours. And consumers prefer the counterclockwise direction of flow, so counterclockwise at the entrance is a very good display position for products. In addition, the location on the wall that the direction of the master stream is as high as line of sight, and the display surface of view of the center point radiation angle of 65° each side are ideal locations of goods. According to the characteristics of the customer purchase

behavior, combining with the different profitability of the gold jewelry of all varieties, the goods of higher purchase frequency such as necklaces and pendants can be put at the entrance on the counterclockwise, and rings, bracelets and other varieties can be along the counter clock wise direction of the display. Gold ornaments, coins and other memorabilia display goods can be display on the direction of the master stream, which are on the wall and the location of line of sight, and as high as the center point of view of radiation angle of 65° each side of the display surface. Of course, the gold jewelry on display position is not fixed, and also make the appropriate adjustments, according to season, seasonal regulations, promotional and other factors.

5.4.2 The Classification Management of Goods in the Library

Enhancing the classification management of goods in the library is important aspect on controlling inventory levels, improving cash flow rates and ensuring the normal sales of goods. For this reason, the gold jewelry in the library management can use ABC management principles. According to the amount of annual sales of varieties of goods, the goods are divided into three categories of A, B, C. The A type goods' proportion of the annual sales amount is about 80%, but the number of their species accounts for about 10%. After classification of inventory items, you need to take different management practices and procurement policies of all kinds of inventory.

5.5 Strengthening Management of the Old Gold Materials and Defective Goods

In order to attract customers and promote product sales, many gold jewelry retailers develop a "traded-in" business. If not be handled in time, the gold business inventory increased by the "traded-in" business and inventory of the defective products in the procurement process will not only squeeze the enterprise storage space, but also influence the efficiency in the use of funds.

For the second-hand jewelry enterprises acquired in "traded-in" business, first of all, their quality must be conducted to determine its gold whether comply with the standard of thousands of gold. Second, simple packaging of old material to avoid confusion

with other jewelry. Finally, they will be wrapped to the good suppliers in the next order.

6 CONCLUSIONS

Solving gold jewelry inventory problem needs the basic concept of supply chain management as the guide, and we should plan overall and control comprehensive from the aspects, such as keeping the strategic partnerships with suppliers, scientific forecasts of future demand, a reasonable choice of order strategy, scientific of goods on display, standardization of reverse logistics and so on.

REFERENCES

- Xi Wen Li, Bin Li, Inventory Control and Management, Beijing: *Mechanical Industry Press*, 2005.3.
- Baoren Li, Econometrics, Beijing: *Mechanical Industry Press*, 2008.2
- Minggui Sun, Consumption Logistics Management, Beijing: *China Social Sciences Publishing House*, 2005.5.
- Cai Feng Gao, Purchase, sales, storage of the store merchandise management, Beijing: *China Development Press*, 2009.
- Zhihong Fan, store merchandise management, Beijing: *Mechanical Industry Press*, 2006.