Business Model Innovation and Evolution of Freshippo -- A Global Online-to-Offline Development Analysis from Premium Membership to Low-Price Discount Stores

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Abstract. Freshippo, which was launched by Alibaba Group in 2016 as a benchmark for new retail, has a development history that could be regarded as a landmark case for the digital transformation of China's retail industry. According to the "2024 China Supermarket Top 100" data released by the China Chain Store & Franchise Association in July 2025, Freshippo has risen to become one of the third-largest retail enterprises in China's supermarket industry. These rankings place it just behind Walmart China and Kangcheng Investment (China). This achievement signifies that after years of exploration, Freshippo has preliminarily validated the success of its business model. Underpinning this success, Freshippo's attempt to transform its membership-based model stores into discount stores has played a significant role in its development journey. Under this transformation strategy, Freshippo's profit margin has seen significant development. This paper will investigate whether this transformation has had a positive impact on Freshippo by examining its profit margins. The findings of this investigation will offer actionable insights for industry practitioners navigating digital transformation. To show how strategic format pivots could be leveraged to enhance financial sustainability in competitive retail landscapes.

Keywords: Freshippo, New Retail, Discount Stores.

1 Introduction

At its establishment in 2016, Freshippo introduced a premium membership model, targeting mid to high-income consumer groups in China's first and second-tier cities. It provided consumers with a high-quality shopping experience through an integrated Online to Offline (O2O) model combining "online + offline + logistics" [1]. After several years of operation, as the Chinese market shifted from "consumption upgrade" to "consumption stratification", Freshippo initiated a strategic transformation in 2020, gradually moving towards a mass-market and discount-oriented business strategy. In March 2024, Freshippo explicitly proposed a dual-strategy of "Freshippo Large-format Stores + Freshippo NB Discount Stores". Fre-hippo Stores aims to rapidly transition to a discount store model, emulating the business models of mature discount retailers. By

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leveraging supply chain technology and Freshippo's own brand Stock Keeping Unit (SKUs), it seeks to serve the needs of consumers across different stratification levels. The Freshippo NB Discount Stores primarily focus on serving community needs. These two strategic lines complement each other, working together to develop Freshippo's discount store model.

2 Discussion On the New Retail Model

2.1 Historical Evolution of Retail Formats and the O2O Model

The traditional retail model initially relied on physical stores, transferring goods from producers to consumers through a multi-tier distribution system. In traditional retail models, price transmission occurs through offline channels with high confidentiality, leading to strong regional pricing characteristics where different areas set prices based on factors like sales volume and inventory duration, resulting in information imbalance for identical products. The rise of new retail models enables consumers to access product prices via online platforms with highly transparent pricing, facilitating better choices and helping products overcome geographical barriers. Thus, even if a product's retail price in one region is unsatisfactory, consumers could find satisfactory purchasing methods through online queries, making new retail increasingly popular. For producers, new retail integrates online and offline channels to enhance supply chain efficiency and consumer experience, thereby stimulating consumption. The evolution from traditional to new retail allows manufacturers to reach the public not only through offline retail but also via online methods such as live streaming and e-commerce, forming a more comprehensive retail ecosystem [2].

2.2 Freshippo's New Retail Innovation and Strategic Transformation

Freshippo stands as a typical example of the New Retail model, achieving important breakthroughs in value creation and capturing mechanisms [3]. On one hand, Freshippo systematically reconstructs the three core retail elements—consumer, goods, and scene—using big data and artificial intelligence [4]. It achieves digitization of consumers through precise demand identification, optimizes product allocation via a vertically integrated supply chain, and creates new consumption scenarios through online-offline integration [5]. On the other hand, Freshippo also represents a highly mature stage of O2O development in the Chinese market. Currently, over 60% of its total transactions come from online orders, and it has established an extensive 30-minute delivery network covering 50 major cities. In the post-pandemic era, Freshippo has further adjusted its strategy, shifting from a high-end positioning toward the mass market to adapt to consumers' growing emphasis on cost-effectiveness, demonstrating strong market adaptability and expansion potential.

2.3 Comparative Analysis with Membership and Hard Discount Models

Compared to the membership-based retail model represented by Costco and Sam's Club, which relies on membership fees as its main profit source and targets homogeneous customer segments with strong purchasing power, Freshippo does not impose membership thresholds and focuses more on reaching consumers broadly through omnichannel and digital means. In contrast to the hard discount model exemplified by ALDI and Lidl, while Freshippo emphasizes affordability for some products, its core advantage does not lie in an ultra-lean supply chain or private-label strategy, but rather in data-driven product selection, dynamic pricing, and integrated online-offline service scenarios [6]. It is worth noting that ALDI achieved rapid growth in the Chinese market recently, with sales increasing by 100% in 2024, demonstrating the significant potential of the hard discount model in China. While maintaining its core strategy of providing high-quality products at the lowest prices, ALDI incorporates well-know domestic brands snacks to help with its local market adaptation. It's the main reason ALDI win the China market [7]. Freshippo, meanwhile, has built a differentiated competitive barrier in a highly competitive market through technology-enabled and scenario-driven innovation, reflecting the New Retail model's comprehensive optimization of both efficiency and experience [8].

3 Research Methodology and Data

3.1 Data Sources and Processing

This study constructs a quarterly panel dataset with Freshippo as the treatment group and Sam's Club and ALDI as the control groups to assess the impact of digital transformation and online-to-offline integration strategies on corporate profitability. The quarterly net profit margin data are sourced from corporate financial disclosures obtained via the "Tushare" financial data interface. The sample covers the period from the first quarter of 2016 to the fourth quarter of 2025, encompassing three companies, with quarters as the time dimension and companies as the cross-sectional dimension.

Fig. 1 illustrates the trends in quarterly net profit margins for Freshippo, Sam's Club, and ALDI from the first quarter of 2016 to the fourth quarter of 2025. Overall, Freshippo, represented by the blue line, consistently maintained a significantly higher net profit margin throughout the sample period compared to Sam's Club, shown in orange, and ALDI, shown in green. This reflects Freshippo's advantages in digital supply chain management, its front warehouse model, and its focus on high-margin fresh product categories. Sam's Club exhibited a moderate net profit margin with considerable fluctuation, while ALDI had the lowest net profit margin, showing a slight downward trend, indicative of the profit pressure resulting from its market entry strategy based on low prices in China.

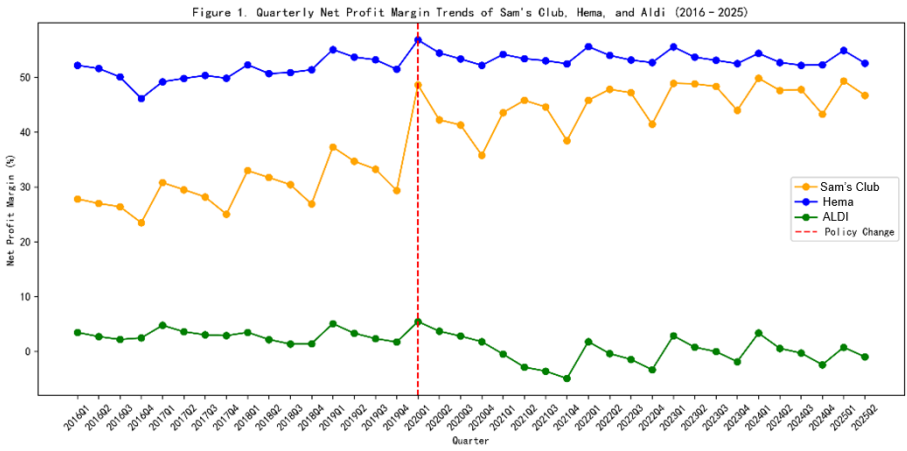

Fig. 1. Quarterly Net Profit Margin Trends of Sam's Club, Freshippo, and Aldi (2016~2025) (Photo credit: Original)

The vertical red dashed line in the figure marks a policy or strategic turning point in the first quarter of 2020, used to examine the potential effect of this policy implementation or strategic shift on profitability. It can be observed that while Freshippo maintained its lead after 2020, its net profit margin did not show a noticeably accelerated upward trend. Similarly, Sam's Club and ALDI did not exhibit significant improvement or deterioration in their profit margins post-2020. This preliminary visual finding aligns with the subsequent DID regression results, indicating that the policy or digital strategy advancement around 2020 did not lead to a significant relative change in Freshippo's profitability compared to the control groups. Furthermore, viewing the temporal trends, the net profit margin curves for the three companies largely maintained parallel trends before 2020, without obvious structural breaks, providing preliminary support for the parallel trends assumption underlying the DID model. Overall, the graph visually compares profit levels and trend evolution of the treatment and control groups before and after the policy intervention, establishing a foundation for subsequent empirical analysis.

3.2 Difference-in-Differences (DID) Model Design

To ensure comparability between pre- and post-period trends and mitigate the influence of outliers, the data were cleaned and deduplicated by quarter after download, retaining only the latest disclosed value for each quarter-end.

$$Profit_{it} = \beta_0 + \beta_1 \mathrm{Treat_i} + \beta_2 \mathrm{Post_t} + \beta_3 (\mathrm{Treat_i} \times \mathrm{Post_t}) + \varepsilon_{it} \quad (1)$$

The research employs a DID model, with the basic specifications given. Here, Profit denotes the net profit margin of firm i in quarter t. Treat is a treatment group dummy variable, taking the value 1 for Freshippo and 0 for Sam's Club and ALDI. Post is a period dummy variable, taking the value 1 for the first quarter of 2020 and onwards,

and 0 otherwise. The coefficient β3 on the interaction term Treat×Post is the DID estimator, capturing the net effect of the policy or strategic adjustment on Freshippo's net profit margin relative to the control groups. To verify the robustness of the results, this paper conducts two extended regressions. First, it uses a subsample from 2018 to 2023 to ensure symmetric time windows before and after treatment and reduce the influence of distant observations. Second, it performs a Placebo Test by artificially setting the policy time point to the first quarter of 2018. An insignificant DID coefficient in this case would suggest that the main finding is unlikely to be driven by coincidental trends. All regressions use heteroskedasticity-robust standard errors to reduce the potential impact of heteroskedasticity on t-statistics.

Table 1 presents the DID regression results. Column 1 shows the results for the full sample from the 2016 first quarter to the 2025 last quarter. The coefficient on the treatment group dummy variable Treat for the treatment group is 34.833, which is significant at the 1 percent level. This result shows that Freshippo's average net profit margin was higher than that of Sam's Club and ALDI throughout the sample period. This analysis indicates that throughout the sample period. Freshippo's average profit margin substantially exceeded its key competitors, Sam's Club and ALDI, with a growth rate differential of approximately 34.8%. This aligns with the market reality of Freshippo's leadership in gross margin and operational efficiency underpinned by its digital supply chain and front warehouse model. The coefficient on Post is 6.412, but statistically insignificant, suggesting no systematic change in the overall retail industry's net profit margin after 2020. The key coefficient on the DID interaction term is -3.927, negative but statistically insignificant. This indicates that Freshippo's net profit margin, relative to the control groups, did not change significantly following the policy or strategic adjustment in 2020. This result suggests that Freshippo's advantages in digital transformation and supply chain optimization did not immediately translate into a significant relative improvement in profitability post-policy, potentially related to industry-wide digitalization and simultaneous intensification of competition. The model's overall goodness-of-fit, with an R-squared of 0.788 and an adjusted R-squared of 0.764, along with a significant F-statistic, indicates a reasonable level of explanatory power for net profit margin.

Table 1. Table captions should be placed above the tables.

Variable	(1)	(2)	(3)
Treat	34.833***	34.982***	34.637***
	(2.548)	(4.018)	(3.248)
Post	6.412	4.930	5.396
	(4.317)	(5.717)	(3.654)
DID	-3.927	-3.503	-2.690
	(4.358)	(5.756)	(3.257)
R^2	0.788	0.866	0.823
Adjusted R^2	0.764	0.843	0.819
Observations	114	72	114

Note: Heteroskedasticity-robust standard errors are reported in parentheses *** p<0.01, ** p<0.05, * p<0.1.

To enhance the comparability between the pre- and post-periods, the sample was restricted to the 2018 quarter one to 2023 quarter four, and the DID model was re-estimated. The Treat coefficient remains significant and slightly higher, affirming Freshippo's consistently higher profitability. The Post coefficient remains insignificant, and the DID coefficient is also insignificant. This result aligns with the baseline regression, further supporting the conclusion that the 2020 policy or strategic change did not significantly alter Freshippo's profitability gap relative to Sam's Club and ALDI. Compared to the full sample, the R-squared and adjusted R-squared remain reasonable, suggesting increased sample volatility with the shortened window but overall robust conclusions.

To exclude the possibility that the parallel trends assumption is violated, the policy time point was artificially advanced to 2018 first quarter, and the DID regression was repeated. The results show the Treat coefficient remains highly significant, while the DID coefficient is insignificant. This indicates that no significant treatment effect is observed even if the policy time is set two years earlier, suggesting that the net profit margin trends for the treatment and control groups were largely parallel before 2020. This supports the validity of the DID identification assumption and indicates that the main conclusion is not driven by coincidental trends or model specification bias. The model's R-squared and adjusted R-squared are comparable to the full sample model, further supporting the robustness of the baseline conclusion.

4 Discuss the Results

Overall, the results from the three models consistently reveal several key findings. Freshippo's profitability is consistently and significantly higher than that of Sam's Club and ALDI. The Treat coefficient is around 34–35 across all models and robustly significant at the 1 percent level, indicating that Freshippo's net profit margin, leveraging digital supply chain management, front warehouses, and fresh category advantages, is markedly higher than the traditional membership model of Sam's Club and the low-price strategy of ALDI [9]. The policy of strategic adjustment around 2020 did not lead to a significant relative leap in profitability. The DID coefficient is negative across all models but statistically insignificant in all cases. This implies that despite Freshippo's accelerated digital expansion and online business deployment after 2020, its profit advantage did not widen further. Potential reasons include the high initial costs of digital transformation requiring long-term gestation before translating into net profit gains, which is consistent with findings that digital initiatives like store portfolio optimization and dynamic pricing systems require significant upfront investment and operational adjustments before yielding financial returns [10]. Competing retailers are also rapidly advancing their digital and membership initiatives, thereby offsetting Freshippo's relative edge, and potential time lags in policy benefits translating into profitability within the fresh retail sector.

The parallel trends assumption is generally supported. The placebo test advancing the policy date to 2018 first quarter yields an insignificant DID coefficient, indicating no significant pre-existing trend differences between the treatment and control groups,

thereby enhancing the credibility of the DID identification. The model fit is reasonable and robust across specifications, with R-squared values indicating the models explain the main trends in profitability well, despite inherent fluctuations.

From a practical perspective, the results indicate that the mere announcement of policies or digital strategies does not immediately translate into profit improvement [11]. Achieving sustainable profitability requires continuous investment in digital supply chains, user operations, and front warehouse efficiency, coupled with the gradual realization of cost advantages and scale economies aligned with industry competition dynamics. For policymakers aiming to support the profitability of new retail firms, attention should focus more on follow-up supporting measures and infrastructure development, such as reducing cold chain logistics costs, promoting digital data sharing, and providing supply chain financial support [12].

5 Conclusion

The empirical results based on the DID model demonstrate that although Freshippo has consistently maintained a significant net profit margin advantage over Sam's Club and ALDI, the digital transformation policy implemented around 2020 did not produce a statistically significant improvement in its relative profitability. This finding may reflect the synchronicity of industry-wide digital transformation as well as the lagged transmission of strategic dividends to the profit side. However, it is important to note that a non-significant policy effect does not equate to the strategic adjustment being entirely ineffective.

When evaluating the policy impact, the concurrent supporting strategic measures implemented by the enterprise must be considered. The study finds that during its push for online-to-offline integration, Freshippo simultaneously optimized its store portfolio structure, including the closure of some less efficient membership store formats. These moves to scale down non-core business segments may have indirectly supported the steady improvement of overall profit margins by reducing operational costs and focusing on high-performing stores. If such structural adjustments are considered as part of the supporting strategies in the policy implementation process, the strategic effect of digital transformation can be understood within a broader operational optimization framework. Therefore, when controlling the factor of store structure optimization, the actual contribution of the policy itself to the company's profitability may be more positive than initially suggested by the regression results.

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