

The Store Expansion and Growth Quality in Directly Operated Chinese Restaurant Chains: Evidence from Hong Kong-Listed Firms

Muxin Li

*SILC Business School, Shanghai University, Shanghai, China
2206794741@shu.edu.cn*

Abstract. The rapid expansion of chain restaurants has become an important growth strategy in China's restaurant industry. However, increasing the number of stores does not necessarily lead to higher-quality growth, as new stores may generate additional demand while also competing with existing stores. This study examines whether changes in store scale affect the growth quality of directly operated chain restaurant brands in China. The study uses the data of selected Hong Kong-listed Chinese restaurant companies from 2021 to 2025 to measure growth quality using same-store sales growth (SSSG) and store expansion using the net store growth rate (NSG). This research use a model to examine whether store expansion in the previous period affects subsequent same-store sales growth, while firm size is included as a control variable. The result supports the cannibalization hypothesis over the brand spillover hypothesis. This study provides empirical evidence on the relationship between expansion strategy and organic growth in China's chain restaurant industry for managers and investors to make decisions.

Keywords: Store expansion, same-store sales growth, chain restaurants, cannibalization effect, spillover effect

1. Introduction

The period from 2021 to 2025 marked a cycle of rapid expansion and subsequent consolidation in China's chain restaurant industry [1]. Many listed restaurant chains expanded their store networks rapidly during the post-pandemic recovery, but some later faced declining same-store sales growth and store closures, raising questions about whether expansion leads to high-quality growth [1]. As the industry shifts from scale-oriented expansion toward quality-oriented growth, understanding how store growth affects existing-store performance has become increasingly important. Previous research suggests that store expansion can have both positive and negative effects. In particular, expansion can improve market coverage and brand visibility through spillover effects, while it may weaken existing-store performance through cannibalization. Despite this theoretical tension, limited evidence exists on how firm-level store expansion influences growth quality, particularly in China's directly operated restaurant sector. This setting is valuable because directly operated chains retain greater control over expansion decisions and operational strategies. This study explores whether

store expansion affects the growth quality of directly operated chain restaurant brands using a panel dataset of HKEX-listed Chinese restaurant companies from 2021 to 2025. By examining the link between store growth and subsequent same-store sales growth, it investigates how expansion decisions relate to existing-store performance, and offers practical implications for managers and investors.

2. Literature review

Through the opening of new outlets, chain restaurant companies can broaden their market reach and improve customer access, stimulating demand and enhancing brand value. For example, Hollenbeck finds that chain affiliation generates revenue advantages through brand signaling, while Ketchen, Combs, and Upson demonstrate that the performance effects of chain expansion depend on firm-specific resources and expansion strategies [2, 3]. From a broader marketing perspective, investments in network-building initiatives such as store expansion can constitute a key channel through which firms create long-term business value [4]. However, expansion may also create competitive pressure on existing outlets through cannibalization, as new stores in overlapping markets can divert customers from nearby locations. Prior research shows that store entry can simultaneously expand demand and cannibalize sales, with the magnitude of these effects varying with store proximity and market conditions [5, 6]. Empirically Pancras, Sriram, and Kumar find that although most new-store sales are incremental, some are drawn from existing stores, with cannibalization weakening as the distance between stores increases [7]. Thus, store expansion can both generate new demand and cannibalize existing sales, with the overall effect depending on which mechanism dominates.

The balance between these two mechanisms may vary depending on firms' expansion strategies and operating environments. Brand advantages may allow firms to benefit from increased visibility and customer recognition, while poorly planned expansion may intensify internal competition among outlets. Hollenbeck highlights the importance of brand signaling in generating chain advantages, while Ketchen, Combs, and Upson demonstrate that expansion outcomes depend on firm capabilities and strategic motivations [2, 3]. These findings suggest that store expansion does not have a uniform effect on existing-store performance, and the relationship between expansion and growth quality remains an empirical question.

Despite these insights, existing research provides limited evidence on how firm-level expansion speed affects growth quality. Prior studies have mainly focused on store-level entry decisions and spatial competition, examining how the location of individual outlets affects cannibalization rather than whether the overall pace of firm expansion affects subsequent existing-store performance [7, 8]. Besides, previous research has mainly examined outcomes such as sales, revenue premiums, or firm value, with less attention paid to growth quality, which captures whether performance improvement is driven by existing-store strength rather than simply by adding new stores [2, 3]. Most evidence comes from U.S. retail and franchised settings. In contrast, China's directly operated restaurant sector provides a distinct context in which firms have greater control over store expansion and operations, offering an appropriate setting to examine the spillover–cannibalization trade-off. If spillover effects dominate, store expansion should boost subsequent same-store sales growth by attracting demand. Therefore:

H1a: Store expansion is positively associated with subsequent same-store sales growth of directly operated chain restaurant brands.

Alternatively, if cannibalization effects prevail, rapid expansion may intensify internal competition, leading to weaker existing-store performance. Therefore:

H1b: Rapid store expansion is negatively associated with subsequent same-store sales growth of directly operated chain restaurant brands.

This study extends prior research by examining the relationship between firm-level expansion speed and growth quality in China's directly operated restaurant sector. Employing a panel dataset of HKEX-listed Chinese restaurant chains from 2021 to 2025, this study investigates whether changes in store scale are associated with subsequent same-store sales growth.

3. Method

3.1. Sample selection and data sources

The sample consists of Chinese restaurant companies listed on the Hong Kong Stock Exchange that mainly operate through directly managed stores. The study covers the period from 2021 to 2025. To construct the sample, companies are selected based on their predominantly direct-operated business models and the availability of consistent annual information on store numbers, revenue, and same-store sales performance. These criteria ensure that store expansion decisions are controlled at the firm level and that a comparable firm-year panel dataset can be constructed.

Based on these criteria, the final sample includes Haidilao (6862), Jiumaojiu International (9922), Xiabuxiabu (0520), Nayuki (2150), Xiaocaiyuan (0999), and Green Tea Group (2205). These firms cover major restaurant formats, including hot pot, Chinese casual dining, and tea beverage, while providing relatively detailed operating disclosures required for the empirical analysis. The required company-level data are manually collected from annual reports and public disclosures, including total revenue, same-store sales growth, store numbers, and total assets. Total revenue and total assets are obtained from the consolidated financial statements, while same-store sales growth and store numbers are collected from management discussions and operating information.

3.2. Variable definition and measurement

3.2.1. Dependent variable: same-store sales growth

The dependent variable is Same-Store Sales Growth (SSSG). Specifically, SSSG measures the change in sales generated by the company's comparable stores, which is calculated based on the comparable-store criteria publicly disclosed by each firm in its annual reports. This measure is used as the main proxy for existing-store growth performance because it focuses on the performance of the existing store base rather than revenue generated via newly opened stores. This approach is also consistent with previous research on comparable-store sales and retail performance [9, 10].

3.2.2. Main explanatory variable: net store growth rate

The main independent variable is the Net Store Growth Rate (NSG), which measures the annual percentage change in a firm's total number of stores. The measure is defined as:

$$NSG_{i,t} = \frac{StoreEnd_{i,t} - StoreBegin_{i,t}}{StoreBegin_{i,t}} \quad (1)$$

where $StoreEnd_{i,t}$ represents the number of stores at the end of year t , $StoreBegin_{i,t}$ represents the number of stores at the beginning of year t , and $NSG_{i,t}$ reflects the percentage change in a firm's

total store count over a fiscal year. For regression analyses, the one-year-lagged value of NSG is employed. Further discussion is provided in the model-specification section.

3.2.3. Control variable: firm size

Firm size is included as a control variable because differences in firm scale may influence both expansion decisions and existing-store performance. Larger firms typically have greater resource capacity, broader market coverage, and stronger capabilities to support store expansion. At the same time, larger firms may face different growth opportunities and competitive conditions, such as greater market saturation and limited expansion potential. Accordingly, firm size is measured as the natural logarithm of total assets:

$$\text{Size}_{i,t} = \ln(\text{TotalAssets}_{i,t}) \quad (2)$$

The lagged value of firm size is used in the regression.

3.2.4. Supplementary growth measure: total revenue growth

Total revenue growth is not used as the main dependent variable. Instead, it is used as a supplementary measure to compare overall company-level revenue growth with existing-store sales growth. It is used only for descriptive comparison of different growth sources and is not included in the baseline regression or any core model estimation. This comparison helps distinguish growth generated through improvements in existing-store performance from growth driven primarily by store expansion.

3.2.5. Alternative performance measure: revenue per store growth

The alternative store-level performance indicator is year-on-year growth of average revenue per store. This measure is calculated as total annual revenue divided by the average number of stores operating during the year, where average store count is measured as the mean value of beginning-of-year and end-of-year store numbers. Unlike SSSG, which evaluates the sales performance of stores that satisfy each firm's comparable-store criteria, revenue per store growth captures the average operating performance across the entire store network, including newly opened outlets. Thus, this measure provides an alternative perspective on store-level operational efficiency rather than the performance of a fixed set of existing stores. This indicator is used as an alternative dependent variable to replace SSSG in robustness tests and examine whether the baseline relationship between store expansion and store-level performance remains consistent under a different performance measure.

3.3. Model specification and estimation approach

3.3.1. Baseline fixed-effects regression model

The baseline model examines whether store expansion in the previous period influences subsequent existing-store sales growth:

$$\text{SSSG}_{i,t} = \alpha + \beta_1 \text{NSG}_{i,t-1} + \beta_2 \text{Size}_{i,t-1} + \mu_i + \epsilon_{i,t} \quad (3)$$

where $SSSG_{i,t}$ is same-store sales growth for firm i in year t ; $NSG_{i,t-1}$ is the net store growth rate in the previous year; $Size_{i,t-1}$ is lagged firm size; μ_i represents firm fixed effects; $\epsilon_{i,t}$ is the error term.

The lagged value of NSG is used to establish the temporal sequence in which store expansion occurs before the subsequent change in existing-store performance is observed.

The fixed-effects model is used to control for firm-specific differences, such as brand positioning, business model, and management capabilities, which may affect both expansion decisions and existing-store performance. By controlling these time-invariant factors, the model reduces potential bias arising from unobserved heterogeneity across firms. In addition, standard errors are clustered at the firm level to account for potential within-firm correlation in the error terms.

3.3.2. Nonlinear specification of store expansion effects

The relationship between store expansion and existing-store performance may not be linear. While moderate expansion may generate additional demand through greater market coverage, excessive expansion may increase internal competition and weaken existing-store performance.

To examine whether the effect of store expansion changes at different expansion levels, a quadratic term of lagged NSG is introduced into the baseline model:

$$SSSG_{i,t} = \alpha + \beta_1 NSG_{i,t-1} + \beta_2 NSG_{i,t-1}^2 + \beta_3 Size_{i,t-1} + \mu_i + \epsilon_{i,t} \quad (4)$$

where $NSG_{i,t-1}^2$ represents the squared value of lagged net store growth rate. The inclusion of the quadratic term allows the model to capture potential nonlinear relationships between store expansion and subsequent existing-store performance.

3.3.3. Robustness check specifications

Several robustness checks are conducted to examine whether the baseline relationship between store expansion and existing-store performance remains consistent under alternative specifications.

Using an alternative dependent variable, the baseline model is re-estimated with year-on-year growth of average revenue per store, which captures overall store-level operating performance across the network and provides a different perspective from SSSG, which focuses on comparable existing stores. To address potential pandemic-related effects, the analysis is repeated using a restricted sample that excludes observations from 2021 to assess whether the relationship is sensitive to unusual market conditions. To examine the impact of extreme observations, an additional sensitivity test is performed to determine whether potential outliers affect the baseline findings. The empirical analyses are carried out in Python using the pandas and statsmodels libraries.

4. Results and analysis

4.1. Descriptive statistics

The final dataset contains 30 firm-year observations from six Chinese chain restaurant companies during 2021 to 2025. After constructing lagged variables and removing observations with missing values, 23 observations are included in the baseline fixed-effects regression. Table 1 presents the descriptive statistics of the main variables. NSG has a mean value of 30.5%, ranging from store contraction to rapid expansion, while SSSG has a mean value of -3.83% and shows considerable

variation across firm-year observations. Overall, the sample exhibits substantial heterogeneity in store expansion and existing-store performance.

Table 1. Descriptive statistics

Variable	Observations	Mean	Std. Dev.	Min	Max
SSSG (Same-store sales growth, %)	29	-3.83	16.774	-34.2	32.7
NSG (Net store growth rate)	29	0.126	0.305	-0.375	1.228
Total Revenue Growth	24	-0.0176	0.216	-0.378	0.443
Firm Size (ln total assets)	30	15.43	0.89	13.934	17.148

The comparison between total revenue growth and SSSG further distinguishes overall business expansion from existing-store performance. While total revenue growth reflects changes in the scale of the entire business, SSSG captures the performance of comparable existing stores. These measures therefore provide complementary perspectives on different sources of company growth.

4.2. Baseline regression results

Table 2 reports the results of the baseline fixed-effects regression. The model includes lagged NSG, lagged firm size, and firm fixed effects, with standard errors clustered at the firm level.

Table 2. Baseline fixed-effects regression results

Variables	coefficient	standard error
lagged NSG	-10.354***	2.491
lagged Firm size	-14.320	10.083
constant	203.612	156.240
firm fixed effects	Yes	
r-squared	0.481	
adjusted r-squared	0.296	
observations	23	

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.001$.

The coefficient on lagged NSG is negative and statistically significant at the 1% level, suggesting that higher store expansion in the previous year is associated with lower subsequent same-store sales growth. In economic terms, the coefficient suggests that a 10-percentage-point increase in lagged NSG is associated with approximately a 1.04-percentage-point decrease in subsequent SSSG, holding firm size and firm-specific effects constant. This result supports H1b but not H1a, indicating that the cannibalization mechanism is more consistent with the observed data than the positive spillover mechanism. Given the observational design, this finding should be interpreted as an association rather than a causal effect.

4.3. Nonlinear effects of store expansion

Table 3 presents the quadratic specification, which introduces the squared term of lagged NSG to examine whether the relationship between store expansion and existing-store performance changes at different expansion levels.

Table 3. Non-linear specification with squared term

Variables	coefficient	standard error
lagged NSG	-0.354	13.294
lagged nsg squared	-12.632	16.676
lagged Firm size	-14.891	10.720
constant	212.740	166.031
firm fixed effects	Yes	
r-squared	0.512	
adjusted r-squared	0.265	
observations	23	

The coefficient of the squared term of lagged NSG is negative but statistically insignificant, while the linear term also does not show a significant effect in this specification. These results provide no evidence of a significant nonlinear relationship, suggesting that the negative association identified in the baseline model does not vary systematically with the level of store expansion within the observed sample range. And this analysis extends H1b by examining whether the relationship between store expansion and subsequent same-store sales growth varies with the magnitude of firm-level expansion.

4.4. Robustness tests

Table 4 reports two robustness tests assessing whether the baseline relationship remains consistent under alternative measures and sample periods.

Table 4. Robustness check estimation results

variables	(1) Alternative performance measure	(2) Exclude pandemic-year observations
lagged nsg	-11.988** (5.174)	-17.223* (8.730)
lagged firm size	-16.041 (12.382)	-22.419 (14.165)
constant	231.841	310.527
firm fixed effects	Yes	Yes
observations	23	19

Notes: * p<0.1, ** p<0.05, *** p<0.001.

Using an alternative performance measure, the baseline model is re-estimated with revenue per store growth as the dependent variable. The results show that the coefficient on lagged NSG remains negative and statistically significant at the 5% level, indicating that the baseline finding is robust to an alternative measure of store-level performance. Given the unusual conditions during the pandemic period, the analysis is also repeated using a restricted sample that excludes observations from 2021. The coefficient on lagged NSG remains negative, although its statistical significance is weaker in the smaller sample, suggesting that the baseline finding is not driven by pandemic conditions. Overall, the robustness tests support the baseline finding, with the negative association remaining consistent across specifications.

5. Conclusion

This study examines how firm-level store expansion relates to growth quality in China's directly operated restaurant industry by examining spillover and cannibalization effects. Using firm-fixed-effects regressions based on HKEX-listed restaurant companies from 2021 to 2025, the findings show that faster store expansion is associated with weaker subsequent same-store sales growth, supporting the cannibalization hypothesis (H1b) rather than the spillover hypothesis (H1a). Furthermore, the nonlinear analysis provides no evidence that this relationship changes systematically across different expansion levels. Overall, this study extends existing research by shifting attention from individual store-level expansion decisions to firm-level expansion speed and its relationship with existing-store performance. The findings suggest that managers and investors should evaluate store growth together with existing-store performance rather than relying solely on network expansion. However, the study has several limitations, including the small sample size, the inability of firm-level data to capture store-level mechanisms such as geographic overlap and local competition, and the limited causal interpretation arising from the observational design. Future research could address these limitations by using larger store-level datasets to further examine how location, market conditions, and business formats influence the relationship between expansion and existing-store performance.

References

- [1] China Chain Store & Franchise Association, & Meituan. (2026). 2026 white paper on the development of restaurant chains in China. <http://www.ccfa.org.cn/portal/cn/xiangxi.jsp?id=447139&type=10003>
- [2] Hollenbeck, B. (2017). The economic advantages of chain organization. *The RAND Journal of Economics*, 48(4), 1103–1135. <https://doi.org/10.1111/1756-2171.12214>
- [3] Ketchen, D. J., Combs, J. G., & Upson, J. W. (2006). When does franchising help restaurant chain performance? *The Cornell Hotel and Restaurant Administration Quarterly*, 47(1), 14–26. <https://doi.org/10.1177/0010880405279170>
- [4] Shriver, S. K., & Bollinger, B. (2022). Demand expansion and cannibalization effects from retail store entry: A structural analysis of multichannel demand. *Management Science*, 68(12), 8829–8856. <https://doi.org/10.1287/mnsc.2022.4308>
- [5] Dekimpe, M. G., Gijsbrechts, E., & Gielens, K. (2023). Proximity-store introductions: A new route to big-box retailer success? *Journal of Retailing*, 99(4), 621–633. <https://doi.org/10.1016/j.jretai.2023.11.006>
- [6] Srinivasan, S., & Hanssens, D. M. (2009). Marketing and firm value: Metrics, methods, findings, and future directions. *Journal of Marketing Research*, 46(3), 293–312. <https://doi.org/10.1509/jmkr.46.3.293>
- [7] Pancras, J., Sriram, S., & Kumar, V. (2012). Empirical investigation of retail expansion and cannibalization in a dynamic environment. *Management Science*, 58(11), 2001–2018. <https://doi.org/10.1287/mnsc.1120.1540>
- [8] Pelegrín, J. D., Fernández, P., Pelegrín, B., et al. (2019). Threshold distance versus side payment to reduce the cannibalization effect in retail chain expansion. *IMA Journal of Management Mathematics*, 30(1), 105–123.

- [9] Tuli, K. R., Mukherjee, A., & Dekimpe, M. G. (2012). On the value relevance of retailer advertising spending and same-store sales growth. *Journal of Retailing*, 88(4), 447–461. <https://doi.org/10.1016/j.jretai.2012.07.001>
- [10] Hong, P. K., Lee, S., Mynatt, P., & Ramakrishnan, R. (2019). The value relevance of timely information: The case of comparable store sales growth. *Advances in Accounting*, 44, 10–21.