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Agency Costs, Ownership Structure, and Cost Stickiness: Implications for Sustainable Corporate Governance

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Abstract: In the modern corporation, understanding sustainable cost management practices is essential for promoting economic resilience and resource efficiency. This study investigates how ownership structures influence the behavior of selling, and general and administrative (SG&A) costs during periods of sales fluctuations in South Korean firms, with particular attention to Chaebols. Drawing upon agency theory and corporate governance perspectives, we examine whether proxies for agency costs, namely, free cash flow, asset utilization ratios, and operating expense ratios, explain variations in SG&A cost responses to changes in revenue. Utilizing a panel dataset of 4279 firm-year observations from KOSPI-listed companies over the period 2011–2021, we employ Pooled Ordinary Least Squares (OLS), Fixed Effects, Random Effects, and Generalized Method of Moments (GMM) estimations to model SG&A cost behavior. The analysis incorporates regression-based interaction terms that capture asymmetric cost adjustments during sales declines, commonly referred to as cost stickiness. Our findings indicate that firms with concentrated ownership, such as Chaebols, exhibit significantly lower SG&A cost stickiness, reflecting stronger financial discipline and more efficient resource allocation. In contrast, firms with dispersed ownership demonstrate more pronounced cost stickiness, consistent with governance frictions and managerial discretion. These results emphasize the moderating role of ownership structure in cost behavior and highlight its implications for sustainable corporate governance. Our study contributes to the literature on cost management and financial sustainability by offering empirical insights from a distinctive institutional setting. Policy recommendations include enhancing internal controls, promoting transparent cost practices, and encouraging shareholder oversight to reinforce long-term efficiency.

Keywords: agency cost; asset utilization; cost stickiness; free cash flow; operating expenses; ownership structure; chaebol governance

1. Introduction

As the global economy shifts toward sustainability, businesses must reimagine cost management not only as an efficiency tool but as a strategic pillar for enduring economic resilience and responsible resource governance. It has become pertinent to address the value-reducing cost stickiness challenge evidenced in many corporations in the face of market fluctuations. Therefore, understanding cost stickiness, which captures the extent of suboptimal cost reductions when a firm's activity declines with respect to selling, and general and administrative (SG&A) expenses is crucial for advancing sustainable financial management practices, especially within unique corporate environments, such as South Korea. SG&A cost asymmetry, a circumstance where expenses rise more during growth

periods than they decline during downturns—reflects intentional managerial decisions that have direct implications for resource efficiency, corporate resilience, and long-term sustainability. This behavior arises from the interplay between fixed costs, such as salaries and leases, and variable costs, like materials and direct labor [1–6].

The tendency for costs to be "sticky" in times of demand shocks or during economic downturns can be exacerbated by strategic considerations, contractual obligations, and the desire to preserve organizational morale. These dynamics introduce significant challenges for financial forecasting, operational flexibility, and sustainable resource utilization [7–9]. Therefore, a sustainable business model requires firms to develop agile cost management frameworks that support both economic viability and organizational resilience during fluctuating market conditions.

The Korean market, dominated by family-controlled conglomerates known as Chaebols, offers a distinctive context for investigating the relationship between ownership structures, corporate governance, and sustainable cost management. Characterized by concentrated ownership and strategic control, Chaebols must comply with regulatory classifications that recognize them as business groups under common control with significant shareholding thresholds [10]. These governance structures shape distinctive managerial behaviors, influencing how resources are allocated and how cost stickiness manifests across economic cycles [11–14].

From a sustainability perspective, corporate governance mechanisms are instrumental in mitigating agency conflicts that could otherwise lead to inefficient and unsustainable resource utilization. Agency theory [15,16] posits that when managerial control exceeds ownership stakes, misalignments occur that can result in inflated SG&A expenditures. As complete contracts are costly and often impractical, effective governance structures—particularly those prevalent in Chaebols—serve as vital tools for aligning managerial incentives with sustainable financial practices [1,3–5,17–20].

Extant research suggests that high free cash flow can inflate cost stickiness due to managerial empire-building tendencies [8]. However, concentrated ownership, as commonly found in Korean Chaebols, may counteract these tendencies through stronger oversight and stewardship [1,4]. This has important implications for corporate sustainability, suggesting that ownership concentration can foster more disciplined and responsible financial management [21–23].

While prior research on SG&A cost behavior predominantly focuses on firms in the U.S. and Europe, where dispersed ownership, market-based governance mechanisms, and shareholder-oriented management structures prevail (e.g., Chen et al., 2012 [8,24–28]), there remains a notable gap concerning the unique governance dynamics of Korean Chaebols. These conglomerates are characterized by concentrated family ownership and relational monitoring, distinguishing them from their Western counterparts. Understanding how agency costs and ownership structures interact to influence cost asymmetry within this context is critical for designing sustainable governance models that promote resource efficiency and financial resilience [22].

Building upon these insights, we posit that ownership concentration, typical in Chaebols, facilitates a stricter monitoring of managerial decisions, leading to lower cost asymmetry and more sustainable financial management practices. In contrast, dispersed ownership structures are expected to demonstrate weaker oversight and higher cost stickiness, potentially undermining organizational sustainability.

This study addresses this gap by examining the moderating role of ownership structures, particularly, concentrated ownership in the relationship between agency costs and SG&A cost asymmetry. Using free cash flow, asset utilization ratios, and operating expense

ratios as proxies for agency costs [12], our study contributes to the literature on sustainable corporate governance by offering new insights from the Korean market.

Our empirical findings support these hypotheses, showing that Chaebols with high free cash flow exhibit lower SG&A cost asymmetry compared to their non-Chaebol counterparts. Furthermore, asset utilization correlates with increased cost stickiness, while higher operating expenses surprisingly promote more disciplined cost behavior. These findings underline the critical importance of governance structures in shaping sustainable cost management practices and, by extension, overall corporate sustainability.

By integrating agency theory with corporate governance and sustainability perspectives, this research contributes to a more holistic understanding of how ownership structures impact resource efficiency and economic resilience. It highlights the necessity of transparent cost management and active shareholder engagement as pivotal elements of sustainable corporate behavior improvement.

The remainder of this paper is structured as follows: Section 2 reviews the relevant literature and develops the study's hypotheses. Section 3 outlines the research methodology, Section 4 presents empirical analysis and results, and Section 5 concludes with a discussion of key implications for sustainable business practices.

2. Literature Review

The phenomenon of cost stickiness, where costs increase more with sales growth than they decrease with sales decline, has been a subject of extensive academic investigation. Initially introduced by Anderson et al. [6] through the resource-adjustment hypothesis, this concept highlighted managerial inertia to reduce resources during economic downturns, leading to asymmetrical cost behavior. Anderson et al. [6] found that in U.S. firms, SG&A costs rise by 0.55% with a 1% increase in sales but decline by only 0.35% with a 1% decrease, reflecting the concept of cost stickiness. Subsequent studies have extended this observation across various regions and industries.

In Europe, Via and Perego [23] observed that Italian firms exhibited stickiness in operating and labor costs but anti-stickiness in SG&A and COGS, indicating a multifaceted pattern of cost behavior dependent on firm type. In contrast, Cheng et al. (2018) [29] found sticky SG&A costs in large Chinese firms, while smaller firms exhibited anti-sticky behavior, underlining the role of firm size in cost adjustments. Similarly, De Villiers, Hay, and Zhang [24] highlighted that audit fees in U.S. firms exhibited sticky behavior, where cost increases were more pronounced than cost reductions.

Further evidence from non-corporate contexts supports the universality of cost stickiness. Habib and Huang [25] identified cost stickiness in large charities, while Wu, Young, and Hsu [26] observed similar patterns in Taiwanese public schools. These studies reinforce the notion that cost stickiness is a widespread phenomenon across diverse organizational settings.

Calleja, Steliaros, and Thomas [27] compared cost behavior across different governance environments, noting that firms in common-law systems, like the U.S. and U.K., exhibited lower cost stickiness compared to firms in code-law countries, such as France and Germany. This suggests that shareholder value pressures in common-law systems force firms to be more responsive to sales fluctuations.

In the U.S., Chen et al. [8] linked weaker corporate governance to increased SG&A cost stickiness, particularly due to managerial empire-building incentives. Bugeja et al. [30] found that Australian firms with stronger governance structures, including non-executive directors and separate CEO-chairman roles, experienced reduced cost stickiness.

Recent empirical evidence further highlights the role of managerial incentives in shaping cost behavior under fluctuating sales conditions. Li et al. [31] investigate the

influence of risk-taking incentives—measured by incentive vega—on the asymmetry of cost adjustments during periods of declining sales. Their findings reveal that higher risk-taking incentives among CEOs and top executives are associated with more rapid reductions in SG&A costs during downturns. This pattern supports the view that such incentives encourage a more elastic cost structure, possibly through operational decisions, like outsourcing, that elevate firm-specific risk. Importantly, Li et al. [31] rule out earnings management as an alternative explanation and demonstrate the robustness of their results across various incentive measures. These insights reinforce the relevance of management control mechanisms in explaining cost stickiness, especially in the context of moral hazard and agency-driven decision-making.

In a broader international context, several studies have explored the relationship between ownership structure and cost behavior. Prabowo et al. [9] found that state-owned firms exhibited higher labor cost stickiness than private firms, as state intervention prevented layoffs during downturns and promoted employment during upturns. Similarly, Hall [32] found that public banks in Latin America reduced labor costs to avoid earnings declines, while private banks were more likely to adjust labor costs to meet regulatory capital requirements.

In the context of institutional ownership, Chung et al. [5] examined the impact of long-term institutional investors on cost stickiness. Their findings revealed that institutional investors—especially those with long-term horizons—help mitigate cost stickiness by improving corporate governance and monitoring efficiency. This result aligns with Chen et al. [8] and Ibrahim [33], who similarly found that institutional ownership reduces cost asymmetry. In contrast, state ownership often exacerbates cost stickiness, as managers in such firms face fewer incentives to adjust costs during downturns.

In China, Sun et al. [3] explored the role of common institutional ownership (CIO) and found that firms with higher CIO exhibited lower cost stickiness. They argued that CIO enhances monitoring and governance efficiency, mitigating the impact of agency problems. This conclusion supports the idea that better governance reduces cost stickiness, as firms with greater oversight are less likely to engage in inefficient cost management. Moreover, their study revealed that the positive impact of CIO on cost stickiness was more pronounced in non-state-owned enterprises and firms in monopolistic industries, where managerial discretion is more significant.

Xin et al. [4] introduced stakeholder orientation as a factor influencing cost behavior, finding that firms with more stakeholder-oriented management retained slack resources during downturns, leading to higher cost stickiness. This behavior is rooted in agency problems, as managers seek to preserve resources for the benefit of all stakeholders, even at the expense of reducing operational inefficiencies. This finding contrasts with the studies on institutional ownership, as it suggests that broader stakeholder interests can contribute to cost asymmetry.

Finally, the divergence between control and cash-flow rights has been shown to influence cost stickiness. Oh and Choi [1] found that firms with a significant divergence between control and cash-flow rights—often characteristic of family-controlled firms—engage in opportunistic earnings management, which results in greater cost stickiness. Conversely, firms with more aligned ownership structures, where control and cash-flow rights converge, exhibit less cost stickiness, as managers are more aligned with shareholder interests.

2.1. Ownership Structure and Cost Stickiness in Korean Firms

Research on the impact of ownership structure on cost stickiness in Korea has been limited but is crucial for understanding the unique behavior of Korean conglomerates, or Chaebols, which are characterized by concentrated family ownership and intricate cross-

shareholding arrangements. The distinctive nature of Chaebols presents an opportunity to examine how ownership structure influences cost behavior.

Several studies suggest that the governance structure within Chaebols plays a critical role in moderating cost stickiness. For instance, Chung et al. [5] found that long-term institutional investors in the U.S. mitigate cost stickiness, improving corporate governance and monitoring efficiency. Similarly, in Korea, the concentrated ownership structure of Chaebols may lead to stricter oversight, resulting in more disciplined cost management and less cost asymmetry.

Prabowo et al. [9] found that firms with state ownership or concentrated family control exhibited more significant cost stickiness due to weaker monitoring and managerial discretion. However, in the case of Chaebols, family control might act as a moderating factor, preventing the inefficiencies associated with empire-building and ensuring that cost reductions are made in response to market downturns. This argument is consistent with the findings of Chen et al. [8] and Bugeja et al. [30], who argue that robust governance structures—whether internal (e.g., family control) or external (e.g., institutional investors)—reduce cost stickiness.

The reviewed studies provide compelling evidence that ownership concentration, institutional monitoring, and governance structures significantly influence cost stickiness. Chung et al. [5], Xin et al. [4], Sun et al. [3], and Oh and Choi [1] each contribute to the understanding that stronger governance, whether through institutional monitoring or ownership concentration, can mitigate the inefficiencies that lead to cost asymmetry. The findings suggest that Chaebols, with their concentrated ownership structures, are more likely to implement effective oversight and reduce cost stickiness, facilitating more sustainable financial management practices. Conversely, firms with dispersed ownership tend to face weaker governance and are more prone to higher cost asymmetry, potentially undermining organizational sustainability.

In sum, the literature provides robust support for the hypothesis that ownership concentration facilitates stricter monitoring of managerial decisions, leading to lower cost asymmetry and more sustainable financial management practices, particularly in Chaebols compared to firms with dispersed ownership.

2.2. Hypothesis Development

Building on these insights from the literature, we develop the following hypotheses to explore the relationship between ownership structure, agency costs, and cost stickiness in Korean firms:

Free cash flow often exacerbates agency problems, as excess liquidity may encourage managers to overinvest in inefficient projects and delay necessary cost reductions. This behavior increases SG&A cost asymmetry. Building on the foundational work of Jensen [16] and Stulz [34], we further observe that long-term institutional investors can mitigate cost stickiness by imposing stricter monitoring [5]. In particular, Chung et al. [5] demonstrated that institutional ownership helps reduce cost stickiness by providing stronger oversight, which may counteract the adverse effects of free cash flow on SG&A cost behavior. In the context of Korean Chaebols, the concentrated ownership structure—often family-controlled—provides additional governance that may help mitigate the cost asymmetry arising from free cash flow. This oversight might result in a more efficient allocation of resources, preventing excessive costs even when free cash flow is high. Therefore, if resource allocation is tightly controlled, a positive free cash flow interaction term with sales decreases would suggest reduced cost asymmetry. However, according to the findings of Chen et al. [8] for S&P 1500 US firms, a negative free cash flow interaction term with sales decreases indicated greater cost asymmetry.

Hypothesis 1. *SG&A cost asymmetry increases with higher free cash flow.*

Asset utilization ratio (ASSUT) impacts cost stickiness due to the managerial reluctance to reduce fixed costs during periods of low activity. It measures managerial efficiency and the ability to direct assets toward productive uses. Firms with low ASSUT values often make inefficient investment decisions, increasing agency costs [12,35].

Capacity utilization also influences cost behavior; high utilization typically leads to sticky costs as managers resist resource cuts, while excess capacity can result in anti-sticky behavior [7,29]. In the context of Korean Chaebols, which have concentrated ownership and strong family control, asset utilization is likely to be more efficiently managed, which can counteract the typical cost stickiness behavior. This is consistent with Bugeja et al. (2015) [30], who observed that better governance structures help reduce cost asymmetry, even when firms face high asset utilization. However, Cheng et al. [7,29,30,36,37] noted that high asset utilization typically leads to more cost stickiness, as managers resist cutting resources despite a sales decline.

Hypothesis 2. *SG&A cost asymmetry increases with better asset utilization.*

Operating expenses are often associated with cost stickiness because firms with high fixed costs find it difficult to reduce expenses proportionally during sales declines. References [4,8,28] showed that stakeholder orientation is linked with higher cost stickiness, as managers retain slack resources during activity declines, potentially due to agency problems. This suggests that firms with high operating expenses may struggle with cost stickiness, especially when there is less institutional oversight. However, in Korean Chaebols, concentrated ownership structures—through family control—are likely to mitigate this effect by ensuring strict cost control and efficient resource allocation [5,28]. This aligns with Ibrahim [33], who found that institutional ownership can decrease cost stickiness, and suggests that family-controlled Chaebols may experience more stable SG&A costs even in the face of high operating expenses.

Hypothesis 3. *SG&A cost asymmetry increases with higher operating expenses.*

Ownership structure plays a key role in moderating agency costs and cost behavior. Prabowo et al. [9] and Chung et al. [5] emphasized that institutional ownership reduces cost stickiness by enhancing governance and oversight, which in turn, mitigates agency problems. Similarly, Sun et al. [3] found that common institutional ownership helps lower cost stickiness by improving governance and monitoring efficiency in non-state-owned firms. This is especially significant in firms with concentrated ownership, as the family owners in Korean Chaebols are able to exert tighter control over managerial decisions [8]. The strong oversight from family owners likely moderates the agency costs typically associated with SG&A cost asymmetry. Oh and Choi [1] highlighted the impact of ownership concentration on cost behavior, finding that firms with significant divergence between control and cash-flow rights often show greater opportunistic behavior, which exacerbates cost stickiness. In the case of Chaebols, however, the concentrated family ownership reduces such opportunism, thus moderating the relationship between agency problems and SG&A cost asymmetry.

Hypothesis 4. *The ownership structures of Korean firms moderate the relationship between agency problems and SG&A cost asymmetry.*

3. Research Methodology

This study employs a quantitative research design to examine the effects of agency costs and ownership structure on SG&A cost asymmetry among Korean firms. The sample comprises 389 non-financial companies listed on the Korea Composite Stock Price Index (KOSPI) over the period 2011–2021, resulting in 4279 firm-year observations. Financial institutions were excluded due to structural differences in SG&A accounting, and firms with incomplete or missing data were also omitted to ensure consistency and comparability. The financial data were sourced from the publicly available KisValue database (version 3.2).

To mitigate the influence of outliers, the dataset was winsorized at the 5th and 95th percentiles. The analysis primarily utilizes Ordinary Least Squares (OLS) regression. To account for unobserved heterogeneity across firms, robustness checks were conducted using Fixed Effects (FE) and Random Effects (RE) models. Furthermore, to address potential endogeneity concerns, particularly related to free cash flow, the Generalized Method of Moments (GMM) estimator was applied, employing lagged independent variables as instruments.

The research model incorporates proxies for agency costs, including free cash flow (FCF), asset utilization (ASSUT), and operating expenses (OPEX), alongside standard economic control variables. This framework facilitates an in-depth examination of the relationship between agency costs, ownership structure, and SG&A cost stickiness in the context of Korean firms (McKnight & Weir [29]; Lee & Tulcanaza-Prieto [12]).

Equation (1) presents the baseline model for analyzing SG&A cost asymmetry, following the empirical approach of Anderson et al. [6] and Chen et al. [8].

$$
\begin{aligned}
\log\left(\frac{SG\&A_{i,t}}{SG\&A_{i,t-1}}\right) &= \beta_0 + \beta_1 \log\left(\frac{Sales_{i,t}}{Sales_{i,t-1}}\right) + \beta_2 DecDummy \times \log\left(\frac{Sales_{i,t}}{Sales_{i,t-1}}\right) + \\
&\sum_{m=3}^{6} \beta_m DecDummy \times \log\left(\frac{Sales_{i,t}}{Sales_{i,t-1}}\right) \times EconVar_{m,i,t} + \sum_{s=7}^{10} \beta_s EconVar_{s,i,t} + e_{i,t}
\end{aligned}
\tag{1}
$$

In Equation (1), SG&A costs ($SG\&A_{i,t}$) and sales revenue ($Sales_{i,t}$) represent firm i's selling, general, and administrative expenses and revenue in year t, respectively. The variable *DecDummy* equals 1 if sales revenue in year t is lower than in $t-1$, and 0 otherwise. The coefficient β_1 captures the percentage change in SG&A costs associated with a 1% change in sales revenue. Economic determinants (*EconVar*) controlled for in our analysis include employee intensity, asset intensity, successive sales declines, and stock performance. Employee intensity, measured as the ratio of total employees to sales revenue, and asset intensity, measured as the ratio of total assets to sales revenue, control for cost structures related to labor and capital investments (Anderson et al., 2003) [6]. Successive revenue decreases are captured by an indicator variable equal to 1 if sales in $t-1$ are lower than in $t-2$, reflecting the possibility that managers perceive consecutive sales declines as persistent downturns. Stock performance, measured by raw stock returns, is also included as a control variable. Its effect on cost stickiness is theoretically unsettled: strong stock performance may signal efficient resource adjustment and reduce stickiness or encourage managerial optimism that leads to retaining excess SG&A costs, thus increasing stickiness. Additionally, overinvestment tendencies in high-performing firms could intensify cost stickiness (Chen et al., 2012) [8]. Therefore, no specific directional prediction is made regarding stock performance.

Equation (2) extends Equation (1) by incorporating both agency and economic variables to investigate our first research objective: the impact of agency costs on SG&A cost asymmetry (Anderson et al., 2003 [6]; Chen et al., 2012 [8]).

$$\log\left(\frac{SG\&A_{i,t}}{SG\&A_{i,t-1}}\right) = \beta_0 + \beta_1 \log\left(\frac{Sales_{i,t}}{Sales_{i,t-1}}\right) + \beta_2 DecDummy \times \log\left(\frac{Sales_{i,t}}{Sales_{i,t-1}}\right) +$$
$$\sum_{m=3}^{5} \beta_m DecDummy \times \log\left(\frac{Sales_{i,t}}{Sales_{i,t-1}}\right) \times AgencyVar_{m,i,t} + \sum_{p=6}^{9} \beta_p DecDummy \times \qquad (2)$$
$$\log\left(\frac{Sales_{i,t}}{Sales_{i,t-1}}\right) \times EconVar_{p,i,t} + \sum_{q=10}^{12} \beta_q AgencyVar_{q,i,t} + \sum_{s=13}^{16} \beta_s EconVar_{s,i,t} + e_{i,t}$$

SG&A$_{i,t}$ denotes the selling, general, and administrative expenses of firm i at time t, while *Sales*$_{i,t}$ refers to the corresponding sales revenue. *DecDummy* is a binary variable set to 1 if sales decrease and 0 otherwise. *AgencyVar*$_{m,i,t}$ captures proxies for agency costs, and *EconVar*$_{p,i,t}$ represents economic control variables. β_0, β_1, …, β_{16} are the estimated coefficients, and $e_{i,t}$ is the error term.

To capture managerial empire-building motivations, three proxies are used.

(i) Free cash flow (FCF), calculated as cash flow from operations minus dividends, scaled by total assets, represents the excess resources potentially available for managerial discretion or misuse [8,11,38–42].

(ii) Asset utilization ratio (ASSUT), computed as annual sales divided by total assets, measures managerial efficiency in asset deployment. A lower ratio suggests ineffective investment decisions and unproductive use of firm resources, which constitute agency costs [12,42].

(iii) Operating expense ratio (OPEX), calculated as operating expenses divided by total sales, captures the degree of managerial discretion over operational costs such as bonuses, rents, or marketing expenditures. A higher ratio indicates possible misalignment between managerial actions and shareholder interests [42].

While FCF has been extensively validated in agency cost studies, the inclusion of ASSUT and OPEX as additional proxies reflects a broader conceptualization of agency problems.

Theoretically, lower asset turnover reflects poor use of assets, suggesting inefficient investment decisions. Poor investment efficiency is a classic sign of agency costs incurred by managers who overinvest or fail to maximize asset productivity [12,41]. In agency theory, inefficient resource utilization arises when managers pursue personal goals (like empire-building) instead of shareholder wealth maximization. Thus, ASSUT captures a dimension of latent agency problems tied to operational inefficiency, making it academically defensible as an agency cost proxy. Specifically, poor asset utilization evidences inefficient managerial decision-making, consistent with agency theory's prediction of resource misallocation under weak governance.

Similarly, elevated operating expenses reveal discretionary spending behaviors indicative of managerial self-interest. High discretionary spending (such as luxury offices, excessive perks, overstaffing, etc.) often signals managerial self-interest at the expense of shareholders. Nguyen et al. [42] directly tie operating expense behavior to managerial discretion and misaligned incentives, i.e., agency problems. Therefore, OPEX reflects a behavioral agency cost dimension whereby excessive operating expenses reveal managerial spending behaviors that deviate from optimal firm value maximization. Together, these three measures provide a more comprehensive assessment of agency costs in the context of SG&A cost stickiness.

The second objective of this study investigates how Korea's unique ownership and characteristic governance structures influence the relationship between agency costs and SG&A cost stickiness. Chaebol firms, defined by the Korea Fair Trade Commission (KFTC)

as large business groups with total assets exceeding KRW 5 trillion and controlled by leaders holding more than 30% of issued shares, form one subset of the sample [10,13]. Out of the 4279 firm-year observations, 1931 are Chaebol firms, while 2348 are non-Chaebol firms characterized by dispersed ownership. Equation (2) is employed to assess how agency cost variables relate to the asymmetric behavior of SG&A expenses across these two ownership structures.

4. Empirical Results

4.1. Descriptive Analysis

According to Table 1, Panel A highlights substantial variability in firm performance, with mean sales revenue of KRW 1.061 trillion (median KRW 0.224 trillion) and average SG&A costs of KRW 0.135 trillion (median KRW 0.028 trillion), while SG&A costs as a percentage of revenue average 27.043% (median 12.623%), reflecting diverse efficiency levels in managing expenses.

Table 1. Descriptive statistics.

	Mean	Median	Std. Dev.
Panel A: Revenue and SG&A costs			
Sales Revenue (KRW Trillion)	1.061	0.224	3.527
SG&A costs (KRW Trillion)	0.135	0.028	0.546
SG&A as % of Revenue	27.043	12.623	15.154
Panel B: Economic Variables			
Employee Intensity	1.12×10^{-8}	1.49×10^{-9}	4.79×10^{-7}
Asset Intensity	8.947	1.389	187.181
Successive Decrease (indicator)	0.193	0	0.395
Stock Performance	50.564	10.7	147.651
Panel C: Agency Variables			
Free Cash Flow (FCF)	0.045	0.041	0.074
Asset Utilization Ratio (ASSUT)	0.81	0.717	0.576
Operating Expense Ratio (OPEX)	0.27	0.126	3.359
Panel D: Other Variables			
Ownership Concentration	30.774	27.58	16.607
Total Assets (KRW Trillion)	1.529	0.351	4.738

Panel B of Table 1 highlights significant variability across economic variables, with extremely low employee intensity (mean 1.12×10^{-8}, median 1.49×10^{-9}), highly diverse asset intensity (mean 8.947, median 1.389), and a binary successive decrease indicator showing 19.3% of firms experienced consecutive revenue declines, while stock performance varied widely (mean 50.564, median 10.700).

Panel C summarizes agency cost variables, revealing moderate variability in free cash flow (mean 0.045, median 0.041), differing levels of asset utilization efficiency (mean 0.810, median 0.717), and significant variation in operating efficiency reflected by the operating expense ratio (mean 0.270, median 0.126).

Panel D outlines significant variability in ownership concentration (mean 30.774%, median 27.580%) and firm size (mean total assets 1.529 trillion KRW, median 0.351 trillion KRW). These reflect diverse operational, financial, and governance practices. These firms possess wide-ranging metrics, such as revenue, SG&A costs, asset intensity, indicating the distinct conditions and strategies among KOSPI firms.

4.2. Correlation Analysis

In Table 2, the correlation analysis reveals that SG&A ratio has strong positive correlations with the sales ratio, asset utilization ratio, and ownership concentration, while negatively correlating with the successive decrease and operating expense ratio. The sales ratio also shows positive correlations with employee intensity, asset intensity, and ownership concentration, but it inversely relates to successive decrease and operating expense ratio. Additionally, free cash flow and asset utilization ratio exhibit positive associations with several financial metrics.

Table 2. Pearson correlation matrix.

	Variables	1	2	3	4	5	6	7	8	9	10
1	SG&A Ratio	1									
2	Sales Ratio	0.672 ***	1								
3	Employee Intensity	0.002	0.054 ***	1							
4	Asset Intensity	−0.01	0.039 ***	0.980 ***	1						
5	Successive Decrease	−0.139 ***	−0.216 ***	−0.009	−0.01	1					
6	Stock Performance	0.010	0.006	−0.002	−0.004	−0.014	1				
7	Free Cash Flow	0.019	0.023	0.001	0	−0.062 ***	0.106 ***	1			
8	Asset Utilization Ratio	0.086 ***	0.125 ***	−0.022	−0.026 *	−0.079 ***	−0.033 **	0.248 ***	1		
9	Operating Expense Ratio	−0.123 ***	−0.308 ***	0.007	0.012	−0.008	−0.001	−0.002	−0.043 ***	1	
10	Ownership Concentration	0.041 ***	0.042 ***	−0.01	−0.004	−0.006	−0.063 ***	0.142 ***	0.239 ***	−0.008	1

Note: Observations = 4279; *, ** and *** denote significance levels of 10%, 5%, and 1%, respectively.

To assess potential multicollinearity among the explanatory variables, we conducted a variance inflation factor (VIF) analysis. This multicollinearity test is conducted to detect potential issues of high correlation among independent variables, which can inflate standard errors and distort regression coefficient estimates, making them unreliable. All VIF values fall well below the conventional threshold of 10, with the highest VIF recorded for Asset Intensity (2.90) and Asset Utilization Ratio (2.86), indicating an acceptable level of collinearity. Corresponding tolerance (1/VIF) values exceed 0.34, further supporting the absence of multicollinearity concerns. These results confirm that the regression estimates are not adversely affected by interdependence among predictors, ensuring the robustness of inference in the model. Low Variance Inflation Factor (VIF) values, ranging from approximately 1.00 to 2.90 as shown in Appendix A confirm minimal multicollinearity, ensuring that the regression analysis produces accurate and dependable insights into the relationships between the independent variables and the dependent variable.

4.3. Regression Analysis

4.3.1. Validation of SG&A Cost Stickiness in Total Sample

Table 3 presents the results from the OLS, Fixed Effects, and Random Effects models. In all models, sales revenue increases are significantly associated with SG&A cost increases, with coefficients of 0.342 (OLS), 0.317 (Fixed Effects), and 0.020 (Random Effects). The interaction term between sales changes and the decrease dummy (β_2) is positive and significant across all specifications, indicating less SG&A cost stickiness during sales declines. This finding contrasts with prior studies, such as Chen et al. [8], which reported negative

interaction terms. Among the economic control variables, asset intensity, successive sales decreases, and stock performance show expected patterns: asset-intensive firms exhibit greater SG&A cost asymmetry, while firms experiencing consecutive sales declines or strong stock returns demonstrate lower cost asymmetry, consistent with the existing literature.

Table 3. OLS regression results with fixed and random effects: SG&A cost changes vs. sales revenue changes.

Variable	Predicted Sign	OLS		Fixed Effect		Random Effect	
		Coefficient	*t*-Stat	Coefficient	*t*-Stat	Coefficient	*t*-Stat
Intercept		0.035 ***	6.284	0.038 ***	5.811	0.035 ***	6.146
Sales Change	+	0.342 ***	17.533	0.317 ***	14.406	0.020 ***	17.148
DecDummy ∗ Sales Change	−	0.225 ***	5.433	0.267 ***	5.878	0.042 ***	5.314
Interaction Terms: (Variable ∗ DecDummy ∗ Sales Change)							
Employee Intensity	+	0.001003	0.487	0.000575	0.257	0.001003	0.477
Asset Intensity	−	−0.023 ***	−6.192	−0.028 ***	−6.997	−0.023 ***	−6.056
Successive Decrease	+	0.103 ***	4.563	0.104 ***	4.283	0.103 ***	4.463
Stock Performance	?	0.00142 ***	5.63	0.00137 ***	4.896	0.001423 ***	5.507
Standalone Variables:							
Employee Intensity		0.345	0.79	0.316	0.635	0.345	0.773
Asset Intensity		−0.000132	−1.176	−0.000108	−0.848	−0.000132	−1.151
Successive Decrease		0.018	1.559	0.033	2.497	0.018	1.525
Stock Performance		4.42×10^{-5}	1.528067	2.87×10^{-5}	0.489	4.42×10^{-5}	1.495
Firm Fixed Effects		No		Yes		No	
Year Fixed Effects		No		Yes		No	
R^2		0.45		0.482		0.45	
Adjusted R^2		0.449		0.428		0.449	
F-statistic		349.825 ***		8.832 ***		349.825 ***	
Prob(F-statistic)		0.000		0.000		0.000	
Durbin-Watson stat		2.192		2.203		2.192	
Hausman Chi^2		28.369 ***					

Note: Total panel (balanced) observations = 4279; cross-sections included = 389; *** indicate significance levels at 1%. The symbols in the "Predicted Sign" column represent the hypothesized direction of each variable's effect on SG&A cost asymmetry, based on theoretical expectations and prior literature. The interpretation of these signs varies depending on whether the variable is considered independently or as part of an interaction term with the DecDummy variable. "+" (Positive): The variable is expected to increase SG&A cost asymmetry for standalone variables. However, in interaction terms with DecDummy, a positive sign suggests that during periods of sales decline, the variable mitigates cost stickiness. "−" (Negative): The variable is anticipated to decrease SG&A cost asymmetry for standalone variables. However, in interaction terms with DecDummy, a negative sign implies that during sales downturns, the variable amplifies cost stickiness. "?" (Ambiguous): The expected direction of the variable's effect on SG&A cost asymmetry is theoretically uncertain or may vary depending on specific contexts. This is often the case for variables like stock performance, where the impact on cost behavior can differ based on market conditions or managerial expectations.

The model diagnostics reveal a moderate fit across all estimation models, with R^2 values of 0.450 (OLS), 0.482 (Fixed Effects), and 0.450 (Random Effects), and corresponding adjusted R^2 values of 0.449, 0.428, and 0.449, respectively. The F-statistics are highly significant (OLS: 349.825; Fixed Effects: 8.832; Random Effects: 349.825), confirming overall model significance. Durbin–Watson statistics (OLS: 2.192; Fixed Effects: 2.203; Random Effects: 2.192) suggest no major autocorrelation concerns. The Hausman test (Chi^2 = 28.37, $p = 0.002$) favors the Fixed Effects model over the Random Effects Model. These results support prior evidence on SG&A cost stickiness; however, the positive interaction coefficient between the decrease dummy and sales change (β_2) offers new evidence, suggesting that the affected firms exhibit lower SG&A cost asymmetry during sales declines—contrary to the stronger cost stickiness reported in earlier studies, such as Chen et al. (2012) [8].

4.3.2. Effect of Agency Costs on SG&A Cost Stickiness in Total Sample

Table 4 presents the regression results examining agency costs and economic factors in relation to SG&A cost stickiness using OLS, Fixed Effects (FEM), and Random Effects (REM) models. Sales Change is positively and significantly associated with SG&A expenses across all models (OLS: 0.344, FEM: 0.319, REM: 0.344), in line with prior studies. However, the interaction term DecDummy ∗ Sales Change is significantly positive (OLS: 0.222, FEM: 0.260, REM: 0.222), suggesting lower SG&A cost asymmetry among KOSPI firms, contrary to the stronger stickiness reported in U.S. firms (Chen et al., 2012) [8].

Table 4. Regression results of the effect of agency costs on SG&A cost stickiness.

Variable	Predicted Sign	OLS		Fixed Effect		Random Effect	
		Coefficient	*t*-Stat	Coefficient	*t*-Stat	Coefficient	*t*-Stat
Intercept		−0.000384	−0.041	−0.044 ***	−2.509	−0.000384	−0.04
Sales Change	+	0.344 ***	18.869	0.319 ***	15.668	0.344 ***	18.567
DecDummy ∗ Sales Change	−	0.222 ***	5.693	0.260 ***	6.145	0.222 ***	5.602
Interaction Terms: (Variable ∗ DecDummy ∗ Sales Change):							
FCF	−	0.898 ***	8.87	0.801 ***	7.286	0.898 ***	8.728
ASSUT	−	−0.193 ***	−2.86	−0.221 ***	−2.947	−0.193 ***	−2.814
OPEX	−	0.014 ***	7.768	0.030 ***	10.232	0.014 ***	7.643
Employee Intensity	+	0.000926	0.433	−0.00161	−0.693	0.000926	0.426
Asset Intensity	−	−0.029 ***	−5.7	−0.034 ***	−6.19	−0.029 ***	−5.608
Successive Decrease	+	0.193 ***	8.024	0.188 ***	7.288	0.193 ***	7.895
Stock Performance	?	0.000848 ***	3.483	0.000715 ***	2.665	0.000848 ***	3.427
Standalone Variables:							
FCF		0.147 ***	2.59	0.146 **	2.029	0.147 ***	2.549
ASSUT		−0.002	−0.249	0.016	0.901	−0.002	−0.245
OPEX		0.130 ***	8.004	0.275 ***	10.393	0.130 ***	7.875
Employee Intensity		0.1312	0.323	0.9849	0.214	0.131	0.318
Asset Intensity		−0.000079	−0.754	−0.000057	−0.48	−0.0000785	−0.742
Successive Decrease		0.024 **	2.156	0.031 ***	2.498	0.024 **	2.122
Stock Performance		0.000028	1.034	0.000051	0.931	0.000028	1.018
Firm Fixed Effects		No		Yes		No	
Year Fixed Effects		No		Yes		No	
R2		0.501		0.536		0.501	
Adjusted R2		0.499		0.487		0.499	
F-statistic		267.618 ***		10.790 ***		267.618 ***	
Prob(F-statistic)		0		0		0	
Durbin-Watson stat		2.15		2.243		2.15	
Hausman Chi2		95.464 ***					

Note: Total panel (balanced) observations = 4279; cross-sections = 389; *** and ** indicate significance levels at 1% and 5%, respectively. The symbols in the "Predicted Sign" column represent the hypothesized direction of each variable's effect on SG&A cost asymmetry, based on theoretical expectations and prior literature. The interpretation of these signs varies depending on whether the variable is considered independently or as part of an interaction term with the DecDummy variable. "+" (Positive): The variable is expected to increase SG&A cost asymmetry for standalone variables. However, in interaction terms with DecDummy, a positive sign suggests that during periods of sales decline, the variable mitigates cost stickiness. "−" (Negative): The variable is anticipated to decrease SG&A cost asymmetry for standalone variables. However, in interaction terms with DecDummy, a negative sign implies that during sales downturns, the variable amplifies cost stickiness. "?" (Ambiguous): The expected direction of the variable's effect on SG&A cost asymmetry is theoretically uncertain or may vary depending on specific contexts. This is often the case for variables like stock performance, where the impact on cost behavior can differ based on market conditions or managerial expectations.

Agency cost proxies yield mixed evidence. Free Cash Flow (FCF) exhibits a significantly positive interaction with sales decline (OLS: 0.898, FEM: 0.801, REM: 0.898), indicating lower cost stickiness and contradicting Hypothesis 1. Asset Utilization (ASSUT) shows a significantly negative interaction (OLS: −0.193, FEM: −0.221, REM: −0.193), supporting Hypothesis 2 and reflecting greater cost stickiness with more efficient asset use. The

Operating Expense ratio (OPEX) is positively related to SG&A cost asymmetry (OLS: 0.014, FEM: 0.030, REM: 0.014), opposing Hypothesis 3.

Economic variables behave largely as expected. Asset intensity is negatively associated with SG&A cost asymmetry (OLS: -0.029, FEM: -0.034, REM: -0.029). Successive Decrease (OLS: 0.193, FEM: 0.188, REM: 0.193) and Stock Performance (OLS: 0.000848, FEM: 0.000715, REM: 0.000848) are positively related to lower cost asymmetry, suggesting that firms facing continuous demand shocks or stronger stock returns proactively adjust their cost structures. Consecutive demand shocks, defined as sustained sales declines across periods, appear to trigger more disciplined cost management compared to isolated revenue drops. Employee intensity remains insignificant.

Model diagnostics indicate a robust fit, with R^2 values around 50%, significant F-statistics, and no evidence of autocorrelation (Durbin-Watson $\approx$ 2.15). The Hausman Test (Chi^2 = 95.464, p = 0.000) supports the fixed effects model. These findings highlight significant agency and economic determinants of SG&A cost stickiness, with deviations from U.S.-based studies likely due to the distinct governance structures of Korean firms.

4.3.3. Ownership Structure Analysis (Impact on SG&A Cost Asymmetry in Chaebol and Non-Chaebol Firms)

This section examines how agency costs impact SG&A cost asymmetry, with a focus on differences between Chaebol and non-Chaebol firms. Table 5 presents regression results showing a significant positive relationship between Sales Change and SG&A costs for both Chaebols (*t*-stat = 10.984) and non-Chaebols (*t*-stat = 16.497). This indicates that SG&A costs increase with rising sales for both ownership structures, suggesting that ownership concentration does not affect the responsiveness of SG&A costs to sales growth.

The interaction effects of agency-related variables on SG&A cost asymmetry differ between the two groups. For Chaebols, the FCF interaction term is significantly positive at the 1% level (coefficient = 1.177, *t*-stat = 3.533), indicating that higher free cash flow is associated with reduced SG&A cost asymmetry, a stronger effect compared to non-Chaebols, where the coefficient is also positive at the 1% level (coefficient = 0.843, *t*-stat = 7.062). This finding suggests that agency costs (proxied by free cash flow) are more significant in determining SG&A cost asymmetry for Chaebols. In contrast, the ASSUT interaction term shows a significantly negative coefficient for non-Chaebols at the 5% level (coefficient = -0.248, *t*-stat = -2.317), suggesting that efficient asset utilization is linked to greater SG&A cost asymmetry in these firms, while no significant effect is observed for Chaebols. This suggests that asset utilization plays a more prominent role in shaping SG&A cost behavior in non-Chaebols than in Chaebols.

Further analysis in Table 5 highlights other key determinants of SG&A cost asymmetry. For non-Chaebols, the OPEX interaction term is significantly negative (coefficient = -0.015, *t*-stat = -6.718), suggesting that higher operating expenses are associated with increased cost asymmetry, whereas no significant effect is observed for Chaebols. This result suggests that operating expense control influences cost asymmetry differently across ownership structures, with non-Chaebols showing a negative relationship between operating expenses and SG&A cost asymmetry.

Economic control variable, asset intensity has a significant negative interaction effect for non-Chaebols (coefficient = -0.029, *t*-stat = -4.059), indicating that greater reliance on assets leads to more SG&A cost asymmetry, with no such relationship for Chaebols. Successive decrease is positively associated with lower cost asymmetry in non-Chaebols (coefficient = 0.323, *t*-stat = 10.521), but remains insignificant for Chaebols. Stock performance shows significantly negative coefficients for both groups (Chaebols: coefficient = -0.00167, *t*-stat = -3.538; non-Chaebols: coefficient = -0.00131, *t*-stat = -4.071), indicating that better stock performance increases SG&A cost asymmetry, with a stronger effect for non-Chaebols.

Table 5. SG&A cost asymmetry in Chaebol and non-Chaebol firms.

OLS Estimation Model		Chaebols		Non-Chaebols	
Variable	Predicted Sign	Coefficient	*t*-Stat	Coefficient	*t*-Stat
Intercept	?	0.015	1.17	−0.02	−1.398
Sales Change	+	0.248 ***	10.984	0.470 ***	16.497
DecDummy ∗ Sales Change	−	0.347	1.36	0.071	1.513
Interaction Terms: (Variable ∗ DecDummy ∗ Sales Change):					
Free Cash Flow	−	1.177 ***	3.533	0.843 ***	7.062
Asset Utilization Ratio	−	0.015	0.128	−0.248 **	−2.317
Operating Expense Ratio	−	−0.032	−0.937	−0.015 ***	−6.718
Employee Intensity	+	0.001	0.131	0.004	1.512
Asset Intensity	−	0.023	0.725	−0.029 ***	−4.059
Successive Decrease	+	0.0000394	0.000749	0.323 ***	10.521
Stock Performance	?	−0.00167 ***	−3.538	−0.00131 ***	−4.071
Standalone Variables:					
Free Cash Flow		0.122	1.528	0.154 **	1.909
Asset Utilization Ratio		0.004	0.491	−0.009	−0.699
Operating Expense Ratio		0.128 ***	4.806	−0.141 ***	−6.86
Employee Intensity		−0.538	−0.053	−0.324	−0.436
Asset Intensity		0.0000313	0.256	−0.0000218	−0.112
Successive Decrease		−0.000923	−0.058	−0.0499 ***	−3.196
Stock Performance		−0.000049	−0.94	−0.0000456	−1.426
Firm Fixed Effects		No		No	
Year Fixed Effects		No		No	
R^2		0.472		0.544	
Adjusted R^2		0.467		0.541	
F-statistic		106.856 ***		173.796 ***	
Prob(F-statistic)		0.000		0.000	
Durbin-Watson stat		2.073		2.213	

Note: Panel observation: Chaebols= 1931 and non-Chaebols = 2348; cross-sections = 389; *** and ** indicate significance levels at 1% and 5%, respectively. The symbols in the "Predicted Sign" column represent the hypothesized direction of each variable's effect on SG&A cost asymmetry, based on theoretical expectations and prior literature. The interpretation of these signs varies depending on whether the variable is considered independently or as part of an interaction term with the DecDummy variable. "+" (Positive): The variable is expected to increase SG&A cost asymmetry for standalone variables. However, in interaction terms with DecDummy, a positive sign suggests that during periods of sales decline, the variable mitigates cost stickiness. "−" (Negative): The variable is anticipated to decrease SG&A cost asymmetry for standalone variables. However, in interaction terms with DecDummy, a negative sign implies that during sales downturns, the variable amplifies cost stickiness. "?" (Ambiguous): The expected direction of the variable's effect on SG&A cost asymmetry is theoretically uncertain or may vary depending on specific contexts. This is often the case for variables like stock performance, where the impact on cost behavior can differ based on market conditions or managerial expectations.

The regression models are robust, with R^2 values of 0.472 for Chaebols and 0.544 for non-Chaebols, indicating that the predictors explain substantial variability in SG&A cost asymmetry. Adjusted R^2 values and highly significant F-statistics further validate the models' explanatory power, while Durbin-Watson statistics close to 2 suggest no autocorrelation in the residuals. These diagnostics confirm the reliability of the models in capturing the differential effects of agency-related variables on SG&A cost asymmetry between Chaebol and non-Chaebol firms.

The robustness of the findings is further confirmed through the application of fixed effects and random effects estimations, yielding results consistent with those obtained from the OLS regression in Table 5. This methodological consistency demonstrates that the observed relationships between key interaction terms—such as Free Cash Flow, Operating Expense Ratio, Asset Intensity, and Successive Decrease—and SG&A cost asymmetry are stable across different econometric specifications. By addressing both firm-specific and time-invariant unobservable heterogeneity, the fixed effects and random effects models

affirm the reliability of the results and reinforce the conclusion that these variables have differential impacts on SG&A cost behavior in Chaebol and non-Chaebol firms.

4.4. Additional Robustness Test Using Generalized Method of Moments (GMM)

To address the potential endogeneity of free cash flow (FCF) in our regression model (Equation (2)), we employ the generalized method of moments (GMM) estimator, which effectively mitigates biases caused by unobserved heterogeneity and ensures more reliable and consistent results. Given that FCF is influenced by factors, such as firm size, leverage, and investment opportunities, this method utilizes instrumental variables and first-differencing to control for such endogeneity. Specifically, we apply the Difference GMM approach (Arellano & Bond, 1991 [43]; Arellano & Bover, 1995 [44]), using lagged values of the dependent variable Log(SG&A) Change and independent variables—including interaction terms with DecDummy and Sales Change—as instruments.

Table 6 presents the GMM regression results, confirming that the lagged dependent variable [SG&A Change(−2)] is significantly negative, indicating persistence in SG&A cost changes. Sales Change is positively associated with SG&A costs, affirming that SG&A expenses rise with sales. The interaction term between DecDummy and Sales Change is marginally significant, pointing to a slight reduction in cost stickiness during sales declines.

Table 6. GMM results of the effect of agency costs on SG&A cost stickiness.

Variable	Predicted Sign	GMM Estimation Model	
		Coefficient	*t*-Stat
SG&A Change(−2)		−0.056 ***	−2.885
Sales Change	+	0.098 **	2.123
DecDummy ∗ Sales Change	−	0.228 *	1.844
Interaction Terms: (Variable ∗ DecDummy ∗ Sales Change):			
Free Cash Flow	−	1.681 ***	3.962
Asset Utilization Ratio	−	−0.583 ***	−2.781
Operating Expense Ratio	−	0.086 ***	4.649
Employee Intensity	+	0.007	0.947
Asset Intensity	−	−0.007 **	−2.249
Successive Decrease	+	0.191 ***	2.865
Stock Performance	?	0.001 **	1.912
Standalone Variables:			
Free Cash Flow		0.139 *	1.896
Asset Utilization Ratio		−0.07	−0.557
Operating Expense Ratio		0.802 ***	4.666
Employee Intensity		0.498	0.35
Asset Intensity		−0.000108	−0.397
Successive Decrease		−0.007	−0.22
Stock Performance		−0.001 **	−2.133
J-statistic		77.713 ***	
Prob(J-statistic)		0.1001	
Instrument rank		61	

Note: Total panel observations = 3496; cross-sections = 389; ***, ** and * indicate significance levels at 1%, 5%, and 10%, respectively. The symbols in the "Predicted Sign" column represent the hypothesized direction of each variable's effect on SG&A cost asymmetry, based on theoretical expectations and prior literature. The interpretation of these signs varies depending on whether the variable is considered independently or as part of an interaction term with the DecDummy variable. "+" (Positive): The variable is expected to increase SG&A cost asymmetry for standalone variables. However, in interaction terms with DecDummy, a positive sign suggests that during periods of sales decline, the variable mitigates cost stickiness. "−" (Negative): The variable is anticipated to decrease SG&A cost asymmetry for standalone variables. However, in interaction terms with DecDummy, a negative sign implies that during sales downturns, the variable amplifies cost stickiness. "?" (Ambiguous): The expected direction of the variable's effect on SG&A cost asymmetry is theoretically uncertain or may vary depending on specific contexts. This is often the case for variables like stock performance, where the impact on cost behavior can differ based on market conditions or managerial expectations.

In contrast to Chen et al. [8], who found a negative interaction between free cash flow (FCF) and SG&A cost asymmetry, suggesting that higher FCF exacerbates SG&A cost stickiness for U.S. firms, our findings present an alternative perspective. Specifically, we observe that the FCF interaction term in the context of Korean firms is positive and statistically significant, indicating that higher levels of FCF are associated with lower SG&A cost asymmetry. This divergence can be attributed to differences in corporate governance structures and managerial behavior between U.S. and Korean firms. In the Korean context, particularly within Chaebol firms, concentrated ownership may lead to more effective managerial oversight, which can mitigate the opportunistic behavior typically linked to higher FCF. In contrast to the U.S. environment, where dispersed ownership might exacerbate agency costs, the strong internal control mechanisms in Korean firms may limit the ability of managers to engage in costly discretionary actions, thereby reducing SG&A cost asymmetry.

The ASSUT interaction term shows a significantly negative relationship with SG&A cost asymmetry. Typically, one might expect that more efficient asset utilization would reduce cost distortions. However, in our study, we find that firms with higher asset utilization tend to experience greater SG&A cost asymmetry. This suggests that firms that rely heavily on their assets for production may encounter more rigid cost structures due to the need for extensive fixed investments, which, in turn, causes more pronounced cost stickiness. The fixed nature of certain costs associated with asset-intensive firms may prevent them from adjusting costs in line with changes in sales, thus leading to greater cost asymmetry.

Surprisingly, the OPEX interaction variable shows a positive and significant relationship with SG&A cost asymmetry. This result is particularly interesting as it suggests that firms with higher operating expenses experience tighter cost control, reducing the degree of cost stickiness. This may be explained by the fact that increased operating expenses often necessitate more stringent cost management practices. Firms with high operating expenses are likely more proactive in managing their costs to maintain profitability, which reduces the asymmetry typically observed when sales fluctuate. The findings challenge the conventional wisdom that higher operating expenses automatically lead to inefficiencies. Instead, they highlight the role of managerial discipline in mitigating cost asymmetry, emphasizing that higher operating expenses can correlate with more effective cost management rather than exacerbating inefficiencies. This is an unexpected yet valuable finding that enriches the literature on agency costs.

Further results show that asset intensity has a negative and significant relationship with SG&A cost asymmetry, and firms experiencing consecutive sales downturns exhibit lower cost asymmetry, as evidenced by the significant positive coefficient for the successive decrease interaction term. Additionally, stock performance is positively linked to reduced SG&A cost asymmetry.

Diagnostic results are robust: the AR(1) test is significant and indicates first-order serial correlation (z = 8.3024, $p < 0.001$), while the AR(2) test statistic is insignificant and confirms no second-order autocorrelation (z = −0.4289, $p < 0.6573$). The Sargan over-identification test yields $\chi^2(39) = 77.713$ ($p = 0.1001$), suggesting the instruments are valid. Furthermore, the Wald test confirms the joint significance of agency variables ($\chi^2(8) = 78.94$, $p < 0.0001$), affirming their collective explanatory power. These results strengthen the credibility of our model and address concerns over instrumentation and model fit.

To validate the robustness of our ownership structure analysis on SG&A cost asymmetry, we conducted additional Generalized Method of Moments (GMM) estimations. These GMM results, though not tabulated for brevity, corroborate the findings presented in Table 5 using Ordinary Least Squares (OLS). Specifically, the GMM analysis confirms

that Chaebol firms, characterized by concentrated ownership, exhibit lower SG&A cost asymmetry, suggesting effective internal governance mechanisms that mitigate agency problems. Conversely, non-Chaebol firms, with more dispersed ownership structures, demonstrate higher cost stickiness, indicating weaker oversight and greater managerial discretion. The consistency between GMM and OLS results reinforces the conclusion that ownership structure significantly influences cost behavior, with concentrated ownership promoting more disciplined and sustainable financial management practices.

Therefore, the GMM estimation addresses endogeneity concerns, providing more robust results. The inclusion of ASSUT and OPEX as proxies for agency costs adds novel contributions to the literature, revealing that agency costs manifest in unexpected ways in the context of SG&A cost asymmetry. The findings challenge traditional assumptions, showing that higher liquidity (as proxied by FCF) and higher operating expenses (OPEX) do not always exacerbate cost inefficiencies. Instead, they contribute to a varied understanding of cost behavior within firms, particularly in relation to agency theory.

5. Conclusions

This study investigated the relationship between agency costs, proxied by free cash flow (FCF), asset utilization (ASSUT), and operating expenses (OPEX), and SG&A cost stickiness within Korean firms. The study particularly focused on how ownership structures, notably the distinction between Chaebol and non-Chaebol firms, moderate these relationships. The findings reveal that higher FCF is associated with lower SG&A cost asymmetry, diverging from prior studies in Western contexts (USA). This suggests that concentrated ownership structures, characteristic of Chaebols, may effectively mitigate managerial opportunism through enhanced oversight and stewardship.

Improved asset utilization correlates with increased cost stickiness, indicating that firms with intensive reliance on fixed assets face rigid cost structures that hinder flexible cost adjustments. Conversely, higher operating expenses are linked to reduced cost asymmetry, implying that greater operational scale may trigger tighter cost monitoring and discipline. The analysis further shows that the mitigating effect of FCF on cost asymmetry is more pronounced within Chaebols, reflecting centralized control and enhanced managerial discipline. In contrast, non-Chaebol firms display a positive association between better asset utilization and cost stickiness, and greater operating expenses correlate with higher cost asymmetry—relationships not observed among Chaebols. These distinctions evince the critical influence of ownership concentration and governance quality on corporate cost behavior.

The study contributes to the literature by offering novel evidence that the relationship between agency costs and SG&A cost stickiness is highly context-dependent, challenging the conventional view that excess cash invariably exacerbates inefficiencies. By introducing asset utilization and operating expenses as agency cost proxies, our research captures broader dimensions of managerial discretion and resource rigidity, hence, enriching the cost behavior discourse.

From a policy perspective, the findings suggest that enhancing internal governance mechanisms in non-Chaebol firms is imperative to reduce agency costs. Implementing robust internal controls, performance-based incentives, and transparent reporting can align managerial actions with shareholder interests. For Chaebols, ensuring board independence and the inclusion of members with diverse expertise can provide effective oversight, mitigate conflicts of interest, and enhance strategic decision-making. Encouraging transparent and standardized cost management practices across all firms can deter opportunistic behavior and promote accountability. Policymakers should design governance reforms that account for structural differences in ownership, tailoring regulations to promote minor-

ity shareholder rights in Chaebols and initiatives promoting managerial accountability in non-Chaebol firms. Cultivating a corporate culture that prioritizes sustainable financial management is essential for both firm types to enhance financial discipline, promote sustainability, and achieve greater operational efficiency.

However, the study has limitations. The reliance on financial data from the KisValue database (version 3.2) may not capture qualitative aspects of corporate governance that influence cost behavior. Additionally, the exclusion of financial institutions and firms with incomplete data, while necessary for sample consistency, may limit the generalizability of the findings. Future research should consider incorporating qualitative assessments of governance practices and expanding the sample to include a broader range of firms. Longitudinal studies examining the evolution of cost behavior in response to changes in ownership structures and governance reforms would further enrich the understanding of sustainable cost management practices.

In conclusion, this study emphasizes the pivotal role of ownership structures in shaping cost behavior and highlights the need for tailored corporate governance practices that address the unique challenges and dynamics of different ownership models. By aligning governance mechanisms with ownership structures, firms can enhance financial discipline, promote sustainability, and achieve greater operational efficiency.

Institutional Review Board Statement: Not applicable.

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Data Availability Statement: The datasets and codes employed and analyzed in this study are available upon request in strict compliance with the laboratory ethics.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

	Multicollinearity Test		
Variable	**Coefficient Variance**	**Centered VIF**	**Tolerance**
Sales Ratio	8.77×10^{-5}	1.28438	0.778585171
Successive Decrease	0.00011	1.06983	0.934730569
Stock Performance	7.71×10^{-10}	1.04459	0.957310646
Free Cash Flow	0.00357	1.19935	0.833783576
Asset Utilization Ratio	0.00014	2.86179	0.34943226
Operating Expense Ratio	1.61×10^{-6}	1.12917	0.885606242
Ownership Concentration	6.39×10^{-8}	1.09482	0.913396327
Asset Intensity	4.06×10^{-5}	2.90109	0.344698265
Employee Intensity	2.38×10^{-6}	1.02887	0.971941034

Note: Included Observations = 4279; VIF = Variance Inflation Factor.

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