

The structure and interpretation of Samsungs memory supercycle and semiconductor supplier dominance strategy

Only three companies worldwide have the capability to mass-produce logic semiconductors using processes below 10 nanometers: TSMC, Intel, and Samsung Foundry. Among these, Samsung Electronics stands alone as the sole manufacturer producing memory semiconductors. This unique position grants Samsung a significant competitive edge, especially as High Bandwidth Memory (HBM) technology continues to evolve, allowing it to differentiate itself further from competitors like SK Hynix. While SK Hynix also holds substantial potential within the memory market, Samsung's integrated capabilities place it in a distinct leadership role.

The recent record-breaking quarterly profits reported by Samsung Electronics are underpinned by a memory supercycle that has driven prices and demand to unprecedented levels. Some memory products have seen price increases of three to four times compared to the previous year's autumn period, with certain items reaching a point where prices are effectively dictated by sellers. This surge in profitability indicates that the supercycle is not a fleeting phenomenon but rather a structurally sustained market condition. Samsung's strategic timing of large-scale capital investments and the alignment of production ramp-up with market demand have been critical factors enabling the company to capitalize swiftly on this cycle, resulting in exceptional revenue growth.

A significant portion of Samsung's revenue derives from memory semiconductors, with DRAM and NAND flash memory accounting for an estimated 70 to 80 percent. Notably, Samsung's presence in the HBM sector has grown stronger compared to previous years. The company's competitiveness extends beyond HBM 3rd generation to the latest HBM 4th generation, positioning it to potentially achieve its highest-ever annual performance by the end of this year, assuming the supercycle persists. This assumption is crucial, as the continuation of the supercycle underpins the sustainability of such financial achievements.

The rise in memory prices and the ongoing supply shortages are not merely temporary market fluctuations. The announcement of Elon Musk's 'Terra Project,' which aims to produce semiconductors internally, reflects broader concerns about supply uncertainties and imbalances. Major industry players

are actively expanding production capacity, with new facilities scheduled for completion within the next year or two. However, the authority to regulate supply speed predominantly rests with companies holding significant market shares, granting these suppliers a pivotal role in steering market dynamics. This supplier dominance represents a strategic advantage that influences both pricing and availability.

Within the memory market, competition between HBM and general-purpose DRAM in terms of profitability has intensified. Traditionally, HBM commanded a price approximately six times higher per gigabyte than DRAM, offering clear economic benefits. Yet, recent sharp increases in DRAM prices have led some analysts to suggest that DRAM's profit margins may now surpass those of HBM. This shift compels memory manufacturers to make strategic decisions regarding the allocation of production capacity between general-purpose memory and HBM products, balancing profitability and market demand.

This evolving landscape extends beyond mere capacity expansion, ushering in a trend toward 'foundry-ization' within memory manufacturing. As demand diversifies—particularly from AI data centers—customized memory products such as AI-optimized HBM and high-performance LPDDR are emerging. These developments involve customer participation from the design phase, marking a new business model that will significantly influence future competitiveness in the memory industry.

Samsung Electronics is building an integrated semiconductor ecosystem that spans beyond memory to encompass the entire semiconductor value chain. The production of logic dies, which play a critical role in HBM, requires advanced process technologies below 10 nanometers—a capability limited to very few companies. Samsung's ability to manufacture logic dies, memory dies, GPU cores, and perform packaging internally distinguishes it as the only company with such comprehensive in-house production. This end-to-end control is expected to be a substantial strength in the evolving semiconductor market.

Globally, the semiconductor industry is characterized by TSMC's leadership in cutting-edge processes, while second- and third-tier companies operate using older technologies to share market segments. In South Korea, Samsung Electronics and SK Hynix dominate the memory market, but the ecosystem lacks a robust mid-sized memory manufacturer. Chinese company CXMT targets the domestic market

by producing older generation memory, yet in Korea, challenges in securing large-scale capital and skilled personnel hinder the development of mid-tier firms.

Constructing semiconductor manufacturing facilities demands enormous capital investment and time. Establishing new plants and achieving mass production readiness typically requires a minimum of three to five years, during which securing specialized talent and accumulating technical expertise are essential. Without confidence in the sustained stability of the current memory supercycle, aggressive capacity expansion carries significant risks. Consequently, Samsung Electronics and SK Hynix are cautiously adjusting their investment pace in response to market conditions.

The semiconductor industry is highly sensitive to rapid shifts in market environments and technological advancements. The surge in AI and data center demand is reshaping the memory market landscape, reversing traditional supplier-customer dynamics. Suppliers now possess the authority to control pricing and supply volumes, transitioning from mere producers to market leaders.

To deepen the understanding of the current economic environment and the future of the semiconductor industry, it is instructive to consider perspectives from prominent economic experts. Each offers a distinct lens through which to interpret the ongoing changes, providing a multifaceted view of where the economy may be headed and how the semiconductor sector fits within this broader context.

Expert	Core Perspective	Keywords	Interpretation Point
Ray Dalio	Economic cycles and structural transitions	Cycle, structural change, supplier dominance	The current memory supercycle represents a supply-driven structural shift where control over supply determines economic leadership.
Paul Krugman	Macroeconomic demand and policy impacts	Demand shocks, policy response, uncertainty	Rapid growth in AI and data center demand increases economic

			volatility, with policy and corporate investment decisions critically affecting stability.
Milton Friedman	Market freedom and competition	Market freedom, competition, self-regulation	Supplier dominance will be moderated by market competition over time, with free market mechanisms restoring balance in the long term.

These expert viewpoints collectively reveal that the economy is navigating a complex inflection point beyond simple expansion or contraction. Ray Dalio emphasizes the structural nature of the current cycle, highlighting how supplier control has become a decisive factor in economic power, a notion reflected in the semiconductor industry's supply dynamics. Paul Krugman draws attention to the heightened volatility caused by surging AI-related demand and the significant role of policy and corporate investment in shaping economic outcomes. Milton Friedman offers a perspective grounded in market principles, suggesting that despite current supplier advantages, competitive forces and market self-regulation will eventually restore equilibrium.

Understanding these diverse interpretations provides valuable insights into economic trends, the influence of policy, and strategic investment directions. The interplay between structural shifts, demand fluctuations, and market mechanisms suggests that while the current memory supercycle favors suppliers in the short term, long-term balance will depend on innovation, competition, and adaptive policy responses. Moreover, the impact of AI and data center growth on the broader economy underscores the need for careful strategic planning by both policymakers and industry leaders.

Given these considerations, it is worthwhile for readers to reflect on their own perspectives regarding the trajectory of the economy and the semiconductor industry's role within it.

For a concise review of the key points discussed, the PDF summary provided below offers a practical reference that can assist in revisiting the core ideas efficiently.

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