



Creating value through M&A and divestiture

M&A has long been an important contributor to the growth of semiconductor companies. In this article, we review the industry's record, forecast the most effective M&A models, and highlight capabilities required to get the process right.

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Mergers and acquisitions are an important lever in the pursuit of growth for semiconductor companies, but few industry players have experience doing more than small, tactical deals. At the same time, the pool of such targets is shrinking, while pressure to grow through M&A is increasing. A big question for semiconductor companies is where to focus their M&A efforts to maximize growth opportunities.

McKinsey research has identified five models that characterize the M&A programs of the world's biggest companies. Many semiconductor companies have successfully pursued what we term a tactical model, characterized by the completion of numerous small deals over the course of a year that, when combined, make up

less than 20 percent in aggregate over the past decade of the acquirer's market capitalization. But we don't see much potential left in this approach, and we expect semiconductor companies to pursue what we call a programmatic M&A model, where companies complete a similar number of larger deals that together represent a significant share (that is, greater than 20 percent over the past decade) of the acquirer's market capitalization. Put another way, as small deals become harder to come by, we believe industry players will need to be willing to spend more per acquisition in the hunt for growth. In this article, we'll offer an overview of M&A in the semiconductor industry, present the approaches that may generate the most value, and offer a perspective on how to get M&A right.



A bias toward small deals

The source of inorganic growth for semiconductor companies has historically been the acquisition of small industry players, in deals generally valued at less than \$500 million. From 2000 to 2010, there were 221 deals in the semiconductor industry, and 83 percent of them fell into the sub-\$500 million category, according to McKinsey research. Many, in fact, were much less expensive: 22 percent of those deals were under \$25 million, 13 percent were valued between \$25 million and \$50 million, and another 23 percent came in between \$50 million and \$100 million.

An informal poll of 34 industry leaders at McKinsey’s annual semiconductor CEO event in 2012 showed that roughly a third of them will look to small acquisitions as a source of inorganic growth in the years ahead. Why the

preference for smaller deals? Most attendees cited the low capital requirements and noted that smaller deals entail less risk than larger deals.

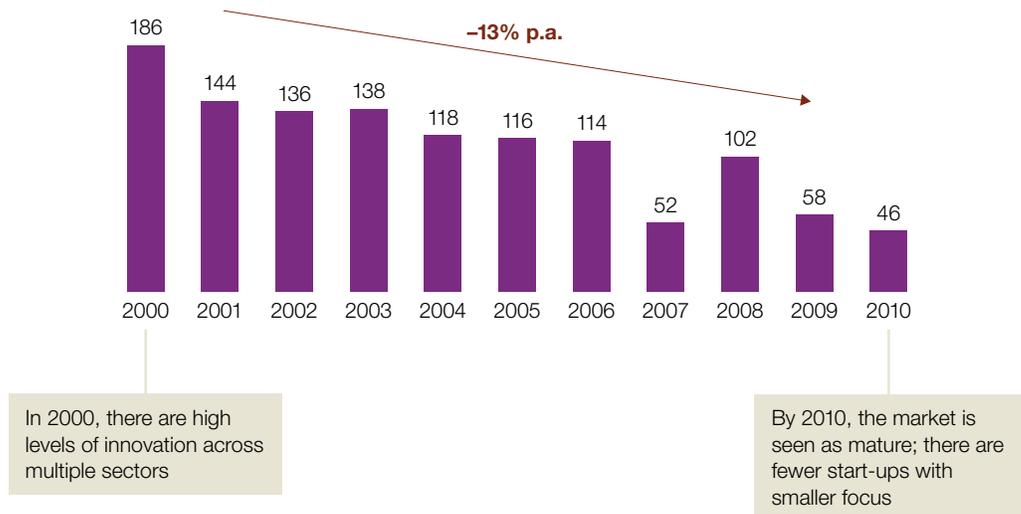
But the days of small deal after small deal seem numbered, offering a strong reason for semiconductor companies to reexamine their M&A approach. The pool of new semiconductor start-ups shrank at a 13 percent annual rate from 2000 to 2010 (Exhibit 1).

Moreover, the pipeline of new start-ups is not being refilled, largely as a result of venture-capital firms looking to other industries and cutting back on money they are investing in the sector. Overall venture-capital deals with semiconductor players sank at a 6 percent annual rate, and the crucial Series A investments dropped at an 18 percent annual rate between 2000 and 2010 (Exhibit 2).

Exhibit 1

The pool of new semiconductor start-ups is shrinking.

New semiconductor start-ups founded



Complicating matters is that bidders from adjacent industries have begun competing with semiconductor companies for the remaining smaller-scale chip companies. Apple paid \$280 million in 2008 to acquire P.A. Semi, a fabless design company specializing in power-efficient chips. Two years later, to enhance its A5 processors, Apple paid \$121 million for Intrinsity, a Texas-based fabless company specializing in high-speed, low-power processor cores. And in 2011, Apple paid a reported \$390 million to buy Anobit, an Israeli manufacturer of flash-memory products.

Identifying the most effective M&A strategy

McKinsey's corporate-finance practice analyzed more than 15,000 M&A deals executed by the world's top 1,000 nonbanking companies over

the past decade. The study found that semiconductor companies have largely stuck to the two most successful strategies—tactical and programmatic—out of the five identified, as measured by excess shareholder returns.¹ In fact, the tactical and programmatic M&A programs combined were employed by 40 percent of the semiconductor companies in the global top 1,000 and 66 percent in the global top 500 (Exhibit 3).

The other three strategies are not ideal for semiconductor companies, for a variety of reasons:

Large deals. Large-deal strategies—those where at least one deal is 30 percent of the acquirer's market capitalization—are pursued successfully by companies operating in more mature industries

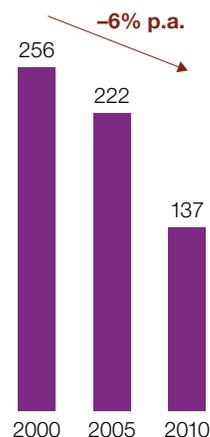
¹This analysis corrects for a bias in traditional measures of M&A value, which understate the value of deals too small to affect share prices by relying on short-term investor reactions to deal announcements, focusing instead on the impact of M&A programs rather than individual deals. For more information, see Werner Rehm, Robert Uhlener, and Andy West, "Taking a longer-term look at M&A value creation," mckinseyquarterly.com, January 2012.

Exhibit 2

The pipeline is not being refilled, as venture-capital funding is declining for semiconductor start-ups.

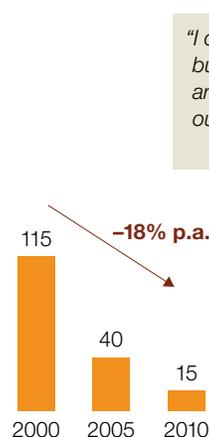
Fewer venture-capital (VC) deals are being done

VC deals in semiconductor start-ups, number of deals



New funding for semiconductor start-ups is also on the decline

Series A funding of semiconductor start-ups, number of start-ups



"I can count on one hand the VCs who are bullish about semi start-ups... there are so many other investment opportunities out there"

—Venture capitalist in Silicon Valley

Exhibit 3

We segmented companies into five different M&A strategies.

World's top 1,000 nonbanks in 1999 with data until 2010, n = 639



¹We calculate market cap acquired based on the sum of deal value as a percent of market cap in each year. Source: Corporate Performance Analysis Tool; Dealogic; TPSi database v73

with excess capacity or where scale is a competitive factor. Similarly, we found that large deals in faster-growing or rapidly evolving industries—such as the semiconductor industry—were less successful. Why? Large deals often consumed critical organizational resources over a lengthy period following a deal, resulting in critical product or upgrade cycles being missed. In the technology sector in particular, large deals were generally completed when valuations were high, “at the top of the cycle,” and often those companies overpaid for the acquisitions.

Selective deals. Companies with selective strategies engage in M&A opportunistically, even though they don’t seem to be pursuing a proactive strategy. As a result, they spend less than

2 percent of market capitalization on the deals. This was a category from which it was difficult to draw conclusions. Often, the sources of these companies’ growth were organic rather than enabled by M&A.

Organic growth. The organic segment represents companies that did no, or practically no, M&A over the past decade. They averaged about three deals over the course of the decade, and those acquisitions were worth less than 1 percent of the company’s market capitalization.

Of the two remaining segments, much of semiconductor deal making has fallen into the tactical bucket, where companies completed numerous small deals that, combined, made up less than

20 percent of the acquirer's market capitalization but usually were part of a broader innovation or capability-building strategy. Most of these deals were to acquire small, niche companies that would fill gaps in intellectual property, product portfolios, or channel lineups. These acquisitions frequently involved early-stage technology companies with promising intellectual property. The median semiconductor company in this category did 28 deals over the last decade, and the median deal was equivalent to 8 percent of the acquirer's market capitalization (Exhibit 4). While this approach certainly worked for the period between 1999 and 2010, we believe the market has changed in profound ways.

In our view, the conditions in today's semiconductor industry will require semiconductor companies to transition from tactical tuck-in deals to a larger-scale series of business-building deals. While this programmatic approach to M&A produced negative returns for shareholders, we believe it will be the most effective path to

growth in the future. Semiconductor companies pursuing a programmatic approach have historically conducted 25 deals on average over the last decade, compared with 28 deals for companies pursuing a tactical M&A strategy.² As a result, we think the key for semiconductor companies will be to increase the size of the deals they are willing to do. Companies will also need to build their M&A capabilities before shifting to a programmatic approach. Perhaps the most essential capability will be the companies' ability to integrate larger, more complex organizations into their own organizations. (We will address this topic in greater depth later in this article.)

In addition, semiconductor companies shifting to a programmatic model will also need to expand their capabilities to identify and evaluate targets. In the tactical approach, targets are often evaluated purely based on their technology, and the main due-diligence capabilities therefore reside within the R&D groups. In the

²Our analysis draws on data from McKinsey's Corporate Performance Analysis Tool, Dealogic, and a TPSi database.

Exhibit 4

Tactical has been the most reliable M&A strategy for semiconductor companies through upturns and downturns.

Semiconductor companies in global top 1,000, median excess total return to shareholders (TRS),¹ %, n = 33

■ % with excess TRS >0



¹Program definition is based on M&A activity from Jan 1, 2000, to Dec 31, 2010; excess TRS is for the specified period.

Source: Corporate Performance Analysis Tool; Dealogic; TPSi database v73



programmatic model, a more holistic approach may be warranted, requiring due diligence of go-to-market potential, cost and operational synergies, and overall strategic fit, in addition to an evaluation of the technology. Capabilities in due diligence and target evaluation therefore must be built across the organization.

Relying mostly on organic growth will no longer cut it in the semiconductor industry. By extension, the organic path described above becomes irrelevant for companies that seek industry leadership, as does the selective model, given how few deals are executed and their overall impact on the acquirer. As noted, many companies apply a tactical approach today, but the number of small-target candidates is falling. In the large-deal category, the shareholder returns do not seem to justify the execution risks.

In fact, some semiconductor companies have already applied the programmatic approach, where companies complete many deals that together represent a significant share of the acquirer's market capitalization.³ This was one of the top two M&A strategies in most industries as measured by excess total returns to shareholders (TRS), and among semiconductor companies it was employed to acquire midsize companies with established customer bases. This flow of business was used to increase revenues and build new platforms. Much of the value creation

stemmed from either the acquirers gaining access to new sales channels or from operational synergies.

Across industries, companies that pursue programmatic M&A typically have explicitly defined deal strategies in place and have built up the strong internal M&A capabilities needed to implement them. The median programmatic semiconductor company completed 25 acquisitions over the course of the decade, adding the equivalent of 37 percent of its market capitalization. In contrast to tactical M&A strategies that focus on reinforcing current businesses by acquiring intellectual property, programmatic M&A identifies deals against a business case to build new revenue streams. Often these programs target acquiring new capabilities, products, and regional coverage in addition to intellectual property.

One example is Broadcom, which has successfully applied a programmatic M&A strategy—acquiring 37 companies since 1999—to enable excess TRS growth of greater than 5 percent.⁴ The key to Broadcom's success has been the alignment of its M&A strategy with the company's overall strategy, consistently acquiring complementary technologies to grow into a full-service provider of solutions for wired and wireless communication. The result is that today, Broadcom has grown to become the third-largest

³A median of 36 percent of market cap acquired with 33 deals over the time frame.

⁴Our analysis draws on data from McKinsey's Corporate Performance Analysis Tool, Dealogic, and a TPSi database.

semiconductor company among the Fortune 500.⁵ The key here is not the pursuit of complementary technologies in and of itself but rather the integration of the M&A strategy with the technology road map, overall corporate strategy, and specific go-to-market strategies enabling both revenue and cost synergies. While the model may not work for all semiconductor companies, the disciplined approach the company applies to M&A may offer lessons for other players (Exhibit 5).

Merger integration

To build a successful programmatic M&A program, semiconductor companies should focus on developing two organizational capabilities: structured approaches to target selection and deal sourcing, and postmerger integration. How

might a company prospect for target companies? It takes significant effort to develop an overview of all relevant players in the semiconductor space. Players can consult databases of early-stage technology companies relevant to the semiconductor industry, including one created by McKinsey’s semiconductor practice. These kinds of databases can be used to form growth strategies or to narrow the field of potential acquisition candidates.

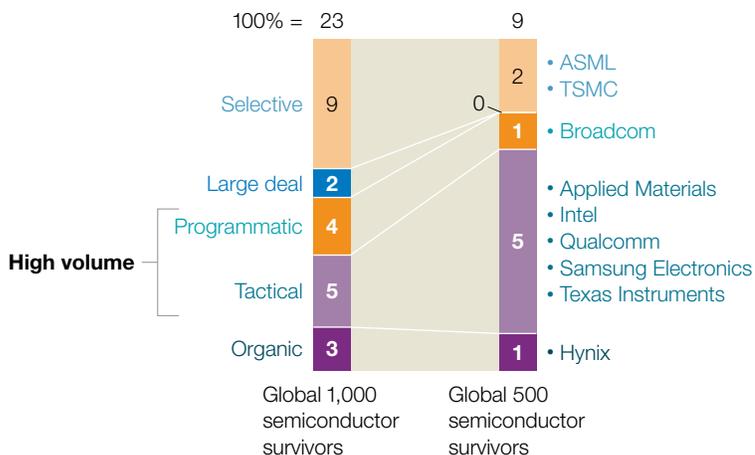
The second key organizational capability is M&A integration management. In recent research, McKinsey’s corporate-finance practice reviewed the performance of the largest deals that took place between 2000 and 2006. In case studies of nine of the best-performing deals and six of the worst in our data set, McKinsey found that

⁵Broadcom analyst presentation, December 14, 2011.

Exhibit 5

The largest semiconductor companies rely on high-volume M&A programs.

Distribution of semiconductor survivors¹ by M&A program, %



¹Survivors are companies that were in the global 1,000 or 500 in both 1999 and 2010. Source: Corporate Performance Analysis Tool; Dealogic; TPSi database v73

successful acquirers employ several approaches to merger execution and postmerger integration that differ from those used by the unsuccessful.⁶

In the hectic pace of integration after the announcement of a deal, merging companies often focus too heavily on regulatory compliance and on organizational alignment. Moreover, they may limit themselves to going after only the immediate opportunities identified during the due-diligence process. Although these are important considerations, such narrow focus may shift attention from the original point of the deal.

Instead, we found that successful acquirers did three things differently:

Aiming high. They look beyond the due-diligence phase and set their ambitions more broadly than they would when doing smaller deals. Companies should identify a broad range of opportunities across both organizations and build a fact base to support them. This may require companies to think beyond the deal and consider selectively transforming parts of the business. The key is to uncover and focus on sources of value creation apart from those identified during the busy due-diligence period, and then to set stretch targets and align the organizations around these goals.

Managing integration. They recognize that control over the cultural integration of the two companies is critical, and they rigorously plan that part of the postmerger program. As the merging companies move beyond due diligence into the preclose phase, preparing well becomes essential. To do so, they should acknowledge that a “merger of equals” approach likely will not create the right outcome. We find this approach often leads to confusion and lack of account-

ability. Instead, the acquirer needs to take the lead in postmerger integration while being sensitive to the cultural differences of both companies. Successful acquirers take cultural differences into account when establishing value-capture goals. Through careful planning, the staff from both the acquirer and the acquired company can work together to maximize the value of the combined entity.

Engaging leadership. They involve their CEOs where it counts the most. Demands on the CEO’s time can be overwhelming in the days immediately before and after the close of a merger, so making sure he or she is involved in the right decisions—at the right time—becomes critical. To permit focus on the most important issues, some CEOs delegate day-to-day merger-management responsibilities to an integration-management office led by a senior executive.

Based on McKinsey research, as well as on experience from more than 1,000 merger-integration client engagements, we’ve identified 12 best practices that facilitate successful integration and value creation (Exhibit 6).

For semiconductor companies, the integration challenge often resides in aligning and integrating technology road maps and product development, as well as complex manufacturing environments and sales organizations that typically have concentrated customer bases. The implications are threefold. First, semiconductor companies need to focus on the underlying cultural practices, which become even more critical in areas such as R&D and manufacturing, as well as on the account-management side. Second, they should identify synergies in technology road maps and determine early in the process what

⁶See Ankur Agrawal, Cristina Ferrer, and Andy West, “When big acquisitions pay off,” *McKinsey on Finance*, Number 39, Spring 2011.

Exhibit 6

There are 12 best practices in merger integration.

Focus on value creation	1 Anchor integration architecture and approach in deal rationale
	2 Look beyond due diligence and open the aperture to exceed traditional synergies
	3 Selectively transform parts of the business
	4 Protect business momentum to avoid typical loss of revenue
Prepare well	5 Define a comprehensive, tailored integration approach—and stick to it
	6 Empower a value-added integration-management office that attracts top performers and line leaders
	7 Don't underestimate culture; use a scientific approach to identify issues and intervene as needed
	8 Build momentum by making critical decisions well before close and completing key activities within 100 days
Execute rigorously	9 Don't make day one bigger than it needs to be
	10 Track activities and operating metrics in addition to traditional financial measures
	11 Overcommunicate, with messages tailored to every stakeholder group
	12 Build capabilities for future deals

that means for manufacturing footprints. This is frequently a significant driver of the overall deal value. Lastly, restrictive customer non-disclosure agreements arising from integrated customer technology road maps may limit pre-close planning. Some companies address this issue by using “clean teams,” which sit between the two organizations and make objective, fact-based decisions about the proper path for all parties.

The potential role of divestitures

While we have spent most of this article addressing acquisitions, divestiture is an equally important—and often overlooked—aspect of corporate and M&A strategy. As enterprises grow, their portfolio of businesses tends to become more diverse. McKinsey's corporate-

finance practice recently examined the factors that distinguish strong-performing conglomerates from weaker ones. The goal was to understand the defining characteristics of successful companies as their portfolios grow.⁷

When companies reach a certain size and maturity, or when the growth potential of the overall industry segment diminishes, companies may become tempted by diversification. While few Western companies today qualify as true conglomerates, there were a significant number of them in the United States in the 1960s and 1970s. Many executives believe that diversifying into unrelated industries reduces risks for investors. Furthermore, executives believe that they can allocate capital across businesses better than the market can.⁸ In analyzing the drivers

⁷Joseph Cyriac, Tim Koller, and Jannick Thomsen, “Testing the limits of diversification,” mckinseyquarterly.com, February 2012.

⁸Ibid.

of excess TRS, three distinct features of successful conglomerates emerged, even though more than a few did not succeed:

They are disciplined investors. They continually rebalance their portfolios, purchasing companies that they believe are undervalued by the market and whose performance they believe they can improve. Similarly, they divest themselves of a business unit when market conditions are favorable or when their ability to further improve the performance of the unit diminishes.

They are aggressive capital managers. They transfer all cash beyond what is needed for day-to-day operations to the parent company for reallocation based on stringent return requirements.

They employ lean corporate centers. High-performing conglomerates often operate like private-equity firms, with a small corporate center that restricts its role to selecting top managers, allocating capital, vetting strategies, setting performance targets, and monitoring performance. Equally important, these com-

panies restrain themselves from extensive use of corporate-wide shared-service centers, as this may lead to each business becoming dependent on the corporate center, making divestitures more difficult and thus limiting the conglomerate's ability to rebalance its business portfolio.⁹

No major semiconductor company qualifies as a conglomerate, but we think these lessons are still relevant to the industry. As certain types of chips fall from favor at the leading edge, for example, there may be value to unlock by selling a business or spinning it off as a freestanding entity serving the lagging edge.



The semiconductor industry is entering a period of consolidation, and our research indicates that few industry players are embracing mergers and acquisitions, let alone divestiture of underperforming business units, in a strategic way. So there is no time to lose to develop a robust M&A program. Using a winning M&A formula and identifying the right pockets of growth will position bolder companies to leapfrog rivals.○

⁹Ibid.