Managing complexity: A renewed imperative for the evolving middle market

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Contents

Four takeaways:

- U.S. companies are vastly more complex than they were at any time since the 2007–09 global financial crisis, multiple sources of data analyzed by RSM US show. This complexity has increased uniquely at middle market companies—and puts an enormous burden on the people, processes, technology and data needed to manage modern organizations.
- This burden falls uniquely on the fundamental business process of capital allocation. With a significantly higher cost of capital, businesses will struggle to metabolize this complexity while maintaining economic returns on invested capital.
- Solving for this increased operating complexity will require renewed discipline in optimizing enterprise value. Mapping the many idiosyncratic operating variables that drive a firm's enterprise value—what we term an enterprise value roadmap—can help guide stakeholders toward maximizing free cash flows.
- The development of industry-specific enterprise value roadmaps will be an important tool that executives and boards can employ to optimally navigate changes in cost of capital, inflation, regulations and monetary policy over the next handful of years.

The remarkable growth of operational complexity across the U.S. economy

U.S. businesses have become vastly more complex since the global financial crisis of 2007–09. Qualitatively speaking, it certainly feels true to those of us who have served in the C-suite or who have led functional teams within a commercial enterprise.

The nature and pace of technological change alone have been seismic, to say nothing about the macroeconomic, regulatory and capital market changes middle market businesses have endured. While running a business has always been difficult, it is our belief that the operating complexity necessary to run a successful middle market firm has increased uniquely.

This report is an attempt to quantify the degree to which middle market firms have become more complex. Our aim is also to understand the resulting burdens this complexity places on middle market C-suite executives, functional teams and the capital allocation process.

We will make the case that successfully metabolizing this complexity will require a renewed focus on enterprise value and the many critical inputs that influence this important measure of a business's health.

Since the global financial crisis, the scale of the macroeconomic changes in the U.S. economy has been exceeded only by the microeconomic transformation that has washed across various types of industries. From the proliferation of multiple game-changing technologies (e.g., cloud computing, 5G, e-commerce, artificial intelligence) to the evolution of the capital markets (e.g., the globalization of private equity/credit; a focus on environmental, social and governance), the current generation of employees and executives has witnessed profound changes in how they accomplish their work.

Every day across the globe, thousands of RSM employees meet with their middle market clients, hearing and seeing firsthand how these firms metabolize this growing operational complexity. Our consensus observation: It's not easy. Understandably, firms have struggled to keep pace with these financial, regulatory and technological changes. Some have flourished; others floundered. But all have been impacted.

How to make decisions, what operating data to collect and analyze, and how to optimally allocate capital: Answering these and many more foundational questions lies at the heart of what makes a business successful. And the answers to these questions are fundamentally different now than they would have been in 2009.

We believe those differences represent a complexity gap, which businesses have bridged in part by developing more advanced operational capabilities. They've stitched greater complexity into their operating environments—across technology, processes, people and data—that would make their 2009 counterparts nearly unrecognizable. Yet despite this progress, the work is far from complete.

Why understanding complex operating environments is critical

We believe that quantifying the degree to which middle market companies have added to their operational complexity is an important project:

- First, it connects executives across the C-suite to a common understanding of their operating landscapes.
- Second, it can catalyze a reaction function to help manage this operating complexity on a go-forward basis.
- Third, it can ground management to a method of measuring their success at metabolizing operating complexity: enterprise value.

The science of measuring economic complexity is relatively immature. The most important paper in this research area was published in 2009 by César Hidalgo and Ricardo Hausmann ("The building blocks of economic complexity"), in which they introduced the Economic Complexity Index (ECI). The ECI attempts to measure global trade networks' diversification and specialization among countries. Further advancements by Hidalgo and Hausmann and others included additional consideration of technology usage, innovative capacity in the form of patents, the complexity of final goods exports, and the role of institutions in increasing economic complexity across developed economies.

Most of the economic complexity research project has been macroscopic—comparing global economies to one another on the basis of this inferred economic complexity. While this is interesting in the abstract, we believe company-specific measures of complexity are necessary to truly understand the scope of the changes we have witnessed in our clients' operating environments.

How we conducted our research and the key insights that surfaced

We focused our research efforts on what we believe to be representative areas of operating complexity:

- Size and growth of supply chains
- Efficiency of revenue growth
- Growth of firms' total capital base
- Research and development intensity
- Efficiency of capital expenditures (capex) allocation

We believe it is reasonable to infer a set of inherent complexities that necessarily underlie these five important functional areas of a business. We parsed the financial statements and the 10-K and 10-Q forms of more than 1,000 middle market public companies with annual revenue between $50 million and $5 billion and measured sales per employee, total balance sheet capital per employee, research and development expense to revenue ratio, and total capex to revenue ratio.

Because the publicly available supply chain data for these middle market firms is generally sparse and unreliable, we decided to analyze the supply chains of the 50 largest (by total revenue) firms in the S&P 500 for their size and complexity. We looked at supply chain data for the years 2009, 2014, 2019 and 2024 to capture the structural changes caused by the global financial crisis and pandemic-era shocks.

Of note, in our analysis we have excluded companies operating in the real estate industry (e.g., real estate investment trusts) as well as financial services firms (banks, asset managers, insurers, etc.) to ensure our data was not skewed by the fundamentally different operating structures of the companies in those industries.

Size and growth of supply chains

The supply chain data for middle market companies is less reliable and has less history than the largest companies in the U.S. economy. As a result, we made the assumption that the supply chains for the largest companies in the U.S. are generally a good proxy—at least directionally—for the complexity growth of the supply chains for middle market companies. Having said that, we looked at two data sets to see if there was consilience between them:

- The total number of suppliers and customers for the 50 largest U.S. public companies in the S&P 500, which increased nearly threefold from 2009 to 2024 and have done so as a result of both domestic and global additions to their supply chains
- The customer and supplier counts for the 50 smallest revenue U.S. public companies in the S&P 500, which saw a fivefold increase from 2009 to 2024

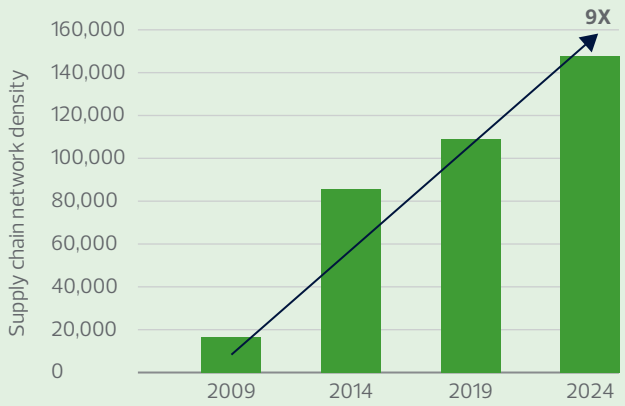
Our analysis, as seen in the chart below, begins by summing the total number of customers and suppliers of the 50 largest firms, and then applying a modified version of Metcalfe's Law to those firms' supply chains. Metcalfe's Law—nominally measuring supply chain "density"—quantifies the complexity of a supply chain as it grows larger.

Our modification comes from the assumption that these supply chains are not fully "connected": that there exists a nontrivial percentage of suppliers and customers that are not connected intimately with the others.

With this analysis, we hoped to gain a clear quantitative assessment of how complex these supply chains have become. As you can see, the aggregate complexity of the supply chains for these 50 large firms is fully nine times more complex than they were in 2009, a stunning 16% compound annual growth rate over this span.

Supply chain complexity :: Total network density*

Top 50 U.S. public companies based on total supplier and customer relationships



* Sum of 50 public companies' value chain network densities based on a modified Metcalfe's Law

Source: Bloomberg; U.S. Securities and Exchange Commission; RSM US LLP

Financial ratios

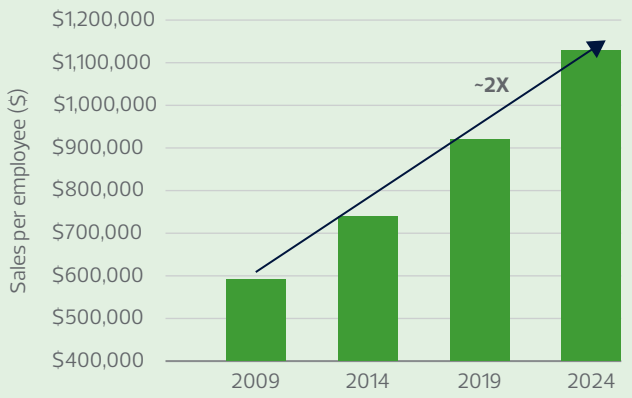
One may learn something about the underlying complexity of a business from financial ratios as well. For example, companies with a large pool of employees are, of course, more complex than those with a small employee base. Managing the payroll, health care benefits, time off and hours worked all grows more complicated as the total number of employees increases. At a minimum, the human resources systems and workflows necessarily grow more complex as a function of the number of employees.

For our analysis, we looked at all the public companies in the Russell 2000 Index, excluding all companies in the financial and real estate industries. Again, we included only those companies we consider to be the middle market: those with an annual revenue of $30 million to $10 billion. This turned out to be approximately 1,100 companies in each of the years of our analysis: 2009, 2014, 2019 and 2024.

We first looked at total sales per employee on average across this group of public middle market companies. Of course, average total revenue for this cohort of companies did increase over this 15-year period, by 64% in total (amounts not adjusted for inflation). However, in 2009 the average sales per employee across more than 1,000 companies was approximately $600,000 in revenue per employee. That number ballooned to $1.1 million per employee on average in 2024, a nearly twofold increase over 15 years.

Middle market complexity :: Sales per employee

Public companies with $50M–$5B in sales 2009–2024



Source: Bloomberg; U.S. Securities and Exchange Commission; RSM US LLP

Accomplishing this feat—doubling the revenue-generating capability of each employee—implies significant gains in employee efficiency. Improving productivity through investment in technologies, the development of improved processes (in sales, manufacturing, distribution, etc.) and/or the training of a workforce is a difficult task.

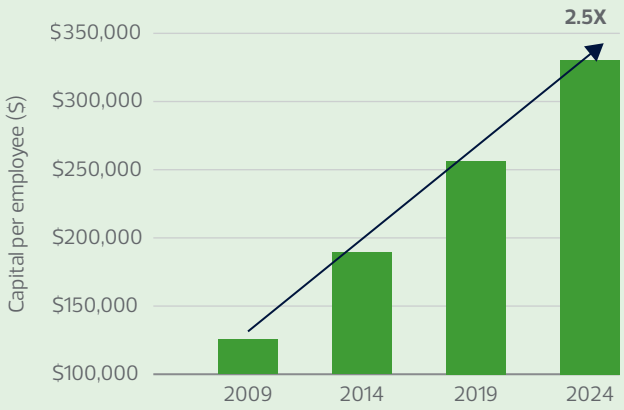
Whether that comes via technology capex, process reengineering, or upskilling, doubling sales per employee requires that a company operate in a much more complex way—through the coordination of many disparate operating activities owned by different functional teams within a business. As a useful metric to infer an organization's complexity, we believe sales per employee is a powerful indicator of complexity.

Capital ratios

For these same middle market companies, we next analyzed total capital held on the balance sheet (both equity and debt capital) based on the market value of that debt and equity. We summed that number across the entire cohort of middle market companies, then divided that total capital by the total number of employees to give a ratio of total capital to total number of employees. The resulting chart is below.

Middle market complexity :: Capital per employee

Public companies with $50M–$5B in sales 2009–2024



Source: Bloomberg; U.S. Securities and Exchange Commission; RSM US LLP

Over the preceding 15 years, middle market public companies have more than 2.5 times the amount of total capital (amounts not adjusted for inflation) on their balance sheet per employee—from approximately $128,000 in capital per employee in 2009 to $327,000 in 2024.

As with gains in sales per employee, the ability to increase capital (through outside funding or internal cash flows) while an organization is growing its employee (and sales) base speaks to an increasingly mature financial planning and analysis process. This maturity can only come about with an increase in the complexity of the information-gathering and decision-making process happening within the offices of the CFO and CEO.

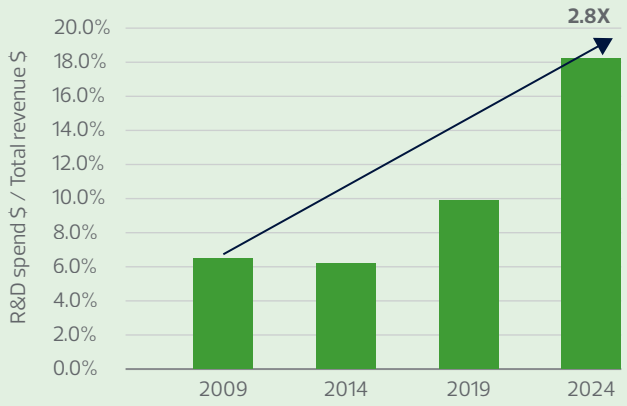
Whether to raise outside capital; from what sources and at what cost; whether to keep or return capital to shareholders; analyzing the returns on invested capital of competing internal projects: Doing each of these well requires complex technologies, processes and personnel throughout an organization, not just in the CFO's office.

Research and development intensity

Next, we analyzed R&D intensity. That is defined as total research and development spending across these companies compared to their total revenue base, calculating the ratio between R&D spending and total sales for the middle market. The resulting chart is below.

Middle market complexity :: R&D spend/revenue ratio

Public companies with $50M-$5B in sales 2009-2024



Source: Bloomberg; U.S. Securities and Exchange Commission; RSM US LLP

In 2009 the average ratio of R&D spending to sales for middle market companies was 6.5%, and for every million dollars in sales, these companies were spending about $65,000 in R&D per year (amounts not adjusted for inflation). Fast-forward to 2024 and that ratio ballooned to 18.2%, nearly three times as much vs. 2009. For every million dollars in sales, middle market companies spent more than $180,000 on R&D in 2024. This is a remarkable statistic, implying that the average middle market company is making significantly more R&D investment relative to the size of their firm now than in 2009.

R&D investments are generally riskier than capex investments. The revenue that R&D investments are designed to generate is far less certain and subject to much more volatility over the five-to-10-year time frame in which R&D investments are expected to produce revenue.

As a result, undertaking R&D spending on such a larger relative scale implies to us that the technologies, processes and people necessary for this increase have evolved considerably. To manage the associated uncertainty of R&D spend, to model the long-term returns of this line item, and to engage in a nuanced analysis of the R&D choices that executives face all require an operating complexity commensurate with this critical function.

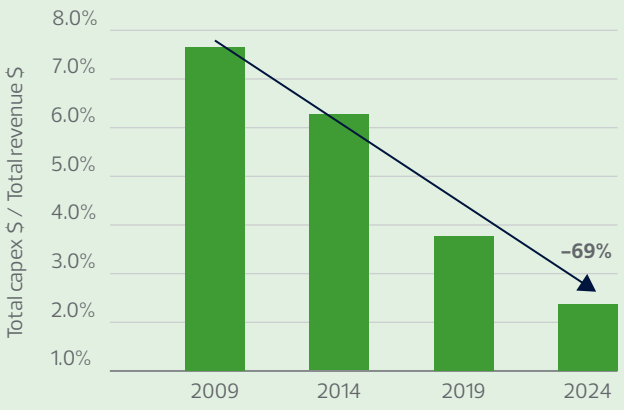
This metric is even more impressive when one considers that R&D expenses are generally not capitalized but rather expensed. Thus, the incentive for management to increase short-term profitability by decreasing long-term R&D expenses is powerful. Despite this incentive, middle market companies have drastically increased their proportion of R&D spending. A commitment to innovation, a pro-adaptive response to changing competitive dynamics, and low economic time preference are all implied by companies that have increased their R&D intensity nearly threefold.

Capex-to-sales ratio

Lastly, we looked at the total capital expenditure of these same middle market companies and compared it to total sales. We believe this ratio allows us to reach conclusions about the relative complexity of the capital allocation process within a business. An efficient capital allocation process can generally deploy less capex over time while growing the top line of the business. The resulting ratio of total capex to total revenue is below.

Middle market complexity :: Total capex/total revenue ratio

Public companies: $50M–$5B in sales 2009–2024



Source: Bloomberg; U.S. Securities and Exchange Commission; RSM US LLP

In 2009, the total capex-to-sales ratio for middle market companies was 7.7%. For every million dollars of sales, companies were, on average, spending $77,000 in capital expenditures for depreciable tangible and intangible assets. Fast-forward 15 years and those same companies were spending fully two-thirds less capex per dollar of revenue, amounting to only 2.4% of sales spent on capex.

The ability to grow sales/employees more than twofold, while simultaneously reducing the amount of capex spending by 69%, can come about only as a result of a much more efficient capital allocation process. Consider that an organization able to spend 69% less capex per dollar of revenue generated must have high-functioning CFOs and CEOs able to discern between competing capex projects. These executives also must have organizations capable of collecting, transmitting and analyzing vast quantities of financial data.

While it is true that technology companies are traditionally asset-light businesses, that is offset by capital-intensive sectors like utilities, energy and manufacturing, as well as the onshoring and nearshoring trend that has taken hold since the pandemic. In sum, the technologies, processes and skilled personnel required to achieve this remarkable capex-to-sales efficiency gain imply a significantly more complex organization than was present in the middle market in 2009.

What we learned from our research

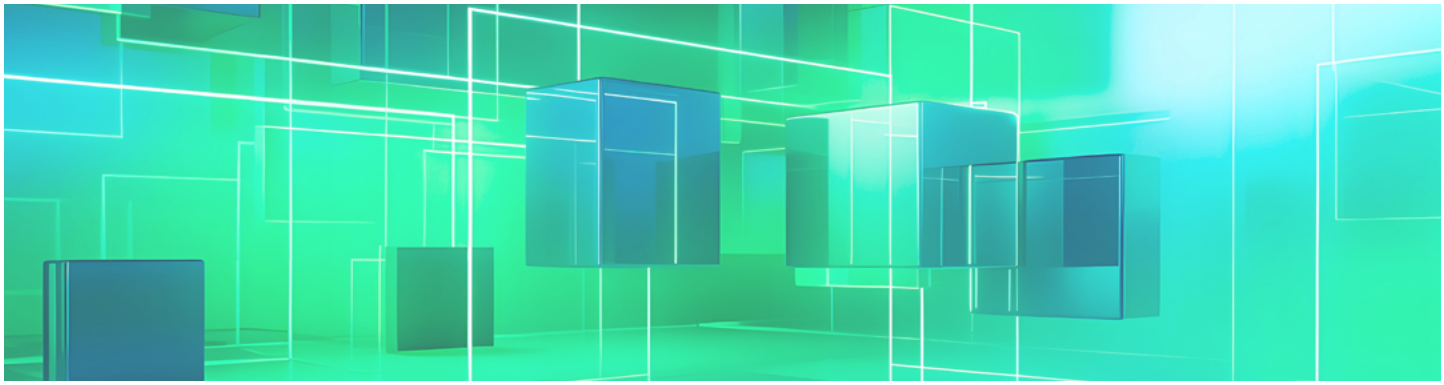
From 2009 to 2024, large and middle market U.S. companies alike experienced significant growth in complexity, as evidenced by the financial, operating and supply chain data we have gathered above. To be sure, this complexity has been driven by several secular trends, including technological innovation, low cost of capital, increased access to the capital markets, and globalization. It is our contention that metabolizing these complexities has been an enormous undertaking by the management teams and employees running these businesses.

As we considered appropriate measures of operating complexity, our focus settled on the two most challenging dimensions of a business: growth and capital allocation. Both are critical, both are consequential, both are difficult. Management teams are graded by their stakeholders largely on their skills in these two areas. Although operating expense (opex) discipline is nonetheless important, there is only so much incremental free cash flow that a team of executives can generate from cost-cutting.

Revenue growth and making timely high-return investments in the business remain the focus areas for the highest-functioning C-suite executives in our client base. Indeed, these areas are the source of the bulk of businesses' enterprise value in today's middle market. And, based upon the data we have presented above, it is clear to us that middle market companies have made considerable progress in both the growth and capital allocation functions. But achieving this feat required significant investments of time and treasure across people, processes and technologies. In short, it requires middle market companies to increase their operational complexity.

For its part, the capital allocation function within any business is one of the most challenging responsibilities a firm has. It requires:

- Collecting a wide breadth of data from all operating areas of a business
- Personnel tasked with collecting, managing and synthesizing these data sources to be highly skilled and properly motivated
- Technologies to collect, clean and disseminate this data in a timely way to appropriate stakeholders
- The executive team to make return-on-capital judgments based on the veracity and completeness of those data sets



None of these undertakings is simple; each requires a remarkably complex set of people, processes, technologies and data to make the return-on-invested-capital maximizing decision for these investments.

The data we have gathered above implies that the middle market has evolved considerably to become capital-light innovators and become much more strategic in the financing and investment sphere, uncovering substantial operating efficiencies in the process. Capital per employee, R&D intensity and the capex-to-revenue ratio are all important key performance indicators (KPIs) that lie squarely within the ambit of the traditional capital allocation function. This cannot be achieved without a commensurate level of operating complexity to meet these KPIs and perform at such a high level.

Growth, too, is a consequential task. Evolving a company's product or service offerings to suit changes in a competitive ecosystem over 15 years is challenging. Deciding which R&D projects to fund, raising and deploying the capital necessary to fund those projects, and determining how those projects will impact revenue and margins years in advance all need to be considered and optimized. And based on the remarkable efficiency gains in sales-to-employee ratio and capex-to-revenue ratio within the middle market since 2009, we can confidently say these organizations are far more operationally complex.

Ditto for the supplier and customer relationships these companies have created—the so-called value chain of a business. A threefold increase over 15 years in the total supplier and customer base for the largest S&P 500 companies (and nearly fivefold for smaller companies) cannot be achieved nor managed without commensurate increases in organizational complexity.

And when considered from a network density standpoint, these companies witnessed a nearly ninefold increase in value chain complexity in 15 years. The technology footprint necessary to manage these relationships is profound, to say nothing of the capital necessary to install and operate them as well as the employee upskilling necessary to keep these supplier and customer relationships optimized for growth and investment.

Innovation-driven growth, outsourcing where logical to reduce capex, automation, and technology adoption all imply that both labor and capital have become more productive for the middle market. Similarly, a declining capex-to-revenue ratio in the face of a rising R&D-to-revenue ratio implies some form of process digitization and data-driven decision making from the C-suite.

None of the above can be accomplished with the same tools, methods and capital allocation skills that were present in 2009 for the management teams of the typical middle market public company. The evolution—transformative in our view—that must have taken place and the newfound complexity that has been embedded into these middle market companies is one of the most important secular trends we have witnessed in decades of serving clients.

In the next three sections, we turn our attention to exploring the implications this operating complexity growth has on the capital allocation process and on enterprise value, as well as the tools necessary to optimize both in an increasingly complex world.

Section 1

Operating complexity uniquely burdens the capital allocation process

The growth in operating complexity that has washed over middle market businesses puts pressure on all of the foundational business processes Michael Porter outlined in his 1985 book "Competitive Advantage: Creating and Sustaining Superior Performance": supply chain, operations, distribution, sales and marketing, and customer service. But it also pressures the support infrastructure as well: HR, IT, legal, risk, accounting and finance, R&D, and executive leadership.

The common denominator that touches every one of these business processes and functional support areas is the capital allocation process. Executives must constantly balance the dual mandate of any fiduciary: toggling between the expenses necessary to support current business and the longer-term investments necessary to ensure future growth. This capital allocation calculus, traditionally the domain of the CFO's office, is foundational to any business, in any industry, across any geography.

Maximizing shareholder value, a concept popularized by Alfred Rappaport in 1986 in his book "Creating Shareholder Value: A Guide for Managers and Investors," is the outcome of an institutionalized capital allocation process. And this process spans the scale from small to large amounts of capital.

Whether funding a technology implementation within a division of a company or determining the price to pay for an acquisition, the economic calculation remains the same: Allocate capital that generates returns in excess of the cost of that capital. If your return on invested capital (ROIC) is 15% and your weighted average cost of capital is 11%, you are generating enterprise value, which is the value of a company's continuing operations.

The ability to generate returns on invested capital that exceeds a firm's cost of capital is the sine qua non of profit-seeking businesses. But determining the inputs into this equation is not trivial. Estimating the future cash flows that will result from new products, investments in new technology or the acquisition of a competitor is as much art as science. This despite the triviality of the math needed to calculate the net present value of future cash flow streams. It's the judgment calls, not the math, that keep C-suite executives up at night.

Operational complexity

And this is where operational complexity enters the picture. We have quantified in this report how complex and dynamic middle market firms have become. The interdependencies among the many operating and functional units of a business have multiplied significantly in the 15 years of our study. Technologies have been stitched into fundamental business processes, employees have been upskilled to manage new technologies and data, and processes have been altered to fit the staff and the investments that have been made.

More complex organizations face larger and more complex investment decisions than their more simplified peers. And in any mature capital allocation process, several factors must be weighed:

- **First, any investment must first meet the litmus test of strategic alignment.** A low-margin, high-volume business will make vastly different capital allocation decisions than a high-margin, low-volume operation.
- **Second, each investment must pass through an exhaustive series of financial analyses,** from data and assumption gathering, to cash flow and ROIC modeling, to scenario analyses through Monte Carlo methods. All permutations of probable outcomes must be considered.
- **Third, executive oversight and governance processes are in place to arrive at consensus investment decisions.** This reduces the probability of confirmation bias or politics guiding the decision making rather than financial outcomes.
- **Fourth and last, the entire process must be viewed as a strict portfolio optimization.** There exists an ideal subset of the available investments that must be found and to those ideal candidates the right amount of capital must be applied. Each of the "right" capital allocation projects will require different amounts of capital deployed over different time frames and with different risk profiles. Optimizing against one such investment is irrelevant; optimizing against N investments is the challenge.

When faced with a proliferating number of capital allocation projects, each idiosyncratic and with its own set of future cash flow streams to be modeled and discounted, the burden on the C-suite executives tasked with capital allocation multiplies commensurately. This is why more operating complexity places such unique burdens on capital allocation processes.

Our experience—and ongoing fear—is that those organizations whose operations have grown vastly more complex have not yet been able to upgrade their capital allocation process proportionally. In short, greater operating complexity necessitates a more institutionalized, robust and flexible capital allocation process. And some middle market firms have failed to evolve sufficiently.

Into this environment, a new challenge has been thrown: a substantial increase in the cost of capital. In March 2022, the U.S. Federal Reserve began to increase the federal funds rate from an unprecedented low level of 0.25%. In the ensuing 18 months, that rate increased by some 550 basis points. It was the fastest and largest increase in more than three decades.

It was the same with other G7 central banks. Each embarked on a rate increase cycle that abandoned the zero interest rate policy that the developed world's economies had been pursuing since the global financial crisis. Fourteen years of low interest rates altered the very DNA of modern economies: risk appetites, time preferences, discount rates. And in March 2022, central bankers fundamentally upended all three.

Few macroeconomic inputs are as central to economic activity as the price of money. When the cost of capital rises, the pressure on the entire capital allocation project increases for the:

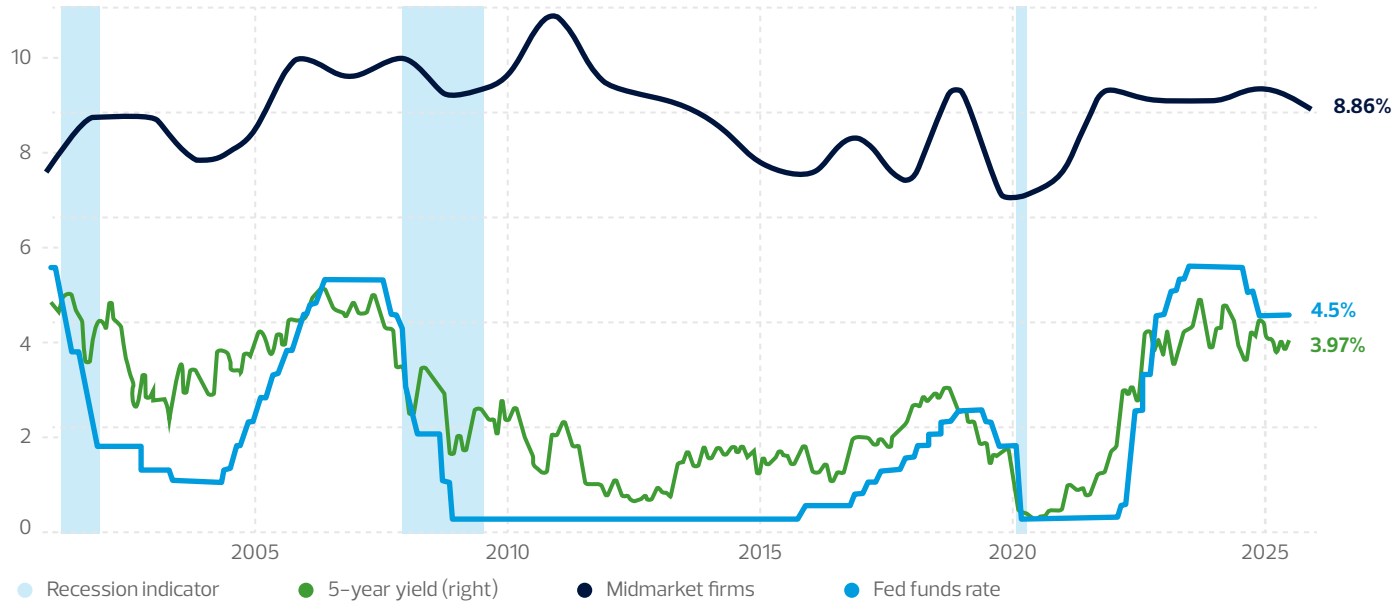
- CFO trying to manage working capital needs
- Portfolio manager deciding which asset classes will provide sufficient returns to limited partners
- Board of directors determining how, when and where to grow their business

Capital costs permeate every transaction, influence every economic decision and provide the initial cost basis for every investment.

Higher interest rates increase the burden of complexity. As middle market businesses have grown more complex, so too has the matrix of operational choices available to them. Capital allocation projects proliferate as one's supply chain, employee base and customer set grow. SKU expansion, new hires, geographic expansion, mergers and acquisitions: All are on the table for consideration. For high-functioning C-suite executives, this optimization is never simple, even in low-cost-of-capital environments like 2008 to 2022.

Weighted average cost of capital

Russell 3000 companies, in percentage



Source: Bloomberg; RSM US LLP

Rising challenges

When interest rates, inflation and the cost of capital simultaneously rise, the challenge multiplies, as hurdle rates double (or more). This heartburn—adjusting to a world of "normalized" interest rates and capital costs—is what we see in survey after survey of middle market business owners' expectations. At RSM, our economics team calls this "regime transition," which in this case involves moving from a low cost of capital environment to a historically more normal one. From our perch, we believe this transition will take years to play out and affect every industry in every geography.

When CFOs measure the net present value (NPV) of future cash flows they can expect from the multiplying number of projects they are asked to model, the single most significant variable in the NPV mathematics is the discount rate. Discount rates scale with inflation, interest rates and the cost of capital. The higher the discount rate, the greater future free cash flows needed to produce the same present value.

This is a particularly tall order for CFOs who, professionally, have come of age during the zero interest rate regime. They too will need to navigate this regime transition, building the skills—and the tools—necessary to allocate capital when that capital is much more dear.

And this is the central implication of our middle market complexity study. Excess complexity can reduce a company's fitness: operationally, financially and competitively. Businesses are likely to struggle in metabolizing the ever-growing complexity of their operations while simultaneously maintaining economic returns on invested capital.

So what is a progressive capital allocator to do? We explore the answer to that question in the next section, where we discuss the renewed importance of enterprise value in this new economic landscape.

Section 2

A renewed discipline in optimizing enterprise value will help manage this complexity

Although the concepts of interest rates, discounting and present value can be found in historical writings as far back as 1200 A.D., John Williams is credited with popularizing the concepts of discounted cash flows in 1938 in his foundational book "The Theory of Investment Value." Williams' work has become the theoretical and practical backbone of modern financial economics.

In 1986, Alfred Rappaport furthered Williams' principles in his own book "Creating Shareholder Value: The New Standard for Business Performance" by focusing C-suite executives on the importance of maximizing the enterprise value of the firms they managed.

What is enterprise value? Colloquially, it is simply the value of the ongoing operations of a firm. More technically, it is the present value of future cash flows that result from the unique operating and investment decisions made by executives in the management of their human, physical and financial capital.

Since the mid-1980s, maximizing enterprise value has become the gold standard upon which all management teams are judged by a wide spectrum of stakeholders: financial markets, peers, regulatory bodies and capital providers. Some observers lament this focus as the "financialization" of the economy.

We take a less jaundiced view: We believe this discipline has put capital (in all its forms) to its best and highest use. Nearly all of the available macroeconomic evidence across developed economies—from gross domestic product, to standards of living, to measures of average wealth—strongly supports this conclusion.

Rappaport updated his seminal work in 2001 with Michael Mauboussin, laying out enterprise value as a means by which professional investors could quantify stock market expectations for future enterprise value based on the current price of the publicly traded stock.

Various forms of enterprise value optimization frameworks have been put to practical use in both finance and business operations for many decades. At heart, these are neither new concepts nor complicated ones. In some form or fashion, enterprise value maximization has been used to direct the capital allocation process across all manner of businesses.

Private equity sponsors use enterprise value frameworks to source, research and manage their portfolio companies. CFOs use them to optimize the price and SKU mix of product portfolios to maximize revenue growth. Chief operating officers use them to optimize supply chains and manufacturing processes to reduce the cost of goods sold and maximize cash flows.

The middle market enterprise value framework

Importantly, these frameworks are not exclusively for the use of Fortune 500 companies. They can be applied to any capital allocation project, large or small. Indeed, RSM sees these frameworks increasingly being put to use by middle market executives seeking to reduce the complexity of their decision-making process in businesses that have grown increasingly complicated.

Should a manufacturer fund a new distribution center in California? Should a regional health care services provider merge with a competitor? Should a consumer products retailer invest in building AI capabilities? Each of these projects is suitably complex. All require a large body of assumptions. All require a detailed scenario analysis of free cash-flow probabilities mapped to the available decision tree.

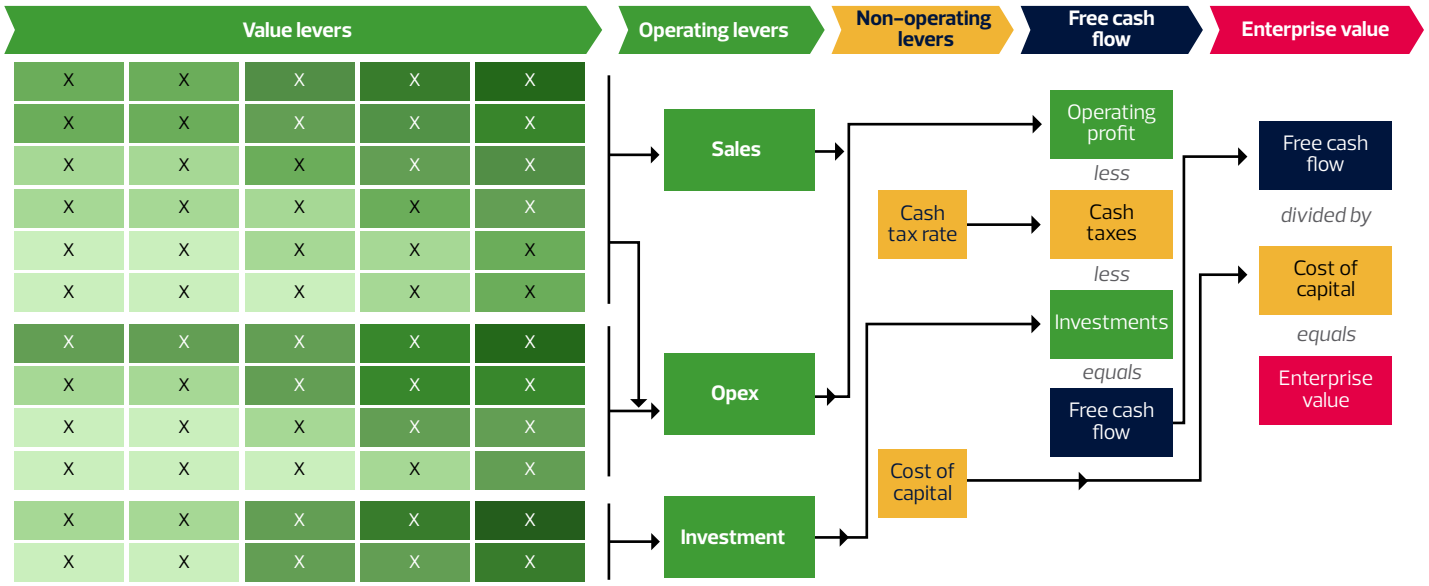
When decisions such as these employ an enterprise value framework to aid in the commercial judgment of the C-suite team, the inherent complexity of those decisions decreases. And usually, the subsequent confidence intervals in those decisions increase. Greater operating complexity requires smarter capital allocation decisions. Enterprise value frameworks are valuable tools to this end.

We have made the case in this report that the complexity of the economic landscape has fundamentally changed since the global financial crisis. We believe middle market C-suite executives need to begin building expertise and discipline around enterprise value: how to measure it, how to manage it, how to maximize it. It is our core belief that today's middle market requires a new compass with which to navigate their changed landscape. Enter the enterprise value roadmap (EVRM).

The EVRM is a process map that connects the single most pressing financial outcome our clients care about—namely, the enterprise value of their company—to the individual functional areas of the business that are the ultimate source of that enterprise value.

Leveraging Rappaport's original 1986 work, we lay out a rudimentary process map illustrating the connections between enterprise value and the many idiosyncratic value levers that ultimately produce corporate value. We visualize an industry-agnostic version of this process map in the chart below.

RSM's enterprise value roadmap



Source: Rappaport 1986, Rappaport & Mauboussin 2021; RSM US LLP

Rappaport defines the three essential operating value drivers of a business as sales, opex and investments. Our map then ties these operating value drivers to the individual value levers that ultimately produce that revenue, generate those operating expenses and constitute those investments. Of course, sales, opex and investments are themselves a set of choices. They are the week-to-week, month-to-month and year-to-year decisions management teams make across those three areas. Sales, opex and investment drivers themselves are made up of many inputs, each unique to the business cycle, industry and operating environment a company finds itself in.

Stepping back, it is important to recognize that the mathematics of enterprise value is quite trivial: Sum a series of free cash flows over the horizon you care about, measure your cost of capital, and choose an appropriate discount rate. What is far less trivial, however, is determining what functional areas of a business are principally responsible for that free cash flow. And the answer to that is entirely unique. Each company has its own set of strategies, KPIs and choices. Each has its own sources of physical, human and financial capital.

And of course, every industry differs in how it generates enterprise value. Insurance companies, industrial manufacturers, consumer products companies: Each optimizes for vastly different sets of variables when seeking to maximize free cash flow and thus enterprise value. And this is borne out in any analysis of industry profit pools. It is also captured in Warren Buffett's quip that the airline industry has failed to produce any net enterprise value since the Wright brothers' first flight—in stark contrast to the extraordinary enterprise value that the technology industry writ large has produced in the 40 years of its existence.

Section 3

The role of industry-specific enterprise value roadmaps in complexity reduction

For the last decade, RSM has invested heavily in building deep industry knowledge and experience across nine of the most critical industries of the evolving middle market. We have fundamentally changed our organizational structure, invested significant capital in upskilling our employees, and hired scores of professionals from industry.

We've made these investments because our own industry has grown increasingly complex over the last 15 years. And that complexity has required us to morph the manner in which we serve our clients, compete in the marketplace and deliver returns to our stakeholders. Having intimate knowledge of the industry-specific complexities that plague our clients has become one of the most important things we have ever done as a firm.

As noted above, we believe the growing complexity of the operating environment of middle market businesses requires new tools to navigate those complexities. We believe EVRMs are one important tool in that arsenal. But not just any EVRMs: *industry-specific* enterprise value roadmaps.

By imbuing those roadmaps with industry-specific knowledge of critical business processes in each respective industry, they transform from an interesting academic exercise into a real commercial asset, capable of guiding C-suite executives toward the North Star that is efficient capital allocation.

And this is where our industry knowledge and experience play an essential role in delivering useful enterprise value roadmaps. The EVRM is informed by the insights we have of our clients' operations and the industry trends we track, as well as the macro- and microeconomic data we analyze. The drivers of revenue, the inputs into opex and the dynamics of investment choices are radically different for a consumer products retailer than they are for an asset manager, a biopharma company or a health care services provider. We memorialize these differences in the value levers section of the map.

Value levers

Each of the many value levers that we identify is highly industry-specific, representing a prototypical profile of our many different clients: a Phase 2 biopharma company, a manufacturer of industrial products for the automotive industry, a regional hospital system in Texas. The goal of identifying (and ranking) these typical value levers is threefold:

1. Provide clients with a framework against which they can assess their own areas of focus.
2. Help clients determine where their own emphasis should lie.
3. Help clients make higher ROIC decisions about the investments in time and treasure they make in their business.

How? By comparing themselves to the best operating practices we observe in that industry as well as the performance of their middle market peer group. Do they rank in the upper quintile of revenue growth, or the lowest? Do they have significantly higher operating expenses or are they below average? Is their ROIC above average or below? How does their R&D spending compare to that of their industry?

These questions and many more can be asked and answered by comparing a client's own operating "fingerprint" with that of a typical industry peer, as memorialized by the industry-specific value levers that drive free cash flow in their industry. As an additional benefit, an industry-specific EVRM may also serve as a common and accessible goal for every stakeholder in a business, up and down the organizational chart.

Examples of critical revenue value levers for the consumer packaged goods industry would include SKU-level velocities, pricing and changes in revenue contribution—while critical opex levers would include the costs associated with manufacturing, the cost of goods sold and the costs of product distribution. Similarly, working capital would be a very important driver of investment spend that heavily influences free cash flow and thus enterprise value.

These specific examples highlight the central role industry expertise plays in identifying and quantifying the value levers that ultimately drive free cash flow for a firm. Every industry generates enterprise value in idiosyncratic ways: an industry-specific EVRM allows C-suite executives to understand both their relative place within an industry and how to assess where their attention should be directed for maximal effect.

A unique understanding of the middle market

What makes RSM's enterprise value framework unique is the history of middle market industry experience, the best practices we observe across industry subsectors, and the industry data we have access to. We add to this understanding a number of additional insights for each industry: the secular and cyclical trends of importance; the macroeconomic and regulatory environment; the cost of capital; and business cycle dynamics. This allows us to provide a 360-degree view of a client's operations within the competitive, regulatory and economic ecosystem in which it operates—all with the goal of making the inherent complexity of businesses' operating environments more manageable by decomposing sources of excess complexity.

Increasing operational complexity added to a higher-cost-of-capital regime means capital allocation efficiency is simultaneously more necessary and more difficult. A firm's economic moat is defined as a set of durable competitive advantages that allow a company to allocate capital at returns that exceed the cost of capital. This moat depends heavily on capital efficiency: optimizing where, when and how much to invest in one's operations.

A middle market business that suffers from too much operational complexity will necessarily have a very difficult time being capital efficient. In highly complex environments, the answers to the questions of where, when and how much to invest will be exceedingly difficult to answer and, in some cases, impossible. Excess complexity equals uncertainty. Thus, reducing a firm's excess operational complexity is a critical first step toward capital efficiency, a sustainable economic moat and maximum enterprise value.

As we have argued above, the long arc of commercial history tells us that businesses inexorably become more complex with time. Indeed, we would count this as an evolutionary fact of all businesses: The degree to which they successfully metabolize excessively complex operating environments determines their long-term viability. As our data illustrates, the absolute value of complexity has only increased in the years since the global financial crisis. Given the regulatory, macroeconomic and business cycle dynamics as of summer 2025, there is little reason to expect the crosscurrents of complexity to abate.

Our working hypothesis is that the end of the zero interest rate policy—which the G7 central banks pursued from 2009 to March 2022—has presented C-suite executives with both the greatest threat and greatest opportunity in their professional lifetimes. March 2022 kicked off a decade of regime transition in which capital allocators of all stripes will have to adjust their expectations, their methods and their skill sets to survive and thrive. It will be a time of great uncertainty, across every dimension of their firms. Wrestling this uncertainty to the ground—metabolizing this operating complexity—will determine firms' success or failure.

Enterprise value optimization, capital allocation efficiency and industry-specific enterprise value roadmaps: We believe these three areas of focus will determine business success or failure, no later than 2030 for the middle market, and perhaps sooner within industries where competitive moats are narrow.

Section 4

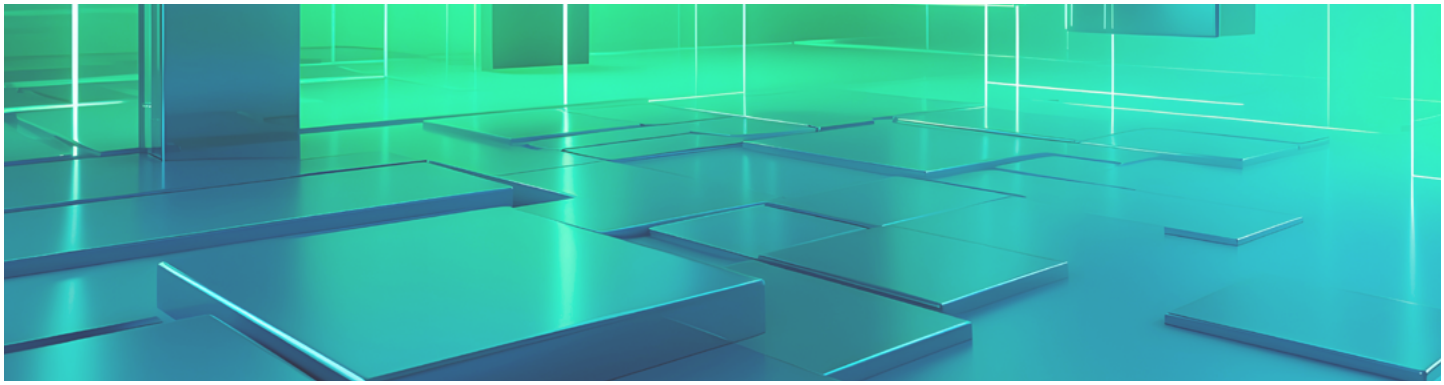
Final thoughts

We started this report with the trivial observation that businesses become more complex with time. And we sought to support that with data that quantifies just how complex and dynamic the middle market has become since 2009. From supply chains and human capital to capex and R&D intensity, businesses that have survived a global pandemic, historic cost of capital increases and unprecedented regulatory volatility have necessarily become vastly more complex. And there is no reason to believe this complexity will abate.

Folk wisdom has it that "timing is everything"—and when it comes to enterprise value roadmaps, this proverb applies equally. From 2009 to 2022, when the cost of capital reached record lows, capital efficiency was ignored as irrelevant and insignificant. The world was awash in cheap money. And it worked: This necessary palliative staved off the debt deflation dynamics of the global financial crisis. It provided economic incentive to hire workers, to invest in capex, to catalyze consumer spending.

But the world changed on March 16, 2022, when the Federal Reserve embarked on one of the most historically significant rate-hiking cycles in decades. The next day, enterprise value roadmaps became important. Capital efficiency became essential. Industry expertise became critical.

Our goal with this report was to relay just how important these ideas have become. And just how timely, to boot: 10 years ago, a CFO armed with an enterprise value roadmap for their industry would have been a fish out of water. Today, they would have a distinct and durable competitive advantage. As ever, timing matters.



If enterprise value frameworks (and their discounted cash flow cousins) have been around for 100 years, just how valuable can they be? And what makes them valuable now? We offer three considerations:

- **Increased complexity:** The complexity of the operating environment that middle market C-suite executives are experiencing is unprecedented and will likely increase.
- **Higher cost of capital:** The macroeconomic regime transition we are witnessing to a normalized cost of capital environment places special emphasis on capital efficiency.
- **Importance of deep industry analysis:** Deep industry expertise and the data that brings that expertise alive as business intelligence have never been more important to the capital allocation process.

Corporate boards, executives and managers need robust enterprise value roadmaps as digital "models" of their businesses—digital financial twins, if you will. These EVRM models help identify the most critical levers that drive enterprise value and enable companies to optimize their performance through the three key operating value drivers: revenue growth, operating efficiency and capital allocation.

The maxim "as simple as possible, but no simpler" has been our guiding light throughout this research project. In the final analysis, an enterprise value roadmap is a tool for reducing excess complexity, but one built for the uniquely complex times we live in. It is a macroscopic simplification that maintains some fidelity to the underlying microscopic business processes, functions and teams that drive value for shareholders. The people, processes, data and technology required to manage complex businesses can be subsumed into an EVRM without sacrificing clarity for perspective.

Technological innovation, increased access to capital markets, globalization, interdependent supply chains, regulatory changes, commodity dislocations, hybrid wars: Each has contributed to the challenges of running a business over the last decade. This excess complexity means greater uncertainty. Yes, EVRMs are a complexity-reducing tool. But they are also an uncertainty-reducing tool that allows for the quantification of both risk and reward. Every C-suite executive is, in part, a portfolio manager of a diverse set of assets: physical, intellectual, financial, human. Enterprise value roadmaps are their portfolio management tool.

Success in business is a function of how much and how well companies absorb the excess complexity of their operating environments. To absorb and transform that complexity, middle market executives will need a new set of skills, tools and industry partners.

The major sources of operating complexity

Operating complexity is, by definition, multidimensional and interdependent. Adopting new technologies has profound implications across HR, finance, supply chains, operations and sales, for example. While the list below is not exhaustive, it does contain the major secular sources of operating complexity that persist across business cycles. The most important takeaway is the reality that these sources of complexity often compound one another in practice.

Technology

Technological advancements across hardware, software and communication networks have utterly transformed business operations, enabling companies to scale more rapidly and operate more efficiently than ever before—but only to the degree that these technologies could be assessed, purchased and integrated across a company's operating footprint. Digital transformations are more labyrinthine than ever. And now enter AI, with its ability to massively accelerate software development cycles and provide a "universal API" to legacy software stacks and siloed data.

The cost in time and treasure necessary to pull them off has never been higher and the returns on capital for these investments are ever more difficult to quantify. C-suite executives are often caught between the proverbial rock and a hard place as technology adoption is more competitively crucial and opaque with respect to ROIC.

Human capital

From wage inflation and retention challenges to hybrid work environments, the postpandemic economy has made managing human capital as important as managing financial capital. After 13 years of a zero interest rate policy across the G7 economies that made financial capital a preferred lever point, the pandemic revalued human capital as a critical driver of revenue and profits for a large number of industries. After steady decreases from 2000 to 2013, nominal year-over-year growth in wages per hour for nonfarm workers in the U.S. has been increasing since roughly 2013, marking a decade-long rise from 0% to roughly 4% year-over-year growth in 2024.

Managing and maximizing this now-critical form of capital will remain an important goal for C-suite executives across industries. We believe concepts like return on human capital will exist side by side with the more traditional (ROIC) measure. Human capital will remain a perennial source of operating complexity, thanks to employee incentive and communication challenges.

Financial capital

The capital environment that persisted for 13 years after the financial crisis was unique in every respect, and unprecedented in history. G7 central banks and governments embarked on a zero interest rate policy that saw interest rates fall below even 0% in some developed economies. Though the macroeconomic reasons for this policy choice were rational in the face of the greatest economic disruption since the Great Depression, the subsequent microeconomic challenges this funding environment created for CFOs and boards of directors were significant.

Why? Because the lower cost of capital, particularly debt capital, encouraged balance sheet leverage and capital allocation that in many instances generated uneconomical returns on capital. This zero interest rate policy massively expanded access to capital

up and down the credit spectrum—funding projects, capex and new company formation that otherwise may not have been funded.

One beneficiary of zero interest rate policy: Private equity assets witnessed a fivefold increase from 2010 to 2022, ending at $11 trillion globally. This 13-year period of easy funding provided companies with more avenues to raise funds and more complex financial instruments with which to raise them. This allowed companies to grow more rapidly, to diversify their operations and to enter new markets, thereby increasing their organizational complexity. Now that both interest rates and inflation have normalized globally, the higher ROIC thresholds that CFOs now must manage to will require that another wave of complexity be embedded into their financial planning and analysis function.

Globalization

The easy funding environment that zero interest rate policy created from 2010 to 2022 acted as a catalyst for the rush toward globalization for U.S. businesses. As evidenced by our supply chain analysis, the globalization of businesses' operations has expanded at an unprecedented pace.

Supply chains and end markets have expanded to include developed and developing countries across the globe, from large enterprises down to the middle market. The pandemic-related shocks to supply chains caused a necessary reevaluation of supply chain complexity, to be sure. The onshoring trend that we have seen play out ironically creates yet more operational complexity, as do geopolitical tensions among adversarial trading blocs.

While businesses needed to add substantial complexity to their organizations to integrate global value chains into their operations, reversing this trend by friendshoring or adjusting to new geopolitical trade tensions will require significant further adjustments to operations—in other words, it will require more operational complexity. Irrespective of the manner in which global tariff policies play out, the uncertainties now being discounted by markets will soon need to be discounted by C-suite executives the world over in their own operations. In the face of uncertainty, the only rational response is to create organizational resilience. And for that, a business needs to become more complex across people, processes and technologies.

Regulatory environment

An important corollary to the deglobalization and geopolitical conflict trends that is often overlooked is the intentional changes to regulatory regimes that impact industries and companies in wildly different ways. Governments are constructing regulatory frameworks partly on the basis of whether they optimize certain fiscal, industrial or political policy aims. This has made the regulatory landscape that firms need to navigate far more intricate.

In the U.S., an increasing number of state and federal regulations are being imposed that have necessitated the development of wide-ranging compliance programs to help businesses monitor and adhere to these regulations. Paid leave laws, CHIPS and Science Act requirements for supply chains, Inflation Reduction Act localization mandates, compliance with ESG climate disclosure mandates: The regulatory framework not only is significant, but also has evolved significantly over the last three U.S. administrations. This framework volatility requires as much resilience—and embedded complexity—from businesses as any of the other structural sources of complexity outlined above.

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