

Cracking the Code

By Imogen Rose-Smith

When David Shaw turned 50 in 2001, he paused to take stock of his life. D. E. Shaw & Co., L.P. the New York-based investment firm he had founded more than a decade earlier, was thriving. Its core business — a quantitative-based hedge fund that relies on sophisticated computer-driven algorithmic models to find mispriced securities — had grown from \$28 million in 1988 to more than \$3 billion. But Shaw, who has a Ph.D. in computer science from Stanford University and taught for six years at Columbia University before moving to Wall Street, was growing frustrated. As chairman and CEO of the firm, his days were taken up with management issues like compensation, arbitration and business strategy.

“I missed doing hands-on research,” says Shaw, who has found the spark he was looking for in the field of molecular biology and drug research.

To lead his firm into the future, Shaw entrusted its management to what is now a six-person executive committee — Anne Dinning, Julius Gaudio, Louis Salkind, Max Stone, Stuart Steckler and Eric Wepsic. Although Shaw still participates in major decisions regarding the strategic direction of the firm, he has little to no involvement in its investments.

Today, D. E. Shaw manages about \$25 billion, employs more than 1,000 people and has offices on three continents. But despite its huge asset growth, strong investment returns and increasingly global presence, the firm has struggled to win over pension funds and other conserva-

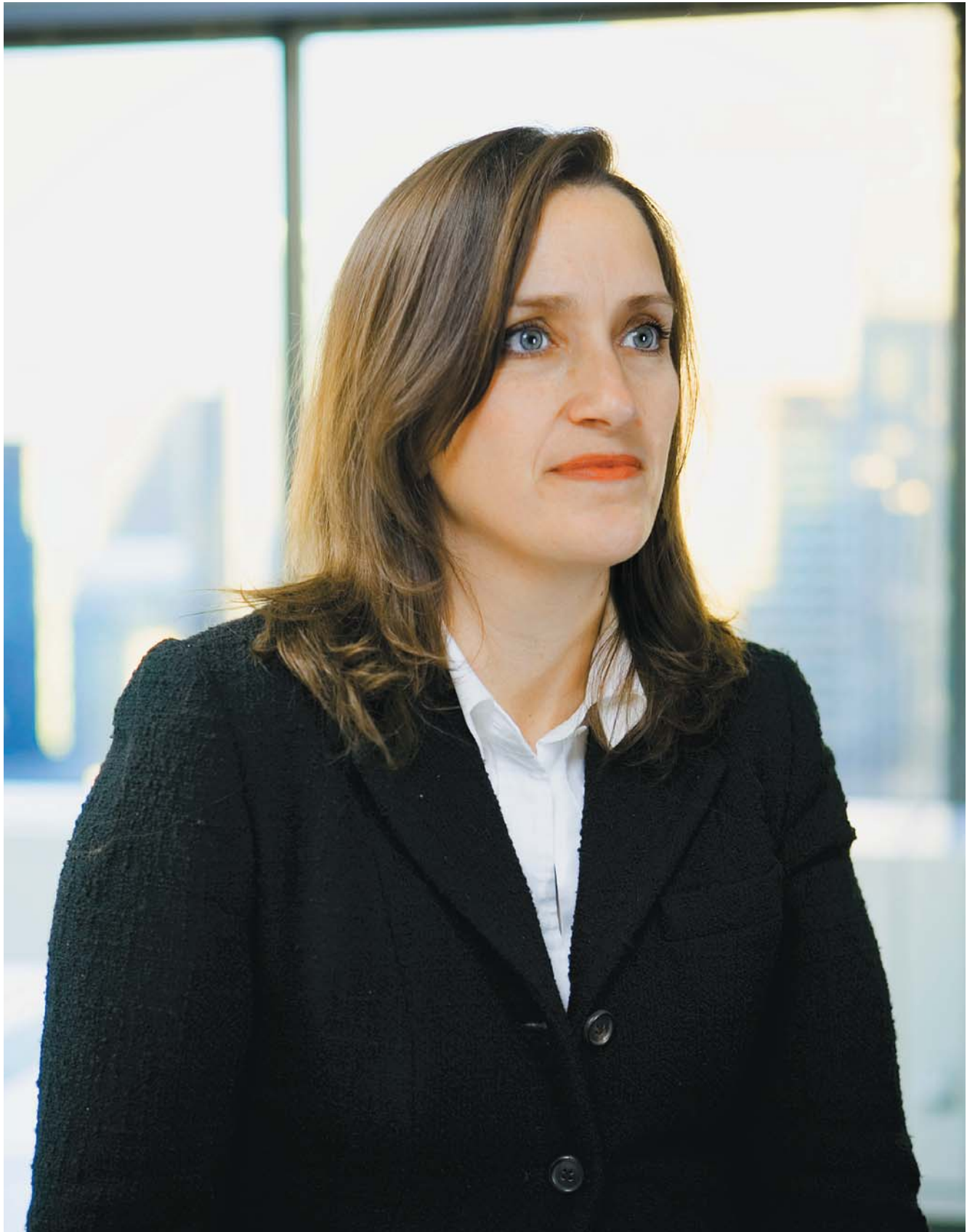
tive institutional investors. Like most quantitatively driven hedge fund firms, D. E. Shaw suffers in part from the very nature of its core strategy: To be successful, it needs to be secretive or risk having other managers copy its methods and reengineer its trades.

“It is really hard to understand exactly how they make money,” says Michael Rosen, co-founder of Angeles Investment Advisors, a Santa Monica, California-based consulting firm. “They have a black box, and they won’t let you look in it.”

For most of its nearly two decades in business, D. E. Shaw didn’t need to care if its secretiveness scared off some investors. There were more than enough wealthy individuals and funds of hedge funds lining up to invest with the firm without knowing exactly how it made money. Indeed, in many ways D. E. Shaw actually benefited from the mystery, which helped create an aura of intellectual superiority that some investors liked and that the firm used to recruit academia’s best and brightest minds.

David Shaw has always thought of his firm as more

The new leaders at renowned quant shop D. E. Shaw hope to ensure the legacy of the firm’s founder by applying the innovations he developed for hedge funds to traditional asset management.



"DESIM is really just a natural extension of our existing investment business."
Anne Dinning, managing director, D. E. Shaw & Co., L.P. New York, December 20, 2006.

Photos by Brad Paris for Alpha

than just a hedge fund manager. In the mid-1990s he delved into a variety of non-hedge fund businesses — including client trading, online retail banking and e-mail services — most of which were eventually sold. Now his handpicked executive committee is looking to expand in a business closer to the firm's core competency. Two years ago they quietly launched D. E. Shaw Investment Management, a subsidiary specializing in traditional institutional asset management products.

"It is really important to us that DESIM (D. E. Shaw Investment Management, L.L.C.) succeeds," says executive committee member Dinning, 45, who in her role as DESIM's chief investment officer has overall management responsibility for the new business. "We want to diversify our strategy menu and be able to approach institutional investors we might not otherwise talk to given their investment elections."

Dinning is part of a three-person executive committee that oversees DESIM. The other members are D. E. Shaw CFO Steckler and managing director Trey Beck, who heads up business development and institutional marketing. Establishing a robust institutional asset management franchise is critical if D. E. Shaw is to build a quantitative asset management firm that can rival giants like Goldman Sachs Asset Management (GSAM) in New York and San Francisco-based Barclays Global Investors (BGI), which have major presences in both traditional investments and hedge funds.

Today, DESIM has just \$1.8 billion in assets and offers only U.S. stock strategies — including enhanced index funds and more actively managed products — on what it calls its structured equity platform. Dinning says that DESIM will eventually offer a broader, global cross-section of quantitative equity and fixed-income products, currency and commodities strategies.

Dinning, who earned her doctorate in computer science at the prestigious Courant Institute of Mathematical Sciences at New York University, has a lot in common with her

boss and mentor. "I thought I was going to be a professor," says Dinning, who met Shaw at a cocktail party through fellow executive committee member Salkind, a classmate of hers at Courant and one of D. E. Shaw's first hires. At the time, Dinning was considered one of the top computer science Ph.D. students in the U.S. — "She was LeBron James kind of promising," says Beck, referring to the professional basketball star who was drafted directly out of high school. Shaw convinced Dinning, who didn't like the public speaking that comes with being a profes-

sor, to give up academia for finance. She was employee No. 20 when she joined D. E. Shaw in 1990.

Dinning is quietly confident of DESIM's future success. "In three years' time I would like us to have a breadth of product comparable to that of our considerably bigger rivals," she says. In July 2005, D. E. Shaw lured Anthony Foley from Boston-based State Street Global Advisors, which manages \$1.5 trillion. The British-born Foley, who headed up quantitative research at SSgA and has the same title at DESIM, reports to Dinning.

Used to being an innovator, D. E. Shaw finds itself in the unusual situation of being late to the game in a crowded field. Rivals BGI, GSAM and SSgA all have significant pools of quantitative assets under management and loyal institutional client bases. And two of D. E. Shaw's hedge fund competitors — Connecticut-based AQR Capital Management and Bridgewater Associates — have already established formidable traditional quantitative asset management operations.

For D. E. Shaw, cracking the traditional asset management business presents some unique challenges. DESIM is keen to capture the assets of foundations, endowments and pension plans. Largely because of their fiduciary responsibilities, pension plans in particular demand a high level of transparency from their managers, creating an unavoidable tension with D. E. Shaw's need for secrecy to maintain its competitive edge. To succeed, DESIM will have to be more open about its investment processes than its parent firm has historically been.

The element of secrecy is not unique to D. E. Shaw. Renaissance Technologies Corp. is renowned for carefully guarding its quant strategies. Founded by prize-winning mathematician James Simons, the East Setauket, New York-based firm launched an institutional product in August 2005. Unlike the firm's flagship Medallion hedge fund, which plays in almost every liquid market imaginable, the Renaissance Institutional Equities Fund invests only in equities and maintains a 100 percent exposure to the market at all times. To date, RIEF has raised \$20 billion, and in 2006 it had a net return of 21.42 percent. Still, Simons says there has been some resistance from institutional investors because the fund is intentionally opaque. "We've been able to overcome that obstacle, but it is an obstacle," he explains. Renaissance provides a statistical profile of the fund but does not reveal positions.

"I THOUGHT HE HAD COME from the beach," says Angeles Investment Advisors' Rosen, recalling his first impression of Trey Beck. Rosen met Beck in 2004, when the D. E. Shaw executive and his team gave a presentation at Angeles's offices, located four blocks from the Santa Monica Pier. "I thought he was on vacation and had just decided to tag along to the meeting."

Beck, 35, graduated from the University of Virginia with a BA in history and Russian studies in 1993. In what has now become standard practice for the firm, D. E. Shaw compiled a list of the top students at the uni-

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versity who might be interested in a job at the hedge fund. Those students, Beck among them, received a letter, signed by David Shaw, asking them to interview with the firm. This type of on-campus outreach program has made D. E. Shaw a household name among academic institutions. Today the firm has 68 full-time recruiters and thinks of the process almost as an arbitrage play: Take people from one market, academia, and utilize them to greater effect in another, Wall Street. The firm has hired Fulbright, Marshall and Rhodes scholars, chess champions and International Math Olympiad medal winners.

D. E. Shaw is renowned for its rigorous interview process. After his first interview, conducted by telephone, Beck flew to New York and met with a series of the firm's executives, concluding with a 50-minute meeting with CFO Steckler. Beck was unusual in that he was among the first in a class of what the firm calls generalist associates. These are recruits lacking a math or science background but who the firm believes are bright and could be useful to its further development.

Fourteen years later, Beck, who reports to Dinning, is one of 27 managing directors at D. E. Shaw. This past fall he worked with the executive committee on the hiring of Harvard University economics professor and former president Lawrence Summers, who joined the firm part-time as a managing director. Summers, who had been Treasury secretary under president Bill Clinton, is working with the senior management team to find new ways to generate profit and manage risk.

Beck, who grew up in Austin, Texas, and still wears jeans and a crumpled shirt to work, blends in at D. E. Shaw — where one receptionist has his lip pierced and executive assistants look like, and in some cases are, art school graduates. But Beck's style stands out in the world of institutional marketing, where chinos and a blue buttoned-down shirt are considered edgy.

Befitting a firm launched by a computer science professor, D. E. Shaw takes its business brief from California's Silicon Valley, where talent is prized over bureaucracy. The firm eschews the stuffiness of Wall Street for the come-as-you-are competitiveness of graduate school. Employees are allowed unlimited vacation days, although this resource goes underutilized, and staff can be found working late into the night. "This is a place that is not interested in petty rules like how many vacation days you take or how early you are at your desk," says quantitative research head Foley.

Shaw got his start on Wall Street working in the automated proprietary trading group at Morgan Stanley in 1986. Led by renowned quant Nunzio Tartaglia and trader Gregory van Kipnis, the APT group invented statistical arbitrage, which uses mathematical models to try to identify and profit from short-term mispricings in securities. The most basic strategy is a pairs trade. Traders at Morgan Stanley noticed that the prices of some stocks moved in tandem but at certain times these pairs would come apart. A savvy trader would buy one stock long while



shorting the other, profiting as the prices of the two came back into lockstep.

Statistical arbitrageurs live and die by their ability to obtain, test and analyze data. Shaw, who was working on massively parallel computers at Columbia in the mid-1980s, was hired to build a supercomputer so that Morgan Stanley's APT desk could process data faster. He became more and more interested in the research side of the business and after less than two years left Morgan. With backing from S. Donald Sussman, founder and CEO of Connecticut hedge fund Paloma Partners, Shaw started his own fund with \$28 million in seed capital.

"What David was proposing was a very new approach to trading, but he was obviously a brilliant guy, and there was a compelling logic to his ideas," says Sussman. "What he has achieved is amazing."

D. E. Shaw uses a series of algorithms, or computer programs, to locate inefficiencies in the market from which it can profit. These programs might be searching for pric-

D. E. Shaw
managing director
Trey Beck is trying
to dispel the
firm's black-box
image.



DESIM quantitative research head Anthony Foley is building new global products.

ing inefficiencies within large groups of stocks, commodities, options and other securities trading on different exchanges. The investment portfolio is constantly adjusted as new opportunities are found and old ones stop working. Computers test hypothetical scenarios to plot an optimal course for how the fund should invest.

Many of the opportunities D. E. Shaw's hedge fund strategies hope to capitalize on are short term in nature, lasting in some instances for only a few seconds or minutes. But some are longer term, and these are now being used by DESIM as it builds its structured equity platform.

"Typically, we use the elements of our alternative equity strategy that we believe are most attractive to an institutional audience in terms of their risk-adjusted returns, turnover properties and scalability," says Foley, who has been charged with putting together DESIM's strategies. D. E. Shaw's computers, for example, look for opportunities that occur when a security is added or removed from an investment index — an event that causes index managers to buy or sell

according to the reconfiguration. Both D. E. Shaw and DESIM might benefit from any inefficiencies that result. The impact of index rebalancing is commonly known to all traders, but D. E. Shaw's computers are trying to find ripple effects in other stocks that are less obvious.

Unlike D. E. Shaw's alternative strategies, which are available only as commingled products, DESIM offers separately managed accounts — the investment management structure demanded by many institutional investors. Foley, who worked at currency overlay specialist Pareto Partners in London and New York before moving to SSgA, is keen to ensure that the traditional management products are robust in their own right. He has a small equity research team working on ideas for trading opportunities, and the portfolios, unlike many traditional funds, are constantly rebalanced to take advantage of new investment ideas.

"We are really trying to be as client-friendly as we can be," says Foley, a graduate of University College at the University of Oxford and the London School of Economics. For both existing and potential investors, he adds, DESIM explains its risk management process and provides performance attribution analysis, showing how and where returns are made. "We talk at great length about our investment process, including how we develop and maintain our forecasting edge," he says.

What the firm does not do is get into the minutiae of how the trading algorithms work. The detail they provide is not enough for investors like Angeles's Rosen. Although he likes D. E. Shaw and is impressed with its investment returns, Rosen is not yet ready to recommend it to any of his firm's roughly 30 clients, which represent more than \$100 billion in assets.

WITH STARK WHITE WALLS, minimalist mid-century modern furniture and dramatic lighting, D. E. Shaw's midtown Manhattan offices more closely resemble the newly refashioned interior of New York's Museum of Modern Art than they do a financial services firm. In the reception area, which has a 30-foot ceiling, reading materials include neglected copies of the *Wall Street Journal* and well-thumbed back issues of the *New Yorker*. A small rectangular window by the elevators frames a view of the Statue of Liberty in the distance. David Shaw is inordinately proud of the award-winning space, designed by architect Steven Holl.

D. E. Shaw has a history of trying its hand at different types of businesses. In 1992 the firm formed D. E. Shaw Securities Group to offer market making and other financial services to customers, leveraging the technology and systems it had developed for its hedge funds. By the time D. E. Shaw sold the business in 1999 to Belgium's KBC Bank for \$107 million, it had one of the world's biggest convertible-bond-trading platforms.

Other initiatives were less directly related to its hedge fund operations. In the early 1990s, Shaw asked some of his executives to propose businesses that would take advan-

tage of an emerging technology — the Internet. Two major plans came before him, one for a free e-mail service, the other an online bookseller. In 1995, D. E. Shaw launched e-mail provider Juno Online Services, which went public in May 1999. But Shaw decided not to pursue the bookseller idea. Jeffrey Bezos, who had suggested it, left and went on to found Amazon.com in 1995. “Both Jeff and I now believe that the main reason for Amazon’s success was not the basic idea, but the way it was realized, and Jeff is the one who deserves all the credit for that,” says Shaw.

The intellectual hothouse atmosphere has worked well when it comes to building a hedge fund business. Along the way, the firm has broadened its expertise, adding currency and commodities trading and, more recently, energy trading, real estate and private equity. In January 2004 it bought FAO Schwarz Inc. out of bankruptcy for \$41 million.

Not all of D. E. Shaw’s non-hedge fund exploits have been successful. In 1997 the firm struck a deal with San Francisco-based Bank of America Corp., which extended a \$1.4 billion loan to the hedge fund. D. E. Shaw agreed to provide Bank of America with products and capabilities the bank didn’t have, including equity derivatives, and started a proprietary fixed-income arbitrage trading business using some of the money. The fledgling fixed-income business was hit hard during the 1998 Russian debt crisis, causing BofA to take a \$370 million write-down on its loan and sever its relationship with the firm. D. E. Shaw, whose hedge funds also lost money during the crisis, was forced to scale back, cutting its workforce by 25 percent and closing offices.

Now the firm is trying to convince institutional investors, who expect to put money with managers for many years, that it is interested in the slow and steady — and less profitable — world of traditional asset management. “We are conditioning ourselves to think less and less of ourselves as an alternative money manager and more and more as a broad-based asset management firm,” says Beck.

In October, DESIM launched Alpha Extension, a long-short strategy that allows the manager to invest up to 30 percent of the fund’s value in short positions. Such strategies are gaining popularity among institutional investors largely on the back of a fall 2004 paper published in the *Journal of Portfolio Management* by Roger Clarke, Harindra de Silva and Steven Sapra of Los Angeles-based quantitative money manager Analytic Investors, which advocated a limited amount of short selling in quantitative long-only portfolios. The authors argue that such an approach, in their case 120 percent long and 20 percent short, can im-

prove returns without adding market risk. It does increase manager risk, because performance is a direct function of the skill of a manager at picking stocks.

More than a dozen traditional managers, including BGI, SSgA and GSAM, are offering such long-short products, which are typically 130 percent long and 30 percent short. D. E. Shaw believes its alternative asset management experience gives it an edge over traditional money managers. “Very few firms have a track record in this,” says Dinning. “But we have an 18-year track record of short selling.”

Analytic Investors president de Silva, whose firm manages \$8 billion in quant strategies, thinks D. E. Shaw and hedge funds like it present a real threat to traditional quantitative asset managers. “The rest of us are really going to have to step up or get out,” he says.

The team at DESIM is busy. Foley is developing international equity strategies that the group expects to launch this year. Fixed-income and currency overlay strategies are also in the pipeline. “A lot of what we are doing is drawing on our 18 years of investment experience,” says Dinning. “DESIM is really just a natural extension of our existing investment business.”

If DESIM is successful in bringing in new institutional investors, especially more risk-averse ones like pension funds, D. E. Shaw’s existing business — its hedge funds — should also benefit. Although many of DESIM’s investors may never put money in hedge funds, some will, and when they choose their managers, they are likely to go with those they know and trust. That should help D. E. Shaw as it tries to accomplish what no big stand-alone hedge fund firm has ever done: successfully outlive its founder’s involvement in the business.

As for Shaw, his influence is still being felt at D. E. Shaw in everything from the minimalist aesthetic of its offices to its hiring practices.

“David’s vision for the firm is largely unchanged from what it was when I started,” says Dinning; With a little help from computers, the best and the brightest just might change the world.

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— ANNE DINNING, CIO,
D. E. Shaw INVESTMENT
MANAGEMENT

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