Macy’s Inc. longtime leader Terry Lundgren will step down as chief executive at a time when the company he built into the biggest U.S. department store chain is facing an onslaught of competition from upstarts and struggling to adapt to changing consumer demands.

The retailer appointed one of Mr. Lundgren’s top lieutenants, President Jeff Gennette, to take over as CEO in 2017, a move the company said was part of its succession plan. Mr. Gennette, 55 years old, will join the company’s board immediately and gain additional oversight of store operations.

Mr. Gennette began his career at the retailer in 1983 as an executive trainee and has climbed the ranks over three decades, much like his predecessor. Mr. Lundgren, who will turn 65 next year, will remain chairman.

Macy’s directors accelerated the timing for announcing Mr. Gennette’s ascent to give him the freedom to begin reshaping Macy’s now, according to a person familiar with the company. “He is going to make the radical changes” before he officially takes the helm, this person said, adding that Mr. Gennette “has a tough job” ahead of him.
Shares of Macy’s, which rose 1.7% to $33.38 on Thursday, have lost roughly half of their value in the past 12 months. The decline attracted activist investor Starboard Value LP, which last year pressured the company to explore options for its vast real-estate holdings.

In his 13 years as CEO, Mr. Lundgren repeatedly defied critics who said the department-store model was dead. In 2005, he orchestrated the merger of the two biggest chains, Federated Department Stores Inc. and the May Department Stores Co., creating a national player that generated $27 billion in revenue last year.

Macy’s was one of the brands owned by Federated and the whole company was renamed Macy’s in 2007 as Mr. Lundgren eliminated regional brands like Burdines, Filene’s and Marshall Field’s. Mr. Lundgren pioneered the idea of tailoring store merchandise to local tastes, a strategy that competitors have copied. And he presided over a massive renovation of the flagship New York store, which enabled it to attract high-end brands like Louis Vuitton to the Herald Square location.

“He steered Macy’s through the most transformative and disruptive period in recent history,” said Arnold Aronson, a former Saks Fifth Avenue CEO who is now a consultant.

But the forces reshaping retailing may have surpassed even Mr. Lundgren’s ability to outrun them. Macy’s, like other traditional department stores, is fending off fierce competition from online rivals like Amazon.com Inc., fast-fashion retailers such as H&M Hennes & Mauritz AB, and even its suppliers such as Coach Inc. or Michael Kors Holdings Ltd., which have built their own store networks.
In an interview, Mr. Lundgren said he planned to stick around as chairman for as long as he can help with the transition. “I told the board, I’m ready to go when you want me to go,” he said. “But having been CEO for 13 years puts me in a unique position to be helpful.”

Macy’s results have been disappointing. In the first quarter, it reported its worst quarterly sales since the recession, setting off fresh fears about the health of the U.S. retail sector and raising concerns as to whether the chain is losing market share.

Executives at the retailer have complained that consumer spending has shifted from handbags and apparel to experiences and electronics, areas where it has little exposure. To address the changes, Mr. Lundgren has pushed into off-price retailing to try to compete with the likes of TJX Cos.’ brands TJ Maxx and Marshalls. Last year, it also acquired beauty and skin-care chain Bluemercury Inc., a move to try to reach customers beyond the mall.

Finding a lasting solution to the shifting shopping habits will now fall on Mr. Gennette, a San Diego native and graduate of Stanford University, who was anointed heir-apparent in March 2014 after being chief merchandising officer for five years.

Mr. Gennette said Thursday that Macy’s plans to simplify its pricing to better communicate the value it offers shoppers; do a better job of curating its merchandise to contrast with the often overwhelming choices found at online retailers; and create a “friction-free” shopping experience in which customers can more easily find their color or size, or get the help they need. “We are used to winning and we will win again,” Mr. Gennette said in an interview.
Mr. Gennette is steeped in Macy’s with a 33-year career. He briefly left the company to serve as a store manager for FAO Schwarz. But he returned and held merchandise positions for Macy’s men’s and children’s businesses, and eventually took executive responsibility for various regions.

Some Macy’s directors initially had been unsure whether the CEO-to-be could identify the sweeping steps needed to get back on track, given his long Macy’s tenure and similar background to Mr. Lundgren, the person familiar with the matter said. But the full board ultimately decided Mr. Gennette “has the courage” to make the big shifts needed, this person said.

Mr. Gennette has filled holes in his management experience since being elevated to president. He led analyst meetings, dealt regularly with Macy’s finance chief, attended board meetings, and learned more about marketing, the person familiar with the situation said.

The company said earlier this year it would close about 40 stores, cutting thousands of jobs. Macy’s employed about 157,900 full-time and part-time workers as of Jan. 30. After deciding against a spinoff of its properties, it has also hired advisers to explore strategic options for its flagship stores and real-estate portfolio.

Mr. Lundgren, who started his career in 1975 at a Bullock’s store in Los Angeles, became interested in fashion as a teenager growing up in California. He honed his look, which consisted of Sperry topsiders and Farah slacks. In 1972, he was Bachelor No. 2 on “The Dating Game.” He won the date. As CEO, he was known for wearing impeccable suits and never having a hair out of place. He even designed the dress his wife wore to their 2005 wedding.

But people who know him say he is more than a merchant prince. “Terry was one of the top CEOs in recent history,” said Mr. Aronson, the former Saks chief. “He will leave his stamp on the retail industry for many years to come.”