China is coming down hard on one of its biggest and most powerful business empires.

On Thursday, Chinese regulators said they were taking action against billionaire Jack Ma’s two crown jewels, e-commerce giant Alibaba Group Holding Ltd. and finance behemoth Ant Group, moves that followed the abrupt shutdown last month of Ant’s planned blockbuster public listing.

In a terse statement Thursday, Beijing’s top market regulator, the State Administration for Market Regulation, said it had launched an antitrust investigation into Alibaba.
Separately, a joint statement issued by China’s central bank and regulatory agencies overseeing securities, banking and insurance said they would meet with Ant to urge the firm to implement financial regulations and other rules.

Taken together, the actions mark Beijing’s strongest enforcement action against a technology empire that has come to embody China’s striking rise—and its founder Mr. Ma, a flamboyant celebrity businessman who has earned comparisons to Amazon.com Inc.’s Jeff Bezos.

The effort underscores Beijing’s resolve to rein in technology giants seen to be growing too quickly and, critics say, using their influence in ways that are reckless and disruptive to society.

The country’s antimonopoly regulator said in its statement Thursday that it was acting on reports that Alibaba was pressuring merchants who sell goods on its platforms to commit to not selling on its competitors’ platforms.

The practice has long been a bone of contention in China’s online retail industry, where Alibaba’s e-commerce platforms, Taobao and Tmall, compete with JD.com Inc. and Pinduoduo Inc. Alibaba’s domestic rivals have criticized the Hangzhou-based company for the practice, which a former senior Alibaba executive called “standard market practice” in a social media post last year.

Alibaba’s Hong Kong stock price

Note: HK$100=US$12.9
Source: FactSet
Alibaba and Ant confirmed in separate statements that they had received notifications of the regulatory actions, and vowed to cooperate. Alibaba said that its businesses are operating as usual, while Ant said it would “seriously study and strictly comply with all regulatory requirements.”

Mr. Ma couldn’t be reached for comment. He hasn’t appeared publicly since he criticized financial regulators for stifling innovation in an Oct. 24 speech that infuriated leader Xi Jinping and other senior officials. Mr. Xi personally instructed regulators to investigate risks posed by Mr. Ma’s business and to shut down Ant’s planned initial public offering.

JD.com and Pinduoduo didn’t reply to requests for comment.

Alibaba shares closed 8.1% lower in Hong Kong, while JD.com declined 2.3%. Alibaba’s rival Tencent Holdings Ltd.—which some investors believe could also get drawn into a broader regulatory crackdown—retreated 2.6% amid a slight gain in the broader stock market.

Regulators are zeroing in on whether Alipay, Ant’s payments platform, or other corners of Mr. Ma’s business empire have crossed the line into monopolistic behavior, according to a Chinese official with knowledge of the probes.

Alipay, in particular, has caught regulators’ attention because it possesses a wealth of data on the spending habits of hundreds of millions of Chinese consumers and businesses. The payments platform, housed under Ant, processed more than 118 trillion yuan, equivalent to $18 trillion, worth of transactions in mainland China in the year ended June 30.

Regulators are also worried that Ant’s online-lending model—which makes unsecured credit available to consumers and small businesses online—could potentially trigger “systemic risks” for China’s financial system, the official said.

Last month, Beijing pulled the plug on Ant’s planned IPO in Hong Kong and Shanghai, which was set to raise $34 billion in the biggest stock-market debut in history. Authorities also released draft regulations that would force the company to cough up more of its own capital to support its lending operations, or scale them back.

Since then, senior Chinese leaders have spoken publicly about limiting the market power of Chinese firms. Authorities also introduced new draft antitrust laws to restrict internet companies’ data collection and use, and measures to protect consumers.
The actions taken Thursday show that Beijing’s campaign to tighten oversight of domestic technology companies is still gathering steam.

The Chinese Communist Party’s flagship newspaper, the People’s Daily, wrote in a commentary Thursday that the new actions didn’t mean the state had changed its views toward encouraging the development of the internet platforms. But the commentary said that the actions were made “precisely to better regulate and develop the platform economy and to guide and promote its healthy development.” It said: “Without rules, nothing can be done.”

Chinese internet firms have traditionally been allowed unfettered growth at home, as Beijing sought to develop its own national technology champions. Founded in 1999, Alibaba is perhaps the most powerful conglomerate of all, with business lines spanning e-commerce sites, cloud-computing services, entertainment and logistics. Alibaba and Tencent have long traded places as Asia’s most valuable company by market capitalization.

The recent moves by Beijing to tighten the reins on Alibaba and its peers put it, in one sense, into closer alignment with global regulators. In the U.S., where Facebook Inc. and Google parent Alphabet Inc. are facing antitrust cases, Silicon Valley executives argue that breaking up its giants would leave it vulnerable to competition by China’s tech giants. The current wave of actions could narrow that gap.

“China wants to get out in front, rather than deal later, with more hardened consequences, as the U.S. is struggling to do,” said Peter Fuhrman, Shenzhen-based chief executive officer of China First Capital, an investment bank. “A concern would be that market power may potentially morph into political power.”

At the same time, any new regulatory oversight of the tech giants will likely be seen as part of Mr. Xi’s attempt to assert even more political control over the economy. He has
sought to bring to heel private entrepreneurs and has talked regularly of needs to bolster government-run companies in key sectors such as finance.

In many ways, Ant acts like a financial institution by facilitating loans between banks and users of its ubiquitous Alipay payments app—used by one billion people in China—but it isn’t regulated like one. Its business model is structured in such a way that has been able to lure borrowers away from traditional lenders, while leaving the banks with the credit risk.

Ant operates two digital-lending platforms—Huabei, meaning “just spend,” and Jiebei, meaning “just borrow”—that have been Ant’s biggest growth engine in recent years. They supplied credit to roughly half a billion Chinese consumers during the year ended June 30, with a total outstanding loan balance equivalent to $263 billion.

China’s central bank and traditional lenders don’t enjoy the degree of access to China’s free-spending younger consumers that Ant does. The Alipay app has enabled it to collect troves of consumer data and use proprietary algorithms to assess individuals’ creditworthiness.

But its data so far hasn’t been fully integrated into the central bank’s credit-scoring system. Ant used its superior access to data to turn a profit by sharing the information with banks, especially smaller ones, looking to originate microloans.

Lou Jiwei, China’s former Finance Minister, recently warned that online-finance companies such as Mr. Ma’s Ant should be prevented from becoming “too big to fail.”

“If a single digital finance platform occupies an excessively large market share, and the veracity of the platform’s data or the platform’s risk-assessment models undergo
deviations, this can lead to a large volume of bad loans,” said Mr. Lou said at a forum this week in the southern metropolis of Shenzhen.

He suggested that regulators restrict the number of banks working with any single financial-technology firm.

On Wednesday, Ant said it had cut credit limits for some younger users of its popular digital credit-card service, a sign it is dialing back risk in its lending business following regulatory pressure.

—Xiao Xiao contributed to this article.

Write to Liza Lin at Liza.Lin@wsj.com, Lingling Wei at lingling.wei@wsj.com and Chong Koh Ping at chong.kohping@wsj.com