Impact of Antitrust Regulations on Firm Market Value:
Evidence from Chinese and U.S. Internet Platforms*

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November 17, 2022

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**Abstract**

This study compares the impact of antitrust regulations on firm market value for Chinese versus U.S. internet platforms. Applying an event study approach to daily stock market data during 2010–2022, we investigate the cumulative abnormal returns of Hong Kong- and U.S.-listed internet platforms. We find that the launch of antitrust investigation in China has caused a significant decrease in the investigated firm’s market value but boosted the market value of their competitors, while the end of the investigation increases the investigated firm's market value but dampens the market value of other leading platforms that involve the alleged exclusive dealing conduct. A similar analysis on U.S. internet platforms shows minor effects of EU/U.S. antitrust regulations, indicating that differences in enforcement duration and uncertainty of antitrust enforcement matter. Stronger stock market reactions to Chinese versus EU/U.S. antitrust legislation are also observed, suggesting investors’ belief in the Chinese antitrust authority’s stronger discretion in antitrust enforcement.

**Keywords:** Administrative enforcement, antitrust regulation, event study, internet platform, judicial remedies, market value

**JEL Classification:** L41, L44, G14, G11
1 Introduction

The internet industry has witnessed rapid growth under laissez-faire regulation for over two decades, during which a few internet companies have grown into global giants. Alibaba has been the market leader of the e-commerce sector, which has been possible because of its Taobao, Tmall, and AliExpress business segments, along with its popular payment solution Alipay, logistic network Cainiao, and financial wing Ant Finance. In 2020, goods valued at $1.2 trillion were sold globally on Alibaba’s platform, higher than Amazon’s $575 billion record. Tencent, originally a leading social network internet company with featured products such as WeChat, QQ, and Q-Zone (sometimes referred to as China’s Facebook) has expanded into gaming, digital payments, music, and video streaming. JD.com and Pinduoduo are market followers in the e-commerce sector in China but have quickly evolved into strong players. Meituan initially mimicked the business model of Groupon but eventually became a market leader in food delivery and reservations, comparable to a conglomerate of Grubhub, OpenTable, and Uber Eats. The combined stock market value of the top five Chinese internet firms (i.e., Alibaba, Tencent, JD.com, Pinduoduo, and Meituan) reached $1.87 trillion in 2021, approximately 10.5% of China’s GDP. Although these platforms have grown into big giants, major antitrust enforcement cases have not been made until 2021.

On February 7, 2021, the State Administration for Market Regulation (SAMR), China’s antitrust authority, officially released the Antitrust Guidelines for Platform Economy (the “Platform Antitrust Guidelines”), which is a milestone in the gradual transition of China’s antitrust enforcement from a laissez-faire mode to a strong regulation mode. Influenced by various factors, the stock prices of China’s internet giants peaked around February 18, 2021 and immediately suffered a sharp decline (see Figure 1).
with the legislation, SAMR launched two investigations—against Alibaba and Meituan—for their “either-or” exclusive dealing policy with merchants, on December 24, 2020 and April 26, 2021, respectively. These two investigations ended on April 10, 2021 and October 8, 2021, respectively, resulting in SAMR imposing a fine of $2.79 billion on Alibaba, equivalent to 4% of Alibaba’s total domestic sales in 2019, and a fine of $0.53 billion on Meituan, equivalent to 3% of Meituan’s domestic sales revenue in 2020.5 In the meantime, a series of legislation was imposed against internet platforms in China, including the Data Security Law, Provisions on Prohibited Acts of Unfair Online Competition (draft),6 and so on. Consequently, the stock prices of internet platforms plummeted, with the Nasdaq China U.S. Internet Tiger Index’s (QNETCN) value dropping by 52.2% from February 17, 2021 to March 15, 2022.7

The ever-increasing regulatory scrutiny has evoked concerns from investors and industry participants.8,9 It has also dampened their incentive to invest,10 which further dimmed the prospects of the internet platform stock market is still active during the Chinese Spring Festival, the Chinese people who access, disseminate and interpret the government news are in holidays and therefore, it may delay the information transmission and stock market reaction. Additionally, together with other factors, such as, the gradual advancement of the implementation of Holding Foreign Companies Accountable Act and the growth performance of Internet platform companies which had been slow down and far away from the expectation, after the Chinese New Year, the investors react significantly.


7 From Seeking Alpha database, the QNETCN index on February 17, 2021 and on March 15, 2022 are 2,247.78 and 1,075.14 respectively, therefore, the growth rate is calculated as (1,075.14 -2,247.78)/2,247.78=-52.2%, available at: https://seekingalpha.com/symbol/QNETCN/historical-price-quotes (Accessed May 25, 2022).

China’s regulatory crackdown has ensnared sectors from technology to education to property, wiping hundreds of billions off the market capitalizations of some of its largest companies and putting investors on alert over who may be next. See Reuters, September 13, 2021, “China crackdown wipes hundreds of billions off top companies’ values,” available at: https://www.reuters.com/news/picture/factbox-china-crackdown-wipes-hundreds-o-idUSKBN2G90CK (Accessed May 23, 2022).

8 “Regulators in China have gone after numerous companies in the private sector, calling out what they describe as unfair business practices and ordering dozens of companies to rectify problems and make amends. The widening regulatory clampdown—which shows no signs of abating—has forced global investors to reassess the future and growth prospects of many firms. The country’s six top technology companies have together lost more than $1 trillion in market value since a peak in February.” See Keith Zhai, August 6, 2021, “China’s Antitrust Regulator Planning to Fine Meituan About $1 Billion,” WSJ News, available at: https://www.wsj.com/articles/chinas-antitrust-regulator-planning-to-fine-meituan-about-1-billion-11628238951 (Accessed May 23, 2022).

economy. As emerging economic entities, internet platforms have been a major driving force of the market economy. However, with the Chinese government’s determination to prevent the capital from expanding in a disorderly fashion\(^\text{11}\) (later on termed as “curb the disorderly expansion of capital”), internet platforms have become one of the major targets for government regulation. (Zhang, 2021, 2022) These series of regulatory actions have raised intense debates regarding the impact of current regulatory policies on the industry and stock markets. To shed light on the debate, we examine the impact of antitrust regulations on firm market value for Chinese internet platforms in comparison with their U.S. counterparts. Specifically, we conduct an event study analysis using historical stock market data of the Chinese and U.S. internet platforms listed in the U.S. and Hong Kong stock exchanges.

We have four main findings. First, we find that the start of antitrust investigations of Chinese internet platforms has led to a significant decrease in the respective firms’ market values, but boosted their competitors’ stock prices. This finding suggests that antitrust regulations curb anticompetitive behavior and foster a healthier environment for competition, thereby increasing competitors’ market values. Second, we show that the end of antitrust investigations in China resulted in a stock price surge for the investigated company, presumably because of the resolution of market uncertainties, while the stock prices of other leading platforms with similar anticompetitive conduct decreased. Third, applying the same analysis to the EU/U.S. antitrust regulations against U.S. internet platforms, we find that the effects were minor. This difference in results may be explained by the differences in institutional background. In the European Union and the United States, the implemented administrative enforcement mechanisms and judicial remedies take a longer time, and the final outcomes are more uncertain than in China. Therefore, the start of the investigations in the European Union and the United States had negligible effects on the market values of the U.S. platforms. Only when the outcomes were disclosed at the end of the investigations did the U.S. platforms suffer from a negative drop in market prices. Finally, we examine the impact of antitrust legislation on the firm value of Chinese and U.S. internet platforms. We find that stock markets react more strongly to the cases

\(^{11}\) Shanghai Securities Journal, December 18, 2020, “The Central Government Emphasized Reinforcing Antitrust Efforts and Preventing Capital From Expanding in a Disorderly Fashion Twice in a Week and Made a 27-word Request”, available at: https://finance.eastmoney.com/a/202012181742994213.html (Accessed October 25, 2022). To prevent capital from expanding in a disorderly fashion is a policy term that was developed by the Chinese government for the purpose of preventing capital from seizing excessive profits at the expense of other industries or other firms in the industry. The goal is to balance social public interests such as employment and social stability.
of Chinese companies than their U.S. counterparts. This finding may reflect investors’ belief in the Chinese antitrust authority’s stronger discretion in antitrust enforcement.

This paper contributes to the literature on the impact of antitrust regulations on offending firms. In particular, it is closely related to the studies on the antitrust regulations’ effect on firm market value. Bosch and Eckard (1991) estimate the effect of an indictment for price fixing on the respective firms’ stock prices. They find that the share prices of indicted firms in their sample lose on average a cumulative 1.08% of their value around the public announcement of the indictment. Bittlingmayer and Hazlett (2000) examine the industry effect of the U.S. federal antitrust action against Microsoft in the 1990s. They find that the federal antitrust enforcement action against Microsoft was accompanied by declines in the value of computer industry firms (excluding Microsoft). Aguzzoni et al. (2013) conduct an event study within the context of European competition policy. For a sample of 180 cartel firms, they establish a negative stock price reaction around the antitrust inspection and decision events. Similarly, using a larger sample of European firms, Günster and van Dijk (2016) conduct an event study and find a negative stock price reaction around the antitrust investigation events. In addition, they show that the severity of the market reaction depends on several factors, including the magnitude of the fine, infringement duration, firm size, and media attention. Finally, Bos et al. (2019) examine the industry-wide impact of antitrust regulations. They find that the effect of antitrust regulations is negative for cartel members and non-cartel suppliers, but insignificant for non-cartel competitors.

Our work is novel in three aspects. First, to the best of our knowledge, this is the first work to estimate the impact of Chinese antitrust regulations on the market value of Chinese internet platforms. Second, we compare the impact of Chinese and EU/U.S. antitrust regulations on the market value of Chinese and U.S. internet platforms and document the contrasting findings, thereby highlighting jurisdictional heterogeneity in the antitrust domain. Finally, we examine the impact of Chinese antitrust regulations on competitors and document the different findings from those in existing literature (e.g., Bittlingmayer and Hazlett, 2000).

The remainder of this paper is structured as follows. Section 2 describes the institutional background of antitrust regulation in China and the United States. Section 3 describes the data and the study design. Section 4 presents the main results regarding the impact of the antitrust investigations on the respective firms’ market values, while section 5 discusses the impact of antitrust legislation on firm market value in general. Section
6 provides robustness checks, and section 7 presents the conclusions.

2 Institutional Background

2.1 Institutional Background of the Antitrust System in China

Since the implementation of China's Anti-Monopoly Law (hereinafter “AML”) on August 1, 2008, several milestone institutional reforms of China’s antitrust agencies have been implemented, resulting in a unified antitrust enforcement system. Prior to 2018, the antitrust enforcement roles were divided among the National Development and Reform Commission (NDRC), the State Administration for Industry and Commerce (SAIC) and the Ministry of Commerce (MOFCOM). NDRC was responsible for enforcing price-related monopoly behaviors, while SAIC took on the enforcement of non-price-related monopoly behaviors, and MOFCOM implemented merger control reviews. In 2018, China consolidated antitrust enforcement under the newly created agency—SAMR, resulting in a unified enforcement system. This was accompanied by an appeal from the Central Political Bureau for “strengthening anti-monopoly and preventing the disorderly expansion of capital” and the antitrust enforcement against platform companies such as Tencent, Alibaba, and Meituan one after another. It is widely believed that strict regulation of the digital economy would be the policy focus in the coming years (Sun, 2022).

The increasing regulatory efforts in the internet sector are reflected in the revision of the AML and the introduction of other related guidelines. In early 2019, the “Interim Provisions on Prohibition of Abuse of Market Dominance” issued by SAMR specifically addressed how to determine the market dominance of an internet operator. In January 2020 and October 2021, SAMR published its first and second draft amendments to the AML, which added several new provisions regarding the platform economy—

12 For the institutional background of the three agencies, see Zhang and Zhang (2010, 2012).
15 On April 10, 2021, Alibaba was fined RMB 18.228 billion for abuse of market dominance; on July 24, 2021, Tencent was imposed an antitrust fine of RMB 500 thousand for acquiring a stake in China Music Group, which constituted an illegal implementation of concentration of undertakings, and was also required to adopt practices such as rescinding exclusive copyright agreements to restore competition in the market; on October 28, 2021, Meituan was fined RMB 3.442 billion for abusing its market dominance.
incorporating data, algorithms, technology, and capital elements to the antitrust system.\textsuperscript{17} Additionally, a series of guidelines for the internet sector has been issued by SAMR consecutively. Besides the aforementioned “Platform Antitrust Guidelines,” which came into effect on February 7, 2021,\textsuperscript{18} SAMR also issued the “Regulations on the Prohibition of Unfair Competition on the Internet (Draft for Public Opinions),” “Guidelines on the Classification and Grading of Internet Platforms (Draft for Public Opinions)” and “Guidelines on the Implementation of the Main Responsibility of Internet Platforms (Draft for Public Opinions)” in 2021. These regulations clearly classify the internet platforms and clarify the responsibilities of the platforms, including data management, open ecology, and pricing strategy.\textsuperscript{19}

Notably, the regulation of the platform economy in China is characterized by a “multi-jurisdictional and multi-departmental” system. In addition to the AML, the Anti-Unfair Competition Law, E-Commerce Law, Law on the Protection of Consumer Rights and Interests, Advertising Law, Price Law, Personal Information Protection Law, Data Security Law, Cybersecurity Law, and other laws and corresponding departmental regulations also provide the basis for regulating the platform economy. Other authorities that have the regulatory regime on the internet platforms include the Ministry of Industry and Information Technology (MIIT), the Ministry of Commerce (MOF), the Office of the Central Cyberspace Affairs Commission (CAC), and so on. Along with a series of regulatory rules and enforcement cases, China's antitrust policy continues to evolve starting in mid-2021, guiding the future regulation and enforcement. Departing from the tone of stringent regulation,\textsuperscript{20,21} the Central Economic Working Conference was proposed in 2021 to understand


In March 2021, the Central Financial and Economic Affairs Commission proposed to “adhere to the equal importance of development and regulation” in the governance of the platform economy. See Xinhuanet, March 9, 2021, “Xi Jinping presides over ninth meeting of Central Finance and Economics Commission,” available at:
better the role and characteristics of capital, signaling that regulatory policy has evolved from the goal of “strengthening regulation” to “equal emphasis on regulation and development,” then to setting the code of conduct and advocating “fair regulation.”

In addition to administrative enforcement, Article 60 of the AML also provides the basis for antitrust civil litigation. According to the Administrative Reconsideration Law and the Administrative Procedure Law of the People’s Republic of China, if a party does not approve of the administrative authority’s penalty decision, it can also file a reconsideration with a higher authority within a certain period or file an administrative lawsuit at court to challenge the administrative authority’s enforcement results. However, in practice, there have been no precedents of large technology companies challenging the antitrust enforcement results. Resolving antitrust disputes through administrative litigation does not seem to be the preferred path in the platform economy.

2.2 Institutional Background of the U.S. Antitrust System

In the United States, the Sherman Act (1890), Clayton Act (1914), and Federal Trade Commission Act (1914) are the three core federal antitrust laws in effect today. These antitrust laws are enforced by the Department of Justice (DOJ)’s Antitrust Division and the Federal Trade Commission (FTC). If the federal agencies find in their investigation that a company has violated the antitrust law or that a proposed merger may violate the law, they may obtain voluntary compliance by entering into a consent order with the company or bringing lawsuits to the court if a consent agreement cannot be reached. The initial court decisions may be appealed at the U.S. Court of Appeals and ultimately at the U.S. Supreme Court.

In the internet sector, the antitrust enforcement against big tech companies has been strengthened over
time by agencies implementing a series of measures. For example, in June 2019, U.S. antitrust agencies agreed to focus on the antitrust enforcement against Google, Apple, Facebook, and Amazon (hereinafter, GAFA), while dividing the responsibility across investigations. On October 6, 2020, the U.S. House released a report titled “Investigation of Competition in Digital Markets,” which concluded that GAFA had exploited their dominant positions to suppress competitors and stifle innovation in the industry and recommended a series of potential remedies to restore competition, improve innovation, and reinvigorate antitrust enforcement. In terms of legislation, the House of Representatives introduced a legislative package against platform operators in June 2021, targeting the regulation of monopoly behavior and mergers and acquisitions by dominant platforms to enhance innovation and competition in the digital economy.

Although U.S. antitrust enforcement in the internet sector has recently been reinforced in legislation and various enforcement measures, its effects on internet platforms remain to be seen. As antitrust lawsuits are often associated with prolonged and costly judicial proceedings, they can add considerable uncertainty to the final outcomes. As such, stakeholders may not react as aggressively to antitrust investigations in the United States as those in China.

2.3 Theoretical Motivation

The literature (e.g., Bosch and Eckard, 1991, Christiansen and Kerber, 2006; Van den Broek et al., 2012; Günster and van Dijk, 2016) argues that antitrust investigations might affect firm market value through several channels. First, firms might incur legal costs, including fines, damages, and litigation costs. Second, firms have to stop their anticompetitive behavior. As a result, firm market value suffers because they cannot enjoy the gains from their anticompetitive practice.


Finally, there are other factors that we can describe as market signal effects. Specifically, firms could lose their reputation and suffer a reduction in operating efficiency. For example, firms may lose customers and suppliers. In addition, antitrust investigations may lead to manager turnover and damage employee morale.

Taken together, theories predict that antitrust investigations lead to a reduction in firm market value.

3 Data and Study Design

3.1 Data

Two main data sources are employed for our analysis: information publicly disclosed about antitrust enforcement cases by authorities and the financial market data from Bloomberg and the Center for Research of Security Prices (CRSP). Specifically, the publicly disclosed information includes the dates and descriptions of antitrust enforcement from government announcements and media news for both China and the United States. The comprehensive historical market data are obtained from Bloomberg (for Hong Kong Stock Exchange data) and CRSP (for U.S. stock exchange data), from which the variables we adopt include dates, opening prices, percentage changes, turnover rate, market capitalization, and so on.29

3.2 Events and the Platforms

Following the standard event study approach reviewed by MacKinlay (1997), we measure the abnormal return and cumulative abnormal returns (CARs) of the stocks of Chinese internet platform companies as evidence of the effects of SAMR’s antitrust enforcement. We focus on the major events between January 2010 and March 2022, which include 6 main pieces of antitrust legislation and 33 main antitrust investigations taking place in the European Union, the United States, and China as listed in Table 1. The detailed descriptions of the events are documented in Appendix A.

We categorize these events into two types: one comprises the antitrust legislation targeting all internet platforms in the market; the other comprises antitrust investigations specific to a particular firm as indicated in Table 1. According to the jurisdictions, we separate each type of event into two categories: either in China or in the United States and the European Union. For the first category of events, our study objectives point

29 The stock prices are adjusted to ex-rights and ex-dividend.
to all the related internet platforms that are subject to the antitrust regulations. Specifically, for the Chinese regulations, we focus on the Chinese big tech companies (Tencent, Alibaba, Meituan, Pinduoduo, and JD.com); while for the United States and the European Union, we focus on the big tech companies that operate globally, namely, GAFA, and Microsoft, which thrives in the United States. For the second category of events, we focus on the targeted firm and its rivals.

Table 2 tabulates the fundamental and descriptive information for the studied platforms across China and the US, including Tencent, Alibaba, Meituan, JD.com, PDD, BEKE, and VIPS of Chinese platforms and GAFA and Microsoft of the US platforms. Table 2 shows their annual revenue ($ million, 2021), GMV or GTV ($ million, 2021), Founding Date, Listing Date, Listing Exchange, and Stock Market Value ($ million). Apple and Tencent are the largest Internet platforms in the US and China respectively in terms of market value. The Chinese platforms are much younger than the US platforms, with an average age of 16 years old as opposed to 33 years old for those US counterparts measured by the founding date.

As we can see from Figure 2, Tencent, Alibaba, Meituan, Pinduoduo, and JD.com are the top five players in China’s internet industry in terms of market capitalization as of June 30, 2021. Among them, Tencent ($715 billion) and Alibaba ($615 billion) are the top two, far exceeding the third one, Meituan ($252 billion), by more than 2.4 times, followed by Pinduoduo and JD.com at $159 billion and $123 billion, respectively. The total market capitalization of the top six to ten companies is approximately $345 billion, which is only approximately one-fifth of the total market capitalization of the top five companies in China. The market value of the global top twenty internet platforms is illustrated in Figure 3.

As some Chinese internet platforms are dual-listed in both Hong Kong and U.S. stock exchanges, it is necessary to compare their stock performances in both markets. We can see that in most cases, the market performances in Hong Kong and the U.S. stock exchanges remain consistent as illustrated in Figure 4; therefore, our analysis will mainly focus on the exchange where the majority of transactions take place for the firm.

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30 Among the top 5 Chinese Internet platforms, Alibaba and JD.com is dual listed in both Hong Kong and the U.S. Stock Exchanges. Pinduoduo hasn’t been listed in Hong Kong Stock Exchanges but only in NASDAQ. Meituan and Tencent are all originally listed in Hong Kong Stock Exchange and only sold in the U.S. market as American Depositary Receipt (ADR). They can be traded in the U.S. either through the stock exchange (Alibaba) or through OTC market (Tencent and Meituan). Therefore, to some extent, their trading prices in the U.S. can also be regarded as a measure for investors’ reactions in different regions.
3.3 Event Study Methodology

We use a standard event study methodology to examine firm market value changes around antitrust regulation. The abnormal return, by definition, denotes the deviation of the actual \textit{ex-post} return over the event window from the normal return of the firm over the event window. We consider 3 days before and after the event as the event window, and the period of 130 days prior to the event to 30 days prior to the event as the estimation window. The normal return is predicted with the stock market prices observed in the estimation window. More specifically, the market model used to predict the normal returns for firm \( i \) at period \( t \) is expressed as

\[
R_{it} = \alpha_i + \beta_i R_{mt} + \epsilon_{it}
\]

(1)

Where \( R_{it} \) denotes firm \( i \)'s daily return at period \( t \), \( R_{mt} \) denotes the returns of the market index at period \( t \), and \( \epsilon_{it} \) is the random noise. \( \alpha_i \) and \( \beta_i \) are firm-specific parameters. The market index for the stocks traded on the U.S. exchanges is the CRSP value-weighted index. The market index for the stocks traded on the Hong Kong exchange is the Hang Seng Index. Suppose \( \hat{\alpha}_i \) and \( \hat{\beta}_i \) are the OLS estimates of the parameters for Model (1) based on the observations in the estimation window, i.e., \(-130 \leq t \leq -30 \) (\( t=0 \) denotes the date when the event happens). Therefore, the predicted normal return during the event window can be calculated as: \( \hat{\alpha}_i + \hat{\beta}_i R_s \), and the daily abnormal returns (AR) are calculated as the difference between the observed return \( R_{is} \) and the predicted normal return \( \hat{\alpha}_i + \hat{\beta}_i R_s \), i.e.,

\[
AR_{is} = R_{is} - (\hat{\alpha}_i + \hat{\beta}_i R_m)
\]

(2)

where \( s \) denotes the periods in the event window. We further estimate the cumulative abnormal returns (CAR), namely, the accumulated sums of the abnormal returns during the event window, as

\[
CAR_i[t_1, t_2] = \sum_{s=t_1}^{t_2} AR_{is}
\]

where \(-3 \leq t_1 \leq t_2 \leq 3 \). Then we average the CARs over all events and obtain cumulative average abnormal returns (CAAR),

\[
CAAR[t_1, t_2] = \frac{1}{N} \sum_{i=1}^{N} CAR_i[t_1, t_2],
\]

where \(-3 \leq t_1 \leq t_2 \leq 3 \) and \( N \) is the total number of events. Moreover, following Aguzzoni et al. (2013),
we employ the following J-statistic to conduct the hypothesis testing:

\[
J = \frac{sCAAR \cdot \sqrt{N}}{S_{SCAR} \cdot \sqrt{1 + (N - 1)\bar{r}}}
\]

where \(sCAAR\) denotes the scaled cumulative average abnormal return, \(S_{SCAR}\) denotes the standard deviation of the scaled cumulative abnormal return, and \(\bar{r}\) denotes the average sample cross-correlation estimated for the estimation period.\(^31\)

4 The Impact of Antitrust Investigations on Individual Firms’ Market Value

Till the end of 2021, there have been two major antitrust investigations in China against internet platforms—involving Alibaba and Meituan. Owing to the contamination of an extraneous event in the Meituan investigation, we focus on the investigation against Alibaba in our research.\(^32\)

On December 24, 2020, SAMR, the antitrust regulator of China, opened an investigation into Alibaba over its “either-or” allegations. Even before SAMR’s investigation, Alibaba had already faced a lawsuit challenge from its main competitor platform, JD.com, against its “either-or” requirement that prohibited its merchants from listing on rival e-commerce platforms. However, at that time, the legitimacy of the “either-or” conduct remained controversial: Some argued that it was justified under certain circumstances as it could improve the operational efficiency of the platform, which may in turn benefit merchants and consumers; others accused of significant harm to competition. Only after the launch of SAMR’s investigation, public opinions became overwhelmingly critical of Alibaba’s “either-or” conduct. This was the first time that the antitrust regulator investigates giant Internet platforms in China, which drew the prelude to the era of strong antitrust regulation.

After less than four months of investigation, SAMR issued an administrative penalty decision against Alibaba with a $2.8 billion fine on April 12, 2021.\(^33\) Beyond the fine, the company needs to carry out a

\(^{31}\) This J-statistic was introduced by Kolari and Pynnönen (2010). It is asymptotically distributed as a standard normal and robust to serial correlation.

\(^{32}\) Meituan conducted a new share issuance five days prior to the investigation, which contaminated the effect of the antitrust investigation. We therefore exclude the Meituan investigation from our analysis.

\(^{33}\) SAMR, April 10, 2021, “SAMR Imposes Administrative Penalty on Alibaba Group Holding Limited for Implementing ‘Either-or’ Monopolistic Conduct in the Online Retail Platform Services Market in China,” available at:
comprehensive revamp of operations and submit annual self-examination compliance reports to SAMR within 3 years. Shortly after this record antitrust fine, Alibaba’s share price saw a significant surge. SAMR’s investigation towards Alibaba was regarded as a “new move to tighten control over their fast-developing industries” and it would become a warning shot to other platforms in China.

4.1 The Impact of the Alibaba Investigation on Alibaba’s Market Value

Although Alibaba is listed on both the U.S. and Hong Kong stock exchanges, 80% of the market value is traded on the U.S. stock exchange. Moreover, the U.S. stock market is considered more liquid and efficient than the Hong Kong stock market. Therefore, we only use Alibaba’s stock prices from the U.S. stock exchange for our analysis. In Figure 5, we plot the CARs of Alibaba three days before and after the announcement of the SAMR investigation. Figure 5 shows that Alibaba’s CAR fell 13.61% on the announcement date of December 24, 2020. The total seven-day CARs are approximately −8.50% (CAR[−3,3]), See Table 3), amounting to an approximately $59.79 billion loss in market value. It is worth noting that Alibaba’s stock price rebounded on the second day because, in response to the sharp decline, it announced a stock repurchase plan on the second day.

According to the literature (e.g., Bosch and Eckard Jr., 1991; Christiansen and Kerber, 2006; Van den Broek et al., 2012; Günster and van Dijk, 2016), the market value loss from antitrust investigations could be driven by several factors—lost monopoly profits, legal costs (e.g., fines and damages), and negative market signal effects. It is generally difficult to break down the market value loss into its specific causal components.

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39 We adopt Alibaba’s market value of $703.47 billion on Day -4 as the comparison benchmark (Source: Bloomberg).
In the Alibaba investigation, the fine imposed by SAMR on April 10, 2021 was $2.8 billion, which is over 5% (2.8/53.82) of Alibaba’s loss in market value. Thus, the fine only explains a small portion of Alibaba’s market value loss, which is consistent with the related studies using U.S. (e.g., Bosch and Eckard Jr, 1991) and European (e.g., Aguzzoni et al., 2013) data.

4.2 The Impact of the Alibaba Investigation on Alibaba’s Rival Platforms

Practitioners and scholars have heatedly debated the real motive behind the antitrust investigation against Alibaba. It was deemed that one motive of the investigation is to stop the anti-competitive conduct initiated by Alibaba, as it has been accused of preventing the merchants who sell on its e-commerce platform, Tmall, from selling on other rivals’ platforms such as JD.com’s platform, which is termed “either-or” conduct or exclusive dealing. JD.com also brought private litigation to court for this alleged exclusive conduct.40 We call this argument an “antitrust motive.” Meanwhile, others conjectured that another motive of the Alibaba investigation is to curb the disorderly expansion of capital. While capital expansion—or generally speaking, capitalism—can improve efficiency and promote incentives, “disorderly expansion of capital”, a political term that is used to describe the illegal and strategic behaviors the entities have been committed and driven by the capital market to gain extra profits at the costs of the rivals, consumers, and other market participants, which may have a negative effect on the economy and society such as social and environmental externality, excessive competition, and inequality. We call this argument the motive of curbing the disorderly expansion of capital. Notably, the two motives are not mutually exclusive—the Alibaba investigation can be driven by both motives. While these two motives both predict that the stock prices of Alibaba will decrease following the start of the investigation, they generate different predictions about the stock market reaction to Alibaba’s rivals. The antitrust motive predicts that the stock prices of Alibaba’s rivals will increase in response to the Alibaba investigation. Meanwhile, the motive of curbing the disorderly expansion of capital predicts that their stock prices will decrease. To shed light on the debate, we examine the stock market reaction to Alibaba’s rivals regarding the investigation and explore which motive plays a major role.

Alibaba’s revenue is mainly generated through e-commerce, which accounted for approximately 75%

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of Alibaba’s revenue in 2020.\textsuperscript{41} SAMR’s investigation focused on Alibaba’s e-commerce business. Alibaba’s main rivals are JD.com, Pinduoduo, and VIPS.\textsuperscript{42} In Figure 6, we plot the CARs of Alibaba’s e-commerce rivals in China around the announcement of the start of the Alibaba investigation. The figure shows a positive effect of the Alibaba investigation on rival firms’ stock prices. Specifically, Table 3 shows seven-day CARs for JD.com, Pinduoduo, and VIPS of 7.83%, 18.71%, and 9.12%, respectively. The corresponding dollar value gains of JD.com, Pinduoduo, and VIPS are $9.99, $34.39, and $1.57 billion, respectively.\textsuperscript{43} And the CAAR for the three platforms is 11.89, with a J-Statistics at 3.2, which is at a significance level of 1%. Table 3 also lists the corresponding results for Alibaba and its rival’s CAR at the 5-day and 3-day event window. The results in the 5-day window are robust and consistent with what we observed in the 7-day window.

These results support the antitrust motive while not necessarily rejecting the motive of curbing the disorderly expansion of capital because they are consistent with the scenario in which the investigation is driven by both motives. However, the antitrust motive is stronger than the motive of curbing the disorderly expansion of capital (thus, the net effect is positive). One potential explanation for the positive market reaction to Alibaba’s rivals is that these rival firms may be affected by other positive shocks during the same time of the Alibaba investigation. We believe that this explanation is implausible because we do not see any major news reports in the public media. It is interesting to compare our findings with those of Bittlingmayer and Hazlett (2000). They examine rival firms’ stock market reactions to the antitrust investigations against Microsoft. Different from our findings, the authors find negative market reactions to Microsoft’s rivals.

\textbf{4.3 The Deterrence Effect of the Alibaba Investigation on Other Platforms Involving Exclusive Dealing}

The “either-or” conduct or exclusive dealing has prevailed in China’s internet platform sector for years. Suffering from the exclusive dealing conduct by Alibaba, an e-commerce rival of Alibaba, JD.com, has brought a private antitrust lawsuit against Alibaba in 2017, with judgment pending at the court of the first


\textsuperscript{42} We find that they do not have major extraneous events around the Alibaba investigation.

\textsuperscript{43} We adopt the market value of JD, Pinduoduo, and VIPS on Day -4 as the comparison benchmark (Source: Bloomberg).
instance.\textsuperscript{44} Prior to the Alibaba investigation, the market suspected that either-or conduct would not raise any antitrust legal risks as none of the companies had ever been fined for exclusive dealing. Therefore, even when SAMR announced its investigation of Alibaba, other firms that engaged in exclusive conducts did not really believe that the antitrust penalties would apply to them (despite serious reputational repercussions and some market concerns for Alibaba). It was not until the investigation into Alibaba ended with a substantial fine imposed on it that other companies began to believe that the hammer would eventually fall as a punishment for either-or behavior. Thus, at this point in time, it served as a deterrent to other Internet platforms engaged in exclusive dealing.

As suggested by the literature (e.g., Gordon and Squires, 2008), antitrust enforcement not only directly corrects the anti-competitive behavior of internet platforms and improves the competitive environment, but also serves as an example to other similarly situated firms by creating a deterrent effect. Figure 7 demonstrates the change in the CARs of Alibaba and several other internet platforms around the decision day of the Alibaba investigation (April 10, 2021). Interestingly, after the uncertainty regarding Alibaba’s penalties has been eliminated, Alibaba’s stock price experienced a significant upward move, with a CAR\([-1, 1]\) of 6.46\% (See Table 4). This result suggests that the outcome of the investigation seemed to have resolved the antitrust enforcement uncertainty for investors, and therefore restored their confidence in the long-run development of Alibaba. This phenomenon echoes what happened when Qualcomm received the antitrust fines imposed by the NDRC in 2014 for abusing market power in China, at which time Qualcomm’s stock price also rose nearly 4\% on the decision day, February 10, 2015.\textsuperscript{45}

Meanwhile, the other internet platforms (including BEKE, Meituan, and VIPS) underwent abnormal declines in their stock returns, with BEKE, Meituan, and VIPS suffering a CAR drop of 12.41\%, 5.83\%, and 20.76\% respectively on the decision day of the Alibaba investigation.\textsuperscript{46} The CAARs of these three

\textsuperscript{46} Additionally, we observe a further drop of 7.77\% in CAR for Meituan on April 13, 2021. It is potentially driven by the Antitrust Administrative Guidance Meeting on the same day, which was held by SAMR, Cyberspace Administration, and State Taxation Administration with 34 platform firms participating. On the meeting, the three agencies urged those 34 platform firms to conduct comprehensive self-inspection and rectify any potential anti-competitive conducts within one month. See Zeping Huang, April 13, 2021,“China Warns 34 Tech Firms to Curb...
platforms for three, five, and seven-day window are -8.47%, -11.50%, and -15.99% respectively, each of which is significant with J-statistics at 1% level (See Table 4). These platforms have all been reported in the media to have imposed different forms of exclusive dealing on their merchants.47 No deterrent effect was observed at the launch of the Alibaba investigation probably because of the uncertainty regarding the final results and penalty decisions during the investigation’s initial stage. Other platforms were not sure if they may be subject to similar antitrust scrutiny. However, at the end of the Alibaba investigation and when the decision has been made, all the uncertainty was resolved. Therefore, there was an immediate deterrent effect on other similarly situated platforms that were involved in exclusive dealing.

4.4 Comparing China and U.S. / EU Antitrust Investigations

To compare differences in the stock market reaction to antitrust investigations between China and the United States/European Union, we conduct an event study on antitrust investigations against U.S. internet platforms. We focus on 26 instances of launching an investigation on GAFA by U.S. and EU regulators since 2010 (see Appendix A). Figure 8 plots the CARs and CAARs of all the investigated platforms. In the left panel, the blue dots represent the CARs of Alibaba on the U.S. stock exchange. The right panel presents the CARs of the U.S. internet platforms and their CAARs (the connected red line).48 The figure shows a larger stock price change generated by the antitrust investigation in China. As indicated in Table 5, Alibaba’s CAR during the seven-day event window was \(-8.50\%\) (CAR \([-3, 3]\)). However, the CAARs of GAFA dropped by only 1.55% over the event window (CAAR \([-3, 3]\)). This result suggests that investor reaction toward the antitrust investigations initiated in China is quite different from those initiated in the United States/European Union.


48 Note that we do not include the investigations on Microsoft in our analysis because they occurred mainly in the early years before 2010, out of our observation window of interest. However, for the purpose of analyzing the impact of antitrust legislation and administration, Microsoft is included.
The striking difference in investor responses to antitrust regulation in China and the United States/European Union reminds us of the different enforcement styles across jurisdictions. Among these three jurisdictions, China usually implements administrative enforcement with quick decisions that often involve antitrust fines, while in the United States and the European Union, judicial remedies and administrative enforcement often take a longer time. In China, an antitrust investigation usually ends with an administrative penalty decision rather than a lawsuit. Although SAMR usually provides the option of administrative litigation in the penalty decision letter, few firms have filed for it in the antitrust field, owing to the reality of hidden costs and the low success rate of administrative litigations in China. Right on the day when it received the penalty decision from the SAMR, Alibaba posted on its official Weibo account, “today, we received the Penalty Decision from the State Administration of Market Regulation (SAMR). We sincerely accept and resolutely obey this punishment. We will strengthen our operation in accordance with the law, further strengthen our compliance system, rely on innovation and development, and better fulfill our social responsibility”. This is a typical case for almost all the investigated firms in China. Therefore, on the start date of the investigation, investors expect that stringent enforcement will be implemented. However, this is not the case in the antitrust investigations in the United States and the European Union, which often last for years, and the investigation outcomes and judges’ decisions are difficult to predict. The companies under investigation are often deemed not to have violated the law for lack of sufficient evidence. Even under the administrative enforcement regime in the European Union, the decision of an investigation from the respective authority could be reversed in further litigation. The news on June 15, 2022 that Qualcomm won the fight against the European Commission’s $1 billion antitrust fine in its appeal to the E.U. General Court serves as an illustrative example. So does the case of Ohio v. American Express, in which Amex lost in the trial court but won in the appeal. With these two completely distinct outcome expectations, it is obvious

49 In the penalty decision letter, it is usually written that “if the party concerned is not satisfied with the above administrative penalty decision, it may apply to the SAMR for administrative reconsideration within sixty days from the date of receipt of this administrative penalty decision letter; or file an administrative lawsuit in the People’s Court within six months from the date of receipt of this administrative penalty decision letter”.
that investors will certainly view an investigation launched in China as a serious and confirmed violation, while in the United States and the European Union, the outcome is undetermined.

Consistent with our observation on the launch of investigations, the reaction to the announcement of the investigation decision (i.e., the conclusion of the antitrust investigation) shows a similar pattern in Figure 9. In the left panel, we demonstrate the CARs (blue dots) of Alibaba on the U.S. stock exchange during the end of the investigation. The right panel presents the CARs for Google, Amazon, and Microsoft during the event window for five investigation closures (three for Google and one each for Amazon and Microsoft), and the CAARs per day. The stark contrast remains. The conclusion of the antitrust investigation in China had a short-term positive effect on the CARs of the internet platform, soaring 6.58% (CAR $−3, 0$) on the conclusion day and staying above 4.64% from Days 0–3. This result may be due to the removal of uncertainty, as explained earlier. The results for Microsoft, Google, and Amazon are quite different. As illustrated above, the start of investigations in the European Union/United States did not cause any market turmoil because of the longer enforcement time and ambiguous results. However, at the end of the investigations, when the European Commission fined Microsoft $730 million; and Google, €2.42 billion, €4.34 billion, and €1.49 billion on various instances; the CAARs fell by 2.22% on Day 0 (the end date of the investigation) and remained stable in the following days.53


On November 10, 2020, the European Commission stated that its first phase of investigation into alleged unfair competition by Amazon had concluded, and it announced the opening of its second formal antitrust investigation focusing on Amazon’s targeting of its prime shopping cart (Buy Box) and Prime membership features. See Statement of
5 The General Impact of Antitrust Legislation on Firm Market Value

In Section 4, we mainly focus on the impact of antitrust enforcement targeting individual firms. In this section, we discuss how antitrust legislation generally influences the whole internet platform industry in China compared with the impacts of antitrust legislation in the European Union and the United States. Since the enactment of a law or regulatory provision is usually preceded by a draft version for public comment, we examine the impacts of the draft and official versions separately. The Chinese internet platforms that we consider are Alibaba, JD.com, Meituan, and Tencent. Pinduoduo is excluded from this analysis to avoid the contamination effect caused by its third-quarter financial report, which was issued two days after the legislation and was much stronger than expected. The U.S. internet platforms are GAFA and Microsoft.

The left panel of Figure 10 plots the CARs of each Chinese platform when the draft version of the Antitrust Guidelines for Platform Economy (hereinafter, “Platform Antitrust Guidelines”) was released on November 10, 2020. The right panel shows the CARs of the U.S. internet platforms in response to the EU and U.S. legislation, including the draft versions of the EU Digital Markets Act, Digital Services Act, and Platform Competition and Opportunity Act in the United States. We find that the market reaction to the Chinese legislation is much stronger than that to the EU and U.S. legislation. As shown in Table 6, the mean (median) seven-day CARs of the Chinese platforms is −10.09% (−9.64%). By contrast, U.S. firms are virtually unaffected (0.22%) on Day 0, and their seven-day CAAR (i.e., CAAR [−3, 3]) is 0.42%.

Figure 11 demonstrates that the market reaction toward the official version of the legislation in China is milder, while the reaction remains stable in the European Union and the United States. The average seven-day CARs in China are approximately 2.72% (as opposed to −10.09% for the draft version), while they are at 0.89% (CAAR [−3, 3]) in the United States (See Table 6). Figure 10 suggests that the market expected the Chinese legislation to generate more radical regulation, partly owing to stronger enforcement by the Chinese


54 As shown in Appendix A, this is the only legislation that have been published for the platform industry in China.

55 Given that our data is only available through March 31, 2022, the event of the official enactment of the Digital Services Act (April 23, 2022) was not included in the analysis.
competition agency or the stringent scrutiny imposed by the legislation itself. Before the official version was disclosed, the negative shock from the legislation in China had already been fully resolved by the market. Therefore, when the official version was enacted, the market reflected some slightly positive effects given the removal of some strict provisions. However, for the EU and U.S. legislation, the market reaction was slightly positive for both the draft and official versions, which suggests that a lesser uncertainty shock came with the EU and U.S. legislation. Furthermore, the legislation in the European Union and the United States, especially the draft version, may encounter difficulties before being finalized.56

Moreover, the 10.09% drop in CAAR for the Chinese internet platforms, as a result of market reaction toward the release of the draft for “the Platform Antitrust Guidelines” in China, may serve the motive of regulatory authority to develop a healthy competitive market for the industry. This is also consistently reflected by the first announcement of “curbing the disorderly expansion of capital” during the meeting of the Political Bureau of the Central Committee of the CPC, which was held just one day after the release of the draft for “the Platform Antitrust Guidelines”.57

6 Robustness Checks

6.1 Is the Milder Response to the EU/U.S. Regulations due to the Longer History of Enforcement?

One may be concerned that antitrust enforcement against internet platforms has been implemented in Europe and the United States since the 2000s (by contrast, strict antitrust enforcement against internet platforms in China only started in 2020), and that dozens of investigations on GAFA and Microsoft have been conducted to date, which may seem to be the main driving force for the market’s insensitivity to enforcement in Europe and the United States. To determine whether this response fatigue effect exists, we limit our sample for the launch of antitrust investigations on U.S. and European firms to the early years (i.e.,

2010–2015), for a total of four investigation events. As we can see from Figure 12, the response fatigue effect is minor: The market reaction toward the launch of antitrust enforcement in the European Union and the United States remains moderate, at less than −4% of CAARs, varying from −3.50% to −2.23% for Days 0–3. Although the magnitude is slightly larger than that found in Figure 8 (−3.50% ~ −2.23% vs. −1.67% ~ −1.38%), the discrepancy between the market reaction to China’s and the U.S./EU investigations is still salient.

6.2 Alternative Definitions of the Estimation Window, Event Window, and Market Indices

To ensure that the results above are not sensitive to the selection of the estimation windows, event windows, and market indices, we adopt alternative durations of the window as well as alternative market indices and redo the event study analysis. In Figure 13, we plot the CAARs of the market response toward Chinese antitrust investigations and legislation, as in Figures 8–12, while varying the estimation window. As shown in Figure 13, when we vary the estimation window from 120 days to 90 days and 150 days, our results remain quite stable.

Our results also remain robust when we reverse the market index used for stocks traded on the Hong Kong Stock Exchange and the stocks traded on the U.S. stock exchanges as shown in Figure 14. It is easy to see that the selection of the estimation windows, event windows, or market indices is not an issue in our model specification.

7 Conclusions

This study examines how antitrust enforcement affects the market value of firms and how investors’ interpretations and expectations of antitrust enforcement and legislation in different jurisdictions affect the magnitude of such effects in the case of internet platform companies. Based on daily stock market data of internet platform firms and applying the event study analysis method, we compare a total of 39 events of antitrust legislation and investigations in China and the European Union/United States. By comparing the

58 These four events are event No. 9, No. 10, No. 11 and No. 27 as listed in Appendix A.
59 Due to the space limits, we don’t present the results exhaustively. The other results are available upon request.
fluctuations of CARs for each firm before and after the relevant event, we find that the launch of an investigation in China causes a more significant negative impact on the respective firm, leading to a significant drop in its CARs. However, this effect is almost negligible in the case of EU and U.S. investigations. The reason is that in the European Union and the United States, where judicial remedies and administrative enforcement take a longer time, the outcome of an investigation is largely unpredictable. By contrast, in China, where administrative enforcement is common, the strong enforcement capacity of the SAMR and the potential cost of administrative litigation lead companies to refrain from contesting the investigation decisions. As such, the announcement of the commencement of an investigation usually implies that an antitrust administration decision is a likely result. The conclusion of an investigation in China brings a large surge in the investigated firm’s stock price because of the resolution of uncertainty. By contrast, in the United States, the conclusion of an investigation with penalties leads to a negative impact on the market value of the investigated firm.

Overall, our results suggest that antitrust enforcement in China promotes a healthy competition environment by correcting anticompetitive conduct, as evidenced by the positive impact on the stock prices of the competitors of the investigated firm. Antitrust enforcement also serves as a deterrent to companies that engage in similar anti-competitive behaviors. In addition, our results show that there is a difference in the reaction of market investors toward antitrust legislation in China and the United States. Our results indicate that in China, the draft versions of the legislation for comments bring greater market volatility, partly owing to the market expectation of stronger enforcement capacity for the Chinese agency or more stringent scrutiny. Because the negative shock had been fully absorbed by the market when the draft version was released, the market usually displays slightly positive effects when the official version is disclosed, especially when accompanied by the removal of some strict clauses from the draft. However, regarding the reaction toward antitrust legislation in the European Union and the United States—regardless of whether it is a draft or the official version—the reaction is much milder, with a slightly positive CAAR observed for the examined firms. As robustness checks, we also conduct a series of tests, and our results remain stable in alternative settings.
Acknowledgments:

We appreciate the comments and suggestions from participants in seminars and conferences held at the Central University of Finance and Economics, East China Normal University, and the Renmin University of China, Jieying Hong, Yuecheng Jin, Heng Ju, Sanxi Li, Xiaoxi Li, Zening Li, Ping Lin, Tong Wang, Bing Ye, Jianyu Yu, and Xiaolan Zhou. We also appreciate the research assistance from Chenxi Li, Rita Li, Xiaoyan Liu, Jinglun Tang, Zichao Wang, Jingyi Xing, Zhongyu Yin, and Shunyi Zhao. None of the institutions above necessarily shares the views expressed in this article and we retain sole responsibility for any errors.
References


Table 1: Major Antitrust Enforcement Events in China, the European Union, and the United States

<table>
<thead>
<tr>
<th></th>
<th>Administration and Legislation</th>
<th>Investigations</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>1. Platform Antitrust Guidelines (Draft, 11/10/2020)</td>
<td>1) Alibaba (Start: 12/24/2020)</td>
</tr>
<tr>
<td></td>
<td>2. Platform Antitrust Guidelines (Official, 02/07/2021)</td>
<td>2) Alibaba (End: 04/10/2021)</td>
</tr>
<tr>
<td>United States</td>
<td>1. The EU Digital Markets Act and the Digital Services Act (Draft, 12/15/2020)</td>
<td>1) Six events for Amazon (EU/US)</td>
</tr>
<tr>
<td>and European Union</td>
<td>2. The EU Digital Markets Act (Official, 03/25/2022)</td>
<td>2) Thirteen events for Google (EU/US)</td>
</tr>
<tr>
<td></td>
<td>3. Platform Competition and Opportunity Act (Draft, 06/11/2021)</td>
<td>3) Six events for Facebook (EU/US)</td>
</tr>
<tr>
<td></td>
<td>4. Platform Competition and Opportunity Act (Official, 06/24/2021)</td>
<td>4) Two events for Apple (US)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5) One event for Microsoft (US)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6) Three events for GAFA (US)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>26 events started</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 events ended</td>
</tr>
</tbody>
</table>

Notes: To avoid contamination effects, two events (the Administrative Guidance Meeting for Internet Platform Companies in China and the start of the investigation on Meituan) are excluded from the event analysis; this is because the date of the Administrative Guidance Meeting (04/13/2021) was three days after the end date of the Alibaba investigation, and Meituan had a new stock issuance on the Hong Kong Stock Exchange on April 20, 2021, which was only six days before the probe of the State Administration for Market Regulation’s investigation into Meituan (04/26/2021). For a detailed list of the events, please see Appendix A.
Table 2 Descriptions and Basic Information for the US and Chinese Giant Internet Platforms

<table>
<thead>
<tr>
<th>Company</th>
<th>Country</th>
<th>Annual Revenue ($ million, 2021)</th>
<th>GMV or GTV ($ million, 2021)</th>
<th>Founding Date</th>
<th>Listing Date</th>
<th>Listing Exchange</th>
<th>Stock Market Value ($ million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple</td>
<td>US</td>
<td>$365,817</td>
<td>NA</td>
<td>April 1, 1976</td>
<td>December 12, 1980</td>
<td>Nasdaq</td>
<td>$2,401,774</td>
</tr>
<tr>
<td>Microsoft</td>
<td>US</td>
<td>$168,088</td>
<td>NA</td>
<td>April 4, 1975</td>
<td>March 13, 1986</td>
<td>Nasdaq</td>
<td>$1,843,964</td>
</tr>
<tr>
<td>Alphabet Inc. (Google)</td>
<td>US</td>
<td>$257,637</td>
<td>NA</td>
<td>September 4, 1998</td>
<td>August 19, 2004</td>
<td>Nasdaq</td>
<td>$1,343,141</td>
</tr>
<tr>
<td>Amazon</td>
<td>US</td>
<td>$469,822</td>
<td>NA</td>
<td>July 1994</td>
<td>May 15, 1997</td>
<td>Nasdaq</td>
<td>$1,220,673</td>
</tr>
<tr>
<td>Meta (Facebook)</td>
<td>US</td>
<td>$117,929</td>
<td>NA</td>
<td>February 4, 2004</td>
<td>May 18, 2012</td>
<td>Nasdaq</td>
<td>$348,629</td>
</tr>
<tr>
<td>Tencent</td>
<td>China</td>
<td>$86,840</td>
<td>NA</td>
<td>November 1998</td>
<td>June 16, 2004</td>
<td>Hong Kong</td>
<td>$252,644</td>
</tr>
<tr>
<td>Alibaba</td>
<td>China</td>
<td>$109,480 $1,239,000</td>
<td></td>
<td>June 28, 1999</td>
<td>September 19, 2014</td>
<td>New York/Hong Kong</td>
<td>$171,601</td>
</tr>
<tr>
<td>Meituan</td>
<td>China</td>
<td>$27,772</td>
<td>NA</td>
<td>March 2010</td>
<td>September 20, 2018</td>
<td>Hong Kong</td>
<td>$97,367</td>
</tr>
<tr>
<td>JD.com</td>
<td>China</td>
<td>$147,534 $510,078</td>
<td></td>
<td>June 18, 1998</td>
<td>May 2014</td>
<td>Nasdaq/Hong Kong</td>
<td>$59,247</td>
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<tr>
<td>PDD</td>
<td>China</td>
<td>$14,743 $383,000</td>
<td></td>
<td>September 2015</td>
<td>July 2018</td>
<td>Nasdaq</td>
<td>$56,215</td>
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<tr>
<td>BEKE</td>
<td>China</td>
<td>$12,527 $604,700</td>
<td></td>
<td>April 2018</td>
<td>August 13, 2020</td>
<td>New York</td>
<td>$12,353</td>
</tr>
</tbody>
</table>

Note: 1. The table is sorted by country and stock market value from largest to smallest as of October 25, 2022;
2. For those in RMB, convert them into dollars using the average exchange rates for 2021, USD: RMB=6.45:1;
3. For those in HKD, convert them into dollars using the exchange rate on October 25, 2022, USD: HKD =7.85:1
4. Alibaba and JD.com have both officially listed on the Hong Kong Stock Exchange on November 26, 2019, and June 18, 2020, respectively;
Table 3. Short-run Effect of the Launch of Alibaba Investigation on its Rivals

<table>
<thead>
<tr>
<th>Window</th>
<th>Alibaba’s CAR</th>
<th>JA.com</th>
<th>Pinduoduo</th>
<th>VIPS</th>
<th>CAAR</th>
<th>J-Stat</th>
</tr>
</thead>
<tbody>
<tr>
<td>[-3, +3]</td>
<td>-8.50</td>
<td>7.83</td>
<td>18.71</td>
<td>9.12</td>
<td>11.89***</td>
<td>3.20</td>
</tr>
<tr>
<td>[-2, +2]</td>
<td>-9.38</td>
<td>5.40</td>
<td>12.94</td>
<td>2.13</td>
<td>6.82*</td>
<td>1.64</td>
</tr>
<tr>
<td>[-1, +1]</td>
<td>-13.92</td>
<td>-2.78</td>
<td>2.73</td>
<td>0.07</td>
<td>0.01</td>
<td>0.16</td>
</tr>
</tbody>
</table>

Note: CAR as percentiles; one-sided test, significant levels ***1%, **5%, *10%.

Table 4. Deterrence Effect of the Alibaba Investigation (End) on the Other Platforms that Conducted Exclusive Agreements

<table>
<thead>
<tr>
<th>Window</th>
<th>Alibaba’s CAR</th>
<th>CAR of Platforms engaging exclusive agreements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>BEKE</td>
</tr>
<tr>
<td>[-1, +1]</td>
<td>6.46</td>
<td>-5.21</td>
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</tbody>
</table>

Note: CAR as percentiles; one-sided test, significant levels ***1%, **5%, *10%.

Table 5. Market reaction towards investigations

<table>
<thead>
<tr>
<th>Window</th>
<th>Start of Investigation</th>
<th>End of Investigation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>China (Alibaba) (n = 35)</td>
<td>EU/US (n = 35)</td>
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<tr>
<td></td>
<td>CAR</td>
<td>CAAR</td>
</tr>
<tr>
<td>[-3, +3]</td>
<td>-8.50</td>
<td>-1.55*</td>
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<td>[-2, +2]</td>
<td>-9.38</td>
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<td>[-1, +1]</td>
<td>-13.92</td>
<td>-1.45**</td>
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Note: CAR as percentiles; one-sided test, significant levels ***1%, **5%, *10%.
Table 6. Market reaction towards antitrust legislation

<table>
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<tr>
<th>Window</th>
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<th>Official version</th>
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<tbody>
<tr>
<td></td>
<td>China (n = 4)</td>
<td>EU/US (n = 10)</td>
<td>China (n = 5)</td>
<td>EU/US (n = 10)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CAAR</td>
<td>J-Stat</td>
<td>CAAR</td>
<td>J-Stat</td>
<td>CAAR</td>
<td>J-Stat</td>
</tr>
<tr>
<td>[-3, +3]</td>
<td>-10.09**</td>
<td>-1.82</td>
<td>0.42</td>
<td>0.30</td>
<td>2.72</td>
<td>1.38</td>
</tr>
<tr>
<td>[-2, +2]</td>
<td>-12.19***</td>
<td>-5.52</td>
<td>0.71</td>
<td>0.60</td>
<td>-0.43</td>
<td>-0.58</td>
</tr>
<tr>
<td>[-1, +1]</td>
<td>-16.15***</td>
<td>-13.85</td>
<td>1.02</td>
<td>1.12</td>
<td>-1.80</td>
<td>-1.06</td>
</tr>
</tbody>
</table>

Note: CAR as percentiles; one-sided test, significant levels ***1%, **5%, *10%.

Figure 1 Trends in the Stock Prices of Chinese Internet Companies

Notes: The stock price change is calculated as follows: (closing price on the reporting day – closing price on January 2, 2015)/closing price on January 2, 2015*100%. For the stocks that are newly listed after January 2, 2015, namely Meituan and Pinduoduo, their stock price changes are calculated relative to their IPO-day closing price. For Meituan and Tencent, the stock price information from the Hong Kong Exchange is adopted, while for Alibaba, JD.com, and Pinduoduo, the stock price information from the U.S. Exchange is employed. The upper panel presents the stock price changes for the top five firms from January 2, 2015, to December 31, 2021. As a zoom-in, the lower panel displays the stock price changes from January 2, 2020, to December 31, 2021.
Figure 2: Market Values of the Top 10 Chinese Internet Platforms

Notes: The bars indicate the market value (in millions of U.S. dollars) of the top 10 internet platforms in China as of June 30, 2021. The data are from Capital IQ Database.
Figure 3: Market Values of the Top 20 Global Internet Platforms

Notes: The bars indicate the market value (in millions of U.S. dollars) of the top 20 internet platforms worldwide as of June 30, 2021. The data are from Capital IQ Database.
Figure 4: Comparison of the Stock Prices of Chinese Internet Companies in Hong Kong and the U.S. Stock Exchange

Notes: The source is Bloomberg Database. The stock price change is calculated as follows: (closing price on the reporting day – closing price on September 30, 2020)/closing price on September 30, 2020*100%. The three red vertical dashed lines represent the three legislative and administrative events in China, namely, the release of the Antitrust Guidelines for Platform Economy (Draft for Comments) on November 10, 2020; the release of the Antitrust Guidelines for Platform Economy (Official Version) on February 7, 2021; and the Administrative Guidance Meeting for Internet Platform Companies in China on April 13, 2021.
Figure 5: Short-run Effect of Launching an Antitrust Investigation against Alibaba on its Own Market Value

Notes: The cumulative abnormal returns of Alibaba were estimated based on the market model in the event study with the stock price information from the U.S. stock exchange. The market index used for Alibaba is the CRSP value-weighted index. The estimation window is set to 130 days before the event to 30 days before the event. The length of the event window is 7 trading days, including the event day, and 3 days before and after the event day.
Figure 6: Short-run Effect of the Launch of Alibaba Investigation on its Rivals

Notes: The cumulative abnormal returns of Alibaba, JD.com, Pinduoduo, and VIPS were estimated based on the market model in the event study, in which the stock price information was obtained from the U.S. stock exchange. The market index used is the CRSP value-weighted index. The estimation window is set to 130 days before the event to 30 days before the event. The length of the event window is 7 trading days, including the event day, and 3 days before and after the event day.
Notes: The cumulative abnormal returns of Alibaba, BEKE, Meituan, and VIPS were estimated based on the market model in the event study, in which the stock price information for Meituan was obtained from the Hong Kong exchange, while the stock price information for Alibaba, BEKE, and VIPS was obtained from the U.S. stock exchange. The market index used for Meituan (Alibaba, BEKE, and VIPS) is the Hang Seng Index (CRSP value-weighted index). The estimation window is set to 130 days before the event to 30 days before the event. The length of the event window is 7 trading days, including the event day, and 3 days before and after the event day.
Figure 8: Comparison of Market Reaction toward the Start of the Investigation

Notes: The event for China is the launch of the Alibaba investigation, the stream of blue dots in the left panel represents the cumulative abnormal returns (CARs) of Alibaba on the U.S. (ADR) exchange. The event for the United States includes the launch of investigations for Google, Apple, Facebook, and Amazon (GAFA; No. 4-6), Google (No. 8-12, 16-20), Amazon (No. 7, 27-29, 31), Facebook (No. 21-26), Apple (No. 32, 33). The 35 streams of blue dots in the right panel represent the CARs of GAFA during their observation window of each event. The market index used in the event study is the CRSP value-weighted index.
Figure 9: Comparison of Market Reaction toward the End of the Investigation

Notes: The event for China is the conclusion of the Alibaba investigation. The stream of blue dots in the left panel represents the cumulative abnormal returns (CARs) of Alibaba on the U.S. (ADR) exchange. The event for the U.S. includes the closing of investigations for Google (No. 13-15), Amazon (No. 23), and Microsoft (No. 3). The five streams of blue dots represent the CARs of Google, Amazon, and Microsoft during the observation window of each event. The market index used in the event study is the CRSP value-weighted index.
Notes: The event for the Chinese companies is Event No. L1 as presented in Appendix A. The Chinese companies included in the sample (and the corresponding exchanges where the stocks of these companies are traded [in brackets]) are Alibaba (U.S. exchanges), JD.com (U.S. exchanges), Meituan (Hong Kong exchange), and Tencent (Hong Kong exchange). Pinduoduo was excluded from this analysis because of the contamination effect caused by its much better-than-expected third-quarter report disclosed two days after the event. The events for the U.S. companies are Event Nos. L3 and L6 as presented in Appendix A. The U.S. companies included in the sample are Amazon, Apple, Facebook, Google, and Microsoft. The event study is conducted with a setting similar to those in Figures 5–7. The market index for the stocks traded on the U.S. stock exchanges is the CRSP value-weighted index. The market index for the stocks traded on the Hong Kong exchange is the Hang Seng Index.
Notes: The event for the Chinese companies is Event L2 as presented in Appendix A. The Chinese companies included in the sample (with the corresponding exchanges where the stocks of these companies are traded in brackets) are Alibaba (U.S. exchanges), JD.com (U.S. exchanges), Meituan (Hong Kong exchange), Pinduoduo (U.S. exchanges), and Tencent (Hong Kong exchange). The events for the U.S. companies are Events L4 and L7 as presented in Appendix A. The U.S. companies included in the sample are Amazon, Apple, Facebook, Google, and Microsoft. The event study is conducted in a setting similar to those in Figure 5–7. The market index for the stocks traded on U.S. exchanges is the CRSP value-weighted index. The market index for the stocks traded on the Hong Kong exchange is the Hang Seng Index.
Figure 12: Robustness Check on Response Fatigue Effect (Only including the start of investigations within the first five years)

Notes: This figure compares the investor response to the start of investigations that happened in China and those in the European Union/United States for the earlier years (2010–2015). The event for China is the launch of the Alibaba investigation. The stream of dots represents the cumulative abnormal return (CAR) of Alibaba on the U.S. (ADR) exchange. The events for the U.S. companies include the launch of investigations against Amazon (No. 27) and Google (Nos. 9–11). The event study is conducted in a setting similar to those in Figures 5–7. The market index used in the event study is the CRSP value-weighted index.
Figure 13: Robustness Check on an Alternative Estimation Window

Notes: The four figures above are conducted in a setting exactly the same as those in the left panel of Figures 8–11, except that the estimation window varies from 130 days to 150 days, and 180 days.
Notes: The four figures above are conducted in a setting exactly the same as those in the left panel of Figures 8–11, except for changing the market indices used in the event study (Correct Market Index means we use the Hang Seng Index as the market index for stocks traded on the Hong Kong stock exchange and use the CRSP value-weighted index as the market index for stocks traded on the U.S. exchanges. Reversed Market Index means we reversed the market indices used above for stocks traded on the Hong Kong exchange and stocks traded on the U.S. exchanges).
Appendix A

List of Events

Overall, we include 39 events in the event study analysis, which comprise 6 antitrust legislation (2 for China, 4 for the European Union and the United States) and 33 antitrust investigations (2 for Chinese platforms, 31 for the U.S. platforms). The dates and the details are listed below:

□ Legislation:

L1. November 10, 2020: The release of the Antitrust Guidelines for Platform Economy (Draft for Comments);
L2. February 7, 2021: The release of the Antitrust Guidelines for Platform Economy (Official Version);
L3. December 15, 2020: The EU Digital Markets Act and Digital Services Act (Draft for Comments);
L4. March 25, 2022: The EU Digital Markets Act (Official Version);
L5. June 11, 2021: The Platform Competition and Opportunity Act of 2021 (Draft for Comments);

□ Investigations:

1. December 24, 2020: The launch of the antitrust investigation into Alibaba for its “either-or policy;”
2. April 10, 2021: The conclusion of the antitrust investigation into Alibaba for its anti-competitive conduct;
3. March 6, 2013: Microsoft was fined approximately $730 million for non-compliance with browser choice commitments in the European Union;
4. June 3, 2019: the U.S. government initiated a wide-ranging probe into Google, Apple, Facebook, and Amazon (GAFA) for their misuse of their massive market power;
7. December 24, 2020: The EU antitrust investigation into Amazon for its anti-competitive conduct;
8. October 10, 2020: The antitrust investigation into Google for its anti-competitive conduct;
9. November 30, 2010: The European Union launched an antitrust investigation against Google for abusing its dominant position in the online search market;
10. March 13, 2013: The European Union sued Google for abusing its monopoly power;
11. April 15, 2015: The European Union launched an antitrust investigation on Google’s Android system;
12. July 14, 2016: The European Union launched an investigation on Google for its advertising business;
15. March 20, 2019: The European Union fined Google 1.49 billion euros for its investigation into Google’s advertising business;
16. September 10, 2019: The United States launched an investigation on Google for its advertising business;
17. October 20, 2020: The Department of Justice sued Google for abusing its monopoly power in online search and related markets;
18. December 15, 2020: Texas and nine other states launched a lawsuit against Google for its advertising technology services;
19. December 17, 2020: Thirty-eight state attorneys general filed a lawsuit against Google for illegally monopolizing the internet search and search advertising markets;
20. June 18, 2021: The European Union launched an antitrust investigation on Google’s online display advertising technology services;
21. February 7, 2019: Germany’s antitrust agency accused Facebook of abusing its dominant position;
22. August 20, 2019: The European Union started an antitrust investigation on Facebook’s cryptocurrency Libra;
23. October 22, 2019: The United States launched an antitrust investigation against Facebook for abusing its dominance in social media;
24. December 9, 2020: The Federal Trade Commission (FTC) and 48 states started an antitrust investigation on Facebook for its killer acquisition behavior;
25. June 4, 2021: The European Union and the United Kingdom started an antitrust investigation against Facebook for its unfair competition with advertisers using customer data;

26. August 19, 2021: The FTC renewed the antitrust lawsuit against Facebook for its killer acquisition behavior;

27. June 11, 2015: The European Union launched an antitrust investigation on Amazon’s e-book business;

28. June 3, 2019: The U.S. Department of Justice and the FTC heightened the antitrust scrutiny on Amazon for abusing its dominant position in the online retail market;

29. July 17, 2019: The European Union announced an antitrust investigation on Amazon’s behavior toward third-party sellers;

30. November 10, 2020: The European Union closed the investigation on Amazon’s behavior toward third-party sellers;

31. May 25, 2021: Washington, D.C.’s attorney general sued Amazon for artificially raising the prices of products;

32. May 13, 2019: The U.S. Supreme Court allowed an antitrust lawsuit against Apple’s App Store to proceed;

33. June 16, 2020: The European Union opened two antitrust investigations against Apple’s anti-competitive conduct on app stores and Apple pay.

Note: Only Event Nos. 3, 13–15, and 30 are treated as conclusions of investigations; all the other investigation events are treated as the launch of investigations.