The Impact of Data Cross-Border Flow Policies on Cross-Border Digital M&As: Evidence from Chinese Firms

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Abstract

In the era of the digital economy, cross-border business activities are increasingly reliant on large-scale data flows, making the governance of cross-border data a central policy issue worldwide. Many countries have introduced varying degrees of data cross-border flow restrictions, raising the question of how such policies affect firms' international operations. Using the OECD's Digital Services Trade Restrictiveness Index (DSTRI) as a data source, this paper applies the entropy-weight method to construct a Cross-Border Data Flow Restriction Index (CDFRI) for major economies from 2014 to 2022, and then empirically examines how such restrictions reshape the cross-border digital merger and acquisition (M&A) activity of Chinese firms by employing negative binomial regression models, Probit models, and moderated regression analysis. The results reveal that higher levels of data cross-border flow restrictions significantly inhibit digital M&A in two ways: on the cost side, stricter restrictions increase transaction and compliance costs, leading to fewer completed deals, lower completion rates, and longer deal durations; on the benefit side, they reduce the expected value of digital M&A, resulting in fewer initiated deals and a higher propensity for joint ventures over wholly-owned ones. Further evidence shows that this inhibitory effect is amplified when the target firm is more data-sensitive, due to higher exposure to localization, audit, and liability risks, and when the target is more knowledge-intensive, because restrictions hinder algorithm transfer and post-merger knowledge integration. These findings indicate that data cross-border flow restrictions do not merely increase the costs of doing business, but fundamentally reshape the feasibility and governance structure of digital M&A.

Keywords: Data Cross-Border Flow; Cross-Border Digital M&As; Data Regulation; Digital Economy

1. INTRODUCTION

The rapid advancement of digital technologies and the increasing demand for digital products

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and services have catalyzed an investment boom in the digital economy. This surge has not only injected new momentum into global investment growth but has also enabled digital foreign direct investment, particularly cross-border digital mergers and acquisitions (M&As), to maintain robust growth even as overall foreign direct investment (FDI) has stagnated.

This trend is driven by two parallel developments. First, digital multinational enterprises (MNEs) are expanding rapidly and investing actively worldwide. For example, between 2010 and 2015, the number of digital technology firms in the United Nations Conference on Trade and Development (UNCTAD) ranking of the top 100 global MNEs increased from 13 to 19. Their share of the top 100's total assets and sales doubled to approximately 20 percent, while their share of market capitalization reached 26 percent. By the end of 2019, seven of the world's ten largest companies by market capitalization were digital firms, substantially reshaping the trajectory of global business [1]. Second, numerous traditional enterprises are now leveraging digital investment to facilitate digital transformation [2]. As a key pathway for firms to reposition themselves and compete in the digital era, digital M&A has become an effective tool for this transformation, contributing to a rapid escalation of such deals worldwide. According to the Boston Consulting Group (BCG), the value of global digital M&A has risen steadily since the 2008 financial crisis, reaching 658 billion US dollars in 2017, more than twice its 2013 level [3].

Underpinning this wave of digital acquisitions is the recognition of data as a strategic resource, over which firms increasingly compete. Although the cross-border flow of data is essential for transnational economic activities, it has also created significant challenges for individual privacy, corporate commercial interests and national security. The security implications inherent in data flows are challenging traditional conceptions of sovereignty, prompting governments worldwide to strengthen data governance frameworks and assert data sovereignty. As a result, an increasing number of countries and regions have introduced regulations, varying in form and stringency, to restrict cross-border data flows. For firms engaged in digital M&A, this has created a complex regulatory landscape in host countries that has frequently resulted in stalled or abandoned transactions.

A systematic understanding of how such regulations on cross-border data flows shape M&A behaviour is therefore of considerable theoretical and practical importance. Focusing on the cross-border digital M&A activities of Chinese firms, this paper investigates whether and how host-country data flow policies influence corporate acquisition decisions. It thereby provides empirical evidence on the broader impact of data protection regimes on corporate internationalization strategies..

2. RELATED WORK

This study aims to investigate the mechanisms through which cross-border data flow restrictions influence the cross-border digital M&A activities of Chinese firms. To construct the analytical framework, this section systematically reviews three relevant yet analytically distinct academic domains: first, the evolution and divergence of cross-border data flow policies; second, the documented economic effects of these regulatory measures; and third, the characteristics of cross-border digital M&A in the digital era, with particular attention to its motivations and determinants.

2.1 Research on Data Cross-Border Flow Policies and Governance Models

Cross-border data flow is widely regarded as the "lifeblood" of the digital economy,

underpinning global value chains (GVCs) [4] and international economic activity. As the strategic value of data becomes increasingly salient, the global data governance paradigm is undergoing a profound transformation. Research in academia and policy indicates a global shift away from a market-driven norm of free flow toward a fragmented landscape centered on data sovereignty [5]. This growing regulatory heterogeneity across jurisdictions has created a new form of institutional barrier for multinational enterprises [6].

Recent literature has examined the drivers and dynamics of this shift, revealing that global governance is evolving from a simple "open vs. restricted" binary into a complex trilemma [7]. Broadly, the literature identifies three ideal types of governance models. The first is the market- and privacy-oriented model, exemplified by the European Union's General Data Protection Regulation (GDPR) [8], which aims to safeguard personal data privacy while regulating market competition. This logic was evident in the EU's review of the Google-Fitbit merger, where the main concerns were privacy risks and the potential for data-based market monopolization [9]. The second is the sovereignty- and development-oriented model, represented by emerging economies such as Vietnam [10], India [11], and Indonesia [12]. Here, data is treated as a strategic national resource, and data localization requirements are frequently adopted to promote domestic digital infrastructure development [6]. The third is the security- and geopolitics-oriented model, represented by the Committee on Foreign Investment in the United States (CFIUS), where the primary focus is national security. The review scope of CFIUS has expanded to include transactions involving critical technologies and large-scale sensitive personal data, with heightened scrutiny of the acquirer's nationality, reflecting distinct geopolitical considerations [13].

2.2 Research on the Economic Impact of Data Cross-Border Flow Regulations

With the implementation of data cross-border flow regulation policies worldwide, scholars have begun to assess their impact on both macroeconomic activity and firm-level behavior. At the macro level, existing research confirms that data cross-border flow restrictions function as a new form of trade barrier. Empirical evidence shows that stricter data regulations significantly inhibit international trade—particularly in digital services [14]—and weaken the stability and efficiency of global value chains [4]. At the investment level, strong regulations such as the General Data Protection Regulation have been found to create a "chilling effect" on innovation ecosystems. For example, Jia et al. (2021) find that the implementation of the GDPR significantly reduced technology venture capital investment in European data-intensive start-ups [8].

At the micro level, the literature indicates that data cross-border flow regulation imposes substantial direct operational and compliance costs. Data localization requirements prevent multinational enterprises from using integrated global cloud services, forcing them to duplicate costly data center infrastructure in each regulating country [6], which leads to the fragmentation of global operations. These compliance costs place a disproportionate burden on small and medium-sized enterprises (SMEs), while reinforcing the market dominance of large tech platforms that possess superior legal and technical capacity.

Furthermore, recent studies have explored the effects of these regulations on corporate innovation. The literature shows that strict regulatory environments compel firms to reallocate limited research and development resources away from exploratory radical innovation toward defensive incremental innovation and compliance-oriented innovation [15]. In addition, vague

regulatory language and legal uncertainty constitute a significant source of transaction costs [16]. When firms are unable to anticipate future compliance risks, the rational response may be to delay or abandon investment plans. Finally, the 2020 *Schrems II* ruling of the Court of Justice of the European Union [17] fundamentally challenged the legal basis of transatlantic data transfers by shifting the burden of proof for regulatory compliance directly onto corporations [18-19], substantially increasing their legal and operational constraints.

2.3 Research on the Motives and Influencing Factors of Digital M&A

Developing in parallel with the literature on data cross-border flow regulation is the strategic management literature on digital mergers and acquisitions. While traditional international investment theories emphasize the acquisition of complementary resources and organizational capabilities [20], research in strategic management and information systems shows that the fundamental motives for digital M&As have undergone a qualitative transformation. The core objective shifts from acquiring tangible physical assets to rapidly obtaining and integrating the target firm's digital knowledge base [21-22].

The literature elaborates on this core motive along two key dimensions. The first dimension is the pursuit of data synergy [22]. The value of a digital M&A lies not in the simple summation of two firms but in the deep integration of their datasets. Firms expect such integration to enable more accurate artificial intelligence models, achieve finer-grained user profiling, and strengthen network effects [23]. The second dimension is the goal of digital knowledge-base extension. M&A serves as a key mechanism for firms—particularly traditional enterprises undergoing digital transformation—to acquire external digital knowledge (e.g., data, proprietary algorithms, digital talent, embedded innovation processes) and to incorporate these into the parent firm's knowledge system [21].

Therefore, the success of digital M&A depends heavily on the effective integration of data and knowledge during the post-merger phase. This feature also makes digital M&A decisions highly sensitive to external environmental factors. Beyond conventional institutional, cultural, and financial influences [24], recent information systems research identifies a unique endogenous risk: the M&A process itself can introduce IT system heterogeneity and complexity, thereby inherently increasing the likelihood of data breaches [25]. When this heightened endogenous risk interacts with severe external penalties under regulations like the GDPR [26], the associated expected legal risk of digital M&A rises substantially.

2.4 Literature Summary and Research Gap

In summary, a clear research gap exists at the intersection of these three streams of literature. First, while the economic impact literature on data cross-border flow regulation has extensively examined trade, venture capital (VC) investment [8], and corporate innovation [15], few studies have systematically and empirically linked it to the highest level of corporate strategic decision-making of cross-border M&As. Second, the literature on digital M&A motives has identified data and knowledge integration as the core source of value [21], yet it has not adequately explored how data cross-border flow regulation, as an institutional shock that impedes such integration, fundamentally undermines the strategic rationale for these transactions. Finally, existing research has not explained the strategic trade-offs firms make in response to data cross-border flow regulation.

Therefore, the central research gap addressed by this study is that existing literature has not effectively integrated these three perspectives to explain why and how Chinese firms, when

confronted with data regulation, make the strategic choice between wholly owned M&As and joint ventures in their international expansion. Studying Chinese firms is particularly significant because China represents both a major source of global digital investment and one of the most complex regulatory environments for cross-border data flows. Insights derived from this context not only deepen the understanding of how firms adapt to data governance regimes in emerging markets but also contribute to a broader theoretical framework for analyzing the interaction between data regulation, corporate strategy, and international business behavior across different institutional settings.

3. CONSTRUCTION OF MEASUREMENT INDICATORS

3.1 Quantitative Assessment of Cross-Border Data Flow Policies

The Digital Services Trade Restrictiveness Index (DSTRI), published by the Organisation for Economic Co-operation and Development (OECD), is one of the most comprehensive and widely used indicator systems within the scholarly literature [27-28]. This index evaluates national regulations on digital trade through an assessment framework covering five primary areas: infrastructure and connectivity, electronic transactions, payment systems, intellectual property rights, and a final category for other measures (which notably includes restrictions on cross-border data flow, data downloads, online advertising, and forced technology transfers). The OECD has published this index for 85 countries and regions. Utilizing frequency analysis, the index quantifies regulatory barriers to digital trade and provides the specific policy assessments that form the basis of this study. From this comprehensive database, we collect and organize the raw data measuring national data policies, extracting ten specific indicators relevant to cross-border data flows, which are detailed in Table 1. Following the methodology of the OECD, we code each indicator as a binary variable (1 if the restrictive policy is in place, 0 otherwise). To reveal different facets of data regulation, we subsequently group these ten indicators into four distinct policy domains: "Data localization", "Cross-border transfer of data", "Data service restriction" and "Data security protection".

Table 1. Measurement and Criteria for the Cross-Border Data Flow Restriction Index

Policy domain	Specific evaluation criteria	Indicator direction
Data localization	Certain data must be stored locally	positive
Cross-border transfer of data	Cross-border transfer is subject to approval on a case-by-case basis	positive
	Cross-border transfer of personal data is possible to countries with substantially similar privacy protection laws	negative
	Cross-border transfer of data is prohibited	positive
	Free cross-border transfer of personal data or application of the accountability principle	negative
	Cross-border transfer of personal data is possible when certain private sector safeguards are in place	negative
Data service restriction	Limitations on downloading and streaming affecting cross-border digital trade	positive
	Non-discriminatory Internet traffic management is mandated	negative
	Restrictions on the use of communication services	positive
Data security protection	Laws or regulations explicitly protect confidential information	negative

After obtaining the disaggregated data for these ten indicators, we employ the Entropy Evaluation Method (EEM) to assign objective weights to each indicator. This method determines weights based on the amount of information each indicator provides, allowing us to aggregate

them into a composite index for each country, which we term the Cross-border Data Flow Restrictiveness Index (CDFRI). Given that each indicator is a binary variable, data normalization is not required prior to weighting. To ensure that a higher final value for the Cross-Border Data Flow Restrictiveness Index consistently represents a greater level of restriction, we first distinguish between positive (restrictive) and negative (liberalizing) indicators. The directional coding for each indicator is reported in Table 1. We then proceed with the following measurement steps: first, calculating the information entropy of each indicator:

$$P_{cm} = X_{cm} / \sum_{c=1}^{n} X_{cm} \tag{1}$$

$$E_m = -\ln(n)^{-1} \sum_{c=1}^{n} P_{cm} \ln P_{cm} \tag{2}$$

where X_{cm} denotes the directionally adjusted value of the m-th indicator for country c, with subscripts c, m representing the country and indicator code, respectively, and n the number of countries. Then, the individual indicator weights are determined:

$$W_m = \left(1 - E_m\right) / \left(k - \sum_{m=1}^{k} E_m \right) \tag{3}$$

where k=10 is the total number of indicators. After determining the weights for each indicator via the Entropy Evaluation Method, we calculate the weighted sum to obtain the final Cross-Border Data Flow Restrictiveness Index for each target country.

3.2 Trends in the Evolution of the Cross-Border Data Flow Restrictiveness Index

Figure 1 illustrates the temporal evolution of the global Cross-Border Data Flow Restrictiveness Index. The average value of the index declined between 2014 and 2016, suggesting a brief period of policy relaxation and greater freedom for cross-border data flows. Conversely, after 2017, the average global Cross-Border Data Flow Restrictiveness Index began a slow but steady increase, indicating that national regulatory policies have gradually become stricter. This trend is accompanied by an increase in policy variability among countries, demonstrated in Figure 1 by the widening 25%-75% interquartile range and a greater number of outliers. In summary, as the digital economy has matured, data has become a critical factor of production, and its geometric growth in value has prompted nations to tighten regulations from the perspectives of data security and data protection, leading to deepening divergence in national policy approaches.

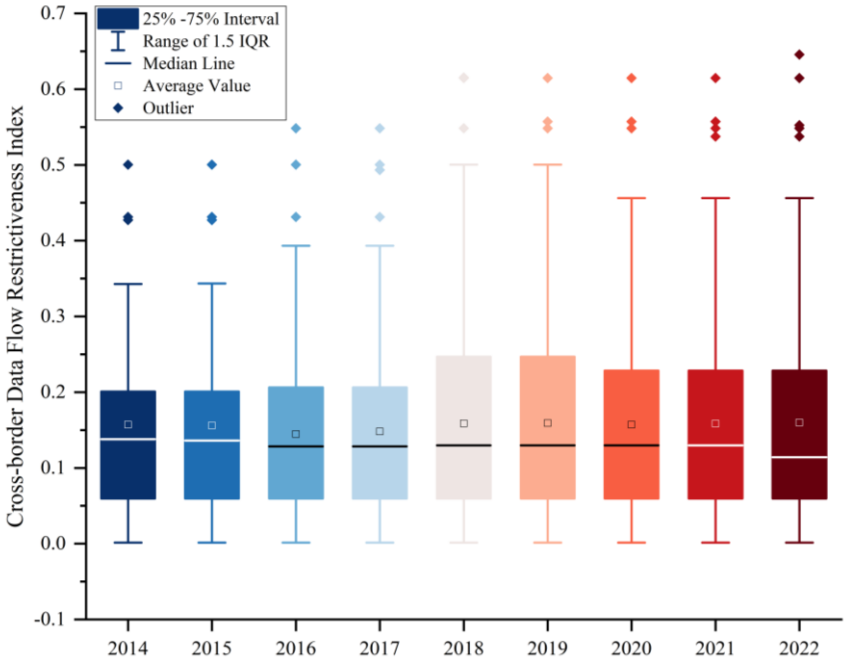

Figure 1. Box Plot of the 85-country Cross-Border Data Flow Restriction Index, 2014-2022

Regarding the spatial distribution of the Cross-Border Data Flow Restrictiveness Index, developed nations such as the United States, the European Union, Japan, and Australia generally maintain relatively low levels of restriction. In contrast, the Cross-Border Data Flow Restrictiveness Index for the BRICS countries, including China, India, Russia, and Brazil, is relatively high (Figure 2). Within the 85-country sample from the Organisation for Economic Co-operation and Development, the five countries with the lowest degree of Cross-Border Data Flow Restrictions are Colombia, Israel, Malaysia, Peru, and Uruguay; the five with the highest degree are Rwanda, China, Saudi Arabia, Brunei Darussalam, and Zimbabwe. This divergence reflects how different stages of digital economic development create varied demands for data-supported trade, leading nations to adopt disparate control measures.

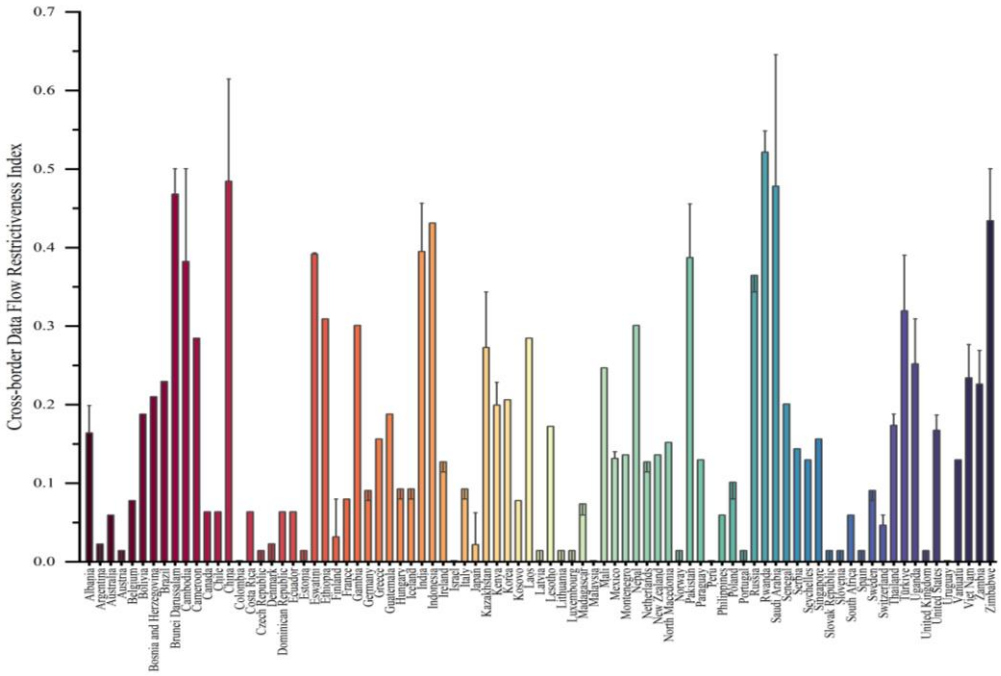

Figure 2. Bar Chart of the 85-country Cross-Border Data Flow Restriction Index, 2014-2022

4. THEORETICAL ANALYSIS AND RESEARCH HYPOTHESES

Building on the preceding literature review, we recognize that cross-border data flow restrictions represent a novel and multidimensional institutional barrier. They do not merely add simple operational costs; they fundamentally reshape a firm's transaction risks, expected returns, knowledge acquisition pathways, and resource dependencies. This section integrates perspectives from Transaction Cost Economics, the Knowledge-Based View, and Resource Dependence Theory to propose four core mechanisms through which data flow restrictions impact Chinese firms' cross-border digital mergers and acquisitions, and to construct our research hypotheses.

4.1 Mechanism 1: Compliance Costs and Transaction Risks (Transaction Cost Economics Perspective)

First, data flow restrictions directly inhibit acquisition activity by introducing new and significant transaction costs and legal risks. According to transaction cost economics [29], when uncertainty and asset specificity in a transaction increase, transaction costs rise, and the costs of hierarchical governance (i.e., wholly owned acquisitions) increase correspondingly. These transaction costs and risks manifest in both the ex-ante and ex-post stages of an acquisition. In the pre-acquisition phase, the acquirer must invest heavily in data compliance due diligence [30]. This involves hiring expensive local legal and technical consultants to assess whether the target's data assets are "toxic"—for example, whether data were collected compliantly, whether a history of GDPR violations exists, or whether it can meet the cross-border transfer requirements of the *Schrems II* judgment [18]. The complexity and information asymmetry [31] of this assessment are extremely high, constituting immense search and negotiation costs. Furthermore, the strictest data flow restrictions, such as data localization [26], often require firms to build local data centers in the host country. This represents a high degree of "compliance-specific asset specificity" [32]. Such investment is a sunk cost—non-redeployable and enormous in scale. Acquiring a firm also means inheriting all its historical data compliance liabilities. The acquisition process itself already increases the risk of a data breach due to system integration complexity [25]. In a high-regulation

environment, any post-acquisition data breach could expose the acquirer to massive fines (e.g., GDPR penalties can reach 4% of global turnover [33]), class-action lawsuits, and reputational damage. This potential liability dramatically increases the acquisition's risk premium.

ByteDance's (TikTok's parent company) "Project Clover" in Europe serves as a representative case [34]. To address continuous scrutiny based on the General Data Protection Regulation and the *Schrems II* judgment, TikTok committed to investing 12 billion euros to build local data centers in Europe and introduce third-party audits. From a Transaction Cost Economics perspective, this 12-billion-euro investment is a highly specific sunk cost that the firm must pay to gain legitimacy. This cost poses a significant deterrent to any Chinese digital firm attempting to enter Europe via acquisition. Based on this, we propose:

Hypothesis 1 (H1): The stricter a host country's cross-border data flow restrictions, the fewer cross-border digital mergers and acquisitions Chinese firms will initiate and complete in that country.

4.2 Mechanism 2: Bargaining Power Restructuring and Entry Mode Choice (Resource Dependence Theory Perspective)

According to resource dependence theory [35], organizations must acquire critical resources from their environment to survive. In a high-regulation environment, local data compliance capability and political legitimacy [36] are no longer optional; they become scarce, non-substitutable, and critical local resources for the multinational's survival. As the Chinese multinational's dependency on this local compliance resource rises dramatically, the bargaining power [37] of the local partner who possesses this resource—the ability to provide compliance shelter, local regulatory networks, and compliance experience—increases significantly. This leads to a strategic trade-off in entry mode. From a transaction cost economics perspective, the wholly-owned model offers high control, however, it also means the acquirer must fully internalize all compliance costs and legal risks. Under extreme uncertainty, this internalized cost becomes prohibitively expensive. From a resource dependence theory perspective, the joint venture becomes a strategic tool to access the local partner's critical resources [37], it is a governance structure for risk-sharing and liability insulation. The multinational enterprise intentionally cedes partial equity [38] in exchange for the local partner's compliance resources and to share the legal and financial risks of a potential data breach. Therefore, as data flow restrictions increase, and thus transaction costs and uncertainty, the high-control wholly-owned model becomes uneconomical, while the high-flexibility, risk-sharing joint venture model emerges as the superior strategic choice.

CATL's European expansion illustrates this. Facing the EU Battery Regulation and its strict "Battery Passport" data-tracking requirements, CATL opted to form deep strategic alliances [39-40] with local European giants (like BASF) for localized production and recycling. Through this quasi-joint-venture model, CATL gained BASF's local compliance expertise and shared the immense cost of building a compliant supply chain. Data flow restrictions reshape the optimal entry mode choice by altering the resource dependencies and bargaining power between multinational enterprises and local host-country partners. Therefore, we propose:

Hypothesis 2 (H2): As a host country's cross-border data flow restrictions increase, Chinese firms are more likely to choose a joint venture model (relative to a wholly-owned

model) for their cross-border digital investments.

4.3 Mechanism 3: Intellectual Property Leakage Risk and Regulatory Uncertainty

Data flow restrictions not only limit personal data but, through new regulations such as the EU Artificial Intelligence Act [41], also mandate scrutiny of algorithms themselves. This creates novel intellectual property (IP) leakage risks and significantly increases regulatory uncertainty. This mechanism operates as follows. First, the EU AI Act pioneers a risk-based classification of artificial intelligence systems [42]. Systems operating in critical areas, such as biometrics, critical infrastructure, credit, and hiring, are designated as high-risk [43]. Second, for these high-risk systems, the Act mandates detailed technical documentation, comprehensive risk management systems, and even summaries of the content used for model training [44]. For a Chinese AI firm, its core competitive advantage lies in proprietary algorithms and training datasets. If it acquires a European AI firm, the integrated technology would likely be classified as high-risk, compelling the acquirer to disclose its core algorithmic logic and training data sources to European Union regulators [44]. This represents an unacceptable business risk. Such risks are further amplified by the geopolitical context of digital sovereignty and mutual distrust [45]. The government surveillance concerns central to the *Schrems II* judgment apply equally to anxieties over Chinese national laws.

The predicament of BGI Genomics in Europe exemplifies this mechanism. Genomic data is classified by the General Data Protection Regulation as one of the most sensitive categories of personal data [33]. If BGI were to acquire a European genomics institute, it would face a dual dilemma: under *Schrems II*, it is nearly impossible to legally transfer European genomic data to China for research [46]; and its analytical algorithms would almost certainly face strict scrutiny under the EU AI Act [43]. This extreme regulatory uncertainty and the risk of core intellectual property leakage make the legal risk of such an acquisition exceptionally high.. Therefore, we propose:

Hypothesis 3 (H3): Cross-border data flow restrictions have a stronger inhibitory effect on cross-border digital M&As in data-highly-sensitive or high-risk sectors than in low-risk digital sectors.

4.4 Mechanism 4: Knowledge Barriers and Synergy Erosion (Knowledge-Based View Perspective)

The core value of a digital acquisition lies in acquiring knowledge, data, algorithms, and integrating it into the multinational enterprise's global knowledge network to generate synergies [21]. According to the knowledge-based view, barriers to knowledge transfer reduce the value of an acquisition [47], and data flow restrictions constitute the most rigid form of such barriers. This mechanism operates as follows. First, data flow restrictions force multinational enterprises to transform their acquired subsidiaries into "data silos" [48]. Valuable data collected by the subsidiary in the local market cannot be legally transferred to the multinational's global "data lake" for unified analysis and model training. Second, modern artificial intelligence and research and development (R&D) activities rely heavily on globally distributed R&D centers [49] for collaborative innovation and large-scale data sharing [21]. Data flow restrictions, such as those following the *Schrems II* judgment [17], effectively sever multinational firms' global R&D networks. Ultimately, the expected return on an acquisition depends heavily on post-merger synergies. If the acquirer cannot access and utilize the acquired firm's data, the strategic motive for

the deal is fundamentally undermined.

The autonomous driving strategies of Chinese new-energy vehicle manufacturers (such as NIO and Geely) in Europe exemplify this challenge [50-51]. These firms face strict European Union restrictions on vehicle data, preventing them from sending critical driving data collected in Europe back to their headquarters in China for model training. Consequently, their strategic response has not been to acquire European tech firms, since the data is inaccessible, but rather to adopt alternative strategies such as localized R&D and local partnerships. This mechanism is particularly detrimental to firms whose core asset is knowledge. Therefore, we propose:

Hypothesis 4 (H4): Cross-border data flow restrictions have a stronger inhibitory effect on cross-border digital M&As in knowledge-intensive firms than in non-knowledge-intensive firms.

5. EMPIRICAL STUDIES AND ANALYSIS

5.1 Variables and Data

The variables and data sources used in this empirical study are as follows:

(1) Explained Variables: The explained variables mainly contain variables related to the cross-border digital M&A situation of Chinese enterprises, and we examine this phenomenon across four distinct dimensions: the volume of transactions, the likelihood of completion, the chosen equity structure, and the transaction's duration:

① *Number of M&As*: the number of M&A deals applied for (*Announced_Number*) or completed (*Completed_Number*) by Chinese enterprises to relevant countries (regions) in the digital economy industry in each year;

② *Completion*: a binary variable that equals 1 if a cross-border digital M&A deal initiated by a Chinese firm in a given year is completed (in that year or subsequently), and 0 otherwise;

③ *Mode*: it indicates whether the enterprise chooses the equity structure of wholly-owned or joint venture; when wholly-owned is chosen, the variable takes the value of 1, otherwise it takes the value of 0;

④ *Duration*: it indicates the number of days spent by the enterprise from the announcement of the start of the M&A to the completion of the M&A, reflecting the time cost and degree of difficulty of the enterprise's M&A.

The M&A data were obtained from the Bureau van Dijk (BVD) Zephyr database (https://zephyr.bvdinfo.com) and span the period 2014-2022. To extract a sample of cross-border digital M&A by Chinese companies, we applied the following filters to the database: First, the acquirer was required to be based in China's mainland, and the M&A target had to be a company located outside China; Second, the industry of the M&A target company was set to the digital economy sector. For a clear division of the digital-economy industries, our approach is based on the UK SIC 2007 classification standards provided in Zephyr's global M&A deal analytics and makes reference to the Statistical Classification of the Digital Economy and Its Core Industries (2021) issued by the National Bureau of Statistics of China, to identify five-digit UK SIC 2007 codes corresponding to the digital economy; the specific industry classification is shown in Table 2; Finally, we excluded duplicate deal records and transactions involving non-commercial entities (e.g., government agencies or non-profit organizations).

Table 2. Digital Economy Industry Classification

UK SIC 2007 Code	Industry name
26***	Manufacture of computer, electronic and optical products
465**	Wholesale of information and communication equipment
474**	Retail sale of information and communication equipment in specialised stores
47910	Retail sale via mail order houses or via Internet
582**	Software publishing
59***	Motion picture, video and television programme production, sound recording and music publishing activities
60***	Programming and broadcasting activities
61***	telecommunications
62***	Computer programming, consultancy and related activities
63***	Information service activities
951**	Repair of computers and communication equipment

Note: * denotes a wildcard character, e.g., 26*** denotes all five-digit code industries below the industry two-digit code 26. For detailed classifications, see: https://www.ons.gov.uk/methodology/classificationsandstandards/ukstandardindustrialclassificationofeconomicactivities/uksic2007.

After completing the above steps, we obtained the sample of cross-border digital M&A transactions by Chinese enterprises from the Zephyr database, as shown in Figure 3. Between 2014 and 2022, cross-border digital M&A activity by Chinese firms experienced a period of rapid growth followed by a gradual decline. The number of announcements and completions increased sharply during 2014–2017 but began to deteriorate after 2018, largely due to escalating U.S.–China trade tensions. Prior to 2018, the United States had been the most important target country for Chinese cross-border digital M&A (Figure 4). However, following the onset of the 2018 U.S.–China trade dispute, the Trump administration and the Committee on Foreign Investment in the United States (CFIUS) significantly tightened scrutiny and blocked numerous Chinese investments, leading to a substantial decline in digital cross-border M&A activity involving the United States and, consequently, an overall contraction in total deal volume.

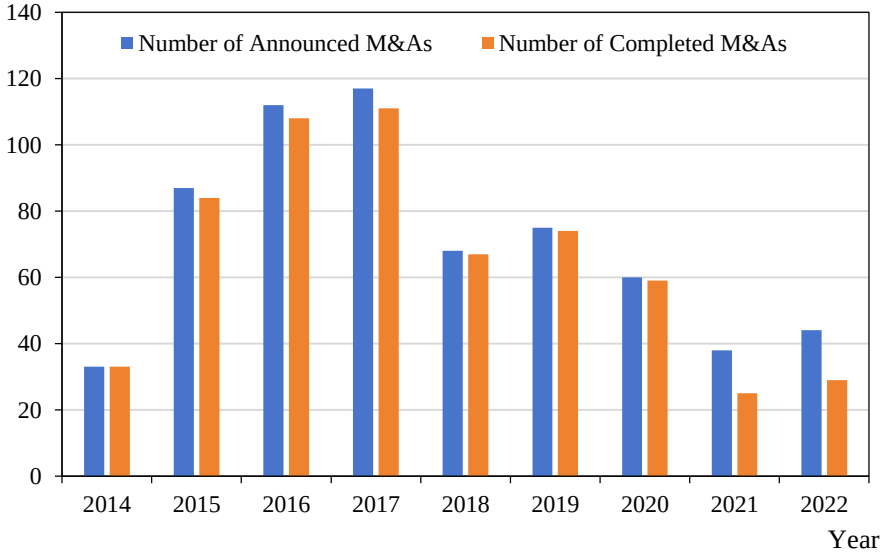

Figure 3. Number of Cross-Border Digital M&A Project Applications and Completions by Chinese Companies, 2014-2022

In terms of destination (Figure 4), the main target countries for China's cross-border digital M&A include the United States, Singapore, the United Kingdom, South Korea, Germany, Japan, Malaysia, India, Australia, Canada, and France, among others. Among these, the United States is the largest destination, with a total of 174 digital-type cross-border M&A deals announced or completed during 2014–2022, accounting for 22.4% of the total. This is mainly because a significant gap remains between China and advanced western economies in areas such as semiconductor technology and system software, prompting Chinese enterprises to initiate more M&A transactions to acquire advanced digital technologies from developed countries. For neighboring economies (mainly Japan, South Korea, India, Malaysia, and others)，M&A activities are primarily market-seeking. Close economic and trade relations, geographic proximity, and relatively smaller institutional and cultural distances facilitate digital cross-border M&A in these regions. The involved industries are mainly the manufacturing and maintenance of communications equipment, e-commerce, and other advantageous sectors in which China already possesses more mature technologies and operational systems. Through overseas M&A, firms can quickly access the target country's sales channels and user bases, reduce cross-border transportation costs, and avoid other trade barriers. For example, Alibaba, China's largest e-commerce company, quickly gained access to nearly 600 million customers in six Southeast Asian countries through its acquisition of Lazada, a major regional e-commerce platform.

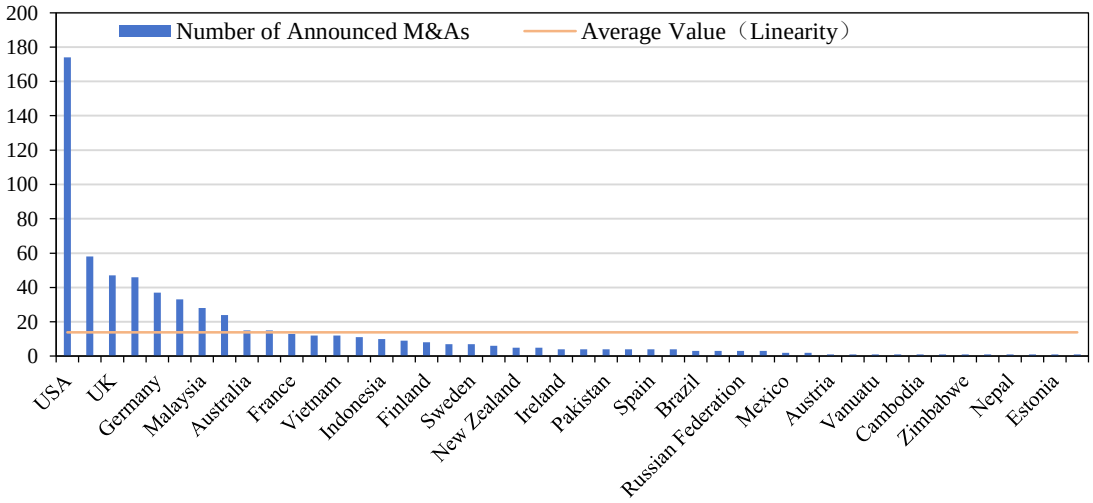

Figure 4. Geographical Distribution of Cross-border Digital M&A by Chinese Companies, 2014-2022

(2) Explanatory variable: The explanatory variable is the Cross-border Data Flow Restrictiveness Index (*CDFRI*) for each country, for the calculation of which we have explained and reported in detail in Section III.

(3) Control variables: Drawing on related research, this paper also controls some other factors, specifically including the following variables: ① geographic distance (*distance*), using the geographic distance between China and the target country's capital city to express, to control the cost of information and communication; ② cultural distance (*culture*), the bilateral cultural distance between China and the target country. Based on the Hofstede's cultural dimensions of each country's data, it can be measured by the standardized Euclidean distance approach; ③in addition, existing studies have shown that the host country's trade openness is closely related to foreign direct investment inflows, therefore this paper includes the host country's trade openness

as a control variable (*openness*), using the ratio of the host country's total trade to GDP in that year to represent trade openness; ④The target country's level of economic development (*p_GDP*), measured by the logarithm of a country's per capita GDP in constant prices; ⑤ the target country's innovation intensity (*innovation*), measured by the proportion of a country's R&D expenditures to its GDP; ⑥ the scale of an enterprise (*scale*), measured by the logarithm of a Chinese enterprise's total assets; ⑦ whether an enterprise is listed (*listed*), measured by whether a Chinese enterprise is listed on the stock exchange, with a value of 1 if it is listed and a value of 0 if it is listed; ⑧the financial strength of the firm (*EBITDA*), measured by the logarithm of the acquirer's earnings before interest, taxes, depreciation and amortization.

(4) Moderating variables: To further test Hypotheses 3 and 4, we measure the data sensitivity (*DS*) and knowledge intensity (*KI*) of the acquired firms. To do so, we first preprocess and structure the business description texts of target firms in the Zephyr database, based on which we construct quantifiable indicators. Specifically, we develop a domain-specific dictionary covering key business terms, informed by consultations with industry experts. The dictionary is organized into three components: business theme, term group, and weight, as shown in Table 3. We then lemmatize the business description texts and assign scores according to term matches: a score of 1.0 for strong signal terms, 0.5 for medium signal terms, and –0.5 for down-weighting terms; the maximum score within the same theme is capped at 1.5. The cumulative text score at the firm level is used as the measure of data sensitivity (*DS*) and knowledge intensity (*KI*).

Table 3. Dictionary of Business Terms for Measuring Data Sensitivity (*DS*) and Knowledge Intensity (*KI*)

Class	Business Theme	Term Group	Strength	Weight
Data Sensitivity	Payments & Fintech	payment gateway, payment processor, card acquiring, issuer processing, PSP, payfac, e-money, digital wallet, remittance, payout, BNPL, clearing, settlement	strong	1
	Identity & Regtech	KYC, e-KYC, AML screening, sanctions screening, identity verification, onboarding, liveness detection, document OCR, background check	strong	1
	Credit & Risk	credit bureau, credit scoring, alternative credit data, loan underwriting, risk modeling, fraud risk engine	strong	1
	Adtech & Exchanges	ad exchange, demand-side platform (DSP), supply-side platform (SSP), ad network, header bidding, real-time bidding (RTB)	strong	1
	Audience/Customer Data Platforms	data management platform (DMP), customer data platform (CDP), audience segmentation, identity graph, customer 360	strong	1
	Tracking & Targeting	cookie tracking, third-party cookie, fingerprinting, tracking pixel, cross-device tracking, retargeting, device graph	strong	1
	Marketing Cloud & CRM	marketing automation, campaign management, lead scoring, CRM platform, personalization, recommendation engine, email service provider (ESP)	medium	0.5
	Data Brokerage & Marketplace	data broker, data marketplace, audience marketplace, data monetization platform	strong	1

	Cloud & Hosting	cloud storage, object storage, data center, colocation, managed hosting, CDN, edge nodes, data residency	strong	1
	Messaging & Social	messaging platform, chat app, social network, community platform, user profile, social graph, address-book sync	strong	1
	Location & Mobility	location services, GPS SDK, geofencing, mobility analytics, location intelligence, device ID (IDFA/GAID)	strong	1
	Telematics & IoT Analytics	telematics platform, fleet tracking, IoT platform, device telemetry, sensor analytics, condition monitoring	strong	1
	Health Data Platforms	EMR system, EHR system, health information exchange (HIE), medical records management, e-prescription, claims processing	strong	1
	Biometric Authentication	biometric authentication, facial recognition, fingerprint authentication, voiceprint, iris recognition, liveness check	strong	1
	Edtech & Student Systems	edtech platform, learning management system (LMS), student information system (SIS), remote proctoring, learning analytics	medium	0.5
	HR/People Tech	HRIS, payroll platform, time tracking, applicant tracking system (ATS), background screening, workforce analytics	strong	1
	Customer Support & Contact Center	helpdesk platform, ticketing system, contact center as a service (CCaaS), call recording, conversation analytics	medium	0.5
	Data Infra & Ops	data warehouse, data lake, lakehouse, ETL/ELT platform, data pipeline, log analytics, clickstream analytics, observability	medium	0.5
	Web Scraping & Social Listening	web scraping, data crawler, scraping service, data harvesting, social listening	medium	0.5
	Legal Tech & eDiscovery	e-discovery platform, legal hold, document review platform, contract analytics, litigation support	strong	1
	Security Telemetry	SIEM, user behavior analytics (UBA/UEBA), DLP, endpoint telemetry	medium	0.5
	Retail/Marketplace (no data ops)	retail store, e-commerce storefront, marketplace seller, merchant of record	down	-0.5
	Content Production Only	content studio, publisher, media production, editorial newsroom	down	-0.5
	Anonymized/Aggregated Only	anonymized data only, aggregated statistics only, synthetic data only	down	-0.5
	Static/Brochure Sites	static website, brochureware, portfolio site	down	-0.5
	Hardware Trading & Logistics	hardware trading, import-export, logistics forwarding, warehousing	down	-0.5
Knowledge Intensity	Semiconductor Foundry/OSAT	wafer fabrication (fab), foundry services, process integration, advanced packaging, OSAT	strong	1
	Semiconductor Equipment	lithography system, wafer stepper, etcher, deposition tool, metrology tool, inspection tool	strong	1
	Chip Design & IP	chip/SoC design, ASIC/FPGA design, IP cores licensing, design services, verification/validation	strong	1

EDA Toolchain	EDA tools, place-and-route, timing analysis, mask data preparation, DFM/DFT	strong	1
Core Systems Software	operating system, kernel, device drivers, hypervisor, virtualization platform	strong	1
Database/Storage Engines	database engine, distributed database, storage engine, key-value store, columnar store	strong	1
Stream/Data Processing	stream processing engine, complex event processing, data fabric, message broker	strong	1
AI/ML Platforms	AI platform, machine learning platform, model training pipeline, inference serving, MLOps platform	strong	1
Vision/NLP/Speech	computer vision platform, NLP platform, speech recognition engine, multimodal models, transformer models	strong	1
Robotics & Autonomy	robotics control software, SLAM, autonomous navigation, motion planning, robot operating system	strong	1
HPC & Simulation	HPC cluster, numerical simulation, CFD, FEA, digital twin simulation, scientific computing	strong	1
BioTech R&D	drug discovery platform, therapeutic development, vaccine platform, sequencing platform, CRISPR toolkit	strong	1
Diagnostics & Lab Automation	diagnostics assay, lab automation, LIMS (laboratory information management system), sample tracking	strong	1
Scientific Instruments	metrology instruments, analytical instruments, spectroscopy systems, microscopy systems	strong	1
Developer/Infra Tools	SDK, API gateway, middleware, CI/CD pipeline, build system, container orchestration (Kubernetes)	medium	0.5
Embedded & Firmware	embedded software, firmware, RTOS, device SDK, board support package (BSP)	medium	0.5
Industrial Control	PLC software, SCADA platform, industrial control system (ICS)	medium	0.5
Quantum & Advanced Computing	quantum computing hardware, quantum algorithms, quantum simulator, cryogenic control	strong	1
Distribution/Resale	distributor, reseller, wholesaler, dropshipping	down	-0.5
Maintenance/Repair Only	maintenance only, after-sales service, repair service, refurbishment	down	-0.5
System Integration Only	system integrator (SI), implementation services, consulting only	down	-0.5
Content Licensing Only	content licensing, syndication, media rights	down	-0.5
Open-source Mirror	open-source mirror, distribution mirror	down	-0.5

It should be noted that since we use data from multiple sources, we need to match different datasets and variables in the empirical process. According to the data from the BVD Zephyr database, there are a total of 778 digital cross-border M&As initiated by Chinese enterprises to countries around the world with a clear M&A record in the database during the period 2014-2022. Among these, 85 countries are covered by the OECD-DSTRI database (see Figure 1 for specific

countries). Of these, 634 deals were announced and 590 were completed, representing 81.5% and 75.8% of the total announced deals. This high completion rate supports the representativeness of the sample for empirical analysis. Therefore, the empirical analysis in this paper is based on these data. In other words, during the period of the research window, Chinese enterprises in the Cayman Islands, Bermuda, the United Arab Emirates, Kyrgyzstan, the British Virgin Islands, Barbados, Egypt, Myanmar (Burma), Samoa, Bangladesh, Belarus, Bahrain, Antigua & Barbuda are countries where cross-border digital M&A deals are also recorded, but since the OECD-DSTRI database does not contain data for these countries, we exclude them from the empirical sample; these excluded deals are few in number and have a negligible impact on the overall results. All variables are summarized in Table 4.

Table 4. Variable Definitions and Data Sources

Variable Type	Variable Symbol	Variable Definition	Data source
Explained Variable	*Announced_Number*	Number of Announced M&As	BVD Zephyr
	Completed_Number	Number of Completed M&As	BVD Zephyr
	Completion	Whether the M&A is completed	BVD Zephyr
	Mode	Whether the M&A is wholly-owned or not	BVD Zephyr
	Duration	Duration of the M&A	BVD Zephyr
Explanatory Variable	*CDFRI*	Cross-border Data Flow Restrictiveness Index	Calculated based on OECD-DSTRI database
Moderating Variable	*DS*	Data Sensitivity	BVD Zephyr
	KI	Knowledge Intensity	BVD Zephyr
Control Variable	*distance*	Geographical Distance between the Capitals of China and the Target Country	CEPII
	culture	Bilateral Cultural Distance between China and the Target Country	Netherlands Institute for Research on Intercultural Cooperation
	openness	Total trade as a share of GDP	World Bank Database
	p_GDP	Logarithmic value of GDP per capita	World Bank Database
	innovation	Research and development expenditure as a percentage of GDP	World Bank Database
	scale	Logarithmic value of Acquiror total assets	BVD Zephyr
	listed	Whether the Acquiror company is listed or not	BVD Zephyr
	EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortization	BVD Zephyr

5.2 Model Setup

In order to test whether target country Cross-Border Data Flow Restrictions affect cross-border digital M&As of Chinese firms, this paper constructs the following empirical model:

(1) When the explanatory variables are the number of cross-border mergers and acquisitions (*Announced_Number*, *Completed_Number*) or the duration of mergers and acquisitions (*Duration*), the values of which are non-negative, discrete, random integers, traditional linear estimation methods are not applicable, and maximum likelihood estimation using a nonlinear count model is appropriate. Since the variance of these variables is significantly larger than their mathematical expectations, with overdispersion, it is more reasonable to use the Negative Binomial (NB) model. In addition, since most explanatory variables are macro-level national variables that exhibit minimal year-to-year variation, the use of an individual fixed-effects model would absorb most of the explanatory power of the macro explanatory variables. In view of this, we construct a model based on the classical empirical framework of investment gravity model as follows:

$$E(Announced_Number_{j,t}) = \exp(\beta_0 + \beta_1 CDFRI_{j,t-1} + \beta_2 \sum X + \delta_t + \varepsilon_{j,t}) \quad (4)$$

$$E(Completed_Number_{j,t}) = \exp(\beta_0 + \beta_1 CDFRI_{j,t-1} + \beta_2 \sum X + \delta_t + \varepsilon_{j,t}) \quad (5)$$

$$E(Duration_{j,i,t}) = \exp(\beta_0 + \beta_1 CDFRI_{j,t-1} + \beta_2 \sum X + \beta_3 \sum Z + \delta_t + \varepsilon_{j,i,t}) \quad (6)$$

where subscripts *j*, *i*, *t* represent M&A target countries, M&A projects, and years, respectively; *X* denotes country-level control variables and *Z* denotes firm-level control variables; β denotes the parameter to be estimated; δ_t denotes year fixed effects; and ε denotes the random perturbation term. According to the data characteristics, when the explanatory variables are the number of cross-border M&As (*Announced_Number*, *Completed_Number*), the balanced panel dataset at the country level is used; when the explanatory variable is the duration of M&As (*Duration*), the unbalanced panel dataset at the M&A project level is used. Meanwhile, due to the possible lag in the response of Chinese firms to the implementation of data cross-border policies by the target country, this paper regresses all the explanatory variables with one period lag to alleviate the possible endogeneity problem.

(2) When the explanatory variables are M&A Completion (*Completion*) or M&A Mode (*Mode*), the Probit generalized linear model is used because the variable values are 0/1 binary dummy variables:

$$\Pr ob(Completion_{j,i,t} = 1) = \beta_0 + \beta_1 CDFRI_{j,t-1} + \beta_2 \sum X + \beta_3 \sum Z + \delta_t + \varepsilon_{j,i,t} \quad (7)$$

$$\Pr ob(Mode_{j,i,t} = 1) = \beta_0 + \beta_1 CDFRI_{j,t-1} + \beta_2 \sum X + \beta_3 \sum Z + \delta_t + \varepsilon_{j,i,t} \quad (8)$$

The rest of the variables and the meaning of the symbols remain consistent with the previous section. In this case, depending on the characteristics of the data, we use the panel dataset at the M&A project level.

(3) In order to further analyze the impact of the level of data sensitivity (*DS*) and development of knowledge intensity (*KI*) in each country, the model is constructed as follows using a static panel fixed-effects model and introducing an interaction term:

$$Announced_Number_{j,t} = \beta_0 + \beta_1 CDFRI_{j,t-1} \times M_{j,t-1} + \beta_2 CDFRI_{j,t-1} + \beta_3 M_{j,t-1} + \beta_4 \sum X + \delta_t + \varepsilon_{j,t} \quad (9)$$

$$Completed_Number_{j,t} = \beta_0 + \beta_1 CDFRI_{j,t-1} \times M_{j,t-1} + \beta_2 CDFRI_{j,t-1} + \beta_3 M_{j,t-1} + \beta_4 \sum X + \delta_t + \varepsilon_{j,t} \quad (10)$$

where *M* denotes the moderating variable, and the rest of the variables, as well as the meaning of the symbols, remain the same as in the previous section. Based on the data characteristics, in this case a balanced panel dataset at the country level is used.

5.3 Empirical Results and Analysis

Table 5 reports the regression results of models (4)–(8). Among them, the Beta distribution parameters of the three sets of equations in Model (4)-Model (6) are all highly significant, indicating that the use of panel negative binomial regression model can better overcome the problem of over-dispersion of data and individual heterogeneity.

The estimated coefficient of *CDFRI* in model (4) is significantly negative (β = -0.1530, p < 0.05), indicating that the higher the degree of Cross-Border Data Flow Restrictions in the M&A target country, the lower the number of digital M&As initiated and filed by Chinese firms in the target country. This reflects that the implementation of Cross-Border Data Flow Restrictions reduces the potential benefits of digital cross-border M&As, inhibits the willingness of Chinese firms to cross-border digital M&As, and thus reduces the focus on the target country.

The estimated coefficients of *CDFRI* in model (5), model (6) and model (7) are all significantly negative (β = -0.1212, p < 0.01; β = -0.1047, p < 0.01; β = -0.0228, p < 0.05), indicating that the higher the degree of Cross-Border Data Flow Restrictions in the M&A target country, the lower the number of digital M&As completed by Chinese firms in the target country, the longer the time required to complete the M&A, and the lower the likelihood of completing the M&A. This reflects that the implementation of Cross-Border Data Flow Restrictions increases the difficulty and time cost of digital cross-border M&As, making cross-border digital M&As more difficult to complete and lowering the probability of firms' M&A success.

The estimated coefficient of *CDFRI* in model (8) is significantly negative (β = -0.0379, p < 0.05), indicating that the higher the degree of Cross-Border Data Flow Restrictions in the M&A target country, the more Chinese firms in the target country tend to use joint ventures rather than wholly-owned M&As. This reflects that the implementation of Cross-Border Data Flow Restrictions is likely to reduce the potential benefits and raise the risks of digital cross-border M&As, which makes firms prefer to cooperate with firms in the country being acquired to better meet local data cross-border policy compliance requirements and to reduce M&A management and operational risks. This suggests that firms are willing to cede a portion of their equity and corporate control to mitigate the risks that data policies may pose. Therefore, these findings support hypotheses 1 and 2.

Table 5 Benchmark Regression Results

	Model (4)	**Model (5)**	**Model (6)**	**Model (7)**	**Model (8)**
	Announced_Number	*Completed_Number*	*Duration*	*Completion*	*Mode*
CDFRI	-0.1530**	-0.1212***	-0.1047***	-0.0228**	-0.0379**
	(0.0603)	(0.0426)	(0.0276)	(0.0112)	(0.0169)
distance	-0.6233*	-0.8141	0.9990	-0.4042*	-0.5314
	(0.3212)	(1.4260)	(0.9181)	(0.2812)	(0.4467)
culture	-0.6581*	1.0722	-0.6556	0.4091*	0.6121
	(0.3301)	(1.3560)	(0.8697)	(0.2710)	(0.4352)
openness	0.0222	0.1360	0.1940*	0.0069	-0.0370
	(0.2210)	(0.1360)	(0.1010)	(0.0263)	(0.0382)
p_GDP	0.0467	0.0416*	0.0490***	0.0075	0.0111
	(0.0359)	(0.0223)	(0.0183)	(0.0052)	(0.0082)
innovation	0.0720	0.1330***	0.0668**	-0.0067	0.0502***
	(0.0736)	(0.0378)	(0.0319)	(0.0082)	(0.0158)
scale			-0.0049	0.0156*	0.0069

			(0.0075)	(0.0087)	(0.0061)
listed			0.0024	0.0114**	-0.0046
			(0.0028)	(0.0052)	(0.0065)
EBITDA			0.0024	0.0133**	-0.0030
			(0.0026)	(0.0054)	(0.0063)
ln_r	0.2100***	0.1987***	0.1794***		
	(0.0216)	(0.0049)	(0.0019)		
ln_s	6.5973***	0.2956***	3.2541***		
	(1.0571)	(0.0837)	(0.6980)		
cons	-0.0634***	-0.0547***	0.0286***	-1.8557***	-0.1784***
	(0.0096)	(0.0106)	(0.0090)	(0.4191)	(0.0484)
Year FE	Yes	Yes	Yes	Yes	Yes
N	680	680	601	601	601
Log likelihood	-931.254	-935.012	-897.930		

Note: The table demonstrates the regression coefficients for each variable; *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively; standard errors are in parentheses; the negative binomial regression model assumes that the individual effects follow a Beta(*r*, *s*) distribution, and that *ln_r* and *ln_s* are their parameter estimates; and the Probit model reports the marginal estimates.

Table 6 demonstrates the regression results of model (9) and model (10). Among them, when model (9) introduces the target company's data sensitivity (*DS*) as a moderating variable, the estimated coefficient of the interaction term is significantly negative (β = -0.0177, p < 0.01), which suggests that the higher the data sensitivity level of the target firm, the more strongly Cross-Border Data Flow Restrictions reduce Chinese firms' incentives to engage in cross-border digital M&A by lowering the potential value of the transaction. And when model (10) introduces the knowledge intensity of target company (*KI*) as a moderating variable, the estimated coefficient of the interaction term is significantly negative (β = -0.0222, p < 0.05), which suggests that for knowledge-intensive targets, stricter regulatory policies in the host country amplify the inhibitory effect of Cross-Border Data Flow Restrictions by increasing compliance and coordination costs in the acquisition process. Therefore, both hypotheses 3 and 4 are supported.

Table 6. Analysis of Moderating Effects

	Model (9)		**Model (10)**	
	Announced_Number		*Completed_Number*	
CDFRI	-0.0113**	-0.0160**	-0.4191**	-0.0493***
	(0.0052)	(0.0064)	(0.2070)	(0.0145)
CDFRI ×DS		-0.0177***		-0.2967
		(0.0068)		(0.4982)
CDFRI×KI	-0.0018		-0.0222**	
	(0.0070)		(0.0106)	
distance	-0.0596	-0.0008	-0.0441***	-0.0241**
	(0.0960)	(0.0142)	(0.0140)	(0.0113)
culture	-0.4818***	0.0051	-0.0797	-0.1832
	(0.1820)	(0.0084)	(0.0957)	(0.1688)
openness	0.0782	0.0009	-0.0611	0.4204**

	(0.1378)	(0.0101)	(0.1059)	(0.1720)
p_GDP	0.0596	-0.0008	0.0441***	0.0241**
	(0.0960)	(0.0142)	(0.0140)	(0.0113)
innovation	0.0098**	0.0034	0.0011	-0.1537**
	(0.0038)	(0.0026)	(0.0023)	(0.0594)
cons	-6.5977***	-3.2547***	-2.0166***	0.4908***
	(1.0571)	(0.6980)	(0.6222)	(0.1242)
Year FE	Yes	Yes	Yes	Yes
N	680	680	680	680

Note: The table demonstrates the regression coefficients for each variable; *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively; standard errors are in parentheses.

6. CONCLUSION

Based on the OECD-DSTRI dataset, this paper constructs a cross-border data flow restriction index (CDFRI) for major economies from 2014 to 2022 using the entropy-weight method. Using this index, we employ a negative binomial regression model, a probit model, and a moderated regression framework to empirically examine the influence of CDFRI on the cross-border digital M&A activities of Chinese firms.

The results reveal two core mechanisms. First, stricter CDFRI raises the transaction costs of cross-border digital M&A, resulting in fewer completed deals, a lower completion rate, and longer completion times. Second, CDFRI diminishes the potential value of digital M&A, resulting in fewer initiated deals and a stronger preference for joint-venture over wholly-owned acquisition structures. Further analysis indicates that the effect of CDFRI is significantly stronger for target firms with higher data sensitivity, as data localization and compliance requirements directly erode the expected returns of data-intensive acquisitions. Furthermore, the inhibitory effect is amplified when the target firm is more knowledge-intensive, since stricter data controls elevate the coordination, transfer, and integration costs associated with intangible assets, R&D resources, and technical know-how.

The findings suggest that although policies restricting cross-border data flows are legitimate for data security reasons, excessive restrictions can undermine the vitality of the digital economy. Therefore, while pursuing digital sovereignty, national regulators should carefully evaluate the impact of different policies on enterprises' digital business models. Specifically, developed countries with stronger data governance capacities should adopt open and inclusive regulatory approaches, maintain close communication with enterprises and trading partners, gradually relax unnecessary restrictions, reduce compliance burdens, and ensure the smooth operation of digital trade. Developing countries, on the other hand, should, while safeguarding cybersecurity, adopt data governance models suited to their national conditions and firms' development needs, thereby reducing the negative effects of overregulation on digital economic growth. In short, both developed and developing countries should strengthen mutual trust and cooperation to build an open, inclusive, and secure global governance framework for cross-border data flows.

This study contributes to both theoretical and empirical research, yet it has certain limitations. Future research could extend this work in several directions. First, future analyses could integrate global data protection legislation and enforcement mechanisms to conduct more systematic empirical research. Second, due to data limitations, this study focuses primarily on firms' cross-border M&A behavior and does not fully examine the post-acquisition impacts of data

protection policies on firms' cross-border operations, which merits further exploration. Finally, future research could also assess the welfare implications of data protection policies from a broader societal perspective through a comprehensive multi-dimensional analysis.

AUTHOR CONTRIBUTIONS

Qinghua Qin conducted the selection of indicators, data collection and analysis, and wrote the first draft of this study. **Luyi Liang** contributed to the theoretical review, methodology selection, and model results analysis. **Yaotian Wang** participated in variable selection and model results analysis. **Liangyu Zhu** and **Yuwen Liang** participated in data collection and findings analysis. **Haoguang Liang** played a key role in conceptualization and monitoring the study's progress. All authors contributed meaningfully to revising and proofreading the final manuscript.

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Appendix A: Cross-Border Data Flow Restrictions Index by country, 2014-2022

Country	2014	2015	2016	2017	2018	2019	2020	2021	2022
Albania	0.1989	0.1989	0.1989	0.1989	0.1360	0.1360	0.1360	0.1360	0.1360
Argentina	0.1257	0.0675	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
Australia	0.0595	0.0595	0.0595	0.0595	0.0595	0.0595	0.0595	0.0595	0.0595
Austria	0.0595	0.0595	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
Belgium	0.0778	0.0778	0.0778	0.0778	0.0778	0.0778	0.0778	0.0778	0.0778
Bolivia	0.1879	0.1879	0.1879	0.1879	0.1879	0.1879	0.1879	0.1879	0.1879
Bosnia and Herzegovina	0.2102	0.2102	0.2102	0.2102	0.2102	0.2102	0.2102	0.2102	0.2102
Brazil	0.1285	0.1285	0.2049	0.2049	0.3568	0.3568	0.2284	0.2284	0.2284
Brunei Darussalam	0.5004	0.5004	0.5004	0.5004	0.4422	0.4422	0.4422	0.4422	0.4422
Cambodia	0.3008	0.3008	0.3008	0.3008	0.5004	0.4342	0.4342	0.4342	0.4342
Cameroon	0.2846	0.2846	0.2846	0.2846	0.2846	0.2846	0.2846	0.2846	0.2846
Canada	0.0636	0.0636	0.0636	0.0636	0.0636	0.0636	0.0636	0.0636	0.0636
Chile	0.0636	0.0636	0.0636	0.0636	0.0636	0.0636	0.0636	0.0636	0.0636
Colombia	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
Costa Rica	0.0636	0.0636	0.0636	0.0636	0.0636	0.0636	0.0636	0.0636	0.0636
Czech Republic	0.0595	0.0595	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
Denmark	0.1360	0.0595	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
Dominican Republic	0.0636	0.0636	0.0636	0.0636	0.0636	0.0636	0.0636	0.0636	0.0636
Ecuador	0.0636	0.0636	0.0636	0.0636	0.0636	0.0636	0.0636	0.0636	0.0636
Estonia	0.0595	0.0595	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
Eswatini	0.2426	0.2426	0.3932	0.3932	0.3932	0.3932	0.3932	0.5374	0.5374
Ethiopia	0.3091	0.3091	0.3091	0.3091	0.3091	0.3091	0.3091	0.3091	0.3091
Finland	0.0595	0.0595	0.0014	0.0014	0.0014	0.0014	0.0014	0.0798	0.0798
France	0.0798	0.0798	0.0798	0.0798	0.0798	0.0798	0.0798	0.0798	0.0798
Gambia	0.3008	0.3008	0.3008	0.3008	0.3008	0.3008	0.3008	0.3008	0.3008
Germany	0.1360	0.1360	0.0778	0.0778	0.0778	0.0778	0.0778	0.0778	0.0778
Greece	0.1562	0.1562	0.1562	0.1562	0.1562	0.1562	0.1562	0.1562	0.1562
Guatemala	0.1879	0.1879	0.1879	0.1879	0.1879	0.1879	0.1879	0.1879	0.1879
Hungary	0.1380	0.1380	0.0798	0.0798	0.0798	0.0798	0.0798	0.0798	0.0798
Iceland	0.1380	0.1380	0.0798	0.0798	0.0798	0.0798	0.0798	0.0798	0.0798
India	0.3169	0.3169	0.2588	0.3799	0.4563	0.4563	0.4563	0.4563	0.4563
Indonesia	0.4312	0.4312	0.4312	0.4312	0.4312	0.4312	0.4312	0.4312	0.4312
Ireland	0.1724	0.1724	0.1142	0.1142	0.1142	0.1142	0.1142	0.1142	0.1142
Israel	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
Italy	0.1380	0.1380	0.0798	0.0798	0.0798	0.0798	0.0798	0.0798	0.0798
Japan	0.0624	0.0624	0.0624	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
Kazakhstan	0.1459	0.1459	0.2223	0.2223	0.3435	0.3435	0.3435	0.3435	0.3435
Kenya	0.1879	0.1879	0.1879	0.1879	0.1297	0.2284	0.2284	0.2284	0.2284
Korea	0.2062	0.2062	0.2062	0.2062	0.2062	0.2062	0.2062	0.2062	0.2062
Kosovo	0.0778	0.0778	0.0778	0.0778	0.0778	0.0778	0.0778	0.0778	0.0778
Lao People's Democratic Republic	0.2846	0.2846	0.2846	0.2846	0.2846	0.2846	0.2846	0.2846	0.2846

Latvia	0.0595	0.0595	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
Lesotho	0.1724	0.1724	0.1724	0.1724	0.1724	0.1724	0.1724	0.1724	0.1724
Lithuania	0.0595	0.0595	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
Luxembourg	0.0595	0.0595	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
Madagascar	0.1879	0.0595	0.0595	0.0595	0.0595	0.0595	0.0595	0.0595	0.0595
Malaysia	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
Mali	0.2468	0.2468	0.2468	0.2468	0.2468	0.2468	0.2468	0.2468	0.2468
Mexico	0.0636	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400	0.1400
Montenegro	0.1360	0.1360	0.1360	0.1360	0.1360	0.1360	0.1360	0.1360	0.1360
Nepal	0.3008	0.3008	0.3008	0.3008	0.3008	0.3008	0.3008	0.3008	0.3008
Netherlands	0.1724	0.1724	0.1142	0.1142	0.1142	0.1142	0.1142	0.1142	0.1142
New Zealand	0.1360	0.1360	0.1360	0.1360	0.1360	0.1360	0.1360	0.1360	0.1360
North Macedonia	0.1520	0.1520	0.1520	0.1520	0.1520	0.1520	0.1520	0.1520	0.1520
Norway	0.0595	0.0595	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
Pakistan	0.3008	0.3008	0.3792	0.3792	0.3792	0.3792	0.4556	0.4556	0.4556
Paraguay	0.1297	0.1297	0.1297	0.1297	0.1297	0.1297	0.1297	0.1297	0.1297
Peru	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
Philippines	0.0595	0.0595	0.0595	0.0595	0.0595	0.0595	0.0595	0.0595	0.0595
Poland	0.2144	0.1380	0.0798	0.0798	0.0798	0.0798	0.0798	0.0798	0.0798
Portugal	0.0595	0.0595	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
Russia	0.2671	0.3435	0.3435	0.3435	0.3435	0.3435	0.3435	0.4017	0.5523
Rwanda	0.4273	0.4273	0.5484	0.5484	0.5484	0.5484	0.5484	0.5484	0.5484
Saudi Arabia	0.3428	0.3428	0.3428	0.3428	0.6154	0.5572	0.5572	0.5572	0.6456
Senegal	0.2009	0.2009	0.2009	0.2009	0.2009	0.2009	0.2009	0.2009	0.2009
Serbia	0.1439	0.1439	0.1439	0.1439	0.1439	0.1439	0.1439	0.1439	0.1439
Seychelles	0.1297	0.1297	0.1297	0.1297	0.1297	0.1297	0.1297	0.1297	0.1297
Singapore	0.1562	0.1562	0.1562	0.1562	0.1562	0.1562	0.1562	0.1562	0.1562
Slovak Republic	0.0595	0.0595	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
Slovenia	0.0595	0.0595	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
South Africa	0.0595	0.0595	0.0595	0.0595	0.0595	0.0595	0.0595	0.0595	0.0595
Spain	0.0595	0.0595	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
Sweden	0.1360	0.1360	0.0778	0.0778	0.0778	0.0778	0.0778	0.0778	0.0778
Switzerland	0.0595	0.0595	0.0595	0.0595	0.0595	0.0595	0.0595	0.0014	0.0014
Thailand	0.1879	0.1879	0.1879	0.1879	0.1879	0.1879	0.1879	0.1879	0.0595
Türkiye	0.1764	0.3313	0.2690	0.2690	0.2690	0.3902	0.3902	0.3902	0.3902
Uganda	0.3091	0.3091	0.3091	0.3091	0.3091	0.1807	0.1807	0.1807	0.1807
United Kingdom	0.0595	0.0595	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
United States	0.1867	0.1285	0.1285	0.1285	0.1867	0.1867	0.1867	0.1867	0.1867
Uruguay	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014	0.0014
Vanuatu	0.1297	0.1297	0.1297	0.1297	0.1297	0.1297	0.1297	0.1297	0.1297
Viet Nam	0.2002	0.2002	0.2002	0.2002	0.2002	0.2766	0.2766	0.2766	0.2766
Zambia	0.1803	0.1803	0.1803	0.1803	0.2588	0.2588	0.2588	0.2690	0.2690
Zimbabwe	0.5004	0.5004	0.5004	0.5004	0.5004	0.5004	0.3875	0.2591	0.2591

Appendix B:Number of Cross-border Digital M&As by Chinese Companies to Various Countries, 2014-2022

Country	Year	Number of Announced M&As	Number of Completed M&As
Australia	2014	0	0
Austria	2014	1	1
Belgium	2014	0	0
Canada	2014	0	0
Chile	2014	0	0
Colombia	2014	0	0
Costa Rica	2014	0	0
Czech Republic	2014	0	0
Denmark	2014	1	1
Estonia	2014	0	0
Finland	2014	1	1
France	2014	1	1
Germany	2014	3	3
Greece	2014	0	0
Hungary	2014	0	0
Iceland	2014	0	0
Ireland	2014	1	1
Israel	2014	1	1
Italy	2014	1	1
Japan	2014	1	1
Korea	2014	1	1
Latvia	2014	0	0
Lithuania	2014	0	0
Luxembourg	2014	0	0
Mexico	2014	0	0
Netherlands	2014	0	0
New Zealand	2014	0	0
Norway	2014	0	0
Poland	2014	0	0
Portugal	2014	0	0
Slovak Republic	2014	0	0
Slovenia	2014	0	0
Spain	2014	0	0
Sweden	2014	0	0
Switzerland	2014	0	0
Türkiye	2014	0	0
United Kingdom	2014	3	3
United States	2014	15	15
Albania	2014	0	0
Argentina	2014	0	0

Bolivia	2014	0	0
Bosnia and Herzegovina	2014	0	0
Brazil	2014	1	1
Brunei Darussalam	2014	0	0
Cambodia	2014	0	0
Cameroon	2014	0	0
China (People's Republic of)	2014	0	0
Dominican Republic	2014	0	0
Ecuador	2014	0	0
Ethiopia	2014	0	0
Gambia	2014	0	0
Guatemala	2014	0	0
India	2014	0	0
Indonesia	2014	0	0
Kazakhstan	2014	0	0
Kenya	2014	0	0
Lao People's Democratic Republic	2014	0	0
Lesotho	2014	0	0
North Macedonia	2014	0	0
Madagascar	2014	0	0
Malaysia	2014	1	1
Mali	2014	0	0
Nepal	2014	0	0
Pakistan	2014	0	0
Paraguay	2014	0	0
Peru	2014	0	0
Philippines	2014	0	0
Russia	2014	0	0
Rwanda	2014	0	0
Saudi Arabia	2014	0	0
Senegal	2014	0	0
Seychelles	2014	0	0
Singapore	2014	1	1
South Africa	2014	0	0
Eswatini	2014	0	0
Thailand	2014	0	0
Uganda	2014	0	0
Uruguay	2014	0	0
Vanuatu	2014	0	0
Viet Nam	2014	0	0
Zambia	2014	0	0
Zimbabwe	2014	0	0
Kosovo	2014	0	0

Serbia	2014	0	0
Montenegro	2014	0	0
Australia	2015	3	3
Austria	2015	0	0
Belgium	2015	0	0
Canada	2015	1	1
Chile	2015	1	1
Colombia	2015	0	0
Costa Rica	2015	0	0
Czech Republic	2015	1	1
Denmark	2015	1	1
Estonia	2015	0	0
Finland	2015	0	0
France	2015	0	0
Germany	2015	2	2
Greece	2015	0	0
Hungary	2015	0	0
Iceland	2015	0	0
Ireland	2015	1	1
Israel	2015	1	1
Italy	2015	1	1
Japan	2015	3	3
Korea	2015	16	15
Latvia	2015	0	0
Lithuania	2015	0	0
Luxembourg	2015	0	0
Mexico	2015	1	1
Netherlands	2015	3	3
New Zealand	2015	0	0
Norway	2015	0	0
Poland	2015	0	0
Portugal	2015	0	0
Slovak Republic	2015	0	0
Slovenia	2015	0	0
Spain	2015	0	0
Sweden	2015	1	1
Switzerland	2015	0	0
Türkiye	2015	0	0
United Kingdom	2015	5	5
United States	2015	30	28
Albania	2015	0	0
Argentina	2015	0	0
Bolivia	2015	0	0

Bosnia and Herzegovina	2015	0	0
Brazil	2015	1	1
Brunei Darussalam	2015	0	0
Cambodia	2015	0	0
Cameroon	2015	0	0
China (People's Republic of)	2015	0	0
Dominican Republic	2015	0	0
Ecuador	2015	0	0
Ethiopia	2015	0	0
Gambia	2015	0	0
Guatemala	2015	0	0
India	2015	2	2
Indonesia	2015	3	3
Kazakhstan	2015	0	0
Kenya	2015	0	0
Lao People's Democratic Republic	2015	0	0
Lesotho	2015	0	0
North Macedonia	2015	0	0
Madagascar	2015	0	0
Malaysia	2015	5	5
Mali	2015	0	0
Nepal	2015	0	0
Pakistan	2015	0	0
Paraguay	2015	0	0
Peru	2015	0	0
Philippines	2015	0	0
Russia	2015	0	0
Rwanda	2015	0	0
Saudi Arabia	2015	0	0
Senegal	2015	0	0
Seychelles	2015	0	0
Singapore	2015	4	4
South Africa	2015	0	0
Eswatini	2015	0	0
Thailand	2015	0	0
Uganda	2015	0	0
Uruguay	2015	0	0
Vanuatu	2015	0	0
Viet Nam	2015	1	1
Zambia	2015	0	0
Zimbabwe	2015	0	0
Kosovo	2015	0	0
Serbia	2015	0	0

Montenegro	2015	0	0
Australia	2016	2	2
Austria	2016	0	0
Belgium	2016	1	1
Canada	2016	6	5
Chile	2016	0	0
Colombia	2016	0	0
Costa Rica	2016	0	0
Czech Republic	2016	0	0
Denmark	2016	1	1
Estonia	2016	0	0
Finland	2016	1	1
France	2016	2	2
Germany	2016	6	6
Greece	2016	0	0
Hungary	2016	0	0
Iceland	2016	0	0
Ireland	2016	1	1
Israel	2016	1	1
Italy	2016	1	1
Japan	2016	7	6
Korea	2016	5	5
Latvia	2016	0	0
Lithuania	2016	0	0
Luxembourg	2016	3	3
Mexico	2016	1	1
Netherlands	2016	2	2
New Zealand	2016	1	1
Norway	2016	0	0
Poland	2016	0	0
Portugal	2016	1	1
Slovak Republic	2016	0	0
Slovenia	2016	0	0
Spain	2016	0	0
Sweden	2016	0	0
Switzerland	2016	0	0
Türkiye	2016	0	0
United Kingdom	2016	5	5
United States	2016	43	41
Albania	2016	0	0
Argentina	2016	0	0
Bolivia	2016	0	0
Bosnia and Herzegovina	2016	0	0

Brazil	2016	0	0
Brunei Darussalam	2016	0	0
Cambodia	2016	0	0
Cameroon	2016	0	0
China (People's Republic of)	2016	0	0
Dominican Republic	2016	0	0
Ecuador	2016	0	0
Ethiopia	2016	0	0
Gambia	2016	0	0
Guatemala	2016	0	0
India	2016	4	4
Indonesia	2016	1	1
Kazakhstan	2016	0	0
Kenya	2016	0	0
Lao People's Democratic Republic	2016	0	0
Lesotho	2016	0	0
North Macedonia	2016	0	0
Madagascar	2016	0	0
Malaysia	2016	3	3
Mali	2016	0	0
Nepal	2016	0	0
Pakistan	2016	1	1
Paraguay	2016	0	0
Peru	2016	0	0
Philippines	2016	0	0
Russia	2016	0	0
Rwanda	2016	0	0
Saudi Arabia	2016	0	0
Senegal	2016	0	0
Seychelles	2016	0	0
Singapore	2016	10	10
South Africa	2016	1	1
Eswatini	2016	0	0
Thailand	2016	0	0
Uganda	2016	0	0
Uruguay	2016	0	0
Vanuatu	2016	1	1
Viet Nam	2016	1	1
Zambia	2016	0	0
Zimbabwe	2016	0	0
Kosovo	2016	0	0
Serbia	2016	0	0
Montenegro	2016	0	0

Australia	2017	4	3
Austria	2017	0	0
Belgium	2017	0	0
Canada	2017	3	1
Chile	2017	0	0
Colombia	2017	0	0
Costa Rica	2017	0	0
Czech Republic	2017	0	0
Denmark	2017	1	0
Estonia	2017	0	0
Finland	2017	1	1
France	2017	2	2
Germany	2017	9	9
Greece	2017	0	0
Hungary	2017	0	0
Iceland	2017	0	0
Ireland	2017	1	1
Israel	2017	5	5
Italy	2017	3	3
Japan	2017	10	10
Korea	2017	2	2
Latvia	2017	0	0
Lithuania	2017	0	0
Luxembourg	2017	0	0
Mexico	2017	0	0
Netherlands	2017	2	2
New Zealand	2017	2	2
Norway	2017	0	0
Poland	2017	1	1
Portugal	2017	0	0
Slovak Republic	2017	0	0
Slovenia	2017	0	0
Spain	2017	2	2
Sweden	2017	1	1
Switzerland	2017	2	2
Türkiye	2017	0	0
United Kingdom	2017	8	8
United States	2017	32	30
Albania	2017	0	0
Argentina	2017	0	0
Bolivia	2017	0	0
Bosnia and Herzegovina	2017	0	0
Brazil	2017	1	1

Brunei Darussalam	2017	0	0
Cambodia	2017	1	1
Cameroon	2017	0	0
China (People's Republic of)	2017	0	0
Dominican Republic	2017	0	0
Ecuador	2017	0	0
Ethiopia	2017	0	0
Gambia	2017	0	0
Guatemala	2017	0	0
India	2017	8	8
Indonesia	2017	2	2
Kazakhstan	2017	0	0
Kenya	2017	0	0
Lao People's Democratic Republic	2017	0	0
Lesotho	2017	0	0
North Macedonia	2017	0	0
Madagascar	2017	0	0
Malaysia	2017	5	5
Mali	2017	0	0
Nepal	2017	0	0
Pakistan	2017	0	0
Paraguay	2017	0	0
Peru	2017	0	0
Philippines	2017	1	1
Russia	2017	1	1
Rwanda	2017	0	0
Saudi Arabia	2017	0	0
Senegal	2017	0	0
Seychelles	2017	1	1
Singapore	2017	4	4
South Africa	2017	1	1
Eswatini	2017	0	0
Thailand	2017	1	1
Uganda	2017	0	0
Uruguay	2017	0	0
Vanuatu	2017	0	0
Viet Nam	2017	0	0
Zambia	2017	0	0
Zimbabwe	2017	0	0
Kosovo	2017	0	0
Serbia	2017	0	0
Montenegro	2017	0	0
Australia	2018	4	4

Austria	2018	0	0
Belgium	2018	0	0
Canada	2018	2	2
Chile	2018	0	0
Colombia	2018	0	0
Costa Rica	2018	0	0
Czech Republic	2018	0	0
Denmark	2018	1	1
Estonia	2018	0	0
Finland	2018	2	2
France	2018	3	3
Germany	2018	5	5
Greece	2018	0	0
Hungary	2018	0	0
Iceland	2018	0	0
Ireland	2018	0	0
Israel	2018	0	0
Italy	2018	2	2
Japan	2018	3	3
Korea	2018	2	2
Latvia	2018	0	0
Lithuania	2018	0	0
Luxembourg	2018	0	0
Mexico	2018	0	0
Netherlands	2018	0	0
New Zealand	2018	1	1
Norway	2018	0	0
Poland	2018	0	0
Portugal	2018	0	0
Slovak Republic	2018	0	0
Slovenia	2018	0	0
Spain	2018	1	1
Sweden	2018	0	0
Switzerland	2018	2	2
Türkiye	2018	0	0
United Kingdom	2018	0	0
United States	2018	14	13
Albania	2018	0	0
Argentina	2018	0	0
Bolivia	2018	0	0
Bosnia and Herzegovina	2018	0	0
Brazil	2018	0	0
Brunei Darussalam	2018	0	0

Cambodia	2018	0	0
Cameroon	2018	0	0
China (People's Republic of)	2018	0	0
Dominican Republic	2018	0	0
Ecuador	2018	0	0
Ethiopia	2018	0	0
Gambia	2018	0	0
Guatemala	2018	0	0
India	2018	3	3
Indonesia	2018	0	0
Kazakhstan	2018	0	0
Kenya	2018	0	0
Lao People's Democratic Republic	2018	0	0
Lesotho	2018	0	0
North Macedonia	2018	0	0
Madagascar	2018	0	0
Malaysia	2018	5	5
Mali	2018	0	0
Nepal	2018	0	0
Pakistan	2018	2	2
Paraguay	2018	0	0
Peru	2018	0	0
Philippines	2018	1	1
Russia	2018	0	0
Rwanda	2018	0	0
Saudi Arabia	2018	0	0
Senegal	2018	0	0
Seychelles	2018	1	1
Singapore	2018	13	13
South Africa	2018	0	0
Eswatini	2018	0	0
Thailand	2018	0	0
Uganda	2018	0	0
Uruguay	2018	0	0
Vanuatu	2018	0	0
Viet Nam	2018	1	1
Zambia	2018	0	0
Zimbabwe	2018	0	0
Kosovo	2018	0	0
Serbia	2018	0	0
Montenegro	2018	0	0
Australia	2019	0	0
Austria	2019	0	0

Belgium	2019	0	0
Canada	2019	1	1
Chile	2019	3	3
Colombia	2019	1	1
Costa Rica	2019	0	0
Czech Republic	2019	0	0
Denmark	2019	0	0
Estonia	2019	0	0
Finland	2019	1	1
France	2019	2	2
Germany	2019	3	3
Greece	2019	0	0
Hungary	2019	0	0
Iceland	2019	0	0
Ireland	2019	0	0
Israel	2019	2	2
Italy	2019	2	2
Japan	2019	5	4
Korea	2019	5	5
Latvia	2019	0	0
Lithuania	2019	0	0
Luxembourg	2019	0	0
Mexico	2019	0	0
Netherlands	2019	2	2
New Zealand	2019	0	0
Norway	2019	0	0
Poland	2019	0	0
Portugal	2019	0	0
Slovak Republic	2019	0	0
Slovenia	2019	0	0
Spain	2019	1	1
Sweden	2019	0	0
Switzerland	2019	0	0
Türkiye	2019	0	0
United Kingdom	2019	5	5
United States	2019	12	12
Albania	2019	0	0
Argentina	2019	0	0
Bolivia	2019	0	0
Bosnia and Herzegovina	2019	0	0
Brazil	2019	0	0
Brunei Darussalam	2019	0	0
Cambodia	2019	0	0

Cameroon	2019	0	0
China (People's Republic of)	2019	0	0
Dominican Republic	2019	0	0
Ecuador	2019	0	0
Ethiopia	2019	0	0
Gambia	2019	0	0
Guatemala	2019	0	0
India	2019	4	4
Indonesia	2019	4	4
Kazakhstan	2019	0	0
Kenya	2019	0	0
Lao People's Democratic Republic	2019	0	0
Lesotho	2019	0	0
North Macedonia	2019	0	0
Madagascar	2019	0	0
Malaysia	2019	4	4
Mali	2019	0	0
Nepal	2019	1	1
Pakistan	2019	0	0
Paraguay	2019	0	0
Peru	2019	0	0
Philippines	2019	1	1
Russia	2019	0	0
Rwanda	2019	0	0
Saudi Arabia	2019	0	0
Senegal	2019	0	0
Seychelles	2019	0	0
Singapore	2019	10	10
South Africa	2019	1	1
Eswatini	2019	0	0
Thailand	2019	1	1
Uganda	2019	0	0
Uruguay	2019	0	0
Vanuatu	2019	0	0
Viet Nam	2019	3	3
Zambia	2019	0	0
Zimbabwe	2019	1	1
Kosovo	2019	0	0
Serbia	2019	0	0
Montenegro	2019	0	0
Australia	2020	1	1
Austria	2020	0	0
Belgium	2020	0	0

Canada	2020	2	2
Chile	2020	0	0
Colombia	2020	0	0
Costa Rica	2020	0	0
Czech Republic	2020	0	0
Denmark	2020	1	1
Estonia	2020	0	0
Finland	2020	1	1
France	2020	1	1
Germany	2020	5	5
Greece	2020	1	1
Hungary	2020	0	0
Iceland	2020	0	0
Ireland	2020	0	0
Israel	2020	1	1
Italy	2020	0	0
Japan	2020	2	2
Korea	2020	7	7
Latvia	2020	0	0
Lithuania	2020	0	0
Luxembourg	2020	0	0
Mexico	2020	0	0
Netherlands	2020	0	0
New Zealand	2020	0	0
Norway	2020	0	0
Poland	2020	0	0
Portugal	2020	0	0
Slovak Republic	2020	0	0
Slovenia	2020	0	0
Spain	2020	0	0
Sweden	2020	3	3
Switzerland	2020	1	1
Türkiye	2020	0	0
United Kingdom	2020	11	11
United States	2020	11	11
Albania	2020	0	0
Argentina	2020	0	0
Bolivia	2020	0	0
Bosnia and Herzegovina	2020	0	0
Brazil	2020	0	0
Brunei Darussalam	2020	0	0
Cambodia	2020	0	0
Cameroon	2020	0	0

China (People's Republic of)	2020	0	0
Dominican Republic	2020	0	0
Ecuador	2020	0	0
Ethiopia	2020	0	0
Gambia	2020	0	0
Guatemala	2020	0	0
India	2020	2	2
Indonesia	2020	0	0
Kazakhstan	2020	0	0
Kenya	2020	0	0
Lao People's Democratic Republic	2020	0	0
Lesotho	2020	0	0
North Macedonia	2020	0	0
Madagascar	2020	0	0
Malaysia	2020	1	1
Mali	2020	0	0
Nepal	2020	0	0
Pakistan	2020	1	1
Paraguay	2020	0	0
Peru	2020	0	0
Philippines	2020	0	0
Russia	2020	2	1
Rwanda	2020	0	0
Saudi Arabia	2020	0	0
Senegal	2020	0	0
Seychelles	2020	0	0
Singapore	2020	4	4
South Africa	2020	0	0
Eswatini	2020	0	0
Thailand	2020	2	2
Uganda	2020	0	0
Uruguay	2020	0	0
Vanuatu	2020	0	0
Viet Nam	2020	0	0
Zambia	2020	0	0
Zimbabwe	2020	0	0
Kosovo	2020	0	0
Serbia	2020	0	0
Montenegro	2020	0	0
Australia	2021	1	0
Austria	2021	0	0
Belgium	2021	1	0
Canada	2021	0	0

Chile	2021	0	0
Colombia	2021	0	0
Costa Rica	2021	0	0
Czech Republic	2021	0	0
Denmark	2021	0	0
Estonia	2021	0	0
Finland	2021	0	0
France	2021	0	0
Germany	2021	1	1
Greece	2021	0	0
Hungary	2021	0	0
Iceland	2021	0	0
Ireland	2021	0	0
Israel	2021	0	0
Italy	2021	1	0
Japan	2021	1	0
Korea	2021	4	3
Latvia	2021	0	0
Lithuania	2021	0	0
Luxembourg	2021	0	0
Mexico	2021	0	0
Netherlands	2021	0	0
New Zealand	2021	0	0
Norway	2021	0	0
Poland	2021	0	0
Portugal	2021	0	0
Slovak Republic	2021	0	0
Slovenia	2021	0	0
Spain	2021	0	0
Sweden	2021	2	2
Switzerland	2021	0	0
Türkiye	2021	0	0
United Kingdom	2021	6	6
United States	2021	7	5
Albania	2021	0	0
Argentina	2021	0	0
Bolivia	2021	0	0
Bosnia and Herzegovina	2021	0	0
Brazil	2021	0	0
Brunei Darussalam	2021	0	0
Cambodia	2021	0	0
Cameroon	2021	0	0
China (People's Republic of)	2021	0	0

Dominican Republic	2021	0	0
Ecuador	2021	0	0
Ethiopia	2021	0	0
Gambia	2021	0	0
Guatemala	2021	0	0
India	2021	1	1
Indonesia	2021	0	0
Kazakhstan	2021	0	0
Kenya	2021	0	0
Lao People's Democratic Republic	2021	0	0
Lesotho	2021	0	0
North Macedonia	2021	0	0
Madagascar	2021	0	0
Malaysia	2021	3	2
Mali	2021	0	0
Nepal	2021	0	0
Pakistan	2021	0	0
Paraguay	2021	0	0
Peru	2021	0	0
Philippines	2021	0	0
Russia	2021	0	0
Rwanda	2021	0	0
Saudi Arabia	2021	0	0
Senegal	2021	0	0
Seychelles	2021	0	0
Singapore	2021	7	3
South Africa	2021	0	0
Eswatini	2021	0	0
Thailand	2021	0	0
Uganda	2021	0	0
Uruguay	2021	0	0
Vanuatu	2021	0	0
Viet Nam	2021	3	2
Zambia	2021	0	0
Zimbabwe	2021	0	0
Kosovo	2021	0	0
Serbia	2021	0	0
Montenegro	2021	0	0
Australia	2022	0	0
Austria	2022	0	0
Belgium	2022	0	0
Canada	2022	0	0
Chile	2022	0	0

Colombia	2022	0	0
Costa Rica	2022	0	0
Czech Republic	2022	0	0
Denmark	2022	1	0
Estonia	2022	1	1
Finland	2022	1	0
France	2022	2	2
Germany	2022	3	0
Greece	2022	0	0
Hungary	2022	0	0
Iceland	2022	0	0
Ireland	2022	0	0
Israel	2022	1	1
Italy	2022	0	0
Japan	2022	1	0
Korea	2022	4	2
Latvia	2022	0	0
Lithuania	2022	0	0
Luxembourg	2022	0	0
Mexico	2022	0	0
Netherlands	2022	0	0
New Zealand	2022	1	1
Norway	2022	0	0
Poland	2022	0	0
Portugal	2022	0	0
Slovak Republic	2022	0	0
Slovenia	2022	0	0
Spain	2022	0	0
Sweden	2022	0	0
Switzerland	2022	1	1
Türkiye	2022	0	0
United Kingdom	2022	4	3
United States	2022	10	8
Albania	2022	0	0
Argentina	2022	0	0
Bolivia	2022	0	0
Bosnia and Herzegovina	2022	0	0
Brazil	2022	0	0
Brunei Darussalam	2022	0	0
Cambodia	2022	0	0
Cameroon	2022	0	0
China (People's Republic of)	2022	0	0
Dominican Republic	2022	0	0

Ecuador	2022	0	0
Ethiopia	2022	0	0
Gambia	2022	0	0
Guatemala	2022	0	0
India	2022	0	0
Indonesia	2022	0	0
Kazakhstan	2022	0	0
Kenya	2022	0	0
Lao People's Democratic Republic	2022	1	1
Lesotho	2022	0	0
North Macedonia	2022	0	0
Madagascar	2022	0	0
Malaysia	2022	1	1
Mali	2022	0	0
Nepal	2022	0	0
Pakistan	2022	0	0
Paraguay	2022	0	0
Peru	2022	0	0
Philippines	2022	0	0
Russia	2022	0	0
Rwanda	2022	0	0
Saudi Arabia	2022	0	0
Senegal	2022	0	0
Seychelles	2022	2	2
Singapore	2022	5	3
South Africa	2022	1	1
Eswatini	2022	0	0
Thailand	2022	1	0
Uganda	2022	0	0
Uruguay	2022	0	0
Vanuatu	2022	0	0
Viet Nam	2022	3	2
Zambia	2022	0	0
Zimbabwe	2022	0	0
Kosovo	2022	0	0
Serbia	2022	0	0
Montenegro	2022	0	0
Total		634	590