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The Co-Production Trap: Sino-Foreign Co-Productions Weaken Foreign Movies' Appeal in China

Abstract

Purpose

After decades of growth, China has become the world's second-largest movie market. Unsurprisingly, foreign studios have long targeted China, often through Sino-foreign co-productions —movies jointly produced by foreign and Chinese studios, exempt from China's import quota on foreign movies. Drawing on consumer cosmopolitanism, this study examines whether and how being a Sino-foreign co-production (vs. purely foreign production) affects the box-office performance of foreign movies in China.

Design/methodology/approach

Using secondary data on 769 foreign movies released in China in 2006-2019, we test whether Sino-foreign co-productions (vs. purely foreign productions) exhibit lower box-office performance. Additionally, we examine three quality signals —(1) star power, (2) director power, and (3) studio power— and three foreignness signals —(4) cultural distance, (5) economic distance, and (6) political distance from China— as potential moderators that may mitigate the negative effect of co-production on box-office performance.

Findings

Sino-foreign co-productions perform worse at the box-office compared to purely foreign movies. This negative effect is mitigated by signals of quality —star, director, and studio power— and foreignness —cultural, economic, and political distance from China.

Originality/value

The findings advance research on the antecedents of box-office performance in China and contribute to the literature on international partnerships in cultural industries. They also offer insights for foreign studios seeking to enhance the box-office performance of their movies and for policymakers overseeing international collaborations.

Keywords: Co-production, cosmopolitanism, China, movie industry.

1. Introduction

After decades of globalization, international collaborations have become increasingly common. Within the internationalization literature, international co-productions are seen as a strategic tool that facilitates foreign market entry while enhancing performance (Boateng and Glaister, 2002). While research has examined the formation of international collaborations (Wang *et al*., 2023), their performance implications remain understudied. Existing studies primarily focus on traditional manufacturing industries (e.g., Seo *et al*., 2020), leaving a gap in understanding their impact in cultural industries like movies, where conditions differ significantly.

Cultural products, given their ideological significance and societal influence, are often subject to government regulations and protectionist policies, particularly in emerging countries (O'Connor and Armstrong, 2015). Many such countries restrict cultural imports to protect domestic industries while simultaneously encouraging international co-productions to foster local industry growth. Consequently, international co-productions have become a key strategy for foreign firms seeking to overcome entry barriers and navigate regulatory complexities in culturally sensitive sectors (O'Connor and Armstrong, 2015; Peng, 2016).

The Chinese movie market presents a compelling case for examining international co-productions in cultural industries. Foreign movies traditionally enter China through two avenues: (1) "revenue-sharing movies," capped at 34 imports per year, and (2) "flat-fee movies," where foreign studios sell distribution rights for a fixed fee, forfeiting Chinese box-office revenues (China Briefing, 2015). Amid these restrictions, a third approach —(3) Sino-foreign co-productions— has emerged as an alternative. Such co-productions, jointly produced by foreign and Chinese studios, are exempt from China's import quota, allowing foreign studios to bypass market barriers while retaining control over intellectual property and revenues.

However, international co-productions in the movie industry must carefully balance the assets and liabilities of foreignness (Wang *et al*., 2020). This presents a theoretical dilemma: while co-productions offer regulatory advantages, they may simultaneously dilute the foreign authenticity that attracts cosmopolitan consumers (Magnusson *et al*., 2019; Wang *et al.,* 2020). Research highlights the liabilities of foreignness (Johanson and Vahlne, 2009), and domestic productions are seen as essential for preserving national culture, fostering unity, and instilling national pride (Davvetas *et al.,* 2024; Özsomer, 2012). However, in cultural industries, foreignness can also function as an asset, a marker of authenticity and exotic appeal (Magnusson *et al.,* 2019; Wang *et al*., 2020).

Despite this tension, how foreign studios can effectively manage international co-productions to enhance box-office performance remains unclear. To address this gap, we focus on the Chinese movie industry and investigate whether and how Sino-foreign co-productions (vs. purely foreign productions) influence the box-office performance of foreign movies in China. Drawing on consumer cosmopolitanism (Riefler *et al.,* 2012), we hypothesize that Sino-foreign co-productions (vs. purely foreign productions) will underperform at the box-office due to their reduced perceived quality and diminished foreign appeal among cosmopolitan audiences —those most inclined toward foreign movies. Research suggests that cosmopolitan consumers value authentic foreign cultural experiences over hybridized or domestically adapted content (Cannon and Yaprak, 2002; Riefler *et al*., 2012).

Theoretically, this study also builds on signaling theory (Erdem and Swait, 1998, 2004), which posits that, in markets with imperfect information, consumers rely on signals to assess product quality and authenticity (Erdem *et al.,* 2006). In the context of international co-productions, cosmopolitan audiences may question both a movie's quality and its ability to retain foreign appeal —two key decision factors (Cannon and Yaprak, 2002). Foreign

studios must therefore strategically leverage quality and foreignness signals to shape consumer perceptions. Prior research indicates that quality signals, such as internationally recognized actors, a prestigious director, or a renowned studio, reduce uncertainty and enhance perceived quality (Xie *et al.,* 2015). Similarly, foreignness signals, including greater cultural, economic, or political distance from China, may reinforce a movie's authenticity, making it more attractive to cosmopolitan audiences (Riefler *et al.,* 2012). To examine this, we consider three quality signals —(1) star power, (2) director power, (3) studio power— and three foreignness signals —(4) cultural distance, (5) economic distance, and (6) political distance from China— as potential moderators that may mitigate the negative impact of Sino-foreign co-productions on box-office performance.

Our findings, based on data on foreign movies released in China in 2006-2019, show that Sino-foreign co-productions underperform at the box-office compared to purely foreign movies. However, this negative effect is weakened when co-productions feature strong quality signals (star power, director power, and studio power) or retain a distinct foreign appeal (greater cultural, economic, and political distance from China).

This study makes two contributions to the literature. First, it examines alternative entry modes for foreign studios targeting emerging markets with import barriers. In doing so, it extends prior research on box-office performance in China (Chiu *et al.,* 2019; Gao *et al.,* 2020) by identifying Sino-foreign co-production as a factor that negatively affects foreign movie performance. This finding challenges the dominant research perspective focusing on the liabilities of foreignness (Davvetas *et al.,* 2024; Johanson and Vahlne, 2009) and further contributes to the understanding of cosmopolitanism (Riefler *et al*., 2012).

Second, this study enriches the limited body of research on international co-productions in cultural industries (Peng, 2016; Walsh, 2012). By applying signaling theory (Erdem and Swait, 1998, 2004), we highlight quality and foreignness signals that mitigate co-

production disadvantages, offering a framework applicable beyond the movie industry to other cultural markets. Our findings contribute to the broader understanding of cross-country partnerships (Yayla *et al*., 2023), particularly project-based, non-equity collaborations (Cavusgil *et al.,* 2020). While such partnerships are common in cultural industries (Manning, 2017), prior research has focused on their formation rather than consumer responses. This study demonstrates that consumers may perceive co-productions less favorably unless critical quality and foreignness signals are maintained, providing a theoretical basis for understanding cross-country partnerships across cultural sectors.

Our findings also offer practical insights. For foreign studios, while partnering with Chinese studios facilitates market entry, it may come at the cost of lower box-office performance, especially for movies with less prominent actors, directors, or studios. Additionally, co-productions may be less appealing when the foreign country shares similarities with China. Foreign studios should carefully weigh the trade-offs between market access and the potential loss of perceived quality and authenticity.

For policymakers, these insights can inform strategies for regulating international collaborations in the movie industry. Co-productions do not guarantee success, and their effectiveness depends on the preservation of key quality and foreignness signals. Policymakers should consider these factors when promoting co-productions as a means of supporting the local industry.

2. Literature review

2.1. Chinese movie market

China, now the world's second-largest movie market, generated USD 7.7 billion in box-office revenue in 2023 (Gower Street Analytics, 2025). Foreign studios have long sought to

capitalize on this market, often adapting movies to comply with government regulations and audience preferences (Hermosilla *et al.,* 2018).

However, accessing China's market remains complex. Foreign movies face both explicit (quotas, import bans) and implicit (delayed releases, censorship) barriers (O'Connor and Armstrong, 2015; Wu *et al.,* 2022). Since foreign movies re-entered China in 1994 after a decades-long ban, they have primarily entered through: (1) revenue-sharing movies, capped at 34 annually, or (2) flat-fee movies, where studios sell distribution rights for a fixed price, forfeiting Chinese box-office revenue (China Briefing, 2015). A third option, (3) Sino-foreign co-productions, offers a way around these restrictions. Such co-productions —jointly produced by foreign and Chinese studios— are exempt from quotas, allowing foreign studios to maintain intellectual property rights and financial control.

Yet, co-productions present a dilemma: while they ease market entry, they may weaken perceived quality and foreign authenticity, key factors for cosmopolitan Chinese consumers (Cannon and Yaprak, 2002). Between 2000 and 2019, over 200 Sino-foreign co-productions were released, with nearly 50 grossing over CNY 1 billion. While some (Kung Fu Panda 3 [2016], The Great Wall [2016]) prominently feature Chinese elements, others (Fury [2014], Pixels [2015]) lack clear cultural ties to China, suggesting that some co-productions function more as regulatory workarounds than genuine collaborations.

The 2014 UK-China Film Co-Production Treaty highlights co-productions' strategic value, granting them financial and market-access benefits. British Film Institute CEO Amanda Nevill noted:

"*The co-production treaty with China, which has the largest growing film industry in the world, is hugely significant for UK film as it will open the door for our filmmakers to collaborate and contribute to each other's success*[1]."

While co-productions provide a vital entry route for foreign studios, research is needed to understand their impact on box-office performance. This question is particularly urgent given that, despite the expansion of China's movie industry, foreign movies still struggle to capture a significant market share (Wu *et al.,* 2022), accounting for only 16.23% of total box-office revenue in 2023 (Liu and Ren, 2024). This is despite growing consumer interest in foreign movies (Yuan *et al*., 2024).

2.2. Antecedents of box-office revenue in China

Recent research has begun to recognize the importance of the Chinese movie market (e.g., Gao *et al.*, 2020; Wu *et al.*, 2022).

Several studies highlight the impact of movie-level characteristics on box-office revenue in China. Genres play a key role in shaping revenue outcomes (Chiu *et al*., 2019; Gao *et al.*, 2020). While genres with universal appeal across cultures, like adventure, tend to positively correlate with box-office success (Chiu *et al*., 2019), genres with more culture-specific elements, like comedy, may negatively impact box-office performance. However, Gao *et al.* (2020) suggest that, under certain conditions, genres with larger cultural gaps can actually enhance box-office revenue. Additionally, attributes such as budget and sequels have been linked to box-office performance (Chiu *et al*., 2019; Gao *et al*., 2020; Wu *et al*., 2022).

Distribution-level elements also play a role. For instance, the similarity and informativeness of title translations can affect box-office performance (Gao *et al*., 2020). Social media engagement driven by firm-generated content has been shown to boost box-

[1] https://www.gov.uk/government/news/landmark-deal-secures-future-of-british-film-in-china--2.

office in China (Cheng *et al*., 2021). Moreover, the delayed release of imported movies, due to the Chinese government import decisions, can negatively impact their box-office performance (Wu *et al*., 2022).

Consumer-level factors further influence box-office outcomes. Keh *et al*. (2015) find that lower volumes and less positive valence of online reviews reduce purchase intentions. Similarly, Chiu *et al.* (2019) show that the volume and variance of electronic word-of-mouth positively affect box-office performance.

For a review of the literature on the antecedents of box-office performance in China, see Table I.

----- Table I -----

2.3. International collaborations and co-production in the movie industry

Cross-country project-based non-equity partnerships are international collaborations where partners develop a project with a limited scope and a defined timeline (Cavusgil *et al*., 2020). These partnerships, such as movie co-productions, are central in cultural industries (Manning, 2017) and are actively endorsed by UNESCO for promoting cultural diversity (Parc, 2020).

Despite the significant economic and cultural benefits, as well as the high investment risks and competitive pressures associated with co-productions (Yayla *et al*., 2023), research on this phenomenon has primarily focused on relational dynamics within partnerships, overlooking consumer responses.

Most studies in this area are conceptual, focusing on the opportunities and challenges of international co-productions (Peng, 2016; Peng *et al*., 2019; Walsh, 2012). Peng (2016) discusses the challenges faced by genuine Sino-U.S. co-productions, such as language, cultural, and industry system differences. Parc (2020) examines the effects of co-productions on the global movie industry, particularly collaborations between European countries and the

U.S., and offers strategic recommendations like partnering with experienced firms to navigate complexities. Similarly, Walsh (2012) highlights the commercial challenges in Sino-Australian co-productions, noting the divergent priorities in each country's movie industry. More recently, Yayla *et al*. (2023) show that while cultural distance between co-production partners positively affects performance, the cultural distance between the partnership and the U.S. target market negatively impacts box-office success.

In sum, little attention has been paid in marketing research to Sino-foreign co-productions, particularly to how consumers respond to them.

3. Hypotheses development

3.1. Consumer cosmopolitanism

Cosmopolitanism, first introduced by Merton (1957), refers to "the extent to which a consumer (1) exhibits open-mindedness toward foreign countries and cultures, (2) appreciates the diversity brought about by products from different national and cultural origins, and (3) is positively disposed toward consuming products from foreign countries" (Riefler *et al*., 2012, p. 287). Rather than simply favoring foreign products, cosmopolitan consumers actively seek out foreign cultural experiences because they value authenticity, uniqueness, and exposure to different cultural narratives (Nijssen and Douglas, 2011). Cosmopolitan consumers appreciate learning from other cultures and value diversity while maintaining connections to their local roots (Featherstone, 2002; Cannon and Yaprak, 2002; Riefler *et al.,* 2012). Their interest in foreign products stems from a desire for variety and enriched experiences rather than an inherent bias against local alternatives (Hannerz, 1990; Riefler and Diamantopoulos, 2009).

This distinction is crucial because cosmopolitanism differs from xenocentrism (Cleveland and Balakrishnan, 2019), which implies a blanket preference for foreign products

over local ones (Balabanis and Diamantopoulos, 2016). Cosmopolitan consumers do not indiscriminately favor foreign products but rather assess their appeal based on cultural authenticity and unique experiential value (Hannerz, 1990; Cleveland *et al.,* 2009). As a result, the extent to which a product maintains its distinct foreign characteristics plays a key role in its attractiveness to cosmopolitan audiences (Cannon and Yaprak, 2002). For a comparison of cosmopolitanism and xenocentrism and a more detailed review of recent research on cosmopolitanism, see Tables A1 and A2 in Appendix A, respectively.

China's expanding middle class represents a growing base of cosmopolitan consumers who view foreign cultural products as a means of engaging with modernity and global identity (Batra *et al.,* 2000). Research suggests that foreign brands in China are often associated with quality, innovation, and status (Balabanis *et al.,* 2019; Mueller *et al.,* 2015). However, among cosmopolitan consumers, a foreign product's success depends largely on its ability to retain quality and authenticity (Cannon and Yaprak, 2002). Against this backdrop, in the context of movies, cosmopolitan consumers are more likely to be drawn to productions that offer an authentic representation of foreign culture rather than those that feel overly localized or adapted for the domestic market. Hence, while Sino-foreign co-productions may offer better market access, they risk losing appeal among cosmopolitan audiences if they compromise the authenticity of their foreign elements (Beverland and Farrelly, 2010; Holt, 2002).

Accordingly, this study compares Sino-foreign co-productions not with domestic Chinese movies, but with purely foreign movies. We focus on foreign movies because, as noted earlier, we do not necessarily expect Chinese consumers to prefer them over local productions. Instead, foreign movies are more likely to attract cosmopolitan audiences, who value quality and foreign authenticity. This study therefore investigates whether Sino-foreign

co-productions (vs. purely foreign productions) preserve or dilute the perceived quality and authenticity of foreign elements that appeal to cosmopolitan audiences.

3.2. Sino-foreign co-productions and box-office performance

We expect Sino-foreign co-productions to exhibit lower box-office performance compared to purely foreign productions due to their diminished perceived quality and reduced foreign authenticity among cosmopolitan consumers.

First, foreign studios often struggle to balance authenticity with local adaptation. Co-productions are typically structured to integrate both foreign and local elements to navigate regulatory barriers and enhance market accessibility (Peng, 2016; Wang *et al.,* 2020). However, this hybrid approach can dilute cultural authenticity, making the movie less appealing to cosmopolitan audiences (Cannon and Yaprak, 2002) who seek distinctive and immersive foreign narratives.

Second, cosmopolitan consumers in China increasingly associate foreign cultural products with modernity, sophistication, and access to a globalized lifestyle (Batra *et al.,* 2000). When a co-production over-localizes its content, it risks being perceived as an inauthentic hybrid that lacks the unique characteristics that make foreign movies appealing. In contrast, purely foreign productions preserve their cultural distinctiveness and exotic appeal, making them more attractive to cosmopolitan audiences.

While research, including in marketing, has traditionally highlighted the liabilities of foreignness (Davvetas *et al.,* 2024; Johanson and Vahlne, 2009), the cultural sector operates differently (Wang *et al.,* 2020). In the movie industry, co-productions risk creating an unnatural fusion that weakens the exotic allure of foreign movies, making them feel generic or diluted. By contrast, purely foreign movies maintain their distinctiveness and global appeal (Wang *et al.,* 2020). In other words, in cultural industries, co-productions may erode

perceived quality and authenticity by blurring cultural boundaries, ultimately reducing appeal among cosmopolitan consumers (Cannon and Yaprak, 2002). Thus, we posit:

H1: Sino-foreign co-productions (vs. purely foreign productions) exhibit lower box-office performance in China.

3.3. Quality signals

According to signaling theory (Erdem and Swait, 1998, 2004), consumers rely on external cues to assess product quality, particularly when direct evaluation is not feasible (Erdem *et al.,* 2006). In the movie industry, where audiences must decide whether to watch a movie before experiencing it, they may use indicators such as star power, director power, and studio power to gauge movie quality.

As the backbone of movie production lies in the crew and studios, these may serve as crucial quality signals, moderating the effect at H1. Specifically, influential (a) actors, (b) directors, and (c) studios may be perceived as markers of superior quality, mitigating the negative impact of Sino-foreign co-productions on box-office performance. Rather than viewing these elements as isolated factors, we conceptualize them as a collective quality signal that shapes audience perceptions regarding a movie's credibility, level of investment, and overall production standards.

Actors with a history of commercial success —strong star power— resonate more with audiences (Giannetti and Chen, 2023; Griffith *et al.,* 2017). They can help transcend cultural barriers, making movies more accessible to broader audiences. Moreover, powerful actors may signal that a co-production is valuable and worth-watching, generating buzz (Karniouchina, 2011). Thus, we argue that high star power can mitigate the negative effect of Sino-foreign co-production on box-office performance.

Directors, with their leadership and expertise, significantly influence box-office performance. Those with a proven track record lend credibility and enhance cultural resonance (Griffith *et al.,* 2017). A powerful director can navigate international partnerships and bridge cultural differences (Wei and Yang, 2022), addressing the challenges inherent in Sino-foreign co-productions. Consequently, a Sino-foreign co-production led by a prominent director has greater potential to captivate audiences. Additionally, influential directors possess brand equity, reducing consumers' risk and search costs when assessing movie quality and making purchase decisions (Griffith *et al.,* 2017; Peng *et al.,* 2019). They serve as signals of movie quality, counteracting negative perceptions of Sino-foreign co-productions.

Similarly, studios can also signal a movie's quality (Akdeniz and Talay, 2013). A powerful foreign studio indicates the appropriate allocation of resources and sufficient capabilities to meet international quality standards —an essential consideration for cosmopolitan audiences (Ma *et al.,* 2015; Zhou and Belk, 2004). Moreover, powerful studios can effectively manage the challenges of co-production, particularly within the tight timelines of filmmaking (Parc, 2020). Further, these studios possess extensive distribution networks and marketing teams, which help counteract potential negative perceptions of Sino-foreign co-productions.

In sum, powerful stars, directors, and studios may reassure cosmopolitan Chinese consumers of the inherent quality of Sino-foreign co-productions, mitigating their negative effects on box-office performance. Hence, we posit:

H2: Signals of quality —(a) star power, (b) director power, and (c) studio power— weaken the negative effect of Sino-foreign co-productions (vs. purely foreign productions) on box-office performance in China.

3.4. Foreignness signals

The foreign countries involved in Sino-foreign co-productions —and particularly their distance from China, the target market (Yayla *et al.,* 2023)— may influence perceptions of a movie's foreignness, moderating the effect at H1. Beyond evaluating quality, in fact, cosmopolitan audiences may also assess signals of foreignness to determine whether a movie aligns with their cultural preferences. Building on the literature on psychic distance in international business (Ambos *et al.,* 2019; Dow and Karunaratna, 2006), we identify (a) cultural distance, (b) economic distance, and (c) political distance from China as factors that may amplify the allure of foreignness associated with Sino-foreign co-productions, mitigating their negative impact on box-office performance. Rather than viewing these elements as isolated factors, we conceptualize them as a collective foreignness signal that shapes audience perceptions regarding a movie's authentic foreignness and exotic appeal.

Cultural distance refers to differences in cultural values between countries (Wang *et al.,* 2020). While cultural distance can sometimes lead to a cultural discount due to gaps in understanding (Wang *et al.,* 2020), it may also create cultural allure, especially under conditions of cosmopolitanism (Balabanis *et al.,* 2019). In the context of Sino-foreign co-productions, cultural distance can enhance the exotic appeal of foreign movies, attracting audiences who appreciate foreignness (Moon *et al.,* 2016), that is, cosmopolitan audiences. Thus, the distinctiveness and fascination brought about by cultural distance can serve as a compelling selling point, integrating diverse cultural elements and enhancing the perceived foreignness of the movie, which helps counteract the negative perceptions associated with Sino-foreign co-productions. Moreover, partnering with Chinese studios in Sino-foreign co-productions may be essential when there is high cultural distance between countries, facilitating greater cross-cultural understanding.

Economic distance refers to differences in factor costs, technological capabilities, and standards of living between countries (Tsang and Yip, 2007). In the movie industry, economic distance may reflect variations in resource availability, which can influence perceived movie quality (e.g., studios from more developed countries are seen as producing more sophisticated movies; Moon *et al.,* 2016). Similar to cultural distance, economic distance can also enhance the exotic appeal of foreign movies, attracting audiences who appreciate foreign elements (Moon *et al.,* 2016). Consequently, the distinctiveness brought about by economic distance can serve as a compelling selling point, integrating exotic elements in storytelling and script development, enhancing the perceived foreignness of the movie, and mitigating the negative perceptions associated with Sino-foreign co-productions.

Political distance captures disparities in political systems, governance, and institutional structures between countries (Hewett and Krasnikov, 2016). In Sino-foreign co-productions, political distance can signal foreignness, providing the authenticity and novelty that enhance a movie's exotic appeal. Cosmopolitan audiences may perceive movies featuring elements from distinct political contexts as access to unique foreign assets. This distinctiveness can mitigate cultural dilution in co-productions, enhancing their overall appeal. Therefore, political distance can bolster audience perceptions of foreignness, counteracting the negative impact of Sino-foreign co-productions on box-office performance.

In sum, high cultural, economic, and political distances from China may strengthen perceptions of authentic foreignness among cosmopolitan Chinese consumers, mitigating the negative effects of Sino-foreign co-productions on box-office performance. Hence, we posit:

H3: Signals of foreignness —(a) cultural distance, (b) economic distance, and (c) political distance from China— weaken the negative effect of Sino-foreign co-productions (vs. purely foreign productions) on box-office performance in China.

We present our conceptual framework in Figure I.

----- Figure I -----

4. Data

We assembled data on movies released in China in 2006-2019 from various data sources.

Detailed information, including box-office performance, release year, genres, directors, actors, and studios, as well as countries/regions of production, was obtained from CnOpenData (https://www.cnopendata.com/). This data was integrated with information from Douban.com (https://movie.douban.com/). We collected movie tags, storylines, and languages from Douban, and used it to integrate data on actors and directors from CnOpenData. For any remaining gaps, we consulted the Chinese movie dataset provided by the China Stock Market & Accounting Research Database (CSMAR). Finally, to compare foreign productions and Sino-foreign co-productions, we filtered for movies involving foreign countries, resulting in a dataset of 769 purely foreign productions and Sino-foreign co-productions released in China in 2006-2019[2].

4.1. Variables and measurement

The dependent variable is box-office performance, the total box-office revenue of the movie in China in 10,000 CNY (Wu *et al*., 2022), log-transformed.

The independent variable, Sino-foreign co-production (vs. purely foreign production), is a binary variable taking on value 1 if the movie is a Sino-foreign co-production, 0 otherwise. 18.6% of the movies in our sample are Sino-foreign co-productions.

[2] Co-productions exclusively between Mainland China, Hong Kong, and Taiwan were excluded due to their unique cultural similarities, which do not reflect the broader international context this study seeks to explore. Notwithstanding this, these collaborations are included in a robustness check (see Section 5.2).

Star power is measured as the average Chinese box-office revenue in 10,000 CNY of the movie's principal cast member(s) prior to the movie's release in China (Giannetti *et al.*, 2024). Director power is measured as the average Chinese box-office revenue in 10,000 CNY of the movie's director(s) prior to the movie's release in China. Studio power is measured as the average Chinese box-office revenue in 10,000 CNY of the studio(s) prior to the movie's release in China. All three moderators are log-transformed (after adding 1 to account for first-time actors/directors/studios)[3].

For the three moderators representing foreignness signals, we used the Euclidean distance between the foreign country and China across multiple dimensions, as shown in Eq. (1)[4]:

$$Distance_{ic} = \sqrt{\sum_{d=1}^{n} \left(I_i^d - I_c^d\right)^2} \qquad \textit{Eq. (1)}$$

where n is the number of dimensions, I_i^d is the score for the d^{th} dimension in country i, and I_c^d is the score for the d^{th} dimension in China.

Cultural distance is calculated based on Hofstede's cultural dimensions —power distance, individualism, masculinity, uncertainty avoidance, long-term orientation, and indulgence (Cuypers *et al.*, 2018). This data is available from The Culture Factor Group (https://www.theculturefactor.com/country-comparison-tool). Economic distance is calculated based on GDP per capita, inflation rates, and the intensity of trade (Berry *et al.*, 2010). This data is available from the World Bank

[3] Because reliable budget data for Chinese movies is sparse, these variables also serve as proxies for production investment. Star power has been frequently used as an indirect indicator of budget (De Vany and Walls, 1999).
[4] When studios from more than one foreign country are involved in a movie, we use the country with the highest distance from China to compute the various distance measures.

(https://databank.worldbank.org/source/world-development-indicators). Political distance is calculated based on the Worldwide Governance Indicators —voice and accountability, political stability, government effectiveness, regulatory quality, rule of law, and control of corruption (Berry *et al*., 2010). This data is available from the World Bank (https://www.worldbank.org/en/publication/worldwide-governance-indicators). The details of variables are provided in Table II.

----- Table II -----

5. Analysis and results

Table III reports the descriptive statistics. There is a negative correlation between Sino-foreign co-production (vs. purely foreign production) and box-office performance (ρ = -0.130, $p < 0.01$). The highest variance inflation factor is 4.23, indicating that multi-collinearity is not a concern.

----- Table III -----

We estimate the following equation:

$$Box-office_{ijt} = \beta_0 + \beta_1 Co-Production_i + \beta_2 Star_Power_i + \\ +\beta_3 Director_Power_i + \beta_4 Studio_Power_i + \beta_5 Cultural_Distance_j + \\ \beta_6 Economic_Distance_{jt} + \beta_7 Political_Distance_{jt} + \beta_8 Co-Production_i \times \\ Star_Power_i + \beta_9 Co-Production_i \times Director_Power_i + \beta_{10} Co- \\ Production_i \times Studio_Power_i + \beta_{11} Co-Production_i \times \\ Cultural_Distance_j + \beta_{12} Co-Production_i \times Economic_Distance_{jt} + \\ \beta_{13} Co-Production_i \times Political_Distance_{jt} + \beta_{14} Competition_i + \\ \beta_{15} Market_Development_{jt} + \beta_{16} Diplomatic_Relation_{jt} + \\ \beta_{17} Geographic_Distance_j + \beta_{18} Movie_Positioning_i + \\ \beta_{19} MultiLanguage_i + \beta_{20} Immersiveness_i + \beta_{21} NonOriginal_i + \\ \beta_{22} Chinese_Story_i + \beta_{23} Chinese_Actor_i + \beta_{24} Chinese_Director_i + \\ \beta_{25} Sequel_i + \beta_{26} First_Release_i + \beta_{27} Festival_Release_i + \\ \beta_{28} Seasonality_i + Indicators + e_{ijt} \quad \textit{Eq. (2)}$$

where i indicates movies, j indicates co-production countries, t indicates years, and e_{ijt} is the error term. The model includes indicators for MPA rating (G, PG, PG-13, R, not rated), genre

(action, adventure, animation, comedy, drama, fantasy, horror, mystery, romance, sci-fi, thriller, war), and release year.

5.1. Results

We report the results in Table IV. Model 1 includes the independent variable, Sino-foreign co-production (vs. purely foreign production). The results indicate that Sino-foreign co-production reduces box-office performance (b = -0.713, $p = 0.004$), supporting H1.

Models 2-4 examine the moderation effects of quality signals. In Model 2, we add star power and its interaction with Sino-foreign co-production. In support of H2(a), the negative effect of Sino-foreign co-production is marginally weakened as star power increases (b = 0.113, $p = 0.051$). In Model 3, we add director power and its interaction with Sino-foreign co-production. In support of H2(b), the negative effect of Sino-foreign co-production is weakened as director power increases (b = 0.149, $p = 0.000$). In Model 4, we add studio power and its interaction with Sino-foreign co-production. In support of H2(c), the negative effect of Sino-foreign co-production is weakened as studio power increases (b = 0.105, $p = 0.018$).

Models 5-7 examine the moderation effects of foreignness signals. In Model 5, we add cultural distance and its interaction with Sino-foreign co-production. In support of H3(a), the negative effect of Sino-foreign co-production is weakened as cultural distance increases (b = 1.384, $p = 0.027$). In Model 6, we add economic distance and its interaction with Sino-foreign co-production. In support of H3(b), the negative effect of Sino-foreign co-production is weakened as economic distance increases (b = 0.770, $p = 0.001$). In Model 7, we add political distance and its interaction with Sino-foreign co-production. In support of H3(c), the negative effect of Sino-foreign co-production is weakened as political distance increases (b = 0.550, $p = 0.002$). Model 8 includes all the interactions. The results indicate that, once again,

Sino-foreign co-production reduces box-office performance (b = -8.605, *p = 0.000*), supporting H1. In support of H2(a) and H2(b), respectively, the negative effect of Sino-foreign co-production is weakened as star power (b = 0.126, *p = 0.006*) and director power (b = 0.114, *p = 0.003*) increase. The moderation effect of studio power becomes non-significant, but it retains a positive sign consistent with H2(c). In support of H3(a) and H3(c), the negative effect of Sino-foreign co-production is weakened as cultural distance (b = 0.994, *p = 0.062*) and political distance (b = 0.403, *p = 0.042*) increase. The moderation effect of economic distance is non-significant, although it retains a positive sign consistent with H3(b).

----- Table IV -----

5.2. Robustness checks

We conducted several robustness checks to address potential endogeneity concerns and demonstrate the stability of our results.

Control function. To address potential endogeneity concerns, specifically, that the decision to engage in Sino-foreign co-production is inherently strategic and may signal a studio's capability to access the Chinese market, we employed a control function approach (Petrin and Train, 2010). As an instrument, we used whether the movie was released after 2012[5], the year China increased its import quota for foreign movies from 20 to 34. In the first stage, we estimated a probit model of Sino-foreign co-production on the instrument (b = -1.247, *p* = 0.000). The results are shown in Table B1 in Appendix B. We then computed the generalized residual and added it in the second-stage outcome models. The results are shown in Table V. The coefficients for the generalized residual are often significant, supporting the existence of endogeneity. Importantly, the key results are generally robust, as shown in Table V.

[5] We are thankful to an anonymous reviewer for this suggestion.

----- Table V -----

Propensity score matching. To address concerns that Sino-foreign co-productions might inherently be of lower quality compared to purely foreign productions, we employed propensity score matching (PSM). We matched each Sino-foreign co-production with a purely foreign production on a set of variables that we deem relevant to the treatment (market competition, cultural distance, economic distance, market development, and diplomatic relationship). We employed the 1:1 nearest neighbor algorithm without replacement. This resulted in a sample of 274 movies (137 Sino-foreign co-productions and 137 purely foreign productions). The distribution of propensity scores, that is, a movie's likelihood to be a Sino-foreign co-production, is more similar after matching, as shown in Figure B1, Appendix B. The results obtained using the new sample are largely consistent, as shown in Table VI.

----- Table VI -----

Alternative samples or measures. To further assess the robustness of our findings, we conducted several additional analyses. Specifically, we: (1) included movies produced by Hong Kong and Taiwan studios, as well as their co-productions. Although excluded from the main analyses due their non-domestic classification by Chinese authorities, we incorporated them here given their strong historical, linguistic, and talent-based ties to Mainland China, which likely limit cosmopolitan influences (Chen *et al*., 2022); (2) restricted the sample to 2012-2019 to account for changes in movie import quotas and tightened co-production regulations introduced in 2012; (3) excluded comedies (147 observations), which often rely on culturally specific humor and idiomatic expressions that may not translate well in international co-productions (Song *et al.,* 2018); (4) winsorized the moderators (1% and 99%); (5) used relative box-office performance in lieu of absolute box-office performance as dependent variable. Detailed explanations and results for these alternative samples and

measures are provided in Appendix B. Across all specifications, the findings remain generally consistent (see Tables B2–B6, Appendix B).

6. Discussion

In this research, we show that Sino-foreign co-productions, compared to purely foreign productions, exhibit lower box-office performance in China. This negative effect is mitigated by quality signals —star power, director power, and studio power— as well as by foreignness signals —cultural, economic, and political distances from China.

The study offers important contributions to both theory and practice.

From a theoretical perspective, we extend two bodies of literature: (1) the antecedents of box-office performance in China and (2) the consequences of international collaborations in cultural industries.

First, we extend the marketing literature on box-office performance in China by exploring a previously unexamined antecedent in the marketing literature. While prior research has largely emphasized the liabilities of foreignness (Davvetas *et al.,* 2024), our findings challenge this dominant perspective. We show that foreignness can function as an asset in cultural industries, where it serves as a marker of authenticity and exotic appeal. In the case of Sino-foreign co-productions, this foreignness advantage appears to be diluted, leading to lower box-office performance. Importantly, this adverse effect is attenuated when a movie features strong quality signals —high-profile actors, directors, or studios— as well as when the movie originates from a country with greater cultural, economic, or political distance from China. Second, we contribute to the literature on international project-based non-equity partnerships in the movie industry. Prior studies have largely focused on internal relational dynamics, such as governance mechanisms and coordination challenges (Yayla *et al.,* 2023). In contrast, we shift the focus to consumer responses, offering novel insights into how audiences perceive these collaborations. Specifically, within the Chinese market,

cosmopolitan consumers may view Sino-foreign co-productions as a suboptimal choice, perceiving them as having diminished quality and foreignness and, consequently, lower artistic and cultural value. This suggests that the appeal of foreign movies in China may stem in part from their perceived authenticity as external cultural products rather than their mere incorporation of foreign elements.

Our findings also hold significant managerial and policy implications.

For foreign studios seeking access to the Chinese market, this research highlights a critical trade-off: while Sino-foreign co-productions may facilitate market entry, they can also lead to lower box-office revenues. Studios should carefully weigh the benefits of regulatory access against the potential drawbacks of reduced audience appeal. The success of a Sino-foreign co-production is more likely when backed by strong quality signals (high actor, director, and studio power) and when the movie originates from a country with greater cultural, economic, and political distance from China. Strategic partner selection and marketing positioning can thus play a crucial role in enhancing performance.

For policymakers, these insights can help refine regulations and policies governing international collaborations. Understanding how different factors, such as quality and foreignness signals, affect box-office outcomes can aid in crafting policies that balance the objectives of cultural protectionism, industry growth, and market openness.

This study has limitations that present avenues for research. First, although other countries (e.g., South Korea) have similar quota systems in place, our investigation is confined to China. While the phenomenon of international co-production is common worldwide, the peculiarities of the Chinese context may limit the generalizability of our findings. Second, this research focuses solely on movies released in theatres. Future research could explore movies distributed via streaming platforms or hybrid models to reflect shifting consumer viewing habits and evolving distribution strategies. Third, we excluded movies

from Taiwan and Hong Kong, treated as foreign by Chinese authorities[6], because, given the strong historical, linguistic, and talent-based ties with Mainland China, cosmopolitanism is unlikely to play a distinguishing role (Chen *et al*., 2022). Fourth, while our analysis models box-office performance at the movie-level, future research could adopt a consumer-level perspective by modelling utility maximization across full choice sets to better capture underlying demand dynamics.

By addressing these limitations, future studies can build on our findings to further refine the understanding of how international collaborations shape performance in cultural industries.

[6] https://www.tid.gov.hk/sc_chi/cepa/tradeservices/av_video_sound_lib.html

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Table I: Antecedents of Box-Office Performance in China

Paper	**Time-Period**	**Countries**	**Co-Production**	**Antecedents**	**Key Variables**
Cheng *et al*. (2021)	2014-2015	China	No	Movie-level, consumer-level	Firm-generated messages, consumer digital engagement
Chiu *et al.* (2019)	2010-2015	China (and U.S.)	No	Consumer-level	Electronic word-of-mouth volume, electronic word-of-mouth variance
Gao *et al.* (2020)	2011-2018	China	No	Movie-level, consumer-level	Movie title translation (similarity and informativeness), cultural gap (genre), domestic box-office
Keh *et al.* (2015)	N/A (Survey)	China, (Macau, the Philippines, and India)	No	Consumer-level	Volume of online ratings, valence of online ratings
Wu *et al*. (2022)	2009-2014	China	No	Movie-level	Concurrent release, delayed release
This research	*2006-2019*	*China*	*Yes*	*Movie-level, country-level*	*Sino-foreign co-production (vs. purely foreign production), star power, director power, studio power, cultural distance, economic distance, political distance*

Table II: Variables and measures

Variable	Measure	Data Source
Dependent variable		
Box-office performance	Box-office revenue in 10,000 CNY, log-transformed	CnOpenData
Independent variables		
Sino-foreign co-production	1 if the movie is a Sino-foreign co-production, 0 otherwise	CnOpenData
Moderators		
Star power	Average Chinese box-office revenue in 10,000 CNY for the movie's actor(s) prior to release in China, log-transformed	CnOpenData; Douban.com
Director power	Average Chinese box-office revenue in 10,000 CNY for the movie's director(s) prior to release in China, log-transformed	//
Studio power	Average Chinese box-office revenue in 10,000 CNY for the movie's studio(s) prior to release in China, log-transformed	//
Cultural distance	Euclidean distance of Hofstede cultural dimensions between the foreign country and China, log-transformed	Culture Factor Group
Economic distance	Euclidean distance of economic dimensions between the foreign country and China, log-transformed	World Bank
Political distance	Euclidean distance of Worldwide Governance Indicators between the foreign country and China	//
Control variables		
Market competition	Herfindahl–Hirschman index of movies' market share within the same genre in the same year	CnOpenData
Market development	Three-year moving average of GDP (current, in thousands of USD) of the foreign country, log-transformed	World Bank
Diplomatic relationship	Diplomatic disagreement between the foreign country and China, measured through UN votes (Conte *et al*., 2022)	CEPII
Geographic distance	Geodesic distance (km) between the capital city of the foreign country and Beijing, log-transformed (Conte *et al*., 2022)	//
Movie positioning	1 if the movie is highlighting the co-production country in its tags, 0 otherwise	Douban.com
Multiple languages	1 if the movie offers multiple languages, 0 otherwise	//
Immersiveness	1 if the movie offers 3D or IMAX projection, 0 otherwise	CnOpenData
Non-original	1 if the movie is based on a book, movie, etc., 0 otherwise	Douban.com
Chinese story	1 if the movie is based on a Chinese story, 0 otherwise	//
Chinese actor	1 if the movie includes Chinese actors, 0 otherwise	//
Chinese director	1 if the movie includes Chinese directors, 0 otherwise	//
Sequel	1 if the movie is a sequel, 0 otherwise	//
First Release	1 if China is one of the first release markets globally, 0 otherwise	//
Festival Release	1 if the movie was first released at a film festival, 0 otherwise	//
Seasonality	1 if the movie's release date falls within one of the major Chinese festive periods (i.e., New Year's Day, Chinese New Year, Labor Day, National Day, Mid-Autumn Festival holiday period), 0 otherwise	//

Table III: Descriptive Statistics

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	Box-office performance	1																						
2	Sino-foreign co-production	-0.130***	1																					
3	Star power	0.361***	0.046	1																				
4	Director power	0.293***	0.01	0.235***	1																			
5	Studio power	0.400***	0.012	0.332***	0.244***	1																		
6	Cultural distance	-0.061*	-0.045	-0.007	-0.002	0.006	1																	
7	Economic distance	0.054	0.253***	0.114***	0.043	0.118***	0.353***	1																
8	Political distance	0.141***	-0.600***	0.042	0.01	0.122***	0.227***	0.351***	1															
9	Market competition	-0.014	0.014	-0.170***	-0.053	-0.083**	0.022	0.036	0.016	1														
10	Market development	0.441***	-0.04	0.382***	0.188***	0.406***	-0.066*	0.188***	0.322***	-0.029	1													
11	Diplomatic relationship	0.320***	-0.166***	0.218***	0.119***	0.285***	0.056	0.399***	0.584***	0.026	0.775***	1												
12	Geographic distance	0.235***	-0.469***	0.124***	0.091**	0.189***	0.031	0.164***	0.546***	0.038	0.484***	0.693***	1											
13	Movie positioning	0.276***	-0.210***	0.238***	0.111***	0.175***	-0.012	0.335***	0.370***	-0.069*	0.477***	0.536***	0.397***	1										
14	Multiple languages	0.116***	0.178***	0.082**	0.059*	0.055	-0.096***	-0.006	-0.123***	-0.117***	0.01	-0.007	0.025	0.102***	1									
15	Immersiveness	0.503***	-0.076**	0.236***	0.240***	0.272***	-0.03	0.014	0.041	-0.042	0.312***	0.254***	0.256***	0.244***	0.019	1								
16	Non-original	0.196***	-0.081**	0.114***	0.132***	0.132***	0.100***	0.093***	0.165***	0.006	0.150***	0.117***	0.053	0.090**	-0.105***	0.093***	1							
17	Chinese story	-0.154***	0.783***	0.038	0.027	-0.002	-0.056	0.169***	-0.496***	0.049	-0.080**	-0.169***	-0.404***	-0.262***	0.166***	-0.103***	-0.114***	1						
18	Chinese actor	-0.111***	0.801***	0.064*	0.036	0.004	-0.052	0.152***	-0.508***	0.043	-0.044	-0.147***	-0.405***	-0.198***	0.213***	-0.085**	-0.134***	0.846***	1					
19	Chinese director	-0.139***	0.626***	0.026	0.068*	0.019	-0.083**	0.155***	-0.384***	0.054	-0.071**	-0.151***	-0.326***	-0.223***	0.107***	-0.129***	-0.053	0.729***	0.672***	1				
20	Sequel	0.155***	-0.085**	-0.007	0.112***	0.082**	-0.003	0.067*	0.184***	0.065*	0.163***	0.260***	0.162***	0.128***	0.006	0.086**	0.189***	-0.139***	-0.103***	-0.100***	1			
21	First release	0.232***	0.042	0.182***	0.058*	0.145***	-0.056	0.072**	0.042	-0.120***	0.224***	0.220***	0.133***	0.218***	0.105***	0.182***	-0.066*	0.026	0.053	-0.018	-0.157***	1		
22	Festival release	-0.090**	-0.015	-0.028	0.003	-0.047	0.033	0.03	-0.015	-0.05	-0.053	-0.073**	-0.01	-0.046	0.019	-0.121***	-0.004	-0.041	-0.009	-0.022	-0.076**	-0.207***	1	
23	Seasonality	-0.015	0.032	0.014	-0.027	-0.052	0.008	-0.02	-0.044	0.02	-0.02	-0.025	-0.003	-0.011	0.023	0.031	0.002	0.014	0.034	0.024	0.025	-0.087**	0.033	1
	Mean	8.112	0.186	6.716	2.088	5.827	4.288	3.835	3.888	0.154	22.664	2.346	8.822	0.636	0.344	0.358	0.461	0.136	0.171	0.088	0.256	0.622	0.025	0.173
	Std. Dev.	1.833	0.389	3.128	3.712	3.980	0.212	0.579	1.161	0.162	0.940	0.969	0.682	0.481	0.475	0.480	0.499	0.343	0.376	0.283	0.437	0.485	0.158	0.379

Notes: ***: $p < 0.01$. **: $p < 0.05$. *: $p < 0.10$.

Table IV: Regression results for hypotheses testing

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Sino-foreign co-production	-0.713(0.248)***	-1.499(0.438)***	-0.932(0.244)***	-1.452(0.373)***	-6.684(2.721)**	-3.931(0.977)***	-2.550(0.617)***	-8.605(2.087)***
Star power		0.078(0.023)***						0.076(0.022)***
Director power			0.032(0.014)**					0.029(0.015)*
Studio power				0.051(0.019)***				0.062(0.016)***
Cultural distance					-1.093(0.547)**			-1.008(0.427)**
Economic distance						-0.253(0.184)		0.160(0.198)
Political distance							-0.177(0.086)**	-0.181(0.096)*
Sino-foreign co-production × Star power		0.113(0.058)*						0.126(0.046)***
Sino-foreign co-production × Director power			0.149(0.038)***					0.114(0.039)***
Sino-foreign co-production × Studio power				0.105(0.046)**				0.041(0.035)
Sino-foreign co-production × Cultural distance					1.384(0.626)**			0.994(0.532)*
Sino-foreign co-production × Economic distance						0.770(0.233)***		0.182(0.270)
Sino-foreign co-production × Political distance							0.550(0.174)***	0.403(0.198)**
Market competition	1.337(0.810)*	1.707(0.862)**	1.142(0.803)	1.513(0.796)*	0.704(0.911)	1.396(0.782)*	1.408(0.791)*	0.703(0.790)
Market development	0.526(0.118)***	0.500(0.116)***	0.516(0.118)***	0.480(0.143)***	0.484(0.116)***	0.596(0.131)***	0.627(0.124)***	0.521(0.117)***
Diplomatic relationship	0.012(0.164)	-0.027(0.158)	-0.003(0.161)	0.083(0.180)	0.064(0.163)	0.024(0.185)	0.021(0.177)	-0.052(0.148)
Geographic distance	-0.556(0.131)***	-0.516(0.128)***	-0.523(0.128)***	-0.703(0.147)***	-0.625(0.134)***	-0.582(0.128)***	-0.640(0.133)***	-0.585(0.125)***
Movie positioning	-0.141(0.149)	-0.248(0.155)	-0.146(0.146)	-0.166(0.164)	-0.157(0.151)	-0.169(0.153)	-0.187(0.148)	-0.368(0.150)**
Multiple languages	0.460(0.116)***	0.408(0.114)***	0.431(0.113)***	0.488(0.119)***	0.462(0.115)***	0.496(0.114)***	0.469(0.114)***	0.411(0.110)***
Immersiveness	1.277(0.136)***	1.301(0.136)***	1.197(0.136)***	1.236(0.140)***	1.260(0.138)***	1.278(0.139)***	1.243(0.140)***	1.165(0.128)***
Non-original	0.217(0.112)*	0.203(0.110)*	0.180(0.110)	0.217(0.116)*	0.248(0.111)**	0.208(0.110)*	0.218(0.111)*	0.162(0.105)
Chinese story	-0.116(0.376)	-0.120(0.361)	-0.046(0.359)	-0.110(0.347)	-0.144(0.374)	-0.101(0.375)	-0.086(0.372)	-0.063(0.312)
Chinese actor	0.094(0.284)	-0.016(0.270)	0.085(0.272)	0.145(0.270)	0.106(0.283)	0.220(0.296)	0.210(0.285)	0.117(0.271)
Chinese director	0.064(0.377)	0.001(0.364)	-0.269(0.370)	-0.044(0.350)	0.028(0.379)	0.000(0.361)	0.066(0.366)	-0.511(0.269)*
Sequel	0.473(0.124)***	0.453(0.121)***	0.386(0.124)***	0.414(0.125)***	0.428(0.124)***	0.483(0.122)***	0.502(0.121)***	0.335(0.127)***
First release	0.471(0.131)***	0.475(0.129)***	0.437(0.127)***	0.500(0.137)***	0.469(0.133)***	0.524(0.130)***	0.509(0.131)***	0.517(0.116)***
Festival release	-0.334(0.328)	-0.243(0.356)	-0.312(0.335)	-0.303(0.397)	-0.414(0.332)	-0.271(0.331)	-0.298(0.327)	-0.322(0.328)
Seasonality	-0.002(0.150)	-0.021(0.147)	-0.003(0.146)	0.043(0.159)	0.018(0.147)	0.040(0.147)	0.033(0.147)	0.061(0.127)
MPA rating indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Genre indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	769	767	769	769	765	769	769	763
R-squared	0.467	0.488	0.487	0.503	0.476	0.479	0.476	0.548
Adj R-squared	0.436	0.457	0.456	0.469	0.444	0.447	0.444	0.513

Notes: We tested hypotheses with the full sample of Sino-foreign co-productions and purely foreign productions launched in China between 2006 and 2019. Robust standard errors in parentheses. ***: $p < 0.01$. **: $p < 0.05$. *: $p < 0.10$. All regressions include a constant.

Table V: Robustness check: Second-stage results for control function analysis

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Sino-foreign co-production	-0.464(0.272)*	-1.517(0.426)***	-0.710(0.280)**	-0.938(0.331)***	-6.023(2.187)***	-3.743(0.844)***	-2.241(0.569)***	-8.048(2.094)***
Generalized residual	**-0.655(0.315)****	**-0.560(0.310)***	**-0.513(0.312)**	**-0.698(0.309)****	**-0.577(0.316)***	**-0.826(0.320)****	**-1.163(0.385)*****	**-0.881(0.375)****
Star power		0.085(0.022)***						0.075(0.022)***
Director power			0.033(0.015)**					0.029(0.015)*
Studio power				0.065(0.016)***				0.064(0.016)***
Cultural distance					-1.048(0.400)***			-1.083(0.426)**
Economic distance						-0.159(0.161)		0.147(0.197)
Political distance							-0.028(0.093)	-0.070(0.107)
Sino-foreign co-production x Star power		0.146(0.046)***						0.118(0.046)**
Sino-foreign co-production x Director power			0.134(0.038)***					0.110(0.039)***
Sino-foreign co-production x Studio power				0.088(0.034)**				0.039(0.035)
Sino-foreign co-production x Cultural distance					1.283(0.500)**			0.955(0.530)*
Sino-foreign co-production x Economic distance						0.784 (0.198)***		0.175(0.269)
Sino-foreign co-production x Political distance							0.676(0.159)***	0.488(0.200)**
Market competition	0.692(0.839)	0.624(0.820)	0.702(0.827)	0.824(0.821)	0.739(0.836)	0.658(0.829)	0.677(0.830)	0.681(0.787)
Market development	0.506(0.108)***	0.494(0.107)***	0.502(0.106)***	0.404(0.108)***	0.455(0.110)***	0.606(0.114)***	0.644(0.111)***	0.503(0.117)***
Geographic distance	0.011(0.137)	-0.064(0.135)	-0.001(0.135)	0.028(0.134)	0.095(0.142)	-0.020(0.149)	-0.109(0.151)	-0.094(0.149)
Diplomatic relationship	-0.572(0.129)***	-0.527(0.127)***	-0.539(0.127)***	-0.530(0.126)***	-0.630(0.130)***	-0.595(0.128)***	-0.640(0.130)***	-0.585(0.125)***
Movie positioning	-0.104(0.144)	-0.220(0.144)	-0.119(0.142)	-0.096(0.140)	-0.130(0.143)	-0.159(0.147)	-0.131(0.143)	-0.325(0.151)**
Multiple languages	0.473(0.115)***	0.418(0.113)***	0.443(0.113)***	0.454(0.113)***	0.461(0.115)***	0.521(0.115)***	0.484(0.114)***	0.409(0.109)***
Immersiveness	1.274(0.133)***	1.302(0.131)***	1.197(0.133)***	1.229(0.131)***	1.258(0.133)***	1.286(0.132)***	1.274(0.133)***	1.185(0.128)***
Non-original	0.230(0.110)**	0.207(0.109)*	0.193(0.109)*	0.196(0.108)*	0.265(0.111)**	0.216(0.109)**	0.212(0.109)*	0.169(0.105)
Chinese story	-0.167(0.331)	-0.162(0.325)	-0.095(0.327)	-0.127(0.324)	-0.183(0.330)	-0.173(0.327)	-0.146(0.328)	-0.110(0.312)
Chinese actors	0.037(0.285)	-0.090(0.280)	0.040(0.281)	0.008(0.279)	0.059(0.284)	0.169(0.283)	0.170(0.284)	0.092(0.270)
Chinese directors	0.051(0.277)	-0.079(0.271)	-0.247(0.280)	-0.065(0.271)	0.071(0.276)	-0.031(0.274)	0.062(0.273)	-0.455(0.269)*
Sequel	0.442(0.132)***	0.398(0.130)***	0.366(0.131)***	0.435(0.130)***	0.428(0.132)***	0.452(0.130)***	0.492(0.131)***	0.349(0.127)***
First release	0.492(0.122)***	0.509(0.120)***	0.455(0.120)***	0.502(0.119)***	0.475(0.122)***	0.555(0.121)***	0.559(0.122)***	0.540(0.116)***
Festival release	-0.435(0.348)	-0.350(0.340)	-0.413(0.342)	-0.459(0.340)	-0.431(0.346)	-0.394(0.345)	-0.428(0.344)	-0.350(0.327)
Seasonality	0.000(0.135)	-0.011(0.132)	-0.001(0.133)	0.013(0.132)	0.006(0.134)	0.044(0.134)	0.043(0.134)	0.057(0.127)
MPA rating indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Genre indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	769	767	769	769	765	769	769	763
Adj R-squared	0.442	0.469	0.460	0.467	0.446	0.456	0.454	0.516

Notes: The analysis includes generalized residuals from the first-stage probit regression (see Table B1 Appendix B). Robust standard errors in parentheses.

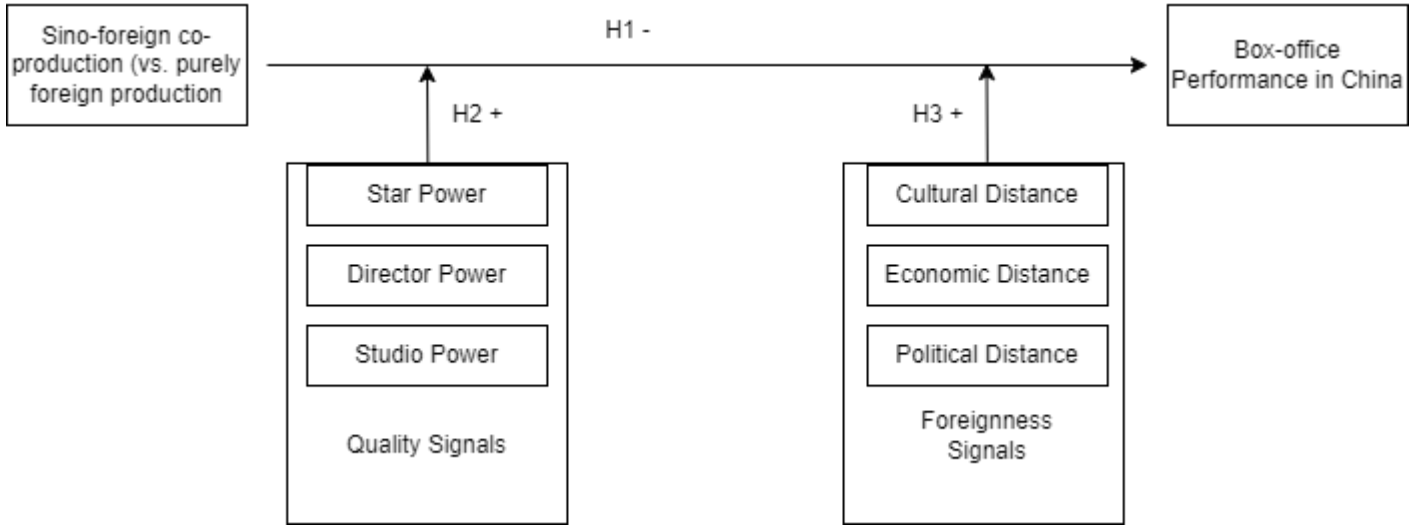
***: $p < 0.01$. **: $p < 0.05$. *: $p < 0.10$. All regressions include a constant.

Table VI: Robustness check: Propensity score matching results

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Sino-foreign co-production	-0.573(0.322)*	-2.021(0.524)***	-0.770(0.329)**	-1.326(0.496)***	-8.431(3.260)**	-3.984(1.313)***	-3.178(1.003)***	-8.890(4.363)**
Star power		0.082(0.048)*						0.074(0.057)
Director power			0.021(0.036)					0.056(0.040)
Studio power				0.055(0.047)				0.065(0.046)
Cultural distance					-1.516(0.713)**			-0.593(1.026)
Economic distance						-0.367(0.304)		-0.288(0.478)
Political distance							-0.137(0.166)	-0.080(0.232)
Sino-foreign co-production × Star power		0.213(0.073)***						0.197(0.086)**
Sino-foreign co-production × Director power			0.149(0.051)***					0.065(0.060)
Sino-foreign co-production × Studio power				0.116(0.062)*				0.051(0.066)
Sino-foreign co-production × Cultural distance					1.825(0.754)**			0.723(1.068)
Sino-foreign co-production × Economic distance						0.822(0.328)**		0.565(0.518)
Sino-foreign co-production × Political distance							0.582(0.217)***	0.253(0.308)
Market competition	2.191(1.595)	2.006(1.376)	2.522(1.598)	3.293(1.565)**	2.371(1.617)	2.011(1.516)	2.101(1.561)	2.466(1.364)*
Market development	0.454(0.212)**	0.447(0.205)**	0.444(0.215)**	0.415(0.245)*	0.422(0.213)**	0.624(0.245)**	0.700(0.233)***	0.570(0.287)**
Diplomatic relationship	0.002(0.262)	-0.146(0.248)	-0.011(0.255)	-0.013(0.290)	0.142(0.279)	0.010(0.301)	-0.141(0.295)	-0.165(0.304)
Geographic distance	-0.766(0.214)***	-0.590(0.203)***	-0.683(0.205)***	-0.708(0.237)***	-0.873(0.223)***	-0.868(0.212)***	-0.900(0.215)***	-0.656(0.230)***
Movie positioning	0.016(0.254)	0.014(0.262)	0.034(0.247)	-0.020(0.273)	0.006(0.258)	-0.079(0.260)	0.007(0.249)	-0.119(0.282)
Multiple languages	0.040(0.227)	-0.074(0.228)	-0.012(0.221)	0.042(0.233)	0.026(0.230)	0.142(0.225)	0.112(0.227)	-0.069(0.234)
Immersiveness	1.285(0.250)***	1.227(0.243)***	1.175(0.243)***	1.370(0.260)***	1.224(0.256)***	1.303(0.248)***	1.241(0.259)***	1.208(0.264)***
Non-original	0.420(0.213)**	0.408(0.206)**	0.343(0.208)	0.403(0.224)*	0.522(0.214)**	0.379(0.217)*	0.391(0.210)*	0.285(0.213)
Chinese story	0.158(0.485)	0.174(0.476)	0.224(0.471)	0.179(0.432)	0.111(0.486)	0.131(0.496)	0.211(0.485)	0.157(0.466)
Chinese actors	-0.157(0.494)	-0.279(0.452)	-0.154(0.470)	0.103(0.447)	-0.083(0.495)	-0.026(0.527)	-0.205(0.499)	0.073(0.452)
Chinese directors	0.118(0.413)	-0.081(0.392)	-0.165(0.401)	-0.050(0.381)	0.142(0.418)	0.044(0.403)	0.135(0.404)	-0.464(0.384)
Sequel	0.668(0.280)**	0.577(0.256)**	0.517(0.283)*	0.641(0.284)**	0.610(0.289)**	0.728(0.275)***	0.829(0.274)***	0.473(0.285)*
First release	0.569(0.275)**	0.579(0.270)**	0.450(0.264)*	0.497(0.303)	0.559(0.278)**	0.679(0.273)**	0.684(0.271)**	0.598(0.294)**
Festival release	-0.933(0.504)*	-1.017(0.434)**	-0.845(0.538)	-1.277(0.641)**	-0.946(0.479)**	-1.014(0.481)**	-1.002(0.504)**	-1.240(0.547)**
Seasonality	-0.194(0.295)	-0.172(0.283)	-0.208(0.287)	-0.188(0.309)	-0.112(0.297)	-0.124(0.281)	-0.091(0.276)	0.000(0.287)
MPA ratings	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Genre indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	274	274	274	274	274	274	274	274
Adj R-squared	0.330	0.395	0.367	0.398	0.339	0.347	0.346	0.487

Notes: The results are based on the 1:1 nearest neighbor propensity score matching method. We re-ran the analysis using kernel matching and Mahalanobis distance matching. Results are largely consistent (available upon request). Robust standard errors in parentheses. ***: $p < 0.01$. **: $p < 0.05$. *: $p < 0.10$. All regressions include a constant.

Figure I: Conceptual Framework



Appendix A

Table A1: Cosmopolitanism versus Xenocentrism

Theme	Aspect	Cosmopolitanism (COS)	Xenocentrism (XEN)
Conceptual Foundation	Definition	Open-mindedness toward foreign cultures, appreciation for diversity in products, people, and cultural experiences (Riefler *et al*., 2012).	A preference for foreign products and out-groups, often coupled with disregard for one's own cultural group (Prince *et al.,* 2016).
	Key Differences	Inclusive and pro-out-group without in-group bias (Cannon and Yaprak, 2002).	Exclusively pro-out-group, often including a negative in-group bias (Prince *et al*., 2020).
	Similarities	Both reflect openness to foreign cultures and are positively correlated (Prince *et al*., 2016).	Both reflect openness to foreign cultures and are positively correlated (Prince *et al.,* 2016).
	Origin	Originates from classical Greek thought, emphasizing individualism, international harmony, and detachment from patriotism (Hill, 1998).	Initially conceived as a counterpart to ethnocentrism, contrasting in-group favoritism (Kent and Burnight, 1951).
	Key Dimensions	Open-mindedness, diversity appreciation, and consumption transcending borders (Riefler *et al.*, 2012).	Perceived inferiority and social aggrandizement (Balabanis and Diamantopoulos, 2016).
	Relationship to Local Culture	Can coexist with local attachments; COS consumers balance local and global identity (Riefler *et al.*, 2012; Prince *et al.,* 2016).	Often involves devaluation of local culture; XEN consumers distance themselves from their local identity (Prince *et al.,* 2016).
	Relationship to Globalization	Seen as a response to and facilitator of globalization (Hannerz, 1990).	Seen as a consequence of globalization and economic disparities (Balabanis and Diamantopoulos, 2016).
Consumer Profile	Psychological and Behavioral Drivers	Positively associated with autonomy, competence, and relatedness; linked to openness to change and fairness-based moral values (Cleveland and Balakrishnan, 2019; Prince *et al.,* 2020).	Negatively mediated by neuroticism; negatively related to collective self-esteem (Cleveland and Balakrishnan, 2019; Balabanis and Diamantopoulos, 2016).
	Demographic Factors	More common among younger, urban-dwelling, highly educated, and higher-income consumers (Cleveland *et al.,* 2009; Riefler *et al*., 2012).	May be more prevalent among higher-income consumers (Mueller *et al.,* 2015).
	Consumer Behavior	Positively affects evaluations and purchase intentions for both foreign and domestic products; preference for niche, authentic, or culturally distinct foreign products (Diamantopoulos *et al.,* 2019; Prince *et al.,* 2016, 2020; Riefler *et al*., 2012).	Strong preference for foreign products regardless of quality; failure to recognize superior domestic alternatives (Prince *et al.,* 2016; Thoumrungroje *et al.,* 2024).

Implications	Cultural Implications	Encourages cultural openness, pro-environmental behaviors, and cross-group friendships (Cleveland and Balakrishnan, 2019).	Leads to selective admiration of foreign cultures; XEN consumers view foreign cultures as superior (Cleveland and Balakrishnan, 2019).
	Social Implications	Positively associated with global literacy (Zhang and Takahashi, 2024).	Has a direct negative impact on self-esteem but may be mitigated through conspicuous consumption and brand addiction (Diamantopoulos *et al.,* 2025).
	Consumer Behavior Implications	Positively affects evaluations and purchase intentions for both foreign and domestic products (Zeugner-Roth *et al.,* 2015).	Strong preference for foreign products, regardless of quality (Prince *et al.,* 2016).
Relevance to this Study		*Central to this study, as COS consumers value foreign movies based on their quality and foreign authenticity rather than just their foreign status.*	*Not relevant.*

Table A2: Key Literature on Cosmopolitanism and Consumer Outcomes

Author	Region	Method	Outcomes	Key findings
Bartsch *et al.* (2022)	U.S., U.K., and EU	Survey	Consumer authenticity seeking	Cosmopolitanism positively correlates with consumer authenticity seeking.
Cleveland and Balakrishnan (2019)	Canada and U.S.	Survey	Cross-group friendships, influentialness, environmental behavior	Cosmopolitanism is driven by basic psychological needs (autonomy, competence, and relatedness). It positively affects cross-group friendships, influentialness, and environmental responsibility.
Cleveland *et al.* (2011)	Canada, Mexico, Chile, Sweden, Greece, Hungary, India, and South Korea	Survey	Receptivity to global product categories (food, fashion, personal care, appliances, electronics, technology, luxuries)	Cosmopolitanism increases receptivity to global brands, especially in technology and fashion, with varying effects across countries.
Cleveland *et al.* (2009)	Canada, Mexico, Chile, Sweden, Greece, Hungary, India, and South Korea	Survey	Receptivity to global products (luxury goods, international fashion, modern technology)	Cosmopolitanism positively influences ownership and engagement with global products, including luxury goods, fashion, and technology.
Fastoso and González-Jiménez (2020)	China	Survey	Attachment to brands of consumer electronics	Cosmopolitanism is positively linked to emotional attachment to brands that align with an aspirational self-image but not to brands with low ideal self-congruity. Perceived brand globalness does not moderate this effect.
Han and Nam (2020)	China, Japan, Germany, and Chile	Survey	Receptivity to foreign cultures and products	Cosmopolitanism has equally strong positive effects among consumers for both similar and dissimilar out-group countries.
Kuo and Helm (2025)	Taiwan	Experiment	Perceived taste of traditional foods	Ethnic congruity between food, chefs, wait staff, and atmospherics enhances perceived taste, mediated by authenticity perceptions and enhanced by consumer cosmopolitanism. In local traditional food settings, ethnic congruence influences perception only among individuals with a strong local identity, and cosmopolitanism has a negative impact.
Prince *et al.* (2016)	U.K. and U.S.	Survey	Global consumption orientation	Cosmopolitan consumers exhibit a stronger global consumption orientation, favoring global lifestyles over local ones.

Riefler *et al.* (2012)	Singapore, Austria, and United World College alumni clubs.	Survey	- Receptivity to global products - Receptivity to foreign products - Preference for international media, food, and lifestyle	Cosmopolitan consumers engage more with international media, food, and brands. They are more likely to buy foreign products due to their openness to diversity. However, cosmopolitanism does not always translate into a preference for global brands: some may favor niche, culturally distinct foreign products over standardized global brands.
Zeugner-Roth *et al.* (2015)	Austria and Slovenia	Survey	- Receptivity to foreign products - Receptivity to local products	Cosmopolitanism positively influences judgments and purchase willingness for both local and foreign products. However, national identity and ethnocentrism have a stronger influence on local product preference.

Appendix B

Robustness checks - Alternative samples or measures.

Inclusion of Hong Kong and Taiwan productions. In the main analyses, we excluded Hong Kong and Taiwan productions, although not treated as domestic by Chinese authorities[7], as we do not expect cosmopolitanism to play a role given the substantial historical, linguistic, and talent-based connections between these two industries and that of Mainland China (Chen *et al.,* 2022). We now re-include these productions. We created two categorical variables: (1) if the movie is produced by foreign studios only (*Foreign productions*) and (2) for co-productions by Mainland Chinese studios and Hong Kong or Taiwan studios or both (*Greater-China co-productions*), leaving out co-productions between foreign and Mainland Chinese studios (*Sino-foreign co-productions*) as the reference group. The results in Table B2 show that foreignness increases box-office performance, consistent with the main analyses. The results remain consistent with the main analyses when including Hong Kong and Taiwan productions, showing that foreign production is significantly positive (b = 0.773, $p < 0.001$) shaping box office performance, and quality signals —star power (b = -0.128, $p = 0.042$), director power (b = -0.136, $p = 0.001$), and studio power (b = -0.155, $p = 0.002$)— as well as foreignness signals —cultural distance (b = -0.990, $p = 0.084$), economic distance (b = -0.603, $p = 0.007$), and political distance (b = -0.478, $p = 0.011$)— weaken the positive main effect of foreign productions[8]; while Greater-China co-productions do not show significant differences from Sino-foreign co-productions on many dimensions.

[7] Source: https://www.tid.gov.hk/sc_chi/cepa/tradeservices/av_video_sound_lib.html

[8] The direction of the moderation effects appears reversed compared to the main analysis because that model uses foreign production as the reference category (instead of Sino-foreign co-productions). However, the interpretation remains consistent.

Different timeframe. In 2012, as noted earlier, the Chinese government increased the foreign movie import quota and imposed stricter regulations on co-productions. Hence, we conducted a robustness check using only post-2012 data. The results in Table B3 remain largely consistent. The coefficient for Sino-foreign co-production remains significantly negative (b = -0.623, $p = 0.044$), and all three quality signals —star power (b = 0.162, $p = 0.011$), director power (b = 0.165, $p < 0.001$), and studio power (b = 0.111, $p = 0.030$)— as well as two foreignness signals —cultural distance (b = 1.734, $p = 0.002$) and political distance (b = 0.386, $p = 0.028$)— positively moderate the relationship between Sino-foreign co-production and performance. The only exception is the moderation effect of economic distance (b = 0.004, $p = 0.317$), which shows a non-significant result, although the sign remains consistent with the main analyses.

Excluding comedies. Comedies, which rely heavily on subtle cultural cues, idiomatic expressions, and local context, are highly culturally-sensitive (Song *et al.,* 2018). Foreign and internationally co-produced comedies may at times struggle to convey humor effectively due to cultural differences. Hence, we excluded comedies from our analysis. The results in Table B4 are largely consistent, where the coefficient for Sino-foreign co-production remains significantly negative (b = -0.626, $p = 0.021$), confirming the robustness of the main effect. All three quality signals —star power (b = 0.117, $p = 0.077$), director power (b = 0.157, $p = 0.001$), and studio power (b = 0.093, $p = 0.049$)— indicate consistent moderation effects. Among the foreignness signals, economic distance (b = 0.010, $p = 0.010$) and political distance (b = 0.520, $p = 0.001$) both positively and significantly moderate the effect of Sino-foreign co-production. The only exception is the moderation effect of cultural distance (b = 0.524, $p = 0.160$), which shows a non-significant result, although the sign remains consistent with the main analyses.

Data winsorization. We winsorized the moderators (1% and 99%) to mitigate the influence of extreme values. The results in Table B5 remain largely consistent. The coefficient for Sino-foreign co-production remains significantly negative (b = -0.713, $p = 0.004$), and quality signals —star power (b = 0.115, $p = 0.046$), director power (b = 0.149, $p < 0.001$), and studio power (b = 0.100, $p = 0.016$)— positively moderate the main effects. Regarding foreignness signals, cultural distance (b = 1.384, $p = 0.027$), economic distance (b = 0.789, $p = 0.002$) and political distance (b = 0.544, $p = 0.001$) also show positive moderation effects.

Relative performance analysis. We re-ran the analysis using relative box-office performance, measured as the natural logarithm of a movie's share of the total box-office of all movies released in the same trimester, in lieu of absolute box-office performance, as dependent variable. This model better accounts for the competitive environment and seasonal variations. The results, reported in Table B6, remain consistent when using relative box-office performance as the dependent variable. The coefficient for Sino-foreign co-production remains significantly negative (b = -0.669, $p = 0.009$), and all quality signals —star power (b = 0.160, $p = 0.010$), director power (b = 0.149, $p < 0.001$), and studio power (b = 0.108, $p = 0.013$)— as well as all foreignness signals —cultural distance (b = 1.416, $p = 0.040$), economic distance (b = 0.769, $p = 0.004$), and political distance (b = 0.617, $p = 0.001$)— show significant positive moderation effects.

Figure B1: Propensity score distributions of treatment and control groups before and after matching

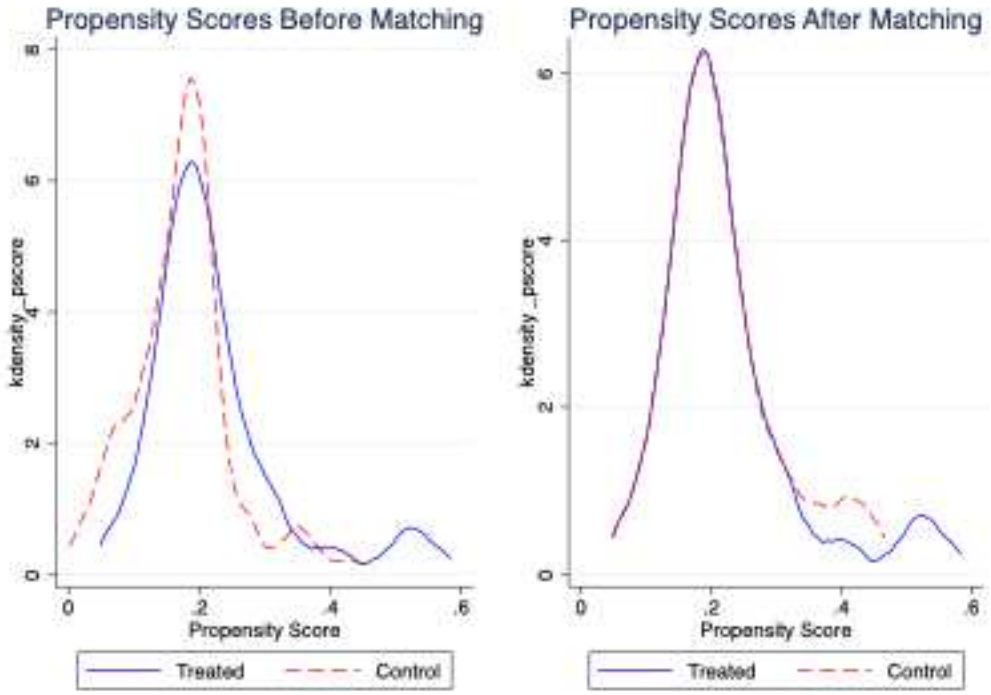


Table B1: Robustness check: First-stage results for control function analysis

Probit Model DV: Sino-foreign co-production (vs. purely foreign production)	
After 2012	**-1.247 (0.222)*****
Cultural distance	-0.575 (0.268)**
Economic distance	1.859 (0.195)***
Political distance	-1.988 (0.157)***
Market competition	-0.132 (0.619)
Market development	0.136 (0.181)
Diplomatic relationship	0.059 (0.213)
N	782
χ^2	483.12
Pseudo R2	0.65

Table B2: Robustness check: Inclusion of Hong Kong and Taiwan productions

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Greater-China co-production	0.987(0.213)***	-1.698(0.936)*	0.807(0.265)***	0.756(0.549)	5.719(1.683)***	0.426(1.145)	-0.138(1.037)	2.152(3.940)
Foreign production	0.773(0.199)***	1.838(0.503)***	1.036(0.226)***	1.867(0.401)***	5.042(2.483)**	3.307(0.915)***	2.050(0.547)***	8.849(2.995)***
Star power		0.240(0.062)***						0.234(0.058)***
Director power			0.188 (0.038)***					0.129(0.039)***
Studio power				0.231 (0.049)***				0.169(0.052)***
Cultural distance					0.281 (0.293)			0.062(0.373)
Economic distance						0.544 (0.179)***		0.268(0.221)
Political distance							0.464 (0.174)***	0.305(0.195)
Greater-China co-production × Star power		0.282 (0.111)**						0.183(0.122)
Foreign production × Star power		-0.128 (0.063)**						-0.144(0.062)**
Greater-China co-production × Director power			-0.067 (0.043)					-0.053(0.045)
Foreign production × Director power			-0.136 (0.040)***					-0.079(0.041)*
Greater-China co-production × Studio power				-0.023 (0.066)				-0.082(0.072)
Foreign production × Studio power				-0.155(0.050)***				-0.104(0.054)*
Greater-China co-production × Cultural distance					-1.329(0.449)***			-0.679(0.833)
Foreign production × Cultural distance					-0.990(0.573)*			-1.019(0.724)
Greater-China co-production × Economic distance						-0.008(0.241)		-0.361(0.504)
Foreign production × Economic distance						-0.603(0.224)***		-0.125(0.316)
Greater-China co-production × Political distance							0.477(0.425)	0.454(0.653)
Foreign production × Political distance							-0.478(0.186)**	-0.353(0.224)
Market competition	1.446(0.545)***	1.040(0.630)*	0.820(0.587)	1.144(0.541)**	1.000(0.600)*	1.088(0.585)*	0.997(0.580)*	0.701(0.567)
Market development	0.679(0.069)***	0.488(0.069)***	0.580(0.068)***	0.541(0.084)***	0.602(0.068)***	0.670(0.066)***	0.685(0.072)***	0.488(0.090)***
Movie positioning	-0.120(0.121)	-0.249(0.119)**	-0.171(0.118)	-0.174(0.128)	-0.129(0.121)	-0.206(0.122)*	-0.196(0.119)	-0.324(0.126)**
Multiple languages	0.552(0.102)***	0.528(0.100)***	0.403(0.102)***	0.513(0.103)***	0.481(0.104)***	0.528(0.104)***	0.555(0.104)***	0.389(0.104)***
Immersiveness	1.581(0.113)***	1.601(0.108)***	1.487(0.111)***	1.599(0.112)***	1.588(0.113)***	1.603(0.112)***	1.610(0.113)***	1.467(0.112)***
Geographic distance	-0.369(0.114)***	-0.301(0.108)***	-0.265(0.108)**	-0.357(0.125)***	-0.303(0.109)***	-0.341(0.112)***	-0.393(0.111)***	-0.474(0.123)***
Genre indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1,160	1,111	1,114	1,018	1,112	1,114	1,114	1,015
Adj R-squared	0.424	0.387	0.379	0.388	0.349	0.356	0.347	0.452

Notes: Robust standard errors in parentheses. ***: $p < 0.01$. **: $p < 0.05$. *: $p < 0.10$. All regressions include a constant. Some controls are excluded as they are not applicable to Greater China.

Table B3: Robustness check: Different timeframe

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Sino-foreign co-production	-0.623(0.309)**	-1.840(0.573)***	-0.958(0.324)***	-1.620(0.464)***	-8.116(2.385)***	-0.815(0.380)**	-2.293(0.829)***	-9.905(2.399)***
Star power		0.067(0.033)**						0.064(0.033)*
Director power			0.032(0.017)*					0.032(0.017)*
Studio power				0.053(0.025)**				0.074(0.020)***
Cultural distance					-1.336(0.451)***			-1.147(0.477)**
Economic distance						-0.004(0.003)		0.001(0.003)
Political distance							-0.197(0.091)**	-0.155(0.103)
Sino-foreign co-production × Star power		0.162(0.064)**						0.112(0.064)*
Sino-foreign co-production × Director power			0.165(0.044)***					0.122(0.044)***
Sino-foreign co-production × Studio power				0.111(0.051)**				0.029(0.044)
Sino-foreign co-production × Cultural distance					1.734(0.547)***			1.564(0.562)***
Sino-foreign co-production × Economic distance						0.004(0.004)		-0.002(0.004)
Sino-foreign co-production × Political distance							0.386(0.176)**	0.328(0.191)*
Market competition	0.788(1.062)	0.681(1.046)	0.728(1.039)	0.471(1.151)	0.880(1.053)	0.760(1.063)	0.843(1.058)	0.848(1.002)
Market development	0.670(0.134)***	0.670(0.139)***	0.689(0.131)***	0.749(0.158)***	0.580(0.139)***	0.633(0.143)***	0.710(0.139)***	0.529(0.153)***
Diplomatic relationship	-0.033(0.170)	-0.108(0.170)	-0.065(0.166)	-0.043(0.185)	0.124(0.180)	0.012(0.176)	0.033(0.190)	0.046(0.191)
Geographic distance	-0.604(0.163)***	-0.561(0.161)***	-0.537(0.160)***	-0.808(0.182)***	-0.738(0.166)***	-0.603(0.163)***	-0.667(0.164)***	-0.656(0.162)***
Movie positioning	-0.305(0.184)*	-0.367(0.188)*	-0.313(0.181)*	-0.461(0.202)**	-0.342(0.183)*	-0.279(0.190)	-0.338(0.184)*	-0.406(0.192)**
Multiple languages	0.496(0.148)***	0.471(0.146)***	0.472(0.145)***	0.535(0.154)***	0.488(0.147)***	0.491(0.149)***	0.518(0.148)***	0.433(0.142)***
Immersiveness	1.398(0.162)***	1.397(0.161)***	1.274(0.161)***	1.401(0.167)***	1.381(0.161)***	1.392(0.163)***	1.322(0.165)***	1.175(0.159)***
Non-original	0.062(0.134)	0.053(0.134)	0.016(0.131)	0.078(0.141)	0.129(0.135)	0.064(0.134)	0.103(0.134)	0.073(0.129)
Chinese story	-0.270(0.424)	-0.322(0.418)	-0.174(0.414)	-0.291(0.444)	-0.318(0.420)	-0.265(0.428)	-0.221(0.424)	-0.155(0.409)
Chinese actors	-0.247(0.397)	-0.278(0.391)	-0.227(0.390)	-0.125(0.425)	-0.204(0.394)	-0.240(0.401)	-0.215(0.395)	-0.230(0.379)
Chinese directors	-0.234(0.374)	-0.312(0.369)	-0.685(0.378)*	-0.308(0.378)	-0.122(0.374)	-0.219(0.375)	-0.225(0.373)	-0.609(0.366)*
Sequel	0.675(0.169)***	0.621(0.168)***	0.543(0.168)***	0.561(0.174)***	0.664(0.168)***	0.679(0.170)***	0.702(0.169)***	0.454(0.165)***
First release	0.630(0.161)***	0.652(0.159)***	0.587(0.157)***	0.721(0.171)***	0.626(0.160)***	0.641(0.162)***	0.666(0.162)***	0.658(0.155)***
Festival release	-0.121(0.403)	-0.019(0.398)	-0.134(0.393)	0.252(0.472)	-0.177(0.412)	-0.063(0.406)	-0.063(0.401)	-0.071(0.394)
Seasonality	0.224(0.173)	0.210(0.171)	0.211(0.169)	0.306(0.188)	0.224(0.172)	0.231(0.173)	0.242(0.172)	0.207(0.164)
MPA rating indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Genre indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	523	521	523	523	522	523	523	520
Adj R-squared	0.438	0.458	0.464	0.465	0.448	0.437	0.443	0.523

Notes: Robust standard errors in parentheses. ***: $p < 0.01$. **: $p < 0.05$. *: $p < 0.10$. All regressions include a constant.

Table B4: Robustness check: Excluding comedies

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Sino-foreign co-production	-0.626(0.271)**	-1.472(0.518)***	-0.856(0.273)***	-1.087(0.362)***	-2.889(1.631)*	-1.410(0.372)***	-2.927(0.787)***	-5.752(1.621)***
Star power		0.074(0.025)***						0.078(0.026)***
Director power			0.027(0.015)*					0.025(0.015)
Studio power				0.068(0.020)***				0.070(0.020)***
Cultural distance					-0.675(0.297)**			-0.665(0.222)***
Economic distance						-0.003(0.003)		0.003(0.003)
Political distance							-0.140(0.083)*	-0.203(0.084)**
Sino-foreign co-production × Star power		0.117(0.066)*						0.108(0.064)*
Sino-foreign co-production × Director power			0.157(0.045)***					0.160(0.047)***
Sino-foreign co-production × Studio power				0.093(0.047)**				0.042(0.051)
Sino-foreign co-production × Cultural distance					0.524(0.373)			0.392(0.345)
Sino-foreign co-production × Economic distance						0.010(0.004)***		0.002(0.004)
Sino-foreign co-production × Political distance							0.520(0.165)***	0.414(0.170)**
Market competition	0.837(0.389)**	1.136(0.420)***	0.756(0.391)*	0.695(0.373)*	0.819(0.399)**	0.956(0.377)**	0.914(0.383)**	0.981(0.377)***
Market development	0.404(0.132)***	0.388(0.132)***	0.384(0.130)***	0.302(0.136)**	0.372(0.130)***	0.489(0.143)***	0.511(0.139)***	0.408(0.146)***
Diplomatic relationship	0.087(0.180)	0.053(0.177)	0.081(0.176)	0.103(0.172)	0.128(0.179)	0.081(0.184)	0.027(0.195)	0.049(0.181)
Geographic distance	-0.537(0.137)***	-0.493(0.134)***	-0.497(0.136)***	-0.469(0.136)***	-0.577(0.138)***	-0.532(0.133)***	-0.579(0.136)***	-0.494(0.129)***
Movie positioning	-0.094(0.166)	-0.200(0.172)	-0.069(0.164)	-0.098(0.165)	-0.088(0.168)	-0.184(0.163)	-0.060(0.165)	-0.258(0.167)
Multiple languages	0.396(0.132)***	0.333(0.129)***	0.382(0.129)***	0.421(0.130)***	0.392(0.132)***	0.439(0.129)***	0.410(0.129)***	0.381(0.121)***
Immersiveness	1.390(0.141)***	1.409(0.142)***	1.303(0.141)***	1.321(0.140)***	1.380(0.141)***	1.396(0.141)***	1.335(0.145)***	1.199(0.143)***
Non-original	0.279(0.132)**	0.260(0.129)**	0.242(0.130)*	0.232(0.131)*	0.313(0.132)**	0.274(0.129)**	0.293(0.129)**	0.224(0.124)*
Chinese story	-0.475(0.407)	-0.492(0.389)	-0.407(0.385)	-0.564(0.380)	-0.502(0.404)	-0.484(0.406)	-0.469(0.402)	-0.531(0.354)
Chinese actors	0.278(0.324)	0.189(0.313)	0.270(0.309)	0.230(0.314)	0.308(0.323)	0.397(0.335)	0.317(0.313)	0.318(0.308)
Chinese directors	0.024(0.395)	0.051(0.384)	-0.296(0.388)	-0.024(0.371)	-0.013(0.399)	-0.174(0.380)	0.029(0.390)	-0.551(0.354)
Sequel	0.413(0.145)***	0.412(0.141)***	0.310(0.143)**	0.399(0.143)***	0.381(0.147)***	0.420(0.141)***	0.451(0.140)***	0.275(0.135)**
First release	0.460(0.150)***	0.475(0.149)***	0.417(0.145)***	0.476(0.146)***	0.447(0.152)***	0.486(0.149)***	0.493(0.151)***	0.472(0.144)***
Festival release	-0.413(0.380)	-0.310(0.404)	-0.405(0.389)	-0.429(0.381)	-0.599(0.389)	-0.352(0.379)	-0.396(0.381)	-0.472(0.414)
Seasonality	-0.017(0.175)	-0.024(0.170)	-0.026(0.168)	-0.059(0.169)	0.005(0.173)	0.029(0.172)	0.000(0.170)	0.004(0.154)
MPA rating indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Genre indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	622	620	622	622	618	622	622	616
Adj R-squared	0.420	0.440	0.438	0.445	0.429	0.432	0.429	0.505

Notes: Robust standard errors in parentheses. ***: $p < 0.01$. **: $p < 0.05$. *: $p < 0.10$. All regressions include a constant.

Table B5: Robustness check: Data winsorization

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Sino-foreign co-production	-0.713(0.248)***	-1.513(0.438)***	-0.932(0.244)***	-1.271(0.342)***	-6.684(2.721)**	-4.002(1.071)***	-3.127(0.772)***	-8.372(2.681)***
Star power		0.078(0.023)***						0.076(0.023)***
Director power			0.032(0.014)**					0.028(0.014)**
Studio power				0.060(0.016)***				0.063(0.016)***
Cultural distance					-1.093(0.547)**			-0.865(0.535)
Economic distance						-0.257(0.186)		0.001(0.003)
Political distance							-0.150(0.078)*	-0.144(0.083)*
Sino-foreign co-production × Star power		0.115(0.058)**						0.125(0.057)**
Sino-foreign co-production × Director power			0.149(0.038)***					0.109(0.039)***
Sino-foreign co-production × Studio power				0.100(0.042)**				0.041(0.046)
Sino-foreign co-production × Cultural distance					1.384(0.626)**			1.071(0.624)*
Sino-foreign co-production × Economic distance						0.789(0.254)***		0.003(0.003)
Sino-foreign co-production × Political distance							0.544(0.164)***	0.328(0.171)*
Market competition	1.337(0.810)*	1.711(0.862)**	1.143(0.803)	1.416(0.780)*	0.704(0.911)	1.400(0.782)*	1.357(0.784)*	0.702(0.785)
Market development	0.526(0.118)***	0.501(0.116)***	0.516(0.118)***	0.431(0.118)***	0.484(0.116)***	0.591(0.131)***	0.633(0.123)***	0.503(0.130)***
Diplomatic relationship	0.012(0.164)	-0.027(0.158)	-0.003(0.161)	0.024(0.155)	0.064(0.163)	0.029(0.185)	-0.050(0.177)	-0.051(0.166)
Geographic distance	-0.556(0.131)***	-0.516(0.128)***	-0.523(0.128)***	-0.512(0.129)***	-0.625(0.134)***	-0.575(0.128)***	-0.600(0.131)***	-0.552(0.126)***
Movie positioning	-0.141(0.149)	-0.247(0.155)	-0.146(0.146)	-0.136(0.147)	-0.157(0.151)	-0.166(0.153)	-0.147(0.147)	-0.319(0.149)**
Multiple languages	0.460(0.116)***	0.407(0.114)***	0.431(0.113)***	0.444(0.114)***	0.462(0.115)***	0.491(0.114)***	0.475(0.114)***	0.411(0.107)***
Immersiveness	1.277(0.136)***	1.301(0.136)***	1.198(0.136)***	1.234(0.133)***	1.260(0.138)***	1.278(0.139)***	1.241(0.140)***	1.159(0.137)***
Non-original	0.217(0.112)*	0.203(0.110)*	0.180(0.110)	0.182(0.111)	0.248(0.111)**	0.210(0.110)*	0.228(0.111)**	0.168(0.106)
Chinese story	-0.116(0.376)	-0.123(0.360)	-0.046(0.359)	-0.080(0.340)	-0.144(0.374)	-0.105(0.376)	-0.121(0.371)	-0.114(0.335)
Chinese actors	0.094(0.284)	-0.014(0.269)	0.085(0.272)	0.069(0.259)	0.106(0.283)	0.226(0.299)	0.140(0.282)	0.094(0.261)
Chinese directors	0.064(0.377)	0.000(0.364)	-0.268(0.370)	-0.061(0.346)	0.028(0.379)	-0.018(0.364)	0.093(0.369)	-0.518(0.328)
Sequel	0.473(0.124)***	0.453(0.121)***	0.386(0.124)***	0.469(0.123)***	0.428(0.124)***	0.484(0.122)***	0.517(0.120)***	0.344(0.119)***
First release	0.471(0.131)***	0.476(0.129)***	0.437(0.127)***	0.480(0.129)***	0.469(0.133)***	0.523(0.130)***	0.513(0.131)***	0.521(0.125)***
Festival release	-0.334(0.328)	-0.243(0.355)	-0.312(0.335)	-0.356(0.328)	-0.414(0.332)	-0.273(0.330)	-0.306(0.330)	-0.322(0.358)
Seasonality	-0.002(0.150)	-0.022(0.147)	-0.003(0.146)	0.011(0.146)	0.018(0.147)	0.042(0.147)	0.030(0.146)	0.061(0.136)
MPA rating indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Genre indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	769	767	769	769	765	769	769	763
Adj R-squared	0.436	0.457	0.456	0.461	0.444	0.446	0.446	0.513

Notes: Robust standard errors in parentheses. ***: $p < 0.01$. **: $p < 0.05$. *: $p < 0.10$. All regressions include a constant. We did not winsorize Cultural Distance to preserve variation in the variable.

Table B6: Robustness check: Relative performance model

DV: Relative performance	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Sino-foreign co-production	-0.669(0.255)***	-1.767(0.467)***	-0.887(0.254)***	-1.270(0.361)***	-6.777(2.986)**	-3.866(1.101)***	-2.752(0.685)***	-8.793(2.928)***
Star power		0.055(0.027)**						0.060(0.025)**
Director power			0.033(0.015)**					0.034(0.015)**
Studio power				0.051(0.018)***				0.059(0.017)***
Cultural distance					-1.148(0.607)*			-0.969(0.606)
Economic distance						-0.279(0.225)		0.205(0.274)
Political distance							-0.213(0.111)*	-0.241(0.133)*
Sino-foreign co-production × Star power		0.160(0.062)***						0.170(0.060)***
Sino-foreign co-production × Director power			0.149(0.040)***					0.108(0.042)***
Sino-foreign co-production × Studio power				0.108(0.043)**				0.041(0.046)
Sino-foreign co-production × Cultural distance					1.416(0.688)**			0.981(0.725)
Sino-foreign co-production × Economic distance						0.769(0.267)***		0.049(0.363)
Sino-foreign co-production × Political distance							0.617(0.190)***	0.568(0.234)**
Market competition	1.156(0.920)	1.526(0.979)	0.957(0.924)	1.237(0.891)	0.535(1.049)	1.218(0.890)	1.238(0.898)	0.490(0.941)
Market development	0.412(0.147)***	0.396(0.144)***	0.402(0.146)***	0.328(0.146)**	0.387(0.145)***	0.473(0.155)***	0.522(0.154)***	0.459(0.148)***
Diplomatic relationship	0.042(0.183)	-0.004(0.178)	0.027(0.180)	0.053(0.175)	0.071(0.182)	0.067(0.200)	0.064(0.198)	-0.061(0.188)
Geographic distance	-0.520(0.144)***	-0.462(0.143)***	-0.487(0.142)***	-0.476(0.143)***	-0.600(0.149)***	-0.548(0.143)***	-0.618(0.147)***	-0.562(0.145)***
Movie positioning	-0.079(0.166)	-0.136(0.170)	-0.084(0.164)	-0.077(0.163)	-0.088(0.166)	-0.097(0.170)	-0.131(0.162)	-0.271(0.169)
Multiple languages	0.390(0.124)***	0.323(0.122)***	0.360(0.121)***	0.373(0.122)***	0.403(0.122)***	0.422(0.122)***	0.400(0.121)***	0.335(0.115)***
Immersiveness	1.261(0.146)***	1.295(0.145)***	1.180(0.145)***	1.224(0.143)***	1.238(0.147)***	1.259(0.147)***	1.220(0.150)***	1.141(0.148)***
Non-original	0.136(0.120)	0.135(0.116)	0.098(0.118)	0.102(0.119)	0.185(0.117)	0.129(0.118)	0.139(0.118)	0.104(0.111)
Chinese story	-0.295(0.383)	-0.264(0.363)	-0.226(0.372)	-0.253(0.358)	-0.332(0.377)	-0.278(0.380)	-0.264(0.377)	-0.218(0.331)
Chinese actors	0.180(0.281)	0.071(0.260)	0.170(0.275)	0.147(0.268)	0.202(0.276)	0.300(0.291)	0.307(0.281)	0.215(0.254)
Chinese directors	0.073(0.379)	0.017(0.365)	-0.263(0.368)	-0.043(0.347)	0.040(0.381)	0.015(0.365)	0.077(0.368)	-0.479(0.318)
Sequel	0.450(0.134)***	0.451(0.132)***	0.361(0.135)***	0.453(0.134)***	0.396(0.135)***	0.459(0.134)***	0.481(0.133)***	0.326(0.133)**
First release	0.436(0.142)***	0.441(0.141)***	0.402(0.138)***	0.442(0.140)***	0.430(0.144)***	0.488(0.140)***	0.478(0.141)***	0.484(0.135)***
Festival release	0.035(0.528)	0.110(0.543)	0.057(0.533)	0.007(0.532)	-0.320(0.403)	0.102(0.526)	0.076(0.527)	-0.239(0.422)
Seasonality	-0.296(0.159)*	-0.323(0.156)**	-0.297(0.155)*	-0.286(0.155)*	-0.266(0.155)*	-0.255(0.156)	-0.257(0.156)*	-0.227(0.145)
MPA rating indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Genre indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year indicators	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	769	767	769	769	765	769	769	763
Adj R-squared	0.395	0.413	0.414	0.415	0.412	0.404	0.405	0.476

Notes: Robust standard errors in parentheses. ***: $p < 0.01$. **: $p < 0.05$. *: $p < 0.10$. All regressions include a constant.

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