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Partnership Publishing Models of Medical Journals in China: The Perspective of Transaction Cost Theory

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Doctor of Management

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December, 2025

BUSINESS
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Abstract

The rapid expansion of English-language medical research in China has increased the demand for English-language internationally competitive medical journals. Because of structural constraints in the Chinese publishing system and the limited global influence of local platforms, Chinese English-language medical journals increasingly rely on partnerships with international publishers. However, existing studies on this topic are largely descriptive and provide limited theoretical explanation of partnership model selection.

This thesis examines the selection mechanisms of partnership publishing models between Chinese medical journal publishers and international publishers by integrating transaction cost theory with evolutionary game theory. Partnership choice is conceptualized as a dynamic evolutionary process shaped by bounded rationality, institutional constraints, and repeated interactions. Three models are analyzed: fee-for-service publishing, full-service contract publishing, and intensive-service publishing. Asset specificity, government support, and organizational size are identified as key factors influencing transaction costs, uncertainty, and opportunism.

An evolutionary game model is developed to explain how cost–benefit variations generate stable partnership outcomes under different institutional conditions. Empirically, the study adopts a mixed qualitative approach. At the macro level, it analyzes 104 English-language medical journals supported by China Association for Science and Technology programs. At the micro level, case studies of a medical university, a hospital, and a medical association, based on data collected with semi-structured interviews, are conducted to validate the theoretical model.

The findings show that institutional heterogeneity strongly shapes the choice of partnership models: medical universities favor full-service publishing, medical associations adopt differentiated strategies, and hospitals tend toward intensive-service publishing.

Keywords: Partnership publishing; Medical journal; Transaction cost theory; Evolutionary game theory

JEL: D23; C73

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Resumo

A rápida expansão da investigação médica em língua inglesa na China aumentou a procura por revistas da área da medicina publicadas em língua inglesa e internacionalmente competitivas. Devido às restrições estruturais do sistema editorial chinês e à limitada influência global das plataformas locais, as publicações chinesas na área da medicina em língua inglesa dependem cada vez mais de parcerias com editoras internacionais. No entanto, os estudos existentes sobre este tema são em grande parte descritivos e oferecem explicações teóricas limitadas sobre a seleção dos modelos de parceria.

Esta tese examina os mecanismos de seleção dos modelos de publicação em parceria entre editoras de revistas médicas chinesas e editoras internacionais, tendo como referencial teórico a teoria dos custos de transação e a teoria dos jogos evolutivos. A escolha do modelo de parceria é concebida como um processo evolutivo dinâmico, moldado pela racionalidade limitada, pelas restrições institucionais e pelas interações repetidas. São analisados três modelos: publicação por taxa de serviço, publicação contratual de serviço completo e publicação com serviços intensivos. A especificidade dos ativos, o apoio governamental e a dimensão organizacional são identificados como fatores-chave que influenciam os custos de transação, a incerteza e o oportunismo.

É desenvolvido um modelo de jogos evolutivos para explicar como variações de custo-benefício geram parcerias estáveis sob diferentes condições institucionais. Empiricamente, o estudo adota uma abordagem qualitativa mista. Ao nível macro, analisa 104 revistas médicas em língua inglesa apoiadas por programas da Associação Chinesa para Ciência e Tecnologia. No nível micro, são conduzidos três estudos de caso – uma universidade médica, um hospital e uma associação médica – com dados recolhidos através de entrevistas semi-estruturadas, para validar o modelo teórico.

Os resultados mostram que a heterogeneidade institucional molda fortemente a escolha do modelo de parceria: as universidades médicas favorecem a publicação através do serviço completo, as associações médicas adotam estratégias diferenciadas e os hospitais tendem à publicação com serviços intensivos.

Palavras-chave: publicação em parceria; revistas médicas; teoria dos custos de transação; teoria dos jogos evolutivos

JEL: D23; C73

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摘 要

中国英文医学研究的快速发展提升了对具有国际竞争力医学期刊的需求。由于国内出版体系的结构性约束以及本土平台国际影响力有限，中国英文医学期刊日益依赖与国际出版商的合作。然而，现有研究多停留在描述层面，对合作出版模式选择的理论解释仍较为不足。

本文结合交易成本理论与演化博弈理论，探讨中国医学期刊出版机构与国际出版商之间合作出版模式的选择机制。合作模式选择被视为一个受有限理性、制度约束和重复博弈影响的动态演化过程。研究分析了三种主要合作模式：服务收费型出版、全流程委托出版和深度服务型出版，并将资产专用性、政府支持程度和组织规模视为影响交易成本、不确定性与机会主义行为的关键因素。

本文构建了演化博弈模型，用以解释在不同制度条件下，成本—收益变化如何促成稳定的合作均衡。在实证方面，研究采用混合定性方法：宏观层面分析了104种获得中国科学技术协会项目支持的英文医学期刊，考察其主办单位类型、经费结构和合作模式分布；微观层面通过对一所医学院校、一家医院和一个医学学会的半结构式访谈案例，对理论框架进行验证。

研究发现，制度异质性显著影响合作模式选择：医学院校倾向于采用全流程出版模式，医学学会根据期刊成熟度采取差异化策略，而医院更倾向于深度服务型出版模式。

关键词：合作出版；医学期刊；交易成本理论；演化博弈论

JEL: D23; C73

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List of Abbreviations

China Association for Science and Technology ..... CAST
National Press and Publication Administration ..... NPPA
Ministry of Science and Technology ..... MOST
Central Propaganda Department ..... CPC
Ministry of Education ..... MOE
China standard serial numbering ..... CN
English - Language ..... E-L
Project for Enhancing International Impact of China STM Journals ..... PIIJ
Chinese Medical Association ..... CMA
Transaction cost ..... TAC
Resource-based view ..... RBV
Science, Technology, and Medicine ..... STM
Evolutionary stable strategy ..... ESS
Key opinion leader ..... KoL
Request for Proposal ..... RFP
Article processing charge ..... APC
Journal citation Report ..... JCR
Science citation index ..... SCI

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Chapter 1: Introduction

1.1 Research background

1.1.1 Definition of basic concepts

(1) English Medical Journals

The primary definition of "journal" in the concise Oxford English dictionary refers to a publication - be it a newspaper or magazine - that focuses on a particular subject or professional domain (Oxford Learner's Dictionaries, 2024). The definition of academic journals refers to continuous publications with fixed names, publishing cycles, annual or monthly sequential numbers, and mainly reporting content in academic disciplines (Ministry of Science and Technology, 1991; Morris et al., 2013). Medical journals are a subset of academic journals that specifically focus on research related to medicine and healthcare. Prior to publication, these articles undergo assessment by multiple experts in a process known as peer review. Additionally, such journals may include review pieces summarizing work within healthcare area, case reports, educational content, historical insights, book or media reviews, letters to the Editor, features, and news reports (DeMaria, 2022; Stevens et al., 2006). Medical journals play a crucial role in the scientific community by disseminating new research findings and advances in the field of medicine (Podolsky et al., 2012).

English is considered the lingua franca of academia and scientific research. Medical journals published in English have a broader readership and reach compared to those published in other languages (Colman, 1999). Rao et al. (2020) demonstrated that 98.05% of academic content within the Science Citation Index Expanded from 2010 to 2019 was published in English. Ren et al. (Ren et al., 2022; Ren et al., 2023; Ren et al., 2024) also pointed out in the reviews of the development of China's English-language academic journals over the years that English is the common language of the international research community, and that English-language journals are conducive to the dissemination of China's academic achievements to the world. Thus, this thesis is limited to the study of English-language medical journals. Our focus will be specifically on research related to journal publishing, excluding the book publishing and other types of publications.

(2) International academic publishers

The academic publishing industry is essential to the research ecosystem, as it highlights the contributions of millions of scientists, doctors, and researchers globally (The International Association of Scientific, Technical and Medical Publishers, 2024). International academic publishers produce, publish and disseminate works of academic research and knowledge through non-fiction books, journals, textbooks, and online resources. Some academic publishers specialize in specific subject areas, while others cover a broad range of disciplines (AKJournals, 2024; Publisher Association, 2024). Additionally, journals claimed the largest market share of all publishing activities (The International Association of Scientific, Technical and Medical Publishers, 2022). In this thesis, international academic publishers refer to non-mainland Chinese publishers whose business portfolios include the publication of medical journals. Publishing entities in mainland China, by contrast, operate under objective constraints including personnel management systems and reviewed funding resources that restrict their ability to pursue commercial journal development and constrain their publishing and operational models (Xu & Dong, 2025). The study also covers commercial STM publishers registered in Hong Kong.

Various international academic publishers vary in their approaches and operational models, yet they generally provide similar services (The OAPEN open access books toolkit, 2025). There are two types of international academic publishers including commercial publishers and non-profit publishers (Walters & Markgren, 2021). The commercial publishing sector typically functions on a profit-driven model, generating high margins, with surplus of operations either reinvested into the company or returned to investors in the form of dividends. In comparison, publishers, such as learned societies, university presses, and institutional publishers are classified as the non - profit entities. The non - profit academic publishers prioritize fulfilling their mission over profit generation. They also achieve surpluses after expenses, but they allocate their publishing incomes to benefit their organizational or educational objectives (Krapež, 2023).

In this thesis, we will discuss international publishers offering journal partnership publishing services, encompassing both large for-profit publishers (such as Elsevier, Wiley, Springer Nature, Wolters Kluwer, Taylor & Francis, and Sage) and large not-for-profit publishers commercially providing publishing services to societies. This includes university presses, like Cambridge and Oxford, as well as major society publishers like the publishing company of the Institute of Physics (IOP Publishing), the American Chemical Society (ACS), Institute of Electrical and Electronics Engineers (IEEE), British medical journal (BMJ), and the American Association for the Advancement of Science (AAAS), which also serve smaller

societies.

(3) China’s medical journal publishing entities

The management of periodicals in China is based on a three-tier system of supervision, sponsorship and publication (Chen & Wang, 2020). The organizer of a periodical shall be a subordinate unit to the supervising unit (National Press and Publication Administration, 2005). For instance, considering an academic journal publication, the Ministry of Education serves as the competent unit overseeing supervision. The host unit, typically the university, acts as the sponsor and organizer of the journal. Meanwhile, the publishing unit is the publishing house, editorial department or editorial office within the university, responsible for the actual publication process.

Chinese medical academic journals, both in Chinese and English languages, are mainly published by universities, research institutions, hospitals and societies (Ding et al., 2022; M. Yang et al., 2016; Ren, 2008). From 2016 to 2024, a total of 110 E-L academic journals were initiated with support from the China Association for Science and Technology (CAST). Within these governmental funded titles, universities and research institutions lead the establishment of 45% of English medical journals, with hospitals contributing 14%, associations accounting for 35%, and the remaining portion initiated by local publishing companies (Ding et al., 2022). In this thesis, journals published by research institutions are grouped together with university journals because both types of organizations share similar missions in research and knowledge dissemination, operate under comparable administrative structures, and perform overlapping academic and scientific functions. Given these similarities, treating them as a single category provides a clearer and more consistent analytical framework. Journals initiated by local publishing companies are few and therefore fall outside the scope of this study.

1.1.2 The development of English-Language (E-L) medical journals in China

China has become the second-largest contributor to high-quality scientific and technological articles in English language in the world (The Paper, 2021). In this thesis, all published article statistics mentioned are in English language. The period from 2002 to 2011 marked a decade of significant progress in China's medical research. During this time, the number of SCI papers published by Chinese researchers increased 7.3 times, rising from 2,924 in 2002 to 24,277 in 2011 (Yang et al., 2015). In 2019, the category Clinical Medicine ranks third in the number of SCI-indexed papers published by Chinese authors (Institute of Scientific and Technical Information of China, 2021). From 2010 to 2019, Chinese authors published 298,567 papers in SCI clinical medical journals, accounting for 10.77% of the world's share (China Association

for Science and Technology, 2020). In 2020, Chinese authors published 64,116 papers in SCI clinical medical journals, accounting for 16.87% of the world's share (China Association for Science and Technology, 2021).

Despite the increased volume of article output, Chinese E-L medical journals remain relatively limited in scale and influence. The number of articles published in these journals is low, and their impact is not high, making it difficult to meet the growing demand for international exchange of China's healthcare achievements (Zhang et al., 2018). In 2018, the Journal citation Reports (JCR) included 192 Chinese journals, of which 33 were related to medicine, only accounting for 17% (Lei, 2019). Chinese authors contributed to 10.8% of global "clinical medicine" SCI papers between 2010 and 2019, totaling nearly 300,000 papers. Only 3.8% of these papers were published in Chinese SCI English medical journals. In terms of the increase in the number of papers, Chinese authors published more than 50,000 SCI papers on clinical medicine in 2019, an increase of 368.6% compared with 2010. However, the number of "clinical medicine" papers published in Chinese SCI English medical journals in 2019 is only 1,397, an increase of 10.2% compared with 2010 (China Association for Science and Technology, 2020).

As E-L academic journals play an important role in enhancing the international visibility and influence of China's scientific research achievements and strengthening the discourse power of China's scientific community, the government has initiated policies to enhance the international impact and competitive edge of Chinese English-language scientific journals (Ren et al., 2018; Zhang et al., 2018). With the release of a series of policies such as "Opinions on Deepening Reform and Cultivating World-Class Science and Technology Journals (2019)", "Opinions on Promoting the Prosperity and Development of Academic Journals (2021)", and "Implementation Opinions on Promoting Deep Integration of Publishing (2022)", as well as the support of projects such as the "China Science and Technology Journal Excellence Action Plan (2019-2023)", E-L medical journals in China have made significant progress (Liu, 2023; Tao, 2020). Their influence has rapidly increased, growing numbers of academic titles including medical titles have been included in international databases, allowing domestic and international research work to be published on Chinese medical platforms and journals. Blue book on China’s scientific journal development 2023 reported there are 274 China medical titles indexed by Scopus, with the compound growth rate 10% comparing with numbers of titles in 2013 (China Association for Science and Technology, 2023). The China Medical Association Publishing House publishes series of journals on behalf of China Medical Association (CMA). There are the 154 medical journals published by the China Medical Association Publishing

House. Among these 154 medical journals, 24 are English-language journals, seven of which are indexed by JCR, Web of Science (Chinese Medical Association, 2025).

The rapid expansion of E-L STM journals prompts many new and existing journals to collaborate with international publishers, utilizing their established brand and platforms for global exposure. Publishers provide comprehensive publishing services, boosting visibility and citation rates of these journals. However, while international co-publishing enhances the journal influence, it shouldn't be the sole strategy. The primary goal is to publish influential Chinese E-L journals internationally, whether through international publishers or self-established platforms (L. Yang et al., 2016).

1.1.3 Policy regulation and support to E-L medical journals in China

The policy regulation on Chinese academic journals is mainly implemented through the approval and registration of China standard serial numbering (CN) numbers. Chinese journal publication adopts a review and approval system. CN number in China is issued by National Press and Publication Administration (NPPA). The principle of CN number authorization is one number for one journal. When applying to publish a new journal, the institute which has the ownership of the journal should submit new journals application forms, documents supporting application, the approval by the management group of institute, the review documents of the provincial-level news publishing administrative department where the institute is located, academic certificates and professional qualifications of the editorial and publishing personnel, the resource and funding for journal publication and relevant certification documents, proof of ownership and rental contracts of the editorial office, qualification certificates of the printing unit, feasibility study report for the new journal, and other related materials (Society of China University Journals, 2014). The complicated procedures, long waiting time, and human intervention by managers who do not understand the actual situation often lead to the fact that many journals stop or give up the application. The highly centralized approval power of the CN number inevitably results in rent-seeking behavior. Some universities or research institutes look for alternative ways to publish new journals. Some English journals that cannot get CN numbers try to seek an International Standard Serial Number (ISSN) by cooperating with international publishers (Wang, 2013). As of March 26, 2018, there were a total of 387 E-L academic journals distributed in mainland China, 53 of which had no CN numbers, accounting for 13.70% (Bao & Zhang, 2018). Although CN numbers became a scarce resource, the regulation also has a positive effect. The management group of the ownership organization started to pay more attention to their own journals, such as increasing journal publication funding, providing

support for editorial office development, and coordinating with the authority on behalf of the editorial office (Wang, 2013). Overall, quantity control is an important principle for new journal approval by the General Administration of Press and Publication, meanwhile it is also the primary factor that has resulted in the scarcity of CN numbers (Yin et al., 2022).

China released series of policies to provide strong support for the development of new academic journals, especially E-L academic journals including medicine and medicinal related subjects. In recent years, China has implemented key programs to promote the development of scientific and technological journals, such as the “China Science and Technology Journal Peak Action Plan” and the “China Association for Science and Technology (CAST) key STM Journal Project”. In 2019, CAST, the Central Propaganda Department (CPC), the Ministry of Education (MOE), and the Ministry of Science and Technology (MOST) jointly issued the “Opinions on Deepening Reform and Cultivating World-Class Science and Technology Journals”, which mentioned proactively establishing a number of new interdisciplinary cutting-edge journals and strengthening the guidance for new academic journals (China Association for Science and Technology, 2019a). In 2021, the CPC, MOE, and MOST jointly issued the "Opinions on Promoting the Development of Academic Journals," which also stated support to establish new journals in foreign language or bilingual academic journals based on the needs of disciplines and academic communication (Deng, 2022; National Press and Publication Administration, 2021).

In 2022, Chinese government issued two documents. The first one is called “Some Suggestions on Standardizing the Use of SCI Paper Indexes in Higher Educational Institutes and Establishing Correct Evaluation Orientation”, and the second one is “Some Measures to Eliminate the Bad Orientation of “Papers Only” in Science and Technology Evaluation (Trial)”. These two documents represent a significant effort to reform the research and higher education evaluation systems in China on a large scale. Researchers and institutions are encouraged to publish or present their most important works in domestic STM journals with international influence (Tao, 2020). E-L academic journals started to attract high quality domestic submissions.

Two action plans offer funds for the development of E-L academical journals in China continuously. In September 2013, the CAST, the Ministry of Finance (MOF), the MOE, and NPPA, the Chinese Academy of Sciences (CAS), the Chinese Academy of Engineering (CAE), and other departments launched the Project for Enhancing International Impact of China STM Journals (PIIJ) and implement the Journal Impact Plan. The PIIJ Plan, initiated in 2013 and spanning six years, provides funding based on the CAST committee's evaluation of journals.

Level A journals receive the highest funding support, with funding decreasing for lower levels. The journal levels are categorized as follows:

Level-A: RMB 2 million/year (ca. US$300,000).

Level-B: RMB 1 million/year (ca. US$150,000).

Level -C: RMB 0.5 million/year (ca. US$75,000).

Level -D: one-time funding of RMB 0.5 million only for new start journals (ca. US$75,000).

The total amount of funding is about 669 million RMB (~100million US$) from 2013 to 2018.

In 2019, the same group of Chinese governmental organizations announced the launch the Action Plan for the Excellence of Chinese STM Journals (2019-2023). The plan seeks to position Chinese STM journals as world-class publications that contribute to the global scientific community. This action plan is the largest and most comprehensive governmental program in STM journals in China to date, with the high investment and the widest range of support. In 2019, a total of 280 journals were selected for the Action Plan for the Excellence of Chinese STM Journals, receiving over RMB 200 million in funding. The journals are categorized into leading journals, key journals, tiered journals, and high starting point new journals, with progressively less funding support. Among the selected journals, 180 were in English, accounting for 64.29% of the total 280 journals. These included:

22 leading journals, receiving RMB 54.1 million in funding.

29 key journals, receiving RMB 28.25 million in funding.

99 tiered journals, receiving RMB 72.4 million in funding.

47 high starting point new journals received one-time funding of RMB 0.5 million each, exclusively for new start journals.

All of the leading and key journal groups with largest funding amounts were E-L academic journals, reflecting the high value placed on E-L journals by the plan, with the aim to set up and publish a group of the world-class journals rapidly (Yang & Zheng, 2020).

1.2 Research problem

Existing research on China's E-L journal partnership publishing largely consists of case studies and empirical evaluations of SCI-indexed STM journals. These studies assess the performance of journals collaborating with international publishers and summarize the advantages and disadvantages of partnership publishing (Chen & Wang, 2020; Liu, 2023; Shi & An, 2021; Yan et al., 2022). Surveys of editorial staff further identify developmental challenges and propose

practical recommendations for improving international publishing outcomes (Fan et al., 2018; M. Yang et al., 2016).

However, this body of work remains broad in scope and focuses on the STM journal landscape as a whole, without sufficient attention to the medical sector, where publishing entities have distinct characteristics. In particular, hospitals as key entities for medical journals in China differ substantially from universities and professional societies in terms of institutional mission, administrative structure, resource allocation, and incentives for engaging in international partnerships. Such institutional heterogeneity may lead different types of medical publishing entities to evaluate and select partnership models systematically in different ways.

Although prior studies describe partnership models offered by international publishers including fee-for-service, full-service, and intensive-service models and outline the general cooperation practices of Chinese universities, medical associations and hospitals, they do not explain why specific medical publishing entities choose certain models (Xu & Bu, 2016). More importantly, existing research lacks a theoretical framework capable of interpreting the decision-making mechanisms behind partnership selection.

This theoretical gap has practical implications. In the absence of a systematic analytical framework, medical publishing entities may face risks of mismatched partnership models, inefficient use of public funding and organizational resources, increased coordination and contractual adjustment burdens, and difficulty in evaluating whether to maintain or adjust existing cooperation arrangements (Fan et al., 2018; Yan et al., 2022). Similarly, international publishers may encounter challenges in identifying appropriate partners, designing efficient contractual structures, and maintaining long-term cooperation stability.

As a result, there is limited analytical guidance for understanding how partnership publishing models should be structured and aligned between heterogeneous medical publishing entities and international publishers under institutional diversity and uncertainty. This gap highlights the need for a theory-driven explanation that integrates institutional heterogeneity, model selection determinants, and the formation of stable cooperation strategies within China's medical journal publishing sector.

1.3 Research purpose

The purpose of this study is to develop a theoretically grounded and empirically supported explanation of how partnership publishing models are selected between international publishers and Chinese medical journal publishing entities. To fulfil this purpose, the study establishes a

theoretical framework that integrates transaction cost theory and evolutionary game theory, enabling the examination of cooperation choices not only as organizational decisions but also as dynamic strategic interactions shaped by changing incentives and institutional conditions. Within this framework, the study explores the factors that influence model selection including the levels of asset specificity involved in publishing activities, the extent of governmental support available to different types of Chinese publishing entities, and the organizational size of these entities. By analyzing how these factors shape the preferences and strategies of both Chinese publishing entities and international publishers, the study investigates the mechanisms through which certain partnership models emerge as evolutionarily stable outcomes. In doing so, the research aims to clarify why universities, professional associations, and hospitals are inclined toward different cooperation arrangements, and how variations in their structural and institutional environments affect the stability and suitability of fee-for-service, full-service, or intensive-service publishing models. The study also aims to provide practical guidance for publishing entities and international publishers in evaluating and selecting appropriate cooperation models under different institutional conditions. Through this integrated approach, the study aims to present a theory-based and evidence-supported understanding of partnership publishing in Chinese English-language medical journal sector in China.

1.4 Research questions

Which theoretical framework can effectively explain and guide the selection of partnership publishing models between international publishers and Chinese E-L medical journal publishing entities?

Which key factors do shape the choice of partnership publishing models in collaborations between international publishers and Chinese E-L medical journal publishing entities, and through what decision-making mechanisms do these factors influence the evolutionary selection of cooperation models?

Under what conditions do changes lead Chinese medical journal publishing entities and international publishers to adjust or transition between different partnership publishing models?

1.5 Thesis structure

This thesis is organized into six chapters that develop the theoretical foundation, analytical

approach, and empirical insights to understand the selection of partnership publishing models between international publishers and Chinese E-L medical journal publishing entities.

Chapter 1 introduces the study by outlining the development of E-L medical journals in China, the role of international publishers, and the policy environment shaping journal publishing. It highlights the gap in existing research, which describes partnership publishing but does not explain why different medical publishing entities select different cooperation models. The chapter states the purpose of the study, presents the research questions, and provides an overview of the thesis structure.

Chapter 2 reviews the relevant literature on partnership publishing, and the roles of university, professional associations, hospitals and international publishers in Chinese E-L medical journal landscape. This chapter also examines prior applications of transaction cost theory (TAC) and evolutionary game theory in the inter-firm cooperation, providing the conceptual background for the theoretical model developed later.

Chapter 3 presents the theoretical framework of the study by applying transaction cost theory and evolutionary game theory to analyze how publishing entities and international publishers choose among different partnership publishing models. It identifies asset specificity, governmental support, and organizational size as key factors influencing transaction costs, and uses these factors to build a mathematical evolutionary game model comparing fee-for-service, full-service, and intensive-service arrangements. The chapter derives theoretical outcomes showing how different conditions lead to different stable cooperation choices. These results provide the theoretical basis that is examined and verified through empirical evidence in the following chapters.

Chapter 4 sets out the research design and methods of the study. It explains how the case study approach is used to examine specific partnership publishing arrangements between international publishers and Chinese E-L medical journal publishing entities. The chapter also describes the analysis of 104 CAST-supported E-L medical journals, which provides macro-level evidence on sponsor types, funding patterns, and cooperation models. By outlining the procedures for data collection and analysis, and by showing how the case studies and the journal portfolio analysis are combined, this chapter establishes the empirical basis for the discussion and interpretation in the following chapters.

Chapter 5 presents the results from three groups of case studies, a university, a hospital, and a professional association, together with their international publishing partners, to examine how different Chinese medical journal publishing entities manage partnership publishing in practice. It analyzes their organizational characteristics, motivations, and operational mechanisms under

different models. Beyond descriptive analysis, the chapter links empirical findings to the theoretical framework developed in Chapter 3 by assessing how observed partnership behaviors correspond to predicted evolutionary outcomes. The results show that institutional heterogeneity shapes model selection: universities tend to adopt full-service models, hospitals prefer intensive-service arrangements due to capacity constraints, and medical associations adopt differentiated strategies based on journal maturity. These findings provide empirical support for the theoretical model and demonstrate how transaction cost factors operate in practice.

Chapter 6 focuses on discussion and conclusion by comparing the empirical findings with existing literature and addressing the research questions. It evaluates how the results align with or extend prior studies on partnership publishing and inter-firm cooperation. The analysis highlights that, while existing literature describes cooperation models, this study explains their selection mechanisms through transaction costs and institutional differences. The chapter further discusses model stability and evolution, as well as the strategic responses of international publishers. By situating the findings within the broader research context, it confirms the relevance of the theoretical framework and clarifies its contribution. The chapter concludes by summarizing key insights, outlining theoretical and practical implications, and identifying limitations and directions for future research.

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Chapter 2: Literature Review

2.1 Inter-firm cooperation

Inter-firm relationships are typically viewed through a dichotomous lens as transactions occurring either via the market or within firms themselves. This perspective implies that exchanges between companies are either conducted through market mechanisms, such as buying and selling goods and services, or internally managed within a firm's hierarchical structure (Coase, 1937). However, Alchian and Demsetz (1972) and Richardson (Richardson, 1972) argued that this dichotomy ignores a crucial third form of organized industrial behavior: cooperation between firms. Williamson (1991) introduced the concept of a “stable hybrid organization”, which he termed a “hybrid”. This hybrid organization represents a middle ground between market transactions and hierarchical governance structures. Drucker (1995) observes that the rapid development of partnership-based inter-firm relations represents a significant shift in business dynamics. Since the 1990s, cooperation between firms has begun to receive significant attention in both academia and industry.

2.1.1 The motivation for inter-firm cooperation

Scholars initially addressed the motivation of inter-firm cooperation while investigating enterprise collaboration. Richardson (1972) pointed out in the study of industrial structure that such cooperation arises primarily from enterprises engaging in distinct production activities, which are complementary. Some scholars argued that inter-firm cooperation fundamentally involves linking heterogeneous resources across firms to enhance cooperative output efficiency (Alchian & Demsetz, 1972). This aligns with the resource-based view. In "The Nature of the Firm," Coase (1937) explored the reasons why firms exist and the motivations behind inter-firm cooperation. He proposed that firms emerge to minimize the transaction costs associated with market exchanges.

The motivation for inter-firm cooperation depends on the perspective:

(1) Motivations of inter-firm cooperation from the theoretical perspective

Firstly, resource-based view (RBV) suggests that inter-firm cooperation aims to acquire heterogeneous resources. Resource-based view considers the firm as a collection of resources,

(Mowery et al., 1998). RBV takes the resources owned by the firm as the basic unit of analysis. Resources are the main source of competitive advantage of enterprises. The sustainability of competitive advantage of enterprises depends on the difficulty and cost of obtaining that resource by other enterprises, and inter-firm cooperation is a crucial way to obtain resources (Liang, 2006; Wernerfelt, 1984). Dunning (2004) also came to a similar conclusion that enterprises should obtain the right to use the resources of other enterprises through cooperative relationships in their economic activities. These resources encompass tangible assets and extend to various intangible assets. Li and Chen (2009) summarized the research on the classification of enterprise resources, categorizing them into material, human, financial, information technology, market, organizational, and legal resources. Bäumle and Bizer (2023) find that the motivation to cooperate is driven by access to financial, knowledge, market and network resources. They also highlight that misalignment of resources can hamper alliance success. In fact, RBV usually focuses on company-specific intangible assets, including core technology and knowledge, when discussing the issue of the inter-firm cooperation.

Secondly, transaction cost theory suggests that the motivation for inter-firm co-operation is to reduce transaction costs. According to transaction cost economics, transaction occurrence in a market versus a hierarchical organization depends on the value of transaction cost (Teece, 1982). North (1989) analyzes US market transaction behavior, suggesting that firms cooperate to avoid hierarchical organizations, which increase management costs and impede information flow, knowledge transfer, and firm flexibility. Cooperation, on the other hand, can stabilize inter-firm transactional relationships, reduce transaction costs, and mitigate excessive transaction internalization, which can lead to higher management costs. Transaction cost theory and resource-based theory have become two main theories to explain the inter-firm cooperation. Some scholars explored that transaction cost theory is more persuasive than resource-based view in explaining why firms cooperate with each other, and some argued that the opposite is true. Kim (2016) concluded a combined approach, using transaction cost theory and resource-based theory to analyze motives of consortium among technology-based firms.

(2) Motivations of inter-firm cooperation from the industrial perspective

In addition to general research conducted at the theoretical level, there are also studies about the motivations and models of cooperation within specific industries, such as among supply chain enterprises or innovative firms. Studies demonstrated that cooperative innovation behaviors between enterprises, enterprises and universities or research institutes and summarized the motivations of cooperation among innovative enterprises. Key advantages of inter-firm cooperation include inter-organizational resource sharing, synergistic benefits, and

reduced transaction costs. Importantly, cooperation helps reduce duplicated research efforts and investment (Guo, 2024; Tang et al., 2024; Xu et al., 2012).Beyond market-based incentives, policy factors also play an important role in shaping inter-firm cooperation. As the government often formulates a series of incentive policies to promote cooperation among enterprises, enterprises are willing to engage in cooperation in order to obtain advantageous policy support (Huang, 2012; L. Wang et al., 2022; Luo et al., 2024).

By reviewing different literature on the motivation of cooperation, it can be concluded that the main motivation for E-L medical journal publishing cooperation between international publishers and Chinese institutions (including medical universities, medical associations, and hospitals) is to obtain heterogeneous resources. International publishers have globally recognized brands, international sales and promotion channels, developed digital publishing platforms for journals, technical support meeting the standard requirements of international journal publishing, production, advanced publishing concepts and standardized publishing policies (Fan et al., 2018; Yan et al., 2022). Collaboration allows Chinese E-L medical journals to integrate with international brands, boost recognition and global influence, rapidly expand readership and authorship, and streamline internal operations to save resources (Feng, 2015).

For international publishers, China's substantial investment in scientific research has elevated its research capabilities, resulting in a high growth of high-quality research outputs. By partnering with Chinese E-L medical journals, international publishers not only expend their journal portfolios and boost sales revenue, but also bolster brand influence, and solidify their industry position by incorporating content from Chinese researchers. Publishing Chinese English medical journal enables international publishers to enhance promotion of their other products in the Chinese market, thereby increasing commercial income (Liu et al., 2019; Xu & Bu, 2016).

In summary, resource complementarity, market expansion, and policy incentives explain why firms initiate cooperation; however, motivation alone does not determine how cooperation should be organized. Once cooperation is established, firms must decide how to structure the relationship, allocate responsibilities, and manage potential risks arising from interdependence and uncertainty. In the context of E-L medical journal publishing, although Chinese institutions and international publishers are motivated by access to complementary resources and strategic expansion, they must ultimately select an appropriate cooperation model to align their capabilities, coordinate activities effectively, and ensure stable and efficient collaboration.

2.1.2 Enterprise cooperation model

Early research on inter-firm cooperation primarily focused on understanding the motivations that drive firms to collaborate, rather than the mechanisms through which cooperation is structured. As industrial organization evolved and inter-organizational relationships became increasingly complex and diversified, cooperative arrangements grew more prevalent in economic activities. Consequently, scholarly attention gradually shifted from explaining why firms cooperate to examining how cooperation should be organized. The central issue is no longer simply whether firms engage in collaboration, but which governance structure or cooperation model they adopt to maximize benefits while managing risks effectively. (Bouncken et al., 2015; Devece et al., 2019).

The choice of cooperation model should take into account:

(1) Enterprise cooperation models

Richardson (1972) was the first to introduce the concept of inter-firm cooperation. Based on Coase's transaction cost theory and Penrose's resource-based view, he argued that inter-firm cooperation is an organizational form that lies between markets and hierarchies, and its core purpose is to connect the different resources that firms possess. He suggested that corporate partnerships can arise from a willingness to collaborate, through contractual arrangements, or through equity holdings. Williamson (1991) refined this view by suggesting that there are hybrid organizational forms that sit between markets and hierarchies. These hybrids are not one specific type of structure, but rather a range of arrangements that mix features of contracts and vertical integration, and that fall between the two extremes in terms of incentives, flexibility, and administrative costs. Building on this transaction-governance logic, scholars have classified inter-firm cooperation into distinct models. Contractor and Lorange (2004) categorized partnership models into eight types based on the degree of interdependence between partners. These include technology development agreements, production agreements, patent licensing, franchising, technology transfer, marketing agreements, non-equity cooperation arrangements (such as co-production and R&D cooperation), and equity-based cooperation. They emphasized that the choice of cooperation model is primarily driven by the level of resource dependence between firms. Subsequently, Pisano and Teece (2007) emphasized that cooperation models differ according to the types of complementary assets firms seek to access. They distinguished among bilateral cooperation arrangements such as contract-based R&D alliances, equity-based joint ventures, and broader innovation networks, noting that these forms differ in their degree of resource commitment, learning potential, and control over shared assets. In addition, Gulati

and Nickerson (2008) expanded the classification of cooperation models by highlighting "problem-specific" collaboration modes. They argued that firms select among contractual partnerships, joint ventures, and multi-partner alliances depending on task complexity and the level of coordination required. With the rise of digital technologies, Jacobides and colleagues (2018) identified the emergence of ecosystem-based cooperation models, in which firms collaborate through modular interfaces, shared platforms, and multi-firm networks. Such models differ from traditional bilateral alliances by relying less on equity ties and more on architectural complementarities and coordinated standards. More recently, Wang and colleagues (2025) have further broadened the conception of cooperation models by incorporating sustainability-oriented and ESG-driven alliances, reflecting the growing importance of environmental and social considerations in shaping contemporary inter-firm collaboration.

(2) Enterprise cooperation analysis paradigms

After clarifying different models that can be adopted for inter-firm cooperation, the question of how to select the model for inter-firm cooperation arises. This thesis summarized the four prevalent analysis paradigms when designing a research framework for the selection of enterprise cooperation models. It pointed out that the relational contractual relationship in the transaction cost theory was the most appropriate perspective to study this field. Critiques of transaction cost theory from alternative research often fail to go beyond the scope of transaction cost analysis (Liang, 2006) (See figure 2.1).

<table>
<tr><th colspan="3">Analysis paradigms applied in inter-firm cooperation and cooperation model selection</th></tr>
<tr><td rowspan="2">Mainstream research theory

Transaction Cost paradigm

Purpose: Reducing transaction cost

Key Theorist:
Coase (1937),
Williamson (1973,1985,1991)
Benkler (2002)</td><td rowspan="2">Less appropriate

Transactional Value paradigm

Purpose: Maximizing shared value

Key Theorist:
Blois (1972),
Zajac & Olsen (1993)</td><td>Less appropriate
Resource-based Paradigm
Purpose: Accessing resources
Key Theorist:
Wernerfelt (1984)
Barney (1991)</td></tr>
<tr><td>Less appropriate
firm network Paradigm
Purpose: Enhancing connectivity and coordination</td></tr>
</table>

Figure 2.1 The analysis paradigms of inter-firm cooperation

According to Figure 2.1, distinct reasons guide the selection of inter-firm cooperation models under different analysis paradigms. Within the dominant framework of transaction cost theory, the main objective in choosing which model of inter-firm cooperation is to minimize transaction costs (Williamson, 1979). Transaction value theory posits that maximizing

corporate shared value serves as the ultimate objective (Zajac & Olsen, 1993). Resource-based theory suggests that the selection of inter-firm cooperation models depends on the characteristics of the firms' resources (Wernerfelt, 1984). For instance, various combinations of knowledge-based and property-based resources correspond to different models of inter-firm cooperation. In the analytical paradigm of transaction cost theory, due to the asset specificity and uncertainty, the choice of the most suitable models of inter-firm cooperation is decided by transaction cost.

Mainstream studies on firm cooperation models primarily adopt a perspective centered around reducing transaction costs to explain why firms cooperate and how they select the most suitable cooperation models. The transaction is the transfer and acquisition of future ownership of material things between individuals. A transaction occurs when goods or services are exchanged at a technically defined critical point. The transaction cost theory considers “the transaction” as the most basic unit. The transaction cost theory also views governance as a mechanism to establish order, thereby reducing conflicts and achieving mutual benefits in inter-firm cooperation. Neoclassical economics assumes that transaction costs are zero. The economic crisis of 1929 exposed the limitations of neoclassical economic theories, leading scholars to raise two critical questions: Why do market failures arise in highly specialized divisions of labor, and what is the purpose of organizational structures (Zhang, 2016)? Coase (1937) explained why firms emerge in a specialized exchange economy. He aimed to address this issue by developing a theoretical framework that elucidates the existence of firms. Coase was the first to introduce the concept of transaction costs into economic analysis. He argued that costs are not confined to production activities; transaction processes also generated costs. According to Coase, the role of an organization is to act as a mechanism for resource allocation, primarily aimed at reducing transaction costs. Before Coase's work, economists believed that costs were limited to production costs and assumed that firms operated solely within market mechanisms with a focus on profit maximization, often neglecting the costs associated with transactions (Jia, 2022).

Williamson has contributed significantly to the understanding of transaction costs and economic organization. In his work from 1985, Williamson built upon Coase's initial groundwork, refining it to establish a framework essential for empirically assessing the validity of transaction cost theory (Rindfleisch, 2020). Based on the behavioral concepts of bounded rationality and opportunism, Williamson's transaction cost theory asserts that governance structures for transactions are determined by three essential attributes: asset specificity, uncertainty, and frequency (Cuypers et al., 2021). Additionally, in a later study, Williamson

(1985, 2010) combines research from law, economics, and organizational sciences to explain different governance modes and their performances. His research provides valuable insights into the governance of contractual relations. Therefore, this thesis mainly adopts the basic proposition of transaction cost theory as initially formulated by Williamson.

Scholars, based on different research objectives, have adopted various criteria to classify transaction costs (See figure 2.2). Coase (1937, 1993) noted these transaction costs include the cost of negotiation in seeking the acceptable price, locating exchange partners and conducting supervision. Alchian and Demsetz (1972) point out that the primary consideration in selecting a cooperation model should be the one that minimizes the costs of supervision. Williamson (1985, 1998), on the other hand, defines transaction costs in a more systematic way, which should include all transaction-related costs and be divided into ex ante and ex post costs. Williamson offers a more comprehensive definition of transaction costs, encompassing all costs related to transactions and categorizing them into ex ante (pre-contractual) and ex post (post-contractual) costs. The ex-ante transaction costs include the costs of drafting, negotiating and maintaining agreements. The ex-post transaction costs encompass the costs of adaption when the transaction deviates from the required norms; the costs of addressing such deviations through bilateral efforts by negotiations, the costs associated with the establishment and operation of a regulatory agency, which is responsible for resolving disputes over the transaction; and the collateral costs for security guarantees in force. Furubotn and Richter (2005) categorize transaction costs into three types: market transaction costs, managerial transaction costs, and political transaction costs. Market transaction costs include search and information costs, negotiation and decision-making costs, and supervision and enforcement costs. Managerial transaction costs encompass expenses related to establishing, maintaining, operating, or altering an organization's structure, such as policy formulation, personnel arrangements, information technology investments, public relations or lobbying, compensation, and enforcement of regulatory orders. Political transaction costs involve expenses incurred in implementing policies and regulations. These three types of transaction costs can be identified by two variables. Fixed transaction costs refer to specific investments made during the establishment of institutional arrangements. Variable transaction costs depend on the number of transactions. Fixed transaction costs imply that these expenses must be paid regardless of whether economic activities or transactions occur. As the volume of transactions or production increases, the cost per transaction decreases because these fixed costs are spread out, resulting in a lower average cost per transaction.

(3) Influence factors of cooperation models among enterprises

When analyzing business cooperation models based on the mainstream transaction cost theory, it is necessary to delve into the primary factors influencing the selection of such models between enterprises.

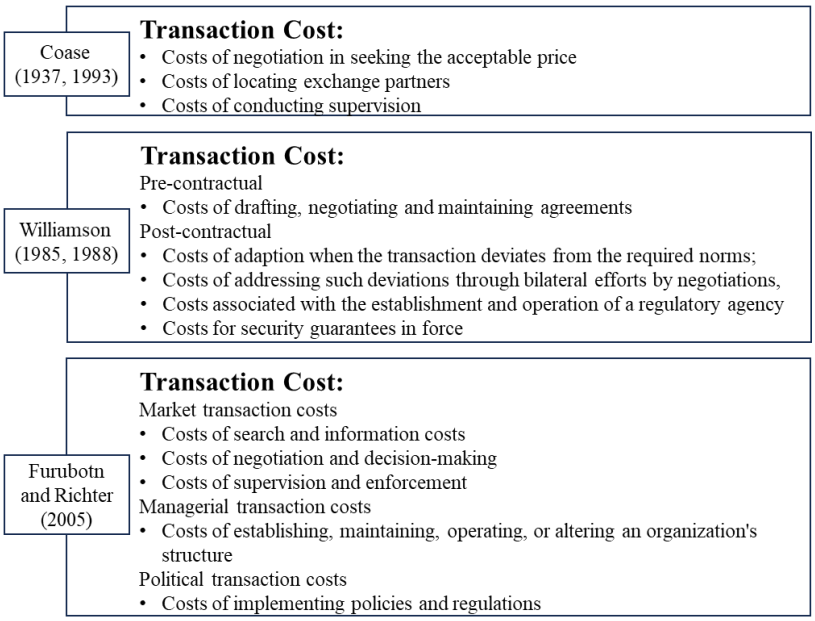


Figure 2.2 The classification transaction costs

There are two main dimensions which lead to high transaction costs, the behavioral assumptions and transaction characteristics in figure 2.3 (Williamson, 1985; Yousuf, 2017). The behavioral assumptions include bounded rationality and opportunism, reflecting limitations in decision-making capabilities and the pursuit of self-interest, respectively. In an ideal scenario where individuals possess complete rationality, transaction costs would be nonexistent as they would gather all necessary information and accurately predict the future. In reality, however, individuals have limited cognitive abilities and cannot precisely estimate the uncertain future. Therefore, it is necessary to enter contracts, agreements and other terms with the counterparty to prevent unforeseen circumstances. Since bounded rationality is unavoidable, transaction costs are incurred. Businesses need to monitor the transaction process, underscoring the necessity for organizational existence (Alchian & Woodward, 1988; Jia, 2022; Williamson, 1985). The second presumption supporting the transaction cost theory involves opportunism. The opportunistic behavior refers to the fact that people not only seek to maximize their personal interests in the course of transactions but also seek their own interests through improper means (Lumineau & Oliveira, 2020). There are two kinds of opportunism: moral hazard and holdup. Williamson refers to resources that depend on each other in this manner as "specific" or "interspecific." Parties making investments that are specific to other assets will seek protection against the risk of reneging or "holdup" by other parties. Moral hazard, a type

of opportunism, occurs in agreements where at least one party depends on the behavior of another, and obtaining information about that cost of behavior is high (Alchian & Woodward, 1988). Williamson (1979, 2011) emphasized the significance of the impact of transaction characteristics on the choice of cooperation models. He advocated for a methodical approach where the characteristics of various transactions are identified before delving into the selection of cooperation models and why to adopt this model. From a transactional perspective, He delineated three characteristics: asset specificity, uncertainty, and frequency. This systematic approach emphasizes the need to account for all aspects of transaction costs when evaluating cooperation models, thereby providing a more nuanced understanding of the factors influencing organizational choices (Alchian & Woodward, 1988).

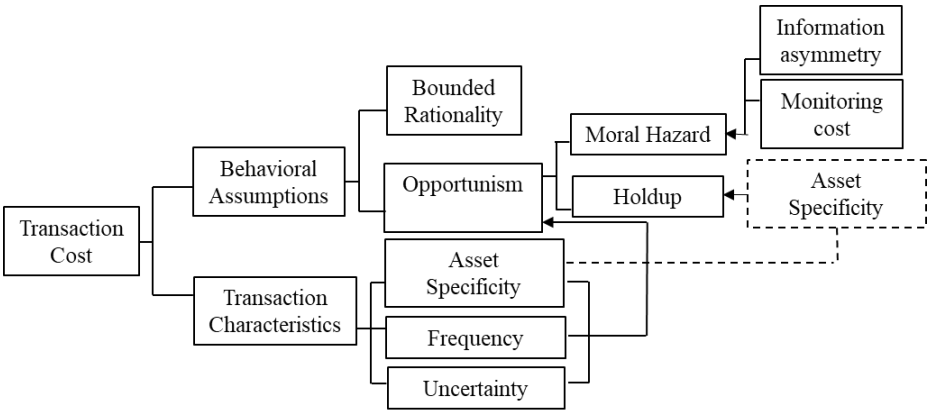


Figure 2.3 Factors affecting the model of cooperation from the transaction cost perspective

Research on the relationship between asset attributes of transactions and vertical corporatization has been underway since 1980 and has been the focus of research on industrial organization issues (Monteverde & Teece, 1982; Whinston, 2001). The concept of the asset specificity is that an asset is specific to a particular transaction when its value in an alternative use and with a different user is lower than its value in the ongoing transaction. The greater the difference between the value of an asset in its first-best and its next-best use, the more specific that asset is to the transaction (Cuypers et al., 2021). Vertical integration occurs when a company expands its activities along its supply chain. This entails bringing previously outsourced operations in-house. Vertical integration can proceed in two directions: upstream (backward) or downstream (forward). It can be accomplished through internal development of an expanded production line or through acquisitions. There are four degrees of vertical integration including full vertical integration, quasi vertical integration, long-term contracts, spot contract (Corporate Finance Institute, 2024). Within this continuum, Blois (1972) argues that firms can obtain the benefits of integration through vertical quasi-integration, a specialized, long-term cooperative relationship that enhances coordination while avoiding the higher costs

of full ownership. According to transaction cost theory, increased investment in specialized assets tends to prompt inter-firm cooperation and eventually to integration. Asset specialization and opportunism are identified as primary drivers of vertical corporatization within this theoretical framework (Jun, 2007). Under Williamson's analysis, integration behavior is about reducing opportunism and increasing investment incentives. Hart (1989) argued that due to increased investment in specialized assets, and the presence of information asymmetry and uncertainty, firms will prefer partnerships that are long-term in nature. Due to the inherent incompleteness of contracts, enterprises making significant investments in specialized assets may find themselves at risk of having their benefits compromised by opportunistic behavior from their partners post-contract signing. Subsequent renegotiation and disputes over benefit distribution can lead to increased transaction costs, negatively impacting both parties involved in the transaction. This scenario often results in underinvestment in specialized assets by both parties before the transaction occurs. To mitigate these risks, inter-firms tend to adopt either bureaucracy governance or designate property rights. Consequently, vertical integration may emerge as a solution stemming from this process (Hart & Moore, 1998).

Integration behavior can indeed serve to decrease transactional uncertainty, thereby reducing opportunism and ensuring investment stability. However, publishing services offered by international publishers exhibit significant asset-specific attributes, alongside challenges such as information gaps, uncertainty, and opportunism. Despite this, due to constraints of domestic publishing policies and the established patterns of international publishing, Chinese publishing entities are unable to promptly address these issues through asset control or integration measures. The existing literature lacks a systematic and persuasive explanation for this predicament. It remains unclear which model international publishers and domestic organizations should adopt to minimize cooperation risks effectively. Alchian and Woodward (1988) integrated the issues of asset specificity and information asymmetry between firms to propose a strategy aimed at reducing transaction costs. They suggested that firms could reduce opportunism by controlling ownership of the relevant assets. This strategic approach ensures that each party has a vested interest in adhering to the terms of the agreement, preventing one party from taking advantage of informational disparities or engaging in opportunistic behavior at the expense of the other. Similarly, Hart (1989) emphasizes the importance of setting clear boundaries, especially in the context of incomplete contracts.

In addition to asset specificity, the level of governmental support is a crucial factor that influences uncertainty, one of the three key characteristics of transaction costs. Williamson (1973, 1981, 1991) conceptualized uncertainty referring to the unpredictability and ambiguity

surrounding future events or outcomes, particularly in the context of economic transactions. He classified uncertainty types into environmental uncertainty and behavioral uncertainty. Environmental uncertainty refers to unpredictability in the external environment in which a firm operates. Research has clearly shown that environmental uncertainty, when combined with asset specificity, has the expected joint effect (Cuypers et al., 2021). The level of governmental support contributes to the environmental uncertainty by introducing unpredictability regarding future policies, funding availability, and regulatory frameworks. Behavioral uncertainty relates to unpredictability in the behavior or actions of other parties involved in a transaction. The level of governmental support can also influence behavioral uncertainty by affecting the behavior of firms and individuals within the inter-firm cooperation context. For example, uncertainty about future funding levels may lead to strategic behavior, such as opportunistic actions to secure resources or collaborations based on perceived risk (Parkhe, 1993).

Furthermore, firm size influences the asset specificity, uncertainty, and frequency in various ways. Williamsons (1985, 1999) offered insights into the factors shaping cooperation between firms of different sizes. He argued that larger enterprises benefiting from economic scale can achieve efficiency gains through specialization and division of labor, which can lead to lower transaction costs. Larger firms often have more resources to invest in highly specific assets. Additionally, he discussed how larger firms leverage their size to negotiate better contracts and terms with suppliers and customers, reducing transaction costs related to negotiating and enforcing these contracts. Dyer and Singh (1998) concluded enterprise scale can be a significant factor influencing interfirm cooperation by providing access to complementary resources, relation-specific assets, and established knowledge-sharing routines that can drive successful collaborative strategies and generate competitive advantages. Parkhe (1993) adopted a game theoretic and transaction cost way to analyze alliance structure. The research suggests that a firm's size and scale can play a role in shaping the dynamics of interfirm alliances and influencing the success of cooperative efforts. Contractor and Lorange (2004) explored the strategic and economic reasons for firms to cooperate, considering factors such as economies of scale and scope, which are influenced by enterprise size.

2.1.3 Governance structures of inter-firm cooperation

In addition to the selection of a corporate cooperation model, research on the governance of corporate partnerships is also important. While the selection of a cooperation model is indeed a significant aspect of relationship governance, it represents only one dimension of a broader governance framework. Interorganizational governance refers to the mechanisms, structures,

and processes through which different organizations coordinate and manage their activities, relationships, and resources to achieve common goals in a global context (Gereffi, 2018). After comparing intra-organizational and inter-organizational governance, Weitz and Jap (1995) summarized three basic types of relationship governance mechanisms, including authoritative control, contractual control, and normative control mechanisms. Among them, authoritarian control is the foundation of corporate partnership governance. This type involves unilateral control, where one party exerts power over another to influence actions. It is effective in communicating the necessary activities but may lead to conflicts due to a lack of consideration for the needs of the receiving party. The contractual mechanism involves both unilateral and bilateral control aspects. Typically, one party (like the manufacturer) sets the contractual terms of the relationship, but both parties engage in the negotiation of any changes to these terms over time. Normative control is purely bilateral, based on mutual acceptance of certain norms that govern behavior within the relationship. While these norms may not be formally codified, they guide the interactions and expectations between the parties involved. After reviewing the basic theories of corporate partnership governance, Li and Chen (2009) suggested that the contractual governance structure is based on opportunism, emphasizing the role of contracts in specifying and regulating transactions. While legal transactions can effectively reduce uncertainty, this governance structure often overlooks the social context in which transactions occur, focusing primarily on economic aspects. To address this limitation, they integrate social network theory to highlight the potential of social mechanisms in decreasing associated costs, giving rise to the relational governance structure. This approach underscores the importance of socialization and social networks in fostering inter-firm relationships. By promoting open exchanges between firms and enhancing communication intensity, the relational governance structure aims to strengthen inter-firm relationships and facilitate more effective collaboration.

From a transaction cost economics perspective, governance structures of inter-firm cooperation are designed to manage and mitigate transaction costs associated with exchanges between firms. The choice of governance structure in inter-firm cooperation depends on factors like asset specificity, uncertainty, and transaction frequency. Firms may use market governance for less specific and uncertain transactions, hybrid structures for moderate levels of specificity and uncertainty, hierarchical governance for high specificity and uncertainty, and relational governance to build long-term trust-based relationships. Each structure aims to minimize transaction costs and align incentives among parties involved (Williamson, 1985, 1991).

Although based on transaction cost theory, a research paradigm for corporate cooperation has gradually been formed. Since corporate cooperation involves different enterprises, there are

many types of cooperation models. Scholars agree that the specific characteristics of enterprises are also important factors affecting the cooperation models. While the transaction cost paradigm offers analytical insights applicable to most firms, such as fundamental cooperation models and relationship governance mechanisms, it may not be suitable for all inter-firm cooperation, such as international publishers and Chinese publishing entities. Therefore, when analyzing specific issues of inter-firm cooperation, it is necessary to consider into account the characteristics of the specific transaction, the characteristics of the participating firms, such as their complexity, frequency, and uncertainty. Additionally, assessing the characteristics of the participating firms, such as their size, capabilities, and strategic goals, is crucial. Moreover, understanding the resources at their disposal, including tangible assets, human capital, and funding status, provides valuable insights.

2.2 Journal publishing partnership models between international publishers and Chinese publishing entities

2.2.1 Academic journal publishing from the perspective of asset specificity

Academic journals are considered specific assets of publishers due to their unique characteristics and the specialized nature of their content (Cuypers et al., 2021; DeMaria, 2022; Oxford University Press, 2024). First, academic journals have specialized content. They contain scholarly articles that are peer-reviewed and contribute to the advancement of knowledge within specific disciplines. The content is highly specialized and tailored to the interests and needs of researchers, scholars, and professionals in respective fields. Secondly, the content published in academic journals represents intellectual property that is unique to each publication. The copyright either belongs to the authors or publishers, depending on the publishing paradigms, such as subscription-based or open access models. Additionally, publishers often hold exclusive rights to distribute and monetize the content through licensing agreements, subscriptions, or article processing charges. Thirdly, each journal possesses its distinctive editorial expertise to ensure the quality and integrity of the content published in academic journals. This includes managing the peer review process, providing editorial support to authors, and maintaining editorial standards and guidelines. Fourthly, academic journals rely on specific peer review networks to evaluate the quality, originality, and significance of submitted manuscripts. Fifthly, scholarly journals are distributed through dedicated channels to serve the scholarly community. While, typically, journals are solely owned by the publisher, in the contract publishing model

journals may be solely owned by societies or jointly owned with publishers.

In the academic publishing process, specific assets are evident both on the content provider side, typically comprising editorial offices within independent institutions or societies, and on the publisher service provider side, encompassing for-profit and not-for-profit publishers (Anderson, 2018; Morris et al., 2013). Content providers cultivate skilled professionals proficient in editorial management and peer review processes, including managing editors, scientific editors, publishers, and peer review specialists. These assets enhance the efficiency and quality of journal publishing operations. Publishing companies invest in specialized software and infrastructure for manuscript handling and decision-making, known as peer review systems. They have professional journal publisher teams that play a vital role in ensuring the efficient management, quality, dissemination, and accessibility of academic journals. They also allocate resources to production containing production editors and support staff, software tools, and quality control processes to ensure publication standards. Additionally, investments in digital publishing infrastructure, hosting services, and platform development optimize online access and user experience. Marketing and sales team further promote journal distribution and maximize outreach within the scholarly community and beyond. Figure 2.4 summarizes the academic journal publishing from the perspective of asset specificity.

2.2.2 Defining the scope of journal partnership publishing

In international partnership publishing of scholarly journals, we usually refer to one party as the publisher and the other party as the society. While we address societies, journals can be equally owned and managed by a diverse range of entities beyond societies such as academic departments at universities and independent research institutions. Regarding publishing journals, societies have two options. One is to maintain independence, managing all aspects of the publication business internally. The other is to collaborate with commercial or non-profit publishers when societies prefer not to engage in day-to-day publishing tasks (Clarke, 2020; Page, 2000). Moreover, a society that publishes its own journal might also offer its publishing services to other societies, acting as a publisher for them (Morris et al., 2013).

The standard partnership publishing model, also known as contract publishing or full-service publishing, entails a long-term cooperative agreement between two parties through a contract. In this arrangement, the publisher is responsible for all operational aspects related to the society's journals (Clarke, 2020). According to the framework of the four degrees of vertical integration, standard partnership publishing falls under the degree of long-term contracts. This represents a form of partial vertical integration where certain procurement elements remain

consistent. This continuity helps to mitigate inconsistencies in product delivery, while simultaneously managing costs to a certain extent (Corporate Finance Institute, 2024).

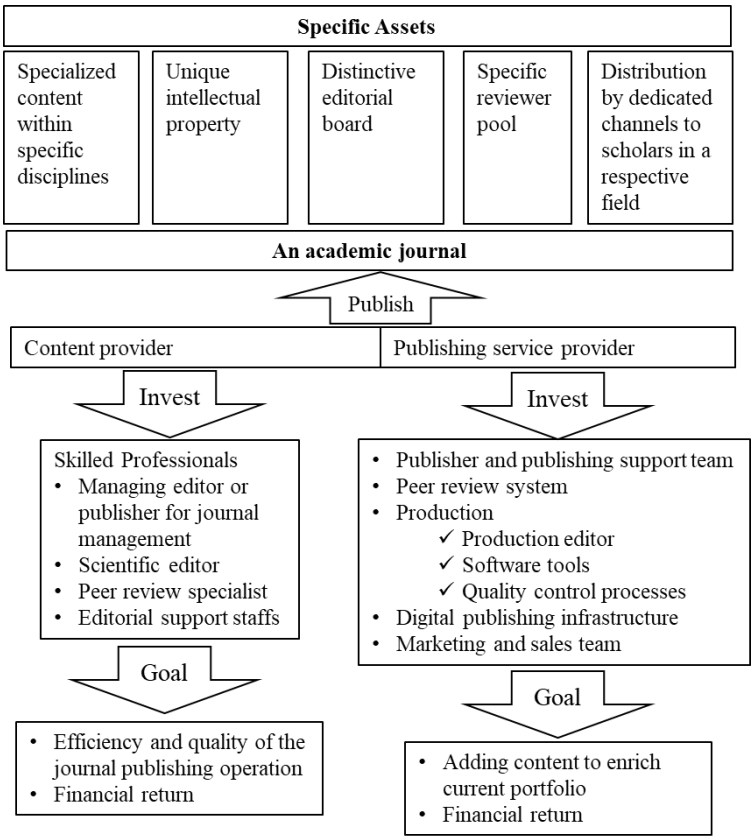


Figure 2.4 An academic journal publishing from the perspective of asset Specificity

In addition to long-term contracts, the degrees of vertical integration listed in descending order of comprehensive integration are full vertical integration, quasi vertical integration, and spot contracts.

Fee-for-service publishing corresponds to the least comprehensive degree of vertical integration - the spot contracts, where firms depend on immediate inputs from external sources and lack vertical integration (Corporate Finance Institute, 2024). In fee-for-service publishing, independent publishers engage various vendors (such as printing, composition, warehousing, copyediting, and online hosting) on a fee-for-service basis. These activities are typically directed by the society and primarily operate on a fee-for-service model, except for sales activities, which may utilize a commission-based structure or a combination of fee-for-service and commission (Clarke, 2020; Morris et al., 2013).

To reduce transaction costs associated with sourcing journals from external independent societies, publishers often opt for vertical integration by owning these journals internally, thereby reducing risks associated with asset specificity. International Science, Technology, and Medicine (STM) publishers commonly employ strategies such as mergers, acquisitions, and

reorganizations to achieve this integration (Corporate Finance Institute, 2024; Li & Lv, 2014). While full vertical integration is prevalent in the international publishing market, this thesis will primarily focus on alternative degrees of vertical integration. This choice is due to Chinese policies on publications, which restrict international publishers from acquiring Chinese publishing entities (Society of China University Journals, 2014). In such cases, publishers may adopt quasi-vertical integration, a form of deeper cooperation that enhances coordination without flexible ownership. Under this model, publishers provide embedded editorial support within the society's editorial office, enabling closer workflow alignment and resource sharing than standard contract publishing. Quasi-integration therefore offers a practical alternative to full integration, allowing both parties to achieve greater operational efficiency while maintaining institutional independence (Xu & Dong, 2025).

2.2.3 Two forms of journal ownership in partnership Publishing

Ownership is the legal right to use, possess, and give away a thing. Ownership can be tangible such as personal property and land, or it can be of intangible things such as intellectual property rights (Wex, 2024).

2.2.3.1 The full ownership of the society

In the contract publishing for societies, journal ownership comes in two forms: full society-owned and joint ownership.

In a full society-owned journal, the society remains sole ownership (Clarke, 2020; Morris et al., 2013). This model is distinct from joint-owned model. Key features of the society-owned journals model include:

(1) Complete Ownership: The society retains all rights over the journal (Page, 2000). This includes control over the journal's title, trade name, logo, all publishing rights and strategic direction. If the contractual terms with a publisher become disadvantageous, the society can switch to a different publisher (Chytrý et al., 2023).

(2) Operational Roles: The publisher's involvement typically commences after a manuscript is accepted by the editorial office of the society. Generally, publishers do not take part in the editorial decision-making processes of society journals (Anderson, 2018).

(3) Revenue sharing: In partnerships between societies and publishers, both parties aim for profitable outcomes. Financial terms generally fall into four major categories: guaranteed revenues, contingent revenues, chargebacks, and in-kind support. Guaranteed revenues are fixed payments made to the society, regardless of the journal's financial performance. It may

include a signing bonus upon agreement finalization, a minimum guaranteed royalty payment and budgets for editorial office support such as honorarium to handling editors. Contingent revenues are payments made to the society only if certain financial targets are achieved, with royalty payments being the most common form. Chargebacks represent costs paid by the society to the publisher, usually for member subscriptions. In-kind support involves the publisher providing the society with technology and marketing service that the society might otherwise need to purchase (Clarke, 2020; Ware, 2008).

(4) Flexibility in Publishing Models: Society-owned journals have the flexibility to choose their publishing models, including subscription-based, open access, or hybrid models, according to what best suits their field and membership (Clarke, 2020; Mellins-Cohen & Redvers-Mutton, 2020).

This model emphasizes the society's academic mission and community service over commercial interests, which can sometimes result in different priorities and strategies compared to journals owned or co-owned by commercial publishing entities.

2.2.3.2 The joint ownership

On the other hand, in scholarly publishing, the joint-owned partnership model between a society and a commercial publisher refers to a collaborative arrangement where both a scholarly society (often a non-profit organization focused on a specific academic discipline) and a commercial publisher (a for-profit entity) share ownership and management responsibilities of a scholarly journal or publication. This typically occurs when a society, endowed with academic resources, seeks financial backing from commercial publishers (Clarke, 2018; Page, 2000).

Key features of this model include:

(1) Shared Ownership and Control: Both the society and the commercial publisher have stakes in the journal's ownership. This often involves shared decision-making authority over key aspects like the journal's scope, editorial policies, and strategic direction. If the society is uncomfortable with the publisher, the society needs to engage in negotiations with the publisher regarding the terms of departing with the journal (Page, 2000).

(2) Revenue Sharing: Financial benefits, typically from subscriptions, open access fees, or advertising, are shared between the society and the publisher according to agreed terms. This arrangement allows societies to benefit from the publisher's commercial expertise and broader distribution networks, potentially leading to higher revenues than they might achieve independently (Bull & Hezlet, 2000; Clarke, 2018).

(3) Operational Roles: The commercial publisher typically handles the operational aspects

of journal publication, such as production, distribution, marketing, and sales. Their resources and expertise in these areas can enhance the journal's reach and impact. Meanwhile, the society often retains control over the editorial content, maintaining the journal's academic integrity and focus (Anderson, 2018).

(4) Challenges: Publisher lock-in may happen when a significant portion of a journal's revenues are non-transferable. This revenue is owned and controlled by the publisher. There also can be tensions between the profit motives of the commercial publisher and the scholarly aims of the society. Issues like pricing, access, and the balance of power between commercial and academic interests need careful negotiation and ongoing management (Ashman, 2009).

2.2.4 Partnership publishing model of academic journals in international market

In the realm of journal partnership publishing, four distinct models align with varying degrees of vertical integration, each with its unique characteristics. At the top end, merger and acquisition represent full integration, followed by intensive contract publishing for quasi-integration. Moving along, full-service contract publishing involves long-term contracts, while fee-for-service publishing operates on a spot-contract basis. These models offer options catering to different levels of collaboration and control within the scientific publishing landscape. Figure 2.5 shows four partnership Publishing model of academic journals corresponding to the four degrees of vertical integration. The higher the asset specificity, the stronger the incentive for vertical integration, as it helps firms protect their investments, reduce transaction costs, and maintain control over critical resources or processes (Ketokivi & Mahoney, 2017; Kvaløy, 2007; Machado et al., 2016; Ruzzier, 2009).

2.2.4.1 Merger and acquisition

Since the 1960s, the international publishing market has undergone significant transformation marked by a series of strategic operations including mergers, acquisitions, and reorganizations. These actions align with the most comprehensive degree of vertical integration, known as full integration. Among these changes, the emergence of the world's top three academic publishers - Elsevier, Springer, and Wiley - can be attributed to mergers and acquisitions. These publishers have evolved through strategic consolidations of smaller publishing houses, allowing them to expand their portfolios, resources, and global reach (Li, 2017; Li & Lv, 2014; Pei et al., 2022). Within the context of mergers and acquisitions, the transfer of journal ownership to the acquiring publisher is an inherent consequence.

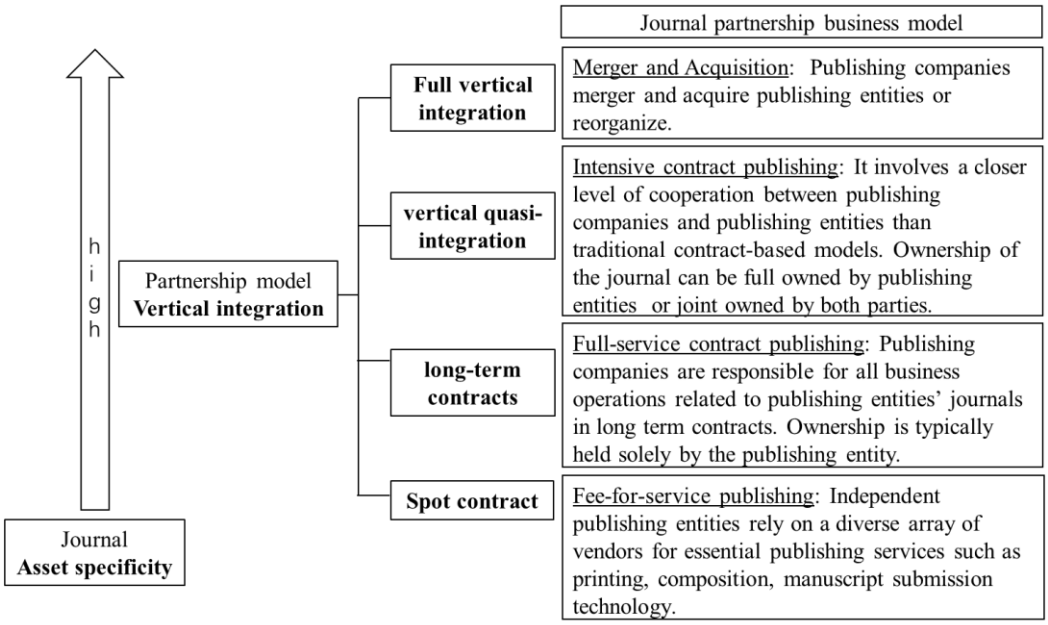


Figure 2.5 Partnership Publishing model of academic journals by degree of vertical integration

Reed Elsevier, now known as RELX Group, vertically integrates by acquiring journal publishers and content providers over the years to strengthen its position in STM publishing sector. In 1991, Elsevier acquired the academic publishing division of Reed International, forming Reed Elsevier, which brought a wide range of scientific journals under its umbrella. This pivotal acquisition marked a significant expansion of Elsevier's portfolio and established it as a major player in the academic publishing industry. Subsequent acquisitions, including Cell Press in 1999, Pergamon Press in 1991, Harcourt Brace Jovanovich and W.B. Saunders in 1996, and Mosby in 1998, strategically expanded Elsevier's presence in the life sciences, technical disciplines, education, and medical fields. In 2024, Elsevier publishes over 2500 academic journals. By owning a diverse portfolio of journals, Elsevier reduces its dependence on external content suppliers and strengthen its role as a leading academic content provider (Elsevier, 2024).

In 2006 John Wiley & Sons, Inc., commonly known as Wiley acquired Blackwell Publishing, which is world's leading learned society publisher. This strategic acquisition added around 825 journals to Wiley's Global STM business, propelling Wiley to become the largest society publisher worldwide (Ware, 2008).

In 2015, Holtzbrinck Publishing Group merged with NPG, a subsidiary of the Holtzbrinck Publishing Group, with Springer Science & Business Media to form Springer Nature. This merger brought together two of the largest academic publishing companies, creating a powerhouse in the scientific, technical, and medical publishing industry. As a result, Nature and its affiliated journals became part of Springer Nature's extensive portfolio. Springer Nature solidified its position as a leading publisher of scientific research and scholarly content

(Springer Nature, 2015).

2.2.4.2 Intensive-service contract publishing

Intensive-service contract publishing is not a widely adopted approach among international publishers, but a notable example is the partnership between Elsevier and The Lancet. The cooperation between Elsevier and The Lancet can be viewed as quasi-integration. Quasi-integration involves a closer level of cooperation between parties than traditional contract-based models but falls short of full vertical integration. In this case, Elsevier provides extensive resources and support to The Lancet, including editorial and production assistance, as well as access to its global distribution network. By employing editors specifically for The Lancet and allowing Lancet editors to work within Elsevier's offices, the collaboration extends beyond the standard full-service publishing model. Instead of relying on external suppliers for editorial and production services, The Lancet benefits from direct access to Elsevier's resources and expertise, including editorial staff, production facilities, and distribution channels. Meanwhile, the arrangement also allows both parties to benefit from economies of scale and scope, while maintaining a degree of independence and flexibility in their respective operations. The cooperation with The Lancet strengthens Elsevier's position as a leading publisher in the medical field. The Lancet benefits from Elsevier's extensive network and resources for global dissemination (Elsevier, 2024).

Under the intensive-service contract publishing model, ownership of the journal remains flexible, permitting either sole ownership by the society or joint ownership shared between the society and the publisher. The determination of ownership is contingent upon the extent of investment made by each party in the journals and the journal publishing process.

2.2.4.3 Full-service contract publishing

A growing trend sees independent societies partnering with large commercial publishers or university presses for full-service publishing contracts related to academic journals (Clarke, 2020). This standard partnership publishing model is widely embraced across most society partnership journals (Bull & Hezlet, 2000). In a full-service publishing arrangement, the commercial publisher assumes responsibility for all business operations related to the society's journals, including vendor contracting, financial management as per contractual terms, while the society outsources management of business operations and retains editorial control, focusing primarily on editorial duties including appointment of editors, journal scope, peer review management and editorial decision-making (Ashman, 2009; Clarke, 2018; Clarke, 2020).

In the post-World War II era, there was a significant surge in the production of new

scientific articles (Bornmann et al., 2021). These statistics surpassed the capabilities of scientific societies, which traditionally relied on volunteer members to edit their journals. As a result, the professional publishing industry emerged for-profit publishers (Chytrý et al., 2023).

From publishing perspective, advantages of societies and publishers are:

(1) Advantages of the society in the full-service publishing model:

Partnering with a publisher to launch a new journal or manage an existing journal offers a society a number of advantages (Ashman, 2009; Bull & Hezlet, 2000; Campbell, 2010; Morris et al., 2013): it brings financial returns to the society; it enables the society to concentrate on its efforts on serving its members and advancing the field; it reduces the financial risk associated with self-publishing of the society by utilizing polishers' expertise in knowledge and technology throughout the publishing process; it leverages the visibility of the society's journal through the publisher's existing international promotion and sales channels, including relationships with abstracting and indexing services; it offers affiliation with the publisher's brand, which can enhance the recognition of a new journal within the target research community.

(2) Advantages of the publisher in the full-service publishing model:

For the publisher, publishing a journal on behalf of a society offers several benefits (Morris et al., 2013; Ware, 2008): publishers gain revenue, and ultimately, profit; collaborating with society journals adds content without substantial startup and development costs; partnering with societies provides existing author, reviewer, and reader resources for new launch journals; it enhances the reputation of the title through affiliation with a respected group of scholars; working with respected academic societies enhances the reputation of the publisher.

A successful partnership will ensure that the society control major publishing policies, particularly editorial. The society provides disciplinary knowledge and scientific editorial team. The editorial team can leverage the society's academic influence to solicit submissions and provide reviewer and reader resources to the journal. Publishers typically do not participate in the editorial decision-making process of society journals. They offer publishing services and expertise, ranging from supporting the editorial team and advising on journal development strategy, to physical production, marketing, sales and technology. Both parties benefit from each other's brand in specific fields. The publisher takes advantage of the society's brand in the subject, and sometimes in specific countries or regions. The society, in turn, benefits from the publisher's brand to gain a more global reach (Anderson, 2018; Ashman, 2009; Campbell, 2010; Ware, 2008).

As one of the leading medical publishers in the world, Wolters Kluwer collaborates with various medical and healthcare societies to publish their journals. A successful case is Wolters

Kluwer partnering with the American Society of Clinical Oncology, Inc (ASCO®) to publish the " Journal of Clinical Oncology (JCO), one of the leading journals in oncology worldwide. This partnership has significantly contributed to the dissemination of cutting-edge research and clinical practice guidelines in the field of oncology (Wolter Kluwer, 2020).

Springer Nature partners with a range of academic societies to publish journals across an array of scientific, technological, and medical disciplines. One example is the partnership with the Japanese Society of Gastroenterology (JSG) to publish " The Journal of Gastroenterology," a renowned journal in the field of gastroenterology. This partnership enables JSG to reach a global audience of researchers, clinicians, and policymakers with its cutting-edge research and clinical insights. Meanwhile, the partnership opens expanded marketing opportunities for Springer Nature in Japan and the Asia-Pacific region. By leveraging JSG's established networks and reputation, Springer Nature can more effectively promote its portfolio of journals and publications in these markets (Springer Nature, 2024).

Under this model, ownership is typically held solely by the society, although joint may occur based on the level of investment in the journal by each party.

2.2.4.4 Fee–for-service publishing

In fee-for-service model, independent publishers often rely on a diverse array of vendors for essential services such as printing, composition, warehousing, copyediting, online hosting, manuscript submission technology, institutional sales, advertising sales, and reprint sales. These vendors typically operate under a fee-for-service model, with sales activities often structured under a commission model or a combination of fee-for-service and commission. In essence, independently published societies function similar to general contractors, assuming ultimate responsibility for their business operations and the work of their vendors and subcontractors. Under this framework, the society oversees all revenue collection and disburses payments to vendors either directly or through commission structures. After covering expenses, overhead costs, vendor fees, staff salaries, and editorial expenses, any remaining funds constitute the society's net revenue or operating surplus (Clarke, 2020; Morris et al., 2013).

Independent societies operating under a fee-for-service model resemble the concept of spot contracts, representing the least comprehensive degree of vertical integration. Spot contracts, characterized by their immediacy and lack of long-term commitment, involve procuring necessary inputs from external sources without vertical integration into the supply chain. Similarly, in the fee-for-service model, independently published societies rely on external vendors for specific services without full integration into their operations (Corporate Finance

Institute, 2024).

The Indian Journal of Endocrinology and Metabolism (IJEM) collaborates with Medknow, a subsidiary company of Wolter Kluwer, under a fee-for-service model. In this arrangement, Medknow provides IJEM with flexibility in selecting service packages based on its budget, publishing goals, and timeline. This allows the journal to optimize its publishing process while controlling costs and ensuring quality. Medknow offers a range of tailored publishing services to IJEM, including manuscript submission management, peer review coordination, copyediting, typesetting, online hosting, and distribution. By engaging Medknow under the fee-for-service model, IJEM maintains financial independence and control over its revenue streams. The journal pays for specific publishing services as needed, without the obligation of revenue-sharing or long-term commitments (MedKnow, 2024).

The ownership of the journal is sole owned by the society under this model.

2.2.5 Partnership publishing model of medical journals in China

Currently, China lacks independent English-language academic publishing groups or platforms that can effectively compete with globally recognized publishers in the international market. As a result, many domestic English-language journals seek to enhance their global visibility through partnerships with renowned international publishers (Liu et al., 2019). Between 2018 and 2020, 25 E-L medical journals received funding from the Excellence Program. Among these, 80% (20 journals) opted for collaboration with international publishers (Shi & An, 2021). By December 2020, out of the 51 medical journals in mainland China (excluding Hong Kong, Macao, and Taiwan) listed in the SCI and the 2020 Chinese Academy of Sciences Journal List, 85% were engaged in collaborations. Studies indicate that journals partnering with international publishers demonstrate high performance in terms of publications and citations compared to those relying solely on self-publishing platforms (Yan et al., 2022).

2.2.5.1 The Expectation of Chinese medical publishing entities in partnership publishing

The main purpose of medical universities and research institutes to establish English journals is to advance the development of academic disciplines (Ding et al., 2022; Zhang et al., 2019). Similarly, hospitals publish medical English journals with the intention of contributing to the advancement of medical knowledge and practice (Meng et al., 2014; T. Wang et al., 2022). Most of the editorial departments in hospitals do not have independent financial and personnel autonomy, and rely on the resources provided by hospitals to run journals (M. Yang et al., 2016; Yuan, 2011). Chinese establish English journals primarily to facilitate national innovation-

driven development and to align with the country's strategy of engaging with the global community (Chen & Wang, 2020). However, these medical societies often face challenges stemming from the legacy of resource allocation practices inherited from the planned economy era, leading to constraints in their autonomy and operational capabilities. In short, medical universities and research institutions, hospitals and medical societies in China do not publish English journals for commercial gain, rather, their primary objective is to ensure societal benefits through the dissemination of scholarly knowledge and the advancement of their respective fields (Ding et al., 2022).

When Chinese medical journal editorial offices in universities, hospitals, and professional societies seek collaboration with international publishers for partnership publishing, these partners usually international publishers act commercially in offering partnership publishing service (Bull & Hezlet, 2000; Clarke, 2020). Basically, these partnerships mean Chinese entities pay fees to international publishers to use their publishing services. As previously noted, while these entities do not primarily publish journals for commercial purposes, maintaining the operational sustainability and achieving notable performance are imperative (Ding et al., 2022). Therefore, engaging in commercial operations within these editorial offices becomes an inevitable necessity.

Currently, Chinese E-L scientific and technical journals primarily rely on funding from national sources and organizers, constituting 70%-80% of their operational finances. In contrast, revenue from article processing charges, subscription fees, advertisements, and similar sources remains minor (Fan et al., 2018). Overall, the operational income of these journals falls short of offsetting the financial investments made by the state and organizers, rendering them unable to achieve independent sustainability in the international publishing landscape.

Consequently, the level of financial support provided by the state and organizers significantly influences the development and impact of English journals. Therefore, the primary concern for domestic medical journal entities is determining a cooperation model conducive to the strategic development of their journals (Xu & Bu, 2016).

The expectation in partnership depends on the type of Chinese entities:

(1) Expectation of hospitals in partnership publishing

Hospitals are a significant owner of the Chinese E-L medical journals, making up a substantial portion of co-publishing entities as medical universities (China Association for Science and Technology, 2022). Co-ownership model or hospital sole ownership model are co-existing in hospital co-publishing supply chain (AME publishing company, 2024; Chen & He, 2021). High tiers hospitals in China are willing to establish E-L academic journals mainly for

enhancing reputation and research impact internationally and domestically, as well as for improving the medical discipline construction. They prefer one stand partnership publishing service as known as intensive partnership publishing service because of low efficient editorial offices in hospitals, long journal publication cycle, undedicated Editor in Chiefs. The vast majority of articles published by clinical medical staff are to meet the requirements of career promotion, continued education, and research project, leading to the phenomenon of "favor manuscripts," which affects the quality of journal articles (M. Yang et al., 2016). The editor in chief of medical journals by hospitals are usually held by the president of the hospital. The part-time editors-in-chief, who are in the administration positions, provide strong economic support for the development of the journals, but multiple responsibilities in their roles make it difficult for them to fully commit to the responsibilities of the Editor-in-Chief (Hu, 2004).An ultimate cooperation case is that the hospital is only responsible for paying the publishing fees to the publisher, and the subject of the journal is the hospital's high performance discipline. Other than that, the hospital does not participate in any operations of the journal, and the hospital's doctors are named on the editorial board without any substantial contribution to the journal (AME publishing company, 2024). From this case, hospitals usually have enough funds to support the partnership journal publishing. The source of the funds are diverse as some of them might be from hospital financial support, or from pharmaceutical company sponsorship, or from government sponsored programs.

(2) Expectation of the medical associations in partnership publishing

Different from international societies, medical associations in China are organizations with a semi-civilian and semi-public nature. We selected the CMA as a representative medical association to study in depth. The CMA is a voluntary academic, public welfare, and non-profit social organization established and registered in accordance with the law by medical and scientific workers in China. It accepts the guidance and supervision of CAST and the Ministry of Civil Affairs of the People's Republic of China, and is under the guidance and management of the National Health Commission in terms of its functions (Chinese Medical Association, 2024). The CMA’s regulation and operations are closely tied to government oversight and depend heavily on governmental support. As a result, the CMA places strong emphasis on maintaining full ownership and control over its journals.

Unlike Western societies that rely on membership models to raise funds, the CMA does not charge membership fees. Instead, it receives substantial financial support from CAST programs and generates revenue through technology–economy integration activities such as its publishing subsidiary, medical conferences, continuing education, and collaborative innovation

organizations (Ding et al., 2022; Liu et al., 2022). As a national professional platform, the CMA is the dominant medical association in China and wields significant influence across the medical community. It has demonstrated strong enthusiasm for establishing E-L journals and seeks partnerships with international brands known for high-impact publishing (Chinese Medical Association, 2024). As CMA-affiliated journals expand internationally, they face growing pressure to meet global standards in publishing quality, ethics, and indexing. Consequently, collaboration with international publishers has become an important strategy for enhancing global visibility and strengthening the international competitiveness of CMA medical journal portfolios (J. Li et al., 2023).

(3) Expectation of the medical universities in partnership publishing

Medical universities in China have emerged as the primary initiators of E-L partnership journals due to their strong disciplinary foundations, alignment with national scientific priorities, and substantial research output. University-owned medical journals serve not only as academic dissemination platforms but also as institutional showcases that support talent development and foster academic exchange (Liu & Wang, 2018; Yang & Wang, 2022). Universities benefit from stable government funding and diverse institutional resources, allowing them to invest strategically in journal development with relatively low financial pressure. In the early stage of the publication, universities may give policy preferences to their sponsored journals. As universities and research institutes usually have a larger number of faculty and students, the recognition of a journal owned by a university can attract a large number of high-quality submissions from its faculty and students (Ding et al., 2022). To international publishers, in China, the medical universities/research institutes have replaced the role of international societies and become the main publishing partners.

The partnership between Chinese medical universities and international publishers began in the early 2000s, when collaborations were primarily subscription-based. Universities did not pay publishing fees and typically received royalties from subscription income, with journals often operating under co-ownership models (Hinchliffe, 2020; Xu & Bu, 2016). With the shift toward open access, international publishers now require universities to provide upfront investment for new journals due to the loss of subscription revenue. In response, universities increasingly insist on sole ownership to retain strategic control and the flexibility to change partners (Chen & He, 2021). Compared with hospitals, universities possess stronger bargaining power in negotiations. Many institutions also collaborate with multiple publishers across different disciplines, using these parallel partnerships to compare service quality and performance (Liu et al., 2019).

For international publishers, partnership with medical universities and research institutes is no longer as stable as it was in the first decade of the 21st century. Now, most universities and research institutes choose to have sole ownership of journals, giving them the freedom to seek new partners. At the same time, international publishers face more competition from similar companies in the partnership publishing, including both international and local companies. Being adaptive to the changing customers' needs is the challenge to international publishers.

2.2.5.2 Existing partnership publishing models of E-L medical journals in China

Currently, most of SCI journals in China follow a partnership publishing approach with international publishers. These collaborations typically involve two main models: the fee-for-service model and the full-service publishing model. It's noteworthy that AME Publishing, a medical open-access publisher established by a team from mainland China and registered in Hong Kong, is offering intensive contract publishing service to Chinese medical institutions. Presently, it oversees the publication of over 60 journals, with 13 indexed by SCI (Yan et al., 2022). In partnerships with hospitals, AME typically invests in establishing and managing editorial offices, hiring managing editors, and supporting hospital-affiliated scientific editors in manuscript handling and journal operations. This model represents a highly integrated form of contract publishing within the Chinese medical journal landscape (AME publishing company, 2024; Xu & Dong, 2025). Table 2.1 and table 2.2 generalize typical studies existing partnership publishing models of China E-L STM journals especially E-L medical titles in China.

Table 2.1 Typical studies about China E-L STM journals partnership status based on the searched result in CNKI and Web of Science

Chinese STM E-L Journal Partnership Model			
Author	**Year**	**Research focus**	**Partnership Model**
Yongsong Yan	2022	China's E-L SCI journal cooperation with international publishers	Fee-for Service Full-Service contract Intensive contract Self-publishing
Xianchang Sun	2022	Status quo，problems，and strategies of high-level English scientific journals in universities	Full-Service contract
Yuna Liu	2019	Publishing service cooperation between E-L STM journals in China and international publishers	Fee-for Service Full-Service contract
Aihong Fan	2018	Development strategies of English-language STM journals	Full-Service contract Self-publishing
Yuehong Zhang	2018	International impact of Chinese STM journals	Full-Service contract
Tao Feng	2015	Status and future of international co-publishing English-language STM journals	Fee-for Service Full-Service contract

Table 2.2 Typical studies about E-L medical titles partnership status based on the searched result in CNKI and Web of Science

Chinese Medical E-L Journal Partnership Model			
Author	**Year**	**Research focus**	**Partnership Model**
Bing Liu	2023	Development strategy of Chinese medic al English journals - case study of journals published by Chinese Medical Association	Fee-for Service Full-Service contract Self-publishing
Ting Wang	2022	Preparation and strategy for new set-up E-L medical journals - A case study of Gastroenterology Report	Full-Service contract
Qiang Shi	2021	China's English medical journals included in the Excellence Action Plan	Full-Service contract
Yilan Xu	2021	International Cooperation of English Journals of Traditional Chinese Medicine - A case study of Acupuncture and Herbal Medicine	Full-Service contract
Shiying Li	2020	Suggestions for platform construction of E-L medical journals	Fee-for Service Full-Service contract
Meiqin Yang	2016	Problems of publishing medical journals by hospitals	Full-Service contract

2.3 Mathematical derivation of evolutionary game theory

2.3.1 The rise of evolutionary game theory in enterprise cooperation

Game theory originated in the mid-20th century through the ground-breaking contributions of von Neumann and Morgenstern (Von Neumann & Morgenstern, 1944). Traditional game theory assumes fully rational actors who make explicit, utility-maximizing choices, and stable outcomes such as the Nash equilibrium describe situations in which no participant benefits from unilaterally altering their strategy (Easley & Kleinberg, 2010). But in real human societies and among animal populations, researchers observe instances of mutual cooperation, contrary to the predictions of traditional game theory that suggest defection in the face of social dilemmas (Tanimoto, 2015). These discrepancies prompted scholars to seek models that account for bounded rationality, adaptation, learning, and long-term strategic evolution.

The introduction of evolutionary game theory marked a major shift in addressing these limitations. Pioneered by Smith & Price (1974, 1979, 1973) and later formalized by Taylor & Jonker (1978), evolutionary game theory redefines strategic behavior not as the outcome of one-shot optimization but as a dynamic evolutionary process shaped by imitation, learning, and selection. Central concepts such as evolutionary stable strategies (ESS) and replicator dynamics allow the analysis of how strategies evolve within populations over time, providing a powerful tool to examine the persistence or collapse of cooperation (Sandholm, 2017). While evolutionary game theory emerged within evolutionary biology, its methodological foundations

were quickly recognized as highly relevant to economic and organizational environments in which actors adapt based on experience, feedback, and the observed success of others (Yi, 2010).

The adoption of evolutionary game theory in studies of enterprise cooperation expanded as scholars recognized that inter-firm collaboration seldom results from static, one- shot rational calculations (Yi, 2010). Cooperation within supply chains, innovation alliances, industrial clusters, and digital platforms instead evolves dynamically as firms repeatedly interact, learn from past outcomes, and adjust their strategies in the face of uncertainty (Li & Zhou, 2022). Trust formation, reputation mechanisms, and mutual responses to partner behavior play central roles in shaping cooperative dynamics that cannot be adequately explained using static equilibrium models. Evolutionary game theory provides a natural framework for modeling these long-term adaptive processes, as strategies can change gradually in response to payoffs, environmental pressures, or institutional incentives (Li et al., 2020). Research on innovation alliances uses evolutionary game theory to analyze how firms collaborate in research and development activities while managing the risk of opportunistic behavior or knowledge leakage, demonstrating the conditions under which cooperative innovation becomes evolutionarily stable (Li & Zhao, 2018; Li & Zhou, 2022). Evolutionary models have also been widely applied to tripartite cooperation among universities, enterprises, and governments, showing how subsidies, intellectual property protections, and institutional support shape the evolution of collaborative innovation behaviors (Shen & Pan, 2024). Environmental governance research provides an additional field where evolutionary game theory is increasingly prominent. Farmer–enterprise cooperation within the context of government policies and farmers' cognition apply evolutionary game theory to understand participation behaviors. The study underscores that government interventions and farmers' perceptions significantly influence cooperation dynamics, with real-world behaviors often diverging from optimal strategic choices (Wei & Ruan, 2022).

In summary, the rise of evolutionary game theory in enterprise cooperation research reflects its unique ability to capture the adaptive, dynamic, and path- dependent nature of inter-organizational behavior. Contemporary enterprise ecosystems, marked by uncertainty, heterogeneity, and continuous interaction, align closely with the theoretical assumptions of evolutionary game theory. By relaxing the unrealistic assumption of perfect rationality and emphasizing long-term behavioral evolution, evolutionary game theory offers a more defined and empirically grounded perspective on how cooperative relationships emerge, stabilize, and sometimes collapse among firms.

2.3.2 Two core concepts of evolutionary game theory

The concept of evolutionarily stable strategy proposed by Smith and Price, and the replicator dynamics proposed by Taylor and Jonker, play a fundamental role in evolutionary game theory (Easley & Kleinberg, 2010; Smith & Price, 1973; Taylor & Jonker, 1978).

2.3.2.1 Evolutionarily stable strategy (ESS)

In Evolutionary Game Theory, ESS is a genetically determined strategy that tends to persist once it is prevalent in a population. It is a strategy that, when adopted by a large portion of the population, cannot be invaded or displaced by a small group of individuals using a different strategy. The concept of ESS is similar to Nash equilibrium in traditional game theory but is applied to situations where strategies are genetically determined and undergo evolution over multiple generations (Easley & Kleinberg, 2010).

Smith and Price (1973) provided the definition of ESS in the single population symmetric game. It can be understood mathematically through the calculation of expected payoffs and the comparison of fitness levels associated with different strategies:

In their model, individuals engage in a prolonged contest over a resource with a fixed value v. Each contestant selects a strategy m, which represents the maximum cost they are willing to bear to remain in the contest. If two contestants choose strategies m_1 and m_2, where $m_1 > m_2$, the contestant with the higher tolerance wins the contest when the weaker contestant withdraws. The winner receives a payoff of $v - m_2$, while the losing contestant incurs a cost of m_2.

Let $E_J(I)$ be the expected pay-off to strategy I played against strategy J. Strategy I is an ESS if, for all strategies J, $E_I(I) > E_I(J)$. If $E_I(I) = E_I(J)$ for any J, then $E_J(I) > E_J(J)$ is required for evolutionary stability. This condition suggests that if a mutant strategy J arises with the same pay-off expectations as I, strategy I will become more prevalent until interactions between two individuals using strategy J are frequent.

No fixed value of m (termed a "pure" strategy) can be an ESS. In a population using strategy m, a mutant strategy $m + \epsilon$ would fare better. Also, if $m > v$, a strategy of $m = 0$ would be more advantageous. A mixed strategy can be an ESS. Let's consider a mixed strategy I that chooses the value of m between x and $x + \Delta x$ with a probability $P_{(x)}\Delta x$.

The mixed strategy I is defined by the probability function $P_{(x)} = \frac{1}{v} exp\left(-\frac{x}{v}\right)$. It can be shown that this mixed strategy I is an ESS under this formulation.

Economists have gradually discovered limitations in the application of ESS. ESS cannot be

applied in asymmetric situations, limited groups, and circumstances involving randomness. To fill the gap of ESS formulated by Smith and bring the theory closer to reality, economists have continuously developed the concept of ESS. In real socio-economic systems, many strategic interactions often emerge from asymmetric engagements between individuals belonging to two or more distinct groups. Selton (1980, 1983, 1988) described the concept of ESS under the asymmetric scenario involving two populations.

In a game with role restrictions, let $s = (s_1, s_2)$ a behavioral strategy denote a behavioral strategy profile, where each component represents the strategy adopted under a specific role. Let $f(s, s')$ denote the expected payoff obtained by a player using strategy s when interacting with a player using satisfies the conditions s'. If a behavioral strategy $s = (s_1, s_2)$ satisfies the conditions: (1) for any $s' \in S \times S$ where $s \neq s', f(s, s) \geq f(s, s')$; (2) If $f(s, s) = f(s, s'), f(s, s) \geq f(s', s')$, then the strategy $s = (s_1, s_2)$ is called an ESS.

From condition (1), it can be observed that in an asymmetric two-population game, when an ESS s exists, the expected payoff of individuals adopting any alternative strategy s' is lower than that of individuals adopting the ESS s. As a result, the mutant strategy s' cannot invade the original population. From condition (2), it can be inferred that individuals adopting the ESS s can invade a population adopting the mutant strategy s'. This ensures that the ESS s remains resistant to invasion by alternative strategies while being capable of spreading in populations dominated by mutants.

Hirshleifer (1980) introduced a broader concept of evolutionary equilibrium, linking static game theory models with the dynamic aspects of evolutionary processes. Schaffer (Schaffer, 1988) proposed ESS in the context of finite groups. Foster and Young (1990) and Young (1993a, 1993b) introduced random factors into dynamic systems, thereby introducing the concepts of stochastic stability and the set of stochastically stable, extending evolutionary game theory into random dynamic systems. The introduction of these concepts has improved the basic content of evolutionary game theory.

2.3.2.2 Replicator dynamic

The traditional game theory assumes that the agents involved are completely rational. Usually, under the assumption of complete rationality, if a Nash equilibrium exists, the players can reach the Nash equilibrium in just one round of the game. This result does not need any dynamic adjustment process. Evolutionary game theory, on the other hand, posits that Nash equilibrium should be achieved after multiple rounds of play, requiring a dynamic adjustment process. Starting the research from individuals with bounded rationality and targeting on populations,

evolutionary game theory suggests that the decision-making of individuals is achieved through dynamic processes such as imitation, learning, and mutation among individual (Yi, 2010).

The replicator dynamic is a fundamental deterministic evolutionary dynamic in game theory. Within this framework, the growth rate, in terms of the proportion of agents employing a particular strategy, correlates directly with how much the payoff of that strategy surpasses the average payoff across the entire population. The replicator dynamic can be viewed as a form of imitation model in economic area (Sandholm, 2010). The replicator dynamic was introduced by Taylor and Jonker (1978) that established the use of differential equations in modeling game evolution. This field continues to be a dynamic and active area of research. For up-to-date overviews, Hofbauer and Sigmund (2003) and Sandholm (2010) offer recent research results.

The mathematical expression for the single-population replication dynamics equation (2.1) is as follows (Hofbauer & Sigmund, 1998; Weibull, 1995):

$$\frac{dx_i}{dt} = [f(s_i, x) - f(x, x)] \cdot x_i \cdots\cdots (2.1)$$

x_i represents the proportion of individuals choosing pure strategy i at a certain time t within the population. $f(s_i, x)$ represents the expected payoff or fitness for individuals in the population engaging in random matching games, for those who choose the pure strategy s_i. $f(x, x) = \sum_i x_i f(s_i, x)$ represents the average expected payoff or fitness of the population.

From the expression of the single population group replicator dynamic equation, it can be seen that if an individual who chooses pure strategy s_i gains less than the average payoff of the group, then the proportion of individuals choosing pure strategy in the group will continuously decrease over time. Conversely, if an individual who chooses pure strategy s_i gains more than the average payoff of the group, the proportion of individuals choosing pure strategy in the group will continuously increase over time. If an individual who chooses pure strategy s_i gains a payoff equal to the average payoff of the group, then the proportion of individuals choosing pure strategy in the group remains unchanged.

In evolutionary game theory, when $f(x) = \frac{dx_i}{dt} < 0$, the corresponding stable solution is an ESS. This condition ensures that the strategy is resistant to invasion by alternative strategies, as the payoff for deviating from the stable strategy is lower than the payoff for adhering to it. This stability condition is a key feature of ESS and aligns with the replicator dynamics framework, where strategies with higher payoffs dominate over time.

Selten (1980).divided populations into different roles like 'owner' and 'intruder'. Different populations are distinguished based on the different sets of pure strategies available to individuals. In the multi-population scenario, individuals in different populations have different

sets of pure strategies, different average payoffs, and different evolutionary speeds. The multi-population replicator dynamic equation is as follows (Hofbauer & Sigmund, 1998; Weibull, 1995):

$$\frac{\mathbf{dx_i^j}}{\mathbf{dt}} = \mathbf{x_i^j}\left[\mathbf{f}\left(\mathbf{s_i^j}, \mathbf{x}\right) - \mathbf{f}\left(\mathbf{x^j}, \mathbf{x^{-j}}\right)\right] \cdots\cdots (2.2)$$

The superscript $j(j = 1,2, \ldots, K)$ denotes the jth group, where K represents the total number of groups. x_i^j represents the percentage of individuals in the jth group who choose the $ith\ pure\ strategy$ $\left(i = 1,2, \ldots, N_j\right)$ relative to the total number of individuals in that group. x^j represents the state of group j at time t, x^{-j} represents the state of all groups other than the jth group at time t. s_i^j represents the ith pure strategy within the set of individual behaviors in the group. x represents the mixed strategies of the mixed groups. $f\left(s_i^j, x\right)$ represents the expected payoff for individuals choosing pure strategy in group j when the state of the mixed group is x. $f\left(x^j, x^{-j}\right)$ represents the average payoff of the mixed group.

2.3.2.3 Replicator dynamics and evolutionary stable strategies in two-dimensional asymmetric games

Boundedly rational players often engage in asymmetric games, where the two opposing players come from distinct groups. The framework considered here involves repeatedly and randomly selecting one member from each of the two groups to participate in an asymmetric game. Within each group, players update their strategies through learning and imitation, following the replicator dynamics as the mechanism for strategy adjustment.

Table 2.3 A general payoff matrix for asymmetric games

Players in group 1	**Players in group 2**	
	Strategy A	**Strategy B**
Strategy A	a_{11}, b_{11}	a_{12}, b_{12}
Strategy B	a_{21}, b_{21}	a_{22}, b_{22}

The table 2.3 presents the payoff matrix for the asymmetric game. Suppose that in players in group 1, the proportion of players adopting strategy A is x, while the proportion adopting strategy B is $1 - x$. Similarly, in players in group 2, the proportion of players choosing strategy A is y, and those choosing strategy B constitute $1 - y$.

Considering that a_{ij} is the payoff if the player of group 1 adopts strategy i and the player of group 2 adopts strategy j, and that b_{ij} is the payoff if the player of group 2 adopts strategy j and the player of group 1 adopts strategy i, i, j=1(A), 2 (B).

Under these conditions, the expected payoffs for players in group 1 adopting strategies A and B are denoted as u_{1A}, u_{1B} respectively, and are given by:

$u_{1A} = ya_{11} + (1-y)\ a_{12}$

$u_{1B} = ya_{21} + (1-y)\ a_{22}$

Consequently, the average payoff for players in group 1, denoted as $\bar{u}_1$, is given by:

$\bar{u}_1 = xu_{1A} + (1-x)\ u_{1B}$

Similarly, the expected payoffs for players in group 2 adopting strategies A and B are denoted as u_{2A}, u_{2B} respectively, and are given by:

$u_{2A} = xb_{11} + (1-x)\ b_{21}$

$u_{2B} = xb_{12} + (1-x)\ b_{22}$

The average payoff for players in group 2, denoted as $\bar{u}_2$, is given by:

$\bar{u}_2 = yu_{2A} + (1-y)\ u_{2B}$

To analyze the replicator dynamics of an asymmetric evolutionary game between players in group 1 and players in group 2, we first derive the replicator dynamic equation for players in group 1 adopting strategy A as below

$$\begin{aligned}\frac{dx}{dt} &= x[u_{1A} - \bar{u}_1] \\ &= x[u_{1A} - xu_{1A} + (1-x)\ u_{1B}] \\ &= x(1-x)[u_{1A} - u_{1B}] \\ &= x(1-x)[\ a_{12} - a_{22} + (a_{11} - a_{12} - a_{21} + a_{22})\ y]\ \text{(formula 2.1)}\end{aligned}$$

Then, we derive the replicator dynamic equation for players in group 2 adopting strategy A as below:

$$\begin{aligned}\frac{dy}{dt} &= y[u_{2A} - \bar{u}_2] \\ &= y[u_{2A} - yu_{2A} + (1-y)\ u_{2B}] \\ &= y(1-y)[u_{2A} - u_{2B}] \\ &= y(1-y)[\ b_{21} - b_{22} + (b_{11} - b_{12} - b_{21} + b_{22})\ x]\ \text{(formula 2.2)}\end{aligned}$$

The analysis begins with the replicator dynamic equation for the population of players group 1 adopting strategy A, followed by the replicator dynamic equation for the population of players group 2 adopting strategy A. Then we represent the relationship between the proportion of each population adopting strategy A on a phase plane with coordinates x and y, illustrating the changes in replicator dynamics. This allows us to determine stable solutions and ESS in the asymmetric evolutionary game system.

For simplicity, classic Hawk-Dove Game is used as an example. Specific parameter values are assigned to analyze the stable solutions and ESS of the asymmetric game system. Traditionally, the Hawk-Dove Game is formulated as a symmetric game within a single population. However, the value of the contested resource may differ between the two players,

leading to an asymmetric version of the game. Table 2.4 below presents the payoff matrix for the asymmetric Hawk-Dove Game with assigned numerical values, providing a concrete basis for further analysis of its stable solutions and ESS.

Table 2.4 Asymmetric Hawk-Dove games

Players in group1	**Players in group 2**	
	Hawk	**Dove**
Hawk	$-2,-6$	8,1
Dove	1,3	6,2

Suppose the proportion of players in group 1 adopting the Hawk strategy is x, then the proportion adopting the Dove strategy is $1-x$. Similarly, in group 2, the proportion of players adopting the Hawk strategy is y, while the proportion adopting the Dove strategy is $1-y$.

We derived the general form of the replicator dynamic equations for a 2×2 asymmetric game as the discussion above. By directly substituting the parameter values $a_{11}=-2,\ a_{12}=8, a_{21}=1, a_{22}=6, b_{11}=-6, b_{12}=1, b_{21}=3, b_{22}=2$ into formula 2.1 and formula 2.2, we obtain the replicator dynamic equation for players in group 1 adopting the Hawk strategy as below:

$$\frac{dx}{dt}=f(x)=\ x(1-x)[\ a_{12}-a_{22}+(a_{11}-a_{12}-a_{21}+a_{22})\ y]$$
$$=\ x(1-x)(2-5y)$$

The replicator dynamic equation for players in group 2 adopting the Hawk strategy is given as

$$\frac{dy}{dt}=f(y)=y(1-y)[\ b_{21}-b_{22}+(b_{11}-b_{12}-b_{21}+b_{22})\ x]$$
$$=\ y(1-y)(1\text{-}8x)$$

The replicator dynamic equation for players in group 1 adopting Hawk strategy is analyzed at first, given by $\frac{dx}{dt}=f(x)=x(1-x)(2-5y)$. To assess the stability of the boundary equilibria at $x_1=0$ and $x_2=1$. We apply small perturbations around each point. When $y=\frac{2}{5}$, the function $f(x)$ becomes identically zero for all $x\in[0,1]$, indicating that every value of x is an equilibrium. However, since there is no directional force in dynamics, the system lacks an ESS. When $y>\frac{2}{5}$, we evaluate $f'(0)=2-5y<0$ and $f'(1)=-(2-5y)>0$. Applying a small perturbation ϵ at $x_1=0$ that is $x_1=0+\epsilon$, yields the linearized dynamics $\frac{d\epsilon}{dt}\approx\epsilon(2-5y)$, which shows that $\epsilon\to0$ and $x_1=0$ is locally stable. In contrast, a perturbation at $x_2=1$ that is $x_2=1-\epsilon$, leads to $\frac{d\epsilon}{dt}\approx-\epsilon(2-5y)$, where ϵ grows and $x_2=1$ is unstable. Therefore, $x_1=0$ is an ESS. and the population will evolve toward all

players in Group 1 adopting the Dove strategy. Conversely, when $y < \frac{2}{5}$, we find $f'(0) = 2 - 5y > 0$ and $f'(1) = -(2 - 5y) < 0$. In this case, $x_1 = 0$ is unstable, while $x_2 = 1$ becomes stable under perturbation analysis, confirming that $x_2 = 1$ is an ESS. The population will thus evolve toward full adoption of the Hawk strategy in Group 1.

We next analyze the replicator dynamic equation for the proportion y of players in Group 2 adopting the Hawk strategy, given by $\frac{dy}{dt} = f(y) = y(1 - y)(1\text{-}8x)$. To assess the stability of the boundary equilibria at $y_1 = 0$ and $y_2 = 1$ we apply small perturbations around each point. When $x = \frac{1}{8}$, the function $f(y)$ becomes identically zero for all $y \in [0,1]$, implying that every value of y is an equilibrium point. However, due to the absence of directional selection pressure, the system lacks ESS. When $x > \frac{1}{8}$, we evaluate $f'(0) = 1 - 8x < 0$ indicating that $y_1 = 0$ is locally stable. Introducing a small perturbation ϵ, such that $y = 0 + \epsilon$, leads to the linearized dynamics $\frac{d\epsilon}{dt} \approx \epsilon(1\text{-}8x)$, where $\epsilon \to 0$ confirms the stability of $y_1 = 0$. In contrast, at $y_2 = 1$, we have $\frac{d\epsilon}{dt} \approx -\epsilon(1\text{-}8x)$, so ϵ grows and $y_2 = 1$ is unstable. Therefore, $y_1 = 0$ is an ESS. and the population will evolve toward all players in Group 2 adopting the Dove strategy. Conversely, when $x < \frac{1}{8}$, the signs of the stability conditions are reversed. Specifically, $f'(1) = -(1 - 8x) < 0$, and a perturbation $y = 1 - \epsilon$ gives $\frac{d\epsilon}{dt} \approx -\epsilon(1\text{-}8x)$, where $\epsilon \to 0$ and $y_2 = 1$ becomes locally stable. Meanwhile, $y_1 = 0$ s unstable under the same logic. In this case, $y_2 = 1$ is the ESS, and the population evolves toward full adoption of the Hawk strategy in Group 2.

Finally, using the proportions of the two populations adopting the "Hawk" strategy as coordinates, a coordinate plane diagram is constructed to illustrate the replicator dynamics relationship between the proportions of the two populations adopting the "Hawk" strategy, as shown in Figure 2.6.

From the above analysis, it can be observed that in an asymmetric Hawk-Dove game, a finite number of players, through continuous learning, imitation, and strategy adjustment over time, will in most cases converge to a specific C region. At this point, the ESS of the game system is$x = 1,\ y = 1$. This means that players in group 1 will adopt the aggressive "Hawk" strategy, and players in group 2 will also adopt the conservative "Hawk" strategy.

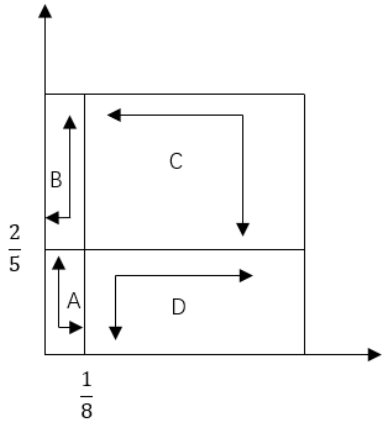


Figure 2.6 Phase diagram of replicator dynamics evolution for two populations in an asymmetric Hawk-Dove game

In the asymmetric evolutionary game system, the ESS is also determined using the method proposed by Friedman, which involves analyzing the local stability of the Jacobian matrix.

By constructing the Jacobian matrix of the system and evaluating its eigenvalues at equilibrium points, the local stability of these points can be assessed. If all eigenvalues of the Jacobian matrix have negative real parts at a given equilibrium, the corresponding strategy is considered locally stable and thus an ESS. This analytical approach provides a rigorous mathematical foundation for identifying stable outcomes in asymmetric evolutionary games, ensuring that the derived strategies are robust against small perturbations or deviations.

This method aligns with established principles in evolutionary game theory and dynamical systems, offering a systematic way to study the long-term behavior and stability of strategies in complex, asymmetric interactions. For a detailed analysis, please refer to Chapter3.

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Chapter 3: Theoretical Framework for the Partnership Publishing Model between International Publishers and Chinese Publishing Entities

3.1 Theoretical framework for the partnership publishing model between international publishers and Chinese publishing entities

Since the onset of the modern industrial revolution in 1973, collaborative interactions among businesses have become a defining feature of economic activity, attracting considerable scholarly interest in the mechanisms and strategies of enterprise cooperation. Particular focus has been placed on the selection of cooperation models in the study of inter-firm collaboration (Bouncken et al., 2015; Devece et al., 2019; Jensen, 1993). Among various analytical frameworks for choosing inter-firm partnership models, mainstream studies typically adopt a transaction cost perspective to explain why firms engage in cooperation and how they select the most appropriate cooperation models (Coase, 1993; Furubotn & Richter, 2005). The concept of agreement relationships introduced by transaction cost theory is particularly effective for examining inter-firm partnerships. The primary goal in selecting collaboration models is to reduce transaction costs (Liang, 2006).

It is crucial to pinpoint the primary factors influencing transaction costs between firms (Williamson, 1985). This thesis identifies three significant factors impacting the choice of models between international publishers and Chinese publishing entities in China partnership publishing industry. These factors are asset specificity, the level of governmental support for Chinese publishing entities, and the firm size of the Chinese publishing entities. There are primarily four cooperation models in the international market for partnerships between publishers and publishing entities: merger and acquisition, intensive contract publishing, full-service contract publishing, and fee-for-service publishing (Clarke, 2020; Pei et al., 2022). This is depicted in Figure 2.5. In the Chinese market, most partnerships focus on full-service contract publishing and fee-for-service publishing to align with Chinese publishing policy regulations. However, intensive contract publishing is emerging due to the increasing number of partnership journals with diverse needs (Yan et al., 2022).

In addition to examining the direct costs of collaboration, this study focuses on the

transaction costs arising from partnerships between international publishers and Chinese medical journal publishing entities. It analyzes transaction costs across three major cooperation models in the Chinese market including fee-for-service publishing, full-service publishing, and intensive service publishing and applies evolutionary game theory to quantitatively assess how differences in transaction costs and benefits influence cooperation model selection. The framework conceptualizes partnership publishing model selection as a two-party evolutionary game between Chinese publishing entities and international publishers, in which alternative publishing models are evaluated through pairwise strategy comparisons. For each pairwise comparison, payoffs are jointly determined by publishing fees, transaction costs, and extra benefits, and the resulting payoff differences drive evolutionary dynamics and determine which cooperation model becomes evolutionarily stable under specific institutional conditions. Figure 3.1 presents the research perspective and theoretical framework that guide this analysis.

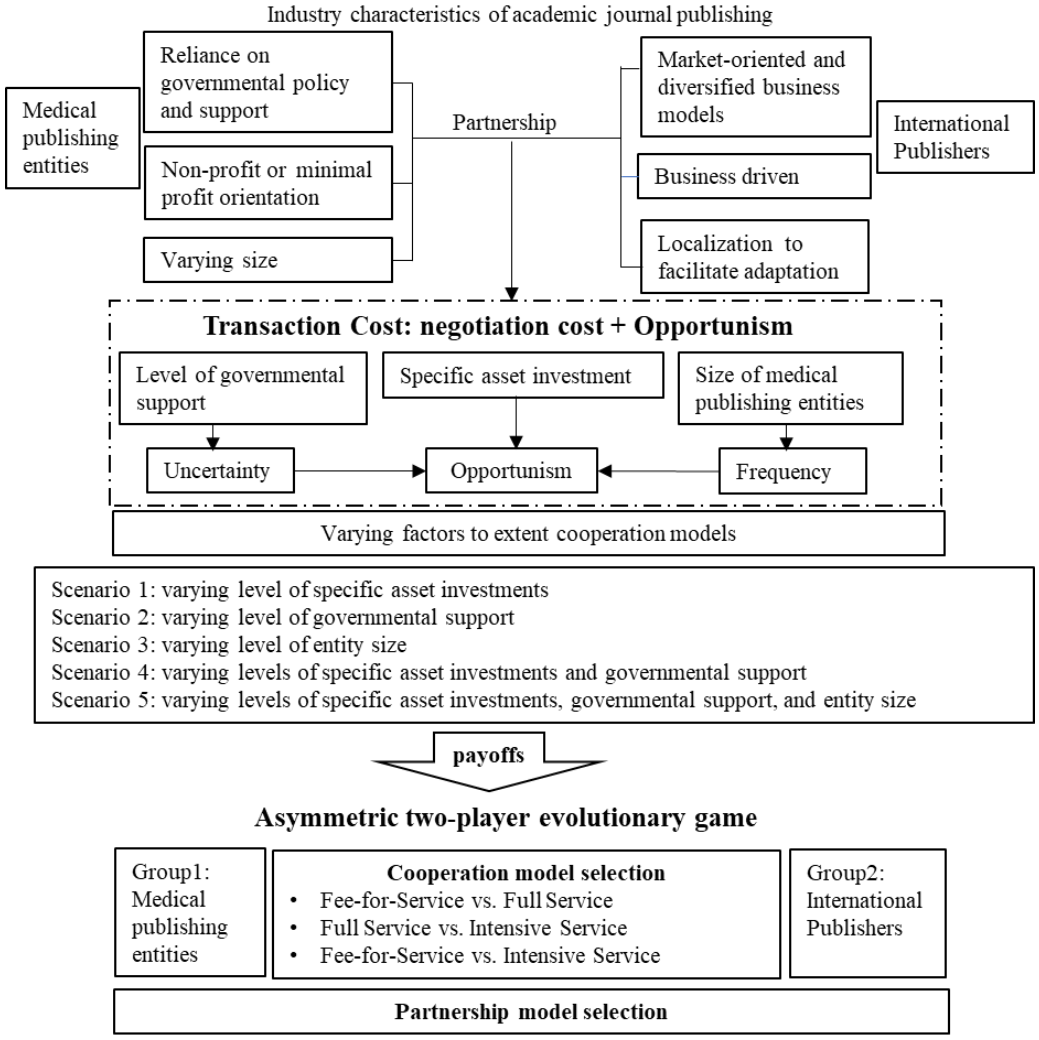


Figure 3.1 Theoretical framework of partnership Publishing model from the perspective of transaction cost theory

3.2 Evolutionary game analysis of the partnership publishing model between international publishers and Chinese publishing entities

3.2.1 Strategy setting

Typically, the modes of inter-firm cooperation, depending on the degree of vertical integration, include spot contracts, full long-term contracts, vertical integration, and quasi-vertical integration. In the journal partnership publishing business, four distinct models correspond to different degrees of vertical integration: fee-for-service publishing, full-service contract publishing, intensive contract publishing, and mergers and acquisitions. Since this study focuses on the selection of cooperation models between international publishers and Chinese medical publishing entities, it does not address mergers and acquisitions among publishers. The summary of the cooperation models is demonstrated in table 3.1.

Table 3.1 Cooperation models between Chinese medical publishing entities and international publishers

Partnership model	Behavioral strategy of International Publisher	Behavioral strategy of independently publishing entities
Fee-for-service publishing	Sign the short-term service purchasing contract to provide corresponding means of publishing technical service	Sign the short-term service purchasing contracts with one or several vendors to ensure the publication of the journal owned by the entity
Full-service publishing	Sign the long-term service contract and provide the package publishing service covering all business operations of the journal	Sign the long-term service contract for the package publishing service to ensure the publication of the journal
Intensive publishing	Sign a long-term publishing service contract to provide intensive publishing services that not only cover all business operations of the journal but also encompass its publishing operations	Sign a long-term publishing service contract to ensure the publication of the journal and outsource editorial office operation

The fee-for-service model closely resembles the concept of spot contracts. In this model, the independent publishing entity retains sole ownership of the journal. These entities engage a diverse array of vendors to provide essential services such as composition, copyediting, online hosting, manuscript management, and distribution. Under this framework, the independently publishing entity manages all revenue collection and disburses payments to vendors, either directly or through commission-based arrangements. After accounting for expenses, including overhead costs, outsourcing fees, staff salaries, and editorial costs, any remaining funds constitute the entity's net revenue or operating surplus. In the context of this study, international

publishers are required to supply critical publishing infrastructure, including peer review systems, production systems, and digital publishing platforms. Editorial responsibilities are handled by professionals from the independently publishing entities' editorial offices, who oversee all publishing-related activities. The entity may choose to procure services from either a single publishing company or multiple providers. Relying on multiple vendors can create inefficiencies and expose publishing entities to high hold-up risks or shifting contractual terms, but the short-term nature of these contracts—typically lasting one to two years—leads to simpler negotiations and lower upfront investment. This results in lower negotiation costs since the responsibilities and expectations of both parties are clearly defined within a relatively short timeframe.

The full-service publishing model aligns with the long-term contract cooperation model. In this arrangement, the journal may be solely owned by the entity or co-owned by the entity and the publisher. The entity pays a comprehensive publishing service fee to outsource the management of business operations while continuing to cover the operational costs of its editorial office. The publisher, in turn, provides specialized expertise and technological support throughout the publishing process. Unlike the fee-for-service model, this reduces the complexity of coordinating multiple contracts but comes at the cost of higher upfront investments and more intricate contractual negotiations. The package publishing service fee is typically higher than fees for separate publishing services. However, this model eliminates the need for the entity to engage multiple vendors to coordinate individual publishing services and ensures professional publishing support from the publisher. This model reduces the financial risks for the entity associated with self-publishing while enhancing the likelihood of the journal's business success for both the publisher and the entity. Following the journal's success, the publisher and the entity share royalties as part of their collaborative agreement. The full-service model inherently involves greater vertical integration, which reduces the opportunism risk. Since both parties make significant financial and strategic investments in partnerships, they have strong incentives to maintain commitments and ensure long-term stability. However, the complexity and customization of agreements result in higher initial negotiation costs. Additionally, because all publishing technical services and financial management are consolidated under the publisher, ex-post monitoring and enforcement costs increase. Adjustments, compliance measures, and modifications to agreements may require ongoing discussions, further contributing to ex-post negotiation expenses.

The intensive-service publishing model operates under a longest-term contractual framework than the other two models and involves a higher level of integration consistent with

vertical quasi-integration. In this arrangement, journal ownership is determined by each party's investment share. While the journal originates from the publishing entity, the editorial office is established within the publisher, which invests in its operation, including hiring managing editors and editorial staff. These staff members assist scientific editors, oversee manuscript processing, and manage journal operations. The publishing entity pays an additional fee for this intensive service, beyond the standard full-service publishing fee. Under this integration, both parties maintain a collaborative relationship through shared scientific resources, investment-based ownership distribution, and revenue-sharing agreements linked to the journal's success. Since the publishing entity outsources both publishing services and editorial office operations, contracts must clearly define operational responsibilities, service quality, and cost structures. Compared to the other two models, more stakeholders are involved, requiring longer decision-making processes. Additionally, ex-post transaction costs rise due to continuous contract adjustments, performance monitoring, and compliance enforcement. The need for frequent negotiations further increases bilateral transaction costs, making this model most resource-intensive in terms of governance and oversight.

3.2.2 Construction of an evolutionary game model based on transaction costs

3.2.2.1 Basic assumptions of evolutionary game theory

Based on the three partnership models, the selection process for both Chinese medical publishing entities (referred to as "publishing entities") and international publishers (referred to as "publishers") is driven by bounded rationality. It is a process of gradual trial and error, continuous learning, and dynamic optimization over time. This section applies evolutionary game theory to analyze the ESS of two key groups: publishing entities and publishers under random pairings. To support this analysis and facilitate further research, the study establishes a set of basic assumptions:

Assumption of bounded rationality: since business decisions are made by individuals, the principle of bounded rationality applies to the strategic behavior choices of publishers and publishing entities. This assumes that publishing entities and publishers in the game cannot immediately identify the optimal strategy. Instead, strategy selection is a gradual process of learning and improvement, implying that equilibrium is not the result of a one-time choice but evolves over time.

Assumption of random pairing: in this model, this assumes that the decision-making process assumes that entities in the Chinese publishing entity group faces publishers in the

international publisher group. The game interactions between the two groups are conducted through repeated random pairings.

Assumption of replicator dynamics: it is assumed that publishing entities and publishers adjust their strategies gradually, with the pace of mutual learning and adaptation occurring over time. Strategy adjustments follow a dynamic process inspired by biological evolution, modeled by the replicator dynamics equation.

Assumption of asymmetric games: participants in the game are not identical, with their payoffs depending not only on the strategies they adopt but also on the group to which they belong. In this context, the two groups are publishing entities and publishers.

Assumption of strategies: this section presents three game models based on three partnership strategies: the fee-for-service publishing model (referred to as "fee-for-service"), the full-service publishing model (referred to as "full-service"), and the intensive-service publishing model (referred to as "intensive-service"). Publishing entities and publishers are paired off in a pairwise manner across three groups, with the partnership strategies being fee-for-service or full-service, fee-for-service or intensive-service, and full-service or intensive-service.

3.2.2.2 Assumptions from a transaction cost perspective

This section explores the impact of asset specificity, the level of government support and the size of publishing entities on transaction costs and the selection of cooperation models between publishing entities and publishers using evolutionary game theory. The analysis assumes an ideal cooperation characterized by the following conditions: (1) There is no requirement of specific asset investment for both parties; (2) All publishing entities receive full governmental support; (3) The size of the publishing entities is almost same; (4) The publishing entities stand in a same position in negotiating with publishers; (5) The size of publishers is almost same; (6) The journal ownership belongs to the publishing entity; (7) The complexity of negotiations varies across the three models, with the intensive-service model being the most complex, the full-service model having a moderate level of complexity, and the fee-for-service model being the least complex.; (8) In the fee-for-service model, a publishing entity has to select and purchase various publishing technical systems from a single publisher. However, in practice, publishing entities often acquire these systems from multiple vendors rather than relying on a single publisher for all technical services.

Building on the initial assumptions, the model is expanded to examine the impact of asset specificity, the level of government support and the size of publishing entities on the selection of cooperation models between publishers and publishing entities. The analysis focuses on the

following scenarios: (1) When specific asset investments are required, how do publishers and publishing entities formulate their behavioral strategies for selecting cooperation models? (2) When government support varies geographically, over time, or among different publishing entities, how do publishers and publishing entities adjust their behavioral strategies for cooperation models? (3) When publishing entities differ in size with respect to human resources, self-funded support, and academic resources, how do publishers and publishing entities develop their behavioral strategies for cooperation models? By clarifying the costs and payoffs under different behavioral strategies, this analysis examines how these three key factors influence the choice of partnership models between two parties.

3.2.2.3 Partnership payoffs and costs

For publishing entities, the essential payoff is denoted as a_0, which primarily originates from funding allocated for publishing the E-L journal. This funding may come from institutional self-funding, governmental support, or a combination of both. The basic costs incurred include the management cost of operating the editorial office c_1. In the fee-for-service publishing model, publishing entities incur service fees b_0 for outsourcing specific requirements to multiple vendors. In the full-service publishing model, publishing entities pay a comprehensive package publishing service fee b_1, which is higher than the combined fees under the fee-for-service model ($b_1 > b_0$). Additional benefits a_1 can arise if publishing entities and publishers collaborate actively. These benefits may include financial returns for the publishing entity and enhanced recognition of the new journal within the target research community. In the intensive publishing model, publishing entities entrust the management of the editorial office to the publishers, including staff employment. Consequently, the operational costs associated with the editorial office are removed from publishing entities' budget under this model. However, publishing entities generate the expense for the intensive publishing service fee b_2 to the publisher, which is higher than the full-service fee ($b_2 > b_1$), covering both journal business management and editorial office operations. Additionally, publishing entities and publishers adopt a more stable and long-term cooperation model, additional benefits a_2 are realized through partnership.

In addition to the fundamental costs and payoffs, this study examines the transaction costs associated with the partnership between publishing entities and publishers. Transaction costs are generally categorized into ex-ante and ex-post costs, encompassing four primary aspects: preparation costs, negotiation costs, enforcement costs, and monitoring costs. Among these, negotiation costs are significant in differentiating transaction costs across various partnership

models. These costs include ex-ante negotiations required to establish agreements and ex-post negotiations necessary to resolve disputes that arise during contract execution. Given that negotiation costs are the primary source of variation in transaction costs across different partnership models, this study focuses on the impact of negotiation costs. To systematically evaluate how transaction costs influence different partnership models, a measurement indicator system is developed and analyzed. α represents the probability of opportunistic behavior occurring when specific asset investment is involved, where $\alpha \in [0,1]$. When $\alpha=1$, it indicates opportunistic behavior occurs, such as hold-up behavior. When $\alpha=0$, there is no risk of opportunism. The entities engaging in opportunistic behavior can either be the one making the specific asset investment or the party utilizing the specific assets. The transaction cost resulting from opportunistic behavior is denoted as O. To measure transaction costs primarily related to negotiations between two parties, this study considers time and labor expenditures. The labor resources required for negotiation by publishing entities are represented as q_e, where $q_e \geq 1$. t denotes the time spent on negotiations. s is the average wage per unit of time, used to calculate labor costs. The number of negotiation rounds is denoted as m. γ is the weighting factor reflecting the complexity of negotiations, where $0 < \gamma \leq 1$. The total transaction cost of cooperation for publishing entities is represented as $TAC^e = \gamma \cdot m \cdot (q_e ts) + \alpha O^e$. For the payoffs and costs of publishing entities, refer to table 3.2.

Table 3.2 The cost and payoff of publishing entities

Participant	Payoff and Cost	Specific meanings
Publishing entities	Basic payoff a_0	Funding allocated for publishing the E-L journal
	Extra payoff under full-service a_1	Extra benefit from active partnership
	Extra payoff under intensive-service a_2	Extra benefit from active partnership
	Expense of fee-for service publishing fee b_0	Fee-for-service publishing fee paid by publishing entity to the publisher
	Expense of full-service publishing fee b_1	Full-service publishing fee paid by publishing entity to the publisher
	Expense of intensive-service publishing fee b_2	Intensive-service publishing fee paid by publishing entity the publisher
	Operational costs of the editorial office c_1	Expense on editorial office operation
	Transaction cost TAC^e	Transaction cost required for negotiation and opportunism risk associated with specific asset investments

For publishers, the income and costs associated with partnership with publishing entities vary across different publishing models. In the fee-for-service model, the essential income is denoted as b_0, derived from providing the basic publishing services, with an investment cost c_0 for the technical publishing services and basic journal management service. In the full-

service publishing model, the income increases to b_1, exceeding b_0 by consolidating the whole business management items of publishing, while the investment cost includes the basic publishing service cost c_0. This model promotes closer integration and reduces the risk of opportunism. In the intensive publishing model, the income rises further to b_2, exceeding b_1. This includes fees for managing both journal business and the editorial office operation. The operational costs of the editorial office c_1, are assumed by the publisher, as the publishing entity entrusts editorial management entirely to publishers. Both full-service and intensive publishing models provide additional benefits - denoted as a_3 and a_4, respectively - stemming from enhanced revenue, expanded journal portfolios, and improved reputations within the research community, reflecting the advantages of stable and long-term partnerships. Similarly, partnerships with publishing entities also involve transaction costs for publishers. When specific asset investments are required, the risk of opportunism is denoted as O. The negotiation cost is influenced by publishers' labor cost q_p, the average wage per unit of time s, time t spent by publishers and the number of negotiation rounds m. γ is the weighting factor reflecting the complexity of negotiations. Therefore, the transaction cost for the publisher is expressed as $TAC^P = \gamma \cdot m \cdot (q_p ts) + \alpha O^p$. This formula provides a basis for calculating the publisher's overall payoff and cost, as summarized in Table 3.3.

Table 3.3 The cost and payoff of publishers

Participant	Payoff and Cost	Specific meanings
Publishers	Basic payoff b_0	Basic publishing service fee under fee-for-service model paid by the publishing entity
	Full-service publishing payoff b_1	Fee for full-service publishing partnership
	Intensive-service publishing payoff b_2	Fee for intensive-service publishing partnership
	Extra payoff under full-service a_3	Extra payoff from active partnership
	Extra payoff under intensive publishing a_4	Extra payoff from active partnership
	Investment for the basic publishing services c_0	Expense on constructing publishing technical systems such as production system, peer review system and publishing platform
	Operational costs of the editorial office c_1	Expense on editorial office operation
	Transaction cost TAC^P	Transaction cost required for negotiation and opportunism risk associated with specific asset investments

Payoffs of publishing entities and publishers under three partnership models are shown in Table 3.4. In the actual game with asset specificity investment, when publishing entities engages with publishers, the payoff matrix is presented in Table 3.5.

Table 3.4 Payoffs of publishing entities d publishers under three partnership models

Partnership Model	Publishing entities	Publishers
Fee for Service	$a_0 - c_1 - b_0 - TAC_{con}^{e}$	$b_0 - c_0 - TAC_{con}^{p}$
Full-service	$a_0 + a_1 - b_1 - c_1 - TAC_{ful}^{e}$	$b_1 + a_3 - c_0 - TAC_{ful}^{p}$
Intensive-service	$a_0 + a_2 - b_2 - TAC_{int}^{e}$	$b_2 + a_4 - c_0 - c_1 - TAC_{int}^{p}$

Table 3.5 Payoffs matrix of the cooperative evolutionary game between publishing entities and publishers under three partnership strategies

Publishing entities	**Publishers**		
	Fee for Service	**Full-service**	**Intensive-service**
Fee for Service	$a_0 - c_1 - b_0 - TAC_{con}^{e}$, $b_0 - c_0 - TAC_{con}^{p}$	$a_0 - c_1 - b_0 - TAC_{con}^{e}$, $b_0 - c_0 - TAC_{ful}^{p}$	$a_0 - c_1 - b_0 - TAC_{con}^{e}$, $b_0 - c_0 - TAC_{int}^{p}$
Full-service	$a_0 - c_1 - b_0 - TAC_{ful}^{e}$, $b_0 - c_0 - TAC_{con}^{p}$	$a_0 + a_1 - b_1 - c_1 - TAC_{ful}^{e}$, $b_1 + a_3 - c_0 - TAC_{ful}^{p}$	$a_0 + a_1 - b_1 - c_1 - TAC_{ful}^{e}$, $b_1 + a_3 - c_0 - TAC_{int}^{p}$
Intensive-service	$-TAC_{int}^{e}$, $-TAC_{con}^{p}$	$-TAC_{int}^{e}$, $-TAC_{ful}^{p}$	$a_0 + a_2 - b_2 - TAC_{int}^{e}$, $b_2 + a_4 - c_0 - c_1 - TAC_{int}^{p}$

In table 3.5, if the publishing entity can only afford the fee-for-service model while the publisher prefers the full-service model, the publisher ultimately must adopt the fee-for-service model. In this case, the publishing entity receives the payoffs associated with the fee-for-service model, while the publisher also earns the payoffs from fee-for-service model. However, the publisher incurs the transaction costs, denoted as TAC_{ful}^{p}, which include expenses for information search and negotiation to establish the full-service partnership with the publishing entity. Similarly, if the publishing entity is only able to pay for the fee-for-service model but the publisher favors the intensive service model, the publisher must again settle for the fee-for-service model. In this scenario, the publishing entity secures the payoffs from the fee-for-service model, and the publisher gains the payoff from fee-for-service model associated with the transaction cost of the intensive service model, represented as TAC_{int}^{p}, which also account for information search and negotiation efforts to implement the intensive service partnership.

If the publishing entity inclines to adopt the full-service model while the publisher can only provide the fee-for-service model, the publishing entity secures the payoffs associated from the fee-for-service model but incurs transaction costs related to the full-service model, denoted as TAC_{ful}^{e}. Meanwhile, the publisher earns the payoffs of the fee-for-service model.

Similarly, if the publishing entity can only afford the fees for the full-service model but the publisher prefers to offer the intensive service model, the publisher receives the payoffs associated with the full-service model but incurs transaction costs related to the intensive service partnership, represented as TAC_{int}^{p}. The publishing entity, in this case, retains the payoffs from the full-service model.

If the publishing entity seeks to adopt the intensive service model while the publisher can only provide the fee-for-service model, the publisher is unable to invest in the editorial office to meet the publishing entity's expectations. Consequently, the absence of essential transactional assets, such as the regular operation of the editorial office, leads to the deal being unviable. This results in both parties incurring pure ex-post transaction costs without getting any benefits, denoted as $-TAC_{int}^{e}$ for the publishing entity and $-TAC_{con}^{p}$ for the publisher. A similar scenario occurs when the publishing entity prefers to adopt the intensive service model while the publisher can only offer the full-service model. Here too, the lack of publisher investment in the editorial office prevents the deal from proceeding, and only ex-post transaction costs are generated. The publishing entity incurs a payoff of $-TAC_{int}^{e}$, while the publisher receives a payoff of $-TAC_{ful}^{p}$.

3.2.3 Partnership model selection between the publishing entities and the publishers based on evolutionary game theory

The selection of a partnership model between publishing entities and publishers depends on the relative payoffs associated with different models. The differences in payoffs across various models primarily consist of three parts: payoffs, service costs, and transaction costs. This section provides a detailed analysis of how these factors influence the choice of partnership models, particularly when certain assumptions from the transaction cost perspective are relaxed.

3.2.3.1 Selection of partnership models under asset specificity and varying degrees of vertical integration

In scenarios where specific asset investments are required, both publishing entities and publishers must allocate resources to support the publishing process. In the fee-for-service model, publishing entities invest in constructing publishing technical systems and operating editorial offices, while publishers, primarily serving as technical service providers, focus on the research and development of publishing-related technical systems to support their clients. In the full-service model, publishing entities are required to invest in the operation of editorial offices and pay publishing fees to access customized and comprehensive publishing services. Publishers, on the other hand, must invest in developing specialized publishing technical systems and building professional publishing teams to provide tailored services. In the intensive-service model, publishing entities pay the highest publishing fees, which cover both customized publishing services and the outsourcing of editorial office operations. Publishers, in this model, are required to invest significantly more in managing editorial office operations,

with a stronger emphasis on human resources compared to the full-service model. This results in a higher level of vertical integration, as publishers take on more responsibility for the editorial operations alongside the provision of publishing services.

This distinction leads to differing levels of vertical integration, financial commitments, and resource allocation among three models, which in turn influence the strategic decision-making of both parties. As vertical integration increases, transitioning from a fee-for-service model to a full-service model, and ultimately to an intensive-service model, can help mitigate opportunism risk and enhance investment incentives. Consequently, the opportunism risk is highest under the fee-for-service model, lower under the full-service model, and lowest under the intensive-service model ($\alpha O_{con}^{p} > \alpha O_{f_{ul}}^{p} > \alpha O_{int}^{P}$, $\alpha O_{con}^{e} > \alpha O_{f_{ul}}^{e} > \alpha O_{int}^{e}$).

The transaction cost is defined as $TAC = \gamma \cdot m \cdot (qts) + \alpha O$, where $\gamma \cdot m \cdot (qts)$ represents the negotiation costs related to the publishing process, and αO represents the opportunism risk. The negotiation cost, represented by $\gamma \cdot m \cdot (qts)$, plays a crucial role in determining the magnitude of transaction costs. Due to its simpler negotiation process and lower upfront investment, the fee-for-service model typically results in lower negotiation costs, as the publishing entities and publishers have clearly defined responsibilities and expectations in short-term, straightforward contracts. This results in a smaller value of $\gamma \cdot m \cdot (qts)$. In the full-service model, the more complex and customized nature of the agreements and higher upfront investments lead to higher negotiation costs. Ex-post monitoring and enforcement increase ex-post negotiation costs, as adjustments and compliance measures may require further discussions and contractual modifications. In the intensive-service model, the negotiation process becomes even more intricate. Since publishing entities outsource both publishing services and editorial office operations to publishers, the contractual terms become more comprehensive, requiring detailed agreements on operational responsibilities, service quality, and cost structures. This complexity results in higher ex-ante negotiation costs, as decision-making involves more stakeholders and requires more time. Additionally, ex-post transaction costs increase significantly due to the ongoing need for contract adjustments, performance monitoring, and compliance enforcement. Bilateral negotiation costs increase to address such deviations. This can be expressed as $[\gamma \cdot m \cdot (qts)]_{con}^{e} < [\gamma \cdot m \cdot (qts)]_{ful}^{e} < [\gamma \cdot m \cdot (qts)]_{int}^{e}$ and $[\gamma \cdot m \cdot (qts)]_{con}^{P} < [\gamma \cdot m \cdot (qts)]_{ful}^{P} < [\gamma \cdot m \cdot (qts)]_{int}^{P}$.

The magnitude of TAC across the three publishing models is difficult to compare directly, as it depends on the interplay between negotiation costs $\gamma \cdot m \cdot (qts)$ and opportunism risk αO. While the fee-for-service model has the lowest negotiation costs, it carries the highest

opportunism risk, whereas the intensive-service model has the highest negotiation costs but the lowest opportunism risk due to greater vertical integration. Given these complexities, we analyze two possible conditions: $TAC_{con} > TAC_{ful} > TAC_{int}$ and $TAC_{con} < TAC_{ful} < TAC_{int}$ to better understand the conditions under which each matrix can hold.

First, we compare the fee-for-service and full-service strategies using evolutionary game theory. According to Table 3.5, the payoff matrix is shown in Table 3.6.

Table 3.6 Payoffs matrix of the cooperative evolutionary game between publishing entities and publishers under fee-for-service and full-service strategies

Publishing entities	**Publishers**	
	Fee-for-service	**Full-service**
Fee for Service	$a_0 - c_1 - b_0 - TAC^e_{con}$, $b_0 - c_0 - TAC^p_{con}$	$a_0 - c_1 - b_0 - TAC^e_{con}$, $b_0 - c_0 - TAC^p_{ful}$
Full-service	$a_0 - c_1 - b_0 - TAC^e_{ful}$, $a_0 - c_1 - b_0 - TAC^p_{con}$	$a_0 + a_1 - b_1 - c_1 - TAC^e_{ful}$, $b_1 + a_3 - c_0 - TAC^p_{ful}$

We analyze transaction costs under two distinct conditions.

If the reduction in opportunism risk outweighs the difference in negotiation costs: $(\alpha O^e_{con} - \alpha O^e_{ful}) - \{[\gamma \cdot m \cdot (qts)]^e_{ful} - [\gamma \cdot m \cdot (qts)]^e_{con}\} > 0$ and $(\alpha O^p_{con} - \alpha O^p_{ful}) - \{[\gamma \cdot m \cdot (qts)]^p_{ful} - [\gamma \cdot m \cdot (qts)]^p_{con}\} > 0$, then $TAC^e_{ful} - TAC^e_{con} < 0$ and $TAC^p_{ful} - TAC^p_{con} < 0$. It means the full-service model has lower overall transaction costs for both publishing entities and publishers.

If the increase in negotiation costs outweighs the reduction in opportunism risk: $(\alpha O^e_{con} - \alpha O^e_{ful}) - \{[\gamma \cdot m \cdot (qts)]^e_{ful} - [\gamma \cdot m \cdot (qts)]^e_{con}\} < 0$, and $(\alpha O^p_{con} - \alpha O^p_{ful}) - \{[\gamma \cdot m \cdot (qts)]^p_{ful} - [\gamma \cdot m \cdot (qts)]^p_{con}\} < 0$ then $TAC^e_{ful} - TAC^e_{con} > 0$ and $TAC^p_{ful} - TAC^p_{con} > 0$. It means the fee-for-service model has lower overall transaction costs for both publishing entities and publishers.

Assume that within the group of publishing entities in the game, the probability adopting fee-for-service strategies is x $(0 < x < 1)$, while the probability adopting full-service strategies is $1 - x$. Similarly, within the group of publishers, the probability adopting fee-for-service strategies is y $(0 < y < 1)$ and the probability adopting full-service strategies is $1 - y$. The expected payoffs for the publishing entities adopting fee-for-service and full-service strategies, as well as the group's average payoff, are denoted as U_1, U_2 and $\overline{U}$, respectively. For the publishers, the corresponding expected payoffs are U'_1, U'_2, and $\overline{U'}$.

By applying the 2×2 asymmetric game replicator dynamic equation formula, the respective payoff functions are set up directly into equations (3.1) and (3.2). The replicator dynamic

equation for publishing entities adopting fee-for-service strategies is given as follows:

$$\frac{dx}{dt} = f(x) = x(1-x)[a_{12} - a_{22} + (a_{11} - a_{12} - a_{21} + a_{22})y]$$

$$= \boldsymbol{x(1-x)\left[\left(TAC_{ful}^{e} - TAC_{con}^{e}\right) - (b_0 + a_1 - b_1) + (b_0 + a_1 - b_1)y\right]} \cdots (3.1)$$

The function $f(x)$ becomes identically zero for all $x \in [0,1]$ when

$$y = \frac{b_0 + a_1 - b_1 - \left(TAC_{ful}^{e} - TAC_{con}^{e}\right)}{b_0 + a_1 - b_1}$$

The replicator dynamic equation for publishers adopting fee-for-service strategies is given as follows:

$$\frac{dy}{dt} = f(y) = y(1-y)[b_{21} - b_{22} + (b_{11} - b_{12} - b_{21} + b_{22})x]$$

$$= \boldsymbol{y(1-y)\left[\left(TAC_{ful}^{p} - TAC_{con}^{p}\right) - (b_1 + a_3 - b_0) + (b_1 + a_3 - b_0)x\right]} \cdots (3.2)$$

The function $f(y)$ becomes identically zero for all $y \in [0,1]$ when

$$x = \frac{b_1 + a_3 - b_0 - \left(TAC_{ful}^{e} - TAC_{con}^{e}\right)}{b_1 + a_3 - b_0}$$

The game between publishing entities and the publishers can be described by the differential equation system defined by equations (3.1) and (3.2). Analyzing the stability of the system within the domains $\Omega = \{(x,y) \in R^2 : 0 \le x, y \le 1\}$, the system has five local equilibrium points $E_1 = (0,0)$, $E_2 = (0,1)$, $E_3 = (1,0)$, $E_4 = (1,1)$, $E_5 = (x^*, y^*)$, where

$$x^* = \frac{b_1 + a_3 - b_0 - \left(TAC_{ful}^{e} - TAC_{con}^{e}\right)}{b_1 + a_3 - b_0}$$

$$y^* = \frac{b_0 + a_1 - b_1 - \left(TAC_{ful}^{e} - TAC_{con}^{e}\right)}{b_0 + a_1 - b_1}$$

According to the method proposed by Friedman, the stability of equilibrium points in a population dynamic system described by differential equations can be determined through a local stability analysis using the Jacobian matrix. The Jacobian matrix for the system composed of equations (3.1) and (3.2) is:

$$J = \begin{bmatrix} \frac{\partial f(x)}{\partial x}, & \frac{\partial f(x)}{\partial y} \\ \frac{\partial f(y)}{\partial x}, & \frac{\partial f(y)}{\partial y} \end{bmatrix}$$

$$\begin{bmatrix} (1-2x)\left\{\begin{matrix}\left(TAC_{ful}^{e} - TAC_{con}^{e}\right) - \\ (b_0 + a_1 - b_1) + (b_0 + a_1 - b_1)y\end{matrix}\right\} & x(1-x)(b_0 + a_1 - b_1) \\ y(1-y)(b_1 + a_3 - b_0) & (1-2y)\left\{\begin{matrix}\left(TAC_{ful}^{p} - TAC_{con}^{p}\right) - \\ (b_1 + a_3 - b_0) + (b_1 + a_3 - b_0)x\end{matrix}\right\} \end{bmatrix}$$

The eigenvalues λ_1 and λ_2 of the Jacobian matrix determine the dynamic behavior of the linear system. If the real parts of the eigenvalues are negative $\lambda_1 < 0$ and $\lambda_2 < 0$, the equilibrium point is locally stable, meaning that any starting point close to it will lead to trajectories that move closer to the equilibrium point over time. In simpler terms, nearby points will eventually settle at the equilibrium point.

When the stable point of the system is $E_1 = (0,0)$, the Jacobian matrix of the system is:

$$A = \begin{bmatrix} \left(TAC_{ful}^{e} - TAC_{con}^{e}\right) - (b_0 + a_1 - b_1) & 0 \\ 0 & \left(TAC_{ful}^{p} - TAC_{con}^{p}\right) - (b_1 + a_3 - b_0) \end{bmatrix}$$

The corresponding eigenvalues can be determined as $\lambda_1 = \left(TAC_{ful}^{e} - TAC_{con}^{e}\right) - (b_0 + a_1 - b_1)$, $\lambda_2 = \left(TAC_{ful}^{p} - TAC_{con}^{p}\right) - (b_1 + a_3 - b_0)$, by solving the characteristic equation $det(A - \lambda I) = 0$. Regardless of whether the transaction costs in the full-service model are higher or lower than those in the fee-for-service model for either party, the equilibrium point then $E_1 = (0,0)$ is locally asymptotically stable if the real parts of both eigenvalues are negative, that is, the following conditions are met:

$$\left(TAC_{ful}^{e} - TAC_{con}^{e}\right) - (b_0 + a_1 - b_1) < 0,$$

$$\left(TAC_{ful}^{p} - TAC_{con}^{p}\right) - (b_1 + a_3 - b_0) < 0,$$

The key condition ensuring stability is that the difference in transaction costs between the full-service and fee-for-service models must be smaller than the sum of the difference in publishing fees between the full-service and fee-for-service models and the additional revenue generated under the full-service model. As long as this condition is met, the system can evolve toward the full-service model as a stable equilibrium, even if the relative transaction cost differences between the two models vary across different cases.

When the stable point of the system is $E_2 = (0,1)$, the Jacobian matrix of the system is:

$$\begin{bmatrix} TAC_{ful}^{e} - TAC_{con}^{e} & 0 \\ 0 & (b_1 + a_3 - b_0) - \left(TAC_{ful}^{p} - TAC_{con}^{p}\right) \end{bmatrix}$$

The corresponding eigenvalues can be determined as $\lambda_1 = TAC_{ful}^{e} - TAC_{con}^{e}$,, $\lambda_2 = (b_1 + a_3 - b_0) - \left(TAC_{ful}^{p} - TAC_{con}^{p}\right)$. If the transaction cost of the full-service model is lower than that of the fee-for-service model ($TAC_{ful}^{e} - TAC_{con}^{e} < 0$ and $TAC_{ful}^{p} - TAC_{con}^{p} < 0$) and given that $b_1 > b_0$, it follows that $(b_1 + a_3 - b_0)$ is always greater than $TAC_{ful}^{p} - TAC_{con}^{p}$. In this case, the system's two eigenvalues are real and have opposite signs. Therefore, the equilibrium point $E_2 = (0,1)$ is not naturally stabilized at this point, and small perturbations in the strategy choices of either party lead to deviations from the equilibrium.

If the transaction cost of the full-service model is greater than that of the fee-for-service model ($TAC^e_{ful} - TAC^e_{con} > 0$ and $TAC^p_{ful} - TAC^p_{con} > 0$), the system's two eigenvalues are real and have either opposite signs or both positive signs. As a result, the system will not naturally stabilize at this point.

This conclusion suggests that when publishing entities are inclined to adopt the full-service model, publishers are unlikely to opt for the fee-for-service model.

When the stable point of the system is $E_3 = (1,0)$, the Jacobian matrix of the system is:

$$\begin{bmatrix} (b_0 + a_1 - b_1) - \left(TAC^e_{ful} - TAC^e_{con}\right) & 0 \\ 0 & TAC^p_{ful} - TAC^p_{con} \end{bmatrix}$$

The corresponding eigenvalues can be determined as $\lambda_1 = (b_0 + a_1 - b_1) - \left(TAC^e_{ful} - TAC^e_{con}\right)$, $\lambda_2 = TAC^p_{ful} - TAC^p_{con}$. If the transaction cost of the full-service model is lower than that of the fee-for-service model ($TAC^e_{ful} - TAC^e_{con} < 0$) and the real parts of the two eigenvalues are negative, the following conditions must be satisfied:

$$(b_0 + a_1 - b_1) - \left(TAC^e_{ful} - TAC^e_{con}\right) < 0$$

$$TAC^p_{ful} - TAC^p_{con} < 0$$

Under these conditions, $E_3 = (1,0)$ represents a locally asymptotically stable equilibrium point of the system, and it is ESS. This outcome implies that the publishing entities adopt the fee-for-service model while the publishers opt for the full-service model. The conditions that must be satisfied are as follows:

For the publishing entities, the difference between the transaction cost of the full-service and fee-for-service models should be greater than the sum of the difference in the publishing fee between the full-service and fee-for-service models and the additional revenue under the full-service model. For the publishers, because the transaction cost of the full-service is smaller than the transaction cost of fee-for-service, the difference is always negative.

In real-world collaboration scenarios, although publishers also offer a full-service publishing model, publishing entities can only afford the costs associated with the fee-for-service model. As a result, publishers prioritize providing the fee-for-service model from a profitability perspective.

If the transaction cost of the full-service model is greater than that of the fee-for-service model ($TAC^e_{ful} - TAC^e_{con} > 0$), the system's two eigenvalues are real and have either opposite signs or both positive signs. Consequently, the system will not reach a stable equilibrium at $E_3 = (1,0)$.

When the stable point of the system is $E_4 = (1,1)$, the Jacobian matrix of the system is:

$$\begin{bmatrix} TAC_{con}^{e} - TAC_{ful}^{e} & 0 \\ 0 & TAC_{con}^{p} - TAC_{ful}^{p} \end{bmatrix}$$

The corresponding eigenvalues are given by $\lambda_1 = TAC_{con}^{e} - TAC_{ful}^{e}$, $\lambda_2 = TAC_{con}^{p} - TAC_{ful}^{p}$. If the transaction cost of the full-service model is greater than that of the fee-for-service model, the real parts of the two eigenvalues are negative, that is, the following conditions are met:

$$TAC_{con}^{e} - TAC_{ful}^{e} < 0$$

$$TAC_{con}^{p} - TAC_{ful}^{p} < 0$$

then $E_4 = (1,1)$ represents a locally asymptotically stable equilibrium point of the system and is the evolutionary stable strategy. This implies that both publishing entities and publishers adopt the fee-for-service model.

If the transaction cost of the full-service model is lower than that of the fee-for-service model ($TAC_{con}^{e} > TAC_{ful}^{e}$ and $TAC_{con}^{p} > TAC_{ful}^{p}$), both eigenvalues are real and positive. Therefore, the equilibrium point $E_4 = (1,1)$ is not a locally asymptotically stable point.

This conclusion suggests that, in general, both the publishing entities and the publishers are unlikely to choose the fee-for-service model simultaneously.

When the stable point of the system is $E_5 = (x^*, y^*)$ and $0 < x^*, y^* < 1$, the Jacobian matrix of the system is:

$$\begin{bmatrix} 0, & x^*(1-x^*)(b_0 + a_1 - b_1) \\ y^*(1-y^*)(b_1 + a_3 - b_0), & 0 \end{bmatrix}$$

The corresponding eigenvalues can be solved as $\lambda_1 = \sqrt{AB}$, $\lambda_2 = -\sqrt{AB}$, where $A = x(1-x)(b_0 + a_1 - b_1)$, $B = y(1-y)(b_1 + a_3 - b_0)$. Thus,

$$\lambda_1 = \sqrt{x^*(1-x^*)(b_0 + a_1 - b_1)y^*(1-y^*)(b_1 + a_3 - b_0)},$$

$$\lambda_2 = -\sqrt{x^*(1-x^*)(b_0 + a_1 - b_1)y^*(1-y^*)(b_1 + a_3 - b_0)}$$

Since $0 < x^*, y^* < 1$, it follows that $x^*(1-x^*) > 0, y^*(1-y^*) > 0$. Additionally, the publishing fee under the full-service model is higher than under the fee-for-service model （$b_1 > b_0$), meaning that $b_1 + a_3 - b_0$ is always greater than zero. When $b_0 + a_1 - b_1 > 0$, the real part of system's eigenvalues have opposite signs. Similarly, when $b_0 + a_1 - b_1 < 0$, the real part of system's eigenvalues have opposite signs. Therefore, the equilibrium point $E_5 = (x^*, y^*)$ is not a locally asymptotically stable point, but rather a saddle point.

In general, neither the publishing entities nor the publishers will ultimately stabilize at a certain

proportion (greater than 0 and less than 1) for partnership publishing with each other.

Secondly, we compare the fee-for-service and intensive-service strategies using evolutionary game theory. According to Table 3.5, the payoff matrix is shown in Table 3.7.

Table 3.7 Payoffs matrix of the cooperative evolutionary game between publishing entities and publishers under fee-for-service and intensive service strategies

Publishing entities	**Publishers**	
	Fee-for-Service	**Intensive-service**
Fee for Service	$a_0 - c_1 - b_0 - TAC^e_{con}$, $b_0 - c_0 - TAC^p_{con}$	$a_0 - c_1 - b_0 - TAC^e_{con}$, $b_0 - c_0 - TAC^p_{int}$
Intensive-service	$-TAC^e_{int}$, $-TAC^p_{con}$	$a_0 + a_2 - b_2 - TAC^e_{int}$, $b_2 + a_4 - c_0 - c_1 - TAC^p_{int}$

We analyze transaction costs under two distinct conditions: first, when the intensive-service model results in lower overall transaction costs compared to the fee-for-service model for both publishing entities and publishers ($TAC^e_{int} - TAC^e_{con} < 0$ and $TAC^p_{int} - TAC^p_{con} < 0$); second, when the intensive-service model incurs higher overall transaction costs than the fee-for-service model for both publishing entities and publishers ($TAC^e_{int} - TAC^e_{con} > 0$ and $TAC^p_{int} - TAC^p_{con} > 0$).

Assume that within the group of publishing entities in the game, the proportion adopting fee-for-service strategies is x, while the proportion adopting intensive-service strategies is $1 - x$. Similarly, within the group of publishers, the proportion adopting fee-for-service strategies is y, and the proportion adopting intensive-service strategies is $1 - y$. The expected payoffs for the publishing entities adopting fee-for-service and intensive-service strategies, as well as the group's average payoff, are denoted as U_3, U_4 and $\overline{U}$, respectively. For the publishers, the corresponding expected payoffs are U_3', U_4', and $\overline{U'}$.

By applying the 2×2 asymmetric game replicator dynamic equation formula, the replicator dynamic equation for the publishing entities adopting fee-for-service strategies is given as follows:

$$\frac{dx}{dt} = f(x) = x(1-x)[a_{12} - a_{22} + (a_{11} - a_{12} - a_{21} + a_{22})y]$$

$$= \boldsymbol{x(1-x)[(TAC^e_{int} - TAC^e_{con}) - (a_2 - b_2 + c_1 + b_0) + (a_0 + a_2 - b_2)y]} \cdots (3.3)$$

The function $f(x)$ becomes identically zero for all $x \in [0,1]$ when

$$y = \frac{a_2 - b_2 + c_1 + b_0 - (TAC^e_{int} - TAC^e_{con})}{a_0 + a_2 - b_2}$$

The replicator dynamic equation for the publishers adopting fee-for-service strategies is given as follows:

$$\frac{dy}{dt} = f(y) = y(1-y)[b_{21} - b_{22} + (b_{11} - b_{12} - b_{21} + b_{22})x]$$

$$= \boldsymbol{y(1-y)\left[\left(TAC_{int}^{p} - TAC_{con}^{p}\right) - (b_2 + a_4 - c_0 - c_1) + (b_2 + a_4 - c_0 - c_1)x\right]} \cdots (3.4)$$

The function $f(y)$ becomes identically zero for all $x \in [0,1]$ when

$$x = \frac{b_2 + a_4 - c_0 - c_1 - \left(TAC_{int}^{p} - TAC_{con}^{p}\right)}{b_2 + a_4 - c_0 - c_1}$$

The Jacobian matrix for the system composed of equations (3.3) and (3.4) is:

$$J = \begin{bmatrix} \frac{\partial f(x)}{\partial x}, & \frac{\partial f(x)}{\partial y} \\ \frac{\partial f(y)}{\partial x}, & \frac{\partial f(y)}{\partial y} \end{bmatrix}$$

$$\begin{bmatrix} (1-2x)\left\{\begin{matrix}(TAC_{int}^{e} - TAC_{con}^{e}) - \\ (a_2 - b_2 + c_1 + b_0) + (a_0 + a_2 - b_2)y\end{matrix}\right\} & x(1-x)(a_0 + a_2 - b_2) \\ y(1-y)(b_2 + a_4 - c_0 - c_1) & (1-2y)\left\{\begin{matrix}\left(TAC_{int}^{p} - TAC_{con}^{p}\right) - \\ (b_2 + a_4 - c_0 - c_1) + (b_2 + a_4 - c_0 - c_1)x\end{matrix}\right\} \end{bmatrix}$$

When the stable point of the system is $E_1 = (0,0)$, the Jacobian matrix of the system is:

$$\begin{bmatrix} (TAC_{int}^{e} - TAC_{con}^{e}) - (a_2 - b_2 + c_1 + b_0) & 0 \\ 0 & \left(TAC_{int}^{p} - TAC_{con}^{p}\right) - (b_2 + a_4 - c_0 - c_1) \end{bmatrix}$$

The corresponding eigenvalues can be determined as $\lambda_1 = (TAC_{int}^{e} - TAC_{con}^{e}) - (a_2 - b_2 + c_1 + b_0)$, $\lambda_2 = \left(TAC_{int}^{p} - TAC_{con}^{p}\right) - (b_2 + a_4 - c_0 - c_1)$. Regardless of whether the transaction costs in the intensive-service model are higher or lower than those in the fee-for-service model for either party, the equilibrium point then $E_1 = (0,0)$ is locally asymptotically stable if the real parts of both eigenvalues are negative, that is, the following conditions are met:

$$(TAC_{int}^{e} - TAC_{con}^{e}) - (a_2 - b_2 + c_1 + b_0) < 0,$$

$$\left(TAC_{int}^{p} - TAC_{con}^{p}\right) - (b_2 + a_4 - c_0 - c_1) < 0,$$

then $E_1 = (0,0)$ represents a locally asymptotically stable equilibrium point of the system and is the evolutionary stable strategy. This indicates that if both the publishing entities and the publishers adopt the intensive-service strategies. The following conditions must hold.

This conclusion indicates that $E_1 = (0,0)$ can serve as an Evolutionarily Stable Strategy (ESS), regardless of whether the transaction costs in the intensive-service model are higher or lower than those in the fee-for-service model for either party. For the publishing entities, the difference in transaction costs between the intensive-service model and the fee-for-service model must be smaller than the net benefit, which is calculated as the additional revenue a_2 minus the adjusted publishing fee advantage $(b_2 - b_0 - c_1)$, where b_2 represents the

publishing fee under the intensive-service model, b_0 represents the publishing fee under the fee-for-service model, and c_1 represents the operational costs of the editorial office. In summary, the intensive-service model is viable only if its transaction cost difference is less than the effective financial gains after considering revenues, fees, and operational costs. For the publishers, the difference in transaction costs between the intensive-service model and the fee-for-service model must be less than the net financial benefit, calculated as the sum of the publishing fee b_2 and the additional revenue a_4 under the intensive-service model, minus the cost of setting up the basic publishing services c_0 and the operational cost of the editorial office c_1. Thus, the intensive-service model can only be considered viable if its transaction cost difference is less than the total financial gains after accounting for publishing fees, additional revenue, and the costs associated with service setup and operations. If these conditions are met, the system can evolve towards the intensive-service model as a stable outcome, regardless of how the transaction cost differences between the two models change in different conditions.

When the stable point of the system is $E_2 = (0,1)$, the Jacobian matrix of the system is:

$$\begin{bmatrix} (TAC_{int}^{e} - TAC_{con}^{e}) - (b_0 + c_1 - a_0) & 0 \\ 0 & (b_2 + a_4 - c_0 - c_1) - \left(TAC_{int}^{p} - TAC_{con}^{p}\right) \end{bmatrix}$$

The corresponding eigenvalues can be presented as $\lambda_1 = (TAC_{int}^{e} - TAC_{con}^{e}) - (b_0 + c_1 - a_0)$, $\lambda_2 = (b_2 + a_4 - c_0 - c_1) - \left(TAC_{int}^{p} - TAC_{con}^{p}\right)$. In practical collaboration scenarios, to the publishing entity, the publishing entity must ensure that the allocated funding for journal publication a_0 exceeds the sum of the editorial office's operational costs c_1 and the publishing service fee under the fee-for-service model b_0 ($a_0 > b_0 + c_1$). Otherwise, from an economic standpoint, the publishing entity would be unable to afford the publishing service. Similarly, for publishers to provide intensive publishing services, the revenue from the intensive publishing fee b_2 combined with the additional financial benefits a_4 must exceed the total cost of operating the editorial office and establishing the basic publishing infrastructure ($b_2 + a_4 > c_0 + c_1$). Otherwise, offering intensive publishing services would not be financially viable. If the transaction cost of the intensive-service model exceeds that of the fee-for-service model ($TAC_{int}^{e} - TAC_{con}^{e} > 0$), $(TAC_{int}^{e} - TAC_{con}^{e}) - (b_0 + c_1 - a_0)$ is always positive. In this case, the system's two eigenvalues are real and either have opposite signs or are both positive, preventing the system from stabilizing at the equilibrium point $E_2 = (0,1)$. If the transaction cost of the intensive-service model is lower than that of the fee-for-service model ($TAC_{int}^{e} - TAC_{con}^{e} < 0$), then $(b_2 + a_4 - c_0 - c_1) - \left(TAC_{int}^{p} - TAC_{con}^{p}\right)$ remains positive. These results in real eigenvalues with either both positive or opposite signs, again preventing the system from

stabilizing at $E_2 = (0,1)$.

When the stable point of the system is $E_3 = (1,0)$, the Jacobian matrix of the system is:

$$\begin{bmatrix} (a_2 - b_2 + c_1 + b_0) - (TAC_{int}^e - TAC_{con}^e) & 0 \\ 0 & TAC_{int}^p - TAC_{con}^p \end{bmatrix}$$

The corresponding eigenvalues can be determined as $\lambda_1 = (a_2 - b_2 + c_1 + b_0) - (TAC_{int}^e - TAC_{con}^e)$, $\lambda_2 = TAC_{int}^p - TAC_{con}^p$. If the transaction cost of the intensive-service model is higher than that of the fee-for-service model ($TAC_{int}^e - TAC_{con}^e > 0$), the eigenvalues are real and either both positive or of opposite signs, making $E_3 = (1,0)$ an unstable equilibrium. Conversely, if the transaction cost of the intensive-service model is lower than that of the fee-for-service model ($TAC_{int}^p - TAC_{con}^p$ <0) and the real parts of the two eigenvalues are negative, that is, the following conditions are satisfied:

$$(a_2 - b_2 + c_1 + b_0) - (TAC_{int}^e - TAC_{con}^e) < 0$$

$$TAC_{int}^p - TAC_{con}^p < 0$$

then $E_3 = (1,0)$ represents a locally asymptotically stable equilibrium point of the system and is the evolutionary stable strategy. This implies that if the publishing entities adopt for the fee-for-service model while the publishers select the intensive-service model. The following conditions must be met:

For the publishing entities, the net financial benefit must be less than the difference in transaction costs between the intensive-service model and the fee-for-service model. The net financial benefit is calculated as the additional revenue under the intensive-service model a_2 minus the publishing fee expense of the intensive-service model b_2, plus the publishing fee expense under the fee-for-service model b_0 and the operational cost of the editorial office c_1.

For the publishers, since the transaction cost under the intensive-service model is lower than that under the fee-for-service model, the difference in transaction costs between the two models is negative. This implies that the publishers will find the intensive-service model more cost-effective than the fee-for-service model, assuming other conditions are favorable.

In practical collaboration scenarios, while publishers may offer an intensive-service publishing model, publishing entities are typically constrained by budget limitations and can only afford the fee-for-service model. Consequently, publishers emphasize offering the fee-for-service model if they want to make the deal.

When the stable point of the system is $E_4 = (1,1)$, the Jacobian matrix of the system is:

$$\begin{bmatrix} (b_0 + c_1 - a_0) - (TAC_{int}^e - TAC_{con}^e), & 0 \\ 0, & TAC_{con}^p - TAC_{int}^p \end{bmatrix}$$

The corresponding eigenvalues are given by $\lambda_1 = (b_0 + c_1 - a_0) - (TAC_{int}^e - TAC_{con}^e)$, $\lambda_2 = TAC_{con}^p - TAC_{int}^p$. If the transaction cost of the intensive-service model is less than that of the fee-for-service model ($TAC_{con}^e - TAC_{int}^e > 0$ and $TAC_{con}^p - TAC_{int}^p > 0$), then λ_2 is real and positive. As a result, the equilibrium point $E_4 = (1,1)$ is not locally asymptotically stable, indicating that both the publishing entities and the publishers are unlikely to adopt the fee-for-service model at the same time.

If the transaction cost of the intensive-service model is higher than that of the fee-for-service model ($TAC_{con}^p - TAC_{int}^p < 0$ and $TAC_{con}^p - TAC_{int}^p < 0$) and the real parts of the two eigenvalues are negative, that is, the following conditions must be met:

$$(b_0 + c_1 - a_0) - (TAC_{int}^e - TAC_{con}^e) < 0$$

$$TAC_{con}^p - TAC_{int}^p < 0$$

Under these conditions, $E_4 = (1,1)$ is a locally asymptotically stable equilibrium point of the system. This stability implies that both publishing entities and publishers will opt for the fee-for-service model. The rationale is that the difference in transaction costs between the fee-for-service and intensive-service models is less significant compared to the overall cost burden of journal publication under the fee-for-service model. This burden includes both the publishing service fee b_0 and the editorial office's operational costs c_1, offset by the allocated funding for journal publication a_0.

When the stable point of the system is $E_5 = (x^*, y^*)$ and $0 < x^*, y^* < 1$, the Jacobian matrix of the system is:

$$\begin{bmatrix} 0 & x^*(1-x^*)(a_0 + a_2 - b_2) \\ y^*(1-y^*)(b_2 + a_4 - c_0 - c_1) & 0 \end{bmatrix}$$

The corresponding eigenvalues can be solved as $\lambda_1 = \sqrt{AB}$, $\lambda_2 = -\sqrt{AB}$, where $A = x^*(1-x^*)(a_0 + a_2 - b_2)$, $B = y^*(1-y^*)(b_2 + a_4 - c_0 - c_1)$. Thus,

$$\lambda_1 = \sqrt{x^*(1-x^*)(a_0 + a_2 - b_2)y^*(1-y^*)(b_2 + a_4 - c_0 - c_1)},$$

$$\lambda_2 = -\sqrt{x^*(1-x^*)(a_0 + a_2 - b_2)y^*(1-y^*)(b_2 + a_4 - c_0 - c_1)}$$

Since $0 < x^*, y^* < 1$, it follows that $x(1-x) > 0, y(1-y) > 0$. Additionally, the real part of system's eigenvalues have opposite signs and always have opposite signs, regardless of whether $a_0 + a_2 - b_2 > 0$ or $a_0 + a_2 - b_2 < 0$ and $(b_2 + a_4 - c_0 - c_1) > 0$ or $(b_2 + a_4 - c_0 - c_1) < 0$. Therefore, the equilibrium point $E_5 = (x^*, y^*)$ is not a locally asymptotically stable point, but rather a saddle point.

In general, neither the publishing entities nor the publishers will ultimately stabilize at a certain proportion (greater than 0 and less than 1) for partnership publishing with each other.

Thirdly, based on Table 3.5, payoff matrix for full-service and intensive-service strategies in evolutionary game theory is referred to table 3.8.

Table 3.8 Payoffs matrix of the cooperative evolutionary game between publishing entities and publishers under fee-for-service and intensive service strategies

Publishing entities	**Publishers**	
	Full-service	**Intensive-service**
Full-service	$a_0 + a_1 - b_1 - c_1 - TAC^e_{ful}$, $b_1 + a_3 - c_0 - TAC^p_{ful}$	$a_0 + a_1 - b_1 - c_1 - TAC^e_{ful}$, $b_1 + a_3 - c_0 - TAC^p_{int}$
Intensive-service	$-TAC^e_{int}$, $-TAC^p_{ful}$	$a_0 + a_2 - b_2 - TAC^e_{int}$, $b_2 + a_4 - c_0 - c_1 - TAC^p_{int}$

Assume that within the group of publishing entities in the game, the proportion adopting full-service strategies is x, while the proportion adopting intensive-service strategies is $1 - x$. Similarly, within the group of publishers, the proportion adopting full-service strategies is y, and the proportion adopting intensive-service strategies is $1 - y$. The expected payoffs for the publishing entities adopting full-service and intensive-service strategies, as well as the group's average payoff, are denoted as U_5, U_6 and $\overline{U}$, respectively. For the publishers, the corresponding expected payoffs are U_5', U_6', and $\overline{U'}$.

By applying the 2×2 asymmetric game replicator dynamic equation formula, the replicator dynamic equation for the publishing entities adopting full-service strategies is given as follows:

$$\frac{dx}{dt} = f(x) = x(1-x)[a_{12} - a_{22} + (a_{11} - a_{12} - a_{21} + a_{22})y]$$

$$= \boldsymbol{x(1-x)\left[\left(TAC^e_{int} - TAC^e_{ful}\right) - (a_2 - b_2 - a_1 + b_1 + c_1) + (a_0 + a_2 - b_2)y\right]} \cdots (3.5)$$

The function $f(x)$ becomes identically zero for all $x \in [0,1]$ when

$$y = \frac{(a_2 - b_2 - a_1 + b_1 + c_1) - \left(TAC^e_{int} - TAC^e_{ful}\right)}{a_0 + a_2 - b_2}$$

The replicator dynamic equation for the publishers adopting full-service strategies is given as follows:

$$\frac{dy}{dt} = f(y) = y(1-y)[b_{21} - b_{22} + (b_{11} - b_{12} - b_{21} + b_{22})x]$$

$$= \boldsymbol{y(1-y)\left[\left(TAC^p_{int} - TAC^p_{ful}\right) - (b_2 + a_4 - c_0 - c_1) + (b_2 + a_4 - c_0 - c_1)x\right]} \cdots (3.6)$$

The function $f(y)$ becomes identically zero for all $x \in [0,1]$ when

$$x = \frac{(b_2 + a_4 - c_0 - c_1) - \left(TAC^p_{int} - TAC^p_{ful}\right)}{b_2 + a_4 - c_0 - c_1}$$

The Jacobian matrix for the system composed of equations (3.5) and (3.6) is:

$$J = \begin{bmatrix} \dfrac{\partial f(x)}{\partial x}, & \dfrac{\partial f(x)}{\partial y} \\ \dfrac{\partial f(y)}{\partial x}, & \dfrac{\partial f(y)}{\partial y} \end{bmatrix}$$

$$\begin{bmatrix} (1-2x)\left\{\begin{matrix}(TAC_{int}^{e} - TAC_{ful}^{e}) - \\ (a_2 - b_2 - a_1 + b_1 + c_1) + (a_0 + a_2 - b_2)y\end{matrix}\right\} & x(1-x)(a_0 + a_2 - b_2) \\ y(1-y)(b_2 + a_4 - c_0 - c_1) & (1-2y)\left\{\begin{matrix}(TAC_{int}^{p} - TAC_{ful}^{p}) - \\ (b_2 + a_4 - c_0 - c_1) + (b_2 + a_4 - c_0 - c_1)x\end{matrix}\right\} \end{bmatrix}$$

When the stable point of the system is $E_1 = (0,0)$, the Jacobian matrix of the system is:

$$\begin{bmatrix} (TAC_{int}^{e} - TAC_{ful}^{e}) - (a_2 - b_2 - a_1 + b_1 + c_1) & 0 \\ 0 & (TAC_{int}^{p} - TAC_{ful}^{p}) - (b_2 + a_4 - c_0 - c_1) \end{bmatrix}$$

The corresponding eigenvalues can be solved as $\lambda_1 = (TAC_{int}^{e} - TAC_{ful}^{e}) - (a_2 - b_2 - a_1 + b_1 + c_1)$, $\lambda_2 = (TAC_{int}^{p} - TAC_{ful}^{p}) - (b_2 + a_4 - c_0 - c_1)$. If the real parts of the two eigenvalues are negative, that is, the following conditions are satisfied:

$$(TAC_{int}^{e} - TAC_{ful}^{e}) - (a_2 - b_2 - a_1 + b_1 + c_1) < 0,$$

$$(TAC_{int}^{p} - TAC_{ful}^{p}) - (b_2 + a_4 - c_0 - c_1) < 0,$$

then $E_1 = (0,0)$ represents a locally asymptotically stable equilibrium point of the system and is the evolutionary stable strategy. This implies that both publishing entities and publishers favor the intensive-service model. Notably, $E_1 = (0,0)$ can function as an ESS irrespective of whether the transaction costs in the full-service model are higher or lower than those in the intensive-service model for either party, as long as the necessary conditions are satisfied:

For the publishing entities, the difference in transaction costs between the intensive-service model and the full-service model must be smaller than the net benefit which is calculated as the additional revenue a_2 minus the additional revenue a_1 under the full-service model and the adjusted publishing fee advantage $(b_2 - b_1 - c_1)$, where b_2 represents the publishing fee under the intensive-service model, b_1 represents the publishing fee under the full-service model, and c_1 represents the operational costs of the editorial office. In general, the intensive-service model is feasible only the difference in transaction costs is less than the net financial benefits, which include revenue, fees, and operational costs.

For the publishers, the transaction cost difference between the intensive-service model and the full-service model must be smaller than the overall financial benefit of the intensive-service model. This benefit is calculated as the sum of the publishing fee b_2 and the additional revenue a_4 from the intensive-service model, minus the costs for setting up basic publishing services c_0 and the operational expenses of the editorial office c_1. In conclusion, the intensive-service

model is considered practical only if the difference in transaction costs is less than the total financial gains, which include publishing fees, additional revenue, and the costs related to service setup and operations.

When the stable point of the system is $E_2 = (0,1)$, the Jacobian matrix of the system is:

$$\begin{bmatrix} \left(TAC_{int}^{e} - TAC_{ful}^{e}\right) - (b_1 + c_1 - a_0 - a_1) & 0 \\ 0 & (b_2 + a_4 - c_0 - c_1) - \left(TAC_{int}^{p} - TAC_{ful}^{p}\right) \end{bmatrix}$$

The corresponding eigenvalues can be presented as $\lambda_1 = \left(TAC_{int}^{e} - TAC_{ful}^{e}\right) - (b_1 + c_1 - a_0 - a_1)$, $\lambda_2 = (b_2 + a_4 - c_0 - c_1) - \left(TAC_{int}^{p} - TAC_{ful}^{p}\right)$. If the transaction cost of the intensive-service model is lower than that of the full-service model ($TAC_{int}^{e} - TAC_{ful}^{e} < 0$ and $TAC_{int}^{p} - TAC_{ful}^{p} < 0$) and given that $b_2 + a_4 > c_0 + c_1$, λ_2 remains consistently positive. Under these conditions, the system's eigenvalues are real but either have opposite signs or are both positive, making the equilibrium point $E_2 = (0,1)$ inherently unstable. Conversely, if the transaction cost of the intensive-service model exceeds that of the full-service model ($TAC_{int}^{e} - TAC_{ful}^{e} > 0$ and $TAC_{int}^{p} - TAC_{ful}^{p} > 0$), λ_1 remains positive because in practical collaboration scenarios, $b_1 + c_1 - a_0 - a_1$ remains negative due to economic constraints, where the journal funding must exceed the full-service publishing fee and editorial office operational costs. As a result, the system's eigenvalues are either of opposite signs or both positive, indicating that the equilibrium point $E_2 = (0,1)$ cannot achieve stability.

This finding indicates that if publishing entities prefer the intensive-service model, publishers are unlikely to choose the full-service model as their strategic approach.

When the stable point of the system is $E_3 = (1,0)$, the Jacobian matrix of the system is:

$$\begin{bmatrix} (a_2 - b_2 - a_1 + b_1 + c_1) - \left(TAC_{int}^{e} - TAC_{ful}^{e}\right) & 0 \\ 0 & TAC_{int}^{p} - TAC_{ful}^{p} \end{bmatrix}$$

The corresponding eigenvalues can be determined as $\lambda_1 = (a_2 - b_2 - a_1 + b_1 + c_1) - \left(TAC_{int}^{e} - TAC_{ful}^{e}\right)$, $\lambda_2 = TAC_{int}^{p} - TAC_{ful}^{p}$. If the transaction cost of the intensive-service model is higher that of the full-service model ($TAC_{int}^{e} - TAC_{ful}^{e} > 0$ and $TAC_{int}^{p} - TAC_{ful}^{p} > 0$), λ_2 is always positive. In this scenario, the system's eigenvalues are real and either have opposite signs or both positive signs, which prevents the equilibrium point from being stable. If the transaction cost of the intensive-service model is less that of the full-service model ($TAC_{int}^{e} - TAC_{ful}^{e} < 0$ and $TAC_{int}^{p} - TAC_{ful}^{p} < 0$) and the real parts of the two eigenvalues are negative, and the following conditions are presented as:

$$(a_2 - b_2 - a_1 + b_1 + c_1) - \left(TAC_{int}^{e} - TAC_{ful}^{e}\right) < 0$$

$$TAC_{int}^{p} - TAC_{ful}^{p} < 0$$

then $E_3 = (1,0)$ represents a locally asymptotically stable equilibrium point of the system and is the evolutionary stable strategy. This implies that if the publishing entities adopt for the full-service model while the publishers select the intensive-service model, the following conditions must be met:

For the publishing entities, the difference in transaction costs between the intensive-service model and the full-service model must be greater than the net financial benefit of adopting the intensive-service model. As to the net financial benefit, it is identical to that for $E_1 = (0,0)$ under the payoff matrix for full-service and intensive-service, as described earlier.

For the publishers, since the transaction cost associated with the intensive-service model is lower compared to the full-service model, the difference in transaction costs between the two models is negative. This means that, under favorable conditions, the publishers will find the intensive-service model more cost-effective than the full-service model.

In real-world collaboration scenarios, while publishers may provide the full-service publishing model and the intensive-service model, publishing entities are limited to affording only the costs associated with the full-service publishing model. Therefore, publishers focus on offering the full-service model to achieve partnership deal.

When the stable point of the system is $E_4 = (1,1)$, the Jacobian matrix of the system is:

$$\begin{bmatrix} (b_1 + c_1 - a_0 - a_1) - (TAC_{int}^{e} - TAC_{ful}^{e}) & 0 \\ 0 & TAC_{ful}^{p} - TAC_{int}^{p} \end{bmatrix}$$

The corresponding eigenvalues are given by $\lambda_1 = (b_1 + c_1 - a_0 - a_1) - (TAC_{int}^{e} - TAC_{ful}^{e})$, $\lambda_2 = TAC_{ful}^{p} - TAC_{int}^{p}$. If the transaction cost of the full-service model is higher that of the intensive-service model ($TAC_{ful}^{p} - TAC_{int}^{p} > 0$), then λ_2 is real and positive. As a result, the equilibrium point $E_4 = (1,1)$ is not locally asymptotically stable, indicating that both the publishing entities and the publishers are unlikely to adopt the full-service model at the same time.

If the transaction cost of the full-service model is smaller that of the intensive-service model ($TAC_{ful}^{p} - TAC_{int}^{p} < 0$) and given that $b_1 + c_1 < a_0$, the real parts of the two eigenvalues are always negative, and the following conditions are met:

$$(b_1 + c_1 - a_0 - a_1) - (TAC_{int}^{e} - TAC_{con}^{e}) < 0$$

$$TAC_{con}^{p} - TAC_{int}^{p} < 0$$

then $E_4 = (1,1)$ represents a locally asymptotically stable equilibrium point of the system

and is the evolutionary stable strategy. This suggests that both publishing entities and publishers will adopt the full-service model.

When the stable point of the system is $E_5 = (x^*, y^*)$ and $0 < x^*, y^* < 1$, the Jacobian matrix of the system is:

$$\begin{bmatrix} 0, & x^*(1-x^*)(a_0+a_2-b_2) \\ y^*(1-y^*)(b_2+a_4-c_0-c_1), & 0 \end{bmatrix}$$

The corresponding eigenvalues can be solved as $\lambda_1 = \sqrt{AB}$, $\lambda_2 = -\sqrt{AB}$, where $A = x^*(1-x^*)(a_0+a_2-b_2)$, $B = y^*(1-y^*)(b_2+a_4-c_0-c_1)$. Thus,

$$\lambda_1 = \sqrt{x^*(1-x^*)(a_0+a_2-b_2)y^*(1-y^*)(b_2+a_4-c_0-c_1)},$$

$$\lambda_2 = -\sqrt{x^*(1-x^*)(a_0+a_2-b_2)y^*(1-y^*)(b_2+a_4-c_0-c_1)}$$

Since $0 < x^*, y^* < 1$, it follows that $x^*(1-x^*) > 0, y^*(1-y^*) > 0$. Additionally, the real part of system's eigenvalues have opposite signs, regardless of whether $a_0+a_2-b_2 > 0$ or $a_0+a_2-b_2 < 0$ and $b_2+a_4-c_0-c_1 > 0$ or $b_2+a_4-c_0-c_1 < 0$. Therefore, the equilibrium point $E_5 = (x^*, y^*)$ is not a locally asymptotically stable point, but rather a saddle point.

In general, neither the publishing entities nor the publishers will ultimately stabilize at a certain proportion (greater than 0 and less than 1) for partnership publishing with each other.

In summary, the payoff matrix evaluates the ESS for publishing entities and publishers across three evolutionary game models: Fee-for-Service vs. Full-Service, Fee-for-Service vs. Intensive-Service, and Full-Service vs. Intensive-Service, see table 3.9. The equilibrium outcomes depend on the relative transaction cost of each model, while certain conditions lead to instability or the absence of an ESS.

Table 3.9 The summary of the selection of partnership models between two parties when the level specific asset investments is different

Strategic Models	State (E(x,y))	Condition	ESS	Entities	Publishers
Fee-for-Service and Full-Service Game Model	E(0,0)	$TAC_{con} - TAC_{ful} > 0$	ESS	Full-service	Full-service
		$TAC_{con} - TAC_{ful} < 0$	ESS	Full-service	Full-service
	E(0,1)	$TAC_{con} - TAC_{ful} > 0$	No ESS	-	-
		$TAC_{con} - TAC_{ful} < 0$	No ESS	-	-
	E(1,0)	$TAC_{con} - TAC_{ful} > 0$	ESS	Fee-for-service	Full-service
		$TAC_{con} - TAC_{ful} < 0$	No ESS	-	-
	E(1,1)	$TAC_{con} - TAC_{ful} > 0$	No ESS	-	-
		$TAC_{con} - TAC_{ful} < 0$	ESS	Fee-for-service	Fee-for-service
	E(x,y)	No TAC involved	No ESS	-	-
Fee-for-Service and Intensive-Service Game Model	E(0,0)	$TAC_{con} - TAC_{int} > 0$	ESS	Intensive-service	Intensive-service
		$TAC_{con} - TAC_{int} < 0$	ESS	Intensive-service	Intensive-service
	E(0,1)	$TAC_{con} - TAC_{int} > 0$	No ESS	-	-
		$TAC_{con} - TAC_{int} < 0$	No ESS	-	-
	E(1,0)	$TAC_{con} - TAC_{int} > 0$	ESS	Fee-for service	Intensive-service
		$TAC_{con} - TAC_{int} < 0$	No ESS	-	-
	E(1,1)	$TAC_{con} - TAC_{int} > 0$	No ESS		
		$TAC_{con} - TAC_{int} < 0$	ESS	Fee-for service	Fee-for service
	E(x,y)	No TAC involved	No ESS	-	-
Full-Service and Intensive-service Game Model	E(0,0)	$TAC_{ful} - TAC_{int} > 0$	ESS	Intensive-service	Intensive-service
		$TAC_{ful} - TAC_{int} < 0$	ESS	Intensive-service	Intensive-service
	E(0,1)	$TAC_{ful} - TAC_{int} > 0$	No ESS	-	-
		$TAC_{ful} - TAC_{int} < 0$	No ESS	-	-
	E(1,0)	$TAC_{ful} - TAC_{int} > 0$	ESS	Full-service	Intensive-service
		$TAC_{ful} - TAC_{int} < 0$	No ESS	-	-
	E(1,1)	$TAC_{ful} - TAC_{int} > 0$	No ESS	-	-
		$TAC_{ful} - TAC_{int} < 0$	ESS	Full-service	Full-service
	E(x,y)	No TAC involved	No ESS	-	-

3.2.3.2 Selection of partnership models between two parties when the level of government support is different

Governmental support plays a critical role in shaping both environmental and behavioral uncertainty, which are key determinants of transaction costs (TAC). In this thesis, governmental support is defined as measures that enhance regulatory clarity, provide financial resources, and improve infrastructure. When government support is inconsistent or unclear, firms often resort to greater precautions and adaptive behaviors to manage risks, which inevitably increases transaction costs and the likelihood of opportunistic behavior. To systematically assess the impact of governmental support, we categorize it into two distinct scenarios: high governmental

support for publishing entities and low governmental support for publishing entities. This distinction allows us to examine how variations in support influence the strategic cooperation choices between publishing entities and publishers. While international publishers are included in this analysis, they do not receive governmental support and operate independently with self-investment.

In the section 3.2.3.1 "Selection of partnership model between two parties when there is asset specific investment", we used evolutionary game theory to calculate payoffs under different strategic choices. When we extend the discussion to scenarios where the level of government support varies, the fundamental game-theoretic structure remains unchanged. Therefore, rather than rederiving the mathematical formulations, we adapt the existing framework by modifying the relevant parameters to reflect changes in government support. This approach maintains analytical consistency while effectively capturing the influence of government support on partnership model selection.

In scenario one, where publishing entities receive high governmental support with stable funding, regulatory clarity, and improved infrastructure, both environmental and behavioral uncertainty are obviously reduced. With stable funding, publishing entities do not need to worry about financial shortfalls, enabling them to commit to long-term cooperation strategies rather than prioritizing short-term cost-saving measures. This reduction in environmental uncertainty translates into lower behavioral uncertainty, as publishing entities can engage with publishers under clearer contractual terms, minimizing the risk of opportunistic behavior. As a result, the level of opportunism risk across the three publishing service models remains nearly identical, represented as $\alpha O^{e}_{con} = \alpha O^{e}_{f_{ul}} = \alpha O^{e}_{int}$ for publishing entities and $\alpha O^{p}_{con} = \alpha O^{p}_{f_{ul}} = \alpha O^{P}_{int}$ for publishers. Given that transaction costs are defined as $TAC = \gamma \cdot m \cdot (qts) + \alpha O$ and opportunism risk is negligible in this scenario, the transaction cost is primarily determined by $\gamma \cdot m \cdot (qts)$. Furthermore, since the conditions $[\gamma \cdot m \cdot (qts)]^{e}_{con} < [\gamma \cdot m \cdot (qts)]^{e}_{ful} < [\gamma \cdot m \cdot (qts)]^{e}_{int}$ and $[\gamma \cdot m \cdot (qts)]^{P}_{con} < [\gamma \cdot m \cdot (qts)]^{P}_{ful} < [\gamma \cdot m \cdot (qts)]^{P}_{int}$ hold, it follows that the transaction costs associated with the different cooperation models increase in the order: $TAC_{con} < TAC_{ful} < TAC_{int}$. This indicates that under high governmental support, the fee-for-service model incurs the lowest transaction costs, followed by the full-service model, while the intensive-service model has the highest transaction costs. The results in the table 3.10 analyze the selection of cooperation models in a scenario where publishing entities receive strong governmental support.

Table 3.10 The summary of the partnership model selected where publishing entities receive strong governmental support

Strategic Models	State (E(x,y))	Condition	ESS	Entity	Publisher
Fee-for-Service and Full-Service Game Model	E(0,0)	$TAC_{con} - TAC_{ful} < 0$	ESS	Full-service	Full-service
	E(0,1)	$TAC_{con} - TAC_{ful} < 0$	No ESS	-	-
	E(1,0)	$TAC_{con} - TAC_{ful} < 0$	No ESS	-	-
	E(1,1)	$TAC_{con} - TAC_{ful} < 0$	ESS	Fee-for-service	Fee-for-service
	E(x,y)	No TAC involved	No ESS	-	-
Fee-for-Service and Intensive-Service Game Model	E(0,0)	$TAC_{con} - TAC_{int} < 0$	ESS	Intensive-service	Intensive-service
	E(0,1)	$TAC_{con} - TAC_{int} < 0$	No ESS	-	-
	E(1,0)	$TAC_{con} - TAC_{int} < 0$	No ESS	-	-
	E(1,1)	$TAC_{con} - TAC_{int} < 0$	ESS	Fee-for service	Fee-for service
	E(x,y)	No TAC involved	No ESS	-	-
Full-Service and Intensive-service Game Model	E(0,0)	$TAC_{ful} - TAC_{int} < 0$	ESS	Intensive-service	Intensive-service
	E(0,1)	$TAC_{ful} - TAC_{int} < 0$	No ESS	-	-
	E(1,0)	$TAC_{ful} - TAC_{int} < 0$	No ESS	-	-
	E(1,1)	$TAC_{ful} - TAC_{int} < 0$	ESS	Full-service	Full-service
	E(x,y)	No TAC involved	No ESS	-	-

Based on the summary presented in Table 3.9, the selection of cooperation models where publishing entities receive strong governmental support depends on the partnership publishing models considered:

Under the fee-for-service and full-service evolutionary game model, when the transaction cost difference ($TAC_{con} - TAC_{ful}$) is negative, the system exhibits two stable coordination outcomes. Both publishing entities and publishers may converge on the full-service model, reflecting its lower transaction costs and higher coordination efficiency, or they may jointly adopt the fee-for-service model. By contrast, asymmetric strategy combinations where one party selects fee-for-service and the other selects full-service are not evolutionarily stable. This result indicates that, under this cost structure, strategic alignment between publishing entities and publishers is essential, and stable cooperation emerges only when both parties coordinate on the same partnership model.

Under fee-for-service and intensive-service evolutionary game model, when the transaction cost difference ($TAC_{con} - TAC_{int}$) is negative, both publishing entities and publishers are inclined to adopt the intensive-service model, as it represents a more valuable and stable long-term cooperation strategy. Alternatively, when publishing entities opt for the fee-for-service model, publishers also choose the fee-for-service model, as no clear incentive exists to shift toward a more resource-intensive collaboration. This alignment indicates that, under certain

conditions, cost considerations drive both parties toward a lower-commitment cooperation model, even though it may not offer the long-term advantages of more integrated services.

Under the full-service and intensive-service evolutionary game model, when the transaction cost difference ($TAC_{ful} - TAC_{int}$) is negative, both publishing entities and publishers tend to adopt the intensive-service model, as it offers more possibility to get greater benefits such as royalty and long-term stability in cooperation. Alternatively, when publishing entities choose the full-service model, publishers also align with this decision, leading to a mutually reinforcing preference for full-service cooperation. This indicates that under different cost structures, strategic alignment emerges naturally, favoring either full-service or intensive-service partnerships based on their respective economic advantages.

In scenario two, where publishing entities receive low governmental support characterized by limited funding and regulatory ambiguity, both environmental and behavioral uncertainty increase. The lack of stable financial resources forces publishing entities to prioritize short-term cost-saving strategies over long-term cooperative commitments. Regulatory uncertainty further complicates strategic planning, as unclear policies and inconsistent regulations increase risks related to contract enforcement and compliance. Consequently, publishing entities become more cautious about establishing mid-term or long-term partnerships with publishers, leading to a higher likelihood of opportunistic behavior. As a result, publishing entities are cautious to build mid-term or long-term partnerships with publishers, raising the risk of opportunistic behavior and further inflating transaction costs. This is represented by the order: $\alpha O^{e}_{con} < \alpha O^{e}_{f_{ul}} < \alpha O^{e}_{int}$ for publishing entities and $\alpha O^{p}_{con} < \alpha O^{p}_{f_{ul}} < \alpha O^{P}_{int}$ or publishers. Since negotiation costs follow the same order as those in high governmental support scenarios, the transaction costs for the various cooperation models increase as follows: $TAC_{con} < TAC_{ful} < TAC_{int}$. The selection of cooperation models is consistent with the findings from the scenario with strong governmental support, see table 3.10.

3.2.3.3 Selection of partnership models between two parties when the size of publishing entities is different

When the size of both parties is involved in a transaction changes, transaction costs are affected. In this study, we assume that international publishers are of similar size, as they offer comparable types of publishing services. However, the size of the publishing entity plays a significant role in determining the most suitable partnership model. In this section, we explore how the size of the publishing entity impacts the choice between the fee-for-service model, full-service model, and intensive-service model. In this case, we assume that asset specificity and

governmental support remain constant. The only variable factor is the size of the publishing entity, which influences the partnership choice in terms of negotiation costs and opportunism risk.

For publishing entities, the negotiation costs $(\gamma \cdot m \cdot (q_e ts))$ tend to decrease as the entity size increases. Large publishing entities benefit from established reputations, strong financial resources, professional staff, and structured workflows, which enhance efficiency in publishing projects. These advantages reduce the number of negotiation rounds (m), negotiation time (t) and associated labor cost (qs). Since large publishing entities are typically more stable and have long-term strategic goals, they are perceived as more reliable partners, reducing opportunistic risk (αO). In contrast, small publishing entities often struggle with limited brand recognition, financial instability, and a lack of professional teams and standardized workflows. As a result, negotiations tend to be longer and more complex, increasing negotiation rounds (m) and the complexity (γ), while requiring more time (t) and associated labor cost (qs). Their financial uncertainty and frequent strategic shifts make them less trustworthy partners, leading to higher opportunistic risk (αO).

We can represent the reduction in negotiation costs as a function of entity size S, where larger sizes S reduce the complexity cost γ:

$$TAC^e = \gamma(S) \cdot m \cdot (q_e ts) + \alpha O^e$$

We assume that the negotiation complexity $\gamma(S)$ decreases with increasing entity size. It is expressed as $\frac{\partial \gamma(S)}{\partial S} < 0$. Thus, we can conclude that $TAC_l^e < TAC_s^e$.

In summary, larger publishing entities generally result in lower TAC due to reduced negotiation complexity and opportunism risk. In contrast, smaller entities lead to higher TAC because of extended negotiations, higher compliance costs, and increased uncertainty.

For the large entities, the opportunism risk αO remains moderate and relatively consistent across different cooperation models $\alpha O_{conl}^e = \alpha O_{f_{ull}}^e = \alpha O_{intl}^e$. As a result, the transaction costs associated with each model increase in the following order: $TAC_{conl}^e < TAC_{full}^e < TAC_{intl}^e$. This finding aligns with the cooperation model selection patterns observed in Table 3.10.

Similarly, for small entities, the opportunism risk αO is also assumed to remain moderate across models $\alpha O_{cons}^e = \alpha O_{f_{uls}}^e = \alpha O_{ints}^e$. Consequently, the transaction costs increase in the order: $TAC_{cons}^e < TAC_{fuls}^e < TAC_{ints}^e$. This is consistent with the cooperation model choices presented in Table 3.10.

3.2.3.4 Selection of partnership models under varying levels of specific asset investments and governmental support

When asset specificity is low, the degree of dependence on specific assets decreases, influencing the risk of opportunistic behavior. Fee-for-service contracts, characterized by low asset specificity, are associated with higher opportunism risk due to minimal mutual dependence, making it easier for parties to act opportunistically. Full-service contracts, which involve a moderate level of asset specificity, mitigate opportunism risk to some extent by fostering greater interdependence. Intensive-service contracts with the highest asset specificity exhibit the lowest opportunism risk as both parties make significant asset-specific investments, aligning their interests and reducing the likelihood of opportunistic behavior. The order of opportunism risk (αO) is:

$$\text{For publishing entities: } \alpha O^{e}_{con} > \alpha O^{e}_{f_{ul}} > \alpha O^{e}_{int};$$

$$\text{For publishers: } \alpha O^{p}_{con} > \alpha O^{p}_{f_{ul}} > \alpha O^{P}_{int}.$$

Strong government support typically provides a stable environment, reducing uncertainty, which in turn lowers the opportunism risk. When GGG is low, uncertainty increases, especially in terms of financial support, regulatory clarity, and enforcement. In such an environment, the impact on different partnership models varies. Fee-for-service contracts, being more flexible, are less exposed to risks when government support is low because they don't require long-term commitments or large investments in specific assets. Full-service contracts are more complex and long-term, making them more vulnerable to risks from unstable government support. Intensive-service contracts have the highest complexity and the highest dependence on government stability, making them the most vulnerable to opportunism when government support is low. Therefore, as government support decreases, the order of opportunism risk (αO) is:

$$\text{For publishing entities: } \alpha O^{e}_{con} < \alpha O^{e}_{f_{ul}} < \alpha O^{e}_{int};$$

$$\text{For publishers: } \alpha O^{p}_{con} < \alpha O^{p}_{f_{ul}} < \alpha O^{P}_{int}.$$

When both factors vary, we need to weight the effects of the asset specificity and the level of governmental support on opportunism risk. In China English journal partnership publishing environment, a government intervention plays a dominant role in shaping the industry. Chinese publishing entities are highly dependent on government policies and external funding due to the industry's regulatory structure and lack of a fully open market environment. To incorporate the level of governmental support and the asset specificity into the transaction cost model, we modify the TAC as follows:

$$TAC = f(GS, AS) = (rmqts) + \alpha(O_0 - \lambda GS + \beta AS)$$

where:

O_0 = Base opportunism level.

λGS = Reduction effect of the level of governmental support on opportunism.

βAS = Increase effect of asset specificity on opportunism.

In scenarios where governmental support is strong, the uncertainty associated with policy interventions is minimized across all three publishing models, allowing it to be disregarded in the analysis. As a result, the overall TAC across different publishing models depends primarily on the interplay between negotiation costs $\gamma \cdot m \cdot (qts)$ and opportunism risk $\alpha(O_0 + \beta AS)$. While the fee-for-service model has the lowest negotiation costs, it carries the highest opportunism risk (βAS), whereas the intensive-service model has the highest negotiation costs but the lowest opportunism risk due to greater vertical integration. The full-service model falls between these two extremes, exhibiting moderate negotiation costs and opportunism risk. Given these complexities, two possible conditions $TAC_{con} > TAC_{ful} > TAC_{int}$ and $TAC_{con} < TAC_{ful} < TAC_{int}$ should be considered. The conditions for an evolutionary game analysis in selecting the optimal partnership model align with the framework for partnership model selection when asset-specific investments are present. Therefore, the findings are summarized in Table 3.9.

In scenarios where governmental support is low, the degree of opportunism risk varies across different contractual models. Given the regulatory dependence of China's publishing industry, the impact of governmental support on opportunism risk outweighs that of asset specificity. Fee-for-service contracts are the least vulnerable to opportunism risk. Their flexibility minimizes dependency on both government stability and asset specificity, even though lower specificity inherently increases opportunistic behavior. Full-service contracts come next, as they combine moderate asset specificity with higher vulnerability to uncertainty due to low government support. Intensive-service contracts require significant resource commitments and long-term stability. While high asset specificity can reduce opportunism risk by aligning interests, these contracts are highly exposed to uncertainty when government support is weak, making them the most vulnerable. Thus, when varying both the asset specificity and the level of governmental support, the order of opportunism risk is:

For publishing entities: $\alpha O^e_{con} < \alpha O^e_{ful} < \alpha O^e_{int}$;

For publishers: $\alpha O^p_{con} < \alpha O^p_{ful} < \alpha O^p_{int}$.

In publishing partnerships, transaction costs follow the order:

For publishing entities: $TAC^{e}_{con} < TAC^{e}_{ful} < TAC^{e}_{int}$;

For publishers: $TAC^{p}_{con} < TAC^{p}_{ful} < TAC^{p}_{int}$

Consequently, the selection of cooperation models aligns with the findings in table 3.10.

3.2.3.5 Selection of partnership models under varying levels of specific asset investments, governmental support, and entity size

In the previous sections, we examined how the three critical factors—asset specificity, government support, and publishing entity size—individually affect the selection of partnership models between publishing entities and international publishers. Each of these factors directly influences the TAC associated with different cooperation models and shapes the strategic incentives for both parties.

When these three factors vary, they cause TAC to fluctuate across different partnership models. This results in a more dynamic decision-making environment in which both the publishing entity and the publisher must continually evaluate the balance between TAC, publishing fees, and the expected extra benefits associated with each model. These relationships are formally captured in the payoff functions discussed earlier, where the total utility of each cooperation model depends on the cost burden and anticipated returns. For the publishing entity, the cost burden includes both TAC and the publishing fee, while the expected benefits may involve accelerated indexation, increased visibility, or brand development. For the publisher, the publishing fee represents income, while TAC reflects cost. Therefore, the model selection process involves navigating trade-offs—balancing costs and benefits—to maximize net payoff for both parties.

TAC continues to play a central role in model selection, but it now fluctuates in response to variations in the three influencing factors. For example, higher asset specificity raises TAC due to increased coordination complexity and contract enforcement requirements. Similarly, limited government funding raises the financial burden on publishing entities, thereby making high-TAC models less attractive. Smaller institutions may also lack the internal capacity to absorb high TAC, further narrowing their model options. At the same time, publishing fees—charged by publishers for their services—remain a direct cost for publishing entities and a revenue stream for publishers. Extra benefits, such as accelerated indexation in international databases, enhanced brand visibility, or faster journal growth, serve as positive incentives, particularly for new start ambitious journals. The selection of a partnership model ultimately depends on which combination of these three variables—TAC, publishing fee, and extra benefits—yields the greatest overall benefit for both parties.

From the perspective of publishing entities, the primary goal is to control key cost particularly TAC and publishing fee while maximizing long-term strategic benefits. Although total costs may include other expenditures, TAC and publishing fees typically represent the most significant components. When TAC is low and extra benefits are modest, a fee-for-service model may suffice. As TAC increases but is accompanied by meaningful benefits such as stronger international visibility, professionalization of operations, or improved editorial standards, a full-service model becomes more appealing. If the anticipated benefits are substantial enough to justify even higher TAC and publishing fees, then an intensive-service model may become viable.

For publishers, the logic operates similarly. High-TAC models require significant operational investments but may be offset by higher publishing fees and stronger strategic returns such brand alignment or portfolio enhancement. Since publisher size is assumed to be constant in this analysis, differences in model preference arise not from scale advantages but from how each cooperation model aligns with the publisher's strategic goals and revenue expectations. When the anticipated long-term benefits outweigh the additional costs associated with full-service or intensive-service models, publishers may be more willing to support and invest in such partnership models.

In this variable context, the evolutionary game framework predicts that model selection outcomes will depend on: (1) The fluctuation of TAC in response to changes in asset specificity, funding, and organizational size; (2) The affordability and value of publishing fees for each party; (3) The perceived scale and probability of achieving extra benefits through each model.

When these factors are aligned moderate TAC, sustainable publishing fees, and meaningful extra benefits, the full-service model may emerge as the optimal strategy. It strikes a balance between operational efficiency and strategic gain, allowing publishers to maintain publishing process control while enabling publishing entities to achieve faster journal development and international visibility.

In conclusion, allowing asset specificity, government support, and publishing entity size to vary introduces realistic complexity into the model selection process. These fluctuations impact TAC, which, in turn, interacts with publishing fees and extra benefits to determine the optimal partnership model. This integrated evaluation supports the broader theoretical argument: model selection is not fixed but evolves based on the dynamic trade-offs among cost, return, and institutional capacity.

Chapter 4: Methodology

4.1 Research design and methodological approach

This study adopts an explanatory and mixed qualitative design that integrates evolutionary game modeling with empirical case study analysis to explore how partnership publishing models evolve among China's E-L medical journals. The overall research strategy combines macro-level contextual analysis and micro-level institutional case studies, allowing both breadth and depth of understanding.

At the macro level, a descriptive analysis of 104 journals funded under the CAST programs spanning was conducted to examine the overall distribution of funding, institutional composition, and the types of partnership models adopted by these journals. This dataset provides contextual evidence on national trends and identifies which institutional types including universities, hospitals, and medical associations receive the most funding support or demonstrate the highest engagement in partnership publishing.

At the micro level, the study adopts a multiple-case study design focusing on three representative entities including a medical university, a hospital, and a medical association that reflect the dominant types of entities involved in China's medical publishing system. Each case is examined as a distinct organizational system, considering its structural characteristics, policy environment, funding conditions, editorial operations, negotiation and implementation processes, and its willingness or resistance to modify its existing partnership model. The case study approach is particularly suitable for this research because it enables an in-depth investigation of how partnership publishing decisions are made and justified within real-life institutional contexts (Li & Huang, 2024; Su et al., 2023). Given the involvement of multiple stakeholders including international publishers and diverse Chinese host entities this method allows the integration of contextual factors that cannot be adequately captured through theoretical approaches. It provides a means to account for factors such as investment status, policy incentives, and size of entities, while also enabling the empirical cases to be interpreted in relation to the evolutionary game model developed in Chapter 3.

By integrating the CAST programs journals' analysis and the case studies, the research design provides complementary perspectives: the national-level data identify patterns and

funding priorities, while the institutional-level analyses reveal the mechanisms and contextual factors that shape partnership decisions. Together, these two components establish a strong empirical basis for assessing how partnership outcomes both align with and diverge from the theoretical expectations of the model developed in Chapter 3. This combined approach enhances the validity and reliability of the findings by linking the evolutionary game analysis of interactions between medical publishing entities and publishers to real-world evidence, thereby providing a solid empirical foundation for verifying and refining the theoretical conclusions. Figure 4.1 presents the methodological diagram.

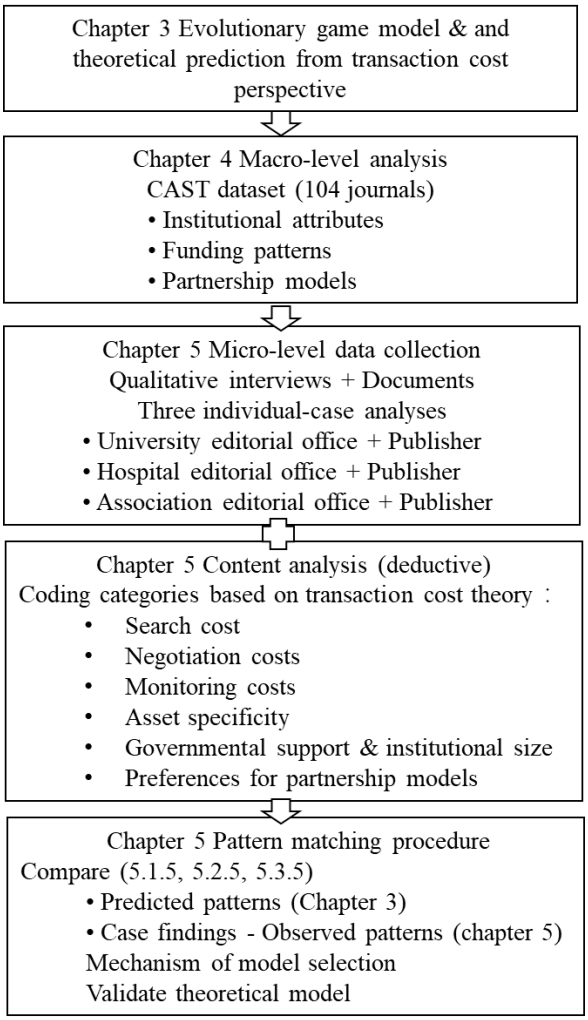


Figure 4.1 Methodological diagram

4.2 Data sources and collection methods

This section details the empirical materials used in the study and the procedures through which they were collected and analyzed. The research draws on two types of data: a macro-level dataset of CAST-supported English-language medical journals and micro-level qualitative data

obtained through institutional case studies. The macro-level dataset provides the factual basis for understanding the structural characteristics of partnership publishing across China's medical E-L journal landscape, while the qualitative case data offer insight into the processes, motivations, and decision-making mechanisms surrounding cooperation with international publishers. This section describes the nature of each dataset and the methods used to obtain and analyze them.

4.2.1 Macro-level analysis: CAST journal dataset

The macro-level component of this study is based on a structured dataset compiled from 104 E-L medical journals supported by CAST national programs. Information was systematically extracted from CAST funding announcements as annex A supplementary Table a.1 including all selected journal lists, institutional and publisher websites, and publicly available journal records. For each journal, a broad set of attributes was collected as figure 4.2, including Chinese and English journal titles, the management and host institutions, affiliated units, the year and category of CAST funding, and any disclosed funding amounts. In addition to these administrative variables, detailed publication characteristics were recorded, such as the publisher, host type (university, hospital, or association), indexation status in SCI/ESCI, year of indexation, the number of years required to achieve SCI inclusion, journal ranking information from multiple JCR years, annual SCI publication outputs, publication frequency, indexing in Scopus and PubMed, the year of journal establishment, and open-access status. These variables were selected because they directly reflect institutional characteristics and cooperation choices relevant to the analytical framework of the study. The extracted variables were compiled into a structured dataset that enabled systematic organization and comparison of journals across entity types. The dataset provides a comprehensive empirical record of the characteristics of CAST-supported medical E-L journals.

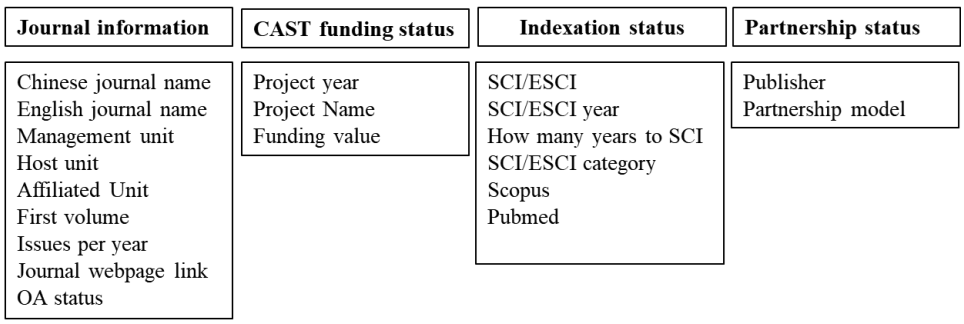


Figure 4.2 Data fields extracted for CAST-supported journals

Descriptive procedures were applied to organize and summarize these variables in preparation for the analysis presented in section 4.3. The purpose at this stage was not to draw

conclusions but to arrange the data in a format that would permit the identification of patterns relating to funding allocation, institutional profiles, and publishing partnership outcomes when analyzed later. By structuring the dataset in this manner, the macro-level analysis in section 4.3 could be conducted with clarity and consistency, enabling the interpretation of national-level trends in partnership publishing to be grounded in a systematically assembled empirical base. This approach ensures that the descriptive findings presented are directly traceable to the data collection and organization procedures outlined here.

The research employs a multiple-case design, which is particularly useful when the aim is to compare cases that share certain attributes but differ in contextual characteristics. Multiple-case designs enhance the credibility of the findings through replication logic: each case is examined first as an independent analytical unit, after which findings are compared across cases to identify shared patterns, variations, and explanatory mechanisms. This design aligns well with the structure of China's medical publishing system, where hospitals, universities, and professional associations represent three distinct but comparable entity categories.

4.2.2 Micro-level analysis: case study data

4.2.2.1 Research method

To investigate the mechanisms that shape partnership publishing model selection, this study adopts a qualitative case study approach. Case study research is an empirical method that examines specific phenomena within their real-life organizational contexts and is especially suited to addressing "how" and "why" questions (Li & Huang, 2024; Yin, 2014) . This method enables a detailed exploration of causal processes, institutional dynamics, and contextual factors that cannot be fully captured through theoretical approaches. Within this research, the case study method allows an in-depth understanding of how Chinese medical entities collaborate with international publishers and how both parties select partnership models under varying organizational conditions.

A multiple-case design is used in the sense that the study examines three separate cases. However, each case functions as an independent single-case analysis, rather than forming the basis for a formal cross-case comparison. This design enhances the depth and clarity of each individual case by treating each entity–publisher pair as a distinct analytical unit. The single-case approach is appropriate because hospitals, universities, and professional associations differ significantly in organizational structure, governance, funding models, and developmental objectives, making each case analytically meaningful in its own right.

4.2.2.2 Research approach

The micro-level analysis proceeds through three independent single-case studies, corresponding to a medical university, a hospital, and a medical association, each paired with its international publishing partner. Each case is examined holistically to understand how the entity and its publisher selected and implemented the partnership publishing model. The analysis reconstructs key organizational processes, including institutional background, policy and funding environment, editorial operations, pre-contract search and negotiation, post-contract coordination, and the institution's willingness or reluctance to modify the chosen model.

To capture these dynamics, interviews were conducted with two medical universities, three hospitals, and two medical associations that had established partnerships with international publishers, as well as with their publishing partners. Across each institutional category, interview responses displayed a high degree of consistency. Organizations of the same type expressed similar views regarding their motivations for collaboration, partnership mechanisms, perceived benefits, and challenges encountered. To avoid redundancy and maintain analytical clarity, one representative case from each institutional type - a university, a hospital, and an association - together with its international publisher, was selected for detailed analysis. These representative cases provide sufficiently rich and distinctive insights for examining the mechanisms of partnership model selection within the broader theoretical framework.

The purpose of the single-case analyses is not to compare cases directly but to uncover the mechanisms that shape partnership model selection within each specific organizational context. Particular attention is given to how each entity and its publisher perceive search costs, negotiation and decision-making costs, monitoring and enforcement efforts, asset specificity, and the anticipated benefits associated with different cooperation models. These elements correspond directly to the theoretical mechanisms proposed in Chapter 3.

Building on this structure, the study applies a pattern-matching strategy, in which theoretical predictions derived from the evolutionary game model are compared with empirical patterns identified in each case. The theoretical framework provides a predicted pattern regarding the influence of government support, and institutional size from the transaction cost perspective on model selection. The empirical pattern emerges from the documented experiences of editorial offices and publishers. By comparing these two patterns, the study evaluates the consistency between theory and practice, providing a basis for validating, refining, or adjusting the theoretical model.

Through this approach, case studies serve as empirical illustrations of how partnership publishing models operate in practice and why entities and publishers choose different cooperation arrangements. The findings of these single-case analyses are presented in Chapter 6.

4.2.2.3 Data sources and analysis

The micro-level component of this study is informed by qualitative interviews and documentary materials. Interviews were conducted with two medical universities, three hospitals, and two medical associations, together with their international publishing partners. As responses within each institutional category demonstrate substantial internal consistency, one representative case was selected from each category and paired with its collaborating publisher for in-depth analysis.

Interview participants included managing editors responsible for editorial operations and publisher managers involved in negotiation, coordination, and journal development. Each interview lasted approximately ninety minutes and followed a semi-structured format addressing the full partnership cycle: pre-contract search and information gathering, negotiation processes, post-contract coordination, resource commitments, perceived benefits, unmet needs, and preferences for alternative partnership models. Interviews were recorded with consent, transcribed verbatim, and anonymized to ensure confidentiality. Supplementary documents such as partnership agreements if they are available, annual reports, policy documents, journal websites, and internal guidelines were collected to triangulate interview data and enrich contextual understanding.

The qualitative data was analyzed using deductive content analysis, which is appropriate for examining interview transcripts when the objective is to interpret underlying meanings and experiences while assessing established theoretical propositions, rather than generating new theory. The analysis focused on understanding participants' perceptions, experiences, and decision rationales related to academic publishing practices. The coding categories were defined a priori, derived directly from transaction cost theory and the analytical framework developed in Chapters 2 and 3. These predefined categories included search and information costs, negotiation and decision-making costs, monitoring and enforcement efforts, asset specificity, government support, institutional size, perceived benefits, partnership model preferences and willingness to switch publishing models. Interview transcripts were systematically coded according to these categories. Statements were grouped to identify recurring themes and patterns, allowing for a structured interpretation of how different entities

experienced and evaluated publishing partnerships. This approach ensured theoretical consistency while preserving the qualitative depth of participants' meanings and experiences across each entity–publisher pair.

Following the development of empirical patterns, a pattern-matching procedure was employed. treated as empirical patterns, were compared with the mechanisms predicted by the theoretical model, treated as predicted patterns. This comparison provides a rigorous basis for assessing the internal validity of the study by determining whether observed behaviors align with theoretical expectations. The matched patterns help explain why each institution selected its partnership model and how institutional characteristics shape decision-making. The results of this analysis form the foundation of the case findings presented in Chapter 6.

4.3 The development of partnership publishing in Chinese E-L medical journals: an analysis of journals selected by CAST national programs

Currently, China has not yet established a unified English journal catalog. To comprehensively include Chinese medical E-L journals, this study uses a sample-based approach. A total of 110 E-L medical journals were selected as sample cases from CAST-supported programs over a nine-year period. These include journals from the second phase of the PIIJ (2016–2018), the first phase of the Excellence Plan (2019–2023), and the initial year of its second phase in 2024.

It is important to note that some journals were selected across multiple phases of these programs, so while the total number of unique journal titles is 110, the combined number of selections across all three programs exceeds this figure due to overlaps. Among these 110 unique titles, six journals are published by Chinese publishing companies and therefore fall outside the scope of this study, which focuses on partnerships with international publishers. These six titles are excluded from further analysis, leaving 104 unique journals for discussion. Aside from the funding calculations, which include all selected titles in each program to determine total funding, other metrics are based on the 104 unique journal titles.

These journals are typical examples that show different types of publishers, levels of government support, partnership models, and the reasons for choosing international publishers indicating what these journals seek to gain from such partnerships. By searching official journal websites of E-L titles, we obtained basic information about these journals, including their launch dates, ISSN, E-ISSN, and publishing partnership status. We also retrieved CN numbers, supervision units, host units, sponsorship and funding status by searching the NPPA and CAST websites.

4.3.1 Host unit and years to be indexed by Web of Science

In terms of journal host institutions, the primary types are universities, medical associations, hospitals and companies. Universities lead in journal establishment, with 36 institutions publishing a total of 51 titles. Medical associations rank second, with 14 organizations responsible for launching 39 journals. Notably, the Chinese Medical Association stands out in this category, having received the highest level of policy and funding support, with 23 of its journals receiving government backing. Hospitals rank third, with 14 institutions publishing a total of 14 journals. 6 titles are published by Chinese publishing companies and are not included in the following discussion. Numbers of titles by each type of entity are presented in figure 4.3.

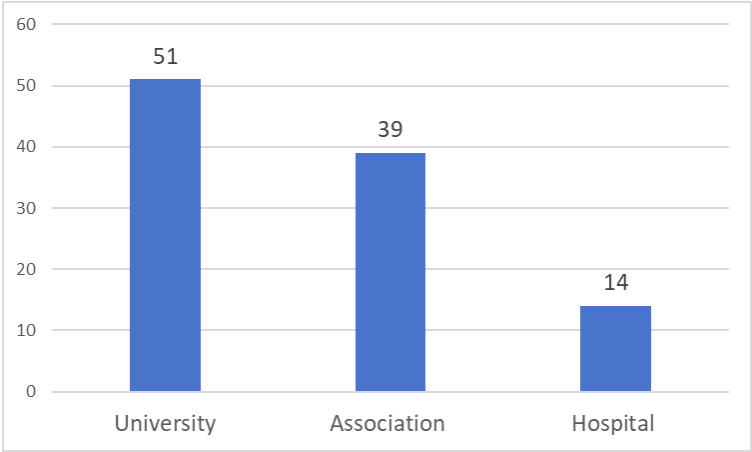


Figure 4.3 Titles published by different types of entities

Among these 104 CAST-supported titles, 67 are indexed in Web of Science, indicating a high level of journal quality and international recognition through this widely acknowledged indexation system. The data summarized from the Table 4.1 reveals several key findings regarding the time to indexation in the Web of Science for E-L medical journals across different host entities including universities, associations, and hospitals.

For analytical purposes, the time to indexation is divided into three periods: the period prior to the implementation of the PIIJ program (1951–2012), the period from 2013 to 2018 corresponding to the first and second phases of the PIIJ program, and the period from 2019 to 2024 corresponding to the first phase and the initial year of the second phase of the Excellence Action Plan. This temporal division allows the study to examine differences in journal quality development under conditions with and without sustained governmental support, thereby highlighting the role of policy interventions in accelerating journal indexation performance.

Table 4.1 Years to be indexed by Web of Science

Journal launch Year	Years indexed by WoS	No. of titles	Ave. years /entity	University			Association			Hospital		
				Years indexed by WoS	No. of titles	Ave. years /entity	Years indexed by WoS	No. of titles	Ave. years /entity	Years indexed by WoS	No. of titles	Ave. years /entity
2001-2012	395	26	15	229	12	19	137	10	14	29	4	7
2013-2018	77	17	4	31	8	4	21	4	5	25	5	5
2019-2024	57	24	2	28	11	3	26	12	2	3	1	3
Total	529	67	8	288	31	9	184	26	7	57	10	6

Universities host the largest number of Web of Science -indexed journals, with 31 titles achieving indexation, followed by medical associations with 26 titles. Hospitals account for a substantially smaller share, with only 10 Web of Science -indexed journals. To further assess performance differences across institutional types, the analysis examines the average time required for journals to achieve Web of Science indexation. The results indicate a clear acceleration in indexation timelines following the implementation of national support programs. During the period from 2013 to 2018, corresponding to the PIIJ program, and from 2019 to 2024 under the Excellence Action Plan, journals hosted by universities, associations, and hospitals all reached Web of Science indexation more rapidly than those launched prior to 2013. In particular, journals launched between 2019 and 2024 by universities, associations and hospitals achieved Web of Science indexation within an average of two to three years, a substantial improvement compared with earlier periods.

The impact of CAST support is especially evident when comparing average indexation times across host entities. After receiving program support, journals hosted by universities and associations exhibit similar performance, requiring approximately 3.5 years on average to achieve Web of Science indexation. Journals hosted by hospitals tend to require a slightly longer period, averaging around four years. This difference in indexation speed, together with the larger number of Web of Science -indexed titles hosted by universities and associations, suggests that these institutions demonstrate stronger overall performance in journal development and international visibility under CAST-supported programs.

4.3.2 Status of funding and policy support from CAST programs

Among the 104 E-L medical journals analyzed, 11 were established prior to the year 2000, and 15 were founded between 2001 and 2012. A notable increase in journal launches occurred starting in 2013, coinciding with the launch of the CAST PIIJ. During the first phase of PIIJ

(2013–2015) and its second phase (2016–2018), a total of 23 new titles were founded. This upward trend continued with the implementation of the ongoing CAST initiative, the Action Plan for the Excellence of Chinese STM Journals, launched in 2019. Between 2019 and 2024, 49 new E-L medical journals were established. The rest of 6 journals got CAST funding, but they did not set up journals by 2024. This growth in figure 4.4 clearly illustrates the significant role of governmental policies and funding in driving the development and establishment of E-L medical journals in China.

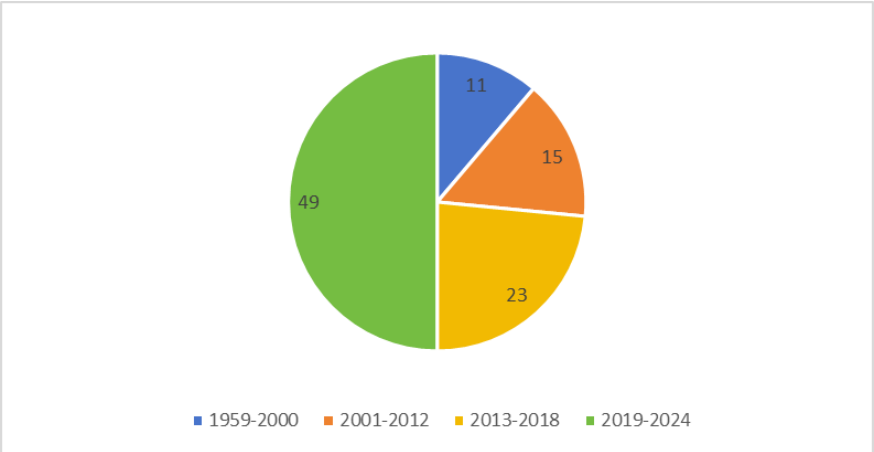


Figure 4.4 Titles published by different time periods

It should be noted that some journals received CAST support across multiple program phases. As a result, although the number of unique journal titles is 104, the total number of funded selections reaches 155 due to repeated funding of the same journals across different programs. Some journals were selected for funding in more than one phase, with a few receiving continuous supports across all three programs.

Notably, within the approved “new start journal” category of the second phase of the PIIJ and the Action Plan for the Excellence of Chinese STM Journals, medical E-L journals represented a significant proportion, 28% (17 out of 60) and 25% (59 out of 239), respectively. These figures highlight the strong emphasis placed on supporting medical E-L journals within national initiatives, especially new titles. The funding and policy backing provided by these programs have played a critical role in facilitating the establishment and development of E-L medical journals in China.

The analysis of the annex A supplementary Table a.2, Table a.3 and Table a.4 shows how government funding for E-L medical journals varies across different types of host institution - universities, medical associations, and hospitals. This funding was provided through CAST’s three major national programs: Phase II of the PIIJ (2016–2018), Phase I of the Excellence Action Plan (2019–2023), and the first year of Phase II of the Excellence Action Plan (2024–

2028). The data reveals clear differences in the level of support given to each type of institution.

Universities emerged as the primary beneficiaries of governmental funding and policy support, receiving the highest number of funded titles across all three phases. A total of 67 journal titles affiliated with universities were funded, 14 in the PIIJ phase, 29 in the first phase of the Excellence Plan, and 24 in the first year of the second phase. The total amount of funding allocated to university-based journals reached ¥101.1 million. These journals also demonstrated wide coverage across different funding categories, including leading, tiered, and new-start journals. Particularly in the 2024 phase, the substantial funding of ¥32.5 million awarded to 14-tiered journals underscores the significant governmental backing universities receive for the development of their English-language journals.

Medical associations, while hosting fewer funded titles than universities, received the almost same level of government support. In total, 14 medical associations received funding for 60 E-L medical journals including 15 under the PIIJ, 25 under the first phase of the Excellence Plan, and 20 in the initial year of the 2024 phase—amounting to a cumulative ¥129.4 million. This compares with 36 universities that received support for 67 journals. On average, each association received funding for a higher number of journals per institution than universities. Notably, the CMA alone accounted for 23 funded journals, highlighting the concentration of support within a small number of influential national-level associations. A distinct feature in the case of association-hosted journals is the greater proportion of support allocated to high-tier titles. For instance, in the 2024 phase, five association-hosted journals were designated as "leading journals," receiving a total of ¥37.5 million. This pattern indicates that medical associations are particularly well-equipped to cultivate high-quality journals that attract strategic government support. These organizations often serve as authoritative platforms for academic exchange, clinical guideline development, and policy engagement within their respective specialties. Their strong scholarly leadership is reinforced by long-standing relationships with KOLs, established author networks, and the reputation associated with established bundles of Chinese journals. Such resources provide a stable foundation for consistent content development and academic credibility. In addition, associations usually maintain in-house editorial and technical teams, capable of independently developing and managing publishing platforms (Shen et al., 2023). These integrated capabilities not only enhance operational efficiency but also strengthen the association's control over publishing workflows and digital infrastructure. Consequently, association-led journals are well positioned to meet the high standards required by national initiatives like the CAST programs.

By contrast, hospitals received comparatively limited support under the three CAST

funding programs. Across all three phases, only 19 hospital-hosted journals received funding—five under PIIJ, eight under the first phase of the Excellence Plan, and six in the 2024 phase. The total funding allocated to hospital-affiliated journals was ¥29.5 million, significantly lower than the funding provided to journals hosted by universities and medical associations. In terms of funding categories, hospital journals were less frequently recognized in higher-level classifications such as "leading journals." For instance, in the 2024 phase, only one hospital journal was categorized as a leading journal and received ¥7.5 million. This distribution indicates that hospital journals have generally not met the selection standards required for higher-tier support under CAST programs, which are based on journal influence and content quality. Compared with university- and association-hosted journals, hospital journals appear less likely to reach the thresholds necessary for recognition in competitive funding categories such as leading or tiered journals.

Across the three host unit types, university- and association-hosted journals consistently receive more support from CAST programs compared to those hosted by hospitals. This trend reflects the relatively higher academic quality and international influence of journals managed by universities and associations. Indicators such as indexation status and citation performance—key criteria are considered by CAST programs. University- and association-hosted journals are generally developed quickly and typically indexed in major international databases, further enhancing their visibility and competitiveness. In contrast, hospital-hosted journals have received limited support under these initiatives, suggesting that their current performance in terms of scholarly influence and content quality may not yet meet the thresholds required for higher-tier recognition. This disparity highlights potential areas for capacity-building and support aimed at elevating hospital journals to a more competitive standing in future evaluations.

4.3.3 Partnership models of universities, associations and hospitals funded by CAST programs

Among the 104 English-language medical journals analyzed, 90 have adopted the full-service publishing partnership model, 13 are operated under the fee-for-service model and 1 is published under intensive-service model. Although universities account for the highest number of titles using the fee-for-service model (6 out of 51), this represents only 12% of all university-hosted journals, indicating a strong overall preference for the full-service model. A similar trend is observed among association-hosted journals, with 13% (5 out of 39) choosing the fee-for-service model. Table 4.2 shows the partnership models by host type.

Table 4.2 Partnership models by host type

Entity	Fee for service titles	Full-service Titles	Intensive-service Titles
University	6	45	0
Association	5	34	0
Hospital	2	11	1

Hospital-hosted journals exhibit a more differentiated pattern in partnership model selection. Although only two hospital journals have adopted the fee-for-service model, representing approximately 14% of hospital-hosted titles, one additional hospital journal has selected an intensive-service model, collaborating with a U.S.-based publisher while retaining editorial management within a Chinese institutional framework. While this represents only a single case within the CAST-supported sample, it is noteworthy because no university- or association-hosted journals in the dataset have adopted the intensive-service model.

This finding should be interpreted in light of the scope of the CAST programs. The limited presence of intensive-service models among CAST-supported hospital journals does not imply low institutional interest in such arrangements. In practice, hospitals appear more open to alternative and more deeply integrated partnership models. For example, among the approximately 60 medical journals published by AME Publishing Company, around 18 hospital-affiliated journals operate under intensive-service arrangements (AME publishing company, 2024). These journals, however, are largely absent from CAST-supported programs, either because they were not selected or did not apply. This suggests that hospitals may pursue more diverse partnership strategies outside the CAST framework, reflecting a greater openness to flexible and intensive cooperation models when not constrained by program-specific selection mechanisms.

In summary, this variation may reflect the differing institutional capacities and strategic priorities among the entities. Medical universities and associations, which typically have more robust editorial teams, access to greater resources, and established reputations, may prefer the full-service model to maximize international impact through comprehensive publisher support. Meanwhile, hospitals, often facing constraints in publishing resources and personnel, may view alternative models such as fee-for-service or intensive-service as more adaptable and efficient, enabling them to access professional publishing support while maintaining a degree of operational flexibility and cost control. (AME publishing company, 2024; Clarke, 2020; Yan et al., 2022)

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Chapter 5: Results

In China's E-L medical journal market, international publishers collaborate extensively with medical universities, hospitals, and professional associations. Most partnerships adopt either full-service or fee-for-service models, while more customized intensive-service arrangements have emerged to address increasingly diverse institutional needs. Drawing on the theoretical framework developed in Chapter 3, this chapter examines how these partnership models operate in practice and assesses the extent to which empirical evidence supports the theoretical predictions. Through case studies, it analyzes the background, structure, and operational mechanisms of different collaborations, showing that outcomes are shaped by variations in transaction costs, publishing fees and payment capacity, as well as each partner's expected strategic benefits.

To capture these dynamics, interviews were conducted with two medical universities, three hospitals, and two medical associations that have established partnerships with international publishers, as well as with their publishing partners. Responses within each institutional category demonstrated a high degree of consistency in terms of motivations, partnership mechanisms, perceived benefits, and challenges. To maintain analytical clarity, one representative case from each institutional type including a university, a hospital, and a professional association together with its corresponding international publisher, is selected for detailed analysis. These cases illustrate the typical patterns and shared dynamics observed across the broader sample, while also providing a basis for evaluating how theoretical outcomes correspond to real-world practices.

5.1 Partnership model between medical universities and international publishers

5.1.1 Background of the partnership between medical universities in China and publishers

Medical universities in China have the highest quality and most abundant medical research resources in the country. (Yang et al., 2024; Yang & Wang, 2022). With top-tier talent, leading academic programs, robust funding, and favorable policy support, these universities are well-positioned to launch and sustain high-quality E-L journals. The CAST national programs show

clear support for university-led publishing. Among these, universities independently established 51 journals, representing 46% of the total sample. Most university-hosted medical journals have established direct collaborations with international publishers. Among the 51 CAST program university journals analyzed, 45 have adopted the full-service publishing model, reflecting a strong preference for this approach. Only six university journals have opted for the fee-for-service model.

University journals demonstrate strong performance throughout their entire development process, from initial establishment to subsequent growth. They are more likely to achieve indexing in the authoritative database Web of Science and do so in a relatively short timeframe. Several factors explain the strong performance and success of university-affiliated journals. (1) Policy-driven enthusiasm for journal development. Under the influence of the ‘Double First-Class’ initiative, medical universities and colleges have shown strong enthusiasm for developing academic journals (Zhang et al., 2021). (2) Strong financial and institutional support. Chinese universities rely largely on government funding, with both central and local authorities contributing to their budgets. Notably, Double First-Class” universities are able to allocate dedicated budgets to journal projects, significantly advancing the development of high-quality journals (Yang et al., 2024). (3) Professionalized journal publishing teams to sustain journal management and development. Universities possess inherent structural advantages in academic publishing. Most institutions maintain dedicated journal publishing departments, especially with "Double First-Class" universities often operating full-fledged university presses (Wang, 2021). Each university-affiliated journal is supported by a professional editorial office staffed with specialized editors who typically manage one or multiple journals (Zhuang et al., 2025). (4) Abundant academic resources and talent pool. With numerous primary and secondary disciplines, a large faculty and student body, and diverse academic expertise, universities can provide a steady supply of high-quality manuscripts, ensuring the sustainability of their journals (Ge et al., 2018; Yang et al., 2024). (5) Institutional recognition and incentives. In the early stages of journal development, institutional policies that prioritize and internally recognize university-affiliated journals are crucial. Given that universities typically have larger academic populations than hospitals or professional associations (Ding et al., 2022; Yan et al., 2022). (6) Global networks and internationalization. Well-established universities draw on their global alumni networks to encourage submissions and promote their journals internationally, improving their global reach (Ge et al., 2018). (7) Favorable infrastructure and operational space. Universities generally occupy expansive campuses and provide ample physical space for journal operations. This infrastructure offers a conducive environment for newly established

journals, supporting their long-term growth. (Ding et al., 2022).

In conclusion, medical universities in China especially those participating in the "Double First-Class" initiative benefit from policy and funding support, professional editorial teams, and strategic investments in publishing infrastructure. These conditions enable them to adopt full-service partnerships with international publishers, which in turn support the rapid development and international recognition of their E-L medical journals.

5.1.2 Partnership model between medical universities and publishers

The full-service publishing model represents a long-term partnership in which the publisher assumes responsibility for nearly all operational aspects of journal production, while the university retains full editorial control. The editorial office oversees content, editorial policies, and strategic direction, allowing it to focus on academic quality rather than operational management (Clarke, 2020; Morris et al., 2013).

A key advantage for universities under full-service model is financial stability. Publishers manage revenue streams such as subscriptions, article processing charges (APCs), and reprints, reducing administrative complexity and ensuring predictable income. This allows editorial offices to concentrate on scholarly objectives while relying on the publisher’s commercial expertise (Clarke, 2020; Ware, 2008).

From a strategic perspective of the full-service model, both the publisher and the university invest in the journal’s success. Figure 5.1 demonstrates the full-service partnership model.

This model has become the dominant approach among Chinese medical universities, particularly due to resource constraints in managing modern publishing demands. Empirical evidence shows that a large majority of E-L medical journals adopt this model (Liu et al., 2019; Xu & Bu, 2016). According to the CAST program on 51 university medical E-L journals, 88% of English-language medical journals have adopted the full-service model in collaboration with publishers.

Selection of publishing partners typically emphasizes editorial independence, technological capacity, and global reach. Key negotiation points include defining the division of responsibilities, ensuring long-term financial stability, and establishing a clear transition plan for managing the journal if it is not a new start journal. Once the terms are agreed upon, both parties finalize the contract, outlining the specific roles, revenue terms, and performance metrics. The agreement is typically reviewed periodically to ensure the partnership remains aligned with the editorial office’s goals (Morris et al., 2013; Yan et al., 2022).

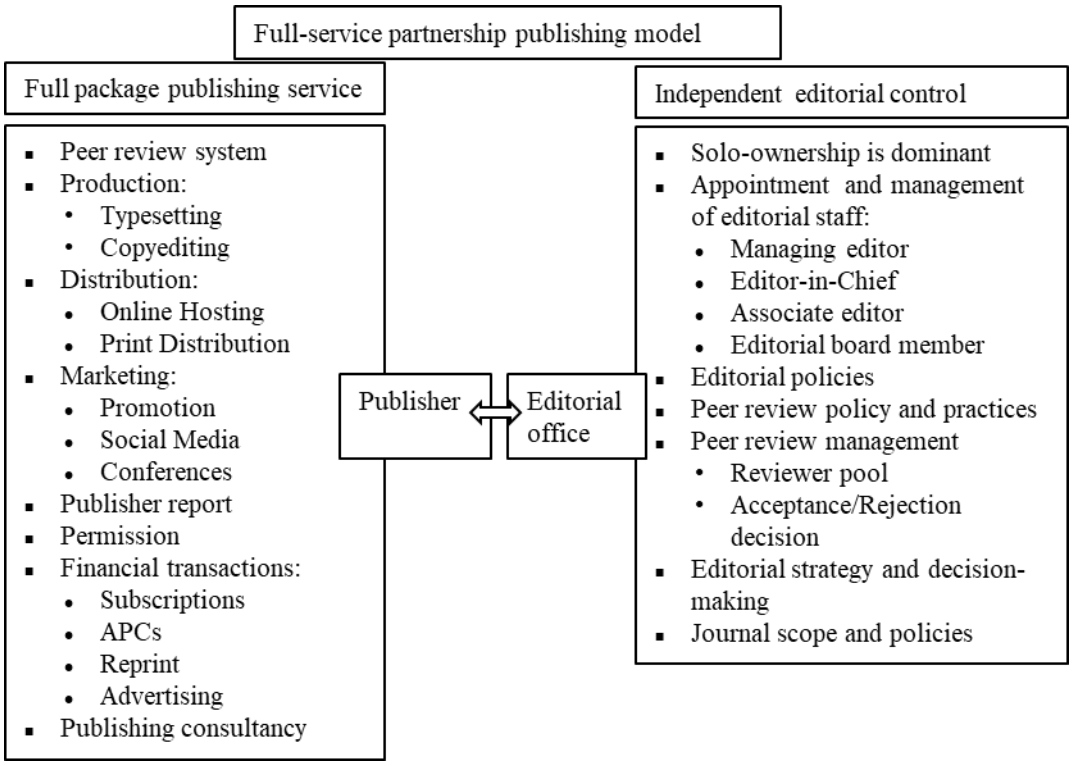


Figure 5.1 Full-service partnership publishing model

A central component of agreement involves specifying the specific asset investments that will be made by both the publisher and the editorial office within the full-service model. For the medical university, the editorial office invests in specialized human assets containing managing editors, scientific editors, editorial support staff, and editorial board members, all of which are crucial for maintaining the academic integrity and scholarly direction of the journal. Additionally, reviewer pools and unique intellectual property are significant assets for the journal, helping to ensure high-quality content. These assets are considered semi-specialized to specialized based on the nature of their application in the journal's editorial processes.

On the publisher's side, the company invests in various specialized human and physical assets. This includes journal publishers, production editors, a technical team, marketers, and a sales team, which are essential for the operational management and promotion of the journal. Publishers also invest heavily in specialized physical assets including the peer review system, production technical systems, digital publishing infrastructure, and the journal website, which are critical for the journal's technical and online presence. These assets are categorized as specialized, contributing directly to the journal's functionality and its ability to reach a global academic audience. Annex A supplementary Table a.5 describes the specific asset investment for E-L journals under full-service partnership publishing model between the medical university and the publisher. Both parties contribute to specialized resources that are necessary for the journal's successful operation under the full-service model, and understanding the specific asset

investments helps ensure that responsibilities and financial expectations are clearly defined in the negotiation process.

In summary, the full-service publishing model is an effective solution for editorial offices of medical universities seeking a high-quality, efficient, and comprehensive approach to managing their journals. By outsourcing nearly all aspects of publishing to a professional partner, editorial offices can ensure their journals are well-positioned for growth, increased visibility, and long-term success in the global academic publishing landscape.

5.1.3 Publishing partnership mechanism between medical universities and publishers

The selection of publishing partnership models by Chinese medical universities is closely tied to the dynamic interaction among TAC, publishing fees, and expected extra benefits. In line with the theoretical framework outlined in Section 3.2.3, the choice of cooperation model is not fixed, but evolves in response to fluctuations in three core influencing factors: asset specificity, governmental policy and funding support, and entity size. These variables directly affect TAC, which continues to play a central role in determining the optimal partnership model.

For medical universities, government support is relatively stable and sustained, especially under initiatives like the "Double First-Class" strategy, PIIJ, and the Excellence Action Plan. This funding not only ensures operational continuity for editorial offices but also reduces environmental and behavioral uncertainty in long-term publishing partnerships (Casady et al., 2023; Cuypers et al., 2021) . Compared to hospitals, medical universities have more predictable budgets and strategic incentives to invest in academic infrastructure. As such, they are better positioned to enter full-service publishing arrangements, which typically involve higher asset investment such as employing professional editorial staff, engaging scientific advisors, purchasing integrated publishing service but yield greater extra benefits including international visibility and faster indexation.

From the perspective of transaction cost theory, this environment encourages medical university editorial offices to take on semi-specialized to specialized asset investments. Their relatively large size and policy-driven mandates further justify these investments, as they can spread fixed costs across more disciplines and publications such as existing academic resource generated by established Chinese journals. The internal capacity of these institutions including dedicated publishing departments and professional editorial teams also reduces the marginal cost of managing a full-service relationship.

Under fluctuating conditions where funding levels, editorial capacity, or policy priorities may change, TAC will vary accordingly. However, because medical universities operate in a

relatively low-risk policy environment and benefit from institutional support, their TAC remains moderate and manageable compared to smaller or less-supported entities. This enables universities to weigh TAC more flexibly against other key considerations. While full-service models entail higher publishing fees, these costs are often offset by government subsidies or internal budget allocations specifically designated for journal development. Additionally, university editorial offices typically operate on a non-profit basis, with their goals centered on academic advancement, reputation building, and international recognition rather than commercial return. As such, they tend to place greater emphasis on the extra benefits associated with full-service partnerships, including accelerated journal growth, enhanced branding, indexing consultancy, and expanded global marketing reach. These advantages align closely with the broader strategic missions of medical universities under national higher education policies.

In some cases, where budget constraints arise such as at the conclusion of a grant period of CAST programs, the editorial office may shift to a fee-for-service model to maintain editorial independence while controlling costs. Conversely, if a journal gains greater policy recognition or funding in the next phase, the institution may consider intensive-service models for high-impact titles, especially new journals that require rapid development.

In summary, medical universities select publishing models by optimizing the trade-off between TAC, publishing fee, and extra benefits. The relatively sustainable funding, institutional scale, and editorial specialization in universities lower the relative burden of TAC, making the full-service model the dominant choice. However, their capacity to flexibly transition between models depending on policy shifts, funding changes, and journal development stages demonstrates the adaptive nature of university and publisher partnerships in China’s evolving academic journal publishing landscape.

5.1.4 Case study analysis: empirical validation of the theoretical model on publishing partnership selection between medical universities and publishers

This section reconstructs paired cases for each institution, the local editorial office and its international publishing partner, to empirically validate the theoretical framework developed in Section 3.2. In this study, we treat major international publishers as roughly comparable in scale and capability, since each can provide the full range of journal publishing services. The case shows how asset specificity, government support, and publishing-entity size shape TAC levels. These TAC levels, in turn, interact with publishing fees and meaningful extra benefits provided by the publisher to impact the decision. Taken together, TAC, fees, and extra benefits jointly

determine the dominant partnership model, most commonly favoring a full-service arrangement in university–publisher collaborations. The analysis also examines each party's willingness to consider alternative models from the perspective of a dynamic balancing of cost pressures, institutional capacity, and expected returns.

5.1.4.1 Interview of the managing editor of the editorial office in Traditional Chinese Medicine University

The university, established in 1958, is a national leader in Traditional Chinese Medicine and benefits from strong government support. To enhance global visibility, it launched an E-L journal with support from the CAST PIIJ program, receiving a USD 75,000 startup grant and obtaining its CN number in 2020. Ongoing operations are funded through national research grants, institutional allocations, and cross-subsidization from established Chinese-language journals. These combined resources and institutional commitments demonstrate the university's high asset specificity, as it invested heavily in launching a strategically important journal designed to enhance the international visibility and academic influence of Traditional Chinese Medicine.

The editorial office is well resourced and operates as an internal university department with 10 staff members. It manages three Chinese-language journals and one E-L journal, with dedicated teams for each. The E-L journal team is led by a handling editor responsible for manuscript processing, peer review coordination, and stakeholder communication. Strategic leadership is provided by the editorial director, who oversees external engagement and journal development. Additional administrative support from centralized legal and financial departments ensures efficient operations.

(1) Pre-contractual transaction costs

Part 1: search and information costs

Regarding search and information costs, during the early stages of journal establishment, the editorial office invested significant effort into searching for and evaluating potential publishing partners. Over a six-month period, the managing editor and an editorial assistant collected background information, sought peer recommendations, and acquired practical insights into publishers' reputations and service capabilities. Academic publishing conferences played a particularly valuable role during this phase. These events allowed the editorial office to engage directly with editors of peer journals, facilitating efficient information exchange and first-hand recommendations. Based on this research and peer input, the editorial office ultimately approached four candidate publishers through email and phone communication. Two

of them quickly declined after reviewing the journal's scope and development plans, citing a lack of alignment. The remaining two expressed willingness to explore potential collaboration, reflecting the challenges of matching interests at an early stage of a journal's development. A significant hurdle in the information-gathering process was the requirement to complete a detailed "Request for Proposal" (RFP) from potential publishers. This step was unexpected and confusing to the editorial office, as the team had not anticipated such extensive documentation, especially from the position of what felt like a "buyer." The RFP, required in English, was time-consuming and demanding. It included sections such as a full editorial board list—an especially difficult request for a new start journal still in its planning phase.

In summary, the search and information-gathering process incurred substantial transaction-associated costs. These included direct resource inputs such as staff time and labor as well as indirect costs related to navigating unfamiliar procedures, language barriers, and the administrative burden of publisher-specific documentation. The complexity of the pre-contractual phase reflected the editorial office 's high asset specificity and the university's strong interest in securing a reliable, long-term publishing partner aligned with its strategic goals.

Part 2: Negotiation and decision-making costs

In terms of negotiation and decision-making costs, this phase further contributed to the high pre-contractual TAC. Publishers typically proposed full-service models, covering production, peer review systems, digital infrastructure, financial operations, and marketing. Given that these contracts generally span five years, the editorial office recognized the need for careful evaluation to ensure strategic alignment.

Drawing on lessons from peer E-L journals, the editorial office concluded that retaining full ownership of the journal was essential to safeguard editorial independence and maintain flexibility for potential future publisher changes. While one publisher proposed a shared ownership model in exchange for reduced fees, the editorial office declined this offer, opting instead to pay a premium for complete control over editorial and operational decisions. Funding from CAST PIIJ and the university's initiative was sufficient to support these costs, including publishing fees, editor honorariums, invited manuscript expenses, and general operations. The negotiation process involved three EO staff members and was supported by the institution's finance and legal departments. They had more than eight rounds of discussions, both via phone and face-to-face meetings. These negotiations focused primarily on pricing, service scope, and ownership terms. Contract review extended over one to two months and required extensive revisions to align with Chinese legal frameworks and institutional expectations. One of the most

time-consuming aspects was waiting for publisher responses to the editorial office 's proposed contract amendments.

In summary, the editorial office incurred high TAC during this phase due to sustained staffing involvement, multiple negotiation rounds, and complex internal coordination for legal and financial compliance.

(2) The post-contractual transaction-associated costs: monitoring and enforcement costs

This phase involved substantial monitoring and enforcement efforts, particularly during the initial adaptation period of approximately six to eight months. The editorial office worked closely with the publisher to complete key setup tasks, including ISSN application, journal design, production workflows, peer review system configuration, author guidelines, and website development. Three to four times per week communication was required to coordinate progress and resolve issues, with the editorial office actively involved in operational decisions such as system testing and design approval.

At the same time, the editorial office established the journal's academic framework, including scope, article types, peer review policies, and editorial board composition, while regularly reporting progress to institutional stakeholders. A major challenge was manuscript acquisition, as most submissions had to be actively solicited. This required continuous follow-up with authors, alongside pressure from the publisher to meet production timelines.

Communication inefficiencies increased enforcement costs. Collaboration with the publisher's overseas production team was hindered by language barriers, leading to reliance on email communication, which was often slow, with response times typically ranging from three to five days. Although local support by the publisher was available, delays and limited flexibility in service customization required persistent follow-up from the editorial office to maintain workflow efficiency and quality standards.

Over three years of collaboration, the editorial office developed greater operational efficiency and experience. While ongoing coordination and strategic discussions remained necessary, these tasks were handled more effectively. Because of this, the editorial office now feels more confident about managing any changes in publishers when the current contract ends. They have learned how to find and evaluate new publishing partners, respond to RFP, negotiate better terms, and organize meetings more efficiently. This means they can now complete the process of choosing and starting a new partnership much more quickly, giving them more flexibility and control over the journal's future development.

(3) Evaluation of partnership benefits

This section explains what the editorial office gained from the full-service publishing

partnership, looking at both the practical benefits and the long-term value compared to the costs involved. The primary financial investment in the full-service publishing model was the per-article publishing fee, set at approximately USD 1,800, with an annual output of 32 to 40 articles. In addition to this direct cost, the editorial office committed significant indirect resources particularly time and labor toward publisher selection, negotiation, administrative coordination, and internal staffing.

Despite these costs, the editorial office considers the investment worthwhile. The publisher's services aligned well with the editorial office 's expectations, particularly in laying a strong foundation for the journal's international development. According to the 2021 CMA survey, the leading reasons editorial offices choose international publishing partners include publisher reputation and influence (60%), global marketing capabilities (15%), and efficient production (7%). The current publisher satisfied these priorities, notably through a well-managed open-access model that removed access barriers and increased global visibility.

A particularly valuable benefit was the publisher's guidance on indexation strategy. With their support, the journal was successfully indexed in the Directory of Open Access Journals (DOAJ), significantly enhancing its credibility and discoverability. This indexation also helped attract submissions from outside China, partially resolving the editorial office 's early challenge of soliciting content for a new journal lacking an impact factor. The publisher's strong brand recognition further supported manuscript solicitation; authors were more receptive to invitations based on trust in the publisher's reputation. Additionally, the cascading of suitable manuscripts from the publisher's other journals in the same field helped maintain a steady content pipeline.

Operational efficiency also improved over time. By the third year of collaboration, the editorial office and the publisher had established smoother workflows, with the time from manuscript acceptance to online publication reduced to approximately 40 days—exceeding the industry average. This allowed the editorial office to shift its focus toward core editorial activities such as academic outreach, author engagement, and quality content acquisition.

Although the editorial office initially faced a steep learning curve during the pre- and early post-contractual phases, the partnership enabled them to acquire valuable international publishing knowledge. This experience enhanced their understanding of global ethical standards, peer review management, and collaborative publishing practices. As a result, the editorial office is now more confident in managing future partnerships, responding to RFPs, and negotiating favorable terms with prospective publishers. In retrospect, the long-term benefits—such as accelerated professional development, increased journal reputation, and a

reliable foundation for sustained growth—clearly outweigh the initial financial and operational investments.

(4) Willingness to change to alternative models

In the aspect of willingness to consider alternative models, despite the overall satisfaction with the current full-service publishing arrangement, the editorial office has expressed additional expectations for publisher support—particularly in the context of China's unique academic publishing environment. The editorial office emphasizes that, unlike commercial priorities often emphasized by international publishers, Chinese institutions focus more on international reputation, scholarly impact, and alignment with government-led academic goals. As such, the editorial office expects more tailored support, especially in soliciting high-quality submissions and increasing the journal's academic visibility through citations rather than simply increasing the volume of published articles.

Another area of concern is the journal's global outreach. The editorial office strongly values international exposure, particularly through in-person participation and sponsorship at key academic conferences. However, the publisher's recent trend toward cost-saving through digital-only promotions has limited such opportunities. The editorial office views this shift as insufficient for achieving the journal's long-term visibility goals and sees enhanced offline engagement as a critical area for improvement.

In light of these concerns, the editorial office remains cautious about switching to an intensive-service model in which the publisher would take on broader operational responsibilities such as editorial office management, manuscript handling, and content solicitation. While they recognize the potential benefits—like stronger marketing support and increased brand association, the editorial office believes its current internal staffing is capable of managing editorial operations effectively. More importantly, the editorial office is committed to maintaining full editorial independence. Increased publisher involvement could risk diluting editorial control, which the editorial office views as essential for ensuring long-term flexibility, including the ability to change publishers if necessary.

Similarly, the editorial office shows little interest in moving to a fee-for-service model involving multiple vendors. They believe that such a shift would undermine the journal's association with the current publisher's established international brand—an important factor in building credibility and attracting submissions.

5.1.4.2 Interview of the journal publisher in the international publisher of TCM University's journal

The company has a strong reputation in pharmacognosy and medicinal plant science, with several well-regarded journals in this field. Traditional Chinese Medicine particularly research on natural products overlaps substantially with international medicinal plant science. They have observed rapid growth in high-quality, well-cited E-L submissions from Chinese authors. Partnering with a Chinese university therefore aligns with their strategic interest in building strong connections in Chinese research community while reinforcing their leadership in pharmacognosy and medicinal plant science. The new journal's scope fits seamlessly within the existing portfolio, strengthening our overall market positioning and creating cross-portfolio synergies.

(1) Pre-contractual transaction-associated costs

Part 1: search and information costs

The editorial office approached the publisher directly, pointing to their established reputation with leading journals in this field. The university's level in traditional Chinese medicine was already familiar to them and, given China's national evaluation systems and the local intelligence provided by their China office, they were able to assess its standing quickly. As a result, search costs on their side were minimal, and they were able to move swiftly into exploratory discussions.

From a TAC perspective, the main pre-contractual costs came from gathering information from the editorial office and coordinating production requirements. The editorial office was unfamiliar with international publishing practices and struggled to translate local routines into a format consistent with their global processes. The RFP proved to be the most demanding part of this stage, as it was entirely new to the editorial office. For us, however, the RFP is essential because it provides a clear and structured record of the journal's status, development plans, and the editorial board's ability to manage the journal sustainably. While the editorial office initially preferred informal discussions, they required detailed written documentation. Even after the RFP was submitted, several weeks were spent clarifying gaps and correcting inconsistencies, which added to coordination costs. Much of this additional work was handled by their China office, which guided the editorial office through the forms, provided standardized checklists, and reorganized requests for information in stages to reduce repeated effort.

In parallel, the publisher conducted its internal evaluation, assessing institutional credibility, portfolio alignment, and the adequacy of editorial resources. Preparing the full-service proposal

followed established procedures and involved a moderate level of internal cost. Overall, this stage was characterized by low search costs but higher information and coordination costs, with the RFP process serving to reduce uncertainty and improve confidence in the partnership.

Part 2: Negotiation and decision-making costs

Based on a positive internal assessment, the publisher initially proposed a shared-ownership model with reduced fees to support long-term collaboration. However, this approach was not aligned with the institutional and policy context in China, where strong emphasis is placed on ownership independence. In response, the publisher adjusted its offer, and both parties agreed on a full-service model in which the university retained full ownership. Supported by stable funding from the CAST program and institutional resources, the editorial office accepted the proposed pricing and agreed on a five-year contract.

From a TAC perspective, the most resource-intensive aspect of this phase was contract negotiation and finalization. While the publisher relied on a standardized international contract template, extensive revisions were required to comply with Chinese legal and institutional requirements. This process involved multiple iterations and coordination between headquarters and the China office, increasing decision-making and coordination costs. The China office played a critical intermediary role, translating regulatory expectations and facilitating alignment between both parties.

In summary, while the publishing model and financial terms were agreed upon efficiently, contract finalization required sustained coordination and adaptation. Although negotiation costs were higher than typical, they remained manageable and contributed to building mutual trust and a stable, well-aligned partnership.

(2) The post-contractual transaction-associated costs: monitoring and enforcement costs

After the agreement was signed, the main task was to put the partnership into practice. From a TAC perspective, the initial phase involved relatively high monitoring and coordination costs. The editorial office and publisher collaborated closely on key setup activities, including defining journal scope, configuring the peer review system, designing the website, and establishing production workflows. Frequent communication was required, but language barriers and differences in working practices led to occasional delays and inefficiencies. The publisher’s China office played an important mediating role by clarifying requirements and facilitating communication between the editorial office and international teams. Over time, these coordination costs declined as both parties became more familiar with processes and expectations. Communication improved, and routine workflows required less supervision.

At the same time, the editorial office placed strong emphasis on indexation, which is a

central performance indicator for Chinese journals. While their full-service model normally includes standard consulting on index applications, in this case the editorial office expected a much more ambitious plan, covering as many databases as possible and following a clear timeline. To meet this expectation, they went beyond the usual package and developed customized indexation strategies, including step-by-step roadmaps for achieving inclusion at different stages of the journal's growth. This tailored support was resource-intensive at first but created significant value for the editorial office and strengthened the partnership. Another important aspect of the post-contractual stage was staff training. They provided guidance on the use of the peer review system and shared broader publishing skills, helping the editorial office build confidence in international practices. These efforts not only reduced monitoring costs in the long run but also created an additional benefit for both sides in that the editorial office gained new skills, and their collaboration became more efficient.

In summary, post-contractual TAC was high during the implementation period but decreased steadily as workflows stabilized and staff capacity improved. The additional services they provided such as tailored indexation strategies went beyond the standard full-service package, reflecting the editorial office 's strong desire for rapid and broad index coverage. This experience also raised important questions about whether more intensive or flexible service models might be needed in future partnerships.

(3) Evaluation of partnership benefits

From the publisher's perspective, the financial returns of this partnership are straightforward. They receive the standard fee for the full-service model, a structure their team is experienced in managing and for which their costs are well controlled. However, their long-term objective is not limited to a fixed service fee. They expect the journal to grow over the next five years, both in terms of article output and in reputation, so that it can begin charging APCs. At that point, revenue-sharing above the basic publishing fee would generate greater financial returns for us.

However, at the current stage the most valuable gains are not financial but strategic. Working with this CAST-sponsored journal has raised their visibility in China and helped attract other CAST project journals to approach us for potential partnerships. Chinese medicine, as a nationally distinctive and internationally significant field, provides a strong complement to their established strength in complementary medicine in the Web of Science category. By adding this title, they reinforce their leadership in this subject area and expand their reach into a community of authors and readers that is central to China's research priorities.

The partnership has also delivered clear operational and reputational benefits. Indexation

achievements, especially early inclusion in key databases, enhanced the journal's credibility and visibility. The editorial office 's staff developed stronger publishing skills through their training and joint problem-solving, which in turn made collaboration smoother and more efficient. Finally, their association with a high-level Chinese university has further strengthened their reputation as a trusted international partner in scholarly publishing.

Taken together, the publishing fee ensured financial stability, while the additional benefits including portfolio expansion, closer links in China, improved workflows, and enhanced reputation represent equally important outcomes. These complementary gains explain why the full-service model has proven effective at this stage of the journal's development.

(4) Willingness to offer alternative models

From the publisher's perspective, the current full-service model has worked effectively and continues to provide a stable framework for collaboration. However, they also recognize that the editorial office has expectations that go beyond their standard service package. In particular, the editorial office place heavy emphasis on international visibility, citation impact for applying for international databases, and alignment with government-led goals, rather than simply increasing the number of published articles. To meet these expectations, they have already expanded their role in areas such as customized indexation strategies and the editorial office 's staff training, which go beyond the standard services included in the full-service package.

Regarding marketing and outreach, they acknowledge the editorial office's concerns about the limitations of digital-only promotion. While digital campaigns are cost-efficient and scalable across their portfolio, they also understand the importance that Chinese partners attach to physical presence at international conferences. This is an area where they are willing to explore additional service options whether through tailored conference sponsorships, promotional packages, or cooperative outreach strategies provided that the additional costs are covered by the institution.

When asked about the possibility of moving to an intensive-service model, they see both opportunities and challenges. On the one hand, such a model could allow them to more systematic manuscript solicitation, deeper integration of the journal into their global editorial and production workflows and provide stronger marketing support. On the other hand, they are fully aware of the editorial office 's insistence on maintaining editorial independence and institutional control. They therefore do not view intensive-service arrangements as realistic under current conditions, although they remain open to discussing selective add-on services that could address specific needs without undermining editorial authority in the future.

As for a fee-for-service model with multiple vendors, they believe this approach would be

less effective for a journal at this stage of development. One of the key assets they provide is the global awareness of their company's brand and cross-portfolio visibility. Fragmenting services among different vendors could weaken that benefit and introduce new coordination costs for the editorial office. For these reasons, they consider fee-for-service a less attractive option compared to maintaining the current full-service arrangement with the possibility of tailored add-ons.

In sum, while they continue to see the full-service model as the most appropriate basis for the partnership, they are prepared to offer targeted enhancements.

To compare the experiences and viewpoints of both sides in the TCM University journal partnership, annex A supplementary Table a.6 presents a summary of major findings from the editorial office and the international publisher, highlighting their differences in transaction costs, funding, benefits, and model decisions.

5.1.5 Partnership model selection between university and international Publisher

5.1.5.1 Scope of the discussion

In the university context, the full-service model is the dominant partnership arrangement and serves as the baseline for analysis. Accordingly, this section focuses on whether and under what conditions universities may consider transitioning from the full-service model to either fee-for-service or intensive-service arrangements. The transition from full service to fee-for-service reflects an attempt to achieve cost control or greater autonomy. The transition from full service to intensive service represents a move toward deeper integration and accelerated the journal growth. These potential shifts are theoretically significant because they reveal how universities weigh TAC, publishing fees, and extra benefits when optimizing partnerships.

The comparison between fee-for-service and intensive-service models is not discussed here, as universities seldom employ these two models concurrently, and there are no known cases of direct transition between them.

5.1.5.2 Discussion of full-service model vs. fee-for-service model

The comparison between full-service and fee-for-service models provides insight into how universities balance TAC, publishing fees, and extra benefits when determining their preferred partnership structure. In the mathematical framework developed in Chapter 3, the equilibrium outcomes $E = (0,0)$ and $E = (1,1)$ represent two stable strategies. $E = (0,0)$ corresponds to both parties adopting the full-service model, while $E = (1,1)$ corresponds to mutual adoption of the fee-for-service model.

According to the evolutionary game model, equilibrium at $E = (0,0)$ becomes evolutionarily stable when the difference in transaction costs between the full-service and fee-for-service models is smaller than the combined advantage of the difference in publishing between the full-service and fee-for-service models and extra benefits. Formally, stability is achieved when

$$\left(TAC_{ful}^{e} - TAC_{con}^{e}\right) - (b_0 + a_1 - b_1) < 0,$$

$$\left(TAC_{ful}^{p} - TAC_{con}^{p}\right) - (b_1 + a_3 - b_0) < 0,$$

These inequalities suggest that as long as the difference in TAC between the full-service and fee-for-service models remains below the value of the combined advantage, both parties have no incentive to deviate from the full-service strategy. Under such conditions, the perceived gains from the full-service model such as the stronger visibility of the journal or greater operational efficiency outweigh its higher coordination costs and the difference of publishing expense between two models, making it the rational and stable equilibrium choice for both the university and the publisher.

The case study of partnership model selection between a university and an international publisher reflect that these conditions are met in practice. The full-service model achieves stability because it optimally balances efficiency and benefit both partners. For universities, the key advantage lies in the magnitude of the extra benefit a_1 of enhanced visibility, faster indexation, and stronger reputation. These benefits far outweigh the modest savings that might be achieved under a fee-for-service arrangement. At the same time, both the transaction costs of the full-service model TAC_{ful}^{e} and those of the fee-for-service model TAC_{con}^{e} are manageable within universities' administrative capacity. University editorial offices are professionally staffed and institutionally supported, and their organizational structures are capable of coordinating efficiently with publishers. Thus, while each model entails coordination, communication, and monitoring costs, these costs remain under control and do not fundamentally affect model choice. The difference in TAC levels is therefore not the determining factor; instead, universities choose the full-service model mainly because of the substantial extra benefits it provides. For publishers, the logic is similar. The extra benefit a_3 gained from associating with prestigious universities, securing high-quality manuscripts, and enhancing portfolio credibility is substantial and easily compensates for the moderate coordination costs of managing university journals. From a transaction cost perspective, universities are predictable partners with stable funding, clear governance, and professional staff, which further reduces the uncertainty and risk inherent in partnership management.

Overall, the empirical evidence supports the theoretical prediction that when **e**xtra benefits are large and TAC differentials remain moderate, both parties converge naturally toward the full-service equilibrium.

Theoretically, $E = (1,1)$ becomes a stable equilibrium only when the transaction costs of full-service publishing exceed those of the fee-for-service model for both parties:

$$TAC^{e}_{con} - TAC^{e}_{ful} < 0$$

$$TAC^{p}_{con} - TAC^{p}_{ful} < 0$$

In other words, if universities and publishers find the operational and coordination costs of the full-service model excessively high, they would prefer to adopt fee-for-service arrangements. Under this model, the university acts as the primary contractor, independently coordinating vendors for peer review, production, dissemination, and marketing, while the publisher provides only discrete technical or platform services for a fixed fee. However, empirical evidence suggests that these conditions are rarely met. In reality, the transaction costs of full-service publishing remain acceptable, while those of fee-for-service are significantly higher due to increased coordination burdens on the university's side. Fee-for-service requires universities to manage multiple vendors, maintain separate workflows for production and dissemination, and ensure quality control that substantially raises internal TAC. Interview data further confirm that universities view the fee-for-service model as inefficient. Even though it offers greater financial transparency and autonomy, it requires extensive project management capacity that most editorial offices are unwilling to develop. The potential savings in publishing fees do not compensate for the increased TAC and reduced access to the publisher's international marketing network, making fee-for-service less attractive in practice. From the publisher's perspective, the difference between TAC^{p}_{con} and TAC^{p}_{ful} is relatively moderate, as both full-service and fee-for-service offerings fall within the publisher's established business scope and can be delivered through standardized internal processes. However, in practice, the publisher perceives the fee-for-service model as less attractive for the university, as it weakens portfolio-based advantages and increases the university's coordination burden.

Both the theoretical framework and empirical evidence indicate that full-service is the ESS for university–publisher partnerships. The large extra benefits and controlled TAC differentials satisfy the stability conditions for the full-service equilibrium. In contrast, the fee-for-service model remains a theoretical possibility but lacks practical appeal because it introduces higher coordination costs, delivers lower reputational returns, and limits opportunities for long-term strategic collaboration.

5.1.5.3 Discussion of full-service model vs. intensive service model

In the mathematical model, equilibrium points $E = (0,0)$ and $E = (1,1)$ represent two stable states: $E = (0,0)$ corresponds to both parties adopting the intensive service model, while $E = (1,1)$ reflects mutual adoption of the full-service model. In practice, the university and publisher partnerships examined in this study align closely with the E=(1,1) outcome predicted by the model.

In this formulation, the inequality for the editorial office shows that what ultimately matters for stability is the difference in transaction costs between the intensive-service and full-service models. The extra benefits linked to the intensive-service model do not appear in the final expression because they cancel out when the two strategies are compared. As a result, whenever the transaction cost of the intensive-service model exceeds that of the full-service model, the net payoff from full-service remains higher. In other words, if $TAC_{int}^{e} > TAC_{ful}^{e}$, the full-service equilibrium persists, regardless of how large the potential extra benefit of the intensive-service model might be.

$$(b_0 + c_1 - a_0 - a_1) - \left(TAC_{int}^{e} - TAC_{ful}^{e}\right) < 0$$

$$TAC_{ful}^{p} - TAC_{int}^{p} < 0$$

In practice, universities occupy a relatively stable position supported by strong administrative structures, established editorial offices, and predictable funding streams through initiatives such as the Double First-Class program and CAST funding. These institutional conditions allow universities to manage routine editorial and operational tasks effectively. However, moving toward an intensive-service model would require substantially higher transaction costs, including more complex negotiations, deeper workflow integration, and extensive coordination between the editorial office and publisher. Because these coordination costs exceed those associated with the standard full-service arrangement, the intensive-service model becomes less attractive in practice—even if it may offer certain additional benefits. From the university's perspective, the full-service model remains advantageous because it provides professional publishing support without imposing the higher coordination burden inherent in intensive-service arrangements.

For publishers, they face lower TAC under full-service than under intensive service because the former involves fewer negotiable items and less complex coordination. Full-service partnerships allow publishers to operate standardized platforms for production, marketing, and distribution with minimal on-site management, benefiting from portfolio-wide economies of scale. In contrast, the intensive-service model requires embedded staff, customized

coordination, and continuous operational oversight, which substantially increases monitoring and adaptation costs without producing proportional gains in journal content increase or revenue. Thus, in practice $TAC^p_{ful} < TAC^p_{int}$ holds particularly when working with financially stable university partners. The incremental benefits of deeper integration are smaller than the additional management costs, leaving publishers with no incentive to deviate from the full-service strategy. This outcome corresponds to the stability of the $E = (1,1)$ equilibrium predicted by the evolutionary game model.

Theoretically, equilibrium at $E = (0,0)$ where both the university and the publisher adopt the intensive-service model becomes evolutionarily stable only when the additional transaction costs of this model are smaller than the extra benefits generated through deeper integration. Stability occurs when:

$$\left(TAC^e_{int} - TAC^e_{ful}\right) - (a_2 - b_2 - a_1 + b_1 + c_1) < 0,$$

$$\left(TAC^p_{int} - TAC^p_{ful}\right) - (b_2 + a_4 - c_0 - c_1) < 0,$$

meaning that both parties will remain in the intensive-service equilibrium only if the incremental advantages such as faster journal growth or enhanced coordination exceed the difference in transaction costs between intensive-service and full-service.

In practice, universities seldom satisfy these conditions. With strong internal editorial capacity, stable funding and established governance systems, universities experience higher transaction costs and minimal added benefit from embedded publisher staff. The intensive-service model introduces additional items of negotiation, oversight, and complexity without delivering proportional returns. For these reasons, universities prefer to remain in the full-service arrangement, where professional publishing support can be obtained without sacrificing autonomy.

For publishers, the intensive-service model also entails greater TAC than full-service partnerships because it requires asset investment such as on-site staffing and continuous oversight. While the model may accelerate journal growth for resource-limited institutions, it offers few advantages when collaborating with well-funded universities that already manage stable editorial workflows. Under such conditions, the incremental benefits of deeper integration are smaller than the additional management costs, leaving publishers with little incentive to adopt or maintain intensive-service arrangements. Consequently, the $E = (1,1)$ full-service equilibrium remains the more stable and cost-efficient outcome for both parties.

In conclusion, both the theoretical model and empirical evidence demonstrate that full-service remains the ESS for university–publisher partnerships. Universities' stable funding,

comprehensive editorial capacity, and strong policy backing diminish the relative appeal of intensive-service arrangements. The extra benefits provided by intensive-service are not substantial enough to justify the higher publishing fee, while the TAC differential between the two models remains manageable. As a result, both parties converge on the full-service equilibrium, which offers an optimal balance of stability, efficiency, and visibility in the context of university-based E-L medical journal publishing in China.

5.2 Partnership model between hospitals and international publishers

5.2.1 Background of the partnership between hospitals in China and international publishers

Hospitals occupy a distinctive position within China's academic publishing ecosystem. Compared with universities and associations, hospitals are primarily clinical entities whose key responsibility is patient care. Nevertheless, they are also charged with supporting education and research in affiliation with universities, and many operate national key disciplines or clinical specialties recognized by the National Health Commission of the People's Republic of China (NHC) (Wang et al., 2024). For these reasons, hospitals have become important but structurally constrained sponsors of medical journals, including E-L titles intended to enhance international visibility.

Hospitals' motivation to launch E-L journals reflects their dual clinical and academic roles. On the one hand, they seek to showcase clinical expertise and translate frontline practice into academic output, using journals as platforms to disseminate innovations, case studies, and treatment outcomes globally (Zhang et al., 2022). On the other hand, they must respond to policy expectations that link scientific communication to postgraduate education, research performance, and professional development (Wang et al., 2024). Evidence from the CAST program further illustrates this point: all 14 hospital-based journals in the program are run by university-affiliated hospitals. Launching E-L journals therefore reflects not only the hospital's pursuit of institutional prestige but also national policies that tie publication output to education, graduation, and professional development requirements (Huang, 2024).

Despite this enthusiasm, hospitals face greater constraints than universities in journal development. Unlike universities, hospitals do not benefit from stable annual allocations earmarked for journal publishing. Their government funding is typically project-based, tied to short-term programs such as national key laboratories, clinical research centers, or CAST

initiatives. Once such projects conclude, financial support may diminish, leaving journals vulnerable to discontinuity (M. Yang et al., 2016).

Policy documents such as CAST funded programs have extended some support to hospital journals, but in practice hospitals receive a smaller share of these funds compared to universities and associations. In the CAST funded portfolio, only 15 hospital-led journals were selected for funding. These journals frequently adopted international publishing partnerships to compensate for their weaker in-house infrastructure (Ding et al., 2022). In short, while hospitals enjoy clinical policy recognition through "national key specialties," their publishing activities remain relatively underfunded and more exposed to risk compared with titles published by universities and associations.

This funding pattern reflects hospitals' priorities. Clinical service remains the core mission, while academic activities including journal publishing are often treated as secondary responsibilities. As several studies note, editors-in-chief are frequently hospital presidents or department heads, who can guarantee financial support but cannot devote sufficient academic time to editorial work (Jiang & Wang, 2016; M. Yang et al., 2016). Editorial offices are typically small, sometimes consisting of only two full-time staff, supported by part-time clinicians serving as scientific editors. Such staffing arrangements exacerbate the reliance on external publishing partners, as internal teams struggle to solicit manuscripts, manage peer review, and maintain international standards (Y. Li et al., 2023).

Nevertheless, hospital journals benefit from strong clinical integration. They generate continuous clinical data and maintain close links with practicing physicians, who contribute as authors and editorial board members (Zhang et al., 2022). In addition, their role in postgraduate education provides a steady pipeline of submissions from students and researchers. (Wang et al., 2023).

In summary, hospitals are active but constrained participants in China's international publishing landscape. While driven by the need to enhance clinical visibility and meet policy expectations, their limited funding and editorial capacity shape a stronger dependence on external partners and influence the choice of publishing models in collaborations with international publishers.

5.2.2 Partnership model between hospitals and international publishers

In China's E-L medical journal landscape, the full-service model remains the dominant partnership framework for hospital-led journals, as it is the standard arrangement offered by most international publishers. According to CAST program data, 11 of the 15 funded hospital

journals have adopted the full-service model (Ding et al., 2022). This structure significantly reduces the editorial office's operational burden and enhances global visibility. Only three hospital journals operate under fee-for-service models. This limited adoption reflects the characteristics of hospital publishing: such arrangements require stronger in-house editorial management and coordination capacity than most hospitals possess (Wang et al., 2024). Nevertheless, these cases suggest that when publishing fees are relatively low, fee-for-service collaborations can be viable for hospitals with smaller editorial teams and moderate budgets.

Compared with universities and associations, hospitals face greater constraints in staffing and funding, which are often project-based and unstable. Combined with strong pressure to achieve rapid indexation and international recognition, these limitations have encouraged the emergence of more integrated collaboration models (Xu & Dong, 2025).

The intensive-service model extends beyond conventional full-service arrangements by embedding the publisher's editorial and operational teams directly within the hospital's editorial office. This high level of integration allows the publisher to participate in daily management, provide hands-on editorial assistance, and lead international promotion efforts, while the hospital retains academic oversight. Typically, the journal operates under a co-ownership structure, ensuring that both parties share responsibility and long-term commitment to the journal's success (Xu & Dong, 2025). AME, a Hong Kong–based publishing company and ACCSCIENCE, a Singapore–based publishing company have published seven E-L medical journals under this model (ACCSCIENCE publishing company, 2025; AME publishing company, 2024). The model is characterized by several distinctive features. It establishes a professional editorial team managed by the publisher but located within the hospital, responsible for submission systems, peer review coordination, copyediting, production, and indexation support. Editorial board management is carried out jointly: the publisher can nominate scientific editors and pay honorarium on behalf of the hospital's EO, while final appointments are made together with the hospital. Content acquisition is strengthened through the publisher's global network, ensuring a continuous flow of high-quality submissions, and the journal is often integrated into a broader cluster of publisher's related titles that share reviewer databases, marketing resources, and production platforms. Figure 5.2 describes the roles and responsibilities of publisher and EO under the intensive service model.

These elements make the intensive-service model particularly well suited to hospitals, which often lack the manpower to sustain complex publishing operations independently. The model transforms the publisher from a service provider into an active partner engaged in academic, operational, and strategic decision-making. In terms of funding, hospitals contribute

to academic prestige, financial input, and institutional support, while publishers invest in technical infrastructure, staffing, and professional expertise. The shared investment and joint accountability reduce uncertainty, enhance trust, and increase the likelihood of achieving stable indexation and sustainable operations within a shorter timeframe.

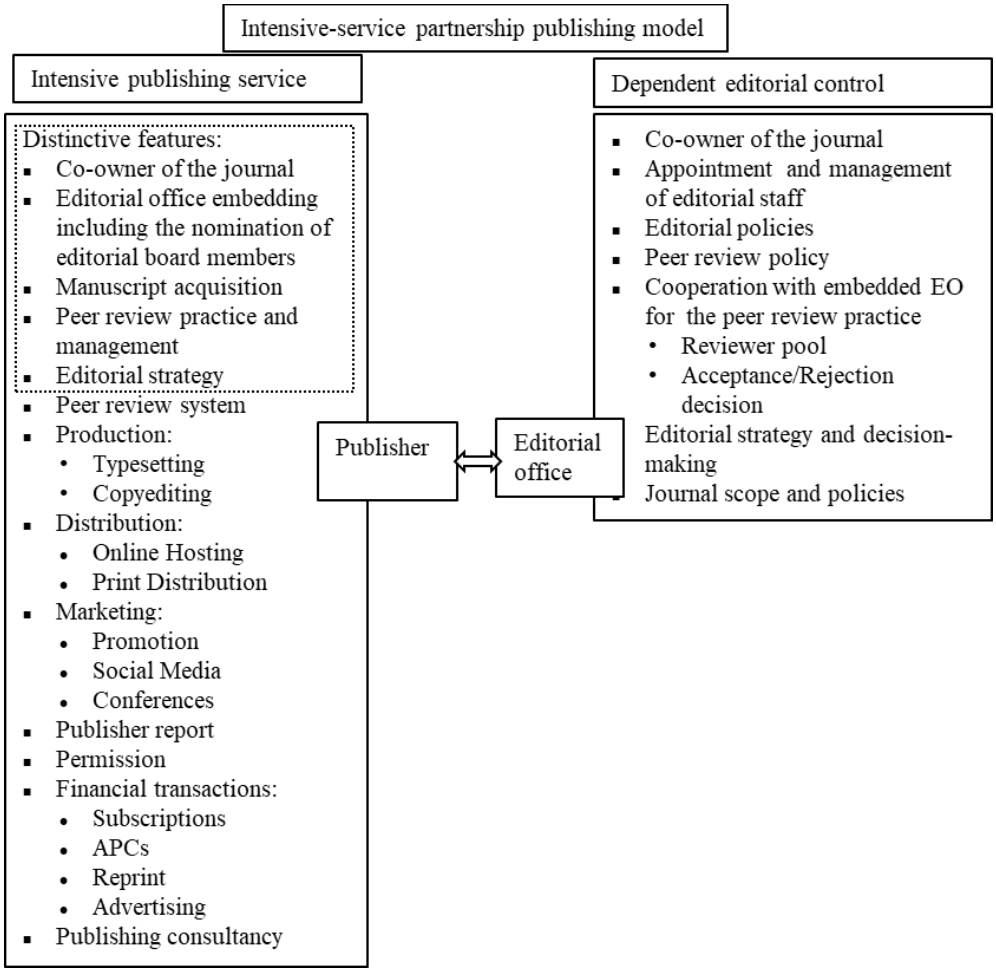


Figure 5.2 Intensive-service partnership publishing model

A central element of the intensive-service model is the joint allocation of specialized assets. Both hospitals and publishers contribute to human, physical, and intellectual assets, but the degree of integration is far higher than in university–publisher partnerships. Many assets such as scientific editors, technical teams, and reviewer networks are managed jointly or by the publisher within the hospital's environment. The inclusion of co-owned intellectual property and jointly invested content further demonstrates the long-term, interdependent nature of this model. Annex A supplementary Table a.7 summarizes the specific asset investment for E-L journals under the intensive-service partnership between hospitals and publishers, highlighting the shared and specialized resources that sustain its high level of operational and strategic integration.

In summary, while the full-service model remains prevalent, the intensive-service model is

gaining traction as a more adaptive and collaborative approach for hospital–publisher partnerships. By combining clinical resources with professional publishing capabilities, it supports faster indexation, improved visibility, and more sustainable journal development.

5.2.3 Publishing partnership mechanism between hospitals and publishers

The publishing partnership choices of hospitals are also shaped by the interaction of TAC, publishing fees, and extra benefits, but the dynamics differ markedly from universities and associations. Hospitals generally have smaller editorial offices, more unstable funding, and closer alignment with clinical service rather than long-term academic strategy. As outlined in Section 3.2.3, fluctuations in asset specificity, government support, and institutional capacity strongly influence TAC, which plays a central role in determining the most suitable model.

Hospital journals operate under clear structural limitations. Editorial offices are often small, sometimes staffed by part-time clinicians, and led by senior administrators whose clinical and managerial responsibilities limit sustained engagement in journal development. These conditions raise both search and coordination costs, as hospitals have limited experience with international publishing standards and must depend heavily on publishers for journal management and development. From a TAC perspective, the lack of specialized editorial assets makes hospital journals more reliant on external partners, thereby reducing efficiency but increasing the value of publisher collaboration.

These high coordination and operational costs explain why hospitals are receptive to intensive-service models when resources permit. By embedding professional staff within the hospital's editorial office, publishers help hospital's editorial office compensate for weak in-house capacity, streamline operations, and accelerate early-stage development. Although intensive-service models require higher expenditure, often nearly double the full-service fee, their comprehensive nature reduces TAC and enhances the likelihood of achieving early indexation. To offset financial pressure, hospitals often obtain supplementary support from industry sponsors or medical foundations, which regard journal partnerships as opportunities for institutional visibility and reputation enhancement.

From the publisher's standpoint, intensive-service models involve higher upfront costs and greater financial exposure but offer long-term strategic benefits. These arrangements create high asset specificity through co-invested staff, infrastructure, and content, which are difficult to redeploy elsewhere. Such co-specialized assets effectively "lock in" both sides, stabilizing the partnership and fostering shared incentives for journal growth. While uncertainty about manuscript supply remains, deep integration enhances journal credibility and strengthens the

publisher's standing within clinical research communities.

Because hospitals lack stable long-term funding mechanisms, they are particularly sensitive to publishing fees and must adjust their models according to financial capacity. Full-service partnerships remain the default option, but hospitals often adopt a flexible, adaptive strategy. When resources allow it, they may upgrade to intensive-service models to accelerate journal growth; during periods of constraint, they may shift to shared-ownership or fee-for-service models to reduce costs while maintaining essential publishing operations.

Extra benefits also play a decisive role in hospital decision-making. Beyond the general advantages of visibility and professionalization shared with universities, hospitals prioritize benefits that address their specific constraints. The most important of these are manpower savings through publisher-managed operations and integration with the publisher's international brand, which enhances author confidence and the probability of indexation. From an asset-specificity perspective, this brand alignment constitutes a co-specialized investment. Hospital journals can gain international recognition and distribution advantages but become more dependent on their publishing partners.

In summary, hospitals select partnership models by weighing TAC, publishing fees, and extra benefits in light of their institutional constraints. Limited manpower and unstable funding make full-service arrangements the most practical baseline, while intensive-service models emerge as attractive solutions when additional resources are available. Although these models entail higher costs and greater dependence, they create asset-specific linkages that strengthen trust and long-term collaboration between hospitals and publishers. When financial pressures arise, hospitals demonstrate flexibility by adjusting toward shared or fee-for-service structures. This adaptive and partnership-oriented mechanism reflects the pragmatic, resource-sensitive character of hospital-based journal publishing in China.

5.2.4 Case study: empirical validation of the theoretical model on publishing partnership selection between hospitals and publishers

5.2.4.1 Interview of the editorial director in the hospital's editorial office

The hospital, founded in 1957, is a leading national center for thoracic and cardiovascular medicine, with particular strength in lung cancer research. In addition to its clinical excellence, it plays a key role in translational research and postgraduate education, providing a strong academic foundation for launching an E-L journal in this field.

As a tertiary hospital, it benefits from government recognition and targeted funding through

national programs. However, unlike universities, its research funding is largely project-based and less stable, with resources primarily allocated to clinical services. This creates constraints for sustained journal investment.

The hospital's editorial office is small, consisting of two full-time staff managing an established Chinese-language journal, supported by clinicians as part-time scientific editors. In 2017, an E-L journal was launched to enhance international visibility, but limited manpower and existing workload slowed its development. This combination of strong academic motivation but restricted editorial capacity led the hospital to seek an intensive-service publishing model, embedding professional publishing staff and delegating daily operations to the publisher. This arrangement offered the most practical solution to manpower shortages and enabled the E-L journal's growth alongside the hospital's existing publications.

(1) Pre-contractual transaction costs

Part 1: search and information costs

The editorial office's search process was not brief. The editorial office initially approached two major international publishers recommended by clinicians, both of which proposed standard full-service models. However, these arrangements did not meet the hospital's needs, as its small editorial team required additional operational support beyond conventional services.

An alternative emerged when a Hong Kong–based medical publisher specializing in intensive-service models contacted the hospital. Given hospitals' typical combination of limited manpower and strong subject expertise, this model aligned more closely with the hospital's needs. Information exchange was relatively efficient, relying on three rounds of face-to-face meetings rather than formal RFP processes. The publisher prepared the proposal, covering editorial scope, governance, ethics, and content development plans. A key feature was the provision of embedded editorial staff and support for recruiting scientific editors. Recognizing content acquisition as a major challenge, both parties agreed on a dual approach combining publisher-led manuscript solicitation and continued outreach by the hospital, reducing internal workload and increasing submission opportunities.

Part 2: Negotiation and decision-making costs

The hospital selected the publisher based on its willingness to provide intensive-service support with shared responsibilities. Negotiations focused on task allocation, performance metrics, and indexation strategy rather than model selection. The hospital accepted higher fees, approximately double those of standard full-service contracts, and agreed to a co-ownership structure. Initial funding was secured through national key laboratory resources, ensuring short-term stability.

A central issue was indexation. The hospital sought contractual milestones for database inclusion and impact factor achievement, while the publisher clarified that such outcomes could not be guaranteed due to external evaluation processes. The final agreement reflected shared incentives to pursue indexation without formal guarantees.

From a TAC perspective, negotiation and decision costs were moderate. The main efforts lay in aligning expectations on indexation and clarifying the financial model, while legal and compliance review proceeded more smoothly than expected, given that both parties' clearly shared interest in rapid progress.

(2) The post-contractual transaction-associated costs: monitoring and enforcement costs

Implementation began with the publisher establishing a dedicated editorial office within the hospital. A managing editor, editorial assistant, production team, and publishing contact were assigned to oversee operations. During the first year, monitoring costs were high, as both sides worked to define responsibilities and build trust. The editorial office and the outsourced team spent significant time clarifying submission targets, dividing solicitation responsibilities, and adapting daily workflows. The two hospital editors had to adjust to a model that was unfamiliar in most Chinese editorial offices, which required extra communication and coordination at the outset.

Despite the heavy initial workload, the hospital's editorial office gained practical experience by working closely with the outsourced team, who provided standardized templates and process documents for tasks such as inviting editors, soliciting submissions, and managing author queries. These tools reduced learning costs and gradually improved efficiency. As the processes stabilized, monitoring costs declined. The hospital retained control over academic policies and the appointment of editors, while the publisher managed submissions, production, author communications, and international promotion. To support indexation, the publisher prepared a staged roadmap, linking editorial policies, issue regularity, and article mix to the requirements of major databases.

(3) Evaluation of partnership benefits

Financially, the intensive-service fee represented a significant investment during the first five years, but it was partly offset by institutional funding and national support for key state laboratories. For the hospital's editorial office, the most valuable benefit was manpower substitution. With only two staff members, the office avoided the need to recruit and train additional editors, while operational TAC was substantially reduced. The embedded team's prior experience with launching and developing medical E-L journals also accelerated growth, enabling the new journal to be indexed in PubMed by the third year and in ESCI by the fifth.

The partnership created efficiencies beyond the English title. By relying on the embedded team, the hospital EO was able to continue managing its established Chinese journal effectively, while also leveraging its academic network from the Chinese title to support submissions for the English journal. The collaboration thus created synergies across both journals.

Another important benefit lies in the asset-specific nature of the intensive-service model. The hospital committed financial support and its academic reputation, while the publisher provided embedded staff and integrated workflows. Because both sides invested resources that cannot easily be redeployed elsewhere, the hospital EO felt assured that the publisher had strong incentives to prioritize the journal's development. This reduced the risk of opportunism and created a more stable foundation for collaboration, which was particularly valuable given the editorial office 's limited internal capacity and its dependence on the partnership for success.

In summary, the hospital EO judged the intensive-service model to be effective despite its higher fee and shared ownership. The combination of manpower substitution, accelerated indexation, and stability through mutual investment represented the core extra benefits that justified the hospital's commitment to this form of partnership.

(4) Willingness to consider alternative models

With stable indexation now in place and a more predictable manuscript pipeline, the current partnership is meeting expectations. APCs have started to generate income, not as a source of profit but as a way to offset publishing fees and reduce the uncertainty of future project-based funding for key state laboratories. The journal is treated primarily as an academic platform and a visible "flagship" of the hospital's subject strengths rather than a revenue-generating source, and APC income is regarded mainly as cost relief.

Given these conditions, the editorial office is satisfied with the present model and has little willingness to change it in the short term. The main concern lies in the difficulty of moving to another publisher under co-ownership. From a TAC perspective, co-ownership reduces the risk of opportunism because both sides have made asset-specific investments and thus share strong incentives to safeguard the journal. At the same time, these same investments create high switching costs. Workflows are embedded in the publisher's systems; brand and journal identity are co-integrated; professional staff and processes are tailored to this title; and contractual provisions governing data, backfiles, and DOIs would make re-platforming complex and risky for authors, editors, and indexation continuity. These conditions provide stability and predictability, but they also limit flexibility to change to other publishers or publish by themselves. The editorial office therefore regards this as a long-term issue rather than a mid-task.

5.2.4.2 Interview of the journal publisher in the international publisher of the hospital's journal

The publisher, headquartered in Hong Kong, is a specialist in medical publishing with strengths in respiratory diseases and oncology. Several of its journals have achieved international visibility and indexation, establishing a growing reputation. Although it lacks the global brand influence of long-established publishers, it differentiates itself through disciplinary focus and flexible, tailored partnership models.

Hospitals represent a key target group for this approach. While they possess strong clinical expertise and motivation to launch English-language journals, they often lack the editorial capacity and publishing infrastructure required. To address this gap, the publisher developed an intensive-service model, embedding professional staff within hospital editorial offices to manage daily operations and provide customized support for indexation and promotion. This model reduces transaction costs and accelerates journal development.

(1) Pre-contractual transaction-associated costs

Part 1: search and information costs

Search costs were modest, as the publisher proactively approached the hospital after learning of its plans through existing networks. The strategic fit was clear from the outset.

Information costs, however, were more substantial. Rather than relying on a formal RFP process, the publisher conducted a series of structured meetings to define the journal's scope, governance, ethics, and content strategy. These discussions revealed the hospital's limited editorial capacity and its inability to manage key tasks such as editorial board development, reviewer recruitment, and manuscript solicitation under a standard full-service model.

In response, the publisher proposed an intensive-service model, embedding editorial staff within the hospital and taking an active role in operational and content-related functions. This included managing workflows, supporting editorial board development, coordinating peer review, and implementing targeted content acquisition strategies. Drawing on prior experience with similar hospital partnerships, the publisher utilized standardized tools and templates, which streamlined the information-gathering process and reduced the burden on the hospital's editorial office.

Part 2: Negotiation and decision-making costs

Given early agreement on the intensive-service model, negotiations focused on task allocation, performance expectations, and indexation strategy. The publisher proposed a fee significantly higher than standard full-service arrangements, reflecting the resource-intensive

nature of embedded staffing and active editorial involvement, and requested co-ownership to balance risk and investment. The hospital accepted both the higher fee and shared ownership, establishing a clear governance structure.

A central negotiation issue was indexation. The hospital sought contractual guarantees tied to financial sustainability, while the publisher emphasized that indexation outcomes depend on external evaluation and cannot be assured. After several rounds of discussion, both parties aligned around shared incentives rather than formal guarantees.

From a transaction cost perspective, negotiation and decision-making costs were moderate, driven primarily by coordination and expectation alignment. Legal and compliance processes were relatively efficient due to the hospital's strong interest in rapid implementation and secured short-term funding.

(2) The post-contractual transaction-associated costs: monitoring and enforcement costs

Implementation began with the establishment of an on-site team, including a managing editor, editorial assistant, and publishing contact, supported by marketing staff. Monitoring costs were relatively high during the first year, reflecting the need to set up publishing systems, launch the journal website, and establish workflows. This phase also required training the hospital editorial office to operate effectively within the intensive-service model. Early clarification of roles and responsibilities, supported by monthly submission targets, ensured coordinated effort: the hospital focused on leveraging its clinical networks, while the embedded team managed international outreach, reviewer recruitment, and daily operations.

As routines became established, monitoring costs declined steadily. The publisher supported editorial board development, manuscript management, production, and promotion, while implementing a staged indexation strategy aligned with database requirements.

From a transaction cost perspective, initial coordination costs were driven by workflow alignment, trust-building, and adaptation to integrated working practices. Over time, standardization and embedded staffing reduced operational burdens, enabling the hospital editorial office to focus on strategic and academic priorities rather than routine publishing tasks.

(3) Evaluation of partnership benefits

From a financial perspective, the intensive-service arrangement provided stable publishing fee income that was higher than a standard full-service contract. While the higher fee offset some of their direct costs, the partnership was never treated as a short-term profit exercise. Instead, the expectation was that once the journal achieved stable indexation and later an impact factor, APC revenue would begin to flow, creating additional returns for both parties.

The more important benefits were strategic. The intensive-service model reduced

coordination frictions for the hospital's small editorial office. Instead of leaving tasks such as submission management and manuscript handling solely to the editorial office, the publisher shared these responsibilities, which eased hospital's workload and made collaboration more efficient. At the same time, the arrangement enabled the creation of specialized, durable assets that were particularly valuable to this young and rapidly growing Hong Kong–based publisher. The journal became integrated with their brand, workflows, reviewer and author networks, and cross-title transfer channels. This integration strengthened pipeline predictability, improved quality control, and accelerated early visibility. The results were evident in the journal's timely indexation in PubMed and ESCI, which built author trust and positioned the title for APC viability. Beyond the journal itself, the collaboration reinforced their standing in clinical oncology, expanded connections with hospital-based research teams, and opened the door to further partnerships with high-profile hospitals in China.

From a TAC perspective, the intensive-service model required higher upfront investment and greater coordination effort than a standard contract. However, these costs were justified by the reduction of long-term uncertainty. By embedding staff and co-owning the journal, both sides committed asset-specific resources that could not easily be redeployed elsewhere. This reduced the risk of opportunism and created stability, ensuring that the partnership would be managed as a long-term endeavour. In practice, the higher short-term transaction costs were offset by the predictability and mutual commitment generated through this model, making the arrangement both sustainable and strategically valuable.

(4) Willingness to offer alternative models

Given the journal's current performance and revenue stream, they continue to regard the intensive-service arrangement as the most appropriate model. Since the journal achieved ESCI indexation, APC income has begun to offset part of the hospital's publishing costs, reducing the financial pressure on both sides and making the partnership more sustainable. From their standpoint, this outcome validates the initial investment and confirms that the model is functioning.

From a TAC perspective, the intensive-service arrangement remains attractive because it balances high initial investment with lower coordination costs over time. Their embedded team continues to share core editorial responsibilities. At the same time, the asset-specific nature of the model including their staff, workflows, and networks integrated directly with the journal creates strong mutual incentives to maintain stability and avoid opportunism. These features make the partnership predictable and efficient, while preserving the long-term growth strategy of the journal. In this context, they see little reason to alter the model.

The editorial office of the hospital and publisher perspectives are complementary, highlighting how capacity constraints, funding patterns, and asset-specific investments shape hospital–publisher partnerships. Annex A supplementary Table a.8 summaries their views across core dimensions of TAC, assets, financing, realized benefits, and model choices.

5.2.5 Partnership model selection between hospitals and international Publishers

5.2.5.1 Scope of the hospital discussion

For hospitals, fee-for-service is rarely a deliberate first choice. Hospital editorial offices are small and already stretched; fee-for-service requires the editorial office to coordinate vendors, supervise quality, and absorb most day-to-day operational work. In TAC terms, it shifts coordination and monitoring costs onto the hospital while offering little relief on staffing. Hospitals adopt it mainly when funding is too limited to afford full support, not because it is well-suited to building a new E-L journal. This pattern is visible in the CAST sample cited earlier: only three hospital journals used fee-for-service, whereas eleven opted for full service, indicating that fee-for-service is not the preferred path for cultivating growth.

Given this context, comparing fee-for-service with full service, or fee-for-service with intensive service, has limited practical value for their purposes. The model is chosen under financial constraint rather than strategic fit, and it is structurally mismatched to hospitals' low in-house capacity. The meaningful decision space for growth-oriented hospital journals lies between full service and intensive service. Both models relieve staffing pressure, both can plausibly support rapid indexation and international reach, and the choice between them turns on the relative TAC, the publishing fee, and the scale and likelihood of extra benefits. Accordingly, the discussion that follows focuses on the full-service versus intensive-service trade-off.

5.2.5.2 Discussion of full-service model vs. intensive service model

The hospital case demonstrates how the choice between full-service and intensive-service publishing models is guided by a complex interaction of TAC, publishing fees, and extra benefits. From a theoretical perspective, the evolutionary game model identifies two possible equilibria: $E = (0,0)$ and $E = (1,1)$. The equilibrium $E = (0,0)$ corresponds to both the hospital and the publisher adopting the intensive-service model, while $E = (1,1)$. represents mutual adoption of the full-service model.

The model predicts that the intensive-service equilibrium becomes evolutionarily stable when the additional benefits of deeper operational integration outweigh the extra transaction-

associated costs (TAC) and higher publishing fees of that model. Stability is achieved when:

$$\left(TAC_{int}^{e} - TAC_{ful}^{e}\right) - (a_2 - b_2 - a_1 + b_1 + c_1) < 0,$$

$$\left(TAC_{int}^{p} - TAC_{ful}^{p}\right) - (b_2 + a_4 - c_0 - c_1) < 0,$$

In practice, based on interview evidence, hospitals approach this equilibrium, $E = (0,0)$, because their institutional characteristics match the theoretical conditions favoring the intensive-service model. Hospital editorial offices are typically small and lack professional publishing manpower, while funding is often project-based and time-sensitive. Under these constraints, the higher TAC of intensive service is offset by its tangible benefits: the embedded publisher team substitutes for limited internal staff, accelerates journal development, and provides a direct pathway to early indexation and visibility.

Hospitals view this model as a means of converting short-term funding into rapid academic output. Although initial coordination costs are high, they decline as routines stabilize, and the joint investment in personnel and workflows creates asset specificity that strengthens commitment and reduces opportunism. The intensive-service model thus becomes a rational and stable choice for hospitals seeking quick international recognition within finite project cycles.

From the publisher's viewpoint, the intensive-service model generates higher short-term TAC because of the need to embed professional staff, maintain continuous coordination, and manage on-site operations. However, this investment is justified when the partnership promises high reputational returns and access to valuable clinical content that cannot be easily obtained through less integrated models. For publishers, hospitals' strong subject reputation and clinical authority create co-specialized assets that help secure long-term market presence. The shared investment in staffing, workflows, and branding aligns incentives and stabilizes collaboration, making $E = (0,0)$ a viable equilibrium despite initially high costs.

A further distinction emerges when comparing hospitals with universities. Although both operate within the same theoretical choice space between full-service and intensive-service models, the perceived additional benefits of deeper operational integration differ sharply. Hospitals, with small editorial teams, limited publishing expertise, and project-based funding, view intensive service as yielding substantial marginal gains: embedded publisher staff substitute for missing internal capacity, accelerate indexation, and convert short-term funding into rapid journal development. Universities, by contrast, already possess established editorial offices, stable funding, and administrative support, which means the extra benefits of integration are modest relative to their existing capabilities. Publishers also adjust their

strategies accordingly. With hospitals, intensive service functions as a commitment mechanism. Because hospitals operate under flexible and less stable funding structures, they can more easily switch providers or disengage unless they are offered deeper operational support. Embedded teams and integrated workflows therefore help publishers stabilize collaboration and reduce partner-exit risk. Universities, however, are financially and institutionally stable partners that do not require high-integration support and are unlikely to shift publishers abruptly. As a result, the additional benefits of intensive service are far lower in university partnerships. These asymmetries in both institutional capacity and partnership stability explain why universities gravitate toward full service, whereas hospitals are more inclined toward intensive-service arrangements, even though both sectors evaluate the same two partnership models.

Full-service partnership remains stable when the additional advantages of intensive are smaller than its additional TAC, when:

$$(b_0 + c_1 - a_0 - a_1) - \left(TAC_{int}^{e} - TAC_{ful}^{e}\right) < 0$$

$$TAC_{ful}^{p} - TAC_{int}^{p} < 0$$

In the hospital sector, full service is still the mainstream model because it offers predictable expenses, standardized workflows, and relatively low TAC. Under typical conditions, hospitals perceive the TAC of intensive service to be higher due to its deeper coordination demands, and therefore the inequalities supporting the stability of $E = (1,1)$ hold.

However, hospitals differ from universities in a crucial way that reshapes the TAC comparison. Hospitals operate with small editorial teams, limited publishing expertise, and strong leadership pressure to demonstrate rapid journal growth within short, project-based funding cycles. These institutional features can compress the TAC gap between the two models, or even make intensive service appear less costly. When hospitals lack the manpower and knowledge to manage journal operations, full-service still requires significant internal coordination, multiple rounds of discussion with the publisher, and ongoing decision-making by hospital leadership. By contrast, under intensive service, the management group often directly supports embedded publisher staff, delegating authority and reducing the number of negotiation rounds. As a result, the effective TAC of intensive service may be similar to, or in some cases lower than that of full service.

When hospitals perceive:

$$TAC_{int}^{e} \approx TAC_{ful}^{e} \; or \; TAC_{int}^{e} < TAC_{ful}^{e}$$

the full-service equilibrium is no longer stable. This shift occurs not only because the intensive-service model generates larger extra benefits for hospitals such as faster indexation

and effective substitution for limited internal manpower but also because the practical transaction cost structure of intensive service becomes more favorable under conditions of constrained editorial capacity and project-based funding. Together, higher net benefits and a compressed TAC gap weaken the stability of the full-service equilibrium and make intensive service a viable and rational alternative. This helps explain why hospitals increasingly adopt the intensive-service model even though the sectoral baseline remains full service. The hospital case in this study represents that institutional constraints reduce the TAC disadvantage of intensive service, making it a viable and rational choice.

For publishers in practice, the situation is different. The TAC of intensive service is generally higher than that of full service. Intensive-service arrangements require embedded staff, customized workflows, and more frequent coordination with the hospital, which all raise management and monitoring costs. By contrast, Therefore, unless there are strong strategic reasons to adopt intensive service, publishers typically prefer the full-service model in routine hospital collaborations. Publishers adopt the intensive-service model when the expected strategic gains such as access to the long-term stable partnership, strengthened subject leadership, or the creation of co-specialized assets are sufficient to offset its higher coordination and management costs. In some cases, publishers also extend their service scope to intensive arrangements in response to hospitals' strong demands for deeper operational support. Younger publishers, such as AME, are more willing to provide intensive service because close integration with high-reputation hospitals helps them strengthen brand recognition and secure stable partnerships—benefits that outweigh the higher TAC at their stage of development. In contrast, established publishers, with mature portfolios and strong market positions, tend to remain more conservative and favor the lower-cost full-service mode.

5.3 Partnership model between medical associations and international publishers

5.3.1 Background of the partnership between medical associations and international publishers

Medical associations in China occupy a distinctive position in the national academic publishing system, serving as important bridges between government policy, the medical community, and scientific dissemination. As semi-civilian, semi-governmental organizations, they play a dual role in academic governance and public service (China Association for Science and Technology, 2019b; Liu, 2023). Unlike universities, which are primarily research-oriented, or hospitals, which focus on clinical practice, medical associations function as professional authorities that set disciplinary standards, promote knowledge sharing, and guide scientific development within their fields. Their journals, therefore, act not only as communication platforms but also as institutional instruments to extend the association's academic influence and consolidate its leadership in the medical profession (Bai, 2023; Song & Lu, 2022).

The motivation to publish E-L journals is both academic and strategic. Associations seek to enhance global visibility of Chinese medical research while fulfilling policy expectations to lead scientific communication internationally (Liu et al., 2019; Liu et al., 2022). Journals provide the platform through which they can fulfill this mandate by exchanging research outcomes, and setting standards for scholarly communication (Chen & Wang, 2020). According to CAST program data, 14 national medical associations have received funding to operate 39 English-language medical journals, a scale comparable to that of university-affiliated publishing entities. The total funding allocated to these association journals reached approximately RMB 129 million, and five of them were identified as "leading journals" under the Phase II of Excellence Action Plan, with a combined support of RMB 37.5 million. These figures reflect both the policy recognition and sustained financial support that associations receive to expand their publishing capacity and international presence.

Financially, associations benefit from relatively stable and diversified income sources, including conferences, continuing education, industry collaboration, and partial government funding, which typically accounts for about 20% of revenue (Bai, 2023). This hybrid model provides sustainability, although overall resources remain below those of top universities.

Structurally, large associations have well-developed publishing systems. CMA, for

example, operates over 200 journals, including 28 E-L titles, many indexed in major databases. Its flagship Chinese Medical Journal English version, founded in 1887, is among the most influential medical journals in Asia (Chinese Medical Association, 2024; Wei, 2023). Other major associations have followed similar paths, supported by professional editorial teams and production infrastructure. Compared with hospitals, their publishing capacity is more professionalized, though generally less research-intensive than universities.

Unlike hospitals and universities, medical associations entered E-L journal publishing at a much earlier stage. Within the CAST-funded programs, 26 E-L journals were established before 2013, and about 38% of these early titles were association journals, highlighting the societies' pioneering role and consistent high performance in advancing E-L publishing. This early start has allowed many associations to build mature editorial systems, stable readership bases, and well-recognized journal brands, giving them a more established position than universities or hospitals in the E-L publishing landscape. Consequently, associations today often adopt hybrid partnership strategies, typically fee-for-service models for well-established journals and full-service models for newly launched titles.

Despite their strengths, associations face increasing pressure to meet international standards of quality, ethics, and indexation. Collaboration with international publishers has therefore become essential for enhancing global visibility. While larger associations with strong internal capacity tend to favor fee-for-service models, smaller associations rely more on full-service arrangements to access professional expertise and accelerate growth (Chinese Medical Association, 2025; Clarke, 2020).

In summary, medical associations are key actors in China's publishing ecosystem, combining policy support, professional authority, and diversified funding. Positioned between universities and hospitals, they possess sufficient capacity to sustain high-quality journals while leveraging international partnerships to strengthen global influence. The Chinese Medical Association exemplifies this model through its integration of policy backing, editorial capacity, and strategic collaboration.

5.3.2 Partnership model between medical associations and publishers

Both the fee-for-service and full-service models are present in publishing partnerships between medical associations and international publishers. According to data from the CAST program, out of 39 society-led E-L medical journals, 34 adopted the full-service model, while 4 operated under fee-for-service arrangements. One journal adopts self-publishing that is not in the scope for the discussion in this thesis. This dominance of the full-service model primarily reflects

market realities that most international publishers active in China primarily offer standardized full-service packages as their core business model (Yan et al., 2022). Nevertheless, there is a clear and growing tendency among medical associations to prefer more autonomous partnership structures such as fee-for-service, particularly for established titles with stable readership and strong internal management capacity.

For medical associations, the decision to select a publishing model is shaped by a combination of organizational capacity, policy expectations, and institutional identity. Unlike hospitals, which are primarily clinical organizations, or universities, which are academic institutions focused on teaching and research, associations occupy a semi-governmental position that blends public responsibility and professional autonomy (Bai, 2023).

The full-service model remains dominant largely because it offers efficiency and international visibility. This model is particularly suitable for new E-L journals that need rapid international exposure, indexation support, and professional publishing infrastructure (T. Wang et al., 2022). By contrast, the fee-for-service model is more suitable for established society journals that already have mature workflows and readership. In this model, the association acts as an independent publisher, purchasing specific services from vendors rather than engaging in an all-inclusive publishing contract. Services such as copyediting, composition, online hosting, peer review systems, and marketing are provided on a fee basis, with the association maintaining full control over financial management and editorial policy.

International publishers now usually function as service integrators under the fee-for-service model, collecting services from various vendors such as Crossref, Editorial Manager, Atypon and offering them under a unified platform. This arrangement allows associations to purchase only the components they need such as international hosting, DOI registration, or indexing consultancy while retaining financial and editorial independence (Shen et al., 2023). Although technically a hybrid, such arrangements are still categorized as fee-for-service because the association maintains managerial control over journal operations. The overall publishing fee under this model is generally lower than that of the full-service model, as costs are determined by the specific services purchased rather than a fixed package price (Clarke, 2020).

Figure 5.3 describes the roles and responsibilities of publisher and EO under the fee-for-service model.

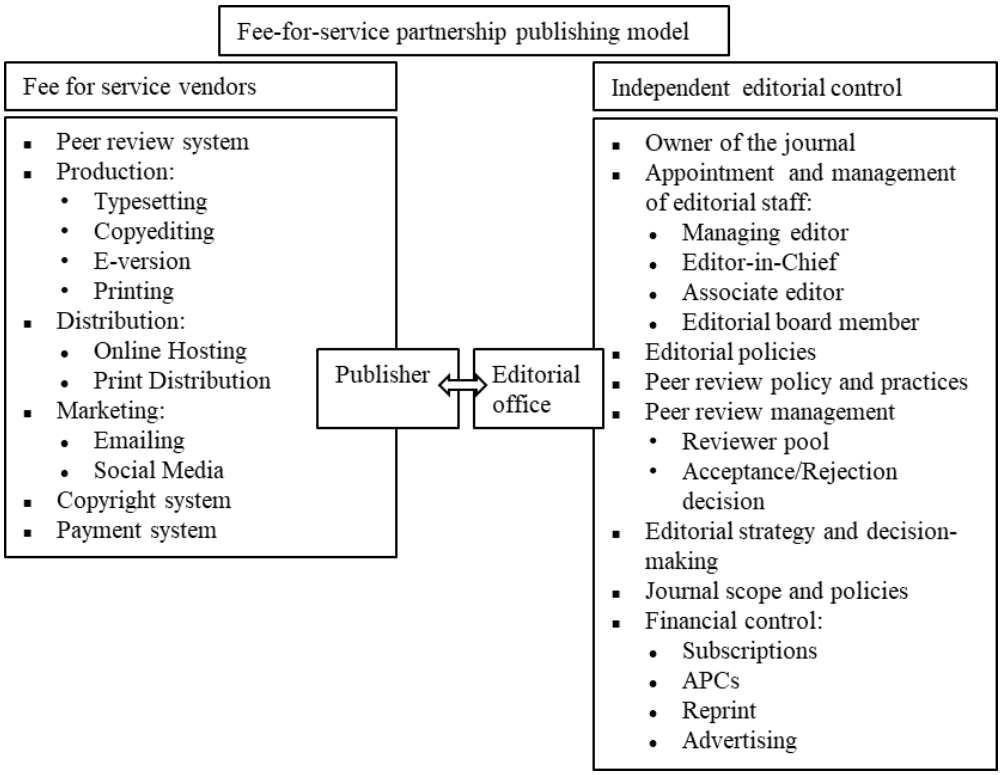


Figure 5.3 Fee-for-service partnership publishing model

The fee-for-service model also entails TAC for associations, as they must negotiate the contract usually annually, coordinate multiple vendors, manage quality control, and oversee financial transactions independently. For this reason, only associations with strong internal publishing infrastructure such as CMA, Chinese Pharmaceutical Association, and Chinese Association of Traditional Chinese Medicine are able to sustain this model effectively. Among these, the CMA is a typical example. The CMA Publishing House has the professional capacity to negotiate fee-for-service arrangements for established journals while adopting full-service partnerships for newly launched titles. This dual-model strategy allows CMA to preserve autonomy for mature journals while leveraging publisher expertise and international brand reputation to accelerate the development of emerging ones (J. Li et al., 2023; Liu, 2023).

From an asset-specificity perspective, the two models represent different levels of co-specialization. Under full service, the publisher invests in workflow systems, marketing networks, and production teams, creating semi-specialized assets that enhance collaboration efficiency but increase dependency. Under fee-for-service, investments remain non-specialized, allowing the association greater flexibility to switch service providers but requiring higher internal coordination costs. This trade-off explains why associations, which value long-term stability yet wish to maintain autonomy, often operate clusters of journals using a combination of both models. For example, an association may collaborate with one international publisher under full-service for a newly launched English title while managing its established E-L

journals through separate service vendors. Annex A supplementary Table a.9 shows the specific asset investment for E-L journals under the fee-for-service partnership between medical associations and publishers.

In summary, medical associations adopt diversified partnership models with publishers. The full-service model remains dominant, particularly for newly launched journals seeking rapid international visibility. However, the fee-for-service model better aligns with associations' long-term objectives of maintaining editorial independence, controlling revenue, and retaining ownership of data and infrastructure. This preference is reinforced by national policies promoting journal clustering and integrated publishing platforms (J. Li et al., 2023; Wang et al., 2023). CMA, for instance, was selected as a pilot unit under the CAST Excellence Action Plan and received funding to build its own hosting platform, MedNexus, enabling centralized management of its journal portfolio (Shen et al., 2023). Within this framework, fee-for-service models offer greater flexibility by allowing associations to selectively outsource services while preserving control over core assets. As technical capacity and digital infrastructure continue to improve, reliance on full-service publishing is likely to decline, with a gradual shift toward more autonomous and modular fee-for-service partnerships aligned with both institutional and national strategies.

5.3.3 Publishing partnership mechanism between medical associations and publishers

The publishing partnership choices of CMA are also shaped by the interplay of TAC, publishing fees, and extra benefits, though the dynamics differ from those of universities and hospitals. Associations generally possess stronger editorial resources, more established reputations, and wider disciplinary networks, but they also face distinct challenges in internationalization and in balancing non-profit missions with sustainable publishing operations.

From a TAC perspective, medical associations face lower search and information costs compared with universities and hospitals. Their deep experience in publishing and strong professional staff mean that they already know the reputations and capacities of international publishers. As a result, associations can approach potential partners with clear expectations, often through tenders or structured negotiations. Decision costs, however, can be higher, since associations are protective of ownership, brand identity, and editorial independence. They devote significant time to reviewing contractual terms to ensure alignment with government policy and to safeguard their long-term control. Monitoring and enforcement costs are moderate because associations already employ professional editors and established processes, but they still expect publishers to provide transparent reporting on marketing, international promotion,

and indexation progress.

In terms of partnership models, medical associations differ from hospitals. Because they already have strong in-house capacity, they are generally less interested in intensive-service models, which they view as redundant. Instead, they prefer fee-for-service arrangements for established E-L titles. The most valued offerings are those that enhance international reach including taking advantage of an international publisher's brand influence, using a mature e-publishing platform, running global marketing campaigns, receiving indexing consultancy, or supporting the internationalization of editorial boards. Full-service models are still considered in most cases, particularly for new titles where associations want to accelerate growth in the first five years and reduce administrative burdens. Even then, however, associations remain cautious about outsourcing too much, as maintaining autonomy is central to their publishing strategy. From a TAC perspective, fee-for-service models help associations minimize negotiation and monitoring costs while reducing dependence on external partners, enabling them to focus resources on academic quality and disciplinary influence.

Extra benefits play a central role in association publishing partnerships. Like universities and hospitals, associations value international visibility, indexing achievements, and enhanced global reputation. However, their expectations are shaped by their disciplinary authority and publishing scale. Associations seek international exposure and brand alignment, expecting publishers to leverage their global networks to promote journals abroad, secure inclusion in leading databases, attract internationally recognized researchers to join editorial boards, encourage KoLs to engage with the journal through the credibility of co-branding with world-renowned publishers and build citation impact. Since they already have strong editorial capacity, the most valued "extra" is not manpower substitution, but access to global distribution channels, marketing infrastructure, and technical expertise that reduce the TAC of internationalization. From an asset specificity perspective, partnering with a major international publisher creates co-specialized assets. Association journals gain visibility by being embedded in global brands, while publishers strengthen their portfolios with high-prestige titles tied to large professional communities.

In summary, medical associations select publishing models by balancing TAC, fees, and extra benefits in ways that reflect their structural strengths. Strong editorial capacity and stable organizational support lower many forms of TAC, making fee-for-service models particularly attractive to established E-L titles, as they allow associations to retain autonomy while acquiring targeted international services. Full-service arrangements can also be adopted for certain strategic titles, but intensive-service models are rarely chosen given the associations' internal

publishing capacity. Extra benefits such as global marketing, indexing consultancy, and brand integration are decisive, as they help associations extend their international reach and strengthen their journals' reputations. CMA illustrates these dynamics well: as a first-level association with a large publishing arm and long-standing editorial experience, it is able to choose partners selectively and focus on gaining international visibility and credibility, rather than outsourcing operational control.

5.3.4 Case study: empirical validation of the theoretical model on publishing partnership selection between medical associations and publishers

5.3.4.1 Interview of the publishing director of the journal press in CMA

CMA, founded in 1915, is China's oldest and most authoritative national-level medical society under the registration of CAST. It publishes 174 Chinese-language and 28 E-L journals, 18 of which have impact factors, making it the largest medical journal association publisher in the country. Its flagship journal, first issued in 1887, is not only the earliest medical journal in China but also one of Asia's earliest E-L journals, indexed in SCI/SCIE and widely recognized internationally.

As a CAST-affiliated organization, CMA benefits from strong policy endorsement and consistent funding through CAST programs, receiving the highest level of CAST support among medical entities. Its financial base is diversified across government grants, national academic conferences, and publishing revenues from subscriptions, advertising, and reprints, ensuring sustainable operations and investment in digital infrastructure and professional staff.

Because its status is linked to government policy, maintaining editorial and financial autonomy is essential. CMA therefore favors partnership models that preserve control over journal direction while leveraging publishers for peer-review systems, global distribution, and international marketing. Its publishing house is highly professionalized, with dedicated editorial offices, centralized production and marketing departments, and bilingual editorial teams capable of independent journal management. This organizational depth distinguishes CMA from university and hospital editorial offices, which typically rely more on external publishers for operational support.

(1) Pre-contractual transaction costs

Part 1: search and information costs

Search costs for CMA were low due to its strong reputation and established flagship E-L journal. When CMA announced its intention to expand international dissemination, three major

publishers approached the editorial office directly. The challenge was not identifying partners but selecting a model that could enhance global visibility while preserving editorial and financial independence.

Information costs were comparatively higher. The editorial office conducted detailed evaluations of proposals, assessing service packages against its internal capabilities and long-term objectives. While full-service models were initially proposed by all publishers, CMA explored the possibility of outsourcing services such as peer review systems, global hosting, and marketing without duplicating in-house functions. From a TAC perspective, the association's prestige kept search costs low, but configuring the right service mix increased information and coordination costs at this stage.

Part 2: Negotiation and decision-making costs

The negotiation stage was more resource-intensive. All publishers initially proposed full-service arrangements involving revenue-sharing and operational control. CMA rejected this model due to its commitment to maintaining financial and editorial autonomy and avoiding duplication of internal capabilities.

Instead, CMA insisted on retaining control over core processes, including production outputs, and limiting outsourcing to complementary services. After multiple rounds of negotiation, CMA reached an agreement with one publisher under a fee-for-service model, retaining full ownership and revenue control while outsourcing selected functions such as platform provision, international dissemination, and marketing.

From a transaction cost perspective, this phase involved moderate to high costs, driven by the need to clarify service boundaries, align expectations, and coordinate across editorial, financial, and legal departments. Although resource-intensive, these efforts reduced contractual uncertainty and established a stable foundation for the partnership.

(2) The post-contractual transaction-associated costs: monitoring and enforcement costs

Following contract implementation, monitoring and enforcement costs for CMA remained relatively contained. Its experienced editorial team retained full responsibility for submissions, peer review, production, and editorial management, while the publisher provided platform support and international dissemination. This clear division of labor reduced coordination complexity compared with more integrated partnership models.

During the initial phase, additional coordination was required to integrate CMA's production outputs, such as XML and PDF files, into the publisher's systems. This involved technical alignment and workflow standardization through close collaboration between both teams. Although time-consuming, these efforts helped establish stable processes for ongoing

operations.

Some inefficiencies arose from the publisher's reliance on standardized global workflows, which limited responsiveness to customization requests and occasionally caused delays. However, CMA's strong in-house editorial and technical capacity allowed it to adapt independently and maintain smooth operations.

From a transaction cost perspective, monitoring costs remained moderate but well controlled. While outsourcing typically increases coordination demands, CMA's professionalized structure mitigated these effects. Overall, internal capacity and clear role boundaries ensured stable operations while leveraging the publisher's global dissemination capabilities.

(3) Evaluation of Partnership Benefits

The partnership delivered clear benefits in terms of international visibility and dissemination. By working with the publisher's global distribution system, the flagship journal was able to reach a wider readership and strengthen its international presence while retaining full editorial and financial control. This global platform helped the flagship journal attract contributions from internationally recognized researchers and provided visibility to landmark work from Chinese groups. The article on double-lung transplantation for COVID-19 gained significant international attention.

From CMA's perspective, the fee-for-service model suited an established flagship journal with a long history, a stable base of submissions, and strong domestic recognition. It enabled CMA to purchase targeted services including peer review system, international dissemination, and global marketing while relying on its own professional editorial team and strong technical team for core publishing functions. This preserved autonomy and ensured that financial flows, production effectiveness, and strategic direction remained under CMA's control. The extra benefit lay in combining CMA's authoritative reputation with the international publisher's distribution channels, enhancing visibility and credibility abroad without compromising independence. Beyond structural benefits, the partnership also drove key operational improvements. To safeguard integrity, the journal introduced Crosscheck plagiarism detection alongside manual checks. It upgraded to Editorial Manager to streamline submissions and, from 2020, adopted continuous online publication with two to three articles released weekly, cutting delays and speeding visibility. The peer review system was also strengthened: more active, high-level reviewers were recruited, and with Publons integration in 2021, the reviewer pool grew from 3,386 in 2019 to over 14,000. Together, these changes improved efficiency, raised review quality, and boosted the journal's international profile.

It should be noted that fee-for-service partnerships can vary in form. In some cases, editorial offices purchase individual publishing services from multiple vendors, such as hosting, peer review systems, or marketing. In this case, CMA chose a model where one publisher bundled several services into a single package. Some of these functions were operated by the publisher directly, while others were provided via the publisher's contracted vendors. This arrangement still fits within the fee-for-service category, but it saved CMA the effort of coordinating with multiple vendors separately, reducing both time and coordination costs.

However, the model is less suited to new-start E-L journals, which typically require rapid growth, aggressive international promotion, and broader editorial development support during their early years. CMA recognized that while the flagship journal can leverage its century-long reputation and established submission pipeline, new journals without this foundation would likely need full-service arrangements to build visibility and reputation quickly.

From a TAC perspective, the fee-for-service model involved both costs and safeguards. Because the publisher's role was limited to specific functions, asset specificity on their side was relatively low. This meant weaker structural incentives for the publisher to prioritize the journal, increasing the risk of opportunism. To mitigate this, CMA accepted higher up-front negotiation and supervision costs, carefully defining service standards, deliverables, and timelines. By retaining control of production and financial management, CMA avoided duplication of effort, preserved flexibility, and maintained transparency in governance. The extra benefits of international dissemination, improved publishing workflows, global brand alignment, and enhanced reviewer recruitment justified these transaction costs, making the model a strong fit for an established flagship journal.

(4) Willingness to Offer Alternative Models

With a stable impact factor and steady submission pipeline, CMA is satisfied with the current fee-for-service arrangement. The fee-for-service model has proven effective because it delivers clear extra benefits at relatively low cost. The journal can be hosted in the established international publishing platform while maintaining full editorial and financial control. Transaction costs are moderate and manageable. Most effort is required at the negotiation and supervision stages, but these are well within CMA's capacity, particularly given that the publishing fee is about half of what a full-service contract would cost.

5.3.4.2 Interview of the journal publisher in the international publisher of CMA

As a leading international medical publisher, the company has extensive experience working with society journals and offers both full-service and fee-for-service models to accommodate

diverse partner needs.

China is a key focus of its global strategy. Since the early 2010s, it has collaborated with Chinese associations, universities, and hospitals, gaining insight into local priorities such as international visibility, indexation, and alignment with national policies. This experience has enabled the company to adopt more flexible partnership approaches tailored to varying institutional capacities.

Collaboration with the flagship journal of CMA represented a strategic opportunity. As China's most authoritative medical society, CMA offers strong academic credibility and international recognition. This partnership not only supported the global dissemination of a leading journal but also strengthened the publisher's presence and reputation in the Chinese market, positioning it for further collaboration with high-profile institutions.

(1) Pre-contractual transaction-associated costs

Part 1: search and information costs

Search costs on their side were low. They already had long-standing connections with CMA through collaborations on medical conferences and other professional projects, and it was through these links that they first heard about CMA's intention to seek an international publishing partner for its flagship English-language journal. Direct contact within CMA recommended the editorial office to them, making it possible to approach them quickly without the need for extensive scouting.

Information costs, however, were higher than they initially expected. The flagship journal was one of the most visible titles in China, and it was clear that many publishers were competing for the partnership. They first proposed a standard full-service model, which aligned with their usual practice and would have allowed them to manage the journal comprehensively. During the initial meetings, the editorial office responded but did not share their preference. After about a month, they clarified their position. They wanted a more flexible arrangement that preserved their control over finances and production while relying on the publisher for an internationally recognized hosting platform, global marketing, and a peer review system that was widely accepted in global market. Although CMA did not describe this as a "fee-for-service" model, they recognized that their requirements closely matched that type of arrangement, rather than the standard full-service approach.

Part 2: Negotiation and decision-making costs

This request created a challenge. They had a fee-for-service framework available, but it was typically offered under one of their secondary brands rather than their flagship one. CMA made it clear that they insisted on tying the journal to their high-reputation brand, as brand visibility

was central to their internationalization strategy. Accommodating this request required them to return to headquarters for approval, since the arrangement fell outside their standard service framework. After internal discussions, headquarters agreed to proceed despite the low profitability of the project, recognizing both the strategic importance of the Chinese market and the value of anchoring a partnership with CMA. At the same time, expectations were set that this collaboration should open the door to publishing more CMA titles in the future under more conventional, and more profitable, partnership models.

From a TAC perspective, this phase generated moderate search costs but significantly elevated information and decision costs. The uncommon request from CMA required careful internal review, extended exchanges with the editorial office, and adjustments to their service model. While these upfront costs were higher than anticipated, they accepted them as a strategic investment. Securing the CMA flagship journal not only promised visibility in the Chinese market but also created the prospect of future collaborations under models with stronger financial alignment.

(2) The post-contractual transaction-associated costs: monitoring and enforcement costs

Monitoring and enforcement costs in this partnership were higher than anticipated. Under a typical fee-for-service model, the publisher provides discrete services such as hosting, peer review systems, and dissemination while editorial offices manage workflows independently, resulting in relatively low coordination costs.

In this case, however, CMA expected more integrated and responsive support. Rather than interacting with separate service teams by themselves, the editorial office directed most requests to a single publishing contact, often requiring rapid responses and customized solutions. This created additional workload, as the publisher had to coordinate internally across teams and externally with vendors to meet these expectations.

From a transaction cost perspective, this significantly increased monitoring and coordination costs. While fee-for-service models are designed to minimize ongoing enforcement costs through clear role separation, CMA's demand for tailored support blurred these boundaries. As a result, the intensity of coordination exceeded what is typically expected under a low-cost fee-for-service structure, creating a mismatch between service scope and resource requirements.

(3) Evaluation of Partnership Benefits

The publishing fee was modest, significantly lower than a full-service contract, yet the journal required more monitoring and coordination than anticipated. This created a situation where transaction costs were very high compared with the revenue. While the arrangement was

never viewed as a short-term profit opportunity, the low margins made it difficult to justify the level of attention and resources the journal demanded.

The main value lay in the extra benefits, which largely matched their strategic expectations. Partnering with CMA's flagship journal gave them credibility in China's medical publishing community and strengthened their reputation as a trusted partner for the country's leading association. This credibility translated into opportunities. They were entrusted with two newly launched CMA journals under full-service contracts, which were both more profitable and more aligned with their operating model. The flagship collaboration also enhanced their profile with other institutions, several of whom approached them to explore potential partnerships based on the basis of their visible association with CMA.

However, the benefits were accompanied by challenges, particularly in terms of cost and workload. From a TAC perspective, the fee-for-service model involved lower asset specificity on their side. Unlike in a full-service or intensive-service arrangement, they did not embed staff or build dedicated workflows around the journal. This reduced long-term risk exposure but also weakened the structural incentives to prioritize the title, making service quality more dependent on monitoring and custom requests from CMA. The imbalance between low fees and high expectations led to strain on their staff and raised questions internally about whether the flagship journal itself delivered sufficient return relative to cost.

In summary, the partnership achieved market credibility and stronger ties with CMA, and new full-service contracts that were more profitable. Yet the direct benefits of the flagship journal remained ambiguous. The case highlighted both the strengths and limitations of fee-for-service partnerships. While they can be useful as a gateway to broader collaboration, they also carry the risk that low fees and high transaction demands can undermine long-term sustainability.

(4) Willingness to offer alternative models

In the short term, they have little incentive to change the current arrangement. CMA is satisfied with the partnership, the journal continues to perform well, and their collaboration has provided them with valuable visibility in China. For them, maintaining stability is important, as they do not want to risk losing such a high-profile title or weakening their relationship with CMA, which remains one of the most authoritative partners in the Chinese medical community.

However, from a longer-term perspective, the balance of costs and benefits remains a concern. The fee-for-service arrangement brings modest income but requires a high level of monitoring and coordination, which makes the cost–benefit balance challenging. From a TAC perspective, the model creates relatively low asset specificity on their side, meaning they have

fewer built-in incentives to prioritize the journal. Service quality is therefore more dependent on active monitoring and frequent adjustments in response to CMA's requests, which raises the burden on their staff.

The extra benefits of this arrangement, including improved reputation, stronger market presence, and the opportunity to publish additional CMA journals under more profitable models, have so far justified the partnership. But these gains are difficult to quantify against the high transaction costs of managing the flagship title. In the longer term. They want to renegotiate terms with CMA, either to better balance workload and revenue or to explore more integrated service models for new titles. This can allow them to sustain the partnership while ensuring that the overall investment remains viable and valuable.

The CMA case illustrates a fee-for-service partnership between a capacity-rich professional association and an international publisher adapting its fee-for-service model to meet the association's autonomy requirements. The CMA sought targeted international services while retaining full editorial and financial control, whereas the publisher accepted low financial returns in exchange for strategic visibility and future collaboration opportunities. This partnership highlights how low asset specificity, clear role division, and asymmetric incentives shape transaction costs and benefits for both sides, as summarized in annex A supplementary Table a.10.

5.3.5 Partnership model selection between medical associations and international Publishers

5.3.5.1 Scope of the medical association discussion

In the context of medical associations, the comparison focuses on the fee-for-service and full-service publishing models. The intensive-service model is excluded because medical associations unlike hospitals possess strong editorial capacity, professional staff, and stable institutional funding, making the outsourcing of editorial operations unnecessary. Moreover, given their semi-governmental status and policy-driven mission, associations prefer to retain a higher level of independence and control. As a result, highly integrated intensive-service arrangements are not attractive to associations, which prioritize independence, flexibility, and long-term control over their publishing activities.

5.3.5.2 Discussion of fee-for-service model vs. full-service model

The theoretical framework for comparing fee-for-service and full-service models has been discussed in the university section; therefore, only the relevant alignment for medical

associations is outlined here. In the evolutionary game model, equilibrium $E = (1,0)$, represents the scenario where the publishing entity adopts the fee-for-service model while the publisher prefers the full-service model. This configuration accurately reflects the situation observed in the CMA case.

According to the mathematical results in Chapter 3, $E = (1,0)$ becomes locally asymptotically stable when

$$(b_0 + a_1 - b_1) - \left(TAC^e_{ful} - TAC^e_{con}\right) < 0$$

$$TAC^p_{ful} - TAC^p_{con} < 0$$

These inequalities describe a situation in which the publishing entity's perceived transaction costs under fee-for-service remain manageable, while the publisher's transaction costs are relatively lower under full-service. In other words, the publishing entity has sufficient capacity and incentives to maintain independence, whereas the publisher finds the standardized full-service model more cost-effective and easier to manage operationally.

From the association's standpoint, CMA's practice aligns with the theoretical condition that, although a full-service arrangement may reduce operational transaction costs by consolidating publishing activities under a single publisher, the net benefits it generates remain limited relative to the fee-for-service model. Interview evidence indicates that CMA recognizes the fee-for-service model as involving relatively higher transaction costs, primarily because it requires the association to coordinate multiple vendors and manage contracting, supervision, and internal approval processes. By contrast, a full-service model could alleviate part of this coordination burden. However, when evaluating a potential full-service arrangement, CMA found that its semi-governmental governance structure introduces additional institutional constraints that substantially limit the extra benefits of full service. As a national medical association, CMA places strong emphasis on institutional independence, policy compliance, and reputational risk control. Full-service publishing, which typically involves deeper operational integration and greater reliance on a commercial publisher's workflows and decision-making routines, can conflict with CMA's need to retain autonomous authority over editorial direction, financial management, and policy-sensitive content.

Moreover, the association's editorial office is well staffed, professionally experienced, and already capable of managing publishing processes efficiently. The journal is well established within the research community and has achieved stable indexation and visibility. Under these conditions, the core advantages usually associated with full service such as saving editorial manpower or accelerating indexation do not generate substantial additional value. While full

service may reduce operational transaction costs, its marginal benefits for a mature journal operating under semi-governmental governance remain small, leading the CMA to rationally select the fee-for-service model.

On the publisher's side, however, the interview reveals that the transaction costs of managing CMA's journal under fee-for-service are higher than expected. The low publishing fee and the frequent custom requests from the association have significantly increased coordination and supervision costs, leading to an imbalance between cost and return. This aligns with the model's predicting that $TAC_{ful}^{p} < TAC_{con}^{p}$, which explains the publisher's preference for the full-service model, where workflows, pricing, and responsibilities are more standardized and predictable. It is important to clarify that the asymmetric equilibrium $E = (1,0)$ primarily reflects the stated strategic preferences revealed in interviews**,** rather than the fully realized operational outcome. When asked whether they would be willing to adopt an alternative partnership model under different conditions, the publisher expressed a preference for transitioning to a full-service arrangement, while the association emphasized its continued inclination toward fee-for-service. This divergence in stated preferences corresponds closely to the equilibrium $E = (1,0)$ in the evolutionary game model.

However, despite this preference configuration, the equilibrium cannot be fully implemented in practice due to CMA's institutional and fiscal constraints. As a semi-governmental organization, CMA's publishing expenditure is subject to fixed annual budgets and administrative approval, leaving limited flexibility for the higher financial commitments that full-service contracts require. As a result, even when a full-service option is available, the CMA must choose the fee-for-service model to stay within its fiscal and procedural constraints. From the publisher's perspective, providing the fee-for-service model to CMA is the practical option. It ensures stable service income without requiring significant upfront investment or assuming the higher risks of managing a large, policy-sensitive journal under a full-service agreement.

In broader transaction-cost terms, this outcome reflects the distinctive logic of semi-governmental publishing partnerships. For CMA, publishing success is assessed less in terms of marginal efficiency gains than in terms of financial control, regulatory compliance, and institutional legitimacy within the national academic system. For the publisher, although full-service cooperation would be preferable due to standardized workflows and more predictable cost structures, providing fee-for-service to CMA constitutes a pragmatic accommodation of the association's constraints. This arrangement secures stable service income and preserves a

long-term relationship with the most authoritative medical society in China. Consequently, the persistence of the fee-for-service model in the CMA case does not imply that it is the dominant or jointly optimal strategy for both parties. Rather, it reflects a constraint-driven, second-best equilibrium in which both sides converge on mutual fee-for-service operation $E = (1,1)$ in practice, despite divergent strategic preferences.

It should be noted that, based on the interview evidence**, t**he full-service model remains the mainstream partnership arrangement for most medical association journals, especially for new journals. This configuration corresponds to the equilibrium $E = (1,1)$, which has already been discussed in detail in the university–publisher and hospital–publisher cases and is therefore not reiterated here. The CMA established journal case is examined separately because it represents a distinct institutional scenario in which the association's semi-governmental governance structure, budgetary rigidity, and strong preference for financial and editorial control lead to a divergence in strategic choices between the two parties. Consequently, this section does not challenge the dominance of the full-service model in association publishing but instead explains why a stable asymmetric equilibrium $E = (1,0)$can arise under specific organizational and regulatory constraints.

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Chapter 6 Discussion and Conclusion

6.1 Comparison between empirical findings and existing literature

6.1.1 Partnership model distribution and industry patterns

Existing studies on China's E-L medical journal partnerships with international publishers identify existing cooperation models including the fee-for-service, full-service, and intensive-service publishing models (Fan et al., 2018; Liu et al., 2019; Yan et al., 2022). Prior research generally reports that fee-for-service and full-service models are the most widely adopted, while intensive-service models are less prevalent than the other two. These studies focus on describing the operational characteristics and performance outcomes associated with each model, offering a broad overview of industry practices within the STM journal publishing landscape.

The empirical findings of this study largely corroborate these observations but also provide a more nuanced understanding of partnership model distribution within the medical journal sector. Consistent with the literature, fee-for-service and full-service publishing models dominate cooperation between Chinese E-L medical journals and international publishers, whereas intensive-service models remain limited in number. However, the findings further indicate that this distribution is not simply the result of industry convention or publisher preference but is shaped by the distinct institutional characteristics of medical publishing entities, which differ in important ways from those typically associated with the broader STM journal publishing landscape. In particular, medical journals in China are not only affiliated with universities, but are also commonly published by hospitals and medical associations, whose organizational missions, governance structures, funding sources, and external linkages such as hospitals' service-oriented mandates and medical associations' close ties to the pharmaceutical and medical device industries introduce different incentives, constraints, and risk considerations into partnership decision-making. These sector-specific characteristics influence how medical publishing entities evaluate cooperation intensity, control allocation, and long-term commitment, thereby contributing to observed variation in partnership model selection.

By moving beyond descriptive accounts of cooperation models, this study reveals that observed industry patterns reflect differentiated strategic responses by medical publishing

entities to their organizational conditions and external collaboration requirements. This insight provides a necessary foundation for the subsequent analysis of the decision-making mechanisms underlying partnership model selection.

6.1.2 Institutional heterogeneity and model selection

Although some studies acknowledge that medical universities, medical associations, and hospitals adopt different partnership publishing models, the literature largely remains descriptive, focusing on which models are adopted rather than why particular types of entities choose specific models (Ding et al., 2022; Liu et al., 2019). In particular, prior research does not examine the decision-making mechanisms underlying partnership model selection, nor does it explore whether and under what conditions publishing entities are willing or able to transition to alternative cooperation models. As a result, institutional heterogeneity is not adequately incorporated into existing analyses, and the literature provides limited insight into how organizational characteristics shape cooperation strategies across different types of medical publishing entities.

The empirical findings presented in sections 5.1.5, 5.2.5 and 5.3.5 demonstrate that partnership model selection is closely linked to the institutional characteristics and operational constraints of publishing entities, and that universities, hospitals, and medical associations show distinct model selection logics rather than uniform preferences. These differences are reflected not only in the dominant partnership models adopted by each entity type, but also in their baseline equilibria, their tolerance for transaction costs, and their willingness to transition between models under changing conditions.

For medical universities, the full-service publishing model constitutes the dominant and stable baseline. As discussed in section 5.1.5, universities benefit from relatively stable governmental support, larger institutional scale, and well-established editorial offices, which together keep transaction costs at a manageable level. Model transitions are therefore considered only under specific circumstances, such as funding constraints or shifts in strategic priorities. This finding extends existing literature by showing that universities' model selection is not driven by preference alone, but by a stable institutional environment that supports higher-commitment cooperation.

In contrast, hospital-affiliated medical journals are operated under different institutional conditions, as shown in Section 5.2.5. Hospitals face tighter and more unstable funding, smaller editorial teams, and heavy clinical service obligations of editorial board members, which significantly increase coordination burdens and limit their capacity to manage complex

publishing operations independently. These constraints make hospitals more receptive to intensive-service publishing models, which embed publisher resources directly into journal operations and compensate for internal capacity shortages. Unlike universities and medical associations, hospitals view intensive-service arrangements not as an escalation of control transfer, but as a practical solution to structural limitations. This pattern diverges from much of the existing literature, which tends to overlook hospitals or treat them as minor participants, and demonstrates that hospital openness to intensive cooperation reflects necessity rather than strategic ambition.

Medical associations demonstrate yet another model selection logic, as discussed in Section 5.3.5. Associations generally possess strong in-house editorial capacity, professional publishing experience, and stable institutional support, allowing them to operate journals efficiently without extensive external intervention. Consequently, associations show a clear preference for fee-for-service models for mature journals, as these arrangements allow them to access targeted international services while retaining full editorial and financial control. Full-service models are considered selectively, particularly for new titles that require accelerated development, whereas intensive-service models are largely avoided due to associations' strong emphasis on autonomy and long-term control. This nuanced pattern is insufficiently captured in prior studies, which tend to emphasize performance outcomes rather than institutional drivers of model choice.

6.1.3 Decision-making mechanisms and model choice

Existing literature on partnership publishing has largely focused on describing cooperation arrangements and assessing performance outcomes, but has paid limited attention to the underlying mechanisms that guide model choice (Xu & Bu, 2016; Yan et al., 2022). Prior studies do not explain how publishing entities and publishers weigh costs, benefits, and risks when selecting among fee-for-service, full-service, and intensive-service models.

The empirical findings presented in Chapters 5 and 5.1.5, 5.2.5 and 5.3.5 indicate that partnership model selection is not driven by a single factor, but by the combined evaluation of transaction costs, publishing fees, and expected extra benefits, as conceptualized in the theoretical framework developed in Chapter 3. Across universities, hospitals, and medical associations, decisions are shaped by how these elements interact under specific institutional conditions, rather than by abstract preferences for particular cooperation models.

Across medical universities, hospitals, and medical associations, partnership model selection reflects distinct decision-making mechanisms shaped by institutional conditions.

Universities operate in relatively stable policy and funding environments with strong editorial capacity, enabling them to balance substantial expected extra benefits against manageable transaction costs, which makes the full-service model a stable baseline choice. Hospitals, by contrast, face higher transaction costs arising from limited editorial manpower, unstable funding, and competing clinical demands, leading them to adopt intensive-service models as a pragmatic means of compensating for internal capacity constraints. Medical associations, supported by strong in-house publishing capabilities and stable organizational structures, tend to favor fee-for-service arrangements that minimize coordination costs and preserve editorial autonomy, while selectively adopting full-service models for strategic purposes. Together, these patterns indicate that partnership model choice is driven not by uniform preferences, but by how different publishing entities evaluate transaction costs, fees, and expected benefits within their specific institutional contexts.

Across all three institutional contexts, the empirical evidence confirms that partnership model selection reflects a dynamic balancing process rather than a fixed preference structure. Publishing entities and international publishers continuously assess whether the transaction costs associated with a given model are justified by the publishing fees paid and the extra benefits expected. When this balance is favorable, stable cooperation equilibria emerge; when it shifts, entities may reassess their willingness to modify existing arrangements. By revealing how these decision-making mechanisms operate differently across institutional contexts, this study advances existing literature beyond descriptive accounts and demonstrates the analytical value of a transaction cost-based framework for understanding partnership model choice in Chinese E-L medical journal publishing sector.

6.1.4 Model stability, change, and evolution

Existing research on Chinese E-L medical journal partnership publishing largely treats cooperation models as static arrangements, focusing on their characteristics or performance at a given point in time (Clarke, 2020; Hu, 2024; Shi & An, 2021). Little attention has been paid to the stability of partnership models, the conditions under which they change, or the evolutionary processes through which publishing entities and international publishers adjust their cooperation strategies over time. As a result, prior literature offers limited insight into how partnership publishing models persist, adapt, or transform in response to changing institutional and environmental conditions.

The empirical findings of this study indicate that partnership publishing models in Chinese E-L medical journal sector are characterized by relative stability combined with conditional

adaptability. In most cases, once a cooperation model is established and achieves a satisfactory balance between transaction costs, publishing fees, and expected extra benefits, both parties exhibit strong incentives to maintain the existing arrangement. At the same time, the empirical evidence also shows that partnership models are not fixed or irreversible. Model change becomes more likely when key underlying conditions shift, altering the cost–benefit balance that initially supported the existing arrangement. Across universities, hospitals, and medical associations, such shifts include changes in government funding and policy support, variations in editorial capacity and personnel stability, transitions in journal development stages, and evolving expectations regarding international visibility and academic impact. When these changes significantly affect transaction costs or expected extra benefits, publishing entities and publishers may reassess the suitability of their current cooperation model.

The evolutionary logic observed in the empirical cases aligns closely with the theoretical framework developed in Chapter 3. Rather than switching models abruptly or frequently, publishing entities tend to adjust cooperation arrangements incrementally, favoring transitions that minimize disruption and uncertainty. Universities may consider moving from full-service to fee-for-service models under funding constraints or selectively add intensive-service elements for strategic titles, while hospitals may adopt intensive-service models to address capacity shortages and later reconsider alternative models if internal capabilities improve. Medical associations display greater stability in model choice, with changes occurring mainly at early stages of journal development.

Importantly, the empirical findings also highlight that model evolution is shaped by the joint interaction between publishing entities and international publishers. Publishers evaluate model changes not only in terms of immediate financial returns, but also with respect to long-term strategic considerations such as portfolio coherence, brand positioning, and future cooperation opportunities. As a result, model transitions often require mutual adjustment and renegotiation.

In a summary, the evolutionary perspective provides a more comprehensive understanding of how partnership publishing models emerge, persist, and transform within Chinese E-L medical journal publishing sector, addressing an important gap in prior research.

6.1.5 International publishers' incentives and strategic responses

Existing studies on Chinese E-L medical journal partnership publishing largely focus on domestic publishing entities and pay limited attention to the incentives and strategic responses of international publishers. The empirical findings of this study show that publishers evaluate

partnership models primarily in terms of transaction costs, revenue stability, and long-term strategic value, rather than adhering to a single preferred cooperation model.

Across different institutional contexts, publishers adopt differentiated strategies. Full-service models are generally favored for their standardized workflows and predictable returns, particularly in partnerships with universities that offer stable governance and reputational benefits. In hospital collaborations, publishers are willing to engage in intensive-service arrangements despite higher coordination costs, as deeper operational integration helps reduce uncertainty and secure access to high-impact clinical research. In partnerships with medical associations, publishers often accept fee-for-service models with lower immediate returns in exchange for reputational gains and future collaboration opportunities.

Overall, international publishers respond flexibly to institutional heterogeneity among Chinese medical publishing entities, adjusting cooperation intensity to balance costs, risks, and strategic benefits. By incorporating the publisher perspective, this study provides a more complete understanding of partnership publishing dynamics and addresses an important gap in existing literature.

6.2 Theoretical Contributions

This thesis applies the transaction cost theory and evolutionary game theory to analyze the cooperation modes between international publishers and Chinese E-L medical journal publishing entities. It provides insights into how different cooperation models influence transaction costs within this context and analyzes the underlying mechanisms guiding their cooperative strategies across diverse scenarios. Additionally, this study extends the theoretical boundaries of transaction cost theory and evolutionary game theory, contributing to a deeper understanding of inter-firm cooperation dynamics. To a certain extent, it underscores the theoretical effectiveness and universality of transaction cost theory in comprehending the complexities of collaborative efforts between organizations.

Furthermore, given the intricate nature of Chinese E-L medical journal entities, including medical universities, research institutes, medical associations, and hospitals, with a wide array of institutions. It is important to clarify the key factors affecting the cooperation between international publishers and these entities from a theoretical perspective. Understanding the mechanisms of cooperation models between these parties can serve as a foundational framework for advancing Chinese E-L medical journals. Moreover, it can offer guidance to international publishers in selecting appropriate local partners for collaboration and developing

tailored business models conducive to local cooperation.

6.3 Practical Contributions

This study provides a contingency-based framework to support stakeholders in selecting appropriate publishing partnership models under different institutional conditions. The findings suggest that Chinese publishing entities, including universities, hospitals, and professional associations, should align their cooperation strategies with asset specificity, institutional capacity, and the level of governmental support. Entities with highly specialized assets are better suited to long-term and integrated partnerships that can safeguard these investments and reduce transaction risks. In contrast, organizations with stronger internal capabilities are in a better position to adopt more independent or modular arrangements, thereby retaining greater control over editorial and operational processes. When strong governmental support is available, entities can pursue more ambitious collaboration strategies, as financial stability and reduced uncertainty facilitate deeper engagement with external partners.

From a policy perspective, the findings highlight the importance of sustained and targeted support mechanisms. Government initiatives play a critical role in enabling entities to enhance editorial infrastructure, attract qualified personnel, and improve journal visibility. At the same time, an overreliance on public funding and insufficient attention to commercial sustainability may weaken the long-term development of the E-L journal ecosystem. A more balanced approach that combines policy support with professional publishing practices and diversified revenue models is therefore essential.

For hospitals, the results indicate that strengthening internal editorial and operational capacity is a key priority. Increased investment in professional staffing and training can gradually reduce dependence on intensive-service models and enable greater institutional control over publishing activities. For universities and professional associations, policies that encourage innovation in digital platforms and international collaboration can further support the development of high-quality journals aligned with national research priorities.

For international publishers, the study underscores the importance of flexibility in partnership design. Successful collaboration in the Chinese context depends less on standardized service packages and more on the ability to adapt to the varying needs, capacities, and strategic objectives of institutional partners. Developing tailored service structures and maintaining close, relationship-oriented engagement are essential for building trust and sustaining long-term partnerships.

6.4 Conclusion

This study set out to address a key limitation in existing research on Chinese E-L medical journal partnership publishing. Although prior studies have documented cooperation practices and evaluated publishing performance, they have largely adopted descriptive or normative approaches, focused on the STM journal landscape as a whole, and lacked a theoretical explanation for why different medical publishing entities select different partnership publishing models. In particular, existing research has not adequately accounted for the distinct institutional characteristics of universities, medical associations, and hospitals within the medical journal sector. This study resolves these limitations by providing a sector-specific and theory-driven explanation of partnership publishing model selection.

To address this research problem, the study narrows its analytical focus from the general STM journal system to the medical journal sector and explicitly distinguishes among different types of medical publishing entities. By examining universities, medical associations, and hospitals as analytically distinct actors, the study captures institutional differences in mission, governance structure, resource allocation, and incentives for international cooperation. This sector-specific approach provides a more accurate understanding of cooperation dynamics in medical journal publishing and responds directly to the gap identified in the literature.

From a theoretical perspective, the study demonstrates that an integrated framework combining transaction cost theory and evolutionary game theory can effectively explain and guide the selection of partnership publishing models between international publishers and Chinese E-L medical journal publishing entities. Transaction cost theory identifies the key determinants influencing cooperation selection, including asset specificity, uncertainty, opportunism risk, and governmental support. Evolutionary game theory complements this framework by capturing the dynamic and adaptive nature of partnership decisions, explaining how cooperation strategies evolve and stabilize through repeated interactions rather than through one-time rational choice.

The empirical findings show that asset specificity, governmental support, and organizational size are the core factors shaping partnership publishing model selection. Asset specificity affects investment incentives and exposure to opportunism; governmental support reduces environmental uncertainty and stabilizes long-term cooperation; and organizational size influences negotiation capacity, editorial resources, and tolerance for transaction costs. Different configurations of these factors lead medical publishing entities to evaluate cooperation models differently.

By integrating theoretical modeling with empirical case studies, the study explains how these factors influence the evolutionary selection of cooperation models in practice. The study shows that changes in key parameters including specific asset investment, organizational capacity, levels of governmental support, and expected additional benefits can reshape the relative payoffs of different cooperation strategies and prompt transitions between models. For example, newly established journals with limited editorial capacity and strong external support tend to adopt full-service publishing as a stable option. As editorial capabilities and international experience grow, and as the demand for autonomy and cost control becomes more pronounced, entities—particularly medical associations—often shift toward fee-for-service models. Hospitals, given their more variable organizational structures and resource constraints, are more likely to pursue hybrid or intensive-service arrangements. Overall, these transitions reflect adjustments to evolving cost–benefit conditions and align with an evolutionary perspective on strategy change.

In summary, this study resolves the research problem identified in Chapter 1 by shifting the analytical focus to the medical journal sector, distinguishing among different types of medical publishing entities, and providing a structured theoretical framework that explains the mechanisms underlying partnership publishing model selection. By answering the research questions in an integrated manner, the study fills a critical gap in existing literature and offers both analytical insight and practical guidance for sustainable international cooperation in China's medical journal publishing system.

6.5 Limitations and prospects for future research

6.5.1 Limitations

This study has several limitations that should be acknowledged.

First, the research adopted an explanatory case design focusing on medical universities, hospitals, and professional associations, but did not include other emerging actors in China's E-L journal publishing ecosystem. Local publishing houses and Chinese publishing companies registered outside China have begun to participate more actively in partnership publishing. During the period of data collection, only two major overseas-registered Chinese publishing companies were included in this study. However, since 2025, with increased policy support for the development of high-quality Chinese-owned E-L journals, a growing number of such entities have emerged, many of which are particularly active in the medical field. The limited

inclusion of these emerging actors may constrain the comprehensiveness of the analysis in capturing the evolving diversity of the publishing landscape.

Second, the integration of evolutionary game theory with qualitative empirical data presents inherent methodological challenges. The theoretical model relies on quantifiable parameters and relatively stable payoff structures, whereas many key factors identified through interviews such as trust, negotiation efficiency, and policy alignment are qualitative, context-dependent, and difficult to measure in a consistent way. This mismatch limits the precision of empirical validation and the ability to systematically test model assumptions.

Third, the temporal scope of the study is bounded within a specific phase of China's policy-driven international impact of medical journals. As funding mechanisms, regulatory frameworks, and open-access policies continue to evolve, the observed cooperation patterns may change over time, which may reduce how well the findings apply to future contexts.

6.5.2 Prospects for future research

Building on the limitations identified above, future research can extend this study in several important directions.

First, future studies could broaden the analytical scope by incorporating a wider range of actors within China's E-L journal publishing ecosystem. In addition to international publishers, increasing attention should be given to local publishing houses, joint-venture publishers, and Chinese publishing companies registered overseas, which have become more active in recent years. Furthermore, variations among international publishers themselves, particularly differences in organizational scale, resource capacity, and global influence, may significantly affect partnership selection and governance structures. Comparative research across publisher types and sizes would provide deeper insights into how organizational characteristics shape collaboration strategies and outcomes.

Second, further theoretical development is needed to extend the current analytical framework. While this study integrates transaction cost theory and evolutionary game theory, future research could explore more complex multi-actor models that incorporate additional stakeholders, such as government agencies, funding bodies, and platform providers. Introducing dynamic elements such as policy shifts, funding changes, or technological disruptions into evolutionary models may also improve their explanatory power. In addition, complementary theoretical perspectives, including resource dependence theory and institutional theory, could be applied to provide a more comprehensive understanding of publishing partnerships. These approaches would better capture the roles of power asymmetry, legitimacy,

and policy influence in shaping collaboration dynamics. While transaction cost theory explains the selection of publishing models in terms of efficiency and cost minimization, resource dependence theory emphasizes the importance of resource constraints and dependency relationships, and institutional theory highlights the impact of policy pressures and legitimacy considerations on partnership decisions.

Third, methodological advancements would enhance empirical rigor and generalizability. Future research could adopt mixed-method or quantitative approaches, such as large-scale bibliometric analysis, contract data analysis, or survey-based studies, to complement qualitative case findings. The development of measurable indicators for key variables such as transaction costs, negotiation intensity, and performance outcomes would enable more systematic testing of theoretical models. Advanced methods, including network analysis or simulation modeling, may further support the study of complex interactions within publishing ecosystems.

Finally, future research could explore new substantive questions arising from this study. These include the long-term sustainability of different partnership models, the evolution of governance structures over time, and the impact of emerging technologies such as AI-assisted publishing on transaction costs and collaboration patterns. Cross-country comparative studies may also help distinguish context-specific dynamics from broader global trends in academic publishing.

In summary, future research should move beyond addressing current limitations to develop more comprehensive, dynamic, and comparative approaches, thereby deepening understanding of partnership publishing in an evolving global context.

6.6 Closing Remarks

The thesis demonstrates that publishing partnerships in China cannot be reduced to simple cost calculations. Universities, hospitals, medical associations, and publishers each navigate a complex mix of costs, benefits, policies, and strategic goals. By applying transaction cost theory critically and contextually, this research offers both theoretical refinement and practical lessons for understanding the evolving landscape of scholarly publishing.

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Annex A: Supplementary Tables

Table a.1 Journal lists of CAST journal programs

Year	Report title	Link
2016	Announcement on the Review Results of the Second Phase of the PIIJ	https://www.cast.org.cn/xkx/xw/tzgg/kjcx/art/2016/art_4cfcd5fef0194410948ecdcac3147a1d.html
2017	Announcement of Category D Projects for the Year 2017 under the Second Phase of the he PIIJ	https://www.cast.org.cn/xkx/xw/tzgg/kjcx/art/2017/art_1ea04a1696c3459e8f4d6bb474ec25b3.html
2018	Announcement of Category D Projects for the Year 2018 under the Second Phase of the he PIIJ	https://www.cast.org.cn/xw/tzgg/KJCX/art/2018/art_b46605244f9c4488ac5d52f0927ceef0.html
2019	Notice on the Issuance of Selected Projects for the Excellence Action Plan for Chinese Sci-Tech Journals	https://www.cast.org.cn/xs/TZGG/art/2021/art_4d3952e53d094d97a0128f7b1dc46955.html
2020	Notice on the Issuance of Selected Projects for the High-Starting-Point New Journals under the Excellence Action Plan for Chinese Sci-Tech Journals for the Year 2020	https://www.cast.org.cn/xkx/xw/tzgg/kjcx/art/2020/art_3a3e374fb1f247b2868684caa86ac7aa.html
2021	Notice on the Issuance of Selected Projects for the High-Starting-Point New Journals under the Excellence Action Plan for Chinese Sci-Tech Journals for the Year 2021	https://www.cast.org.cn/xkx/xs/tzgg/art/2021/art_32e59349d00b4bceb8f430a4f4c6557f.html
2022	Notice on the Issuance of Selected Projects for the High-Starting-Point New Journals under the Excellence Action Plan for Chinese Sci-Tech Journals for the Year 2022	https://www.cast.org.cn/xkx/xw/tzgg/kjcx/art/2022/art_c1c00f25cffa426980a54dc2c9b34f51.html
2023	Notice on the Issuance of Selected Projects for the High-Starting-Point New Journals under the Excellence Action Plan for Chinese Sci-Tech Journals for the Year 2023	https://www.cast.org.cn/xkx/xw/tzgg/kjcx/art/2022/art_c1c00f25cffa426980a54dc2c9b34f51.html
2024	Announcement of Selected Projects for the Second Phase of the Excellence Action Plan for Chinese Sci-Tech Journals	https://www.cast.org.cn/xs/TZGG/art/2024/art_1676399682.html

Table a.2 CAST programs' funding status of medical E-L journals established by universities

Phase II of PIIJ (2016-2018)			**Phase I of Excellence Action Plan (2019-2023)**			**Phase II of Excellence Action Plan (2024-2028)**		
Category	**No. of titles**	**Funding (million)**	**Category**	**No. of titles**	**Funding (million)**	**Category**	**No. of titles**	**Funding (million)**
Category A	1	¥6	Leading journals	1	¥3.6	Leading journals	3	¥22.5
Category B	2	¥6	Key journals	1	¥3			
Category C	4	¥6	Tiered journals	3	¥6	Tiered journals	14	¥32.5
2016 category D	3	¥1.5	2019 new journals	5	¥2.5	2024 new journals	7	¥0
2017 category D	2	¥1	2020 new journals	3	¥1.5			
2018 category D	2	¥1	2021 new journals	1	¥0.5			
			2022 new journals	8	¥4			
			2023 new journals	7	¥3.5			
Total	14	¥21.5		29	¥24.6		24	¥55

Table a.3 CAST programs' funding status of medical E-L journals established by associations

			Phase I of Excellence Action Plan (2019-2023)			**Phase II of Excellence Action Plan (2024-2028)**		
Category	**No. of titles**	**Funding (million)**	**Category**	**No. of titles**	**Funding (million)**	**Category**	**No. of titles**	**Funding (million)**
`Category A	1	¥6	Leading journals	3	¥17.4	Leading journals	5	¥37.5
Category B	3	¥9	Key journals	3	¥6			
Category C	2	¥3	Tiered journals	5	¥10	Tiered journals	12	¥30
2016 category D	2	¥1	2019 new journals	3	¥1.5	2024 new journals	3	¥0
2017 category D	2	¥1	2020 new journals	3	¥1.5			
2018 category D	2	¥1	2021 new journals	4	¥2			
			2022 new journals	2	¥1			
			2023 new journals	3	¥1.5			
Total	15	¥21		25	¥40.9		20	¥67.5

Table a.4 CAST programs' funding status of medical E-L journals established by hospitals

Phase II of PIIJ (2016-2018)			**Phase I of Excellence Action Plan (2019-2023)**			**Phase II of Excellence Action Plan (2024-2028)**		
Category	**No. of titles**	**Funding (million)**	**Category**	**No. of titles**	**Funding (million)**	**Category**	**No. of titles**	**Funding (million)**
Category A			Leading journals	0		Leading journals	1	¥7.5
Category B			Key journals	1	¥3			
Category C	1	¥1.5	Tiered journals	3	¥6	Tiered journals	3	¥7.5
2016 category D	1	¥0.5	2019 new journals	1	¥0.5	2024 new journals	2	¥0
2017 category D	1	¥0.5	2020 new journals	1	¥0.5			
2018 category D	2	¥1	2021 new journals	0				
			2022 new journals	2	¥1			
			2023 new journals	0				
Total	5	¥3.5		8	¥11		6	¥15

Table a.5 Specific asset investment by the university editorial office and the publisher

	Journal publishing Asset	**Specific Asset**	**Degree of asset specify**
The editorial office in the medical university	Managing editor	Specialized human assets	Semi-specialized
	Scientific editor	Specialized human assets	Specialized
	Editorial support staffs	Specialized human assets	Semi-specialized
	Editorial board members	Specialized human assets	Specialized
	Reviewer pool	Specialized human assets	Semi-specialized
	Unique intellectual property	Assets for specific purposes	Specialized
	Content	Assets for specific purposes	Specialized
The publisher (Company)	Journal publisher	Specialized human assets	Semi-specialized
	Production editor	Specialized human assets	Semi-specialized
	Technical team	Specialized human assets	Semi-specialized
	Marketer	Specialized human assets	Semi-specialized
	Sales team	Specialized human assets	Semi-specialized
	Peer review system	Specialized physical assets	Specialized
	Production technical system	Specialized physical assets	Specialized
	Digital publishing infrastructure	Specialized physical assets	Specialized
	Journal website	Specialized physical assets	Specialized
The editorial office or publisher	Peer review specialist	Specialized human assets	Semi-specialized

Table a.6 Cross-case summary of the university editorial office and its international publishing partner

Component	Editorial Office (University)	International Publisher
Asset specificity	High—strategic launch to internationalize traditional Chinese medicine; heavy institutional commitment; CAST PIIJ and Double First-Class support.	High—strong portfolio fit (pharmacognosy/medicinal plants); China strategy and subject leadership goals.
Governmental support	Strong—CAST PIIJ one-time USD 75k, ongoing Double First-Class and cross-subsidy from Chinese-language journals.	Strong internal backing—Headquarter and China office coordination; corporate commitment to China portfolio.
Search and information TAC (pre-contract)	High—6 months scouting; 4 candidates of publishers; RFP in English was time-consuming and unfamiliar.	Low search and moderate coordination—Editorial office approached them; RFP essential; China office guided editorial office through documentation.
Negotiation and decision TAC (pre-contract)	High—8+ rounds; finance and legal review; insisted on full ownership; extensive contract localization.	High—initial shared-ownership offer revised to full-service/sole ownership; heavy headquarter–China coordination to localize contract.
Post-contract TAC (early → later)	High → lower—6–8 months setup; frequent communications; delays (email response times, accents); smoother by year 3 with learning.	High → lower—intensive setup, training, customized indexation roadmaps; costs decline as routines stabilize.
Fees / financials	Per-article ≈ USD 1,800; 32–40 articles/year; indirect costs in staffing, negotiation, admin.	Stable service fee now; aims for APC revenue sharing as reputation/output grow.
Benefits realized / prioritized	DOAJ indexation; brand lifts author trust; cascading submissions; faster workflows (≈40 days from acceptance to publication by year 3); OA visibility; capability building.	Strategic China visibility; portfolio strengthening in TCM; operational smoothing; reputational gains via high-level partner; pipeline for further CAST journal cooperation opportunities
Final model selection	Full-service, full ownership (editorial independence prioritized).	Full-service (sole ownership at university)
Willingness to change model	Low to intensive-service (protect editorial independence); low to fee-for-service (brand fragmentation risk). Wants stronger offline outreach at conferences.	Open to targeted add-ons (offline outreach, tailored promotions); not pursuing intensive-service now (editorial office independence); skeptical of fee-for-service (coordination + brand dilution).
Key risks/constraints	Early communications inefficiency; high pre-/early TAC; heavy internal coordination.	Contract localization costs; resource intensiveness of customized services; manuscript pipeline uncertainty early on.

Table a.7 Specific asset investment by the hospital editorial office and the publisher

	Journal publishing Asset	**Specific Asset**	**Degree of asset specificity**
The editorial office in the hospital	Managing editor	Specialized human assets	Semi-specialized
	Scientific editor	Specialized human assets	Specialized
	Editorial board members	Specialized human assets	Specialized
	Reviewer pool	Specialized human assets	Semi-specialized
	Editorial support staffs	Specialized human assets	Semi-specialized
	Journal publisher	Specialized human assets	Semi-specialized
	Production editor	Specialized human assets	Semi-specialized
The publisher (Company)	Technical team	Specialized human assets	Semi-specialized
	Marketer	Specialized human assets	Semi-specialized
	Sales team	Specialized human assets	Semi-specialized
	Peer review system	Specialized physical assets	Specialized
	Production technical system	Specialized physical assets	Specialized
	Digital publishing infrastructure	Specialized physical assets	Specialized
	Journal website	Specialized physical assets	Specialized
	Peer review specialist	Specialized human assets	Semi-specialized
The editorial office and publisher	Co-owned intellectual property	Assets for specific purposes	Specialized
	Co- invest Content	Assets for specific purposes	Specialized

Table a.8 Cross-case summary of the hospital editorial office and its international publishing partner

Component	Editorial Office (Hospital)	International Publisher
Asset specificity	High: strong academic rationale for an E-L journal, investment of the embedded editorial office of the publisher	High: medical focus (respiratory/oncology); intensive embedded model; brand/workflow integration with the new title.
Institutional / funding support	Targeted, project-based (key lab, national designations); less stable than universities; clinical mission prioritized.	Stable internal commitment to China; resources allocated for embedded staff and tailored indexation/marketing.
Search & information TAC (pre-contract)	Initially approached two large publishers (standard full-service only); then engaged HK-based specialist offering intensive service; meetings replaced lengthy RFPs.	Low search (publisher approached EO); moderate information coordination via structured meetings and templates; avoided imposing heavy RFP burden.
Negotiation & decision TAC (pre-contract)	Moderate: focus on division of labor, service metrics, indexation milestones; accepted higher fee and co-ownership.	Moderate: justified higher fee (double price of full-service) and co-ownership due to embedded staffing and asset-specific commitments; aligned incentives on indexation but no guarantees.
Post-contract TAC (early → later)	High → lower: first-year alignment of roles and targets; templates and standard operating procedures reduced learning costs; routines stabilized.	High → lower: stood-up on-site team; trained editorial office; standardized workflows; staged indexation roadmap; declining coordination costs over time.
Fees / financials	Intensive-service fee significant but offset by project funding; APCs later used to relieve cost pressure.	Higher than full-service; near-term stability via service fee; medium-term upside anticipated from APC revenue sharing post-indexation.
Benefits realized / prioritized	Manpower substitution; reduced operational TAC; PubMed (year 3) and ESCI (year 5); synergies with Chinese journal; rising international visibility.	Faster early development; pipeline predictability via networks and cascading; portfolio strengthening in clinical oncology; China reputation gains.
Final model selection	Intensive-service with co-ownership (embedded staff; shared responsibilities).	Intensive-service with co-ownership (embedded team; active content acquisition and board building).
Willingness to change model	Low in short term (stability valued); aware of high switching costs under co-ownership; APCs now offset fees.	Low: model validated by indexation/APC uptake; intensive service balances higher upfront investment with lower long-run TAC.
Key risks / constraints	Small editorial office (2 staff); dependence on project funds; switching costs (systems, brand, backfiles, DOIs).	Upfront resource exposure; need to manage expectations on indexation; maintain embedded team efficiency.

Table a.9 Specific asset investment by the editorial office in the medical association and the publisher under the fee-for-service partnership

	Journal publishing Asset	**Specific Asset**	**Degree of asset specificity**
The editorial office in the medical association	Managing editor	Specialized human assets	Semi-specialized
	Scientific editor	Specialized human assets	Specialized
	Editorial support staffs	Specialized human assets	Semi-specialized
	Editorial board members	Specialized human assets	Specialized
	Reviewer pool	Specialized human assets	Semi-specialized
	Unique intellectual property	Assets for specific purposes	Specialized
	Content	Assets for specific purposes	Specialized
The publisher (Company)	Finance management staffs	Specialized human assets	Semi-specialized
	Production editor	Specialized human assets	Semi-specialized
	Technical team	Specialized human assets	Semi-specialized
	Market service	Specialized physical assets	Semi-specialized
	Sales service	Specialized physical assets	Semi-specialized
	Peer review system	Specialized physical assets	Specialized
	Production technical system	Specialized physical assets	Specialized
	Journal hosting platform	Specialized physical assets	Semi-specialized
	Payment system	Specialized physical assets	Specialized
	Copyright system	Specialized physical assets	Specialized
	Journal website	Specialized physical assets	Specialized

Table a.10 Cross-case summary of CMA journal press and its international publishing partner

Component	CMA Journal Press (Association)	International Publisher
Asset specificity / capacity	Low: no co-investment required; services are purchased from the publisher as discrete functions. Core editorial and production work remain internal to CMA's journal press, requiring no new asset commitment for this partnership.	Moderate in this contract (fee-for-service): no embedded staff, limited bespoke workflows; relies on existing global systems.
Institutional / funding base	Diversified: conferences plus publishing revenues and CAST programs; stable and sizable.	Strategic budget for China; accepts low margin for market presence and future titles.
Search & information TAC (pre-contract)	Low search (publishers approached CMA); higher information cost to configure targeted services without duplicating in-house capacity.	Low search (existing relationships); higher information cost to adapt offer from full-service to fee-for-service under flagship brand.
Negotiation & decision TAC (pre-contract)	High: insisted on editorial/financial control; rejected full-service; specified boundaries (files produced in-house, targeted services only).	High: internal approvals to use flagship brand on fee-for-service; redefine scope and pricing despite low profitability.
Post-contract TAC (monitoring & enforcement)	Moderate/controlled: clear division—CMA runs editorial/production; publisher provides platform/PR/marketing; some rigidity from standardized global processes.	Higher than expected: frequent custom requests and single point of contact coordination increased cross-team workload.
Fees / financials	Lower fee than full-service; retains revenues and cost transparency; avoids paying for overlapping services.	Modest fee; thin margins; TAC relatively high vs. revenue; relies on strategic upside (gateway to other CMA titles).
Benefits realized / prioritized	International dissemination, stronger global visibility; preserved autonomy over finance/production; workflow upgrades (systems, continuous publication, reviewer growth).	Reputation boost via CMA flagship; credibility in China market; led to new full-service CMA titles with better economics.
Final model selection	Fee-for-service (bundled targeted services under one publisher; ownership, finance, and production retained by CMA).	Fee-for-service for flagship; later secured additional CMA journals under full-service.
Willingness to change model	Low for the flagship (current fit is good, costs manageable); full-service considered mainly for new-start journals.	Low short-term (relationship stability); long-term aim to rebalance workload/fees or expand into more integrated models for new titles.
Key risks / constraints	Dependence on publisher's standardized workflows can slow custom requests; supervision effort needed across vendors.	Fee–workload mismatch; high coordination burden; low asset specificity reduces built-in prioritization incentives.