European Journal of Business and Management
ISSN 2222-1905 (Paper) ISSN 2222-2839 (Online)
Vol.9, No.34, 2017

Reputation, Academic Experience, and Collaboration Returns from International Co-authorships

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Abstract

In recent years, the phenomenon of international co-authorships from emerging economies, especially Chinese scholars' academic collaborations, has become the focus of academic attention. Based on resource-based theory, taking the native scholars from mainland China with international co-authorships in 39 leading management journals as the sample, the article investigates the influence of individual scholars' reputation and academic experience on their international collaboration returns. The empirical results show that, (1) Chinese native scholars could receive positive collaboration returns from international co-authorships; (2)the impact of academic experience of native scholars on collaboration returns depends on the measurement of "experience". Early publishing experience in international journals positively influence collaboration returns, while the number of articles published in international journal does not have significant impact on collaboration returns.

Keywords: Chinese native scholars, Collaboration returns from international co-authorships, Resources-based theory, Reputation, Academic experience

1. Introduction

Collaboration Returns refer to the individual's rewards from the publication of academic articles, which can be measured by the number of citations. Laband & Piette (1994) argue that citations are the returns from academic articles for individual scholars. Wuchty et al. (2007) find that co-authored articles received more citations than solo-authored articles. Chung et al. (2009) show that co-authored articles are more frequently cited and are more likely to achieve success with prolific authors. However, research collaborations also bear costs such as the diseconomies of scale from more authors and compromises on the research results (Hackman,1990; Hudson,1996). Medoff (2003) empirically tests whether or not researchers who collaborate produce higher quality research than those of solo-authors, and concludes that there is no significant increase in research quality measured by citations. Moreover, in the context of international co-authorships, there are also ineligible impacts on the collaboration returns from international co-authorships such as language differences, cultural conflicts and communication costs brought about by long-distance communications. Given the above cost-benefit analysis (Hudson,1996; Medoff, 2003), it is still worthy of further research on whether the international co-authorships could bring positive benefits.

The extant literature has focused on the macro-level factors driving the returns from international co-authorships, such as differences in disciplines(Goldfinch et al., 2003; Leimu & Koricheva, 2005), countries (Goldfinch et al., 2003), the number of co-authors (Puuska et al., 2014; Goldfinch et al., 2003). However, few literature addresses the impact of individual scholars' characteristics on collaboration returns on the micro level. Individual scholars who have collaborated more often with international researchers will be more likely to obtain "competitive advantages" in academic careers, such as access to more funding opportunities and further improved research conditions. In view of this, the paper attempts to apply the resources-based theory and investigate how the resource characteristics held by Chinese native scholars would influence the collaboration returns from international co-authorships.

2. Theoretical Background and Hypotheses

2.1 Resources-based Theory

In the extant literature, resources-based theory is usually applied on the organizational level (Barney, 1991; Das & Teng, 2000). The basic argument of the resource-based theory is that firms integrate knowledge and other resources to create distinct organizational capabilities in order to gain competitive advantage(Barney, 1991; Grant, 1996).As market and technology environment shifts, firms are often confronted with inadequate resources and inter-firm cooperative arrangements are often seen as a response to this challenge(Child, et. al., 2005).

On the individual level, there are a lot of similarities between individual scholar's co-scholarships and inter-firm cooperative relationships. Some studies show that in order to acquire professional knowledge and solve complicated problems, scholars tend to establish cooperative relationships (Rijnsoever, et. al., 2008). Hagstrom (1996) argues that scholars could earn "rewards" in the form of peer-recognition, academic rewards, or science funding through scientific research. From this perspective, the aim of cooperation between individual scholars is also to gain "competitive advantage". Such competitive advantage includes several dimensions: increasing the quantity and quality of research output, improving academic rankings and gaining competitiveness in the acquisition of science funding. Just as firms use their cooperative relationships to acquire and utilize resources, knowledge and capabilities, individual scholars also collaborate with others to acquire professional skills and knowledge, gain interdisciplinary cooperation achievements, increase the possibility of receiving science funding , get peer recognition or improve the visibility and solve complex problems through integrating relevant knowledge (Katz & Martin, 1997; Rijnsoever & Castaldi, 2008). Therefore, the motives for cooperation in scientific research area are often related to the resource stock of individual scholars, which can be used to obtain returns (Rijnsoever, et al., 2008). Therefore, the resources-based theory can be used to explain the co-authorships among the individual scholars.

2.2 Research Hypotheses

In research collaborations, the resources held by individual scholars are often represented as reputation and academic experience (Bidaulta & Hildebrand, 2014). Reputation refers to the degree of academic peer recognition for individual scholars. As a unique resource owned by individual scholars, reputation contributes to the value creation for scholars in scientific research activities. The benefits for individual scholars with higher reputation include not only more funding opportunities but also higher citations because of the high visibility gained from publications. Azoulay et al. (2011) find that the receipt of a major award have a positive, although limited, impact on the number of citations received by articles published after the status-conferring prize. Therefore, the hypothesis is stated as follows:

H1: The reputation of Chinese native scholars has a positive impact on their international collaboration returns.

Academic experience refers to the problem-solving methods when individual scholars accumulated in the research process. Scholars who started their academic career earlier have mastered more extensive knowledge. They have gained a deeper understanding of the underlying research areas and have accumulated more professional knowledge and skills. Therefore, scholars who have more academic experience will benefit from international co-authorships.

In addition, scholars with international co-authorships may come from different disciplines which held different research perspectives, traditions, languages, symbols and meanings. During the cooperation processes, effective knowledge exchange among co-authors requires that the collaborators must reach some consensus on some aspects, such as common language and terminology (Nahapiet & Ghoshal 1998), professional knowledge, shared experience (Wasko & Faraj 2005) and a common vision(Tsai & Ghoshal 1998). Scholars who start academic research earlier have a deeper understanding about the subject and these scholars may also apply their academic experience to academic research activities, for instance, they can publish high-quality papers by choosing an interesting research topic and using appropriate research methods, so as to get a positive return from international co-authorships. Therefore, the hypothesis is stated as follows:

H2: The academic experience of Chinese native scholars has a positive impact on their international collaboration returns.

3.Research Design

3.1 Data Collection

The article attempts to investigate whether or not Chinese native scholars could capture positive collaboration returns from international co-authorships. International collaboration returns refer to the immediate returns

arising from the co-authored publications (Bidaulta & Hildebrand, 2014).The data are compiled from various sources including the Web of Science, personal home pages for individual scholars, and the JCR database.

The level of data analysis in this paper is "focal article". For the choice of focal articles, in order to control the influence of different disciplines, this paper first takes the native scholars from mainland China with international co-authorships in the field of "management" as the research object. Based on Acedo et al.(2006) and Gomes et al.(2016), 39 leading international leading management journals are selected. In the Web of Science database, we used the advanced search option by combing "SO (Publications Names)" and "AD (Addresses)" with a time span limited to 1990-2016. The retrieved 1596 articles by Chinese scholars were used to conduct bibliographic information collection, including the titles, publication date, the names of all authors, the affiliation, the country, the number of partners and the number of countries. When the same author is affiliated with two or more institutions, we select the author's full-time employment institution by retrieving the author's personal home page via internet.

Secondly, because the article attempts to examine the international collaboration returns by native scholars from mainland China, we defines "Chinese native scholars " as those who have obtained undergraduate or professional qualifications from full-time colleges and universities in Mainland China and have been employed by Chinese mainland universities or research institutions. Therefore, we exclude the following publications: (1) the articles written by single author, (2) all authors are from the same country, (3) non-academic publications (such as call for papers), (4) the affiliated institutions are not located in Mainland China (i.e. excluding Chinese Hong Kong, Chinese Macao and Chinese Taipei), and (5) the authors' affiliated institutions belong to Sino-foreign cooperative universities (Such as Cheung Kong Graduate School of Business, Shanghai New York University). Finally, we get 333 international co-authored papers involving Chinese native scholars.

Finally, considering the collaboration returns by Chinese native scholars from international co-authorships, we collect the citation data of the two stages before and after the focal articles were published. Therefore, we selected 71 international co-authored papers as the focal articles which were published in 39 leading management journals between 2008 and 2010.

We choose the focal authors based on the following principles: (1) if the focal article only involves one Chinese native scholar, then the scholar is the focal author. (2) if more than two Chinese native scholars are involved, the focal author is determined by the correspondent author or the order of authorship. According to the author's information in the focal article, no duplicate focal authors are found, so there is a one-to-one correspondence between the focal author and focal article.

For each focal author, we first retrieved publications from the Web of Science according to "AU (author)". Considering that the retrieved authors may have identical names, we further cleaned the data according to the author's CV, and the address, affiliations and research direction in the bibliographic information to ensure Chinese native authors that retrieved from the article are identical with the focal authors. In addition, a total of 741 international co-authored articles were obtained by eliminating the non-international co-authored article published by the 71 focal authors. Secondly, for each focal author, we manually sorted out the number of international co-authored articles, the co-authors of each paper, the title of the publications, the date of publication, and the annual citations. Finally, based on the JCR database, we obtained the average five-year impact factor of the journals in which all retrieved articles are published.

3.2 Variable Definition and Measurement

International collaboration returns refer to the immediate returns arising from the publication of the co-authored paper (Bidaulta & Hildebrand, 2014). In this study, we use the number of citations with a fixed citation window to measure the collaboration returns from international co-authorships. The advantage of fixed citation window is that it is less affected by the distribution of citation frequency. So we counted the number of citations within three years window period prior and after the publication of the focal article. In this paper, the international collaboration returns is measured as the difference between the number of citations obtained by the focus article and the average number of citations of the native scholar’s received by other publications prior to the focal article.

The resources owned by individual scholars include reputation (REPUT) and academic experience (EXPER) (Bidaulta & Hildebrand, 2014). Based on Bidaulta & Hildebrand (2014), the impact factor is used as a proxy for reputation. As a generally accepted indicator, impact factor reflects to some extent the quality of the paper and the academic influence of the journal. Because of the reputation effects, we expect that authors published articles in journals with higher impact factors will receive positive collaboration returns. However, in order to reflect the late citation peaks and avoid the volatility of impact factors and reflect the average quality level of journals in recent years, the article selects 5-years' impact factors. In addition, as individual scholars may publish articles in

several journals, the highest five-year impact factor and the average five-year impact factor are taken as the measures of the reputation respectively.

As another resource owned by native scholars, academic experience reflects the problem-solving methods that individual scholars have accumulated in their research activities. Based on Bidaulta & Hildebrand (2014), this paper measures the academic experience as the number of articles published in international journal before the focal article and the time interval between the first international co-authored article and the focal papers. Generally speaking, scholars who are prolific and have earlier publishing experience may have accumulated more experience and also have the opportunity to expand their academic network and gain positive return from the international co-authorships.

Considering that gender (GENDER) significantly affect the research performance of scholars(Rijnsoever, et. al, 2008) and a considerable number of native scholars have received PhDs abroad(DUMPHD), so we take "gender" and "overseas education background" into the model as control variables to eliminate the influence of other factors on the native scholars' international collaboration returns.

4 Tests for Collaboration Returns from International Co-authorships and its Antecedents

4.1 Tests for Collaboration returns from International Co-authorships

According to the above measurement on international collaboration returns, we select 71 focal articles published by the native scholars (including 71 non-repetitive native scholars) published during the 5-year period between 2008 and 2010 as the cut-off points and using the 3-year fixed window period, and summarize the number of citations obtained by 71 focal articles(CITATIONS) and the number of citations received by other publications prior to the focal article(PCITATIONS). Thus, we get 71 paired samples of the number of citations. Table 1 shows that native scholars could receive positive collaboration returns from international co-authorships.

Table 1 The Paired Samples Test on the International Collaboration Returns

	Mean	SD	Standard error of mean	*T*	Sig.
The number of citations obtained by the focal articles(CITATIONS)	10.75	8.898	1.056		
The number of citations of the native scholar's other publications prior to the focal article(PCITATIONS)	1.91	3.957	0.47		
CITATIONS－PCITATIONS	8.840	8.774	1.041	8.489	0.000

4.2 Descriptive Statistics and Correlation Matrix

Table 2 shows the descriptive statistics and correlations of the variables. As shown in Table 2, international collaboration returns is significantly positive correlated with individual scholars' reputation and academic experience, which provides preliminary evidence in support of our hypothesis.

Table 2 Descriptive Statistics and Correlation Matrix

	Mean	SD	1	2	3	4	5	6
1.COLRET	28.651	18.284	1					
2.REPUT	1.719	2.150	0.095*	1				
3.ARTNUM	1.485	3.144	0.117	0.534**	1			
4.TIMINTV	27.970	20.067	0.969**	0.11	0.14	1		
5.GENDER	0.7576	0.43183	0.129	0.248*	0.224	0.15	1	
6.DUMPHD	0.4091	0.49543	-0.259*	-0.029	-0.001	-0.270*	-0.105	1

Note: The diagonal is the VIF value, ***. P <0.01, **. P <0.05, *. P <0.10

4.3 Regression Results and Discussion

The article constructs four regression models. Model 1 contains only control variables (GENDER and DUMPHD); Based on model 1, individual scholars' reputation (REPUT) and academic experience (ARTNUM and TIMINTV) are added respectively to Model 2 and Model 3; Model 4 examines the effects of all independent

variables and control variables. The regression results are shown in Table 3. From the perspective of model fit, the degree of fitness for model 4 is the highest, so we analyze the result based on Model 4 .

Table 3 The Regression Results of International Collaboration Returns

Variables	Model 1	Model 2	Model 3	Model 4
REPUT		0.436		0.002
ARTNUM			-0.092	-0.093
TIMINTV			0.887***	0.887***
GENDER	4.380	3.683	-0.547	-0.548
DUMPHD	-9.165*	-9.156*	0.072	0.073
Adjusted R^2	0.078	0.082	0.901	0.918
F- statistic	2.656	1.843	237.829	187.144
Probability	0.078	1.149	0.000	0.000

From Table 3, it can be seen that the reputation of native scholars (REPUT) has no significant influence on their international collaboration returns, thus Hypothesis 1 is not supported. Generally speaking, scholars who have published articles in high-impact-factor journals may have mastered relevant expertise and skills in certain fields and show high visibility because of the scarcity of high-impact-factor journals. Therefore, they should be more attractive to potential collaborators and may receive positive returns from collaboration. Contrary to our expectations, native scholars with high reputation do not influence their collaboration returns. It deserves more attention in future research.

Secondly, the influence of native scholars' academic experience on their international collaboration returns partly supports Hypothesis 2. As can be seen from Table 3, as a measure of academic experience, the time interval of native scholars (TIMINTV) has a significantly positive effect on international collaboration returns(β=0.887, $P<0.01$), which suggests that scholars who started their academic careers earlier may have accumulated rich academic experience and were often able to choose interesting research topics, find appropriate problem-solving methods, and are more likely to establish their own academic networks(Lee & Bozeman2005), improve the quality of scientific research and thus obtain positive return from international co-authorship.

However, as another measurement on academic experience, the effect of the number of articles (ARTNUM) on international collaboration returns is not significant. This may be due to the fact that the large number of papers published by local scholars is not equivalent to the high quality of scientific output. Therefore, the larger number of articles could not be regarded as a "signal" for attracting outstanding foreign collaborators.

5. Conclusion

Based on resource-based theory, taking the native scholars from mainland China with international co-authorships in 39 leading management journals as the sample, we investigate empirically on how the characteristics of resources held by native scholars influence the collaboration returns. The empirical results show that: (1) native scholars could receive positive collaboration returns from international co-authorships; (2)the impact of academic experience of native scholars on collaboration returns depends on the measurement of “experience”. Early publishing experience in international journals positively influence collaboration returns, while the number of articles published in international journal does not have significant impact on collaboration returns.

The empirical results not only have important implications for Chinese native scholars establishing or participating international co-authorships, but also may provide suggestions for Chinese universities promoting academic influence. On the one hand, researchers should start their academic career earlier, accumulate professional knowledge and problem-solving methods, and continue to enhance the accumulation of their own resources in order to increase international collaboration returns. On the other hand, universities in mainland China should formulate policy incentives to encourage native scholars who have high reputation and rich academic experience to share knowledge and transfer their accumulated problem-solving methods, thereby enhancing the level of scientific research in universities in mainland China.

There are still some limitations in this study. First of all, this article uses the number of citations as a proxy to measure the international collaboration returns of native scholars, future research should use other indicators, such as the academic reputation and the changes of academic position to measure the benefits from international co-authorships. Secondly, international co-authorship is one type of scientific research cooperation, future

research can investigate the international return that the native scholars received from other types of research collaborations ,such as international research cooperation projects and international cooperation on patent applications.

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