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Overseas expansion of South Korean renewable energy firms: Status and barriers

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ABSTRACT

The objectives of this study are to investigate the current status of and barriers to the overseas expansion of South Korean renewable energy firms into developing countries, and to suggest related policy implications. Since 2008, the South Korean government has supported overseas expansion of South Korean renewable energy industries, in order to achieve national development of its “low-carbon, green-growth” vision. However, to date, the current status of and barriers to the overseas expansion of South Korean renewable energy firms have not been researched.

To do so, we divided the overseas expansion process into three steps and investigated the influence of important factors at each step. This research is made use of a survey and interviews, and the results thereof indicate that the major barriers to expansions are unstable political conditions, a lack of information, a high dependence on business partners, a complicated government-based process, and the reluctance of private investors. In overcoming these barriers in expanding into developing countries, the role of government and especially the role of public agencies is essential.

1. Introduction

In 2008, the South Korean government announced “low-carbon, green-growth” as the new national development vision, and to that end, it started to actively develop the country's renewable energy industry [1]. As one of the measures by which to develop the renewable energy industry, the South Korean government has supported the overseas expansion of South Korean renewable energy firms.

However, it seems that overseas expansion of South Korean renewable energy firms has not been successful [2]. South Korean firms hold a mere 1.4% share of the global renewable energy market, while firms in developed countries hold 60–80% of the market share [1,3]. On the green competitiveness index, South Korea was 18th among 28 OECD countries [4]. Moreover, exports by South Korean renewable energy firms have rapidly fallen since 2011 [5].

To support the overseas expansion of South Korean renewable energy firms, it is essential to investigate how these firms have acquired business opportunities and, carried out their business, as well as what difficulties they have experienced in the process of expanding overseas. These matters have not yet been investigated. The previous literature on overseas expansion in renewable energy has analyzed some specific

factors i.e. political relations or a part of overseas expansion such as export, international aid or business in overseas market. Therefore, it doesn't provide sufficient information on status of and barriers to overseas expansion. This study aims to explore the current status of overseas expansion by South Korean renewable energy firms into developing countries, determine the barriers that they face, and suggest the policy implications thereof. For this, we surveyed renewable energy firms that have experienced overseas expansion or are currently undertaking overseas expansion in developing countries.

The contribution of this paper is follows. Firstly, we investigated the entire process of overseas expansion from opportunity seeking to business operation. For this, we identified determinants based on the literature on overseas expansion in other sectors. Secondly, we explored Korean renewable energy firms' overseas expansion, especially into developing countries. Developing countries have high growth potential in terms of the renewable energy market, but this has not been sufficiently studied. However, the previous literature on developing countries has analyzed international aid. Lastly, results in this study provide which part has higher priority to be supported.

Most of South Korea's renewable energy firms are small and medium enterprises (SMEs) [6]. They attempt overseas expansion

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with limited assets. Therefore, for these firms, the provision of the government support is very important. The results and policy implications drawn from this study will be very meaningful and useful in this regard. We expect that the results in this paper help Korean renewable energy firms successfully expand their business into developing countries and policy makers improve supportive programs.

This paper is organized as follows. Section 2 reviews the previous literature on overseas expansion is reviewed, and Section 3 describes this study's research method. The results are presented in Section 4, Section 5 provides discussion and concluding remarks.

2. Literature review

2.1. International expansion model

Overseas expansion studies primarily use both the Uppsala internationalization model (U-model) and the innovation-related internationalization model (I-model) [7,8].

The U-model is a dynamic model used to analyze the interaction between both tangible and intangible assets and decision-making with regards to new markets. In the U-model, tangible assets such as human resources, organizations, branches and distribution channels, as well as intangible assets such accumulated experimental knowledge, influence the selection of new market. Decisions made with regards to new markets ultimately add to the body of experimental knowledge, and such accumulated assets affect the next new market decision.

The U-model is well developed and provides some significant results, but it has been criticized as being somewhat limit. First, the U-model does not explain how overseas expansion initially occurs [8]. Second, detailed reviews of each stage are weak. Third, firms simply do not follow the traditional pattern [7].

The I-model is a stepwise model [8]. The “innovation” part of its name speaks to each subsequent stage of internationalization [9]. The entire process from the idea of overseas expansion to doing business in an overseas market, as well as the influence of various factors at each stages are explored in the I-model [8]. In short, a large number of variables are investigated in the I-model, while a few specific factors are covered in the U-model. Accordingly, the I-model is more appropriate for a study of overseas expansion among SMEs that have a newly developed overseas market.

As mentioned, most South Korean renewable energy firms are SMEs, and they rarely undergo overseas expansion. They have few assets in the overseas market. Accordingly, the use of the I-model is more appropriate than the U-model in investigating the current status of South Korean renewable firms in expanding overseas, as well as the barriers they face in doing so.

2.2. Determinants of international expansion

There is an extensive body of literature on overseas expansion activities, irrespective of industry and country. These studies analyze various factors (e.g., motivation, financing, registration) as determinants of overseas expansion.

Luo and Tung [10] explore the motivation of firms in expanding into overseas markets, and categorize them as belonging to one of two types namely, asset-seeking and opportunity-seeking. Asset-seeking firms are those that look to expand their business into overseas markets to gain natural resources, or human capital, or to avoid some regulations in their home country. These firms require these assets to enhance their competitiveness. Opportunity-seeking firms are those exploring emerging opportunities. These firms look to promote their brand and products in the overseas market, and thus pursue profit-making.

According to Lou and Tung's typology, the overseas expansion of South Korean renewable energy firms is of the business-opportunity seeking type. South Korean renewable energy firms expect to overcome

domestic market constraints and earn new profits from business in overseas markets. The first step in opportunity-seeking is the identification of opportunities in foreign markets. However, SMEs rarely have experience with overseas markets. As a result, in this first step they experience difficulties in researching foreign market information [11–13]. Limited information on overseas markets is the serious hurdle that they face in expanding their business, especially, into developing countries [14]. The lack of foreign market information can be overcome through networking and the appropriate use of human resources [15]. Working with competent partners reduces many of the risks inherent in the overseas expansion process.

Many studies emphasize the financial and institutional supports given by home and host governments for international expansion [10,16]. Seeking out business opportunities, preparing for overseas expansion, and operating a business in a foreign market are all costly ventures. The cost becomes higher when firms are SMEs that do not have sufficient experience in overseas markets [17]. Most South Korean renewable energy firms are SMEs that have a lack of experience and newly enter foreign markets. Consequently, investors tend to avoid investing in those firms. The higher-risk nature of the renewable energy industry is another reason why investors avoid investing in South Korean renewable energy firms. Therefore, it is imperative that the government provide financial support for overseas expansion [13,18].

An institutional system can serve as either a trigger for or barrier to overseas expansion [16,19]. Having a well-established institutional system can boost overseas expansion, while underdeveloped institutional systems can hinder it. Irregular announcements, inefficient government program processes, unpredictable regulatory changes, and lack of transparency in public services (e.g., corruption) all serve as barriers to overseas expansion [10]. On the other hand, the availability of high-quality information with respect to the foreign renewable energy market, the provision of well-organized financial supports, and the presence of public agencies in foreign countries will encourage overseas expansion.

In any case, one must also consider that cultural distance embodied in difference procedural style, paperwork, and communication complicates overseas business [8,20].

In this study, we categorize the determinants of overseas expansion, as discussed in the literature, into four groups namely, information, human resources, financial resources, and institutional systems and culture. It then investigates the overseas expansion of South Korean renewable energy firms in terms of these four groups of determinants.

2.3. Overseas expansion in renewable energy industry

While there is an extensive body of literature on overseas expansion activities, only a few papers have investigated overseas expansion of renewable energy industry. Most existing researches on renewable energy industry have studied renewable energy technology or domestic renewable energy market [21–23]. Overseas expansion of renewable energy industry is not sufficiently examined. Moreover, researches on overseas expansion of renewable energy industry have focused on export [24–26]. There is only a few studies which investigated overseas expansion of firms in renewable energy sector [27–31].

Curran and Lv [27] investigated overseas expansion of China wind and solar firms in EU countries. They categorized firms into two groups based on the objective; market-seeking and technology seeking and investigated how both groups response to political relations between China and partner country. In their research firms that seek market sensitively response to political tension between two countries but firms that seek technology is not influenced. Zhao and Ling [30] explored overseas expansion into China. They explored advantages and disadvantages of local firms and foreign company in wind turbine market. They compared cost, quality, flexibility, delivery of local firms and foreign firms. In the results, local firms have advantages in cost and flexibility while foreign firms have advantages in quality and

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