Born Global Strategies and the Corporate Performance of Korean Firms

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Abstract

Purpose – This paper empirically investigates the relationship between born global strategy and the accounting- and market- based financial performance of Korean firms. Further, this study identifies the characteristics of born global firms (BGs) in comparison with non-BG counterparts in terms of size, R&D, and liability.

Design/methodology – Using a database of listed Korean SMEs in the manufacturing sector from 2010 to 2020, this study applies panel generalized least squares (GLS) estimation and logistic regression techniques.

Findings – This study finds that BG strategy is negatively related to the firm's accounting-based financial performance, while it is positively related to the market-based financial performance. This study also finds that BGs have higher sales volume and more total assets compared to their non-BG counterparts. In addition, Korean BGs spend more on R&D, and at the same time have higher liability.

Originality/value – BGs, by definition, are firms that are actively penetrating foreign markets from the early stages of their establishment. Previous studies of Korean BGs have tried to identify the determinants of BGs' rapid internationalization and their superior performance. However, most of these studies have utilized either qualitative case- or survey-based analyses with relatively limited numbers of observations. From a different perspective, this study provides more objective evidence by investigating how the BG strategy affects the financial and market performance of firms, and by characterizing BGs in terms of financial data.

Keywords: Accounting- and Market- Based Financial Performance, Born Global Strategy, Firm Size, Korean Firms, Liability, R&D Expenses
JEL Classifications: G32, M16

1. Introduction

Traditionally, a firm's entry into the overseas market has been made gradually through exports, joint ventures, or direct investment after establishing a foothold in the domestic market. However, since the 1990s, with the changes in the international business environment, such as the rapid development of communication and information technology, Born Global Firms (BGs) (Knight and Cavusgil, 1996; Rennie, 1993) or International New Ventures (Mudambi and Zahra, 2007; Oviatt and McDougall, 2005), which enter overseas markets aggressively at an early stage, have emerged. This phenomenon has spurred a series of studies identifying the success factors of these firms. For example, Jang Hyun-Suk (2018) has studied the 5,986 Korean BGs over the 14 years from 2004 to 2017 and reported that they

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achieved an export performance of 1 million dollars in an average of 2.5 years after establishment. In particular, it was found that 11.7% of BGs recorded high export growth rates of more than 100% annually. In addition, 15.2% of these firms exported 1 million dollars in the first year of their establishment, and they export an average of 9.3 items to 5.5 countries, indicating that the export market and items are diversified. The same study reports that Korean BGs performed better than firms that started overseas activities after a considerable period of time (7 to 8 years) from inception, in terms of average export volume, number of exporting countries, and number of items exported. Overall the study emphasizes the importance of early internationalization, especially for small and medium-sized enterprises (SMEs) in Korea.

However, a firm's entry into the overseas market can have a negative effect on the long-term survival of the firm because it increases costs and risks due to the difficulties of operating as a foreign company (liabilities of foreignness), which are not necessary in the domestic market. In the case of SMEs that have been established recently, there are additional difficulties associated with being a start-up company (liabilities of newness) and a small company (liabilities of smallness). These threat factors can become more prominent when SMEs enter overseas markets. Accordingly, it would be difficult to say that the born global strategy is successful and has laid the foundation for sustainable growth of the firm just because SMEs pursue this strategy and increase their overseas sales at a specific time or period. What is important is the evaluation of the profitability of the firm after considering cost or risk factors or, in the case of a listed firm, the valuation of the company in the capital market.

Early studies regarding BGs tried to identify the success factors of rapid internationalization and subsequent success in foreign markets.[1] Studies of Korean BGs also suggest that SMEs that pursue a born global strategy tend to have higher financial (sales, yield, etc.) and non-financial (market share, number of overseas subsidiaries, etc.) performance than those that do not (Cha Soon-Kwean and Min-Ho Kim, 2009; Kim Hyung-Jun and Duk-Hwa Jung, 2007; Park Seo-Yeon and Seog-Soo Kim, 2014; Song Kwan-Yong and Kyong-Hwan Kim, 2019). Most of these studies rely on surveys or case analyses. In the case of the survey, the survey respondents' perceptions of the company's performance are measured against perceptions of competitors who do not pursue the born global strategy. Therefore, it would be difficult to objectively say that BGs have achieved excellent managerial performance because the results are based on the subjective judgement of survey participants. Also, results from case studies with limited numbers of successful cases are hard to generalize.

Some studies have recently begun to investigate the characteristics of BGs using longitudinal data for more objective results. For example, Sleuwaegen and Onkelinx (2014) study Belgium BGs and report that they have higher export growth rates than their non-BG counterparts. At the same time, however, they also find that the failure rates of BGs are higher. Choquett et al. (2017) compare Danish BGs and non-BGs and find that sales and employment are higher in BGs, but there is little difference in productivity. Braunerhjelm and Halldin (2019) also investigate Swedish BGs with NBGs and show that the sales and employment growth rates are higher in BGs. However, profitability and productivity of the two groups are similar. Kim Min-Ho, Sang-Lo Lee and Che-Yung Kang (2020) examine the financial characteristics of Korean BGs and find that they tend to have more growth potential than their non-BG counterparts, but BGs are less profitable and less financially stable. Kang Che-

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[1] For a comprehensive literature review see Cavusgil and Knight (2009), Dzikowski (2018), and Paul and Rosado-Serrano (2019).

Yung and Min-Ho Kim (2021) study the valuation effects of born global strategies made by Korean SMEs, and report that the capital market does not value early internationalization. They argue that this is because market participants might consider the born global strategy as a risk factor when valuing the BGs.

Although earlier studies provided evidence of superior performance of BGs, recently those with secondary data report that the born global strategy taken by SMEs is not always financially successful. Since research on the performance of BGs with financial data is still in its infancy, a question that merits further investigation is whether early internationalization enhances the financial performance and subsequently acquires proper valuation in the capital market. The purpose of this paper is to investigate this issue further. In addition, this study tries to identify the characteristics of BGs vis-à-vis their non-BG counterparts in terms of size, research and development (R&D), and liability. The rest of this paper is organized as follows: The next section develops the hypotheses we test. Section 3 presents the sample data, variables and models used in this study. Section 4 explains the empirical results, and the final section provides discussion and the conclusion of this paper.

2. Hypotheses

The first hypothesis addresses whether the adoption of the BG strategy leads to superior financial performance. Two different measures of financial performance are generally used in the literature. These can be classified as either accounting-based measures of profitability such as return on assets (ROA) and return on equity (ROE), or capital-market-based measures such as Tobin's Q and market returns. There are ongoing debates regarding their relationship and/or appropriateness as proxies for financial performance (Chakravarthy, 1986; Combs, Crook and Shook, 2005; Gentry and Shen, 2010; Keats, 1988; Murphy, Trailer and Hill, 1996; Richard et al., 2009; Rowe and Morrow, 1999). Studies of BGs have mainly used accounting-based performance measures. For example, Braunerhjelm and Halldin (2019), Kim Min-Ho, Sang-Lo Lee and Che-Yung Kang (2020), She, Yu and Wu (2020), and Sleuwaegen and Onkelinx (2014) have utilized profitability as a proxy for financial performance. To the best of our knowledge a study by Kang Che-Yung and Min-Ho Kim (2021) used a capital-market-based measure to assess the valuation effect of exports made by BGs. These studies of financial performance of BGs have provided mixed results. Moreover, most of the studies are based on accounting-based financial performance measures. Therefore, it would be difficult to see the whole picture of financial performance of BGs. Accordingly, this paper uses both accounting- and market-based measures, and hypothesizes as follows:

Hypothesis 1-1: The BG strategy is positively related to the firm's accounting-based financial performance measure.

Hypothesis 1-2: The BG strategy is positively related to the firm's market-based financial performance measure.

The next hypotheses address the probability of being BGs in terms of firm size, research and development (R&D), and liability. Researchers have used different measures of firm size. Among them, the most commonly used one is the sales (Al-Khazali, and Zoubi, 2005; Dang, Li and Yang, 2018; Shalit and Sankar, 1977). Studies of BGs tend to provide evidence of higher

sales compared to non-BGs. For example, Braunerhjelm and Halldin (2019), Choquett et al. (2017), and Sleuwaegen and Onkelinx (2014) report a higher sales growth rate for BG firms than the non-BG counterparts for Belgium, Danish, and Swedish firms, respectively. Furthermore, Moen, Falahat and Lee (2022) find that non-BGs are unable to gain significant sales volumes in individual export markets compared to BG firms. Specifically on the Korean firms, a recent study by Kim Min-Ho, Sang-Lo Lee and Che-Yung Kang (2020) shows that the sales growth rate of Korean BGs is higher than that of the non-BGs, although the profitability indexes are lower. They interpret this result as follows: BGs achieve higher sales volumes, but their profitability might be hampered due to aggressive overseas expansion strategies. This would be true especially for SMEs with limited resources because they might incur higher costs due to the liability of foreignness. We retest the relationship between firm size and BG strategy made by Korean firms with rigorous regression models because the results of Kim Min-Ho, Sang-Lo Lee and Che-Yung Kang (2020) are based on the t-tests of mean differences. In addition, in order to see different aspects of BGs in terms of firm size, the current study adds two other commonly used proxies of firm size: total assets and number of employees, and hypothesizes as follows:

Hypothesis 2-1: The BGs have higher sales volumes than their non-BG counterparts.

Hypothesis 2-2: The BGs have higher total assets than their non-BG counterparts.

Hypothesis 2-3: The BGs have higher numbers of employees than their non-BG counterparts.

Based on a resource-based viewpoint, Knight and Cavusgil (2004) argue that the knowledge possessed by BGs appears to be critical for superior international performance. Dlugoborskyte and Petraite (2013) identify systemic factors for the formation of R&D-intensive BGs from diverse theoretical backgrounds including resource-based theory, dynamic capabilities theory, and innovation theory. They explain the combination of factors that contribute to R&D-intensive BGs, which commercialize R&D activities by transferring their unique knowledge into innovative products and services. With this process, BGs create a new value for the market and succeed in international markets. Goh, Mostafiz and Sambasivan (2019) suggest that the ability to innovate allows firms to manufacture competitive products in the global marketplace by accumulating knowledge and resources from around the world. Empirical studies have provided evidence supporting the notion that one of the competitive advantages of BG firms over their non-BG competitors is the innovation ability (Cha Soon-Kwean and Min-Ho Kim, 2009; Dlugoborskyte, Petraite and Buse, 2015; Jiménez Naharro et al., 2010; Knight and Cavusgil, 2004; Oh In-Gyu, 2011). In general, it seems the BGs tend to put more of their resources into R&D and innovation activities to survive in international markets. However, Knight and Liesch (2016) argue that effective allocation of existing resources is crucial for the BGs to embrace R&D expenses because they tend to be the firms with limited resources. Therefore, it would be an empirical question whether the BGs actually spend more on R&D activities. To the best of our knowledge this question has not been explored for Korean BGs. Thus, we test this with the following hypothesis:

Hypothesis 3: BGs have greater R&D expenses than their non-BG counterparts.

The internationalization process, even at the lowest level of exporting, requires different amounts of resources and capital (Darren and Conrad, 2009; Xie, 2017). SMEs with limited

resources utilize different sources of financing to cover the capital in order to be successful in the internationalization process. The sources may include self-funding, debts, equity, venture capital and grants from the government and related associations (Saralidze, 2020). During the early stage of operation, SMEs have limited options of financing and resort to using founder savings (Kock, Nisuls and Söderqvist, 2010; Tsoukatos et al., 2015; Wood et al., 2011). SMEs that have unique ideas and products to internationalize their operations may obtain funds from venture capitalists, who usually provide funds to a firm by acquiring a fraction or nearly all of the business. Therefore, despite the advantages of venture capital, a founder might fear losing the business. Equity financing, in the case of listed firms, has a similar disadvantage, especially to the owner of a small business. Kock, Nisuls and Söderqvist (2010) maintain that for SMEs, a bank loan is the best alternative to finance their internationalization process. The main problem with debt financing is that it is costly and only works for firms with established operations to repay the loan through proven superior performance. Banks may perceive the aggressive early internationalization process made by BGs both as a risk and an opportunity. If a bank perceives the born global strategy as a risk, it might refrain from making loans to the firm. However, a bank might be willing to offer the loan if it positively assesses the future potential of the BG. Therefore, it would be an empirical question whether these BGs have higher debt ratios compared to their competitors that are following a more gradual internationalization process. To test this question, we hypothesize as follows:

Hypothesis 4: BGs have greater liability than their non-BG counterparts.

3. Methodology

3.1. Data and Sample

Regarding the definition of BGs, it is worth noting that there are no unified criteria to classify BGs and non-BGs (Dzikowski, 2018; Kuivalainen, Sundqvist and Servais, 2007; Rasmussen and Madsen, 2002). Nevertheless, the criteria that have been most commonly adopted in the existing literature (Andersson and Berggren, 2016; Knight and Cavusgil, 1996; Madsen, Rasmussen and Servais, 2000; Prieto-Sánchez and Merino, 2022) are based on two variables: the time lag between the establishment of a firm and its first export and the share of overseas sales. Since the definition of Knight and Cavusgil (2004), which involves both time lag (three years) and export sales ratio (more than 25% of a firm's total sales), has been widely accepted in the prior literature (Efrat and Shoham, 2012; Efrat, Gilboa and Yonatany, 2017; Kuivalainen, Sundqvist and Servais, 2007; Taylor et al., 2021), this study follows the same criterion. That is, we consider BGs to be firms that start overseas operations within three years from the date of establishment and have an export intensity of 25% or more.

With this criterion for BGs, this study takes the sample firms listed on the KOSDAQ market during the period from 2010 to 2020. Samples are restricted to firms in the manufacturing sector whose fiscal closing dates are the end of December. Among them, firms with insufficient financial data or with no record of overseas sales during the 11-year test period are excluded. We obtain the list of BGs and collect their firm-level data from the DataGuide 5.0 and cross-check with the financial data from the KisValue to ensure a robust dataset. After excluding unqualified data, our final sample consists of an unbalanced panel of 142 BGs with

1,054 observations and 632 non-BGs with 4,483 observations, resulting in 5,537 firm-year observations.

3.2. Measures

3.2.1. Dependent Variables

To examine the relationship between BG strategy and the firm's financial performance (for Hypotheses 1-1 and 1-2), the current study employs both the accounting- and market-based measures as dependent variables. As an indicator of financial performance, different types of measures have been used in the various studies analyzing BGs-financial performance relationship. For example, Li, Qian and Qian (2012) adopt either profit margin or return on sales (ROS) to measure how much net income is gained from the sales. Ganvir and Dwivedi (2017) use three financial performance measures that include return on assets (ROA), return on capital employed (ROCE), and earnings per share (EPS). Jiang, Kotabe and Zhang (2020) employ both revenues and profits as performance indicators of new ventures. Among these different indicators of the accounting-based financial performance, we adopt return on assets (ROA) because ROA captures not only income statement performance but also the assets needed to operate a business (She, Yu and Wu, 2020). For the market-based financial performance, we adopt Tobin's Q proposed by Chung and Pruitt (1994) as it is one of the popular and common market measures to assess the fair firm value in the capital market. We assume the value of Tobin's Q is equal to the ratio of the market value of a firm's assets divided by the replacement cost of the firm's capital. Specifically, the market value of a firm's assets is computed as the sum of market value of equity and book value of debt. To identify the characteristics of BGs and their non-BG counterparts in terms of firm size, R&D expenses, and liability (for Hypotheses 2, 3, and 4), we construct a dummy variable called "BGs" as a dependent variable, which takes the value of 1 if it is a born global firm, and takes the value of 0 otherwise.

3.2.2. Independent Variables

For testing Hypotheses 1-1 and 1-2, a dummy variable named "BGs" is utilized as an independent variable. For testing Hypotheses 2-1, 2-2, and 2-3, three proxies are adopted to represent firm size: sales volume, total assets, and the number of employees. All three variables are considered in the form of natural logarithm to reduce the deviation between the maximum values and the minimum values of all the variables and obtain accurate values from the analysis. For testing Hypothesis 3, R&D expenses serve as a proxy for the firm's innovation capability, which is associated with the research and development activities of the firm's goods and services (She, Yu and Wu, 2020), and is calculated as the natural logarithm of total R&D expense. Lastly, for testing Hypothesis 4, liability is used to capture a firm's debt status and is calculated as the ratio of total debt to total equity. To avoid the endogeneity problems that may arise in panel analysis, a lag is applied to all independent variables except BGs.

3.2.3. Control Variables

This study includes two relevant control variables to avoid model misspecification and potential confounding effects on the BG strategy-firm financial performance relationship. Following the previous studies on firm financial performance (Brigham and Ehrhardt, 2013;

She, Yu and Wu, 2020), this study involves both capital and inventory intensity variables that are measured by the ratio of fixed asset to total assets, and the ratio of inventory asset to total assets, respectively. Lag is also applied to these two variables to rule out endogeneity concerns. In addition, this study includes year dummies to control for the influence of time-series effects.

All the variables used in this study are shown in Table 1.

Table 1. Definitions of Variables

Variables		Definitions
Born Global Firms	*BGs*	= Firms that start overseas operations within three years from the date of establishment and have an export intensity of 25% or more
Financial Performance	*ROA*	= (Net Profit / Total Assets) * 100
	Tobin's Q	= (Market Value of Equity + Book Value of Debt) / Book Value of Assets
Firm Size	*Sales*	= Natural logarithm of Sales
	Total Assets	= Natural logarithm of Total Assets
	Employee	=_Natural logarithm of the number of employees
R&D Expenses	*R&D*	= Natural logarithm of R&D expenses
Liability	*Liability*	= (Total Debt / Total Equity) * 100
Controls	*Capital Intensity*	= (Fixed Asset / Total Assets) * 100
	Inventory Intensity	= (Inventory Asset / Total Assets) * 100

3.3. Estimation Model

For testing the relationship between BG strategy and the firm's financial performance (Hypotheses 1-1 and 1-2), panel regression models are employed. As panel data setting may have an endogeneity problem derived from omitted variables caused by unobserved heterogeneity (Gujarati and Porter, 2009), we conduct a Hausman test to select the most suitable method between fixed and random effect models. In our case, a two-way random effect model is adopted, and accordingly generalized least squares (GLS) is chosen as an estimation method. Models for Hypotheses 1-1 and 1-2 are as follows:

$$ROA_{it} = \alpha_0 + \alpha_1 BGs_{it} + \alpha_2 Size_{it-1} + \alpha_3 R\&D_{it-1} + \alpha_4 Liability_{it-1}$$
$$+ \alpha_5 Capital\ Intensity_{it-1} + \alpha_6 Inventory\ Intensity_{it-1} + \sum Year + \varepsilon_{it} \quad (1)$$

where
i = the firm,
t = the year (time dimension),
ROA_{it} = accounting-based financial performance of a firm i at t,
     (net profit / total assets) * 100
BGs_{it} = whether a firm i is a BG or non-BG at t (BG = 1 and non-BG = 0),
$Size_{it-1}$= size of a firm i at $t-1$ measured by three proxies using sales volume,
     total assets, and the number of employees with natural logarithm form,

$R\&D_{it-1}$ = R&D expenses of a firm i at $t-1$ with natural logarithm form,

$Liability_{it-1}$ = liability of a firm i at $t-1$, (total debt / total equity) * 100,

$Capital\ Intensity_{it-1}$ = capital intensity of a firm i at $t-1$,

(fixed assets / total assets) * 100,

$Inventory\ Intensity_{it-1}$ = inventory intensity of a firm i at $t-1$,

(inventory assets / total assets) * 100,

$\sum Year$ = year dummy, and

ε_{it} = error term.

$$Tobin's\ Q_{it} = \alpha_0 + \alpha_1 BGs_{it} + \alpha_2 Size_{it-1} + \alpha_3 R\&D_{it-1} + \alpha_4 Liability_{it-1} + \\ \alpha_5 Capital\ Intensity_{it-1} + \alpha_6 Inventory\ Intensity_{it-1} + \\ \sum Year + \varepsilon_{it} \qquad (2)$$

Where

$Tobin's\ Q_{it}$ = market-based financial performance of a firm i at t,

(market value of equity + book value of debt) / book value of assets,

and all other variables are the same as in Equation (1).

For testing Hypotheses 2, 3, and 4, which investigate the characteristics of BGs and their non-BG counterparts in terms of firm size, R&D expenses, and liability, this study uses logistic models given that we employ a binary dependent variable (Prieto-Sánchez and Merino, 2022). The following model is proposed:

$$logit_{it}(BGs) = \alpha_0 + \alpha_1 Size_{it-1} + \alpha_2 R\&D_{it-1} + \alpha_3 Liability_{it-1} + \\ \alpha_4 Capital\ Intensity_{it-1} + \alpha_5 Inventory\ Intensity_{it-1} + \\ \sum Year + \varepsilon_{it} \qquad (3)$$

where all the variables are the same as the equations presented above.

4. Results

Table 2 presents descriptive statistics of variables in the analyses. First, *BGs* has a mean of 0.190 and a standard deviation of 0.393, ranging from 0 to 1. *ROA* has a mean of 0.318, which means that on average, sample firms have 0.318 times the net earnings of their total assets. *Tobin's Q* has a mean of 0.410, indicating that, on average, the market value of both equity and liability is less than the book value of assets. For the firm size measures, *Sales* and *Total Assets* have means of 18.053 and 18.355, approximately equal to 69 billion and 94 billion Korean won, respectively. The number of employees (*Employee*) of sample firms ranges from 1 to 2,561 (0 and 7.848 in natural logarithm form), and the average is 166 (5.109 in natural logarithm form). *R&D* has a mean of 14.010 and a standard deviation of 1.670, suggesting that sample firms spend 1 billion Korean won, on average, on R&D activities. *Liability* has a mean of 99.641, signifying that sample firms borrow more than 99% of their total equity. The control variables including *Capital Intensity* and *Inventory Intensity* have means of 45.802 and 13.193, which indicates that for the sample firms, fixed assets and inventory assets account for 46% and 13% of the total assets, respectively.

Table 2. Descriptive Statistics

Variables	Obs.	Mean	Std. Dev.	Min	Max
BGs	5,537	0.190	0.393	0	1
ROA	5,537	0.318	15.639	-383.756	61.273
Tobin's Q	5,537	0.410	0.218	0.013	3.647
Sales	5,518	18.053	1.175	8.487	21.964
Total Assets	5,520	18.355	0.919	12.508	21.966
Employee	4,361	5.109	0.885	0	7.848
R&D	3,761	14.010	1.670	4.949	18.419
Liability	5,520	99.641	537.905	-33,187.440	16,353.760
Capital Intensity	5,091	45.802	16.406	0.513	125.048
Inventory Intensity	5,520	13.193	8.783	0	62.010

Note: *BGs* = Born Global Firms, *ROA* = (Net Profit / Total Assets) * 100, *Tobin's Q* = (Market Value of Equity + Book Value of Debt) / Book Value of Assets, *Sales* = ln(Sales), *Total Assets* = ln(Total Assets), *Employee* = ln(number of employees), *R&D* = ln(R&D expenses), *Liability* = (Total Debt / Total Equity) * 100, *Capital Intensity* = (Fixed Asset / Total Assets) * 100, and *Inventory Intensity* = (Inventory Asset / Total Assets) * 100.

Table 3 provides the results of Pearson's correlation analyses of variables. *BGs* is negatively correlated with *ROA*, but the relationship is not statistically significant. However, *BGs* is positively and significantly correlated with *Tobin's Q*, *Sales*, *Total Assets*, and *R&D*. *BGs* is also significantly correlated with *Capital Intensity*, but the relationship is negative. *ROA* is significantly correlated with all the variables except *Liability*. *Tobin's Q* is positively correlated with all the variables (*Sales*, *Total Assets*, *Employee*, *Liability*, *Capital Intensity*, and *Inventory Intensity*), but negatively correlated with *R&D* at the 1% significance level. *Sales* and *Total Assets* are also significantly correlated with all the variables. *Employee* is positively correlated with all the variables except for *BGs*, with which it shows a negative and insignificant relationship. *R&D* is highly correlated with all the variables except *Liability* and *Inventory Intensity*. *Liability* is positively and significantly correlated with *Tobin's Q*, *Sales*, *Total Assets*, and *Employee*. In addition, prior to running the main analyses, this study checks the variance inflation factor (VIF) and finds that the values range from 1.11 to 4.36, indicating that no severe multicollinearity problems exist among variables.

Table 4 presents the empirical results of the panel regression for Hypotheses 1-1 and 1-2. Three models were used to test Hypotheses 1-1 and 1-2 with *ROA* and *Tobin's Q* as dependent variables, respectively. Columns (1), (2), and (3) present the results separately for the firm size measures of *Sales*, *Total Assets*, and *Employee*. Except for the firm size measures, all models include the same control variables and year effect. Hypothesis 1-1 states that the BG strategy is positively related to the ROA, firm's accounting-based financial performance. However, the results show that there are negative relationships between BG strategy and ROA. In Column (1), the coefficient of *BGs* is negative and significant at the 10% level (α_1=-2.213). In Columns (2) and (3), the coefficients of *BGs* are also negative, but they are not significant. These results show that BG strategy is negatively and significantly correlated with the firm's accounting-based financial performance only when the firm size is measured by the sales volume. It also indicates that firms that have adopted a BG strategy achieve inferior accounting-based performance relative to those that have pursued a traditional internationalization mode. Hypothesis 1-2 predicts that BG strategy is positively related to the Tobin's

Table 3. Correlations

	BGs	ROA	Tobin's Q	Sales	Total Assets	Employee	R&D	Liability	Capital Intensity	Inventory Intensity
BGs	1									
ROA	-0.0170	1								
Tobin's Q	0.0668***	-0.3683***	1							
Sales	0.0968***	0.2260***	0.1886***	1						
Total Assets	0.0717***	0.0931***	0.1652***	0.8430***	1					
Employee	-0.0016	0.1898***	0.1236***	0.5981***	0.6201***	1				
R&D	0.1278***	0.0660***	-0.0581***	0.2140***	0.2869***	0.2270***	1			
Liability	0.0194	-0.0072	0.1195***	0.0635***	0.0514***	0.0278*	-0.0035	1		
Capital Intensity	-0.0627***	-0.1046***	0.1954***	-0.0587***	0.0505***	0.1257***	-0.0426***	0.0021	1	
Inventory Intensity	0.0188	0.0566***	0.0669***	0.1264***	-0.0224*	0.0231	-0.0104	0.0198	-0.2458***	1

Notes: Significance levels of 10%, 5%, and 1% are denoted by *, **, and ***, respectively.

Q, firm's market-based financial performance. Consistent with Hypothesis 1-2, all the coefficients of *BGs* in Columns (1), (2), and (3) are positive and significant at the 5% level (α_1=0.047, 0.044, and 0.046, respectively). These results support that BG strategy is positively and significantly correlated with the firm's market-based financial performance; in other words, the BGs are likely to achieve better market-based performance in comparison with non-BGs.

Table 4. Financial Performance of BGs (Panel Regression)

	ROA			*Tobin's Q*		
	(1)	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
BGs	-2.213*	-1.186	-0.674	0.047**	0.044**	0.046**
Size						
Sales	3.525***			0.012***		
Total Assets		1.025**			0.035***	
Employee			2.496***			0.020***
R&D	0.300	0.575**	0.570**	-0.012***	-0.014***	-0.009***
Liability	0.000	0.001	0.007***	0.000*	0.000*	0.000***
Capital Intensity	-0.105***	-0.121***	-0.139***	0.002***	0.002***	0.002***
Inventory Intensity	0.117***	0.185***	0.130***	0.001*	0.001***	0.001*
_Cons	-61.537***	-21.382**	-15.825***	0.250***	-0.137	0.329***
Year	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.095	0.043	0.054	0.096	0.099	0.146

Note: 1. Variable definitions are provided in Table 1.
      2. Significance levels of 10%, 5%, and 1% are denoted by *, **, and ***, respectively.

Table 5 reports the results of the binary logit regression for Hypotheses 2, 3, and 4. Hypotheses 2-1, 2-2, and 2-3 predict that BGs are larger in terms of sales volume, total assets, and the number of employees than their non-BG counterparts. The coefficients of *Sales* (α_1= 0.225) and *Total Assets* (α_1=0.222) are positive and significant at the 1% level, which means that BGs have higher sales volume and total assets than non-BGs have. Table 5 also presents the odds ratios, which indicate the likelihood that a certain independent variable occurs given the dependent variable when other exogenous variables are assumed to be constant. Thus, holding all other variables constant, the odds ratio results of *Sales* and *Total Assets* predict that the likelihood of being classified as a BG increases by 1.253 times and 1.248 times, respectively, as sales volume and total assets of a firm increase by one unit. The coefficient of *Employee* (α_1=0.013) also is positive but insignificant. Therefore, Hypotheses 2-1 and 2-2 are supported. Hypothesis 3 proposes that BGs have higher R&D expenses than non-BG counterparts do. Consistent with the hypothesis, the coefficients of *R&D* in all the models in Table 5 (α_2= 0.175, 0.178, and 0.211, respectively in Column (1), (2), and (3)) are significantly positive, which indicates that BGs are likely to invest more in research and development activities compared to non-BGs. The odds ratios of *R&D* suggest that a firm is approximately 1.2 times more likely to be classified as a BG if R&D expenses increase by one unit. Hypothesis 4 states that BGs have higher liability than their non-BG counterparts. As shown in Table 5, all the coefficients of *Liability* (α_3= 0.001) are positive and significant at the 1% level. This

indicates that BGs have relatively higher debt ratio than non-BGs do, and the probability of being classified as a BG increases by 1.001 times as the liability of a firm increases by one unit. Consequently, Hypothesis 4 is supported.

Table 5. Characteristics of BGs (Logistic Regression)

	(1)		(2)		(3)	
	Coefficient (SE)	Odds Ratio	Coefficient (SE)	Odds Ratio	Coefficient (SE)	Odds Ratio
Size						
Sales	0.225*** (0.037)	1.253				
Total Assets			0.222*** (0.047)	1.248		
Employee					0.013 (0.050)	1.013
R&D	0.175*** (0.028)	1.191	0.178*** (0.029)	1.195	0.211*** (0.029)	1.234
Liability	0.001*** (0.000)	1.001	0.001*** (0.000)	1.001	0.001*** (0.000)	1.001
Capital Intensity	-0.005* (0.003)	0.995	-0.006** (0.003)	0.994	-0.008*** (0.003)	0.992
Inventory Intensity	0.011** (0.005)	1.011	0.014*** (0.005)	1.014	0.013*** (0.005)	1.013
_Cons	-7.900*** (0.724)	0.000	-7.923*** (0.856)	0.000	-4.283*** (0.472)	0.014
Year			Yes			
Prob>chi²	0.000		0.000		0.000	
Pseudo R²	0.039		0.035		0.030	

Note: 1. The dependent variable, *BGs* is a dummy variable that takes the value of 1 if a firm starts overseas operations within three years from the date of establishment and has an export intensity of 25% or more, or takes 0 otherwise.

    2. Standard errors are reported in parentheses.

    3. Significance levels of 10%, 5%, and 1% are denoted by *, **, and ***, respectively.

5. Discussion and Conclusion

This paper aims to examine the relationship between the born global strategy of Korean SMEs and their firm's financial performance, and to identify the characteristics of BGs in comparison to the non-BG counterparts in terms of size, R&D, and liability. BGs, by definition, are the firms that are actively penetrating foreign markets from the early stages of their establishment. Previous studies of Korean BGs have tried to find out the determinants of BGs' rapid internationalization and their superior performance. However, most of these studies have utilized either qualitative case- or survey-based analyses with relatively limited numbers of observations. From a different perspective, this study provides more objective

evidence by investigating how BG strategy affects the firm's financial and market performance, and by using financial data to characterize BGs.

First, this study finds evidence that BG strategy is negatively related to the firm's accounting-based financial performance, while it is positively related to the market-based financial performance. The results indicate that, compared to firms that do not implement a BG strategy, firms adopting a BG strategy have inferior financial profitability but have superior market performance. This implies that capital market participants appreciate the born global strategies made by Korean SMEs even though they have lower profitability. This might happen because the market highly values the future prospects of the born global strategy despite the low current financial performances of the BGs. Again, this implies that it would be worthwhile for Korean SMEs to pursue born global strategies even though they might experience short-term financial drawbacks. The results also indicate that rapid internationalization may strain the resources of SMEs that have implemented a born global strategy because BGs need to pay a higher cost to overcome the liability of foreignness than large multinational firms do. In a study of Swedish BGs Braunerhjelm and Halldin (2019, p 70) argue that "in the long run there are good reasons to believe that both profit and productivity are positively associated with born global strategies due to leaning and scale effect." Likewise, it would be possible for the Korean BGs to improve the low profitability in the early stage as they pursue born global strategies with both the accumulated market knowledge and improved economies of scale. Our results are consistent with the study of Kim Min-Ho, Sang-Lo Lee and Che-Yung Kang (2020) in that they report lower profitability of BGs compared to their non-BG counterparts, but differ from the results of Kang Che-Yung and Min-Ho Kim (2021), which report that the capital market does not value early internationalization because the market participants may perceive the born global strategy made by Korean SMEs as a risk factor. Although our results are not directly comparable to the ones in Kang Che-Yung and Min-Ho Kim (2021) due to the different measures of market performance and model estimations, they suggest further study regarding this topic. Our results also stress the importance of distinguishing between accounting-based and market-based performance when we discuss the corporate performance.

Next, we try to classify the characteristics of Korean BGs in terms of size, R&D expenses, and liabilities vis-à-vis their non-BG counterparts. We find that BGs have higher sales volume than non-BGs. Coupled with the above results, we can say that Korean BGs experience lower profitability albeit higher sales volume, which might be true especially for the SMEs with limited resources because they need to pay higher costs to overcome the liability of foreignness. We find a similar result for the total assets, but fail to find the difference between BGs and non-BGs in terms of the number of employees. This indicates that the size of employment has not acted as a limit to Korean BGs initiating export activities. We also find a consistent effect of investment in R&D in line with prior literature in that the elevated R&D expense is one of the defining characteristics of BGs (Jolly, Alahuhta and Jeannet, 1992; Knight and Cavusgil, 1996). Along the same lines, Jiménez Naharro et al. (2010), in their study on Spanish firms, reveal that R&D ratios of BGs (4.77%) are higher than those of other exporting SMEs (3.76%) and non-exporting SMEs (just over 3%). This result suggests that SMEs pursuing a technological differentiation strategy or those with technological novelty in their products and manufacturing process may boost early internationalization, which can lead to building an international reputation, brand, and growth with no need for additional expensive marketing costs. In terms of liability, we find evidence that Korean BGs have higher

liability compared to non-BGs. This higher indebtedness may be attributed to the following. First, since BGs do not have enough time to establish and develop a solid resource base, they are unable to increase their own financial resources. Second, external financial institutions such as banks may provide loans to BGs as they positively appraise the future potential of the firms. Therefore, the higher liability of BGs may imply that BGs tend to be evaluated as firms with excellent growth potential in the market, supporting the previous results of higher market performance.

Some limitations remain in this study. First, although this study uses ROA and Tobin's Q as proxies of accounting- and market-based financial performance that have been extensively adopted in the literature, the representativeness of these measures may not be sufficient. Therefore, to enhance both reliability and validity of the research, other types of measures (e.g., ROE, ROI, PER, PBR, etc.) need to be expanded and considered simultaneously in future studies. Second, this paper uses listed Korean manufacturing firms as sample data, but does not classify them by industrial level. Even if firms are affiliated with the same manufacturing sector, they are differentiated by labor-, capital-, and technology-intensive characteristics depending on the industry group they belong to. For example, manufacture of chemicals and chemical products (KSIC code 20) appertains to the advanced technology that requires a high percentage of resources for investment and development. Likewise, each industry group may have different characteristics in terms of management and distribution of their resources. Therefore, future research could investigate the BG strategy-firm performance relationship by subdividing into industry group and examining its resource structure at a more detailed level.

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