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HOW TO UNDERTAKE APPARENTLY UNRELATED
DIVERSIFICATION AND BUILD AN EMPIRE

Not only the types of strategic resources, but also the methods of sourcing resources are found to result in heterogeneous firm performances. Not all unrelated diversifications are same either. There are strong serial and cross-sectional dynamics about the execution of various practices of unrelated diversification. The definition of performance also dynamically changes across different business groups. The existing literature focuses on how corporate diversification creates value, using measures of relatedness as moderating variables. We contribute to the research by classifying diversification practices, investigating their performance and recommending how to undertake unrelated diversification.

Keywords: accumulation; chaebol; diversification; growth; resource-based view; value.

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ЯК ПРОВЕСТИ НЕЗАЛЕЖНУ ДИВЕРСИФІКАЦІЮ
І ПОБУДУВАТИ ФІНАНСОВУ ІМПЕРІЮ

У статті показано види стратегічних ресурсів і методи пошуку ресурсів на прикладі різних фірм, а також типи незалежних диверсифікацій. У проведенні диверсифікацій спостерігаються сильні серійні і міжсекційні відмінності. Визначення продуктивності також динамічно змінюється в різних бізнес-групах. Існуючі дослідження присвячені тому, як корпоративна диверсифікація створює цінність і використовує міри стосунків як посередницькі змінні. Показано класифікації диверсифікацій, їхня ефективність, подано рекомендації з проведення диверсифікації.

Ключові слова: накопичення, чеболь, диверсифікація, зростання, підхід з урахуванням природних ресурсів, цінність.

Таб. 3. Рис. 1. Фор. 9. Літ. 46.

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КАК ПРОВЕСТИ НЕЗАВИСИМУЮ ДИВЕРСИФИКАЦИЮ
И ПОСТРОИТЬ ФИНАНСОВУЮ ИМПЕРИЮ

В статье показаны виды стратегических ресурсов и методы поиска ресурсов на примере различных фирм, а также типы независимых диверсификаций. В проведении диверсификаций наблюдаются сильные серийные и межсекционные различия. Определение производительности также динамически изменяется в различных бизнес-группах. Существующие исследования посвящены тому, как корпоративная диверсификация создает ценность и использует меры отношений как посреднические переменные. Показаны классификации диверсификаций, их эффективность, даны рекомендации по проведению диверсификации.

Ключевые слова: накопления, чеболь, диверсификация, рост, подход с учетом природных ресурсов, ценность.

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1. Introduction. What makes certain types of unrelated diversification successful and others disastrous? Few studies focus on how to undertake unrelated diversification, or empire building, in order to enhance financial performance and social impact of firms. Drawing on the existing literature, we develop two concepts to categorize unrelated diversification practices, namely, accumulation style and growth-value style. The concept of accumulation style is developed using the resource-based view of firm (accumulation versus the acquisition of strategic factors) and the distinction between green field investments versus mergers and acquisitions. The growth-value style is developed from the literature on valuation, the distinction between value versus growth firms and the concept of industry life cycles.

We analyze Korean chaebols. The unrelated diversification behavior of chaebols is well-known and are therefore ideal for our research question (Chang, 2003). Certain business groups in the United States and Western Europe also shared similar features during the 19th to early 20th centuries. Furthermore, these business groups play very significant roles in many newly emerging and recently industrialized economies, including South Korea, Taiwan, Argentina, Japan and China (Khanna and Yafeh, 2007). Business groups similar to chaebols will remain important in many countries because of their ability to exploit imperfections at the market and to practice non-market strategies. These behaviors are either already commonplace or reemerging in most economies (Chang, 2003) since the financial crisis in 2007 that re-emphasized the roles of government.

2. Core concepts to classify diversification strategies. We propose two concepts to describe the practices of unrelated diversification: accumulation style and growth-value style.

Accumulation style. Accumulation style increases with the diversification through greenfield investments or through the build-up of resources and capabilities. Therefore, accumulation style decreases if firms diversify by acquiring or allying with existing firms or factors. Three bodies of literature are related to the concept of accumulation style.

First, we explore the core argument of the resource-based view of the firm with respect to how a firm's resources are developed. This view argues that firms achieve sustainable competitive advantages based on their bundles of valuable resources. Firms diversify to extend and exploit their additional resources (Penrose, 1959; Panzar and Willig, 1981; Wernerfelt, 1984, 1995; Peteraf, 1993; Montgomery, 1994; Markides and Williamson, 1996; Silverman, 1999). There are two prominent theories about the origin of resources. One theory argues that resources are traded in imperfectly competitive strategic factor markets in which firms with heterogeneous expectations about the value of resources trade factors with each other (Barney, 1986). The other theory argues that firms accumulate resources by choosing the paths of flow variables over time (Dierickx and Cool, 1989). On the whole, the theory advanced by Barney (1986) emphasizes the acquisition of resources (e.g., M&A), which describes a low accumulation style in our framework. By contrast, the theory of Dierickx and Cool (1989) describes a high accumulation style. Thus, the conceptualization of the degree of accumulation style incorporates both these theoretical perspectives.

Second, we draw upon a body of literature that distinguishes between greenfield investments, M&As and joint ventures (Kogut and Singh (1988), Hennart and Park

(1993), Hennart and Reddy (1997), Brouthers and Brouthers (2000), Vermeulen and Barkema (2001), Harzing (2002), Nocke and Yeaple (2007)). This literature is also closely related to the resource-based view of the firm. Imperfect M&A markets resemble strategic factor markets that offer opportunities "to trade otherwise non-marketable resources and to buy or sell resources in bundles," and to blend technological capabilities and market contacts (Wernerfelt, 1984). Therefore, M&A transactions can be regarded as low with respect to accumulation style in our diversification framework. By contrast, greenfield investments can be regarded as expanding the bundle of resources that a firm accumulates until its time for market entry (e.g., the resource-product matrix in Wernerfelt (1984)). The related studies to greenfield investments investigate undertaking organic growth or internal development. Although organic growth that expands a firm's knowledge base involves low levels of organizational controversy, this growth type can be time-consuming when compared with acquisition (Bresman, Birkinshaw and Nobel, 1999).

Growth-value style. We define the growth-value style as the extent to which firms diversify in the growth sector rather than in the value sector. Business groups that diversify more in growth sectors receive high growth-value style scores; whereas business groups that diversify more in value sectors receive lower growth-value style scores. Importantly, this paper takes the dynamics of Korean industries into account because a sector can change from a growth sector to a value sector as it matures. When a chaebol enters a sector at its founding or during the growth stage of its life cycle, the chaebol engages in growth-style. However, if other chaebols enter the same sector during their maturity or saturation stage, the entering chaebols are regarded as undertaking value-style diversification. To classify the growth-value style of a chaebol's diversification, we observe how many significant players, including a chaebol's subsidiaries or other large firms, exist in a sector at the moment of entrance. We also use the interviews with executives in chaebols to supplement our analysis qualitatively. 3 bodies of literature are related to our conceptualization of growth-value style.

First, we apply value or growth factor concepts from the finance and economics literatures. Many indicators that measure the value of firms' growth options can be used to classify firms as either value or growth firms, including Tobin's q , earnings multiples and market-to-book ratios. The value factor is defined as the spread of expected returns between the portfolios of value firms and the portfolios of growth firms. Firms with valuable growth options are referred to as growth firms, whereas value firms have contrasting characteristics. Growth firms are profuse in emerging sectors that feature abundant investment opportunities. The value of a growth option is dependent on the amount and quality of investment opportunities that a firm owns. See Tobin (1969), Wernerfelt and Montgomery (1988), Fama and French (1992, 1993, 2006), and Zhang (2005) for evidence about the ramifications of growth options and value factors.

Second, we extend the product life cycle model to industries to consider changes in industrial stages (Segerstrom, Anant and Dinopoulos, 1990; Klepper, 1996). See Levitt (1965), Anderson and Zeithaml (1984), Stark (2011) for general discussion on the product life cycle model. This literature is also closely related to the value and growth factors that are discussed in the finance and economics literature. Industries in their early or introductory stages are likely to be located in the growth sector

(Chatman and Jehn, 1994), which offers a hospitable environment for emergent ventures (McDougall et al., 1994).

3. The measurement and preliminary analysis of style scores. We execute the following steps to measure both styles by calculating the ratio of specific style revenues to all new businesses. First, we determine the sample of chaebols and large Korean companies that are included in our analysis. Second, we collect instances of diversification by chaebols that have occurred since the 1997 Asian financial crisis (also referred to as the IMF crisis in Korea). Third, we evaluate the styles of each case of diversification along the accumulation and growth-value dimensions.

The evaluation of a firm's growth-value style is relatively straightforward. To determine if a chaebol is in its introductory or growth stage, we simply count the number of existing chaebols and dominant players in a sector. In addition, there exists a general consensus regarding whether an industry is located in a value sector or a growth sector.

The evaluation of accumulation style is more problematic. M&As are definitive indicators of a low accumulation style. However, not all greenfield investments are indicative of a high accumulation style because a chaebol can easily acquire core resources, such as licenses or human capital, from strategic factor markets instead of building these resources internally. Because of this concern, we collect data from media articles and interviews.

Fourth, we measure the revenue earned from diversification over all instances of diversification as the revenue ratio of a style. For example, the accumulation style of a chaebol is equal to the revenue from diversification pursued through an accumulation style divided by the revenue from all of the instances of a chaebol's diversification. Similarly, the growth-value style of a chaebol is equal to the revenue from its growth-sector diversification divided by the revenue from all of its instances of diversification.

To simplify the discussion, we identify 4 subsets of chaebols with combinations of high and low levels of accumulation and growth-value styles: explorers, invaders, venture capitalists and assimilators. We call them 4 unrelated diversification practices. Explorers are the chaebols in high accumulation and high growth-value styles. Venture capitalists are in low accumulation and high growth-value styles; and assimilators are in low accumulation and low growth-value styles.

Preliminary analysis of diversification performance. Increased financial performance is an important objective of any diversification strategy. Therefore, the investigation of increases in financial performance that correspond to the 4 unrelated diversification practices (explorer, invader, venture capitalist and assimilator) creates sample selection bias. Instrument variables, Heckman modeling or propensity score matching can control for the sample selection biases. We address this issue in the next section, which presents the results of the full analysis.

However, this subsection focuses on firms' job-market impact and on inter-industry externalities. The most important positive externalities that a firm can create in a society and economy are the creation of large numbers of new jobs and the generation of greater value through out the value chain. Inter-industry value addition can be incrementally measured with a Leontief table. The Leontief table is a popular tool among economists for conducting inter-industry analyses. Measures of job-creation

and inter-industry performance are virtually free from endogeneity because they are unlikely to be the principal objective or goal of corporate diversification strategies (although we control for potential endogeneity in the next section).

Job-creation and inter-industry performance metrics are easy to assess. To measure the extent of job creation, we identify how many jobs a firm has created per one billion Korean won (KRW) that the firm in question has spent. This normalized measure controls for size effects. To measure the extent of inter-industry value addition, we use a Leontief table, a conventional measure of inter-industry value creation. All of the data are downloadable from the Bank of Korea's website.

Table 1 presents our results. We highlight the subsets that change order with changes in the averaging scheme. We partition the chaebols into 4 subsets according to the prevalence of diversification styles. The categories for explorers, invaders, venture capitalists and assimilators are formed by classifying firms based on whether they followed an accumulation style of diversification more than 50% of the time and whether they followed a growth-value style of diversification more than 50% of the time (Figure 1). For each subset, we compute the weighted averages (left panel) and simple averages (right panel) for the number of newly created jobs and the inter-industry value addition of each chaebol. We use the total revenue from diversifications as weights for the analysis. We graph the 4 subsets along the job creation and inter-industry value addition axes. Both of these axes are scaled to represent every one billion Korean won that was spent on unrelated diversification. The units of these axes are the number of individuals hired and 0.1 bln KRW.

Overall, explorers enhance both job creation and inter-industry value addition more than other types of diversifying chaebols (Table 1). This can be regarded as creative and valuable diversification for social welfare. Venture capitalists are skilled at promoting job creation but not at producing added inter-industry value. The performance of assimilators relative to invaders is ambiguous and is subject to classification and weighting schemes. More detailed analyses reveal that invaders have a comparative advantage in job creation and a disadvantage in inter-industry value addition compared with assimilators. These results are robust and support our classification scheme of chaebols. In particular, if we reclassify the Shinsegae and Hyosung chaebols, which are at the boundary of the explorer and invader categories, as explorers, then explorers continue to lead in both job creation and inter-industry value addition, whereas the performance of invaders deteriorates. Similarly, if we classify Hanjin as a venture capitalist, our results remain almost unchanged.

4. The full empirical model and results. This section presents the procedure and results of a detailed analysis of the performance of the 4 practices of unrelated diversification and how their performances vary among the examined chaebols. The performance that a chaebol attempts to maximize may include social impact. The relative weight that a firm gives to financial and social performance may depend on the business group to which the firm belongs and the year that is being examined. In addition, a chaebol may optimize its diversification strategy through a particular combination of accumulation and growth-value strategies. Our results indicate many interesting patterns.

Specification. 3 types of firm performance are measured: job creation, inter-industry value addition and revenue. Job creation and inter-industry value addition

represent social performance. Revenue measures private performance. The overall performance of a firm is the combination of these 3 performance measures. Therefore, the performance of firm

$$i \equiv Y_i \equiv Revenue_i (1 + w_1(X) * value_addition_i + w_2(X) * job_creation_i).$$

$Revenue_i$ denotes the revenue of firm i . $Value_addition_i$ is the quantity of inter-industry value that has been added by firm i . $Job_creation_i$ is the number of jobs created by firm i . $w_1(X)$ and $w_2(X)$, which are referred to as the performance weights, denote the relative weights of inter-industry value addition and job creation, respectively. The performance weights are exponential functions of linear combinations of the chaebol and year dummies. This equation assumes that each chaebol can define its performance differently according to the preferences of its controlling families, its relationships with stakeholders (e.g., the government) and its propensity to use non-market strategies. We also allow the definition of firms' performance to vary over time. However, it is unlikely that any of the performance weights are negative. Therefore, the performance weights are modeled as exponential functions of linear combinations of the chaebol and year dummies (X). Dongbu is the reference chaebol because it has the smallest sample size. Our first year of data, 1997, is designated as the reference year.

The performance of a firm (Y_i) is the function of strategies and unobservable shocks (ε_i). Our research question inevitably involves the ways in which diversification strategies determine a firm's performance. The previous section of this paper defined 4 types of diversification practices: assimilator, invader, venture capitalist and explorer. This classification leads to the ability to model performance as $Y_i = \alpha_0(X) + \alpha_1(X) * invader_i + \alpha_2(X) * venture_capitalist_i + \alpha_3(X) * explorer_i + \varepsilon_i$. In this equation, assimilator is the reference category. Therefore, the coefficients $\alpha_j(X)$, which are referred to as strategy coefficients, indicate how a firm's performance responds to practices that deviate from the reference practice. These coefficients are likely to vary, as the relationship between performance and a particular strategy can vary for each chaebol for each year. Certain chaebols may be better at certain strategies than at other strategies, and strategy expertise may also vary over time. Thus, the $\alpha_j(X)$ values are modeled as the functions of linear combinations using dummy variables for each chaebol and year (X).

To summarize, our model specification is as follows:

$$Y_i = \alpha_0(X) + \alpha_1(X) * invader_i + \alpha_2(X) * venture_capitalist_i + \alpha_3(X) * explorer_i + \varepsilon_i \quad (1)$$

$$Y_i \equiv revenue_i (1 + w_1(X) * value_addition_i + w_2(X) * job_creation_i) \quad (2)$$

$$X \equiv \{\text{Chaebol dummies, year dummies}\} \quad (3)$$

Estimation procedure. Both the strategies and the performance of a firm are endogenous. Firms choose strategies to enhance performance. Conversely, a firm's performance depends on its choice and execution of strategies. Ordinary least squares estimations will yield inconsistent estimators in the presence of endogeneity. In addition, our model is nonlinear. Therefore, we include moment (orthogonality) conditions. Our moment condition for observation i (i.e., a firm) for a given year is $g(X_i, \theta)$

$\equiv X_i' \varepsilon_i$. Clearly, years and chaebols are predetermined, which validates these moment conditions. In the above equation, θ denotes the set of parameters that characterize the performance weights ($w_j(\bullet)$) and strategy coefficients ($\alpha_j(\bullet)$).

We use the generalized method of moments (GMM; Hansen, 1982) to estimate this parameter set (θ). To describe our GMM procedure, let θ be the set of parameters that characterize the functional forms of $w(\bullet)$ and $\alpha(\bullet)$. We define the moment conditions as follows:

$$g(X_i, \theta) \equiv X_i' \varepsilon_i = X_i \cdot \begin{pmatrix} Y_i - \alpha_0(X) - \alpha_1(X) * invader_i \\ -\alpha_2(X) * venture_capitalist_i - \alpha_3(X) * explorer_i - \varepsilon_i \end{pmatrix} \tag{4}$$

The GMM estimator (θ_{GMM}) then becomes the following:

$$\theta_{GMM} = \operatorname{argmin}_{\theta \in \Theta} \hat{m}(\theta) \Omega^{-1} \hat{m}(\theta) \tag{5}$$

$$\hat{m}(\theta) \equiv \frac{1}{N} \sum_{i=1}^N g(X_i, \theta) \tag{6}$$

$$\Omega = E(g(X_i, \theta) g(X_i, \theta)') \tag{7}$$

We estimate Ω in accordance with a procedure described by White (1982) that uses a heteroskedasticity and autocorrelation consistent (HAC) variance estimate of Ω with lag = 2:

$$\Omega_{HAC} = \Gamma_0(\theta_c) + \frac{1}{lag} \sum_j^{lag-1} w_{j,n} (\Gamma_j(\theta_c) + \Gamma_j'(\theta_c)) \tag{8}$$

$$\Gamma_j(\theta_c) \equiv \frac{1}{N} \sum_{t=j+1}^N g(X_t, \theta_c) g(X_{t-j}, \theta_c) \tag{9}$$

In the above equations, θ_c is a consistent estimator of the parameters to be estimated. We use Markov chain Monte Carlo (MCMC) methods to facilitate our GMM estimations (Chernozhukov and Hong, 2003).

Results.

Strategy coefficient analysis. In Table 2, the chaebol dummies indicate how the various strategies impact performance. The reference group is the assimilator group (low accumulation and low growth). Thus, the coefficients for the other strategies measure the changes in performance that occur as firms' diversification practices deviate from the strategies that are used by assimilators. We model the coefficients as functions of chaebol dummies and year dummies and examine a variety of interesting cases. First, Kumho does not perform well if it uses an invader strategy. Lotte's performance deteriorates if it uses venture capitalist strategies. The strategies that are used by explorers are not beneficial for Hanwha, Hyundai Motors or LG. Second, the implementation of an invader strategy generates good performances for Doosan, Samsung, Shinsegae, Posco, Hyundai Motors, Hyundai Heavy Industries, Hyosung, CJ, GS, KT, and LG. Third, the diversification strategy of venture capitalists successfully increases the performances of Kumho, Samsung, Kolon, Posco, Hanwha, Hyundai, Hyundai Motors, GS, LG, LS, OCI, SK, and STX. Fourth, the strategies

that are used by explorers increase the performances of DSME, Doosan, Lotte, Samsung, Shinsegae, Posco, Hanjin, Hyosung, CJ, GS, KT, LS and SK. From the collected observations, we can generate recommendations for each chaebol that will allow each of the examined companies realize its desired performance.

Performance weight characteristics. We also analyze how a firm perceives its performance and the extent to which a firm considers the social impact of its operations in addition to its financial performance. Table 3 presents these results for the examined chaebols. We categorize these chaebols into 4 groups. Group I firms are not concerned with either inter-industry value addition, or job creation. Group II firms do not take inter-industry value addition into consideration but may be concerned about job creation. Group III firms may take job creation into account but disregard inter-industry value addition. Group IV firms may be concerned with both inter-industry value addition and job creation. Group IV firms include Dongkuk, Doosan, Kolon, Posco, Hyundai, CJ, OCI and SK. From the social planner's perspective, the firms in Group IV are the most attractive companies.

5. Managerial implications. This paper makes suggestions about how to undertake unrelated diversification or build empires. Our analysis revealed 4 types of diversification practices that generate different social impacts. The relationship between diversification practices and performance demonstrated various patterns that vary by chaebol and year. We indicate which firms consider not only their financial data but also their social impact on inter-industry value addition and job creation in their determinations of their overall performance. Moreover, we identify variation in the effectiveness of diversification strategies and in the definition of performance across organizations and over time.

Our results generate several important managerial and policy implications. First, all of the types of unrelated diversification are not the same. Therefore, each type of unrelated diversification and each form of associated empire building should be regarded differently. Second, the types of resources and the ways in which core strategic resources and competencies are sourced can generate performance heterogeneities. There are at least two ways of obtaining strategic resources: acquisition in strategic factor markets and accumulation over time. We argue that the manner in which strategic resources is obtained is as important as the resources that a firm possesses in explaining heterogeneous firm performance. This research contributes to the development of the resource-based view of the firm.

This work was supported by the research fund of Hanyang University(HY-2012-N).

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Table 1. The contribution of various diversification strategies to job creation and inter-industry value addition

Assessment method	Job creation	Inter-industry value addition
Weighted average	explorer > venture capitalist > assimilator > invader	explorer > assimilator > invader > venture capitalist
Simple average	explorer > venture capitalist > invader > assimilator	explorer > assimilator > invader = venture capitalist

Table 2. The impact of unrelated diversification on performance, using chaebols as the moderating variables

	Constant	Invader	Venture capitalist	Explorer
KumhoAsiana Group	623.20	-374.01	615.27	97.27
DSME	1614.42	175.79	-152.17	259.45
Dongkuk Steel Mill	997.01	201.87	-89.39	-12.68
Doosan	3193.29	152.66	-81.10	719.75
Lotte	3064.25	100.53	-643.03	775.92
Samsung	5728.27	1949.95	2730.62	834.19
Kolon	1492.43	1305.17	181.92	3.13
Shinsegae	1692.90	616.47	855.16	457.73
Posco	3106.53	1171.66	645.20	240.43
Hynix	702.43	35.49	86.57	315.93
Hanjin	56.17	-101.51	-112.12	333.66
Hanwha	2531.96	-12.88	704.72	-396.16
Hyundai	924.37	49.04	161.00	-190.92
Hyundai Motors	7496.32	571.10	2022.21	-263.92
Hyundai Heavy Industries	844.24	366.88	158.21	78.11
Hyosung	2334.09	761.27	-24.23	446.80
CJ	4615.96	477.62	101.10	4174.61
GS	4544.73	379.87	1633.85	546.31

The End of Table 2

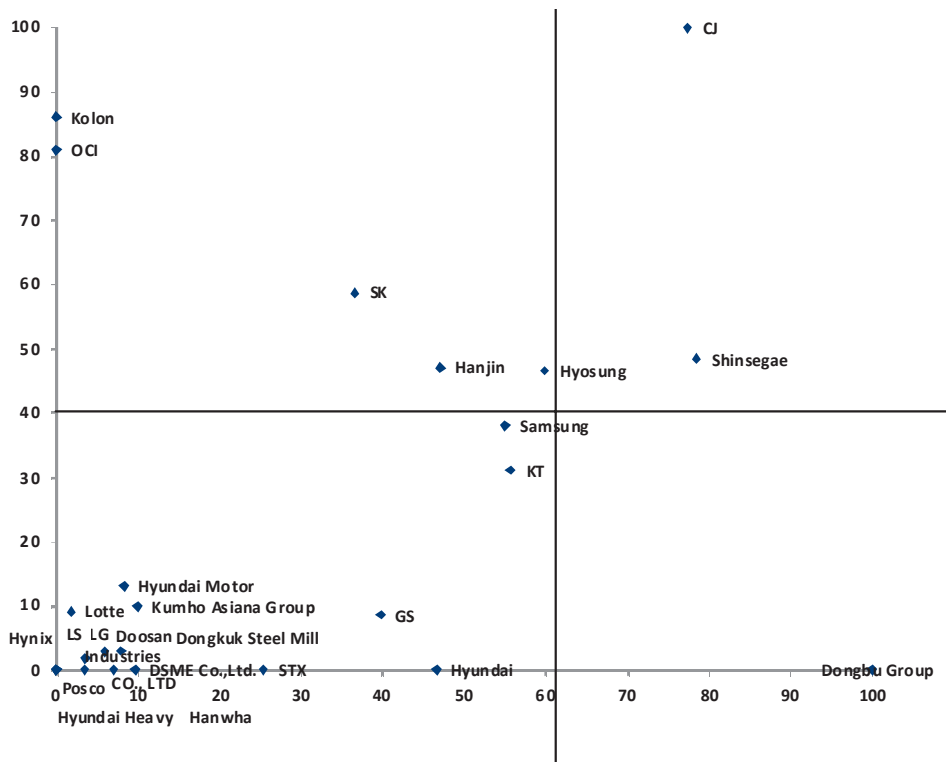
	Constant	Invader	Venture capitalist	Explorer
KT	1562.60	391.88	196.23	219.21
LG	3690.86	447.15	692.31	-657.37
LS	3229.15	-27.55	256.78	180.71
OCI	970.68	481.01	140.18	-142.91
SK	7470.72	1372.43	1796.26	736.45
STX	2128.67	221.14	1144.20	-108.90

Note: This table describes the coefficients for *chaebol* dummies in $\alpha_i(\bullet)$, where $\alpha_i(\bullet)$ is a linear function derived from constants, *chaebol* dummies and year dummies. Dongbu is the base *chaebol*, 1997 is the base year, and $\alpha_i(\bullet)$ denotes the slope coefficients of performance in response to unrelated diversification strategies (in terms of deviation from the assimilarator strategy). More specifically, our empirical model is as follow: $Y_i = \alpha_0(X) + \alpha_1(X)*invader_i + \alpha_2(X)*venture_capitalist_i + \alpha_3(X)*explorer_i + \epsilon_i$. $Y_i \equiv Revenue_i(1 + w_1(X)*value_addition_i + w_2(X)*job_creation_i)$. We use the MCMC approach with the Metropolis-Hastings algorithm to estimate the parameters. In the above table, let 'beta' denotes the average of the simulated posterior distribution and 'beta/s' denotes the average divided by the standard deviation of the simulated posterior distribution. The shaded area denotes $|\text{beta}/s| > 2$.

Table 3. The weights in the performance indicator, using chaebols as the moderating variables

	Value added			Job creation		
	beta	beta/s		beta	beta/s	
KumhoAsiana Group	-568.57	-3.35	***	-132.92	-2.47	**
DSME	-600.52	-4.11	***	-99.71	-1.81	
Dongkuk Steel Mill	-171.50	-1.50		-101.54	-1.63	
Doosan	-359.14	-1.85		-147.95	-1.78	
Lotte	-281.99	-3.11	***	-454.71	-4.47	***
Samsung	-166.71	-2.28	**	-250.42	-3.30	***
Kolon	-134.60	-1.44		-329.43	-1.49	
Shinsegae	-574.53	-4.96	***	-511.21	-6.05	***
Posco	-477.04	-1.80		-354.77	-1.46	
Hynix	-122.33	-2.02	**	-144.58	-1.97	
Hanjin	-129.32	-1.52		-537.84	-4.42	***
Hanwha	-427.93	-3.73	***	-365.82	-3.86	***
Hyundai	-341.19	-1.79		-154.37	-1.24	
Hyundai Motors	-246.80	-1.24		-382.41	-4.20	***
Hyundai Heavy Industries	-92.11	-2.18	**	-135.74	-2.06	**
Hyosung	-117.05	-2.20	**	-161.62	-2.44	**
CJ	-113.17	-1.80		-190.88	-1.18	
GS	-169.39	-2.05	**	-127.89	-1.95	
KT	-317.51	-4.02	***	-166.91	-2.85	**
LG	-193.66	-1.84		-282.09	-4.11	***
LS	-263.23	-3.08	***	-443.27	-2.71	**
OCI	-93.39	-1.63		-343.19	-1.96	
SK	-271.03	-1.93		-83.56	-1.77	
STX	-197.17	-2.37	**	-165.67	-2.05	**

Note: See Table 2 legend.



Horizontal-axis (accumulation style) = (the revenue from diversification by accumulation)/(the revenue from diversification by both accumulation and acquisition); Vertical-axis (value style) = (the revenue from diversification into growth sectors)/(the revenue from diversification into both value and growth sectors).

Figure 1. The accumulation & growth-value styles matrix and the choice of diversification strategies by chaebols

Стаття надійшла до редакції 15.09.2012.