"Methodological framework for integrated business structures branding development in Ukraine"

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BUSINESS PERSPECTIVES

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METHODOLOGICAL FRAMEWORK FOR INTEGRATED BUSINESS STRUCTURES BRANDING DEVELOPMENT IN UKRAINE

Abstract

The integrated business structures performance is underpinned by a wide range of external and internal factors that from a business unit perspective may have positive or negative implications for brand building. Moreover, in the context of business integration, the interaction among individual business units is of paramount importance that dramatically affects the performance of the entire business structure. The research objective is to provide a methodological framework for branding development through the calculation of integrated complementary and synergistic effects indicators, based on their compliance with the criteria of congruence and compatibility within architectonic elements of integrated business structures. The methodological toolkit design to estimate the integrated indices for complementary and synergistic effects involves the following stages: building a set of partial indicators for assessing complementary and synergetic effects, developing an algorithm to calculate an integrated index for complementary effect from internal and external brand interactions within integrated business structures (IBS), developing an algorithm to calculate an integrated index for a synergetic effect from brand integration within a business structure, individual business unit brand classification by different complementary and synergistic effects manifestations.

The proposed methodological approach contributes to facilitating brand integration in mergers and acquisitions, as well as enhancing the allocation effectiveness of portfolio roles of integrated business structure brands in product offering in the integration framework.

INTRODUCTION

The current stage of economic development along with the intensification of globalization processes drive a new vector in doing business design, which is reflected through increased attention to the issues of mergers and acquisitions. Apparently, integrated business structures contribute to providing robust support for industrial stability, building strong competitive advantages, as well as facilitating risk reduction in highly uncertain and rapidly changing modern environment. The specifics of mergers and acquisitions assume a fundamentally new perspective for developing effective business strategies within the integrated business structure framework, in particular, the branding-based ones. In turn, brands of individual business units are part of intangible assets of the entire integrated business structure. This urges the need to identify both evident and latent relationships between brands in the context of integration. The major goal in assessing the effects of integration changes is meeting the requirements for congruence and compatibility within architectonic elements of an integrated business structure.

The relevance of the selected topic has been challenged by the lack of fundamental and applied research on the sources of synergy and complementary effects in the context of brand alliances within integrated business structures. The intrinsic problems in assessing complementary and synergistic effects of integration arise from the failure to reveal their immediate impact on the integrated index of internal and external interactions among business units. However, the study of integration factors affecting branding development in the mergers and acquisitions framework is critical for building an optimal model of integrated business structure brand architectonics that is of particular importance in modern realia of a globalized economy.

1. LITERATURE REVIEW

The recent years statistics demonstrates impressive expansion of mergers and acquisitions market. Each of the 500 largest companies in the world has joined one or more brand partnerships with other companies, which account for about 60 at present (M&A Review full year, 2018). Thus, only in the US the number of products offered to consumers under the co-brands in the past two decades is increasing annually by 20%. Successful functioning of integrated business structures in the economy triggers the search for the most efficient financial and economic cooperation patterns between participating companies and management strategies. Among them, special emphasis should be drawn to the strategy for building trust in the relationships between consumers and the corporate brand (Kim, Hur, & Yeo, 2015), as well as to the application of game theory to horizontal integration of retail brands (Shindo & Matsubayashi, 2014).

According to the Interbrand survey (Best Global Brands, 2018), among the top 20 fastest-growing brands over the past years are such integrated brands as Google, IBM, Oracle, HP and Philips. Yet, the use of brand 'integrative power' in the context of mergers and acquisitions strategic initiatives implementation would only be possible through the correct choice of relevant management strategies (Blajut, 2015).

However, despite the steadily rising popularity and improvements in conceptual and methodological approaches, the share of integrated business structures that fail to reach their goals remains high, stemming in the first place from the lack of the in-depth study that enables to reveal the fundamental nature of branding offering synergistic and complementary assets.

A number of scholars provided insights into the specifics of integrated business structures functioning and justification of the pathways to ensure effective interaction of elements within integrated business entities. From this perspective, rapidly changing political and economic environment, as well as industries and investors priorities, challenge the need for a thorough study and in-depth analysis of mergers and acquisitions market. Thus, modeling of integration branding process is of critical importance, since the brands of the two merging companies tend to have their own identities, unique nature together with their basic corporate culture and philosophy (Becerra & Badrinarayanan, 2013). With this in mind, it is essential to select an adequate integration branding strategy: will it be a single brand, co-branding, agile brand or a completely new one (Roll, 2015; Praude & Shalkovska, 2010).

Integration processes give rise to synergistic (Marchenko, 2011; Marchenko, 2012; Urde, Baumgarth, & Merrilees, 2013) and complementary effects (Knights, 2012) driven by the principles of uncertainty, unpredictability and instability. Apparently, internal subsystems of integrated business structures exhibit the largest synergistic effects and unlock the full synergy potential facilitating the system's transition to a bifurcation phase (Starov, 2010; Garud, 2011). Thus, branding as an integrated business structure element, which contributes to creating complementary and synergistic effects challenges a scientific rationale for the methodological framework to reveal the major approaches to identify the ultimate impact of integration.

However, an important aspect for a business structure under brand integration is to assess the degree of integration as an outcome of its actions towards rational combination of brand

architectonics of the companies that integrate. Assessment of the degree of integration and effectiveness of corporate branding is crucial for maintaining intrinsic psychological, communicative and economic roles of the brand in marketing activities of integrated business structures (Voss & Mohan, 2016; Balmer, 1995). The need to fill the research gap in resolving and grounding the above issue from both theoretical and practical perspectives urges the development of methodology to assess integrative changes in brand architectonics of integrated business systems.

Currently, the biggest problem in brand integration within the process of mergers and acquisitions is ensuring their congruence and compatibility by certain criteria, the so-called architectonic elements. In this study, under the integrated business structure brand architectonics we understand the most common relationships in business units branding structure exposed by the overall cumulative effect of brand integration through interaction and self-organization of internal and external environment factors.

The cumulative effect from brand integration in the process of a merger or acquisition should be better considered in the context of acquired complementary and synergistic effects. Accordingly, the complementary effect is structured as a complementary effect of internal and external interactions. The complementary effect of internal interaction is manifested through saving all kinds of resources. From the position of branding approach, saving (optimal use) of marketing and managerial resources is of particular importance.

The complementary effect of external interaction is manifested through certain actors – stakeholders interested in brand communications. The most essential role among actors in business integrated structures is played by consumers who make up their near environment and impose a direct impact on the overall economic performance of business integrated structures (Aaker, 1991). The exposure of complementarity through the far environment of an integrated business structure is manifested through such brand-focus stakeholders as government, financial institutions and mass-media (Keller, 2003).

The selection of priority indicators to assess the complementary effects from brand integration in a business structure was based on the key generalized factors affecting the evaluation of a cumulative effect from M&A brand business integration, as well as on compliance with such methodological assessment principles as consistency, comprehensiveness and integrity (Appendix A).

Building a system of partial indicators to assess brand complementary effects in a business structure through the effects from financial resource integration of individual business units stemmed from the assumption that business owners are very keen to enhance asset utilization efficiency through integration. This is the major issue any brand or company may face before choosing an area for integration (Režňáková & Pěta, 2018). Since the primary goal of any commercial organization is to increase shareholder value, the factor that drives the company strategy development must be measured. The point to be emphasized is that measuring shareholder value is a tough challenge (Doyle, 2000; Feldwick, 1996). A vast number of integration processes occur at the time when stock prices of individual brands are increasing. However, the value created through a merger must be analyzed in the longer perspective. For this reason, the structure of indicators affecting the integration of financial resources of individual business units includes indicators that assess: the sales revenue and dividend payment dynamics, the rates of capital utilization and returns on sales, business unit resource efficiency (fixed assets, working capital, tangible assets and human resources), the degree of financial risk, the degree of innovativeness in the context of product assortment update, capital renewal, R&D performance, intangibles purchased.

The fundamental premises for building a set of partial indicators for assessing complementary business structure brand integration effect through the effects from the integration of business units workforce is understanding that employees' key objective is to attain their own goals among which the most important are salary increase expectations, full employment, low staff turnover, which indicates a high level of business structure integration, corporate culture and the spirit of unity, as well as the opportunity for career growth through

expanded capacity of a business structures. One of the main reasons for integration projects failures is a conflict of interests in merged companies. Integration can be a great example to demonstrate the power of organizational culture, however, while taking a thorough and relevant approach (Knights, 2012; Hereźniak, Florek, & Augustyn, 2018), a common mistake is to assume that setting a goal towards market domination (to achieve better profit growth and expansion) is a key to handle all integration challenges.

The key indicators for assessing complementary effects from brand integration in a business structure for consumers are the degree of customer satisfaction and their loyalty to integrated business structure brands considered as repurchase probability. From this perspective, complementarity is associated with reduction in marketing costs, premium pricing, high customer retention against deterioration in the business environment, cushion of time to respond to competitive threats.

Measuring the complementary effect by a 'customers' component can be performed on the basis of an integrated analysis of customer satisfaction with market position of brands in an integrated business structure through providing a survey and getting a customer satisfaction score, which enables to estimate the brand loyalty by identifying a relationship between customer satisfaction and customer loyalty (Singh, Iglesias, & Batista-Foguet, 2012).

The calculations on the complementary effect by a 'distributors' component is built on the assumption that the integrated branding promotes better motivation in attracting more distributors. And in the case of horizontal integration, it helps to capture the overall sales cycle, which apparently enhances the complementarity of integration manifestations.

The complementary effect by a 'competitors' component should be estimated using the indicators of an integrated business structure market share, which indicates the brand popularity and its competitive position in the market, as well as its relative market share against a stronger competitor. In addition, according to a number of research findings, absolute and relative market share can

be used as a branding effectiveness criterion with regard to the entire integrated business structure.

The complementary effect for the country translates into the increase in budget revenues at all levels. In terms of social impact, it contributes to employment growth by creating new jobs.

The structure of performance indicators for financial institutions includes return on invested capital that measures investment efficiency of projects and increased financial autonomy, which is the evidence for the level of financial independence from external funding sources and financial stability of integrated business structures resulted from relevant choice of their integration strategy.

An effective framework for parameter estimation of the synergistic effect from brand integration in a business structure should include five essential components of internal self-organization (Marchenko, 2012; Režňáková & Pěta, 2018) (competitive-integrative benchmarking, new knowledge, branding innovations, new corporate culture and image) and four critical self-organization elements (new terms of cooperation, change in market environment, new development opportunities, changes in market value). The framework for parameter estimation of the synergistic effect from brand integration in a business structure is provided in Appendix B.

2. AIMS

The purpose of the research is to design a methodological approach to branding development in integrated business structures based on the assessment of synergistic and complementary effects from brand integration of individual business units.

To achieve this goal, the following objectives were set and attained:

- to justify a set of indicators for assessing complementary and synergistic effects from a merger (subject to their informative value and test results for multicollinearity);

- to assess the importance of each indicator of the synergetic effect by using the hierarchy analysis techniques;

- to calculate integrated indices for complementary and synergistic effects for each research object (each business unit);

- to perform integrated business structure brand clustering by the values of integral indicators of complementary and synergistic effects to identify the structure of each cluster according to brand congruence and compatibility criteria;

- to distribute the cluster-based portfolio roles of integrated business structure brands by the values of integral indicators of complementary and synergistic effects.

3. METHODS

3.1. An algorithm to calculate an integrated index for the complementary effect from business structure brand integration

The in-depth analysis of the integrated business structure brand architectonics components has enabled to suggest a methodological approach to integrated business structure branding development, the essential content of which is shown in Figure 1.

Thus, the framework to assess complementary effects from business structure brand integration consists of 29 indicators, which are grouped by integration effect components. The given set of complementary effect indicators from internal and external interactions was tested for multicollinearity that revealed certain indicators that measure the same characteristics, i.e. demonstrate a close relationship which resulted in the appropriateness of their exclusion from the initial set.

For data processing, we used the method of multivariate factor analysis – a statistical procedure of principal component analysis. Hence, having performed the principal component analysis, out of 19 indicators of complementary effect from internal interactions, the following results were obtained. The cumulative variance for the three

factors makes 96.88%, i.e. exceeds 70%, and describes sufficient dispersion range for the integrated business structure performance indicators. Therefore, all indicators can be grouped into three integrated indices, namely: an integrated index of "Industrial Integration", an integrated index of "Labor Integration" and an integrated index of "Financial Integration".

A scree test, or rejection technique accounts for the variance remnants (Hair et al., 1998). In the context of this study, it enables to restrict the research focus to three factors and proves their sufficiency for analysis and drawing reasoned conclusions.

The principal component analysis for ten indicators of complementary effect from external interactions revealed the following results. The cumulative variance for the two factors makes 84.99%, which exceeds 70% and describes sufficient dispersion range for the integrated business structure performance indicators. A scree test enables to restrict the research focus to the two factors and proves their sufficiency for analysis and drawing reasoned conclusions.

Thus, all indicators can be divided into two integrated indices, namely: an integrated index of "Consumer Integration" and an integrated index of "Market Integration".

Given the values of factor loadings, which turned significant under values exceeding 0.7, certain parameters under study have demonstrated lack of significance and were therefore excluded from further research.

According to the results obtained, indicators that show significant influence have been grouped into factors presented in Table 1.

To estimate the integrated index of complementary effect from brand integration of individual business units, a taxonomic method has been applied. As part of our approach, while constructing the data matrix to calculate the taxonomic index, we suggest using standardized indicators for each architectonic component for the purpose of comparing value-based and physical measurement units. In addition, the data standardization accommodates the efforts to convert a range of in-

COMPONENTS OF INTEGRATED BUSINESS STRUCTURE BRAND ARCHITECTONICS

A set of partial indicators to asses the complementary effect from brand integration within a business structure

A set of parameter estimates for the components of synergistic effect from brand integration within a business structure

Complementary effect from external interaction

Consumer Integration
X20, X23, X26, X27, X28, X29

Market Integration
X21, X22, X24, X25

Internal self-organization parameters

External self-organization parameters

Calculations for internal self-organiszation parameters (X30, X31, X32, X33, X34)

Calculations for external self-organiszation parameters (X35, X36, X37, X38)

Complementary effect from internal interaction

Industrial Integration
X1, X2, X5, X6, X7, X8, X13, X16, X17

Labour Integration
X11, X18

Financial Integration
X4, X9, X14

Calculation of the integrated index for the synergistic effect

Calculation of the integrated index for the complementary effect

Hierarchical and *k*-means brand clustering in an integrated business structure by their architectonics

Interpretation of clustering results, structure identification for each cluster

BRAND 1   BRAND 2
BRAND 3

BRAND 4   BRAND 5
BRAND 6

BRAND n

BRAND 7

Cluster 1

Cluster 2

Cluster n

Cluster-based modelling of brand architectonics for integrated business structures
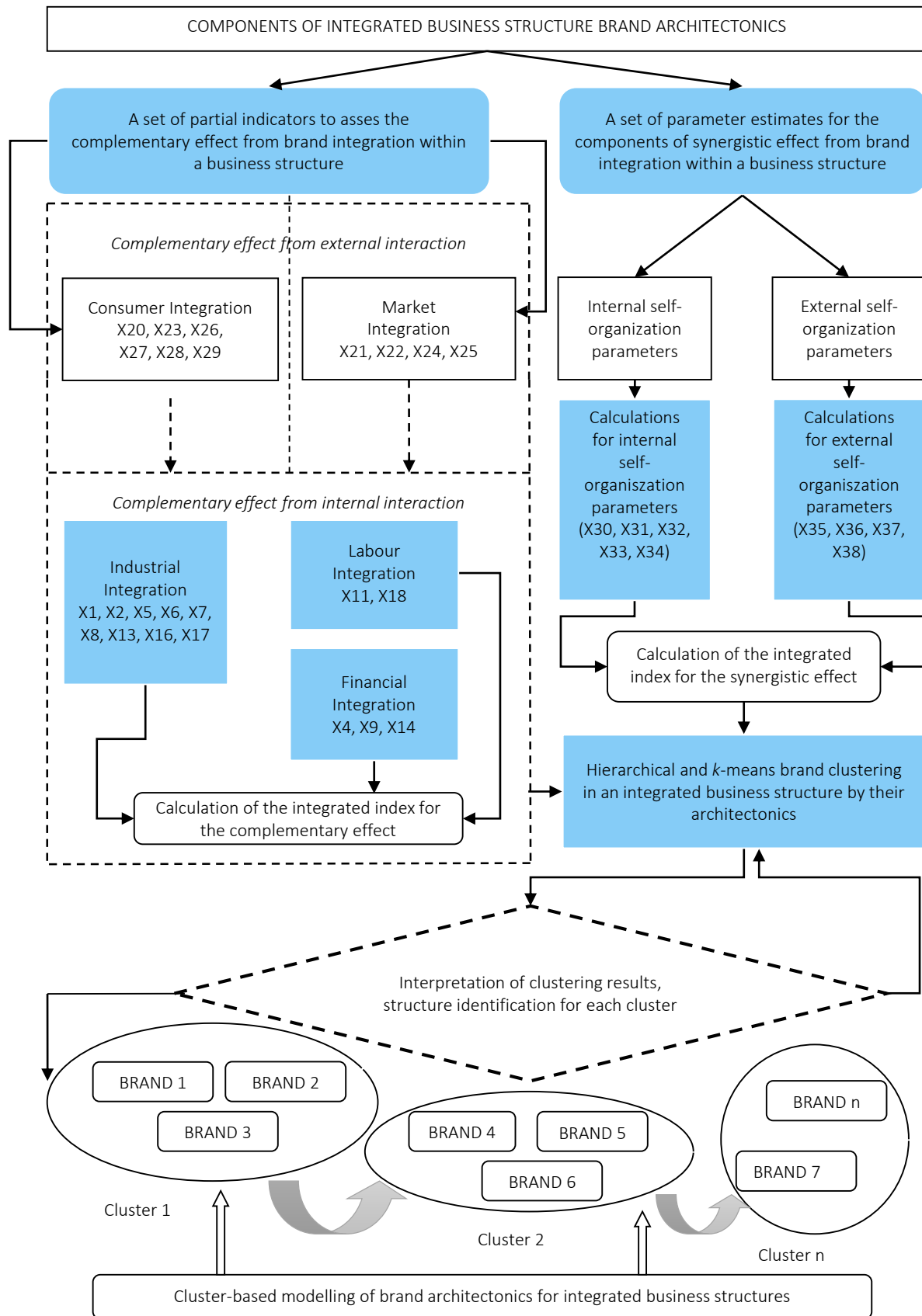
Figure 1. Methodological approach to integrated business structure branding development

Table 1. A structure of factors and indicators that have significant influence on complementary effect from internal and external interactions

Factor number	Indicators within the factor structure	Integrated index title
Indicators of complementary effect from internal interaction		
Factor 1	X1, X2, X5, X6, X7, X8, X13, X16, X17	Integrated index of Industrial Integration
Factor 2	X11, X18	Integrated index of Labor Integration
Factor 3	X4, X9, X14	Integrated index of Financial Integration
Indicators of complementary effect from external interaction		
Factor 1	X20, X23, X26, X27, X28, X29	Integrated index of Customer Integration
Factor 2	X21, X22, X24, X25	Integrated index of Market Integration

dicators from incentives and disincentives into a single one – the incentives.

The taxonomic index increases as the incentives values are removed from the upper pole and decreases with approaching it. The value of this parameter is as follows:

$$K_i = 1 - \frac{d_{0i}}{d0},$$

where

$$d_0 = \overline{d}_0 + 2\sigma_0; \quad \overline{d}_0 = \frac{\sum_{i=1}^{n} d_{0i}}{n}; \quad \sigma = \sqrt{\frac{\sum_{i=1}^{n}\left(d_{oi} - d_0\right)^2}{n}},$$

where K index value varies in the interval from 0 to 1, subject to the common statistical three (two) Sigma rule (i.e. three (two) standard deviations).

Based on cumulative effect values (Table 1) from internal and external interactions, an integrated index is calculated. The closer this index value is to 1, the better.

By reference values of local indicators, the reference values of integrated business structure brands have been estimated by their architectonic components.

We suggest using a multivariate (multiple) regression method to identify the relationships between the integrated index of complementary effect and its components (internal and external interactions). Thus, a multifactor model for the dependence of the integrated index from independent variables is constructed through the multiple regression method application. Next, the obtained model adequacy is assessed. To achieve this objective, the significance of regression parameters comparison (Student's t-test) is estimated along with multiple correlation coefficient calculation (its absolute val-

ue is in the interval $0 < |R| < 1$). The significance of the multiple correlation coefficient is estimated through the F (Fisher's) criterion.

The relationship between the integrated index of complementary effect and its components was identified using a stepwise regression without a zero-force member. The calculations results have revealed the multiple regression equation based on the integrated index of complementary effects from its internal and external interactions:

$$I_c = 0.377 I_{i.i.} + 0.623 I_{e.i.}.$$

The analysis provided rationale for the relevance of using a radar measurement method to compare the effects from internal and external IBS brand interactions. It accommodates the correlation of these effects and contributes to finding pathways for their enhancement and development.

The proposed method practical implementation was tested in a "Fozzy Group" integrated structure. All the indicators that included in the assessment framework were considered in dynamics for the period 2012–2016. Figure 2 shows a sample of radar estimation of the effects from internal and external brand interactions for the following business units: Fozzy-Food Ltd, Dniprianka PJSC, Fora Ltd, Expansia Retail PJSC, Silpo Retail PJSC and Fozzy Group JSC. The estimate indicators rezults for internal and external interactions, as well as the values of integrated indices of complementary effect for Fozzy Group business units, are presented in Table 2.

The assessment results can be interpreted in the following way:

• the greatest complementary effect from integration among business units has Fozzy

Table 2. Complementary effect index values for Fozzy Group business units

No.	Business unit	Integrated index of internal interaction	Integrated index of external interaction	Integrated index for complementary effect
1	Fozzy-Food Ltd	0.609	0.590	0.597
2	Dniprianka PJSC	0.196	0.214	0.207
3	Fora Ltd	0.649	0.379	0.481
4	Expansiia Retail PJSC	0.222	0.239	0.233
5	Silpo Retail PJSC	0.301	0.218	0.249
6	Fozzy Group PSC	0.634	0.626	0.629

Group JSC, its integrated indices of internal and external interactions are at approximately the same level;

- the lowest complementary effect index has Dniprianka PJSC, its integrated indices of internal and external interactions are minimal across all business units within the integrated business structures;

- Fora Ltd exhibits a fundamental difference between the integral indices of internal and external interaction. A low value of the external interaction indicator has significant influence on the complementary effect index value;

- since the weight coefficient of external interaction by expert survey results demonstrates a higher value, arguably, with a probability of
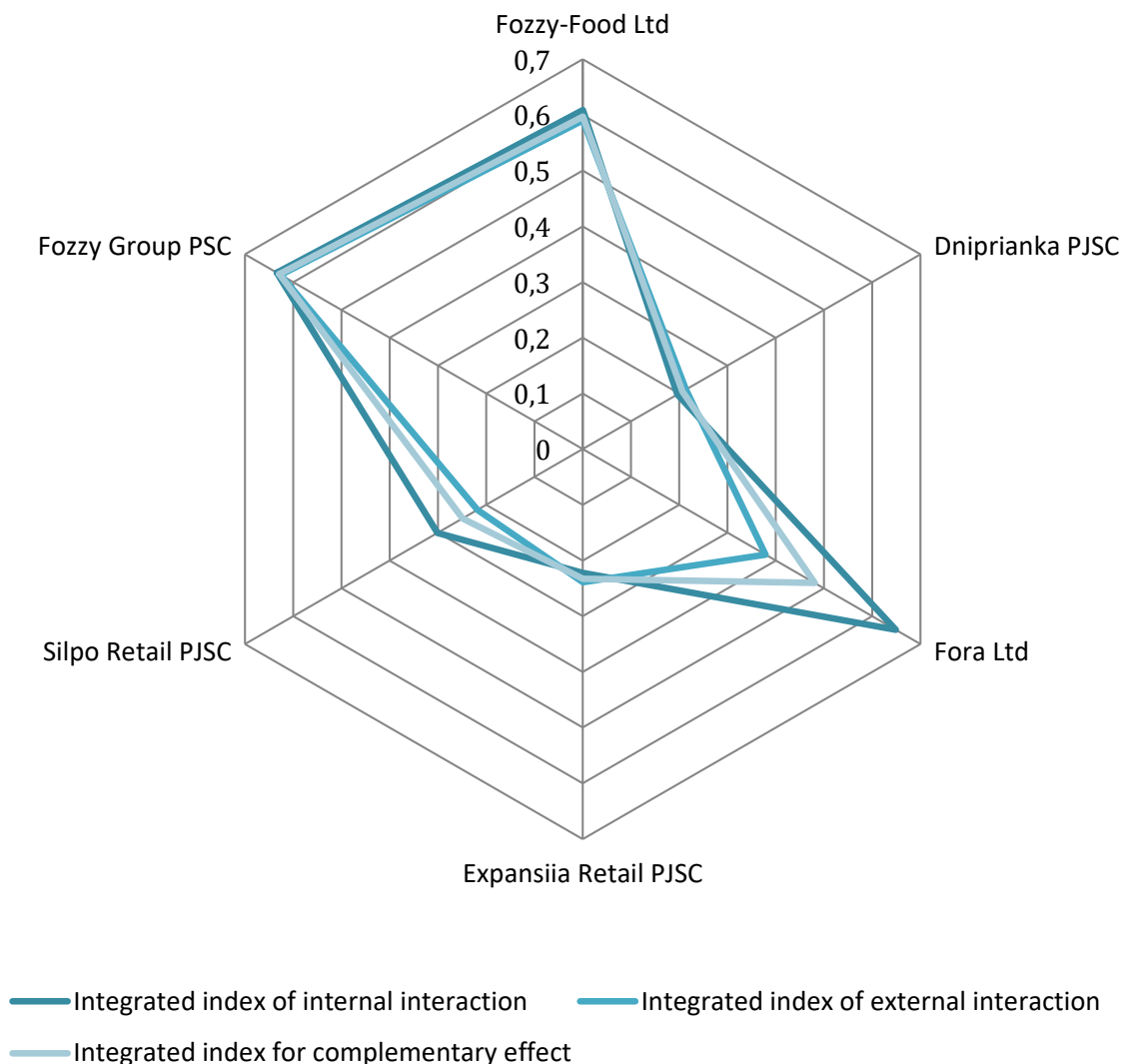
Figure 2. Integrated indices for complementary effect

75%, to gain greater complementary effect, a major focus should be placed towards developing external interaction indicators.

3.2. An algorithm to calculate an integrated index for the synergistic effect from business structure brand integration

To identify the integral index for the parameters estimation for the components of synergetic effect from brand integration within the integrated business structure, the hierarchy analysis approach has been applied (Saaty, 2008). The given method enables relevant priority analysis of each component of the synergistic effect across business units in the context of their integration. To facilitate hierarchy analysis process, the application of the Expert Choice software is recommended. Hence, all the estimate parameters for the synergistic effect evaluation were divided into two integrated criteria: the parameters of internal self-organization and the parameters of external self-organization.

Accordingly, the results of pairwise subcomponents comparison are as follows: within a "Competitive-integrative benchmarking" component, a "Business process benchmarking" subcomponent demonstrates the highest value of intensity; for a "New knowledge" component, the largest value has "Diversification of knowledge"; for "Branding innovation" – "Economic efficiency"; for "New corporate culture" – "Organizational compatibility"; for "Image" – "Brand identity compatibility"; for "New cooperation environment" component, the subcomponent "Brand loyalty degree" is the greatest in value.

The next step in implementing the hierarchy analysis approach within the scope of this research is to identify alternatives. As alternatives we have selected the following business units of the Fozzy Group IBS: Fozzy-Food Ltd, Dniprianka PJSC, Fora Ltd, Expansia Retail PJSC, Silpo Retail PJSC and Fozzy Group JSC.

The interim result of the analytic hierarchy process is the intensity scale for the pairwise comparisons and classification of the selected criteria into

internal self-organization and external self-organization groups. It is also important to note that pairwise comparison for each component increases the expert consistency level.

To gain information on the level of expert consistency violation during the evaluation phase, the consistency index CI and the consistency ratio CR should be calculated (Saaty, 2008). The consistency index is expressed by the formula:

$$CI = \frac{\lambda_{\max} - n}{n-1},$$

where $\lambda_{\max}$ is the maximum eigenvalue of the matrix pairwise comparison, n is the number of elements that are compared (the matrix size).

The consistency ratio is calculated by the formula:

$$CR = \frac{CI}{RC},$$

where RC is random consistency.

The index value amounts to 9.7%, which is acceptable.

The results of integrated indices calculation in the framework of estimate parameters assessment for the components of synergetic effect from brand integration within the integrated business structure are presented in Table 3.

Table 3. The results of integrated indices calculation in the framework of estimate parameters assessment for the components of synergetic effect from brand integration

No.	Business unit	Integrated index for the synergistic effect
1	Fozzy-Food Ltd	0.282
2	Dniprianka PJSC	0.069
3	Fora Ltd	0.166
4	Expansiia Retail PJSC	0.093
5	Silpo Retail PJSC	0.137
6	Fozzy Group PSC	0.254

Apparently, comparing the synergistic effects by integrated parameters of external and internal self-organization provides an opportunity to determine the feasibility of brand integration for particular business units. In this study, Fozzy-

Food Ltd and Fozzy Group PSC brand merger is suggested as the most reasonable choice, since their synergistic interaction effect indicator is the highest.

3.3. Brand clustering within integrated business structures by integrated indices of complementary and synergistic effects

The next step of the methodological approach in the context of this research is an attempt to perform architectonic-based brand clustering in an integrated business structure. This objective can be attained by using a hierarchical method along with the iterative method of *k*-means. The core brand classification criteria are integrated indices of the complementary and synergistic effects.

Below are the calculation results for the integrated indices of complementary and synergistic effects for Fozzy Group companies – the business units under study (Table 4).

Table 4. Integrated indices of complementary and synergistic effects for Fozzy Group business units

No.	Business unit	Integrated index for the complementary effect	Integrated index for the synergistic effect
1	Fozzy-Food Ltd	0.597	0.282
2	Dniprianka PJSC	0.207	0.069
3	Fora Ltd	0.481	0.166
4	Expansiia Retail PJSC	0.233	0.093
5	Silpo Retail PJSC	0.249	0.137
6	Fozzy Group PSC	0.629	0.254

A hierarchical algorithm will be applied to perform brand clustering of Fozzy Group business units. The point to be emphasized is that each business unit has a certain number of brands, which are subject to clustering. The purpose is to test the hypothesis on the presence of a certain number of classification groups. They should correspond to classes of distributed objects (brands of business units) according to complementarity/synergy level (high, medium, low).

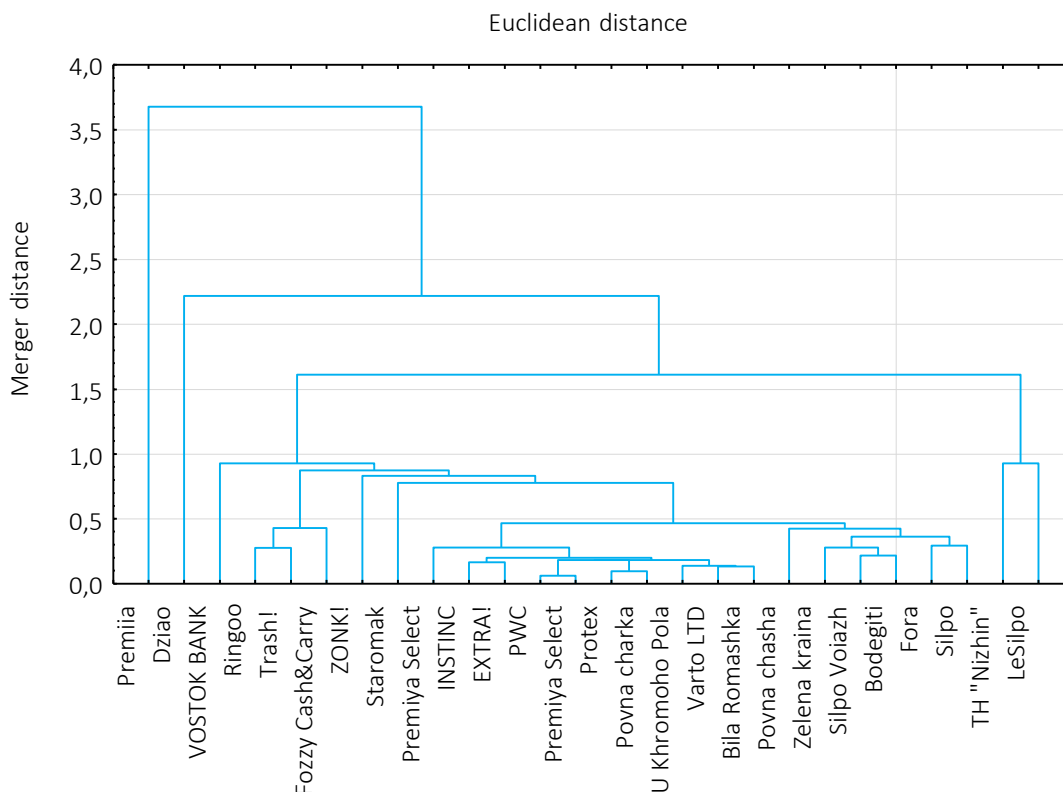The cluster analysis is carried out using the STATISTICA 6.0 software. The objective function

Figure 3. The results of Fozzy Group hierarchical brand clustering

Table 5. Variance analysis results from brand clustering within Fozzy Group business units

Variable	Between group SS	CC	Within group SS	CC	F	p-level
Complementary effect from internal interaction	20.202	8	5.149	17	8.338	0.000137
Complementary effect from external interaction	19.256	8	0.589	17	69.434	0.000000
Synergistic effect from internal interaction	15.718	8	1.572	17	21.242	0.000000
Synergistic effect from external interaction	21.016	8	0.457	17	97.801	0.00000

within the above method is a sum of squared deviations, assuming that at each stage two clusters merge that translates into the minimum increase in the objective function (Blunch, 2011).

The results from cluster analysis using the hierarchical algorithm of plotting a horizontal dendrogram are presented in Figure 3.

The obtained results offer an opportunity to apply the *k*-means method for further clustering, since it facilitates the pre-selection of the number of clusters. In this case, the number of clusters equals to nine.

The cluster analysis results were tested for adequacy by using variance analysis. Consequently, it made possible to perform Fozzy Group brand classification subject to the level of complementary and synergistic effects.

The data from Table 5 demonstrate that the value of external variance exceeds the values of within-in-cluster dispersion, for all the indicators under analysis. The estimates for the *F*-criterion display larger values than the table values, with regard for respective significance levels and the degree of freedom. When taken into account the corresponding levels of significance and corresponding degrees of freedom. The confidence level (p-value) assumes that the relationships found within clusters are identified by truly random sample with 1% probability.

The next stage in performing cluster analysis using the *k*-means method is identification of the clusters' structure and the number of brands within Fozzy Group business units assigned to each cluster. Thus, the following results from brand clustering within business units of the Fozzy Group IBS were obtained subject to the level of complementary and synergistic effects manifestation from internal and external interactions (Table 6).

Table 6. Cluster-based brand distribution within Fozzy Group business units

List of brands within business units	Number of brands	Clusters
Fora, Povna Chasha, Bodegiti, Silpo Voiazh, Zelena Kraina	5	Cluster 1
Fozzy, Cash&Carry, Tresh!, Ringo, Vostok Bank	4	Cluster 2
Staromak, ZONK!	2	Cluster 3
Silpo, Bila romashka, U Khromoho Pola	3	Cluster 4
Premiia	1	Cluster 5
Varto Ltd, EXTRA!, Premiia Riki Tiki, PWC	4	Cluster 6
Povna Charka, Protex	2	Cluster 7
Silpo, Dziao, TH "Nizhyn"	3	Cluster 8
Premiya Select, INSTINC	2	Cluster 9

Eventually, the results from Fozzy Group brand clustering provide an opportunity to offer a classification matrix for business unit-related brands subject to the level of complementary and synergistic effects. This matrix is constructed as follows:

- *X*-axis displays the values of the integrated index for the synergetic effect (low, medium, high);

- *Y*-axis displays the values of the integrated index for the complementary effect (low, medium, high).

4. RESULTS AND DISCUSSION

Table 7 accommodates the interpretation of the results from brand classification for the Fozzy Group business units, subject to the level of complementary and synergistic effects of internal and external interactions using the integrated indices matrix.

However, we should note that strict adherence to equalities is highly unlikely:

$$0.33 < I_{c.e.} < 0.66 \text{ and } 0.33 < I_{s.e.} < 0.66.$$

Table 7. Brand classification matrix for the Fozzy Group business units, subject to the level of complementary and synergistic effects

Complementary effect	$0.66 < I_{c.e.} \leq 1$ **High**	Premiia	Silpo Bila romashka U Khromoho Pola	Varto Ltd EXTRA! Premiia Riki Tiki PWC
	$0.33 < I_{c.e.} < 0.66$ **Medium**	Fora Povna Chasha Bodegiti Silpo Voiazh Zelena Kraina	Fozzy Cash&Carry tresh! Ringo Vostok Bank	Protex
	$0 < I_{c.e.} < 0.33$ **Low**	Silpo Dziao TH "Nizhyn"	Premiya Select INSTINC	Staromak ZONK!
		$0.66 < I_{s.e.} < 1$ **High**	$0.33 < I_{s.e.} \leq 0.66$ **Medium**	$0 < I_{s.e.} \leq 0.33$ **Low**
		Synergistic effect		

The reference points for the proposed classification are the elements allocated on the main diagonal of the table.

Next, the portfolio brand roles for product offerings will be presented using the business unit-based brand classification matrix subject to respective manifestations of the complementary and synergistic effects (Table 7).

Thus, based on Fozzy Group IBS brand clustering, the portfolio roles are allocated as follows:

- classical brand strategy: Premiia brand;

- alternative brand strategy: Silpo, Bila romashka and U Khromoho Pola brands;

- mass/discount brand strategy: Varto Ltd, EXTRA!, Premiia Riki Tiki and PWC brands;

- allied/quasi-luxury / brand in stabilization phase brand strategy: Fora, Povna Chasha, Bodegiti, Silpo Voiazh and Zelena Kraiina brands;

- medium brand strategy: Fozzy, Cash&Carry, Tresh!, Ringo and Vostok Bank brands;

- strategy for an outsider brand by its synergistic effect: Protex brand;

- luxury/declining brand strategy: Silpo, Dziao and TH "Nizhyn" brands;

Table 8. Portfolio role-based brand classification matrix by manifestations of the complementary and synergistic effects

Complementary effect	$\Delta S > 0$ **High level of complementarity**	Classical brand	Alternative brand	Mass brand/discount brand
	$\Delta S = 0$ **Medium level of complementarity**	Allied brand/quasi-luxury brand/ brand in stabilization phase	Medium brand	Outsider brand by its synergistic effect
	$\Delta S < 0$ **Low level of complementarity**	Luxury brand/declining brand	Outsider brand by its complementary effect	Anti-brand
		$\Delta P > 0$ **High synergy level**	$\Delta P = 0$ **Medium synergy level**	$\Delta P < 0$ **Low synergy level**
		Synergistic effect		

Note: ΔP is the price increase for branded products vs non-branded, monetary units, ΔS is branded products sales growth (in kind) vs non-branded, units.

- strategy for an outsider brand by its complementary effect: Premiya Select and INSTINC brands;

- anti-brand strategy: Staromak and ZONK! brands.

The major benefit of the proposed methodological approach is boosting brand integration opportunities arising from mergers and acquisitions. Economic and social effects are articulated through creating brand equity conceived as value added along with enhancing the corporate identity of integrated entities.

Implementing the approach that focuses on financial and economic interactions among participating companies is a common practice in management of integrated business structures. However, the use of this approach can be justified only through effective brand building strategies for integrated business structures development. In contrast to the current approaches, the suggested methodology is sensitive to brand congruence and compatibility by architectonic components in terms of participating business units.

Their interaction triggers complementary and synergistic effects. This method allowed for business units brands classification by the level of complementary and synergistic effects manifestations. From a practical perspective, the proposed approach contributes to effective allocation of brand portfolio roles in product offerings within integrated business structures in a merger context. Thus, the applied implications from using the suggested research findings is the enhanced capacity to improve standard business processes in the business units integration framework. This lays the background for generating value added from brand equity and promotes corporate identity of integrated entity.

CONCLUSION

In summary, we argue that the proposed methodological approach to branding development in integrated business structures facilitates effective brand integration through mergers and acquisitions with regard to brand congruence and compatibility with certain parameters, the so-called architectonic components. The justification of the partial indicators framework for assessing complementary and synergistic effects has been performed by identification of generalized factors affecting the estimation of the cumulative effect from brand integration in the process of mergers or acquisitions among business units. The cumulative effect from M&A brand integration has been considered in the context of complementary and synergistic effects. Accordingly, the complementary effect is structured as a complementary effect from internal and external interactions whereas the synergy effect is viewed as integrated external and internal self-organization parameters.

The suggested algorithm for calculating an integrated index of complementary effect from internal and external interactions of IBS brands accommodates informativeness and test results for multicollinearity of all indicators.

The identification of priority indicators to assess complementary effects from the integration of brands in a business structure was built on selected generalized factors influencing the estimation of the cumulative effect from brand integration in the process of mergers or acquisitions of business units, as well as adherence to the methodological principles of consistency, complexity and integrity of the assessment.

To identify the integral index for the assessment of estimate parameters for the components of synergetic effect from brand integration within the integrated business structure, the hierarchy analysis approach has been applied by providing insights on the priority components of the synergistic effect of the business units within the integration domain.

Comparing the levels of synergistic effects by integrated parameters of external and internal self-organization has offered an opportunity to determine the feasibility of brand integration for certain business units.

Brand classification by the level of complementary and synergistic effects was performed using the Fozzy Group case. This classification contributed to more effective allocation of brand portfolio roles in product offerings within integrated business structures in a merger context.

REFERENCES

1. Aaker, D. (1991). *Managing brand equity.* New York: Free Press.

2. Balmer, J. M. T. (1995). Corporate branding and connoisseurship. *Journal of General Management, 21,* 24-46. https://doi.org/10.1177%2F030630709502100102

3. Becerra, E. P., & Badrinarayanan, V. (2013). The influence of brand trust and brand identification on brand evangelism. *Journal of Product & Brand Management, 22*(5/6), 371-383. https://doi.org/10.1108/JPBM-09-2013-0394

4. Blajut, L. P. (2015). Role of international mergers and acquisitions in corporate integration. *SEA – Practical Application of Science, 1*(7), 97-102. Retrieved from https://ideas.repec.org/a/cmj/seapas/y2015i7p97-102.html

5. Blunch, N. J. (2011). *Introduction to Structural Equation Modelling Using SPSS and AMOS* (270 p.). Los Angeles etc.: SAGE Publications.

6. Doyle, P. (2000). *Value–Based Marketing: Marketing Strategies for Corporate Growth and Shareholder Value* (384 p.). Chichester: John Wiley & Sons.

7. Feldwick, P. (1996). What is brand equity anyway, and how do you measure it? *Jornal of market research society, 38*(2), 85-104. https://doi.org/10.1177%2F147078539603800201

8. Garud, R. (2011). Complexity Arrangements for Sustained Innovation: Lessons from 3M Corporation. *Organization Studies, 32,* 737-767. https://doi.org/10.1177%2F0170840611410810

9. Hair, J. F., Jr., Anderson, R. E., Thatam, R. L., & Black, W. C. (1998). *Multivariate Data Analysis* (5th ed). Prentice-Hall, International, Inc. Retrieved from https://is.muni.cz/el/1423/podzim2017/PSY028/um/_Hair_-_Multivariate_data_analysis_7th_revised.pdf

10. Hereźniak, M., Florek, M., & Augustyn, A. (2018). On Measuring Place Brand Effectiveness – between Theoretical Developments and Empirical Findings. *Economics and Sociology, 11*(2), 36-51. https://doi.org/10.14254/2071-789X.2018/11-2/3

11. IMAP. (2019). *Trends in Global M&A 2018-2019*. Retrieved from https://www.imap.com/media/uploads/global_m%26a_survey_2018-2019_final2.pdf

12. Interbrand (2018). *Best Global Brands 2018 Rankings*. Retrieved from www.interbrand.com/best-brands/best-global-brands/2018/ranking/

13. Keller, K. L. (2003). *Strategic brand management* (2nd ed.). Englewood Cliff. NJ: Prentice Hall.

14. Kim, H., Hur, W.-M., & Yeo, J. (2015). Corporate Brand Trust as a Mediator in the Relationship between Consumer Perception of CSR, Corporate Hypocrisy, and Corporate Reputation. *Sustainability, 7,* 3683-3694. https://doi.org/10.3390/su7043683

15. Knights D. (2012). Managing masculinity/mismanaging the corporation. *Organization, 19,* 385-404. https://doi.org/10.1177%2F1350508411408170

16. Marchenko, V. M. (2011). Методичні підходи до оцінювання синергетичного ефекту злиття та поглинання [Metodychni pidkhody do otsiniuvannia synerhetychnoho efektu zlyttia i pohlynannia]. *Aktualni problemy ekonomiky, 4*(118), 135-142. Retrieved from http://www.stattionline.org.ua/ekonom/34/2786-metodichni-pidxodi-do-ocinyuvannya-sinergetichnogo-efektu-zlittya-ta-poglinannya.html

17. Marchenko, V. M. (2012). Інтелектуальний капітал у процесах злиття та поглинання корпорації [Intelektualnyi kapital u protsesakh zlyttia ta pohlynannia korporatsii]. *Formuvannia rynkovykh vidnosyn v Ukraini, 9*(136), 100-105. Retrieved from http://www.irbis-nbuv.gov.ua/cgi-bin/irbis_nbuv/cgiirbis_64.exe?I21DBN=LINK&P21DBN=UJRN&Z21ID=&S21REF=10&S21CNR=20&S21STN=1&S21FMT=ASP_meta&C21COM=S&2_S21P03=FILA=&2_S21STR=frvu_2012_9_25

18. Ponomarenko, V., Kolodiziev, O., & Chmutova, I. (2017). Benchmarking of Bank Performance Using the Life Cycle Concept and the DEA Approach. *Banks and Bank Systems, 12*(3), 74-86. http://dx.doi.org/10.21511/bbs.12(3).2017.06

19. Praude, V., & Shalkovska, E. (2010). Synergistic effect in marketing system. *Scientific inquiry, 11*(1), 25-34.

20. Režňáková, M., & Pěta, J. (2018). The factors driving the synergy value in mergers of mechanical engineering companies in the Czech Republic. *Journal of International Studies, 11*(3), 239-254. https://doi.org/10.14254/2071-8330.2018/11-3/19

21. Roll, M. (2015). *Branding and Mergers & Acquisitions*. Retrieved from https://knowledge.insead.edu/blog/insead-blog/five-considerations-for-managing-brands-in-mas-4079

22. Saaty, T. L. (2008). Relative Measurement and its Generalization in Decision Making: Why Pairwise Comparisons are Central in Mathematics for the Measurement of Intangible Factors – The Analytic Hierarchy/Network Process. *RACSAM (Review of the Royal Spanish Academy of Sciences, Series A, Mathematics), 102*(2), 251-318. Retrieved from https://link.springer.com/article/10.1007/BF03191825

23. Shindo, S., & Matsubayashi, N. (2014). Horizontally Differentiated Store Brands: Production Outsourcing to National Brand Manufacturers. *Journal of Applied Mathematics* (14 p.). Retrieved from https://www.hindawi.com/journals/jam/2014/949470/

24. Singh, J. J., Iglesias, O., & Batista-Foguet, J. M. (2012). Does having an ethical brand matter? The influence of consumer per-ceived ethicality on trust, affect and loyalty. *Journal of Business Ethics. 111,* 541-549. Retrieved from https://link.springer.com/article/10.1007/s10551-012-1216-7

25. Starov, S. A. (2010). Оценка эффективности брендинга в современной теории маркетинга [Otsenka effektyvnosti brendinga v sovremennoy teorii marketinga]. *Brend-menedzhment, 5*(54), 270-288.

26. Urde, M., Baumgarth, C., & Merrilees, B. (2013). Brand orientation and market orientation – From alternatives to synergy. *Journal of Business Research, 66*(1), 13-20. https://doi.org/10.1016/j.jbusres.2011.07.018

27. Voss, K. E., & Mohan, M. (2016). Corporate brand effects in brand alliances. *Journal of business research, 69*(10), 4177-4184. https://doi.org/10.1016/j.jbusres.2016.03.007

APPENDIX A

Table A1. A set of partial indicators to assess the complementary effect from brand integration in a business structure

Indicator	Calculation formula	Integration effect components
Complementary effect from internal interaction		
Sales growth rate, % (X1)	A ratio of actual sales revenue to the base revenue	Effects indicators from financial resources integration
Dividend growth rate (X2)	A ratio of actual amount of dividends paid to the base one	
Return on total assets (X3)	A ratio of company's earnings before taxes to its total net assets	
Return on equity (X4)	A ratio of net company profit to shareholders' equity	
Return on sales (X5)	A ratio of gross operating profit to sales revenue	
The average output per worker (X6)	A ratio of sales revenue per employee to the average number of employees	
Return on tangible equity, (X7)	A ratio of sales revenue to tangible costs	
Return on assets (X8)	A ratio of sales revenue to average cost of fixed assets	
Asset turnover rate (X9)	A ratio of sales revenue to asset value	
Share of innovative products in total amount of shipped products (X10)	A ratio of innovative output to the total amount of shipped products	
The coefficient of fixed assets renewal (X11)	A ratio of renewed fixed assets value to fixed assets by the end of period	
The share of investment in intangible assets (X12)	A ratio of aggregate investment in intangible assets to the total amount of investment in fixed assets	
The share of R&D costs in innovation expenditure (X13)	A ratio of R&D costs to the overall innovation expenditure	
Financial risk ratio (X14)	A ratio of the amount of borrowed capital to the amount of equity capital	
Payroll growth rate, % (X15)	A ratio of actual payroll to the base one	Indicators for workforce integration effect
Employee turnover, % (X16)	A ratio of the number of employees who had left the organization voluntarily or were dismissed subject to the breach of labor discipline to the average number of employees	
The share of employees trained for new occupations (X17)	A ratio of the number of full-time employees trained for new occupations to the average number of employees	
The share of full-time employees (X18)	A ratio of the number of full-time employees to the average number of employees	
The share of employees who upgraded their qualifications in the reporting year (X19)	A ratio of the number of employees who upgraded their qualifications in the reporting year to the average number of employees	
Complementary effect from external interaction		
The client growth rate (X20)	A ratio of sales revenue to the value of assets	Customers
The rate of the number of orders from regular customers to the total orders per period (X21)	A ratio of the number of orders placed by regular customers to the total number of orders	
Trade agent growth rate in product distribution system (X22)	A ratio of trade agent growth to the base number of trade agents	Distributors
The share of product sales through an intermediary in total production output (X23)	A ratio of the production output through intermediaries to the total sales volume	

Table A1 (cont.). A set of partial indicators to assess the complementary effect from brand integration in a business structure

Indicator	Calculation formula	Integration effect components
Relative market share against principal competitor (X24)	A ratio of the IBS market share to its strongest competitor	Competitors
Market share, % (X25)	A ratio of IBS sales revenue to the total market capacity	
Budget revenue growth rates at all levels (X26)	A ratio of the actual revenue from VAT and income tax to the base amount of government revenue	State
Employment rate (X27)	The ratio of actual employment within IBS to the base IBS employment	Society
Return on invested capital, % (X28)	A ratio of the amount of profit to the total investments per certain period, expressed as a percentage	Financial institutions
The financial autonomy ratio (X29)	A ratio of the shareholders' equity to the total assets of IBS	

APPENDIX B

Table B1. A framework for parameters estimation for the components of synergetic effect from brand integration within an integrated business structure

Assessment component	Assessment parameters
Internal self-organization	
Competitive and integrative benchmarking (X30)	Performance indicator benchmarking (X30.1)
	Business process benchmarking (X30.2)
	Benchmarking of structural units (X30.3)
	Benchmarking of customer service level (X30.4)
	Rating benchmarking (X30.5)
	Technology benchmarking (X30.6)
New knowledge (X31)	Knowledge quantity (X31.1)
	Knowledge quality (X31.2)
	Diversification of knowledge (X31.3)
Branding innovations (X32)	Novelty in a brand component of "product attributes" (X32.1)
	Novelty in a brand component of "essence" (X32.2)
	Novelty in a brand component of "identity" (X32.3)
	Novelty in a brand component of "brand social effectiveness" (X32.4)
	Novelty in a brand component "brand economic efficiency" (X32.5)
New corporate culture (X33)	Motivation-driven synergy (X33.1)
	Synergy fro internal staff loyalty (X33.2)
	Compatibility level for organizational structures (X33.3)
Image (X34)	Company compatibility: the level of joint action achieved by the brands of companies that are parties to the integration agreement (X34.1)
	Compatibility of brand identities: the level of congruence among individual brands of companies that integrate, and the possibility of their co-existence (X34.2)
	Compatibility of the uniqueness of brands: the level of congruence in the uniqueness of brands of companies that integrated, and the possibility of their interaction (X34.3)
	Compatibility of brand identities: the level of congruence among brand identities in companies that integrated, and the possibility of their inegration into a single integrated brand (X34.4)
External self-organization	
New cooperation environment (X35)	Synergy level interactions with competitors (X35.1)
	Customer loyalty level (X35.2)
	Synergy level of interactions with suppliers (X35.3)
A change in market environment (X36)	Market dominance synergy (dominance on a fairly vigorous market must be greater than the sum of individual brands that dominate separately)
New development opportunities (X37)	Portfolio growth through the synergy of interaction
A change in market value (X38)	The share price increase which reflects the capacity of a newly created organization