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Ranking business intelligence factors influencing on development of export

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C H R O N I C L E

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A B S T R A C T

This paper presents an empirical investigation to determine important business intelligence factors influencing on development of export activities. The study selects a sample of business developers who were involved in export activities in city of Tehran, Iran. Cronbach alpha based on standardized items was calculated as 0.882, which is well above the minimum desirable level. In addition, Bartlett's test of Sphericity yields a Chi-Square value of 3242.82 (df = 861, Sig. = 0.000). Using principle component analysis, the study has determined four factors including competitive position, organizational resources, efficient system and customer orientation influencing on development of export activities.

1. Introduction

Export has been considered as one of the most important activities for business development in developing countries (Rahchamandi & Fallahi, 2014). There are literally several studies on factors influencing on export activities (Turban et al., 2007; Tsoukiàs, 2008). Suárez-Ortega and Alamo-Vera (2005), for instance, studied the specific organizational and managerial determinants of different characteristics of firms' export development process including intention, propensity, and intensity. They reported that factors influencing on export involvement were not the same along the process of export development. Atuahene-Gima (1995) studied the role of new product factors in the firm's propensity to export and its performance in exporting new products based on a sample of Australian companies. They stated that product advantage, proficiency of predevelopment activities, and international orientation of the development process had positive effects on firm's propensity to export new products. Besides, the new product's domestic market performance and its impact on the sales and profitability of other products of the company were substantially associated with its export performance. Leonidou et al. (2007) presented an analytical review of the factors stimulating smaller firms to export. Business intelligence is also another important factor for development of organizational strategies (Alnoukari, 2009). There are several methods for determining business intelligence in organizations such as data mining (Carlo, 2009) and rule-induction framework (Chung & Tseng, 2012). Elbashir et al. (2008) measured the effects of business intelligence systems by investigating the

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relationship between business process and organizational performance. Herschel and Jones (2005) investigated the relationship between knowledge management and business intelligence. Olszak and Ziemba (2007) presented an approach for building and implementing business intelligence systems.

2. The proposed method

This paper presents an empirical investigation to determine important business intelligence factors influencing on development of export activities. The study selects a sample of business developers who were involved in export activities in city of Tehran, Iran.

Table 1
The summary of questions of the survey

					Skewness		Kurtosis	
		N Statistic	Minimum Statistic	Maximum Statistic	Statistic	Std. Error	Statistic	Std. Error
q1	Customer needs	247	1	5	-0.444	0.155	0.03	0.309
q2	Market Segmentation	247	1	5	-0.572	0.155	0.44	0.309
q3	Business partners	247	1	5	-0.515	0.155	-0.139	0.309
q4	Management's commitment	247	1	5	-0.18	0.155	-0.74	0.309
q5	Competitive advantage	247	1	5	-0.356	0.155	-0.321	0.309
q6	Competitive environment	247	1	5	-0.285	0.155	-0.636	0.309
q7	Organizational factors	247	1	5	-0.261	0.155	-0.446	0.309
q8	Data quality	247	1	5	-0.339	0.155	-0.34	0.309
q9	customer relations	247	1	5	-0.471	0.155	-0.384	0.309
q10	Strategic environment	247	1	5	-0.143	0.155	-0.637	0.309
q11	Operational efficiency	247	1	5	-0.076	0.155	-0.64	0.309
q12	Efficient and Timely Control	247	1	5	-0.27	0.155	-0.225	0.309
q13	Information quality	247	1	5	-0.111	0.155	-0.663	0.309
q14	Multiplicity of competing	247	1	5	-0.372	0.155	-0.15	0.309
q15	Technical Support	247	1	5	-0.133	0.155	-0.709	0.309
q16	Data Analysis	247	1	5	-0.416	0.155	-0.551	0.309
q17	Business environment	247	1	5	-0.418	0.155	-0.423	0.309
q18	Organizational capabilities	247	1	5	-0.442	0.155	-0.487	0.309
q19	Industry growth rate	247	1	5	-0.296	0.155	-0.704	0.309
q20	Market share	247	1	5	-0.141	0.155	-0.639	0.309
q21	Management Information System	247	1	5	-0.166	0.155	-0.73	0.309
q22	Expert system	247	1	5	-0.436	0.155	-0.133	0.309
q23	Intangible Resources Organizational	247	1	5	-0.518	0.155	-0.06	0.309
q24	Supply Chain Management	247	1	5	-0.299	0.155	-0.331	0.309
q25	Type of Industry	247	1	5	-0.462	0.155	-0.057	0.309
q26	Online service	247	1	5	-0.402	0.155	-0.673	0.309
q27	Human resources	247	1	5	-0.163	0.155	-0.679	0.309
q28	Technical equipment	247	1	5	-0.317	0.155	-0.287	0.309
q29	Stock return Volatility	247	1	11	0.985	0.155	6.73	0.309
q30	Organizational infrastructure	247	1	5	-0.724	0.155	1.031	0.309
q31	Strategic Orientation	247	1	5	-0.052	0.155	-0.346	0.309
q32	Business Productivity	247	1	5	-0.63	0.155	0.441	0.309
q33	Information Technology	247	1	5	-0.538	0.155	0.112	0.309
q34	Data Integration	247	1	5	-0.349	0.155	0.082	0.309
q35	Marketing Environment	247	1	5	0.06	0.155	-0.467	0.309
q36	Economic environment	247	1	5	-0.584	0.155	0.237	0.309
q37	Globalization	247	1	5	-0.486	0.155	0.698	0.309
q38	Production Organization	247	1	5	-0.834	0.155	0.919	0.309
q39	Market analysis	247	1	5	-0.356	0.155	0.352	0.309
q40	Providence	247	1	5	-0.593	0.155	0.986	0.309
q41	Industry growth rate	247	1	5	0.089	0.155	-0.145	0.309
q42	Entrepreneurship Organizational	247	1	5	-0.359	0.155	0.129	0.309

Cronbach alpha based on standardized items was calculated as 0.882, which is well above the minimum desirable level. In addition, Bartlett's test of Sphericity yields a Chi-Square value of 3242.82 (df = 861, Sig. = 0.000). Table 1 shows some basic statistics associated with different questions of the survey. As we can observe from the results of Table 1, some components of the survey are not within desirable limits and we may, therefore, use principal component analysis (PCA) after eliminating six items. Table 2 shows the results of PCA before rotation. In addition, Fig. 1 shows details of Scree plot.

Table 2
The summary of PCA before rotation

	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.784	21.623	21.623	7.784	21.623	21.623	3.246	9.016	9.016
2	3.063	8.509	30.131	3.063	8.509	30.131	2.767	7.686	16.702
3	1.913	5.315	35.446	1.913	5.315	35.446	2.441	6.781	23.483
4	1.503	4.174	39.62	1.503	4.174	39.62	2.313	6.425	29.908
5	1.327	3.687	43.307	1.327	3.687	43.307	2.248	6.243	36.152
6	1.298	3.605	46.912	1.298	3.605	46.912	2.019	5.61	41.761
7	1.254	3.484	50.396	1.254	3.484	50.396	1.681	4.669	46.43
8	1.158	3.218	53.614	1.158	3.218	53.614	1.577	4.381	50.811
9	1.088	3.021	56.635	1.088	3.021	56.635	1.476	4.1	54.911
10	1.055	2.93	59.565	1.055	2.93	59.565	1.375	3.818	58.729
11	1.02	2.834	62.399	1.02	2.834	62.399	1.321	3.67	62.399
12	0.903	2.507	64.906						
13	0.872	2.421	67.327						
14	0.837	2.325	69.652						
15	0.79	2.195	71.847						
16	0.76	2.112	73.959						
17	0.724	2.01	75.969						
18	0.709	1.971	77.939						
19	0.646	1.794	79.734						
20	0.631	1.753	81.487						
21	0.615	1.71	83.197						
22	0.597	1.658	84.854						
23	0.539	1.496	86.351						
24	0.508	1.411	87.762						
25	0.496	1.378	89.141						
26	0.473	1.315	90.456						
27	0.435	1.208	91.664						
28	0.432	1.199	92.863						
29	0.397	1.103	93.965						
30	0.388	1.077	95.043						
31	0.361	1.004	96.047						
32	0.342	0.949	96.996						
33	0.307	0.854	97.85						
34	0.292	0.812	98.662						
35	0.255	0.709	99.371						
36	0.226	0.629	100						

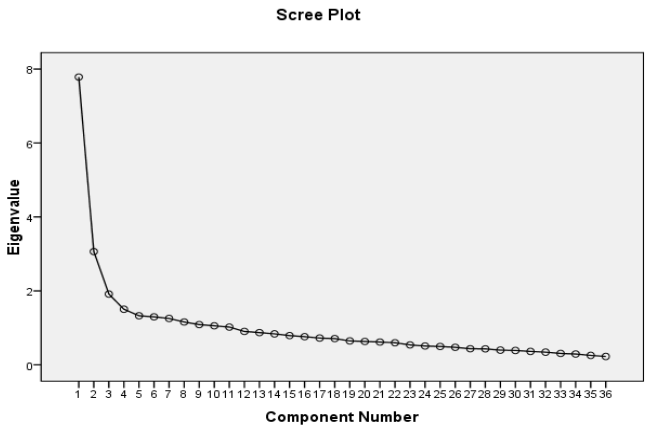

Fig. 1. The summary of Scree plot

According to the results of Table 2 and Fig. 1, we may understand that there were four factors influencing on development of export activities. Table 3 presents the results of PCA after rotation.

Table 3
The summary of PCA after rotation

	Factor	Rotated Component Matrix[a]										
		1	2	3	4	5	6	7	8	9	10	11
q16	Data Analysis	0.652										
q22	EXPERT SISTEM	0.618										
q15	Technical Support	0.566	0.402									
q8	Data quality	0.496										
q12	Efficient and Timely Control	0.48				0.416						
q21	MIS	0.445					0.394			0.393		
q13	Information quality	0.404	0.346									
q17	Business environment		0.7									
q20	Market share	0.379	0.594									
q19	Industry growth rate		0.559				0.41					
q14	Multiplicity of competing		0.527			0.432						
q25	Type of Industry		0.47	0.379								
q5	Competitive advantage		0.464			0.399						
q28	Technical equipment			0.754								
q27	Human resources			0.693								
q23	Intangible Resources Organizational			0.488						0.418		
q4	Management's commitment	0.445		0.456								
q18	Organizational capabilities		0.334	0.395						-0.372		
q37	Globalization				0.736							
q40	Providence				0.724							
q39	Market analysis				0.677							
q36	Economic environment				0.4		-0.379	0.387				0.396
q10	Strategic environment					0.752						
q11	Operational efficiency					0.736						
q9	customer relations						0.699					
q26	Online service	0.443					0.464					
q1	customer needs						0.441	0.361				
q2	Market Segmentation						0.39					
q7	Organizational factors							0.666				
q41	Industry growth rate								0.806			
q31	Strategic Orientation			0.389					0.514			
q42	Entrepreneurship Organizational								0.463	0.413		
q35	Marketing Environment				0.362					0.676		
q34	Data Integration										0.818	
q32	Business Productivity							0.455			0.47	
q30	Organizational infrastructure											0.776

3. Discussion and conclusion

Based on the implementation of PCA method, the study has determined four factors including competitive position, organizational resources, efficient system and customer orientation influencing on development of export activities. In our survey, customer orientation (r = 0.985, Sig. = 0.000) has been the most important factor followed by organizational resources (r = 0.949, Sig. = 0.000), efficient system (r = 0.919, Sig. = 0.000) and competitive position (r = 0.836, Sig. = 0.000).

The results of this survey are somewhat consistent with similar studies accomplished earlier. For instance, Yazdi et al. (2014) presented a study to detect important factors influencing exporting herbal supplements and determined eight factors including supportive laws and regulations, organizational atmosphere, marketing structure, knowledge oriented, feasibility study, research and development, competitive strategy and partnership strategies. Nikseresht (2013) considered whether or not improving relationships between countries could positively impact on empowering firms and export capabilities. He also considered whether or not improving national strategies for developing exports could positively impact on empowering companies and export capabilities. He also tried to determine whether or not changes on rules and regulations could harm export capabilities. He reported that empowering small and mid-cap firms could contribute the whole economy through boosting export.

Azad and Savadkouhi (2013) also presented an empirical study on factors influencing on insurance issued by export guarantee funds. They determined four factors including risk management, customer oriented, quality management and trade management. Finally, Rahchamandi and Fallahi (2014) presented a study on logistics outsourcing on exports of minerals goods. They determined that there had been a meaningful relationship between strategic orientations of exporters against outsourcing third part logistics (3PL) and basic and additional capabilities of 3PL. Babakhani and Haji (2011) performed a study to determine the most important obstacles on boosting exporting industry in one of the provinces of Iran. According to the results of this study, the government could help 28 producers develop their exporting business by reducing tax, providing low interest loans, supporting marketing planning abroad, etc. There were also different parameters which could be considered by producers such as having an active union, maintaining a high level of quality for long term, using a good packaging, etc.

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