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Designing a Comprehensive and Heuristic Model for Brand Valuation Based on a Combination of Systematic and Global Standard Tools with All Organizational Stakeholders' Approach (Case Study: The Industrial Development & Renovation Organization of Iran (IDRO) and Forty Stock Exchange Companies)

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Abstract

Given the growing significance of the brand as one of the examples of intangible assets of the organizations, the study attempted to collect and review a large number of related papers and build a new heuristic model to measure brand value by observing the principles of research based on meta-synthesis method. For this purpose, a large number of studies on brand value measurement were examined by search in Persian and English scientific databases and their most significant points and achievements were extracted. Two main quantitative and qualitative approaches were used to build this method. To build the qualitative section, a questionnaire was developed using the opinions of experts in economics and business and by referring to the existing questionnaires and reviewing the common business management models. Then one of the most widely used financial instruments called Weighted Average Cost of Capital (WACC) was used to build the quantitative section. This financial tool was optimized by 3 parameters of tax, risk and inflation to reach a more accurate output. Then an heuristic valuation method was developed based on a questionnaire with 12 organizational and economic parameters and a financial formula based on optimized WACC. The method built to determine the validity and reliability of the brand of the IDRO of Iran as well as the 40 listed companies operating in different industries was implemented as the case study. Then, the brand value of these companies was calculated using two other brand valuation formulas previously developed. Then, using statistical tests, the outputs obtained were compared with each other. The results indicated that the values obtained from the heuristic formula were more conservative and more accurate.

Keywords: *Brand valuation, organizational stakeholders, IDRO of Iran*

1. Introduction

Brand is one of the most valuable assets of any organization, whose proper management can facilitate reaching greater market share and profitability in any industry. Regarding this, brand valuation is an intra-organizational factor and one of the most significant issues of marketing and branding. Brand equity is measured annually by reputable global institutions for various international brands, but in the meantime, this valuation from customer's view is of great significance to companies, as ultimately their success and durability depend on their customers. Thus, brand equity is far greater than the value of physical assets, showing its high significance.

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In social marketing, various audiences are considered and it is necessary to pay attention to them for being successful. It is very important to identify and focus on internal and external groups (internal and external marketing) in the marketing program. Some studies have been done in this regard. In a paper (Keller, 1993) the customer and quality approach is introduced as a conceptual model for brand valuation. Guilding and Pike (1994) studied customer, employee, qualitative and employer approaches as a conceptual model based on behavioral and organizational implications on brand value. Lassar (1995) has used customer and employee approaches for brand valuation. Cassel et al. (2000) used customer and statistical-centric methods for brand valuation. Maoi and Mackay (2001) have provided a method for brand valuation from the customer view and by considering concepts like brand awareness, brand image, and so on. Seetharaman (2001) has used financial and statistical approaches to achieve brand value. In a paper, Rodov and Leiaret (2002) introduced the financial approach that besides eliminating the problems of other common systems, measured both the value of the tangible and intangible assets.

Ha et al. (2010) examined the progress of brand valuation based on customer and quality approaches. Jacobsen (2010) has made the financial and employer approaches the base for creating a way to measure place branding. King and Grace (2010) have presented a method to measure and manage brand value considering employee approach. Yu and Yan (2010) have valued electronic brands using statistical methods. Ren and Liu (2011) have proposed a model for brand valuation in the green construction industry using financial instruments based on economic added value and the mean weight of investment value. With the help of customer and quality approaches, Jara and Cliquet (2012) have measured the brand value of retailers. Shirahada and Kosaka (2012) introduced a method to determine the brand value of service companies with the help of employer and quality approaches. Sharma (2013) used customer, employee and quality approaches to determine the relationship between the organization and the investor. Using customer perspectives and based on four criteria of brand loyalty, brand innovations, basic brand capabilities and brand marketing capabilities, Chen et al. (2013) have tried to provide an approach to determine brand value. With customer and qualitative approaches, Kladou and Kehagias (2014) have identified the four important factors in brand value of tourism destinations, which include brand awareness, brand image, quality and loyalty. Using statistical methods, Barnes (2015) have calculated the value of real brands in cyberspace. Using financial and employer approaches, De Oliviera et al. (2015) introduced a method by which the investors can measure the rate of return on their capital on each of the factors affecting the brand. Xia (2015) developed a method based on financial and statistical approaches and using risk analysis of resources and expenditures. According to customer opinions, Bakhshi and Mishra (2016) attempted to introduce an approach to calculate the value of newspaper brands. Rodrigues and Matins, 2016) examined the factors that brought about customers' referring to a particular brand considering the customer and quality approaches. Rubio et al. (2016) have introduced a way to measure brands on the market with the employer and statistical approaches. Using financial and statistical approaches, Choi et al. (2017) have presented a model for measuring the brand value of restaurants.

On the other hand, IDRO of Iran was established in July 1967 with the two main tasks of creating new industrial enterprises and renovating worn-out enterprises. The organization established about 136 companies in the fields of industry, manufacturing and engineering until the victory of the Islamic Revolution. In its half century of activity, this organization has taken great steps in the development of Iran industries by implementing large and important industrial projects and has added golden sheets to the history of Iran industry. Now, considering the role of governance and with a deep understanding of the target industrial areas, policy-making tasks, monitoring and supporting the non-governmental sector and attracting foreign investment for promoting industrial development of target industries, IDRO of Iran has taken effective measures. Regarding this, besides identifying the needs of the industry, providing advice, as the executive arm of the government in the development and modernization of industry, this organization helps shape and eliminate the shortcomings of the country's industrial development system in the target industries as well. The purpose of the study is to design a comprehensive and heuristic model for brand valuation based on a combination of systematic tools and global standards with all organizational stakeholders approach in IDRO of Iran.

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2. Methodology

The qualitative method used in the study was meta-synthesis. The seven-step method (Table 1) was used to realize this goal. It has to noted that the study method steps were applied only to the papers with methods for brand evaluation presented directly and the rest of the papers used in various parts of the study (like introduction and so on) as well as in the appendices were been examined in this section.

Table 1. Seven Steps of Meta-Synthesis Method

Row	Steps
1	Designing research question
2	Systematic review of the texts
3	Searching and selecting the appropriate papers
4	Extracting the papers information
5	Analysis and composition of the qualitative findings
6	Quality control
7	Presenting the findings

The population was all the studies conducted on brand valuation, provided from the papers of various and prestigious conferences and journals available in scientific databases. The criteria considered in the papers were:

• Brand valuation methods (quantitative and qualitative methods bringing about the development of a model to determine brand value)

• Studies time domain (1980-2018)

• Type of study (quantitatively and qualitatively on the literature of the obtained criteria and production of questionnaires and data collection as well as classification of results)

• Research Language (English)

• Prioritizing methods of valuation of intellectual property from 1980 to 2018.

• Identifying the goals of valuation of intellectual property (with brand valuation approach)

Table 2. Research keywords

Row	**Keywords**
1	Brand Asset*
2	Brand Awareness*
3	Brand Cognition*
4	Brand Equity*
5	Brand Evaluation
6	Brand Experience*
7	Brand Identity*
8	Brand Image*
9	Brand Loyalty*
10	Brand Prestige*
11	Brand Reputation*
12	Brand Trust*
13	Brand Valuation
14	Brand Value
15	Intangible Asset
16	Value Chain

As a result of this search, 1307 papers were received. Reviewed papers were limited to 1,070 papers by removing the papers found from inappropriate keywords and the removal of inappropriate scientific databases. During the study, 144 books and 5 related standards were obtained as well. Additionally, out of 144 books, 8 books were suitable for the current study.

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By reviewing the found papers as well as considering the desired criteria, the inappropriate papers were set aside and the appropriate ones were selected. Inappropriate papers were assigned in 3 steps. In the first step, the papers with irregular topics related to the research topic were excluded. In the next step, by determining the papers with the appropriate and relevant title, their abstract was studied. The papers whose abstracts confirmed their lack of relevance to the subject were excluded as well. Then the remaining papers were studied and analyzed, and then the papers were determined with good content, and the rest were deleted. With this process, 57 papers were left.

Moreover, in the rest of this step, a method called Critical Appraisal Skills Program (CASP) was used to evaluate the quality of the papers. Of the significant points in designing any questionnaire is studying and measuring the validity and reliability of that questionnaire. The experts evaluated CASP questions (validity evaluation) and rated their questions (reliability evaluation), which led to the development of a final CASP questionnaire for qualitative evaluation of papers obtained by the researcher. According to the score of each paper, the papers were ranked as follows:

- Excellent (E): Papers that have scored 41-50 points
- Very Good (VG): Papers that have scored 31-40
- Good (G): Papers that have scored 21-30
- Average (A): Papers that have scored 11-20.
- Poor (P): Papers that have scored 0-10.

Table 3. Paper Evaluation Table According to CASP Method

Row	Article	Purpose	Being update	Research design	Sampling method	Data collection	Reflectivity	Ethical consider	Analysis accurac	Clear expressi	The overall	Total	Quality level
1	A-1	5	3	4	5	3	5	5	4	4	4	42	E
2	A-2	4	3	4	4	3	4	5	3	4	4	38	VG
3	A-3	3	3	3	3	3	3	5	3	3	4	33	VG
4	A-4	4	3	4	4	3	4	5	3	4	4	38	VG
5	A-5	3	4	4	3	3	3	5	4	4	4	37	VG
6	A-6	3	4	4	3	4	3	5	4	4	4	38	E
7	A-7	5	4	3	5	3	5	5	4	4	4	42	E
8	A-8	4	5	3	4	3	4	5	4	4	4	40	VG
9	A-9	5	5	3	5	4	5	5	4	4	4	44	E
10	A-10	4	5	4	4	4	4	5	3	4	4	41	E
11	A-11	4	4	4	4	4	4	5	4	4	4	41	E
12	A-12	5	3	3	5	4	5	5	4	4	3	41	VG
13	A-13	4	3	4	4	3	4	5	4	4	4	39	VG

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Row	Article	Purpose	Being update	Research design	Sampling method	Data collection	Reflectivity	Ethical consider	Analysis accurac	Clear expressi	The overall	Total	Quality level
14	A-14	4	4	3	4	3	4	5	4	4	4	39	VG
15	A-15	4	4	2	4	3	4	5	4	4	3	37	VG
16	B-1	4	4	3	4	4	4	5	4	4	4	40	VG
17	B-2	5	5	5	5	4	5	5	4	4	4	46	E
18	B-3	3	5	3	3	4	3	5	4	3	4	37	VG
19	B-4	3	5	4	3	4	3	5	4	4	3	38	VG
20	B-5	3	4	4	3	4	3	5	4	4	3	37	VG
21	B-6	5	5	4	5	4	5	5	4	3	5	45	E
22	B-7	5	5	5	5	4	5	5	4	4	5	47	E
23	P-1	5	2	4	5	3	5	5	4	4	4	41	E
24	P-2	4	2	3	4	3	4	5	3	4	4	36	VG
25	P-3	3	3	4	3	4	3	5	4	4	4	37	VG
26	P-4	3	4	3	3	3	3	5	3	4	3	34	VG
27	P-5	5	4	4	5	3	5	5	4	3	4	42	E
28	T-1	5	2	4	5	3	5	5	4	4	4	35	VG
29	S-1	5	5	5	5	3	5	5	4	5	5	47	E
30	S-2	3	5	4	3	3	3	5	4	4	3	37	VG
31	S-3	3	5	3	3	3	3	5	4	4	3	36	VG
32	S-4	4	4	4	4	4	4	5	4	4	4	41	E
33	S-5	3	5	3	3	3	3	5	4	4	3	36	VG
34	S-6	5	4	4	5	3	5	5	4	4	4	43	E
35	S-7	5	5	5	5	4	5	5	4	5	4	47	E
36	S-8	3	5	3	3	3	3	5	4	3	3	35	VG
37	S-9	4	4	4	4	4	4	5	4	4	4	41	E

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Row	Article	Purpose	Being update	Research design	Sampling method	Data collection	Reflectivity	Ethical consider	Analysis accurac	Clear expressi	The overall	Total	Quality level
38	G-1	3	5	4	3	3	3	5	4	4	3	37	VG
39	G-2	5	4	5	5	3	5	5	4	4	4	44	E
40	Ch-1	5	3	4	5	4	5	5	4	3	4	42	E
41	Ch-2	3	4	3	3	4	3	5	3	4	4	36	VG
42	Ch-3	4	4	3	4	4	4	5	4	4	4	40	VG
43	Ch-4	4	5	5	4	3	4	5	3	4	4	40	VG
44	Ch-5	3	5	3	3	3	3	5	4	4	3	36	VG
45	Ch-6	4	5	4	4	3	4	5	3	5	4	41	E
46	Ch-7	3	5	3	3	3	3	5	3	5	4	37	VG
47	Ch-8	3	5	3	3	3	3	5	4	4	3	36	VG
48	Ch-9	4	3	3	4	4	4	5	4	4	4	39	VG
49	Ch-10	4	4	4	4	3	4	5	4	4	4	40	VG
50	Ch-11	3	2	4	3	4	3	5	3	4	4	35	VG
51	Ch-12	3	3	4	3	4	3	5	4	3	4	36	VG
52	Ch-13	3	4	3	3	4	3	5	3	3	3	34	VG
53	Ch-14	4	3	4	4	3	4	5	3	3	4	37	VG
54	Ch-15	3	3	3	3	4	3	5	3	4	4	35	VG
55	Ch-16	3	5	4	3	4	3	5	3	4	4	38	VG
56	Ch-17	4	4	4	4	4	4	5	4	4	5	42	E
57	H-1	5	5	4	5	4	5	5	4	4	5	46	E

In the present study, all the points of the papers were done to select the appropriate valuation method for the organization in question. The researcher uses both electronic and manual searches to find relevant papers. CASP tools were used to examine the validity. Cronbach's alpha test was used to test the reliability of the paper, which was 0.743.

Table 4. Frequency of the Criteria Related to CASP Method of Paper Evaluation Questionnaire (Analyzed Using SPSS)

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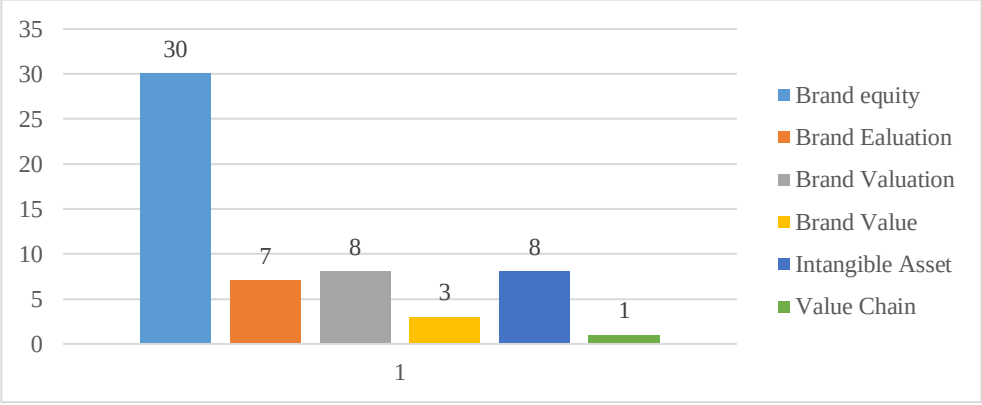
Results \ Title		Research results	**Being update**	**Research design**	**Sampling method**	**Data collection**	**Reflectivity**	**Ethical considerations**	**Analysis accuracy**	**Clear expression**	Research value
N	Valid	57	57	57	57	57	57	57	57	57	57
	Missing	0	0	0	0	0	0	0	0	0	0
Mean		3.86	4.07	3.68	3.86	3.47	3.86	5.00	3.72	3.91	3.84
Median		4.00	4.00	4.00	4.00	3.00	4.00	5.00	4.00	4.00	4.00
Mode		3	5	4	3	3	3	5	4	4	4
Variance		0.659	0.816	0.470	0.659	0.254	0.659	0.000	0.206	0.224	0.314
Minimum		3	2	2	3	3	3	5	3	3	3
Maximum		5	5	5	5	4	5	5	4	5	5
Sum		220	232	210	220	198	220	285	212	223	219

The graph below indicates the number of papers received and approved with each of the selected keywords.

Figure 5. Number of Papers from Each Keyword (Out of 57 Final Papers)



According to the graph above, the most appropriate keyword to search brand valuation is brand equity.

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The heuristic model developed in the study was made up of two parts: qualitative (questionnaire) and quantitative (financial formula). The output of the questionnaire shows the strengths and weaknesses of the organization brand according to different types of organizational stakeholders. The three main areas of the questionnaire are "macroeconomic criteria, corporate financial data and organizational processes". The following steps were taken in doing so:

- Extracting the criteria affecting value by reviewing 361 papers where a parameter affecting brand value was introduced
- Asking business, financial and economic experts
- Reviewing the basics of processes and organizational supply chain
- Reviewing Porter value chain model
- Studying EFQM organizational excellence standard
- Extracting the 12 principles of the Gallup Institute to evaluate the level of employee satisfaction with the job position
- Reviewing the model of balance scoring card
- Parameters of macroeconomics and engineering economics
- Determining the types of organizational stakeholders according to the opinions of experts and the contents of selected papers

Three steps were taken in order to design the questionnaire. In the first step, the main topics were developed to define the questionnaire questions. In this step, 13 main chapters were identified. The main topics mean the main titles that affect the power and proportionality of brand value. To this end, the topics of EFQM excellence model were examined first. Later in this step, questions related to each main topic were designed. In the next step, 12 principles of the Gallup Institute, designed to evaluate employee satisfaction with their job position, were examined. Later in this step, Porter value chain was examined. In Porter's value chain, the activities and processes of an organization are divided into two main parts: main activities and support activities. Then 3 important macroeconomic parameters were evaluated as well. These parameters are "1-risk, 2-inflation and 3- tax". These three approved parameters are the most important macroeconomic parameters that an investor pays attention to prior to investing in a project or in a country.

Ultimately, a search was made in the databases to examine the more influential criteria on brand value from the point of view of other researchers. The result of this search was finding the number of parameters. In the last step, 58 experts of business were given the questionnaire after designing the questions (221 questions) to evaluate the reliability and validity of it. These 58 experts were from among the senior employees, managers and deputies of the Ministry of Industry, Mines and Trade, Bank of Industry and Mines, IDRO of Iran, Industrial Management Organization, Social Security Investment Company, public and private sector partnership companies, development and investment corporations. The Cronbach's alpha for the questions was 0.98. Finally, statistical tests were done to determine the fitness and competence of the questions.

Total 1. The Schematic View of the Main Criteria of the Questionnaire with Subgroups of Each

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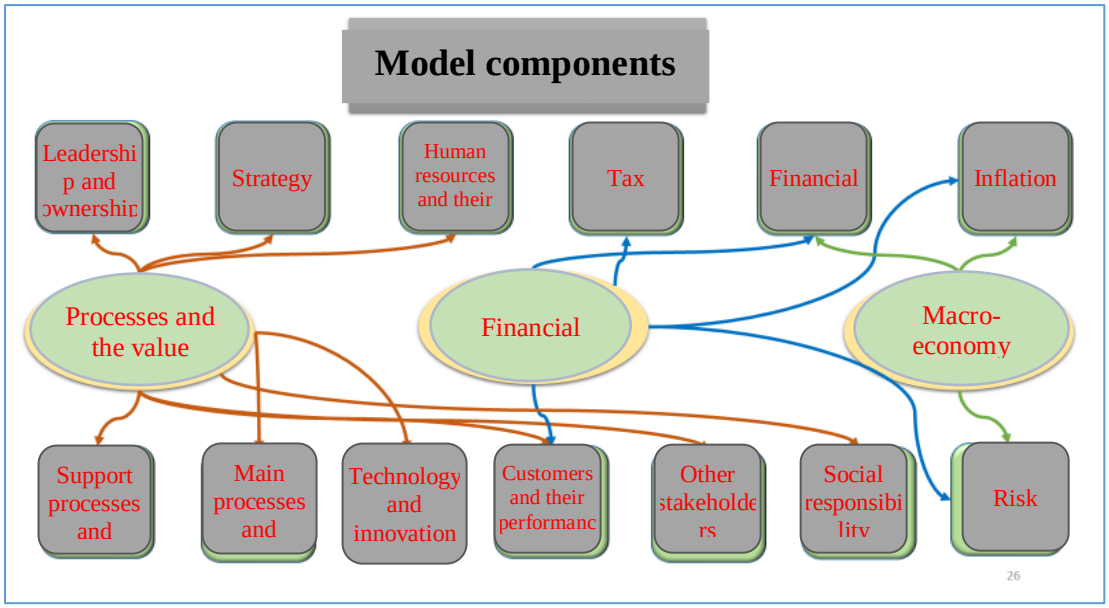

3. Results

In this section, we examined the questions and hypotheses of the research and the obtained results using statistical tests.

Table 5. Kendall Test Results Concerning Respondents' Views on the Effect of Each Index

Statistical results	
Number of respondents	53
Kendall's W Ranks	0.242
Chi square	2821.265
Degrees of freedom	220
Error rate	0.000

As the coefficient W = 0.242 and as is seen, the error rate is less than 0.05 (Asymp.sign = 0.0000) and is made zero with 220 degrees of freedom, the hypothesis of disagreement between the respondents is rejected. This means there is no consensus among all respondents on the results. In other words, we conclude that there is no agreement between experts' views on the significance of influencing the application of all the main criteria of the agreement. This shows the extent and difference in the population of the researcher. Given that the researcher tried to reach a comprehensive response that included expert opinions from various fields of work, education, and specialization, he has reached his goal.

Table 6. T test Results

One-Sample Test						
	Test Value = 3					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
M1M21	10.737	52	0.000	0.89453	0.7274	1.0617
M22M48	16.288	52	0.000	1.13075	0.9914	1.2701
M49M68	18.953	52	0.000	1.33774	1.1961	1.4794
M69M84	7.408	52	0.000	0.69585	0.5074	0.8843
M85M96	10.741	52	0.000	0.98604	0.8018	1.1703

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M97M132	7.880	52	0.000	0.78075	0.5819	0.9796
M133M142	13.118	52	0.000	1.12830	0.9557	1.3009
M143M155	13.206	52	0.000	1.12509	0.9541	1.2960
M156M165	8.392	52	0.000	0.76981	0.5857	0.9539
M166M176	4.885	52	0.000	0.74585	0.4395	1.0522
M177M194	5.905	52	0.000	0.60585	0.4000	0.8117
M195M209	0.951	52	0.346	0.11151	-0.1238	0.3469
M210M221	-2.754	52	0.008	-0.34491	-0.5962	-0.0936

As the above table shows, one can conclude that only the last row, which has t with a negative sign, does not have a significant relationship with brand value and the existence of this relationship is confirmed in other cases. By summarizing the opinions of experts, examining the scores of each criterion, as well as the output of the one-way t-test of the means, it is proved that the three criteria of risk, inflation and tax have a direct and significant effect on brand value.

Figure (2) shows the overview of the method performance algorithm. As the figure shows, financial statements, macroeconomic indicators, as well as the processes and supply chain of the organization in question, are first determined by the Discounted Cash Flow (DCF). The internal rate of return (IRR) of the organization is calculated based on the DCF obtained. Then the optimized WACC value is obtained by using the financial statements of the organization using the developed questionnaire and obtaining the opinions of the beneficiaries of the organization. The value of IRR is compared with the value of WACC obtained. If IRR value is equal to or smaller than WACC, brand valuation does not make sense. However, if IRR value is greater than that of WACC, then the difference between the two is calculated. The difference between the two leads to the production of a new DCF (Δ). Then the IRR value of this new DCF is calculated and compared to WACC value. If the new IRR is larger than or equal to WACC, then the specified Δ value is appropriate for the brand value. Nonetheless, if the value of the new IRR is smaller than WACC, the value of Δ must be reduced to a new DCF. This process continues until the new IRR value exceeds the value of WACC. The shape of this algorithm is given below.

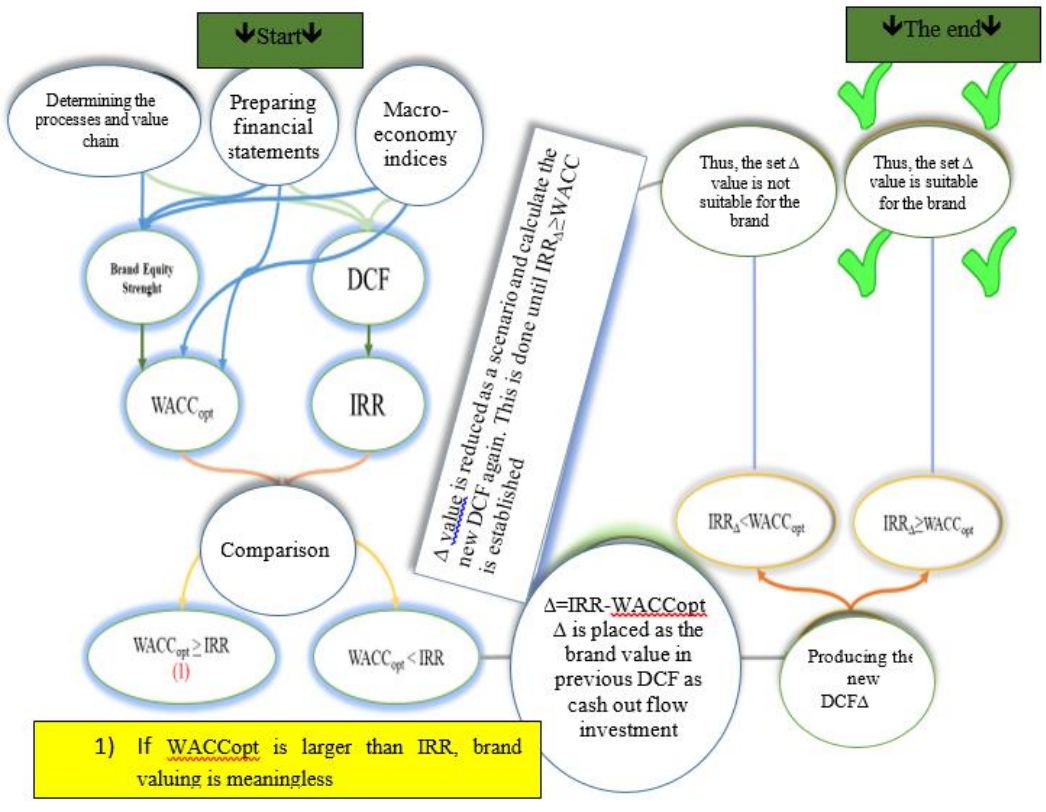

Figure 2. Algorithm Showing the Functioning of the Heuristic Model

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Designing the Financial Formula

Different financial instruments, engineering economics models, and financial valuation models of the brand in the selected papers were examined to design the financial (quantitative) part of the model. As a result of this search, WACC was selected as the base formula. Initially, given the weaknesses in the basic WACC formula, it was expanded and optimized. To this end, 3 parameters of inflation, risk and tax were added to this formula based on the searches conducted in the field of macroeconomic parameters and also by obtaining the opinions of economic experts.

The basic formula for this financial instrument is:

$$WACC = \frac{D}{D+E}.K_d + \frac{E}{D+E}.K_e$$

In this formula, D shows total debt, E the total investment, K_d the value of the debt (return on debt) and K_e the value of the investment (return on investment).

In the next step, a comprehensive and optimal formula is produced by closing the formula introduced above.

$$WACC_{opt.B} = \frac{\sum_{i=1}^{I(ES)} MVES_i \times R_i}{MV} + \frac{\sum_{j=1}^{J(PS)} MVPS_j \times R_j}{MV} + \frac{\sum_{i=1}^{K(SC)} MVSC_k \times R_k}{MV} + \frac{\sum_{i=1}^{L(BL)} MVBL_l \times R_l}{MV}$$

In this formula, MV is the total market value of the investments, $MVES_i$ the market value of the normal shareholder, MVPSj the market value of the preferred shareholder, $MVSC_k$ the market value of the supplier or seller, and $MVBL_l$ the market value of the bank (Bank loan). Moreover, R_i shows the expected rate of return of the common shareholder, R_j the expected rate of return of the preferred shareholder, R_k the expected rate of return of the supplier or buyer, and R_l the expected rate of return of the bank loan.

If the MV parameter in the whole formula is factorized, the following simplified formula is obtained:

$$WACC_{opt.B} = \frac{1}{MV}\left(\sum_{i=1}^{I(ES)} MVES_i \times R_i + \sum_{j=1}^{J(PS)} MVPS_j \times R_j + \sum_{i=1}^{K(SC)} MVSC_k \times R_k + \sum_{i=1}^{L(BL)} MVBL_l \times R_l\right)$$

In the next step, the tax is added to the optimized formula.

In this formula, t_{ck} is the tax (investment) of the supplier or buyer and t_{cl} is the tax imposed on the bank investment.

$$WACC_{opt.B} = \frac{1}{MV}\left(\sum_{i=1}^{I(ES)} MVES_i \times R_i + \sum_{j=1}^{J(PS)} MVPS_j \times R_j + (1-t_{ck})\sum_{i=1}^{K(SC)} MVSC_k \times R_k + (1-t_{cl})\sum_{i=1}^{L(BL)} MVBL_k \times R_k\right)$$

If inflation is included in the optimized formula, the formula is as follows:

$$WACC_{opt.F} = \sum_{t=0}^{T}\sum_{i=1}^{I(ES)} \frac{MVES_{it} \times (1+fR_{it}) - t \times R_i}{MV} + \sum_{t=0}^{T}\sum_{j=1}^{J(PS)} \frac{MVES_{it} \times (1+fR_{jt}) - t \times R_j}{MV} + \sum_{t=0}^{T}\sum_{k=1}^{K(SC)} \frac{(1-t_{ck}) \times MVES_{it} \times (1+fR_{kt}) - t \times R_k}{MV} + \sum_{t=0}^{T}\sum_{k=1}^{L(BL)} \frac{(1-t_{cl}) \times MVES_{it} \times (1+fR_{lt}) - t \times R_l}{MV}$$

In this formula, fR_{it} shows the inflation of the ordinary shareholder, fR_{jt} the inflation of the preferred shareholder, fR_{kt} the inflation of the supplier or the buyer, and fR_{lt} the inflation of the bank investment.

If the desired risk levels are considered in the optimized WACC formula, the formula becomes as follows.

$$WACC_{opt.R} = \frac{1}{MV}\left[\sum_{i=1}^{I(ES)} MVES_i \times \left(R_{Loci} + \beta_i \times (R_{mi} - R_{Loci})\right) + \sum_{j=1}^{J(PS)} MVES_j \times (R_{Locj} + \beta_j \times (R_{mj} - R_{Locj})) + (1-t_{ck}) \times \left(\sum_{k=1}^{K(SC)} MVSC_k \times R_k\right) + (1-t_{cl}) \times \left(\sum_{l=1}^{L(BL)} MVSC_l \times R_l\right)\right]$$

In the formula above, $R_{mi,j}$ is the risk rate of the normal or preferred investor, $R_{f.Ref}$ the risk-free return rate in a reference country, and $R_{f.Loc}$ the risk-free return rate in the country of origin.

Finally, by summing all the above formulas, the following general formula is obtained.

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$$WACC_{opt.F.R.Tc} = \frac{1}{MV}\left[\sum_{i=1}^{I(ES)} MVES_i \times (R_{Loci} + \beta_i \times (R_{mi} - R_{Loci}) \times (1 + fR_{it}) - t\right) + \sum_{j=1}^{J(PS)} MVES_j \times (R_{Locj} + \beta_j \times \left(R_{mj} - R_{Locj}\right)) \times \left(1 + fR_{jt}\right) - t + (1 - t_{ck}) \times \left(\sum_{k=1}^{K(SC)} MVSC_k \times R_k\right) \times (1 + fR_{kt}) - t + (1 - t_{cl}) \times \left(\sum_{l=1}^{L(BL)} MVSC_l \times R_l\right) \times (1 + fR_{lt}) - t]$$

The following formula can be used to calculate the optimized WACC if the company's BES score is determined using a questionnaire:

$WACC_{Final} = WACC_{opt.F.R} \times (BES/1000)$

Besides that DCF value of the company and IRR value of that company must be calculated. The resulting WACC and IRR values are compared. If the WACC value is smaller or equal to the IRR, brand valuation does not make sense and should stop. However, if the WACC value is greater than IRR, Δ is defined as Δ=IRR-$WACC_{opt}$. As the brand value, Δ value is considered as one of the Cash Out Flow Investment instances in the previous DCF and the new IRRΔ is calculated. If the IRR_{Δ} value is greater than or equal to $WACC_{opt}$, then Δ value intended for the brand is valid. However, if $WACC_{opt}$ value is greater than the IRR_{Δ} value, then Δ value for the brand is invalid. In these conditions, Δ value should be reduced as a scenario, and the new DCF_{Δ} should be recalculated. This continues until the IRRΔ≥WACC is established.

After the above condition is met, the optimized WACC value is multiplied by the output of the BES questionnaire and multiplied by the organization's profit; the resulting value is the company's brand value:

$$Brand\ Value = WACC_{opt.F.R.Tc} \times\ (BES) \times Profit$$

This is done for the last 5 financial years of each company. Finally, the brand value of the company is achieved by averaging these 5 years.

The two existing and valid formulas were selected to compare their output with the output of the new formula to examine the accuracy and precision of the output of the constructed formula. These two formulas had been introduced in the papers (Yu, Yan, 2010) and (Bagna et al., 2017). The formula introduced in the paper (Yu, Yan, 2010) is:

$$Brand\ Value = \frac{1}{(1+2+3+2+1)} \times \sum_{i=-2}^{2}[(R - AR) \times I] \times G$$

Here, R is the interest rate after tax deduction, AR the 5-year average interest rate after tax deduction, I the sales, and G the company's growth rate. The formula in Bagna et al. (2017) is:

$$Brand\ Value = \sum_{t=1}^{T} \frac{RR \times Sale_t \times (1-tc)}{(1+DRB)^t} \times \frac{RR \times Sale_{t+1}}{DRB - g} \times \frac{1}{(1+DRB)^t}$$

Forty companies from the companies listed on Tehran Stock Exchange were selected in different fields of activity to compare the output of these two formulas with the new formula. The need financial data of these companies was obtained from the financial information published by them on the Codal website and placed in each of the formulas.

To examine the accuracy and efficiency of the formula, its amount was calculated. Chi square value was calculated. This figure was 99.94%, showing the very high accuracy of the output of this formula. Then, by calculating the mean error squares for all 3 formulas, it was found that the new formula has the most accurate output; this number is 0.8 for the new formula, 3.9 for the formula by Yu and Yan (2010), and 7.4 for the formula in Bagna et al. (2017).

By distributing the BES questionnaire among the stakeholders of IDRO of Iran, their opinions were collected. Then, by extracting the need financial data, they were placed in the formula for calculating the brand value. The result of these measures was 62,743,000 as the brand value of the organization.

Table 7. Brand Value of 40 Stock Companies in Million Riyals

Row	Class	Brand value with the new formula	Brand value with Yu and Yan (2010) formula	Brand value with Bagna et al. (2017) formula	5-year sales of the company
1	Bank	-	-	-	222,304,754

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2		151,602	-	199,684	391,406,712
3		-	68	4,848,439	67,215,446
4		-	2,667	-	160,551,237
5		-	37	8,809,052	15,436,530
6	Petrochemistry	670,810	14,173	114,624	28,987,242
7		1,653,070	45,772	517,264	76,544,111
8		123,435	735	4,103,906	26,934,315
9	Petrochemical	3,610,304	-	-	155,414,081
10		1,229,706	73,501	-	71,953,638
11		835,757	43,712	156,320	55,887,323
12	Automotive	-	31,056	546	6,573,821
13		-	-	6,355	27,887,065
14		-	-	-	680,331,454
15		-	1,351	8,162	6,804,386
16		-	-	-	1,049,057,803
17	Pharmaceutical	-	-	53,566	4,344,111
18		228	-	648	3,597,696
19	Investment	18,843	-		984,324
20		15,703	2,157	231	5,296,722
21		-	0.22	655	51,246
22		-	503	-	4,482,873
23		1,632	1,166	-	395,380
24		381,155	39,818	8,125	55,839,700
25		4,465	1,567	618	16,320,687
26		-	-	-	-
27	Food industry	892.91	-	2,691	2,597,480
28		-	1,696	5,781	4,556,806
29	Tourism	16,729	401	-	4,247,778
30		-	6	12	18,650
31	Communication	225,739	-	34,880,220	511,854,914
32		-	561	-	2,013,847
33	Mineral - Aluminum	-	33,675	-	60,420,697
34		-	3,592	-	5,588,674
35	Mineral - Zinc	48,635	38,438	1,074,350	23,521,623
36		1,375	-	20,962	4,377,264
37		62,191	113,994	-	8,216,336
38	Mineral - Copper	-	12,757	-	287,390,182
39		-	-	-	287,390,182
40	Oil	236,510	2,651,815	61,048	399,782,911
41		-	6,934,097	7,233,470	1,328,234,682

3. Conclusion

The study was done to examine the existing methods of brand value and to produce a heuristic and new method for this purpose. In this regard, a large number of papers related to brand valuation were reviewed, which brought about different criteria affecting brand value, finding different ways to determine brand value, finding different questionnaires to determine brand power, determining various organizational stakeholders, extracting relevant research backgrounds and determining different categories of brand valuation methods. These observations showed that most researchers have utilized only one method to evaluate brand value and the combined methods (quantitative and qualitative) were neglected in doing so.

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Based on the obtained research background, then the study designed a new method to determine the brand value based on the (qualitative) questionnaire and the financial formula (quantitative). To this end, a questionnaire was designed with the focus on measuring the determination of power and proportional to the brand value by obtaining the opinions of experts of business. The questionnaire has 12 main criteria and 221 qualitative questions. WACC tool was then used to build the quantitative part of the method. Three main economic parameters - tax, risk, and inflation - were added to the formula to optimize this tool. Then the output of the questionnaire, filled in by the stakeholders, was multiplied by this value to adjust the value obtained from the optimized WACC using the stakeholder feedback. Ultimately, the value of the brand is obtained by multiplying the number obtained by the profit of the organization. These were done for the last 5 financial years of a given organization and in the end their average was calculated.

After the introduction of the new formula, its efficiency and accuracy were determined. To this end, 2 formulas in previous papers were selected. By identifying 40 listed companies, using all three formulas, their brand value was extracted. The statistical analysis of the obtained numbers showed that the output of the new formula has the highest accuracy and the lowest error among all 3 formulas. Upon ensuring the performance of this formula, the brand value of IDRO of Iran was examined and calculated as the main case study.

Moreover, it has to be noted that valuation method for other intangible assets like organizational credit, organizational experience, organizational supply chain, and so on will be produced to eliminate the limitations of this study in future studies. Additionally, considering the breadth of the concept brand, other dimensions affecting its creation and development will be considered as well.

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