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Econometric modeling techniques for boosting brand competitiveness (based on jewelry industry)

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Abstract

Object of the research is the jewelry industry in the USA. Subject is an analysis and evaluation of methods toward increasing the jewelry brands competitiveness in a contemporary world performance. In the research, the authors applied such methods of econometric modelling and forecasting as modelling using regression equations of basic macro-economic indicators of jewelry industry and forecasting using regression equations of basic macro-economic indicators of jewelry industry. The authors considered brand values, brand visibility and brand equity as marketing indicators in competitive jewelry industry, then doing an analysis of the jewelry market, and built a panel data set for constructing a common model. Purpose of the study encompasses the evaluation of the jewelry brand effectiveness in a competitive environment by using the econometric modeling methods and setting up a model (a toolkit) which could be available, feasible and reliable in an international scale, including the start-up jewelry entrepreneurships in Russian Federation as well.

For citation

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Keywords

Jewelry industry, competitiveness, Tiffany, brand value, brand equity, branding, brand marketing, segmentation, luxury goods.

Introduction

Theoretical and practical aspects of the ways of increasing the jewelry brands competitiveness, the notions of brand equity and brand value at different times were discussed and evaluated with versatile sense of clarity in the works of foreign researchers and scientists, such as D. Aaker, P. Barwise, R. Brennan, P. Baines, K.S. Cravens, N.R. Draper, H. Smith, N. Hennig-Thurau, D. Jobber, M. McDonald, P. Mouncey, N. Munn, A. Seetharaman, F. Völckner, H. Sattler J. Wilcox, S. Whitwell, and others.

Jewelry is a part of luxury industries, which include luxury fashion accessories, luxury jewelry, luxury watches, etc. Jewelry industry is highly cyclical in its nature and that is mostly driven by the increasing wealth. This fact affects the industry in the world economy both in good and bad times. Tiffany & Co. has been the world’s premier jeweler and America’s house of design since 1837. Today Tiffany’s keeps step with the American economy and expands across the United States and into South America, Europe, Asia and Australia [Tiffany, 2019, www]. That is why we are mostly interested in analyzing the US jewelry market condition.

Brand values and brand equity

Brand equity is more difficult to estimate because it relies on customers’ beliefs. The company does not know whether a customer makes a purchase because he recognizes the company's brand or whether the customer uses other criteria, such as price and convenience, to make his decision. According to the findings of the University of Georgia, the company can attempt to estimate its brand equity by sending surveys to its customers to see if they recognize the brand [University of Georgia, 2019, www].

A brand may have a positive value on the company’s books and still lack brand equity [Aaker, 1991, 25]. When the company begins a new branding project, the company pays its employees while they work on the brand, but customers do not know about the brand yet. The company records these brand value development costs, establishing brand value before the brand gains equity. A company needs to develop brand equity past a certain point in a customer's mind before it becomes effective. The customer may watch several advertisements on television and radio, see the product in the store and buy the product several times before he recognizes the brand. This threshold effect complicates the valuation of brand equity because the equity suddenly goes from zero value to a high value [Aaker, 1996, 34].

Once the company establishes brand equity, it can increase the value of the brand. If the customer likes a shirt because of its brand name, he/she might also purchase a pair of pants with that brand name or buy cologne that uses the brand name. The company can use the future revenue it expects to collect by using the brand on these other products because of this equity to calculate the current brand value. Brand equity refers to the importance of a brand in the customer’s eyes, while brand value is the financial significance the brand carries. Both brand equity and brand value are educated estimates of how much a brand is worth [Ambler, 1998, 12].

Brand equity and brand value are similar, but not the same [Feldwick, 2013, 10]. Oftentimes, there is confusion around how each differs so let us look at exactly what each means. Brand equity is a set of assets or liabilities in the form of brand visibility, brand associations and customer loyalty that add or subtract from value of a current or potential product or service driven by the brand. It is a key construct in the management of not only marketing, but also business strategy. In the late 1980s, brand equity helped create and support the explosive idea that brands are assets that drive business performance over time. That idea altered perceptions of what marketing does, who does it, and what role it plays in business strategy [Aaker, 1991, 26]. Brand equity also altered the perception of brand value by demonstrating that a brand is not only a tactical aid to generate short-term sales, but also a strategic support to a business strategy that will add long-term value to the organization.

Brand value, on the other hand, is the financial worth of the brand. To determine brand value, businesses need to estimate how much the brand is worth in the market – in other words, how much would someone purchasing the brand pay? It is important to note that a positive brand value does not automatically equal positive brand equity [Whitwell, 2013, 14].

Brand visibility means that the brand has awareness and credibility with respect to a particular customer need — it is relevant. If a customer is searching for a buying option and the brand does not come to mind, or if there is some reason that the brand is perceived to be unable to deliver adequately, the brand will not be relevant and not be considered [Cravens, 1999, 39]. Brand associations involve anything that created a positive or negative relationship with or feelings toward the brand. It can be based on functional benefits but also a brand personality, organizational values, self-expressive benefits, emotional benefits or social benefits [Birkin, 1994, 55].

Analysis of the jewelry market

To illustrate the key markets we have selected the top ten jewelry markets in respect to the population [Watsham, 2007]. You can see the results in the Figure 1.

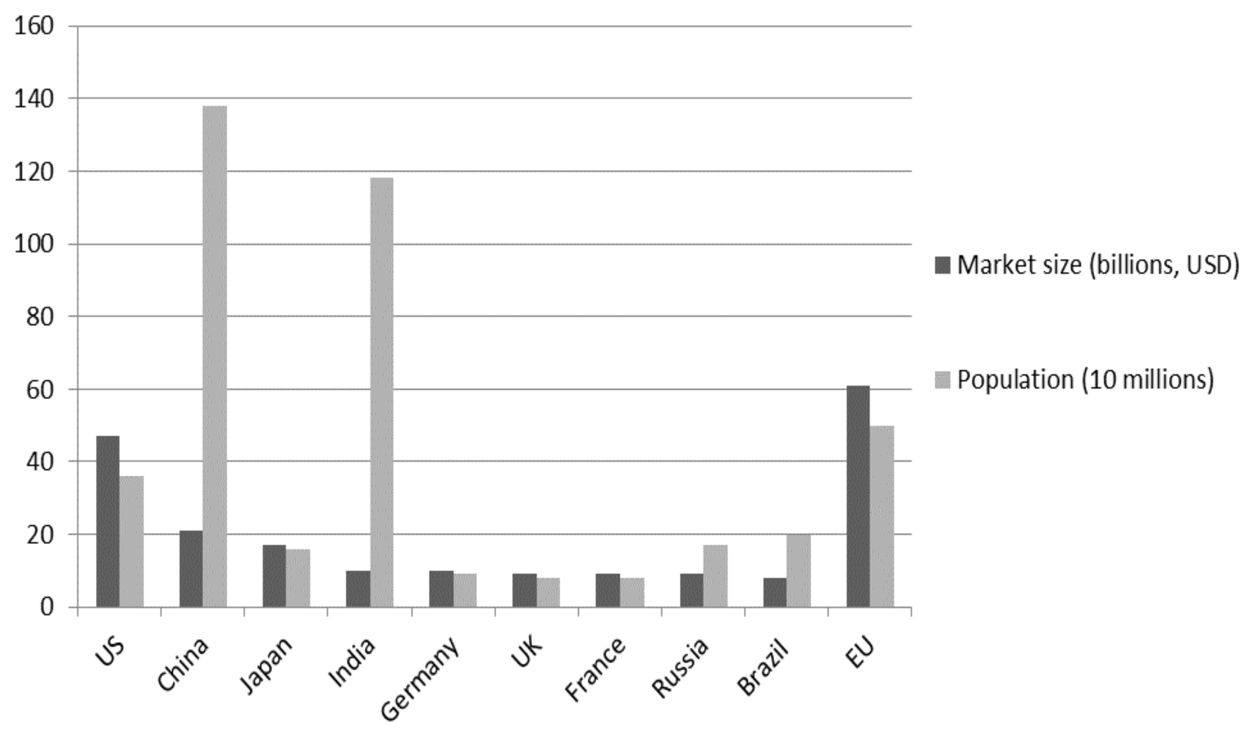

Figure 1 – The key world jewelry markets

It is clear which countries are, in fact, the major markets for jewelry. According to the fact that Tiffany's has grown steadily alongside the American economy, we are mostly interested in analyzing Tiffany's Americas segment as its largest one. To evaluate state of the US jewelry market in general we examined some of the basic indicators, which are presented in the Table 1 below.

Table 1 – The key US jewelry market figures

#	Indicator	Years			Growth from 2017 to 2015, %
		2015	2016	2017	
1	Fine Jewelry Market Share, %	88,2	88,3	88,3	0,10
2	Fine Jewelry Sales, $ billions	65,2	65,8	66,5	1,98
3	Specialty Jewelers' Sales, $ billions	30,3	30,5	30,5	0,65
4	Average Expenditure On Fine Jewelry Per Household, $	428	434	417	-2,56

From the Table 1 we can see that most of all indicators demonstrate growth during 3-years period. Despite this fact, it is important to emphasize that these figures are a modest improvement between 2015 and 2017. Moreover, rate of growth shows that expenditures of each US household on fine jewelry have declined on 2,56% and become $417 in 2015 in comparing with $428 in 2015.

As for Tiffany's presence within the American jewelry market, at the end of fiscal 2017, ended January 31, 2017, Tiffany operated 122 retail stores in the Americas: 95 in the United States, 11 in Canada, 11 in Mexico, and five in Brazil. This included 12 company-operated stores within department stores in Canada and Mexico. At the end of fiscal 2017, the Americas segment had a total gross retail square footage of 710,000 [Draper, 1981].

Tiffany's Americas segment accounted for 48% of the company's total revenue in fiscal 2015, 2016, and 2017, while sales in the United States accounted for 88%, 88%, and 89% of revenue in the Americas in the respective periods. This revenue is further divided into the following categories (Figure 2):

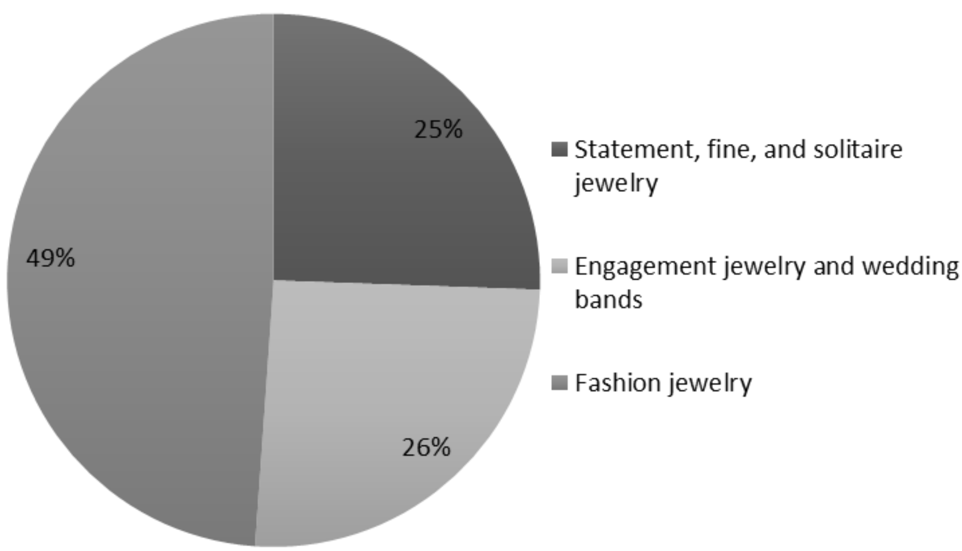

Figure 2 – The composition of Tiffany's America's segment revenue

1) Statement, fine, and solitaire jewelry – items containing diamonds and gemstones, contributing 25% of sales in the Americas [Watsham, 2007].

2) Engagement jewelry and wedding bands – items containing diamonds, contributing 26% of sales in the Americas.

3) Fashion jewelry – non-gemstone, sterling silver, gold, and metal items, accounting for 49% of sales in the Americas, with sterling silver contributing more than 50% of total fashion jewelry sales.

Earnings from operations for the Americas segment represented 21.4%, 19.4%, and 18.8% of the company's net Americas sales for fiscal 2015, 2016, and 2017, respectively.

Speaking about Tiffany's long-term strategies, the most powerful of them is to improve its store base through store openings in key markets, renovations, relocations, and closings. The company has set a long-term goal to increase its worldwide square footage close to 2% per year. Tiffany has planned the majority of its expansions in the Asia-Pacific region.

In order to evaluate Tiffany's competitive position, we are going to conduct a comparative analysis of Tiffany & Co and its closest competitor – Signet Jewelers Ltd, based on the key indicators of companies' activity.

From the Table 2, we can deduce that during 3-years period Tiffany & Co is more profitable company than Signet Jewelers Ltd. Despite the fact that Tiffany & Co has lower revenue and total current assets growth rates, its net income, ROS and ROA rates of growth are even higher in contrast with Signet Jewelers Ltd. Growing ROS of Tiffany & Co means that company is generating profits from its top-line revenue very efficiently. The higher the ROA number of Tiffany & Co means that the company earns more money on less investment than Signet Jewelers Ltd does.

Table 2 – Comparative analysis of companies' growth rates

#	Indicator	Growth from 2015 to 2013, %	
		Tiffany & Co	Signet Jewelers Ltd
1	Revenue, $ millions	12,14	43,97
2	Net Income, $ millions	16,35	5,83
3	Total Current Assets, $ millions	14,60	45,21
4	Return on Sales (ROS), %	14,13	-28,37
5	Return on Assets (ROA), %	2,96	-26,05

Moreover, in order to evaluate Tiffany's competitive position better, we are going to apply Porter's five forces analysis. Graphically the results of Porter's five forces analysis are shown below in the Figure 3.

Speaking about rivalry, the luxury jewelry market is characterized by several competitors with a select few firms having the brand recognition to command large portions of the market. High-end competitors such as DeBeers, Signet Jewelers Ltd, Bulgari, Mikimoto, online jewelers such as Blue Nile. Additionally, local and regional boutiques that feature equally stunning pieces typically play well in local markets because of the personalized experience buyers seek when purchasing high-end jewelry. While many of these high-end competitors specialize within the luxury jewelry industry – DeBeers with diamonds, Mikimoto with pearls, Cartier with watches – each competitor produces a variety of pieces and styles with various stones and metals and competes with Tiffany & Co to varying degrees within its three core consumer groups. Within the jewelry shopper consumer group, Tiffany & Co faces additional competitors. Jewelers such as James Avery in Texas specialize in silver and gold jewelry in the $65- $300 price range. While many of these regional players exist, Tiffany's high-end reputation allows the firm to maintain a national and international presence in the jewelry shopper demographic [Stock, 2012].

As for entry**,** the luxury jewelry industry is a mature market where buyers look for established and reputable brands. Tiffany & Co reports that the single greatest asset it owns is its brand recognition.

The iconic image of the little blue box or well-known DeBeers slogan “a diamond is forever” are types of brand recognition that take decades to establish.

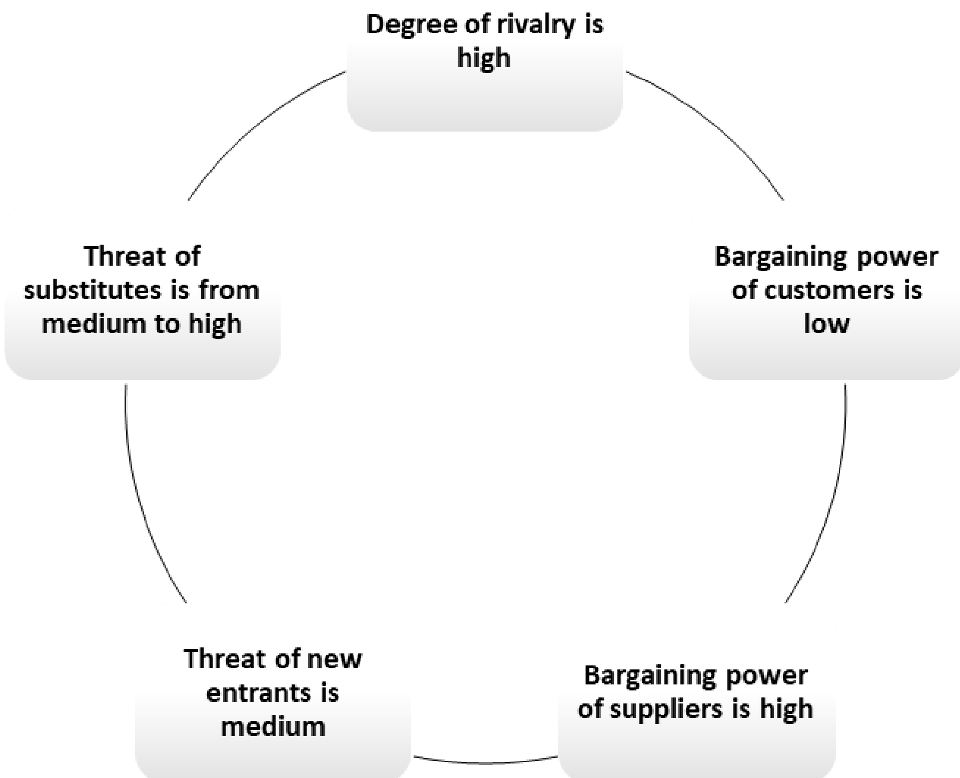

Figure 3 – Porter’s five forces analysis of Tiffany & Co

Additionally, firms need to have a significant amount of startup capital to enter into this industry. Luxury jewelers typically turn over their inventory once a year, meaning they must invest up front in all metals and gems without initially being able to create a profit [Dauriz, 2019, www].

Panel data set for creating a toolkit

Now we are intend to conduct a panel data set analysis according to the previous research applied to the US jewelry market conditions and the factors which, we assume, influence it. These factors are personal consumption expenditures on jewelry, personal savings, and personal income.

Personal income is often compared to personal consumption expenditures (PCE). PCE measures the changes in the price of consumer goods and services. By considering these changes, analysts can ascertain how changes in personal income truly affect spending. To illustrate, if personal income increases significantly one month but PCE also increases, consumers collectively may have more cash in their pockets, but they may have to spend more on basic goods and services.

Knowing the regression line, we can predict the values of y – personal consumption expenditures on jewelry for the next periods. According to the tendency (decreasing or increasing), based on the model, the figures will be added to the time line. The forecast will be conducted up till the 2025 year.

Using the tools of the MS Excel, we obtain the simple linear regression line presented in the picture below (Figure 4).

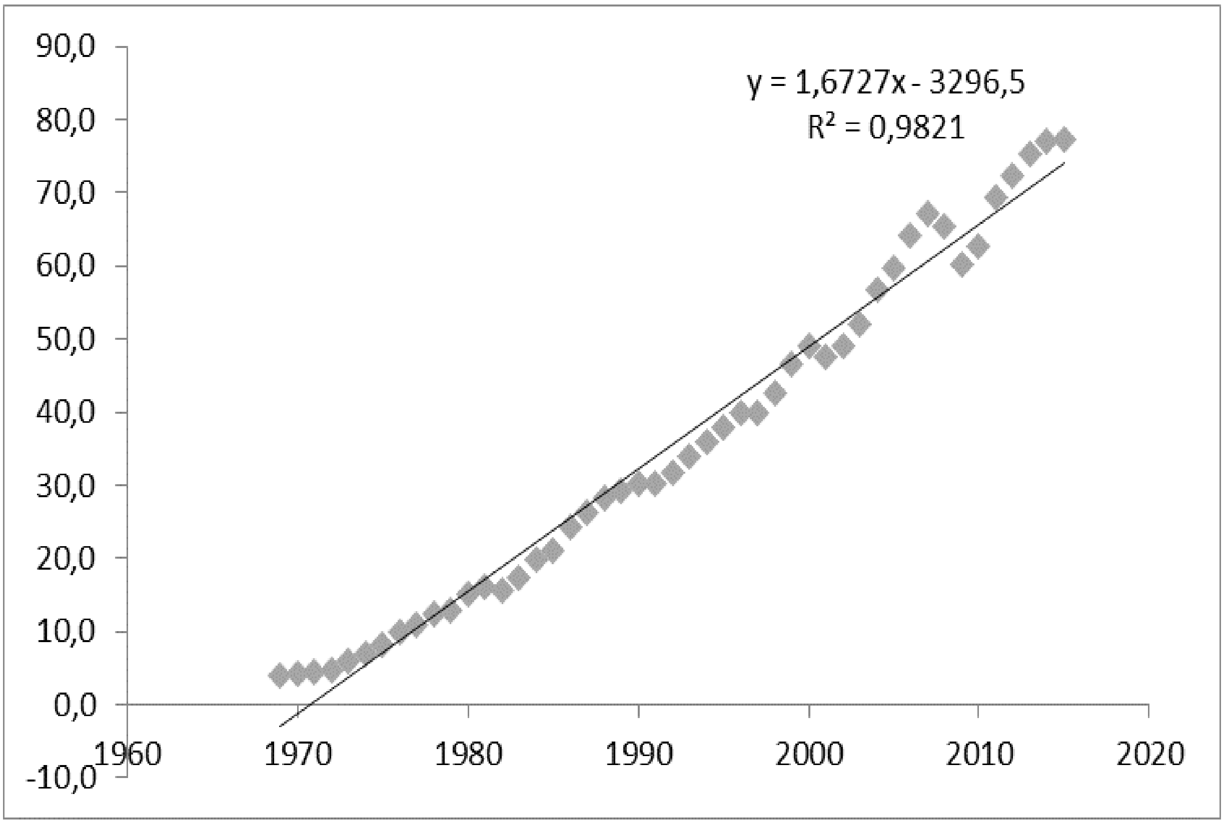

Figure 4 – Simple Linear Model for the prediction of personal consumption expenditures on jewelry

We have the equation (Formula 1):

$$y=1,6727x - 3296,5, \quad (1)$$

where x – period;

y – personal consumption expenditures on jewelry.

With R^2=0,9821, that is a good result. Now, with the help of the equation obtained, we can predict the values for Personal Consumption Expenditures on Jewelry in the next periods, up until the 2025 (Table 3).

Table 3 – The predicted values of the variable "Personal Consumption Expenditures on Jewelry"

Number of observation	Period	Personal Consumption Expenditures on Jewelry
n	x	y
48	2016	75,6632
49	2017	77,3359
50	2018	79,0086
51	2019	80,6813
52	2020	82,354
53	2021	84,0267
54	2022	85,6994
55	2023	87,3721

Number of observation	Period	Personal Consumption Expenditures on Jewelry
56	2024	89,0448
57	2025	90,7175

We can see that the value of Personal Consumption Expenditures on Jewelry is increasing with time that happens in accordance with the general tendency.

To predict the value of Personal Consumption Expenditures on Jewelry using the Multiple Regression Model it is necessary to find the possible values of the independent variables that present in the equation which was obtained in the previous paragraph: Personal saving, Personal Income.

After that, the predicted values are put into the equation of the multiple regression model and the predicted y – Personal Consumption Expenditures on Jewelry, can be found.

The variable "Personal Consumption Expenditures on Jewelry" demonstrates the increasing tendency and in 2025 is estimated to be 82,70 (billion of dollars) if the tendency continues. That is a positive tendency for the company as it provides more opportunities and needs for its services on the market.

According to the figures, the firm's return on capital (ROC) is an excellent indicator of the size and strength of its moat. If a company is able to generate returns of 15-20% year after year, it has a great system for transforming investor capital into profits. However, as we could see this indicator has not risen above 13.7% recently. That is why the Company's management should direct efforts to improve its ROC [Annual report, 2018, www].

Conclusion

According to the findings, we assume that presented data would be beneficial for both sides: for current business entities and for those who is eager to establish a start-up in jewelry industry. Moreover, the model captured from the calculations could be implemented as a draft or a toolkit, which might take a ubiquitous tendency among entrepreneurs in the USA, as well as in the European Union or the Russian Federation.

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Методы эконометрического моделирования для повышения конкурентоспособности бренда (на примере ювелирной промышленности)

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Аннотация

Объектом исследования выступает ювелирная индустрия в США. Предметом исследования является анализ и оценка методов повышения конкурентоспособности ювелирных брендов в современном мире. В настоящей статье авторами применялись такие методы эконометрического моделирования и прогнозирования, как моделирование с использованием уравнений регрессии основных макроэкономических показателей ювелирной отрасли и прогнозирование с использованием уравнений регрессии основных макроэкономических показателей ювелирной промышленности. Целью исследования выступила оценка эффективности ювелирного бренда в конкурентной среде с использованием методов эконометрического моделирования и создания модели (инструментария), которая могла бы быть доступной, реализуемой и надежной при калькуляции основных эконометрических показателей в международном масштабе, включая фазу выведения на рынок новых стартапов ювелирной отрасли и уже практикующих предпринимателей в Российской Федерации.

Для цитирования в научных исследованиях

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Ключевые слова

Ювелирная отрасль, конкурентоспособность, Тиффани, стоимость бренда, ценность бренда, брендинг, маркетинг бренда, сегментирование, предметы роскоши.

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