



Literature Review on Target Costing in Academic Research

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ABSTRACT:

Target costing is a cost determination method in management accounting, a management tool that allows achieving cost goals and operational goals at the design and planning stage of new products. The method also provides a basis for control at the production stage and ensures that these products achieve defined profit targets in accordance with the product life cycle. Through target costing, administrators create comprehensive cost plans and implement cost reductions right before starting production and business operations. This article aims to evaluate research trends in target costing based on documents in the Google Scholar database in the years 2012–2022. The results show a growing interest in the use of target costing among businesses, in which 2022 is the year with the highest number of publications, and many journals have published up to 68 publications on the issue. This. Finally, the keyword analysis identified a variety of content that will be important research points for future research.

Keywords: Target costing, systematic literature review, VOSviewer.

1. Introduction

In the context of increasingly deep international integration, businesses are under increasing competitive pressure. Therefore, businesses need more management information to be able to build effective competitive and business strategies. The target cost accounting method is a management accounting tool that determines the cost of producing products and services with high accuracy. The target costing method allows businesses to create control facilities at the production stage and ensure the achievement of profit targets that have been determined in accordance with the product life cycle.

Therefore, in recent years, general studies have often chosen target costs in businesses for synthesis and analysis. Providing a comprehensive picture of target costing research in businesses from 2012 to the present is necessary to fill previous research gaps.

The article clarifies the following research questions, including Q1: What is the number of articles on target costing in enterprises published from 2012 to 2022? Q2: Which journals have the most publications related to this content? Q3: What topics are the keywords used grouped into? Q4: And have these keywords changed and gained strength over time?

To answer the above questions, the study reviewed 463 articles published in the period 2012–2022. Research conducted through bibliometric analysis makes a great contribution to the research community because, through bibliometrics, a valuable amount of information can be collected about a topic. By reflecting on what has been done and what needs to be researched in the future, the article aims to add to the literature on different methods and contexts to support target costing researchers in business. The research is divided into parts: defining the conceptual foundation, applied methods, research results, and concluding remarks.

2. Theoretical basis

The target costing method originated from Japan. This method has been applied since 1980 by large companies such as Toyota, NEC, Sony and Nissan. According to Kato (1993), more than 80% of companies mainly in industry used target costing in Japan. An international organization established by a number of large industrial corporations, called the Consortium for Advanced Management-International (CAM-I), to develop modern management accounting methods defined Target costs are as follows:

“Target costing method is a comprehensive set of management methods and tools that allow achieving cost and operational goals at the design and planning stage of new products. The method also allows to provide a basis for control at the production stage and ensures that these products achieve defined profit targets in accordance with the product life cycle.”

One point to note in this definition is that target costing is related to the product's profitability associated with the product life cycle, an approach that is different from traditional methods.

The target costing method is a method applied at the research and development stage. Administrators make comprehensive cost plans and implement cost reductions right before starting production and business operations.

Making business decisions based on target costing is done through the following steps: customer orientation, target costing process, destructive analysis, value function deployment, value analysis and reset.

Customer orientation: Customer needs are reflected through the concept of value: The ratio of product functions to product price. The input to the target costing process is the market price - associated with certain product functions. There are two important factors in customer orientation: first, the market determines the price of products with corresponding functions. Second, the manufacturer chooses the function of the product to provide, the market chooses the price associated with the function provided.

Target costing process: Target costing process implemented simultaneously can have maximum impact on product cost. Reducing design changes due to collective work will lead to reduced product implementation time. Each group in the design team reducing costs will contribute to achieving the common goal, which is to satisfy the overall target cost of the entire team. The concept of target costing is simple but difficult to implement – the design team must continuously influence the product design and manufacturing process until a cost equal to or less than the target cost is achieved– do not reduce planning costs by eliminating required functions. The design team is under great pressure during the target cost determination process. The design team must develop and use tools to help them achieve their target cost goals. The main tools used to determine target costing are: destructive analysis, value analysis, and reset.

Destructive Analysis: Destructive analysis, also known as substitution analysis, is a process of evaluating competitor products to find opportunities for product improvement. The main factor in destructive analysis is the standard factor, comparing the design of the trial product and the competitor's product.

Quality function deployment: Quality function deployment is a management tool used to identify customer needs, a key input to the target costing process. Organizations use quality function deployment to know what customers need from a product before the product is designed and manufactured. The process of comparing what the customer needs with what the design team recommends to meet that need – the value analysis process – is an important element of the target costing process.

Value Analysis: Value Analysis is a systematic approach on a collective basis to evaluate a product design to find solutions to improve product value, measured by the ratio function versus cost. Value analysis is conducted to achieve target cost in two ways. The first way is to change the design to reduce costs, but the product function is still not lost. The second way is to eliminate functions that increase costs but are not necessary for customers. The value analysis process starts from functional analysis - finding standard parts - same function but low cost. Compare the cost of product functions created with the cost the customer will pay for each function.

Reset: Destructive analysis and value analysis focus primarily on product design. Meanwhile, reset is an action to redesign an existing or planned process to improve product cost and product quality.

3. Method

This study uses the systematic literature review method SLR (Systematic Literature Review) of Tranfield et al. (2003). Sample selection for the study was based on PRISMA (priority items for systematic reviews and meta-analyses) originally proposed by Liberati et al. (2009) and updated in 2021 by Page et al. (2021). The PRISMA flow diagram is based on three steps: identification, screening, and study inclusion.

Step 1: The author synthesizes previously published overview documents related to target costing in businesses and introductory documents on the nature and role of target costing in businesses from source sources. data on Google Scholar. This collection aims to explain the urgency of the research, overview the research, and point out research gaps. Data was collected on January 5, 2024, with the use of the following keywords “target costing”. A total of 463 results were found from the Google Scholar site from 2012 to 2022.

Step 2: The author group has screened to remove inappropriate documents through technical screening and content screening. For technical screening, documents are in the form of: Encyclopedia, Editorials, Short communications, Mini reviews, Book chapters will be eliminated. For content screening, documents are pre-read to remove documents with irrelevant content even though they contain search keywords. The results after filtering showed that all 463 results met the filtering conditions for inclusion in the study.

Step 3: The number of remaining documents after the two steps is analyzed by the SLR (systematic literature review) document system and put into VosViewer software to analyze keywords and co-citation analysis. The results of SLR analysis are presented in tables and graphs. The results of bibliometric analysis will be presented in visual form. From the analysis results, the study finds popular research directions, names the research directions, and suggests future research directions.

4. Results

4.1 Statistics on year of publication

From 2012 to 2022, a total of 463 articles on target costing in business were indexed in Google Scholar with an average of 42 articles published per year. The lowest number of articles in 2020 was 35 articles. And 2022 is the year with the highest number of articles published, corresponding to 67 articles. The statistical results of the year of publication show that researchers are paying equal attention to target costs in businesses over time. Since 2012, researchers have been interested in applying target costing in businesses, and by 2022 this is still a topic of interest to many researchers. It proves that target costing is a costing method that is increasingly concerned and used in businesses.

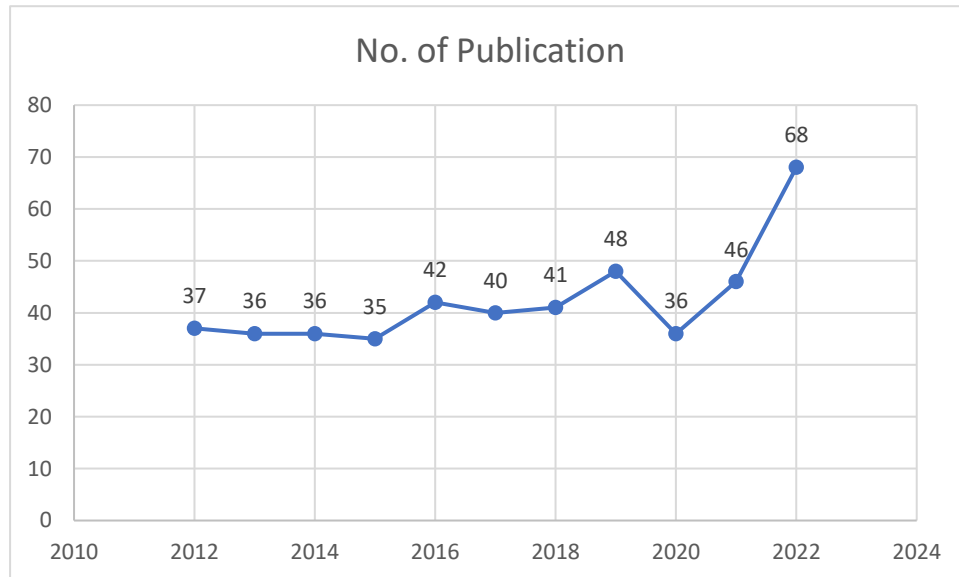


Figure 1. Chart of the number of studies over the years

Regarding citation statistics, articles published within 14 years were cited 8004 times. The article with the highest number of citations was in 2012 (1111 citations) with the name "Cost-effective, high-throughput DNA sequencing libraries for multiplexed target capture" by authors N Rohland, D Reich. The article with the second most citations is "Target value design: using collaboration and a lean approach to reduce construction cost" by authors D Zimina, G Ballard, C Pasquire published in 2012 with 368 citations. Data in Table 1 show that the period 2012 - 2014 is the period with the highest number of works of interest with the highest number of citations.

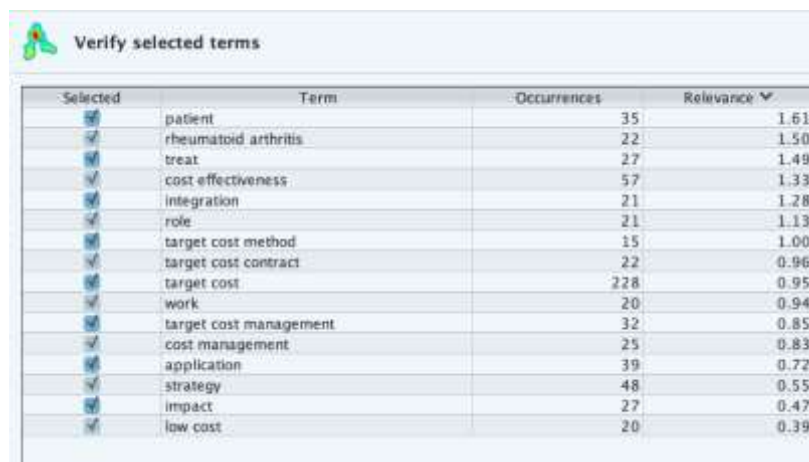
Table 1. Works with the most publications

Cites	Authors	Title	Year
1111	N Rohland, D Reich	Cost-effective, high-throughput DNA sequencing libraries for multiplexed target capture	2012
368	D Zimina, G Ballard, C Pasquire	Target value design: using collaboration and a lean approach to reduce construction cost	2012
340	AA Butt, RT Collins	Multi-target tracking by lagrangian relaxation to min-cost network flow	2013
318	LB Cui, Y Fan, L Zhu, QH Bi	How will the emissions trading scheme save cost for achieving China's 2020 carbon intensity reduction target?	2014
280	M Doherty, W Jenkins, H Richardson, A Sarmanova...	Efficacy and cost-effectiveness of nurse-led care involving education and engagement of patients and a treat-to-target urate-lowering strategy versus usual ...	2018
185	K Singh, K Drouin, LP Newmark, JH Lee, A Faxvaag...	Many mobile health apps target high-need, high-cost populations, but gaps remain	2016
163	O Valkó, P Török, G Matus, B Tóthmérész	Is regular mowing the most appropriate and cost-effective management maintaining diversity and biomass of target forbs in mountain hay meadows?	2012
158	D Zorbas, LDP Pugliese, T Razafindralambo...	Optimal drone placement and cost-efficient target coverage	2016
151	Q Zhou, KJK Tan, R Faff, Y Zhu	Deviation from target capital structure, cost of equity and speed of adjustment	2016

139	R Zhang, T Hanaoka	Deployment of electric vehicles in China to meet the carbon neutral target by 2060: Provincial disparities in energy systems, CO2 emissions, and cost ...	2021
130	MM Islam, L Topp, CA Day, A Dawson...	The accessibility, acceptability, health impact and cost implications of primary healthcare outlets that target injecting drug users: a narrative synthesis of literature	2012
130	C Becchio, P Dabbene, E Fabrizio, V Monetti...	Cost optimality assessment of a single family house: Building and technical systems solutions for the nZEB target	2015
129	M Coccia	Path-breaking target therapies for lung cancer and a far-sighted health policy to support clinical and cost effectiveness	2014
120	S Ferrari, M Beccali	Energy-environmental and cost assessment of a set of strategies for retrofitting a public building toward nearly zero-energy building target	2017
105	V Sivaram, S Kann	Solar power needs a more ambitious cost target	2016

4.2 Results of keyword analysis

In the keyword analysis section, research and select keywords that appear 20 times or more. Keywords are evaluated by the software based on the number of occurrences and total link strength. Keyword analysis results can be exported into files as images. The keyword analysis results are as follows:



Selected	Term	Occurrences	Relevance
<input checked="" type="checkbox"/>	patient	35	1.61
<input checked="" type="checkbox"/>	rheumatoid arthritis	22	1.50
<input checked="" type="checkbox"/>	treat	27	1.49
<input checked="" type="checkbox"/>	cost effectiveness	57	1.33
<input checked="" type="checkbox"/>	integration	21	1.28
<input checked="" type="checkbox"/>	role	21	1.13
<input checked="" type="checkbox"/>	target cost method	15	1.00
<input checked="" type="checkbox"/>	target cost contract	22	0.96
<input checked="" type="checkbox"/>	target cost	228	0.95
<input checked="" type="checkbox"/>	work	20	0.94
<input checked="" type="checkbox"/>	target cost management	32	0.85
<input checked="" type="checkbox"/>	cost management	25	0.83
<input checked="" type="checkbox"/>	application	39	0.72
<input checked="" type="checkbox"/>	strategy	48	0.55
<input checked="" type="checkbox"/>	impact	27	0.47
<input checked="" type="checkbox"/>	low cost	20	0.39

Figure 3. Keywords repeated many times

Out of 539 keywords, only 16 keywords meet the criteria to appear at least 20 times. The keyword “patient” has appeared the most with 35 times. The keywords target cost, cost effectiveness, strategy... appear many times.

Related keywords are grouped into groups, each group is a separate color. Note that the larger the circle, the more times it appears; the thicker the line connecting the two keywords, the greater the frequency of occurrences. Related keywords are grouped into groups, each group is a separate color. Looking at the image, it can be seen that the keywords are divided into 3 groups with 16 items, 53 links and total link strength of 507. Group 1 is represented by red links with the keywords application, cost management, impact, integration, role, target cost, target cost management, and target cost method. Group 2 is represented by green links with the keywords cost effectiveness, patient, rheumatoid arthritis, treatment, and treat. Group 3 is represented by green links with the keywords low cost, targeted cost contract, and work. With 3 research directions and 16 popular keywords, the results show that the research content on target costing in businesses is of interest. Future studies can base on that to choose research directions to fill the gap, or analyze more deeply.

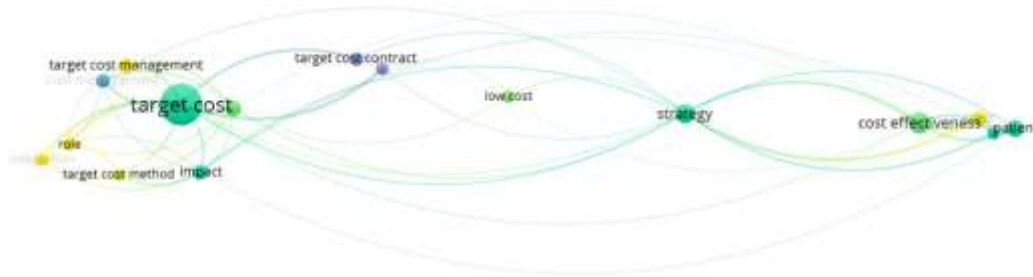


Figure 4. Keyword statistics

In addition, the results from the VOSviewer tool have shown the time of keywords appearing. Dark colors represent keywords researched from the first years (2015), in recent studies, keywords have appeared in brighter colors. The keyword appearance time chart shows that target cost is the keyword that receives the most attention, and evaluating the level of interest over time, this keyword received a lot of attention in the period 2015-2019.

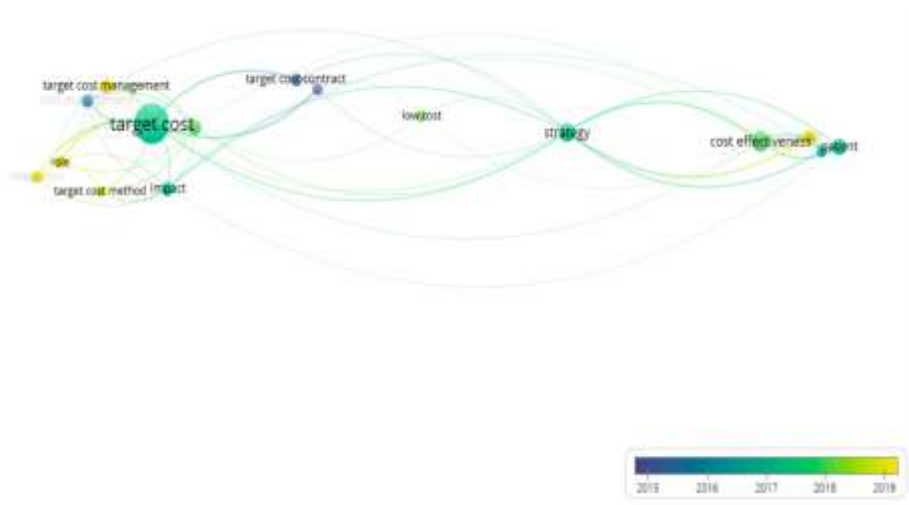


Figure 5. Keyword statistics over time

4.3 Co-authorship analysis

To understand the tendency to cooperate in target costing research in enterprises, this study conducted an analysis of co-authorship relationships between individual authors. According to Benoit et al. (2018), the analysis results help improve understanding of research collaboration and help discover influential researchers. Of the total 463 publications reviewed, 146 authors contributed to the article. Among them, 10 authors have participated in writing 4 or more articles. Figure 6 presents the co-authorship network map. The link between two nodes represents the collaborative relationship between the two authors, and the thickness of the link represents the intensity of the collaboration. Author Chan Dwm participated in writing 5 articles, followed by author Chan JHL who participated in writing 5 articles during the research period from 2012 to 2022.

 **Verify selected authors**

Selected	Author	Documents	Total link strength 
<input checked="" type="checkbox"/>	chan, dwm	5	5
<input checked="" type="checkbox"/>	chan, jhl	5	5
<input checked="" type="checkbox"/>	alwisy, a	4	0
<input checked="" type="checkbox"/>	bernstein, ds	4	0
<input checked="" type="checkbox"/>	li, q	4	0
<input checked="" type="checkbox"/>	li, y	5	0
<input checked="" type="checkbox"/>	menneer, t	4	0
<input checked="" type="checkbox"/>	scheibelhofer, w	4	0
<input checked="" type="checkbox"/>	wang, l	4	0
<input checked="" type="checkbox"/>	zhang, y	4	0

Figure 6. Author has many articles

Related authors are grouped into groups, each group is a separate color. Note that the larger the circle, the greater the relationship between the authors; the thicker the line connecting two keywords, the greater the intensity of appearance. Related authors are grouped into groups, each group is a separate color. Looking at the image, it can be seen that the authors are divided into 2 groups with 5 items. Group 1 with red link includes 3 items. Group 2 with blue link includes 2 items.

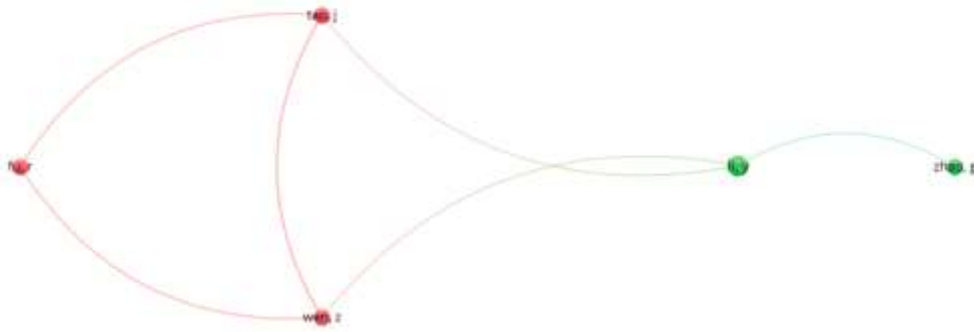


Figure 7. Author statistics

In addition, the results from the VOSviewer tool have shown the time the authors spent writing the article. The author appearance time chart shows that authors with many articles on target costing in businesses focused on publishing articles in the period from 2017 to 2019.

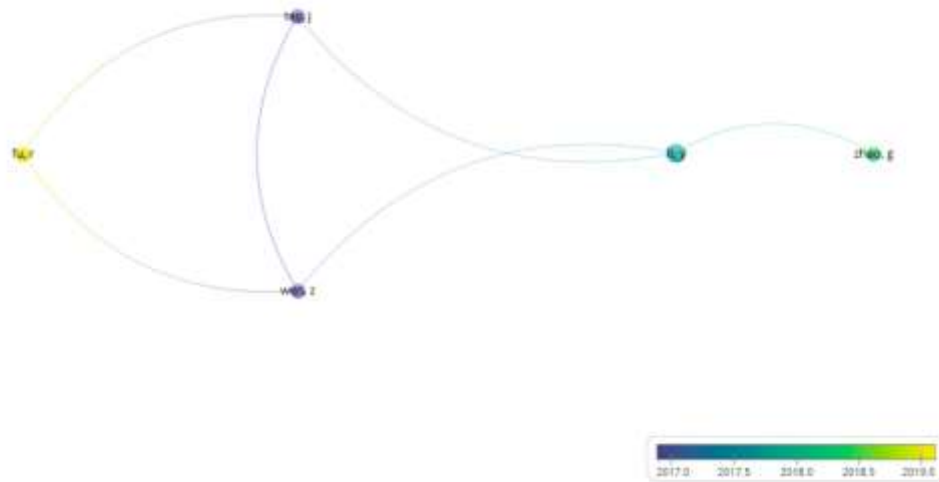


Figure 8. Author statistics over time

5. Conclusion

In this study, we evaluated global publications on Corporate Target Costing indexed in the Google Scholar database published between 2012 and 2022 to provide insights into the number of publishing, journal publishing, keyword networks and co-author networks. This study used bibliometric methods with the help of several statistical and data visualization applications to explore research trends in target costing content.

Research results show that there have been a total of 463 articles on target costing in businesses indexed in Google Scholar from 2012 to 2022. The number of citations to articles related to target costing is more than 8000 times, showing that researchers have a great interest in target costing in businesses. In the period 2012 - 2022, the number of publications on target costing is quite uniform, fluctuating at 30-60 articles per year.

The research results have contributed to the general theoretical basis, serving as a basis for reference studies on target costs in businesses. Data collected from richer sources such as Scopus or Web of Science are suggestions for further research on target costing, in addition, future studies can systematically evaluate the literature on target costing in specific industries.

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