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Signaling theory and its relevance in international marketing: a systematic review and future research agenda

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Abstract

Purpose – The purpose of this paper is to analyze to what extent and in what ways signaling theory has been explored within the field of international marketing. This paper systematically reviews the use of signaling theory in the field of international marketing. Communication is a core aspect of the international marketing process. Research in this field has explored effective and unique ways of improving the communication flow to reduce the asymmetry of information between international consumers and the firm. This notion is adopted, enhanced and strengthened by signaling theory. Signaling theory has recently received the attention of international marketing scholars.

Design/methodology/approach – The systematic review methodology was applied for the purpose of identifying the relevant studies. We extracted academic articles over the last 23 years from the domain of international marketing that directly contribute to signaling theory based on 57 journal articles extracted through the systematic review process.

Findings – Based on systematic research the results reveal that the topic has grown and continues to expand within the broader international marketing field. We offer a theoretical conceptual framework to better understand signaling theory in the context of international marketing.

Originality/value – The authors map and critically evaluate the use of signaling theory in international marketing. Relevance of signaling theory in international marketing is growing and authors present an integrative framework that organizes the existing literature, and provides scholars to further expand on emerging themes of the domain. The paper offers some useful future research directions.

Keywords International marketing, Signaling theory, Systematic review

Paper type Literature review

Introduction

Signaling theory has been used extensively in the field of marketing under the conditions in which firms generate signals to reduce consumer-based information asymmetry (Berger and

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Ward, 2010; Erdem *et al.*, 2004; Kirmani and Rao, 2000; Kosiba *et al.*, 2020; Spry *et al.*, 2011; Wilden *et al.*, 2010). Global firms with the objective of accessing international markets are bound to experience geographic and cross-cultural challenges in communicating information about their products/services. However, as international markets become technologically inclusive, access, variety, imbalances, and variations in quality of information are likely to create information asymmetry for all types of stakeholders. Hence, in order to resolve these conditions, global firms are required to adopt universally accepted signals in order to communicate messages across geographical distances (Glavas and Mathews, 2014).

In international marketing, the effectiveness of communication between firms and customers is one of the most complex and critical tasks due to national culture, language barriers and geographical distance (Cavusgil *et al.*, 2005). These complexities arise from differences in cultural and consumer behavioral aspects of host country market environments (Katsikeas *et al.*, 2019). These disparities cause greater knowledge gaps between buyers and suppliers (Baack and Singh, 2007; Festa *et al.*, 2020). Hence, the use of effective signals can be helpful for international firms in reducing knowledge gaps between the various international stakeholders. Consequently, the use of signaling theory in the field of international marketing could enhance the understanding of communication between the parties (Mandler *et al.*, 2021; Swoboda and Batton, 2020; Swoboda and Hirschmann, 2017).

The key function of signaling theory is to reduce information asymmetry between two parties (Spence, 2002). The concept of signaling was introduced in the field of economics to identify and fill the informational gap between employer and employees. Michael Spence proposed signaling theory in his paper on the market job model (Spence, 1973).With the passage of time, the theory has received attention from both academic scholars and practitioners, due to its useful applications. Furthermore, it has been widely used in various domains; for example, in finance (Steigenberger and Wilhelm, 2018; Zhang and Wiersema, 2009), management (Connelly *et al.*, 2011; Stiglitz, 2002) and marketing (Chu and Chintagunta, 2011; Kirmani and Rao, 2000; Rahman *et al.*, 2018). The theory has continued to deepen our understanding of signals, their origins and use. However, application of the theory remains limited in the field of international marketing (Alon and Elango, 2018).

Signaling theory provides the solution to the problem that arises when two parties possess different levels of information pertaining to any subject matter (Connelly *et al.*, 2011; Stiglitz, 2002). Signaling theory is based on four aspects, such as, signaler, the signal, the receiver and feedback (Bergh *et al.*, 2014). The purpose of signals is to reduce information asymmetry. There are two kinds of information asymmetries: information about quality and information about intent (Alon and Elango, 2018). For instance, firms as (insiders) are aware of the quality of the product they offer to their target audience, but consumers as (outsiders) usually do not have enough information about the quality until after the purchase or consumption. In such situations, firms send different signals almost like a warranty, in order to convey information about the quality of their product, and consumers conceive these signals accordingly (Kirmani and Rao, 2000). Despite carrying these important implications in the field of marketing, the use of signaling theory remains ambiguous in terms of the context of international marketing. First, no theoretical consensus exists regarding the assumptions of signaling theory in international marketing. For example, some researchers study credibility as a signal (Reitsamer and Brunner-Sperdin, 2021; Tajvarpour and Pujari, 2022), while other studies recognize it as an outcome to a signal (Erdem *et al.*, 2004; Wilden *et al.*, 2010). Other variables include studying reputation as a signal (Swoboda and Batton, 2020) and in some cases it is studied as an outcome of another signal (Dang *et al.*, 2020). This creates confusion and ambiguity in the literature. Hence, it is important to clarify which signals are used by international firms. Second, the majority of the research published in this area assumes that signaling theory is applicable in the international marketing context, because

geographical distance creates asymmetry of information (Jean *et al.*, 2021). This argument has provided a limited view to our understanding regarding why signals are important to study in the context of international marketing. In addition to geographical distance, other factors that are important to apply in signaling theory could be the changing nature of environmental factors, ongoing global crises, ethnocentrism, country of origin, psychic distance and liabilities of foreignness, consumer global mindsets and global perceptions. There is no clarity on what new signals are emerging as a consequence of the ongoing changing global environment. Third, in order to address the above-mentioned issues, we provide a systematic review of the existing literature, and propose a framework along with future research directions for international marketing scholars to further pursue signaling theory within this context.

To fill this void, we conducted a systematic review of 57 studies representing the use of signaling theory in field of international marketing. The purpose of this review is to highlight the importance of signaling theory in international marketing and to identify the major gaps in our understanding. The present study develops a comprehensive framework to explain how firms generate signals to reduce asymmetric information in an international context. Our study provides the first comprehensive review of signaling theory within the field of international marketing. The study uncovers general findings and proposes specific signals within the macro, meso, and micro contexts, along with future directions. Our systematic review reveals that while signals are considered a way to reduce asymmetric information, it is challenging for firms to create impactful signals. Signals incur costs for international firms and subsequently strengthen the bonds and relationships with various stakeholders. However, firms can manage to design cost-effective signals. Signals also play a key role in how international organizations build trust, perceptions of quality, credibility, and reputation among global consumers. Moreover, by reviewing the literature, we establish that signaling theory remains silent on the emerging topics of international marketing: for example, distrust across global consumers, international pricing strategies, ethnocentrism/country of origin, international marketing mix (sales promotion, public relations, and interactive marketing), digital marketing, and global branding. Hence, we encourage scholars to use our framework to further study unexplored themes, signals, and to extend and refine signaling theory. Future studies could also investigate how firms generate signals to influence/change the perceptions of their existing products/services.

This paper is organized in the following manner. The second section presents a literature review on the use of theory in the field of international marketing. The third section discusses the methodology used, outlining journal selection criteria and the main steps adopted in the examination of the content of the articles. The fourth section explains the analysis of the selected articles, which are grouped around various themes extracted from the content analysis and further discuss emerging topics. The final section describes the limitations of the study and provides concluding remarks.

With this initiative, we intend to provide a clear direction for future research in this area. The review contributes to the literature in two ways. Firstly, this systematic review synthesizes the findings of research work carried out between the years 2000–2022 in selected quality international marketing journals. Secondly, the review highlights important and relevant research gaps to provide a pathway for future research with the objective of fostering the advancement of signaling theory within the field of international marketing.

Signaling theory in international marketing

Signaling theory helps in understanding asymmetric information between buyers and sellers (Spence, 2002). The theory is grounded in the field of economics. It demonstrates how both

parties engage around the issues of information asymmetry. Through their marketing campaigns, firms send signals to consumers in the form of unobservable information. Consumers interpret and incorporate signals into their decision making (Kirmani and Rao, 2000). As markets become more competitive, information search about credibility, quality and reputation of products and services becomes costly for consumers and other stakeholders. In order to reduce ambiguity and the cost of information, search firms deliberately design signals to reduce information asymmetry. The need to reduce risk, uncertainty, and ambiguity due to crisis, geographical distance, Internet or competition becomes imperative. Global companies may implement marketing campaigns to reduce noise, conflict and dissonance between their products/services and consumers. Consumers associate higher costs of marketing campaigns with firms' capabilities and qualities. From an organizational perspective, the status of the signaler is attributed in most cases to the managers who communicate and send out the various messages (signals) related to the different business activities carried out by their firm: and the status of the receiver is attributed to those who receive messages (signals) such as customers, vendors, or shareholders (Connelly *et al.*, 2011). Signals sent out by firms can be related to various activities; for example, any information related to development or the innovation of a new product, the resignation of any important company employee, or perhaps information about recruitment at a key position (Bergh *et al.*, 2010). Hence, signals can be false or true, strong or weak, and intentional or un-intentional (Alon and Elango, 2018).

Furthermore, signals contain both negative and positive messages, but this perception largely depends on the receivers' response to signals (Wang *et al.*, 2004). Signals play a major role in resolving the gap between the information consumers have and the information they wish to attain (Bergh *et al.*, 2014). However, it is important that signals are accurately interpreted, and this has a major impact on consumers' decision-making processes (Wang *et al.*, 2004). Moreover, signal observability, which can be explained as how much the signal is noticeable by outsiders, also impacts the decisions taken or actions carried out by receivers (Connelly *et al.*, 2011). Another issue is that some signals are easy to understand and interpret for the consumer, whilst some are relatively complex in nature and this creates difficulty in interpretation (Spry *et al.*, 2011).

It has been established by signaling theory that signals are a source to transfer information between parties in any business exchange, and more importantly, for the nullification of asymmetry of information occurring due to insufficiency of information or perhaps just the presence of flawed information (Spence, 1973). This theory has served as a good resource in marketing research in studying the responses of different stakeholders to the information sent to them by firms (Spry *et al.*, 2011; Wang *et al.*, 2004).Therefore, signaling theory has been found to be critical in explaining some behaviors; for instance, in situations when different information is available to two different actors, be these organizations or individuals. Consequently, one actor (sender) needs to decide on the best way of communicating (signaling) the information to another actor(receiver), who then must decide the best way of interpreting those signals. In summary, it has been established that signaling theory has great importance in the marketing literature, including its influence on branding, advertising, retailing, international marketing and strategic marketing. In the recent past, signaling theory has gained attention among international marketing academicians and practitioners (Rahman *et al.*, 2018; Sharma *et al.*, 2016; Tofighi and Bodur, 2015). The next section discusses the use of signaling in the context of international marketing.

The availability and advancement of cross border connectivity globally has unlocked many gateways and platforms for international business activities. Such a surge in international business activities has highlighted the importance of research and practice in international marketing. All international marketing activities are carried out to deal with

internal and external factors pertaining to foreign markets, including decisions related to managing marketing mix components of the organization in line with business objectives (Cavusgil and Zou, 1994). As suggested by Connelly *et al.* (2011), information asymmetry itself is subject to the influence of different environments. The theoretical borrowing of signaling theory in international marketing literature has been most broadly applied from the general marketing and management fields. As suggested by Kharouf *et al.* (2020, p. 2141) "the foundations of the theory have a strong relevance to marketing communications with customers". Researchers apply signaling theory to a variety of international marketing concepts such as brand globalness (Safeer *et al.*, 2022; Özsomer and Altaras, 2008), corporate reputation as signal to MNC (Swoboda and Hirschmann, 2017), global brand credibility (Erdem *et al.*, 2004), e-platform as a signal to export sales performance (Jean *et al.*, 2021), symbolic and substantive environmental actions as signal to global firm reputation (Truong *et al.*, 2021), traditional quality signals (endorsements, human capital, preparedness), less costly signal (psychological capital) affect the likelihood of success crowdfunding campaigns as spatial distance increases over the Internet, another study suggests the role of eWOM in cross culture setting as a signal to product quality, existence and popularity among the US and Japanese consumers (Lin and Kalwani, 2018). These signals bridge the information gaps about brands, products and services for customers across markets in order to reduce risk and uncertainty. Research on signaling in international marketing is growing: our literature analysis is based on 57 studies selected from academic journals representing international marketing themes. Please see Table 1 which presents the definition of signaling theory in the marketing context.

Authors	Definitions
Bloom and Reve (1990)	"We are viewing a signal as a marketer-controlled, easy-to-acquire informational cue, extrinsic to the product itself, which consumers use to form inferences about the quality or value of that product (p.59)"
Ruekert and Rao (1994)	"Signaling theory is based on the idea that both the consumers and sellers dealing in a consumer market may not possess same level or same type of information. Such that, the producer possess information related to inherent quality of product or service but consumer has no awareness about it (p.88)."

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Table 1. Definitions of signaling theory in marketing context

Methodology

Despite growing interest in applying signaling theory in the field of international marketing, little attempt has been made to provide a comprehensive systematic review of existing studies. The aim of this study is to review extant literature by synthesizing the findings of prior studies that make a theoretical contribution to signaling theory in international marketing. We use a systematic review process (Tranfield *et al.*, 2003), which is a rigorous method in the field of international marketing (Paul and Dhiman, 2021; Ipek, 2020).This process undertakes an extensive search of research paper databases and implements certain selection and exclusion procedures to obtain an element of preciseness. Hence, we followed the following procedure suggested by Tranfield *et al.* (2003): identification of research/theory, selection of studies, study quality assessment, data extraction and monitoring progress, data synthesis and reporting. Furthermore, our systematic review protocol is in line with studies in the field of international business (see Hao *et al.*, 2021; Paul and Dhiman, 2021). Keyword counting was utilized to synthesize the findings and a narrative approach was adopted to investigate this research domain.

Data collection

The data collection process of conducting this review was conducted in three different phases developed to ensure the review of quality of work carried out on this theory:

(1) Selection of journals

(2) Short listing of journals

(3) Selection of articles

In the first phase, the main motive was to capture the extensive data on signaling theory in the international marketing field with a high-quality standard of work, following widely cited theory-based reviews (Gilal *et al.*, 2019). Following Paul and Criado (2020), this study ensured that journals selected are acknowledged as publishing articles of international standard in terms of theory robustness, academic quality, methodology, appropriateness of data and most importantly, contribution to knowledge. For this purpose, the Australian Business Dean Council (ABDC) Journals Guide Ranking was used for the study (Hao *et al.*, 2021; Christofi *et al.*, 2021). This is a widely accepted list among academic community. To ensure that selected articles are from the marketing field, journals were extracted by using the keywords of market, sales, retail, consumer, service, advertisement, advertising, brand, all four P's (product, price, promotion, placement) and business review. Subsequently, to ensure high quality in the review, only journals which fall in ABDC A*, A (partially adopted by Rammal *et al.*, 2022), and B categories were selected, leading to a total of 109 journals. Based upon the discretion of the researchers' own knowledge about quality marketing work being carried out, an additional three journals (not matched with the keywords) were added to the list, increasing the total count of journals to 112. Then in the second phase, journals were shortlisted by excluding cross-disciplinary journals from, for example, health, hospitality, construction, or law. After the exclusion process, we had 89 journals to be explored for further processing. We matched this list with the Financial Times 50 journal list in the categories of business, marketing, and strategy. We only identified nine journals from the FT50 list; these academic journals were also ranked among the ABDC list.

In the third phase, an article extraction process was initiated. Articles for this research were selected from the period of the last 23 years, 2000–2022. This time span was determined observing that a surge in research work on signaling theory took place after the year 2000 (Connelly *et al.*, 2011). We searched for "signaling theory" in international marketing articles published over 23 years (2000–2022). We selected this period for two main reasons. First, a period of over 23 years is similar to timeframes commonly used in previous reviews of international marketing e.g. Hao *et al.* (2021), as it allows for broad covering of research developments. Second, a comprehensive search of the application of signaling theory in international marketing journals indicates a noticeable increase of the use of signaling theory studies after the year 2000, as demonstrated in Figure 4.

Furthermore, the initial search for articles was performed by using "signaling theory" and "signalling theory" as keywords for searching in the shortlisted journals, and then articles were pulled out on the basis of criteria that the term "signal" is present either in the title of an article or in the abstract (Bocconcelli *et al.*, 2018). Initially, 346 articles were extracted from the selected journal. We then performed content analysis of the full text of all papers to further refine our dataset to ensure that all selected articles are focused on signaling theory and related to the field of international marketing field. As a result of the initial content analysis, some articles were found to be related to self-signaling theory and some other signaling perspectives, but not related to signaling theory as described by Michael Spence in 1973. We identified 63 articles and excluded those which were either not related to signaling theory or were related to any other cross functional area including HRM and management.

Subsequently, 283 articles were extracted that discussed signaling theory in the field of marketing.

In order to set apart research papers based on international marketing, international marketing journals were initially pulled out by using "international" as a keyword which pulled out nine journals from the selected list of 89 marketing journals. Through this process, 29 articles were found. This list was further reviewed, and 4 articles were excluded that were not based in the international marketing context and the remaining 40 articles were selected for analysis. Similarly, the rest of the journals were also inspected to find relevant articles by using the criteria that any of the keywords including "international, cross-border, cross-national, nation, multinational, global, foreign" were found either in the title or the abstract of the article, adding 13 more articles to the dataset. Articles were also extracted from the FT50 journal list. Cross-discipline journals that published articles on signaling theory and international marketing are *Journal of Business Ethics* and *Journal of Business Venturing* (these added a further four articles). Finally, a list of 57 articles was obtained (please see Table 2) for further analysis.

The period of 2012–2022 shows a significant surge in research publications on this topic, and the yearly publication number is high in the recent years of 2021 and 2022. Furthermore, from Figure 5 it can be observed that studies are distributed among A*, A and B category journals as per the ABDC criteria. It can be seen that Ten A* category journals have 17 publications, 15 A ranked journals have 36 publications, and 3 B category journals have 4 publications on this topic.

Analysis of articles

Main methodologies used in the literature: Our analysis indicates that most of the research papers carried out on signaling theory in the field of international marketing (87.7%) are quantitative in nature (50 studies). Only 5.2% (3 studies) of papers are qualitative, and 5.26% (3 studies) articles used mixed methods, while only one review paper was discovered during this process (please see Table 3 for research methods used in the previous research). This indicates a real dearth of papers in the qualitative and mixed methods streams.

Statistical methods used: The most frequently used analysis technique (24.1%) is Structural equation modeling among studies on signaling theory. The second most used technique is the regression, while the third most frequently used technique is the ANOVA. Please see Table 4 to know previously used data analysis techniques.

Sampling method and sampling size: It is not only the quality of measures that impact the precision of the result of any research: the process of participant selection also plays a crucial

Rank	Journal title	Articles count	ABDC/FT50 rank	Percentage of total (%)
1	*Journal of Business Research*	6	A	10.5
2	*International Journal of Advertising*	5	A*	8.7
3	*Journal of International Business Studies*	4	A*/FT50	7.0
4	*International Journal of Retail and Distribution Management*	4	A	7.0
5	*International Marketing Review*	4	A	7.0
6	*Journal of International Marketing*	4	A	7.0
7	*European Journal of Marketing*	3	A*	5.2
8	*Journal of Business Ethics*	3	A/FT50	5.2
7–28	*Others*	24	–	–
	Total	*57*		*100%*

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Table 2. Top 8 journals published on signaling theory in the field of international marketing during the period of 2000–2022

in achieving accuracy in the findings. The correct selection of a sampling method is among the most crucial aspects of research design (Sarstedt *et al.*, 2018). Most of the articles in our analysis (40%) are based on convenience sampling (please see Table 5 for sampling techniques). Implementing the convenience sampling method in research papers raises serious questions about the generalizability of the findings (Sarstedt *et al.*, 2018). Furthermore, most research is conducted using quite small sample sizes. 32% of the articles (shown in Table 6) used a sample size of less than 250, and 28.5% of the studies used sample sizes above 1,000 participants.

Countries studies: Figure 1 shows that there is a major deficit of research in emerging and developing countries in comparison to developed countries. However, an increase has been observed in the number of research papers incorporating emerging and developing countries (See Figure 2 for research trends in emerging and developing counties).

Table 3. Methodologies used in the selected articles

Methodology	No. of articles	Percentage of total (%)
Quantitative	50	87.7
Qualitative	3	5.26
Review paper	1	1.75
Mixed-method (qualitative and quantitative)	3	5.26
Total	*57*	*100*

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Table 4. Data analysis techniques used in the selected articles

S. No.	Data analysis technique	No. of time data analysis technique appeared	%
1	Structural equation modeling	15	24.1
3	Regression	10	16.1
4	ANOVA	8	12.9
5	MANOVA	4	6.4
7	Interviews	3	4.8
8	*t* – test	2	3.2
9	Multivariate analysis	2	3.2
10	Fuzzy set analysis	1	1.6
11	Linear regression	1	1.6
12	Principle component analysis	1	1.6
13	Logit regression	1	1.6
14	Simulated maximum likelihood	1	1.6
15	Probit analysis	1	1.6
16	Hierarchical linear modeling	1	1.6
17	Thematic Analysis	1	1.6
18	Generalized least squares (GLS) estimation	1	1.6
19	Logistic regression	1	1.6
20	Coefficient based modeling	1	1.6
22	Parametric survival analysis Durbin-Wu-Hausman test	1	1.6
23	Random forest test	1	1.6
24	Multilevel mixed-effects log-log model	1	1.6
25	*F* test	1	1.6
26	Conjoint analysis	1	1.6
27	Multinomial logistic regression	1	1.6
28	ANCOVA	1	1.6
29	*Total*	*62*	*100%*

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Sampling method	No. of articles	Percentage of total (%)
Convenience sampling	22	40
Purposive sampling	8	14.5
Random sampling	11	20
Quota sample	4	7.27
Systematic sampling	1	1.81
Cluster sampling	2	3.63
Coarsened exact matching (CEM)	1	1.81
Simple random sampling	3	5.45
Probability sampling	1	1.81
Non-probability sampling	1	1.81
Convenience and snowballing Sampling	1	1.81
	*55***	*100*

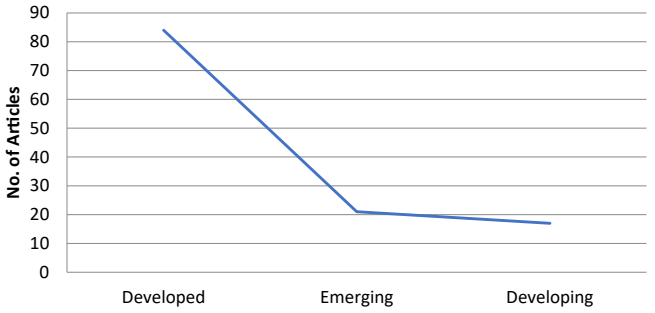
Note(s): 1 – review article is not counted in Table 5
1 (a study that does not mention the sampling method is not counted in Table 5)
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Table 5.
Sampling methods used in the selected articles

Sample size	No. of articles	Percentage of total (%)
Less than 250 Sample Size	18	32.1
250–500	12	21.4
500–750	10	17.8
750–1,000	0	0
Above 1,000	16	28.5
Total	*56**	*100.00*

Note(s): *1 review article is not counted in Table 6
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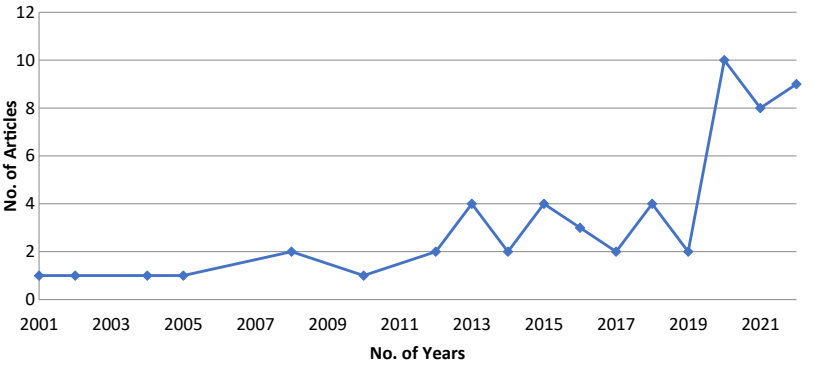
Table 6.
Sample sizes of the selected articles



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Figure 1.
Number of times country classification has appeared in studies (developed, emerging and developing economies)

Most of these papers have incorporated USA based data (21 studies), followed by China (11 articles). Researchers are yet to equally incorporate dataset from emerging and developing economies. Only 17.21% of papers have analyzed data collected from emerging economies, and 13.93% of articles have explored developing economies (please see Table 7 for the distribution of articles based on economic structures). Figure 3 represents the distribution of signaling studies across countries.



Source(s): Created by the authors

Figure 2.
Research trends in emerging and developing countries

S. No.	Origin of articles	No. of time articles mention countries	Percentage of total (%)
1	Developed	84	68.85
2	Emerging	21	17.21
3	Developing	17	13.93
	Total	*122*	*100.00*

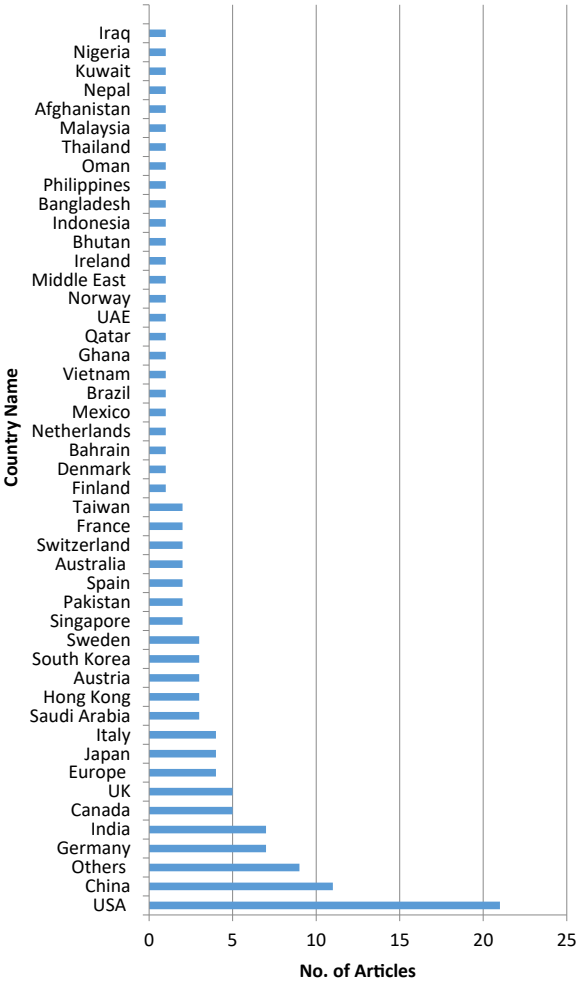
Note(s): Some articles are counted twice or more based on covering variety of economies such as developed, emerging and developing economies
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Table 7.
No. of time articles represent the distribution of studies between developed, emerging and developing economies

Journals: The top 10 journals which published articles on signaling theory in the field of marketing can be seen in Table 2. Journals are ranked according to the number of publications. *Journal of Business Research* led the table with six publications on the subject, holding 10.5% of the total number of publications on signaling theory within the international marketing field. However, the *International Journal of Advertising* led the table with five publications. The *Journal of International Business Studies* (FT50), *International Journal of Retail and Distribution Management, International Marketing Review, and Journal of International Marketing,* also made a noticeable contribution, with four publications for each journal. The *European Journal of Marketing* and *Journal of Business Ethics* also stood out with three publications (5.2%) for each outlet. Most of the top 10 journals publishing research on the topic of this study are ABDC A* or A ranked with two journals also representing FT50 (please see Table 8 for journal list). Research being published by high-ranked journals signifies the importance of this theory in the international marketing field. A review of previous studies on signaling theory is presented in Table 9 (it provides information on four aspects of signaling theory such as signaler, the signal, receiver and the outcome/feedback). Figure 4 represents year wise article published and Figure 5 highlights frequency of research published on signaling theory in the field of international marketing.

Different themes of literature

We have established important research themes on the use of signaling theory (please see Table 10) in the literature on international marketing (2000–2022). The research themes are based on the frequency of keyword counts. Keywords are used to infer the underlying themes



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Figure 3.
Distribution of signaling studies across countries

of an article (Hao *et al.*, 2021) and within each of these themes; the review briefs the key research focus of the selected papers.

Global Brand Management and Signaling Theory: International branding within the context of signaling theory is one of the most researched themes. This theme aims to answer questions regarding which signals play a vital role in solving difficulties of will asymmetric information between the firm and consumer (Özsomer and Altaras, 2008). Global branding signals are powerful drivers of consumer responses, perceptions, and market-based outcomes (Talay *et al.*, 2015). Recently, there has been a growing interest in studies related to perceived brand globalness and perceived brand localness (Safeer *et al.*, 2022; Mandler *et al.*, 2021), place branding credibility (Reitsamer and Brunner-Sperdin, 2021), global brand heritage (Spielmann *et al.*, 2022) and medical infrastructure destination infrastructure as a signal to consumer-based brand equity (Guha Roy *et al.*, 2022). Within the signaling theory literature,

Journal title	Number of articles	References	Percentage of total (%)
Journal of Business Research	6	Moorthy and Hawkins (2005), Sharma *et al.* (2016), Spielmann *et al.* (2022), Christen *et al.* (2022), Popli *et al.* (2021), Lamotte *et al.* (2021)	10.5
International Journal of Advertising	5	Colliander *et al.* (2015), Grow *et al.* (2012), Hsu *et al.* (2002), Zhang and Choi (2018), Schaefer *et al.* (2019)	8.7
Journal of International Business Studies	4	Reuer and Ragozzino (2014), Gregorič *et al.* (2020), Mandler *et al.* (2021), Jean *et al.* (2021)	7.0
International Journal of Retail and Distribution Management	4	Tofighi and Bodur (2015), Tsang and Finnegan (2013), Alon and Elango (2018), Dang *et al.* (2020)	7.0
International Marketing Review	4	Magnusson *et al.* (2015), Livanis *et al.* (2016), Swoboda and Hirschmann (2017), Swoboda and Batton (2020)	7.0
Journal of International Marketing	4	Özsomer and Altaras (2008), Talay *et al.* (2015), Lin and Kalwani (2018), Heinberg *et al.* (2021)	7.0
Journal of Business Ethics	3	Su *et al.* (2016), Thomassen *et al.* (2020), Zhang *et al.* (2022)	5.2
European Journal of Marketing	3	Tan *et al.* (2001), Sinha *et al.* (2019), Kharouf *et al.* (2020)	5.2
International Journal of Consumer Studies	2	Zabkar and Hosta (2013), Moussa and Touzani (2008)	3.5
International Journal of Research in Marketing	2	Eckert *et al.* (2012), Pracejus *et al.* (2013)	3.5
Industrial Marketing Management	2	Rahman *et al.* (2018), Truong *et al.* (2021)	3.5
International Journal of Emerging Markets	2	Guha Roy *et al.* (2022), Wei *et al.* (2022)	3.5
Journal of Marketing Management	1	Wilden *et al.* (2010)	1.7
Journal of Marketing Research	1	Erdem *et al.* (2004)	1.7
Journal of the Academy of Marketing Science	1	Akdeniz and Talay (2013)	1.7
Journal of Service Research	1	Meyer *et al.* (2014)	1.7
Journal of Product Innovation Management	1	Hu *et al.* (2017)	1.7
Qualitative Market Research: An International Journal	1	Hinson *et al.* (2020)	1.7
Journal of Product and Brand Management	1	Oh *et al.* (2020)	1.7
Marketing Intelligence and Planning	1	Jebarajakirthy *et al.* (2020)	1.7
Journal of Islamic Marketing	1	Buallay *et al.* (2020)	1.7
Journal of Brand Management	1	Reitsamer and Brunner-Sperdin (2021)	1.7
Psychology and Marketing	1	Rauschendorfer *et al.* (2022)	1.7
Journal of Retailing and Consumer Service	1	Shao *et al.* (2021)	1.7
Asia Pacific Journal of Marketing and Logistics	1	Safeer *et al.* (2022)	1.7

Table 8.
Journal list

(*continued*)

Journal title	Number of articles	References	Percentage of total (%)
Journal of Interactive Marketing	1	Lambillotte *et al.* (2022)	1.7
Decision Support Systems	1	Tajvarpour and Pujari (2022)	1.7
Journal of Business Venturing	1	Renko *et al.* (2022)	1.7
Total	*57*	–	*100*

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Table 8.

the early conceptualization of global brand management was based on studying consumers' important choices in the context of attitude, risk, quality, and price in store-brand and national brand credibility (Erdem *et al.*, 2004) across different countries.

An early study by Wilden *et al.* (2010) captured employee branding through a qualitative methodology and suggests that credibility and consistency of the potential employers signal stronger branding. Higher brand equity helps to reduce information asymmetry regarding consumers' previously formed preferences. Higher brand-equity-associated brand utility leads to higher choice consistency, which can drive increases in market share (Eckert *et al.*, 2012). Sharma *et al.* (2016) further added to the international market performance (i.e. market share) of global brands and found that within competitive categories, R&D expenditure and brand equity can be used to signal the appropriate level of product innovation.

Global branding studies further distinguish the performance of local versus global brands in international markets. For example, Talay *et al.* (2015) studied the position of the brand architecture of 165 automotive brands in 18 countries. The study concluded that in the context of international market performance, brands with broader geographic scope tend to be more successful than their non-global counterparts. However, such approaches provide a limited understanding of what companies can do to reduce the information asymmetry of global brands among various stakeholders. Rahman *et al.* (2018) operationalize brand value as the financial value of the brand, hence furthering our understanding of how signaling theory contributes to global brand management by exploring the concept of brand management efficiency. The study presents a process by which firms convey information about brands to different stakeholders. It concludes that brand equity through efficiency is viewed as a positive signal, driving up the market value of the firm.

On one hand, Sharma *et al.* (2016) highlight the importance of R&D expenditure and global brand equity to enhance market-based performance. On the other hand, Rahman *et al.* (2018) argue that MNCs should minimize these inputs along with CRM and focus on brand management efficiency to enhance firm value. Studies on global brand (football club) equity have also been extended to developing economies such as African countries. A study conducted by Hinson *et al.* (2020) suggests that brand quality influences global attitudes towards the likelihood of global brand purchase. The findings also highlight that football brand equity is determined by the level of brand awareness, loyalty, and perceived quality. Africa as proved to be an important market for global brands and hence requires unique marketing strategies to improve the perceived quality of global products and services. Oh *et al.* (2020) helped move the field forward by exploring different branding-related signals such as brand credibility, brand liability, decision heuristic, and anticipated satisfaction. Their conceptualization of global branding within signaling theory suggests that consumers walk through a process of selecting a global brand that leads to purchase intention. During the process, successful global brands induce signals such as credibility and liability.

Table 9.
A review of studies on signaling theory from 2000 to 2022

	Authors	Signaler – receiver	Signal – outcome	Methodology	Country context	Results/findings
1	Wilden *et al.* (2010)	Employers – Job seekers	Branding – Credibility	Qualitative	Australia, Germany, India, Canada, and Singapore	Results suggest that job seekers evaluate attractiveness of employers based on previous direct work experiences with the employer or in the sector. Clarity, credibility, and consistency of the potential employers' signals stronger branding
2	Erdem *et al.* (2004)	Firm – Consumer	Brand Credibility – Credibility	Quantitative	US, UK and Spain	Consumer learning and perceived risk (and associated brand equity), as well as consumer attitude toward risk, quality, and price, play an important role in consumers' store-brand and national brand choices. They also contribute to the differences in relative success of store brands across the countries studied
3	Özsomer and Altaras (2008)	Firm – Consumers	Brand Globalness – Brand Credibility	Review Paper	N/A	The findings demonstrate that if a brand is viewed as globally available; consumers may perceive the brand as signaling more credibility than local brands. The paper presents 13 propositions
4	Moorthy and Hawkins (2005)	Firm – Consumer	Advertising spending – Quality	Quantitative	Non-Italian-speaking Canadian in Italy	Results show limited support to advertisement spending signal but substantial support for ad repetition influencing perceived quality
5	Zabkar and Hosta (2013)	Consumer – Consumer	Environmentally conscious consumer behavior (willingness and behavior) – Personality traits (kindness and intelligence)	Quantitative	Central European country	"Prosocial status" perceptions increase the positive association between "willingness" and "behaviour" and could be incorporated into green products and advertising to signal personality traits like kindness and intelligence
6	Moussa and Touzani (2008)	Firm – Customer	Credibility of quality labels – Quality	Quantitative	France	Quality labels help in generating signals that reduce problems that arise under asymmetric information
7	Sharma *et al.* (2016)	Firm – Customer	Brand Equity and R&D Expenditure – Product Innovation	Quantitative	Italian households (MNC brands)	Findings reveal that brand equity and R&D expenditure can be used to signal the appropriate level of product innovation

(*continued*)

Table 9.

	Authors	Signaler – receiver	Signal – outcome	Methodology	Country context	Results/findings
8	Akdeniz and Talay (2013)	Studios – movie goers	Sequel, Production Budget, Star power, and Critics' reviews. – label Quality/Likeability	Quantitative	Other (27 countries data)	The impact of star power on box office performance is amplified in high uncertainty avoidance and indulgent cultures, while it is attenuated in high power distance cultures. The study highlights a positive relationship between sequels and performance in individualist cultures. Movies with high production budgets perform better in culturally open countries
9	Tan *et al.* (2001)	Firm – Consumer	Warranty and warrantors – Quality	Quantitative	Bi- National Alliance (Hybrid products) USA, Japan and China	The findings suggest that warranty and warrantor reputations can be used as signals of product quality
10	Colliander *et al.* (2015)	Firm – Consumer	Dialogue on twitter – Customer Service	Quantitative	Sweden	Dialogue on twitter enhanced brand attitudes and purchase intentions, one-way communication did not. Additionally, increased in perceived expense and perceived caring signaled by using dialogue
11	Reuer and Ragozzino (2014)	Newly public firms – Firm	Affiliations with prominent financial intermediaries – Feasibility for international alliance	Quantitative	USA	Affiliations with prominent venture capitalists and investment banks indeed results in an increase in new ventures' cross-border alliance activity
12	Grow *et al.* (2012)	Employer – Women Staff	No. of Female staff – Female staff creativity and motivation	Qualitative	USA and Spain	The qualitative findings reveal that gender-bound cultural environment of advertising creative departments adversely affects the creative process and impact women's upward mobility. The study contribute to signaling theory by suggesting three qualitative themes; (1) gender and the creative process; (2) gender and project assignment; and (3) factors related to leaving advertising creative departments

(*continued*)

Table 9.

	Authors	Signaler – receiver	Signal – outcome	Methodology	Country context	Results/findings
13	Talay *et al.* (2015)	Firm – Consumer	Position in GBA(Global Brand Architect) – Quality	Quantitative	Others (165 automotive brands from 18 countries operating in 65 different countries)	Global brands perform better in the international marketplaces than their non-global counterparts
14	Meyer *et al.* (2014)	Firm – Consumer	Service Guarantee – Quality	Quantitative	U.S, Germany and other international markets	The effect (success) of the signal provided by the service guarantee on market value depends on the design of the service guarantee. Market value of a service guarantee depends on its scope and the process required to invoke the guarantee
15	Eckert *et al.* (2012)	Firm – Consumer	Brand Equity – Quality	Quantitative	Australian brands in foreign markets	Higher brand-equity associated brand utility reduces the need for consumers to review previously formed preferences. Furthermore it leads to higher choice consistency, which can drive increases in market share
16	Hu *et al.* (2017)	Firm – Firm	*Internal signals:* Historical signals: prior project suspensions and failures; past performance; technology quality, scientific signal, market signal, locational signal; *External signals:* Alliance and partner: exploration, moderate- and large-scale exploitation alliance, potential milestone, partner reputation, partner failures – Abnormal returns of alliance announcement	Quantitative	US and Europe	Prior new product development project suspensions have a stronger value creation effect. The study further contributes to signaling theory by suggesting that Signaling environment: exploration and moderate- and large- scale exploitation has moderating effects at various stages of new product development

(*continued*)

Table 9.

	Authors	Signaler – receiver	Signal – outcome	Methodology	Country context	Results/findings
17	Hsu *et al.* (2002)	Firm – Consumer	Advertising – Quality	Quantitative	USA	Advertising is costly, and may even be wasteful. Yet advertising is helpful for consumers to differentiate high-quality from low-quality manufacturers, thus avoiding regret from purchasing low-quality products. Consumers view advertising as firm's way to convey confidence in its product
18	Magnusson *et al.* (2015)	Firm – Consumer	CSR activities and COO (country image and global identity) – Brand attitude and purchase intention	Quantitative	USA, Canada, Mexico, China, Germany, Brazil, Italy and Vietnam	The study is consistent with extant country of origin research; a positive CSR signal has much more favorable influence for a brand from a favorable country image. Conversely, a negative CSR signal is has much more negative influence for a brand from an unfavorable country
19	Pracejus *et al.* (2013)	Firm – consumer	White(blank) space in Ads – Quality	Quantitative	North American, Hong Kong and India	White space is different from other ways of advertising, and it holds different meanings across different cultures. Internationally consumers infer quality from the economic signals of burning money
20	Lin and Kalwani (2018)	Consumer – Consumer	eWOM in cross culture setting – Product quality, existence and popularity	Quantitative	US and Japan	The results suggest cross-national differences in both the occurrence of eWOM (eWOM signaling) and the relationship between eWOM and relative product sales (eWOM screening). National difference between USA and Japan change over time: however, some remain stable, some disappear, and others emerge
21	Tofighi and Bodur (2015)	Firm – Consumer	Social responsibility initiatives – Consumer evaluation of high and low tier private label brands	Quantitative	Canadian Consumers	Consumers prefer social responsibility initiatives when communicated through top-tier private label brands rather than low-tier private label brands The study findings are more consistent with resource synergy perspective rather than costly signaling explanation. Firm's socially responsible initiatives have asymmetric effects for different tiers of retailer's private label brands

(*continued*)

Table 9.

	Authors	Signaler – receiver	Signal – outcome	Methodology	Country context	Results/findings
22	Livanis *et al.* (2016)	Supplier – Buyer	COO – Credibility	Quantitative	Saudi Arabia	The study shows that buyers from developing economy prefer suppliers from developed rather than culturally distant developing economies as stronger institutions in developed nations increase the credibility of firms those that share common cultural variables such as religion. Additionally, they are indifferent between suppliers located in a developed and in a culturally similar developing economy, even when the cost of obtaining the service is the same in both economies
23	Rahman *et al.* (2018)	Firm – Customer	Brand Management Efficiency – Firm Value	Quantitative	USA	The findings demonstrate that USA based firms with a higher level of brand management efficiency have a higher firm value
24	Swoboda and Hirschmann (2017)	Firm (MNC) – consumer	Corporate Reputation as signal across cultures – Quality	Quantitative	German MNC in 37 countries	The extent to which CR signals translate into consumer behavioral intentions towards an MNC is affected by national cultural differences, specifically, power distance, uncertainty avoidance, individualism, and masculinity. Not all dimensions affect CR and its effects
25	Tsang and Finnegan (2013)	Franchisor – Franchisees	Pricing policies – Value Financial Disclosures – Credibility	Quantitative	USA	Lower initial investment reduces the average time to attract the first franchisee. However, the time gets delayed as the requirements for net worth rise. Resource rich industries attract franchisors to expand and manage their own outlets

(*continued*)

Table 9.

	Authors	Signaler – receiver	Signal – outcome	Methodology	Country context	Results/findings
26	H. Zhang and Choi (2018)	Firm – Consumer	NPP (New product preannouncement) – Quality	Quantitative	China	The study finds effects of NPP message clarity on eWOM interacting with brand characteristics. It further concludes that consumers are more likely to disseminate eWOM when NPPs have high rather than low clarity. The findings demonstrate that brand familiarity moderates the effects of NPP message clarity. Additionally, it shows that brand preference moderates the effects
27	Alon and Elango (2018)	Franchisor – Franchisees	Franchising speed: years-to-franchising, franchising internationalization, international franchise association membership, earnings disclosure, and top management commitment – Feasibility	Quantitative	USA	Findings indicate that time to franchise, international operations, franchise association affiliation, disclosure and extent of top management commitment are factors positively related to the likelihood of a franchisor being publicly listed
28	Sinha *et al.* (2019)	Not a deliberate signal – Consumer	Success in Home Country – Quality	Quantitative	Others (Six international markets)	The results suggest that consumers in countries with low power distance, short-term orientation and high indulgence, tend to purchase from auxiliary channels and are more likely to be influenced by the box office performance of movies. Also, cultural distance between the home and host nations significantly decreases the cross-national success-breeds-success effect
29	Gregorič *et al.* (2020)	Firm – Foreign Licensors	Diaspora Ownership – Trustworthiness	Quantitative	India	The results suggest that Indian diaspora ownership act as signal for international technology based licensing. Domestic sub national environment influences efficacy of diaspora ownership (as signal) in markets where Indian firms operate

(*continued*)

Table 9.

	Authors	Signaler – receiver	Signal – outcome	Methodology	Country context	Results/findings
30	Mandler *et al.* (2021)	Firm – Consumer	Perceived brand globalness (PBG) and brand localness (PBL) – Brand Credibility	Quantitative	Germany and South Korea	The findings suggest that in the highly globalized countries like Germany, PBG induces weaker signals of brand credibility than PBL, whereas, in the case of less globalized markets such as South Korea, both PBG and PBL are considered equally important. Furthermore, a category's social signaling value surges the overall effectiveness of brand globalness in the form of signal of brand credibility only in the highly globalized market as opposed to less globalized one. Also, brand globalness improves brand credibility only in those categories of products with high social signaling value
31	Swoboda and Batton (2020)	Firm – Consumer	Corporate Reputation – Quality	Quantitative	German MNC data of 44 countries	The study affirms that CR dimensions act as signals. These signals provide various information cues regarding different dimensions of an MNC's CR. Also, CR dimensions influence different consumers' attitude and behaviors. Subsequently, CR dimensions put significant and positive effects on consumer loyalty
32	Dang *et al.* (2020)	Online Retailer – Consumer	CSR policies – Reliability and reputation	Quantitative	China (target population of this study was consumers usingJingdong.com)	Brand identification positively mediates the relationship between online retailers' CSR and consumer purchase intentions, whereas, WOM also demonstrate a mediating role on the relationship between online retailers' CSR, consumers' intention to purchase and brand identification

(*continued*)

Table 9.

	Authors	Signaler – receiver	Signal – outcome	Methodology	Country context	Results/findings
33	Schaefer *et al.* (2019)	Firm – Employees	CSR Communication – Positive evaluation	Quantitative	Europe	The finding reiterates that online CSR activities have a strong effect on consumer purchase intentions in the absence of consumer involvement and engagement in the online environment. These CSR practice also transmit signals in form of credibility and brand value. Moreover, employees' positive evaluation of organizational CSR activities is based on perceived cause-company-fit. The study also elaborates that perceived cause-company-fit is considered more important than CSR Communication
34	Hinson *et al.* (2020)	Firm – Consumer	COO – Brand Quality	Qualitative	Ghanaian fans of four English Premier League teams	The findings suggest that brands with more positive consumer associations and loyalty are strongly in brand identity-based attachment. The study further highlights that effective marketing communication leads to brand awareness. Lastly, COO of brands transmits cues of brand quality
35	Oh *et al.* (2020)	Hotels– Consumer	Brand signals: brand credibility, brand liability, decision heuristic and anticipated satisfaction, – Goodness of branded hotel	Qualitative and Quantitative	Southeast USA and South Korea international Consumers	By drawing from signaling theory, the study proposes a model to explain the process of selecting a global brand in the hotel industry. Selected hotel brand then induces brand signals like credibility and liability and subsequently, leads to purchase intentions
36	Jebarajakirthy *et al.* (2020)	Fashion Luxury Retailers – Consumer	Corporate image and showrooms – Reduce customers' reluctance and uncertainties	Quantitative	India Consumers (Western Luxury stores selected from the list namely "Glitter and glamor shining brightly")	The study summarized that showrooms and strong corporate image are important measure to shape customers' purchase intention form online store of luxury retailer in the fashion industry irrespective of adding the number of stores. However, building corporate image is more valuable to strong corporate-image retailers while showrooms play a critical role towards weak corporate-image retailers

(*continued*)

Table 9.

	Authors	Signaler – receiver	Signal – outcome	Methodology	Country context	Results/findings
37	Buallay *et al.* (2020)	Bank – Investors and Shareholders	Integrated Reporting of Islamic banks – Operational, financial and market performances	Quantitative	Bahrain, Qatar, Kuwait, Oman, Saudi, UAE	The findings indicate that Integrated Reporting shows positive influence on market performance in conventional banking system, while negative influence on financial and operational performance. However, in the case of Islamic banking, IR produces negative effect on market performance with no significant effect on financial and operational performance of banks
38	Kharouf *et al.* (2020)	Firm – Consumer	Signaling strength (customer gains) – Favorable relationships (trust, satisfaction and willingness to reconcile)	Quantitative	US and UK	Stronger signals are more effective at relationship repair and are especially important following Integrity (vs competence) violations. Signals framed as customer gains (vs firm costs) lead to more favorable relationship outcomes. Finally, brands that are less (vs more) familiar see greater benefits from strong signals
39	Reitsamer and Brunner-Sperdin (2021)	Destination – Consumer	Place brand creditability – Place attachment and customer loyalty	Quantitative	Austria, Germany, UK, Netherlands, Norway, Ireland, Sweden, France, USA, Switzerland and others; the data was collected in Arlberg region in Austria	Credible place brands exert a particularly strong direct effect on consumers' WOM. A positive effect on their intention to return, however, will result only if they feel attached with the place brand beforehand
40	Heinberg *et al.* (2021)	Firm – Stakeholders (Consumer)	CSR and Corporate Transparency – Brand Attachment	Quantitative	China, Japan and USA	Country environments differ in terms of transparency, which is then reflected in different levels of corporate transparency. Different country levels of transparency help explain the discrepancies of CSR effectiveness for increasing brand attachment and building consumer behavior

(*continued*)

Table 9.

	Authors	Signaler – receiver	Signal – outcome	Methodology	Country context	Results/findings
41	Rauschendorfer *et al.* (2022)	Family firm – Consumer	Family nature of the firm vs non-family firm – perception and product related intention	Quantitative	Germany, Austria, and Switzerland	Firm's family nature triggers a strong perception of love being part of the production process of the brand, which leads to a higher willingness to pay
42	Spielmann *et al.* (2022)	Firm (Family Wineries) – Management	Brand heritage identity – Marketing performance	Quantitative	France and Italy	BHI is a signal that helps stakeholders resolve market asymmetries and this signal is bolstered in countries where family is deemed more important. Firm age is an important moderator. The findings demonstrate that in countries where family, as a key social unit, is more important, firms signal competitiveness via BHI, which in turn relates positively to marketing performance
43	Christen *et al.* (2022)	Online platforms (Airbnb, Booking.com) – Small medium sized enterprises	Value-based Signals –pricing across platforms	Quantitative	U.K and Austria	Time-based price discrimination affects the importance of these non-core product signals. As cross-platform efforts increase the complexity of value-based pricing SMEs can successfully predict pricing across platforms
44	Popli *et al.* (2021)	Emerging MNEs – Host nation value chain stakeholders	Corporate governance attributes (Transparency and Trustworthiness) – Degree of internationalization	Quantitative	India	EMNEs improve their governance attributes as they increase their degree of internationalization. Also, prior relational embeddedness of EMNEs weakens this baseline relationship; however, for a service sector EMNE, this relationship is strengthened
45	Lamotte *et al.* (2021)	MNE acquirers – Managers of acquire firms	Reputation – Cross border acquisition	Quantitative	Europe and USA	The study confirms the inverted U-shaped relationship between a firm's reputation and the likelihood of undertaking Cross-border acquisitions. We also find that international experiential knowledge moderates the relationship between reputation and the likelihood of additional CBAs

(*continued*)

Table 9.

	Authors	Signaler – receiver	Signal – outcome	Methodology	Country context	Results/findings
46	Shao *et al.* (2021)	E-commerce platforms – Consumers	Return policy leniency – Perceived quality and risk	Quantitative	China (cross border consumers)	In cross-border e-commerce scenario, when the online retailers adopt a lenient return policy, the consumers have higher perceived quality and lower perceived risk, which in turn leads to a higher intention to purchase; When a consumer purchases the product which ships from domestic bonded warehouse or a product without a product traceability code present, the effect of the leniency of return policy on perceived quality and perceived risk is stronger
47	Safeer *et al.* (2022)	Brand – consumer	Perceived brand globalness (PBG), perceived brand localness (PBL) – Brand authenticity	Quantitative	Pakistan and China	The findings revealed that PBL and PBG positively influenced consumers' perceptions of BA, which had a significant impact on consumers' brand attitudes toward both local and global brands in Asian markets. Further, the research identified that BA was an essential mediator from the Asian perspective. The interaction effects of UA and PBL on BA were discovered positively significant in Pakistan, whereas the effects of UA and PBG on BA were found negatively significant in Pakistan and had no effects in China
48	Jean *et al.* (2021)	Exporters – Foreign buyers	E-platform –Export sales performance	Quantitative	China (Chinese exporters)	The findings indicate that E-platform use positively affects foreign buyer contact and, in turn, export sales performance. This positive effect is even more substantial when exporters originate from regions with less-developed market intermediaries or when the institutional distance between the home and host countries is greater. In contrast, this effect becomes weaker when the level of export market diversification or product diversification is higher

(*continued*)

	Authors	Signaler – receiver	Signal – outcome	Methodology	Country context	Results/findings
49	Guha Roy *et al.* (2022)	Medical destination – Consumer	Destination infrastructure – Consumer-based brand equity	Qualitative and Quantitative	India, Bangladesh, Bhutan, China, Taiwan, Afghanistan, Iraq, Nepal, Pakistan, the Middle East and Nigeria	The research included, tested and verified the established latent variables such as "brand awareness", "brand association", "perceived quality" and "loyalty", along with new observed variables for the CBBE scale from the theoretical perspectives of this research. "Infrastructure" has emerged as a new scale construct and "culture" was found to be a moderating variable for "perceived quality" in the CBBE scale, which are novel additions to the literature
50	Wei *et al.* (2022)	Chinese listed International firms – Foreign partners (IJVs and M&A in Hong Kong)	Cross-listing in developed economies–Liability of origin	Quantitative	China and Hong Kong	Cross-listing in developed economies can serve as a signal for EECs to overcome the LOO. In addition, the regional institutional voids of emerging economies (EEs) and state ownership are prominent boundary conditions shaping this effect
51	Truong *et al.* (2021)	Global Firms – Industry stakeholders	Symbolic and substantive environmental actions – Firm reputation	Quantitative	Others (32 countries)	Based on institutional theory and signaling theory the study proposes that symbolic environmental actions negatively affect reputation, whereas substantive actions improve firm's reputation among its peers. Building on the notion of signaling process, the study also conclude that a firm's reporting practices moderate positively the negative effect of symbolic actions. The findings emphasize the danger of using symbolic actions to signal environmental commitment in a context of high-involvement information search and opportunistic behaviors

(*continued*)

Table 9.

Table 9.

	Authors	Signaler – receiver	Signal – outcome	Methodology	Country context	Results/findings
52	Lambillotte *et al.* (2022)	Firm – Customer	Firm generated information transparency (explicit vs implicit data collection)– Customer perceived control	Quantitative	European countries	Findings from two experimental studies show that perceived control is lower on personalized websites than on non-personalized websites, which leads to privacy concerns. However, the presence of a transparency message can mitigate the negative effect of website personalization for customers who are in low need for cognition
53	Tajvarpour and Pujari (2022)	Kickstarter projects – stakeholders	Traditional quality signals (endorsements, human capital, preparedness), less costly signal (psychological capital) – likelihood of success crowdfunding campaigns	Quantitative	Others (150 countries)	The importance of traditional and less costly signals increases with spatial distance over Internet
54	Renko *et al.* (2022)	Technology entrepreneur – investor	Market orientation, technological signals (later stage product stage, patents) – acquisition	Qualitative and Quantitative	Sweden, Finland, USA	Target's market orientation is an important direct driver of acquisitions, thus incorporating a marketing perspective into a literature that has hitherto focused primarily on technological and reputational factors. Substitutive interaction effect between market orientation and new product development stage, indicating that for exits through acquisitions, a high level of market orientation can compensate for an early stage of product development. Fuzzy-set Qualitative Comparative Analysis (fsQCA) shows that in some contexts, the monopoly power afforded by patents can further amplify the positive effect of market orientation on acquisition likelihood

(*continued*)

Table 9.

	Authors	Signaler – receiver	Signal – outcome	Methodology	Country context	Results/findings
55	Thomassen *et al.* (2020)	Firm – consumers	Prosocial compensation – CSR image, corporate image, credibility, WOM-intent, distributive justice, procedural justice, post-recovery satisfaction	Quantitative	USA, Denmark, Canada	Prosocial compensation (PC) contributes to perceived distributive justice, procedural justice, and post-recovery satisfaction in both private and public settings. PC could be a relevant new CSR practice for organizations wanting to enhance their CSR image while contributing to fulfilling their ethical and philanthropic CSR responsibilities
56	Su *et al.* (2016)	Firm – stakeholders	CSR practice – firm performance	Quantitative	China, Hong Kong, India, Indonesia, Korea, Malaysia, the Philippines, Singapore, Taiwan and Thailand	The study found a positive relationship between CSR practices and financial performance. This positive relationship is stronger in the less developed capital market than in the more developed one. The financial benefits of CSR practices are also more salient in the low information diffusion market than in the high one
57	Zhang *et al.* (2022)	Target firm – acquirer	CSR engagement – acquirer return	Quantitative	U.S., U.K., Japan, Germany	High-CSR acquirers generally enjoy positive acquirer returns during their acquisition announcements, but negative returns when the acquisitions are hostile. These findings support the idea that CSR engagement can provide insurance-like benefits during an event that is often seen as "negative", while also identifying signal incongruence as an important boundary condition

Source(s): Created by the authors, table and charts presented in this paper are authors own creation

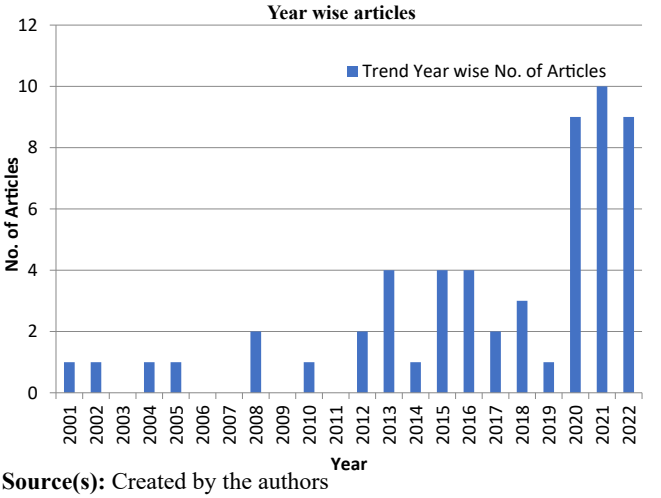


Figure 4.
No. of publications on signaling theory in international marketing field each year from 2000 to 2022

Source(s): Created by the authors

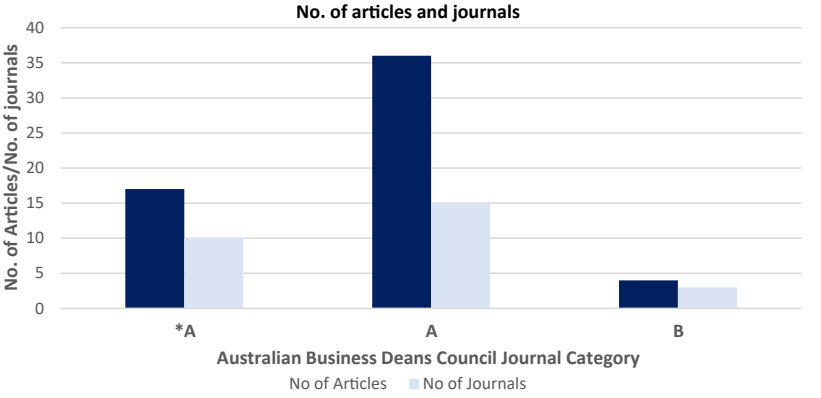


Figure 5.
Frequency of research on signaling theory in international marketing within different category journals (ABDC ranking)

Source(s): Created by the authors

Two studies by Safeer *et al.* (2022) and Mandler *et al.* (2021) deepen our understanding regarding perceived brand globalness (PBG) and perceived brand localness (PBL). The findings of Mandler *et al.* (2021) suggest that in the case of highly globalized markets, PBG induces weaker signals of brand credibility than PBL; whereas, in the case of less globalized markets, both PBG and PBL are considered equally important. In emerging markets such as China and Pakistan Safeer *et al.* (2022) found that PBL and PBG positively influenced consumers' perceptions of brand authenticity. However, effects of uncertainty avoidance and PBG on brand authenticity were found significantly negatively related in Pakistan and had no effects in China. Further research is needed on how global branding signals can reduce information asymmetry between the firm and different stakeholders.

Global CSR initiatives, consumer behavior, and signaling theory: CSR initiatives and, more generally, the way the CSR concept is practiced in multinational firms have been extensively investigated over the years. MNCs are increasingly realizing the importance of social

responsibility initiatives at the brand, product, and corporate levels (Tofighi and Bodur, 2015). CSR initiatives such as corporate transparency (Heinberg *et al.*, 2021), CSR communication (Schaefer *et al.*, 2019), governance attributes (such as transparency and trustworthiness) (Popli *et al.*, 2021), and CSR policies (Dang *et al.*, 2020), offer top management credibility as information asymmetries between stakeholders decrease. An initial study (Magnusson *et al.*, 2015) on CSR activities and signaling theory focused on favorable versus unfavorable CSR signals for global brands representing favorable versus unfavorable country images. The authors studied foreign brands from Canada, Mexico, China, Germany, Brazil, Italy, and Vietnam entering the US market. Hence, the country of origin (country image and global identity) of products is considered a to ben important factor in shaping consumer attitudes toward purchase intention. Consumers with higher global identity are more responsive to positive CSR signals.

Social responsibility initiatives become valuable when communicated to consumers through top-tier private label brands, as they help firms in reducing asymmetric information *t* given that they carry a certain societal expectation and status (Tofighi and Bodur, 2015). CSR communication research has been extended to other stakeholders, such as employees (for example see, Schaefer *et al.*, 2019). CSR communication with employees is extended to customer orientation, employee orientation, environment orientation, and philanthropy orientation. These orientations help employees in reducing asymmetric information about their organization's CSR engagement through the linking of message advertisement, message credibility, and cause-company-fit, leading to employee-related outcomes such as job satisfaction, employee pride, and word-of-mouth about CSR initiatives (Schaefer *et al.*, 2019).

International marketing scholars have moved signaling theory and CSR initiative research beyond favorable consumer evaluations and branding and more toward firm performance. A study conducted by Su *et al.* (2016) found a positive relationship between CSR practices and firm financial performance. They concluded that firms from low information diffusion markets (with less developed institutions) enjoy higher financial benefits than firms from higher information diffusion markets. This occurs because external environmental factors in emerging markets make it difficult for stakeholders to access CSR-related information. Hence, accessing such information becomes valuable. As institutions become more developed, information related to CSR practices tends to lose its value. CSR signals a firm's unobserved characteristics (for example, superior resources and capabilities) (Su *et al.*, 2016). Recently, CSR signals such as corporate transparency and trustworthiness (Popli *et al.*, 2021; Heinberg *et al.*, 2021) have been highlighted in signaling literature. Trustworthiness and transparency have been linked with the degree of internationalization in emerging market firms from India. These corporate governance attributes improve as firms increase their degree of internationalization (Popli *et al.*, 2021). Conversely, Heinberg *et al.* (2021) study CSR and transparency in the environments of China, Japan, and the US. Their study suggests that differences in a country's level of transparency explain the discrepancies in CSR effectiveness for increasing global brand attachment and building consumer behavior. Proponents of CSR research have studied CSR policy in an online (retailers) environment as a signal to reliability and reputation. In the context of Chinese online retailers, brand identification positively mediates the relationship between online retailers' CSR and consumer purchase intentions, whereas WOM also demonstrate a mediating role on the relationship between online retailers' CSR and consumers' intention (Dang *et al.*, 2020). Recently, in a study conducted on firms from advanced market environments (U.S., UK, Japan, Germany) Zhang *et al.* (2022) elaborated that CSR engagement as a signal is beneficial during positive international acquisitions announcements. However, it can backfire when international acquisitions are hostile. CSR engagement operates as an insurance-like benefit during hostile situations.

Prosocial status' perceptions increase the positive association of green products with environmentally conscious consumer behavior (willingness and behavior dimensions). International marketers should understand that in a social context, green products carry high symbolic value for consumers. Therefore, status appeals such as intelligence and kindness can be associated with prosocial behaviors. Besides environmentally conscious consumer behavior as a signal to green products, prosocial compensation has been studied as a signal to various consumer-related outcomes. Thomassen *et al.* (2020) define prosocial compensation as a corporate social responsibility activity focusing on consumers after a service failure. Prosocial compensation is associated with credibility, corporate image, CSR image, WOM-intent, distributive justice, procedural justice, and post-recovery satisfaction in both private and public settings. This could be a new way for organizations to fulfill their ethical and philanthropic CSR responsibilities. Studying the role of employees in prosocial behavior could help marketing researchers in developing a more holistic understanding of CSR initiatives in organizations (Thomassen *et al.*, 2020).

Online platforms, international marketing and signaling theory: Increasing usage of the Internet has become common both for firms and their stakeholders. As a result, over the years a number of user-generated websites have emerged where different marketing strategies are used to convey knowledge and experiences about products and services. These sites include social networking sites, blogs, online platforms, e-commerce websites, and discussion boards (Colliander *et al.*, 2015), such as Alibaba, Airbnb, Kickstartter, JD Global purchase, Vippin International, and Twitter. Hence, consumer-related issues such as product return policy, market orientation, eWOM, and value E-platform offers become important to study. A qualitative study by Renko *et al.* (2022) indicates that for a successful acquisition to occur, technology-related firms should invest in market orientation during the early stages of the firm life cycle.

Using signaling theory, the authors conclude that during the acquisition process, buyers are often confronted with an asymmetry of information that complicates the matching process. Potential buyers/acquirers are also unaware of many private targets (technology firms) because they are less visible and transparent to the investment community. Hence, in order to become a potential acquisition target, firms must signal acquirers through market orientation to increase their visibility in the investment market (Renko *et al.*, 2022). Signaling effects of market orientation combined with technology orientation serve to attract acquirers and create substantive value. Similarly, another marketing element such as eWOM helps firms in generating positive signals for consumers across cultures. National differences (long-term orientation, uncertainty avoidance, individualism, indulgence, and power distance) for e-commerce platforms such as Amazon (from the US and Japan) are associated with eWOM (eWOM signaling) and the relationship between eWOM and relative product sales (eWOM screening) (Lin and Kalwani, 2018). This study further concludes that general characteristics of eWOM signal existence, popularity, and quality are positively associated with sales across the US and Japan. However, these national differences tend to disappear over time.

Recent studies on e-platforms in the B2B setting (for example, see Tajvarpourand Pujari, 2022; Jean *et al.*, 2021) suggest that these types of platforms are powerful signaling tools for exporters and investors. A study on Chinese exporters examined how the deployment of e-platform (Alibaba.com) increases sales performance. The use of e-platform positive effects is substantial when exporters originate from less-developed intermediaries. Conversely, this effect becomes weaker when the level of export market diversification is higher. The positive effect of usage of e-platform such as Alibaba.com is also significant when the institutional distance between home and host countries is greater (Jean *et al.*, 2021). In addition to institutional differences, geographical distance has also been found to be significant in a recent study conducted by Tajvarpour and Pujari (2022) on crowdfunding campaigns, launched during 2009–2018 in more than 150 countries. Traditional quality signals

(endorsements, human capital, and preparedness) and cost-effective signals (psychological capital) may operate to help crowdfunding campaigns in reducing information asymmetry and thereby increase the likelihood of success.

However, in a B2C setting, papers by Christen *et al.* (2022), Shao *et al.* (2021), Jebarajakirthy *et al.* (2020) have examined consumer behavior from various geographic locations such as the UK, Austria, India, and China. Given the economic globalization of the world, more and more consumers are pursuing high-quality, diverse, and luxury goods. Hence, image, return policy, value-based pricing, and perceived quality have become some of the most important signals. Among Indian consumers, in the context of online luxury fashion retailers, showrooms and corporate image are important measures to shape consumers' purchase intention. Low corporate-image foreign retailers gain more from opening showrooms than high-image foreign retailers. However, building a corporate image is valuable for online retailers (Jebarajakirthy *et al.*, 2020). A strong corporate image reduces informational uncertainties and customer reluctance to purchase. In the context of Chinese cross-border e-commerce scenarios, informational asymmetry is amplified on the Internet and this increases risks associated with purchase decisions. The Internet has reduced the cost of information search; however, it makes it difficult for consumers to evaluate product quality (Shao *et al.*, 2021). Therefore, within the context of an e-commerce website, return policy leniency (used as a signal) impacts consumer purchase decisions and is very important for consumers. Value-based pricing on cross-platforms efforts within the accommodation industry (such as Airbnb and Booking.com) influence perceived customer value (Christen *et al.*, 2022). In cross-platform efforts, seller history and channel brand history (beyond-core product attributes) help firms in predicting value-based pricing. Further attention should be given to beyond-core product attributes and timing of purchase decisions in price optimization (Christen *et al.*, 2022). Despite the growing number of studies under this theme, more research is needed to examine various signaling efforts to reduce Internet based informational asymmetry.

National culture and signaling theory: Some studies have used Hofstede's cultural dimensions (individualism vs collectivism, power distance, uncertainty avoidance, masculinity vs femininity, and long-versus short-term orientation) to study the effects of signaling theory on national culture and consumer-related outcomes. A qualitative study based on national culture and signaling theory interviewed 35 top female creatives working in advertising agencies (Spanish and US nationals). Addressing gender bias/or preferences at the workplace may reduce information asymmetry and the risk of female employee retention. In this case, the social environment plays a vital role as it signals powerful masculine markers from how employees dress, speak, eat, and drink. Social bonding in organizational environments defines one's creative career and this could be constrained for female employees bonding within the "boys" club' (Grow *et al.*, 2012). The study concluded as follows: female creatives interpreted (1) power distance as significant, as big ideas from male counterparts were often prioritized. Under the theme of (2) individualism versus collectivism, creative women demonstrate collectivism, i.e. they desire to be part of a group. Both Spanish and American women showed significant impact on (3) gender dimension in the light of masculinity in the creative departments of advertising agencies. Top creative women from both countries appear to be pragmatic and future oriented/(4) long-term orientation. The study has further interesting findings for factors associated with women leaving advertising creative departments (for example, see Grow *et al.* (2012) and suggests there are few women in creative departments, and those who are there leave in strikingly high numbers.

National cultural contingency has an impact on success-breeds-success taking the example of visual entertainment, the performance of the main channel (cinema) has a strong influence on the performance of auxiliary channels (DVDs). Sinha *et al.* (2019) collected data from six different countries; Australia, Japan, Germany, the UK, the USA, and France. The study concludes that in countries with low power distance, short-term orientation, and high

indulgence, consumers who purchase from auxiliary channels are more likely to be influenced by the box office performance of movies. Meanwhile, the cultural distance between the home and host nations significantly decreases the cross-national success-breeds-success effect (Sinha *et al.*, 2019). Also, success of box of office movies is yet another context that has been studied along with national culture. For example, Akdeniz and Talay (2013) examined sequel, production budget, star power and critics' reviews as signals to movies' quality and likeability. Their study found that star power has an impact on box office performance in high uncertainty avoidance and indulgent cultures; however, this effect is attenuated in high power distance cultures. The study further highlights a positive association between sequels and performance in individualistic cultures. Movies with high production budgets perform better in culturally open countries (Akdeniz and Talay, 2013).

In a corporate reputation context, the role of national culture has been explored by Swoboda and Hirschmann (2017), and Swoboda and Batton (2020). Both studies consider corporate reputation as an important resource for multinational firms. Corporate reputation is defined as consumers' overall evaluation of a firm's responsibility, strength, or offer quality (Swoboda and Hirschmann, 2017). From a signaling theory viewpoint, corporate reputation is an important signal as it delivers information about reliability and quality (Swoboda and Hirschmann, 2017; Swoboda and Batton, 2020), which helps consumers through the decision-making process. Corporate reputation perception of MNCs' attributes strong effects to national culture. However, most of the studies published in this area have considered only either one or two dimensions of national culture. A study by Swoboda and Hirschmann (2017) surveyed consumers of a German MNC in 37 countries and their results suggested that corporate reputation signals translate into consumer behavioral intentions and are affected by national cultural differences. These national cultural differences (assessed using Hofstede's approach) include dimensions such as power distance, uncertainty avoidance, individualism, and masculinity. The study further concludes that corporate reputation perceptions are stronger in countries that score high on power distance and masculinity, and weaker in countries that score high on individualism (Swoboda and Hirschmann, 2017).

Similarly, a study by Swoboda and Batton (2020) collected data on German MNCs in 44 countries. The study measured several dimensions of corporate reputation, such as customer orientation, product range quality, social/environmental responsibility, being a good employer, and being a reliable/financially strong company. Corporate reputation dimensions influence different customer attitudes and behaviors such as loyalty across nations. Future studies should focus on alternative dimensions of corporate reputation, which would build our understanding and provide a holistic view of corporate reputation, national culture, and signaling theory.

Alliances, ownership structure, and signaling theory: Various forms of alliances and ownership structures such as IJV, M&A, family versus non-family firms, or alliances between global suppliers and buyers drive economic growth and investment opportunities for nations. These factors contribute not only to financial performance; they also enable MNEs to seek out internationalizing opportunities in global markets. In the context of franchisor and franchisee, Alon and Elango (2018) explore five signals; franchising speed: years-to-franchising, franchising internationalization, international franchise association membership, earnings disclosure, and top management commitment. The study suggests that the speed of franchising increases the franchisor's competitive stance, and intentions to internationalize allow firms to achieve critical economies of scale. In addition, franchise association membership confers benefits of reputation and credibility. Firms that disclose their earnings to potential franchisees offer greater transparency and are more likely to be publicly listed. Finally, top management commitment is positively associated with the likelihood of a franchisor being publicly listed (Alon and Elango, 2018). On the other hand, a study by Tsang and Finnegan (2013) confirms that franchisees can shorten the time to attract

the first franchise by lowering the initial investment cost. However, as franchisee net worth requirements rise, the time to attract the first franchisee will be longer. Finally, franchisors tend to defer expansion via franchising in favor of managing their own outlets in resource-rich industries (Tsang and Finnegan, 2013).

A study on M&A (Lamotte *et al.*, 2022) examined corporate reputation as a signal to cross-border European and American acquisition. This study found an inverted U-shaped relationship between a firm's reputation and the likelihood of undertaking cross-border acquisitions The authors also confirm that experiential knowledge moderated the relationship between corporate reputation and cross-border acquisition. In the case of Chinese listed firms in Hong Kong (IJVs and M&A), due to the contextual complexities, cross-listing in developed economies reduces the information asymmetry among investors and overcomes the liability of origin. Other factors that can shape this effect are institutional voids existing in emerging economies and state ownership of international Chinese listed firms (Wei *et al.*, 2022).

Another important alliance to study in international marketing and signaling theory contexts is the alliance/relationship between buyers and suppliers. Buyers use economic and cultural indicators of the supplier's country to assess quality and reduce information asymmetry (Livanis *et al.*, 2016). Hence, buyers use the country-of-origin effect as a signal to assess the credibility of suppliers. Buyers from developing countries prefer suppliers from developed rather than culturally distant developing economies, as interacting with stronger institutions in developed nations increases the credibility of firms (Livanis *et al.*, 2016). Religion plays a vital role for buyers from developing countries (in this case, Saudi Arabia) as they prefer suppliers with a common cultural attribute; in this case, religion (Eckert *et al.*, 2012). According to Rauschendorfer *et al.* (2022), the signal is defined as the active communication of the family nature of a firm, and this is governance information not directly observable to the customer. Their study further discussed the family nature of the firm signal, which evokes feelings of love such that consumers infer that products are made with more love when the firm signals its family nature. Also, the family nature of a firm has a stronger association with willingness to a pay premium price in comparison to other situations, when consumers are exposed to the product without signaling the family nature of the firm (Rauschendorfer *et al.*, 2022). While building upon the argument of ownership, international marketing, and signaling theory, the study by Gregorič *et al.* (2020) indicates that Indian diaspora ownership acts as a signal for international technology-based licensing. Moreover, the domestic subnational environment influences the efficacy of diaspora ownership as a signal in markets where Indian firms operate (Gregorič *et al.*, 2020).

Building relationships with alliances and stakeholders is a key to sustainable competitive advantage. Following this line of argument, Kharouf *et al.* (2020) investigate the effect that signaling strength has on favorable relationships (trust, satisfaction, and willingness to reconcile). Stronger signals are more effective at repairing relationships and are especially important following violations around integrity. Furthermore, in the context of brands from the US and UK markets, firms that frame signals as customer gains rather than firm costs obtain more favorable relationship outcomes (Kharouf *et al.*, 2020).

Alliance and market performance research has established that integrated reporting (IR) initiated with a view that the quality of disclosure to shareholders, business partners, market, labour and society in general. IR has positive influence on market performance in conventional banking system, with a negative influence on financial and operational performance. However, a study conducted by Buallay *et al.* (2020) shows the opposite in the context of Islamic banking. Data collected from banks in Bahrain, Qatar, Kuwait, Oman, Saudi, and UAE brings the conclusion that IR produces a negative effect on market performance, with no significant effect on the financial and operational performance of banks (Buallay *et al.*, 2020). Affiliations with prominent financial intermediaries are a signal to

feasibility for international alliances. Newly publicly listed firms internationalizing from US should maintain healthy affiliations with prominent venture capitalists and investment banks to increase their alliance based cross-border activity (Reuer and Ragozzino, 2014). Despite the growing number of studies on this theme, more research is called for to examine the multidimensionality of alliance relationships and ownership structure and their impact on financial performance.

International marketing mix and signaling theory: Advertising is a costly signal designed by firms to increase quality perceptions of products/services in the minds of consumers. However, Hsu *et al.* (2002) suggest that this may actually be wasteful for firms. Advertising is helpful for consumers to differentiate high-quality from low-quality manufacturers, thus avoiding regret associated with purchasing low-quality products. Consumers view advertising as a firm's way of conveying confidence in its product. Similarly, Moorthy and Hawkins's (2005) findings show limited support for advertising spending as a signal, but substantial support for advertisement repetition in influencing consumer perceived quality. However, in a later study, Pracejus *et al.* (2013) argued the use of "white space" or "empty space" is associated with burning money, which could also influence consumer perception about the size and power of the company. Hence, in the context of Hong Kong and India, consumers infer quality from the size of the cost of the signal of the use of white space in advertising (Pracejus *et al.*, 2013).

International marketing mix is also associated with various activities such as communicating product attributes to consumers who seek information related to quality in order to reduce information asymmetry for example, information related to the credibility of labels (Moussa and Touzani, 2008), warranty (Tan *et al.*, 2001), and service guarantee (Meyer *et al.*, 2014). Moussa and Touzani (2008) studied three grocery items (cookies, yogurt, and shampoo) with quality labels (ISO 9001:2000 certification mark or voted products of the year 2006). All three product labels were categorized as either experience-based or technical-based and relatively inexpensive. Their study reported that credible quality labels help in generating signals that reduce problems arising under asymmetric information. IM mix researchers also found that warranties are an important source of information for products with information asymmetries. Information asymmetry is based on the quality of information and intent. Consumers are always searching for information that gives them confidence in their purchase decision-making process. Tan *et al.* (2001) argued that in countries such as the USA, Japan, and China, warranty and warrantor reputations can be used as signals of product quality. Moreover, in addition to product warranties, service guarantees are also used as signals to reduce information asymmetry. However, simply offering a service guarantee does not result in market value. The market value of a service depends on its scope and the difficulty off the process required to invoke guarantees (Tan *et al.*, 2001).

New product development (NPD) as a part of the international marketing mix process has also received attention in the literature. First, Hu *et al.* (2017) discussed prior NPD project suspension as being associated with a stronger value creation among alliances. Failure is further associated with a weaker value destruction effect. Firms design (controlled) internal signals such as historical signals: prior project suspensions and failures; past performance; technology quality, scientific signal, market signal, locational signals and external signals, such as alliance and partner: exploration, moderate- and large-scale exploitation alliance, potential milestone, partner reputation, partner failures are used to achieve abnormal returns on alliance announcements (Hu *et al.*, 2017). On the other hand, in the context of the Chinese market, new product preannouncements (NPP) are associated with quality. Consumers are likely to spread positive eWOM about brand characteristics in situations when NPP has higher rather than low clarity (Zhang and Choi, 2018). Future research should explore more complete and complex measures of international marketing mix across emerging, developing, and developed economies. Next section discusses future research directions.

Literature themes	No. of studies	References
Global Brand Management and Signaling Theory	14	Wilden *et al.* (2010), Erdem *et al.* (2004), Özsomer and Altaras (2008), Sharma *et al.* (2016), Talay *et al.* (2015), Eckert *et al.* (2012), Rahman *et al.* (2018), Mandler *et al.* (2021), Hinson *et al.* (2020), Oh *et al.* (2020), Reitsamer and Brunner-Sperdin (2021), Spielmann *et al.* (2022), Safeer *et al.* (2022), Guha Roy *et al.* (2022)
Global CSR Initiatives, Consumer Behavior and Signaling Theory	12	Zabkar and Hosta (2013), Magnusson *et al.* (2015), Tofighi and Bodur (2015b), Dang *et al.* (2020), Schaefer *et al.* (2019), Heinberg *et al.* (2021), Popli *et al.* (2021), Truong *et al.* (2021), Lambillotte *et al.* (2022), Thomassen *et al.* (2020), Su *et al.* (2016), Zhang *et al.* (2022)
Alliances, Ownership Structure and Signaling Theory	10	Livanis *et al.* (2016), Tsang and Finnegan (2013), Alon and Elango (2018), Buallay *et al.* (2020), Kharouf *et al.* (2020), Gregorič *et al.* (2020), Rauschendorfer *et al.* (2022), Lamotte *et al.* (2021), Wei *et al.* (2022), Reuer and Ragozzino (2014)
International Marketing Mix and Signaling Theory	8	Moorthy and Hawkins (2005), Moussa and Touzani (2008), Akdeniz and Talay (2013), Tan *et al.* (2001), Meyer *et al.* (2014), Hu *et al.* (2017), Hsu *et al.* (2002), Pracejus *et al.* (2013), Zhang and Choi (2018)
Online Platforms, International Marketing and Signaling Theory	8	Colliander *et al.* (2015), Lin and Kalwani (2018), Jebarajakirthy *et al.* (2020), Shao *et al.* (2021), Jean *et al.* (2021), Christen *et al.* (2022), Tajvarpour and Pujari (2022), Renko *et al.* (2022)
National Culture and Signaling Theory	5	Akdeniz and Talay (2013), Sinha *et al.* (2019), Grow *et al.* (2012), Swoboda and Hirschmann (2017), Swoboda and Batton (2020)
Total	57	–

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Table 10. Themes of literature based on emparical studies

Future research directions

In the following section we identify and discuss future research directions. Table 11 and Figure 6 highlight the avenues for future research based on the topic. This research agenda identifies interesting research questions from our view that deserve specific attention in the near future. Research on the application of signaling theory on global branding: In-depth research is needed on branding issues and theory, as this topic is under-investigated in the prior literature. Brands communicate to consumers on behalf of firms located in distant countries. Limited attention has been given to the relationships between consumer ethnocentrism, perceived brand globalness, global brand cultural capital, authenticity, and creditability. Future research studies could explore the signaling-RBT (resource-based theory) nexus as it applies to international marketing. For instance, current literature on branding and signaling theory investigates signaling from the signaler's perspective; however, studies remain silent on the receiver's perspective (consumer, distribution channel members, or both).

Use of signaling theory within the field of international branding is promising; hence researchers should also investigate competitors being intended or accidental recipients of branding signals. This suggests an opportunity to further investigate international branding to encourage brand love and reduce brand hate among global stakeholders. Furthermore, signaling theory remains silent on the conceptualization of the use of premium signals with

Topic	Questions for future research
COO effects and signaling theory	• How anti-globalization movements act as a signaling phenomenon for global brands? What signals firms generate in order to respond to anti-global brand movements? • How country of origin effects resolve information asymmetry for global brands in tech versus non-tech products in international markets? • How signaling theory can help consumers to understand the role of COO effects in shaping up consumer purchase behaviour? • How companies can use COO cues as an influential marketing tool to shape up consumer behavioral intention? • Why companies can use COO cues to signal product quality? • How country image can serve as a strategic signal to further understand the associations of consumers with the global brands? • How signaling theory can be used to explain consumer ethnocentrism, which refers to the liking for the products or services produced in one's own country over those produced in other countries? • How marketers can use COO signals to influence patriotism and national pride of consumers, which may ultimately incline consumers to prefer local products?
International communication mix	• What role global brand love plays as a signal in context of international marketing? • How diversity (ethnic, racial or religious) in global advertisements resolve brand related information asymmetry? • How signaling theory can help marketers to understand consumer brand choice which subsequently signal their status, values and personality? • How consumers use brand elements like logos and brand association to signal their social identity? • How signaling theory can help to understand how brand use scarcity and various signals to created exclusivity among consumers? • How brands use loyalty programs to signal their commitment towards customers? • How brand signals can foster association between customers and brands? • How marketers can use brand engagement which serves as a signal of the brand's responsible behavior and intent to create a positive relationship with consumers? • Why firms signal trustworthiness through transparent business practices? • How brands use celebrity endorsements and influence marketing to signal brand trust? • How customer engagement signals assiciations and interests towards the brands? • What is a role of green labeling as signaling phenomenon for global brands?
B2B research opportunities	• How brand trust/creditability act as a signaling phenomenon in global industrial markets? How it may increase firm value in B2B markets? • What is the role of relational trust as a signaling phenomenon in B2B markets? How B2B firms use relational trust during the service recovery or crisis? • How B2B electronic-platform resolve informational asymmetry for exporters? (and for inward and outward internationalizing activities?) • What is the role of emerging market e-platforms in internationalizing activities of firms towards developed markets? • Does e-platform brand trust translate into reducing risks associated with export performance? • Do e-platforms signal export and economic performance (international speed, growth, and export diversification)? • How companies manage various aspects of relationships such as conflict, respect, shared goals and values, trust, commitment, and power through their signaling approach?

Table 11.
Selected research opportunities of signaling theory in international marketing

(*continued*)

Topic	Questions for future research
International retailing	• What is the role of signaling theory in international retailing? What are the retailing specific signals that would affect global retail performance? • What are digital specific retail signals? How these signals performance of retailers in the digital world? What signals result setting premium pricing for global brands? • How international retailers overcome information asymmetry in developed, emerging and developing markets? What types of different signals are used to overcome asymmetries in each of the markets?
CSR, Crisis Management	• What is the process of developing effective and timely signal to respond to various global branding crises? • What are the benefits and risks of international marketing mix as signals during crisis? • How signaling theory can help practitioners to effectively engage with consumers following a service or product crisis event? • How signaling theory can be used by the firms to recover from a crisis by communicating their positive intentions, recovery plans and continuous commitments to consumers? • How companies can use favorable signals to their consumers to convey information about the contemporary crisis situation and future recovery plans? • How firms can create effective crisis communication to signal the steps taken to recover from the recent crisis? • How firms can rely on sharing information which serves as signals about the post crisis situation and changes implemented will help firms to regain consumer trust? • How firms manage signals towards customer ethicality?

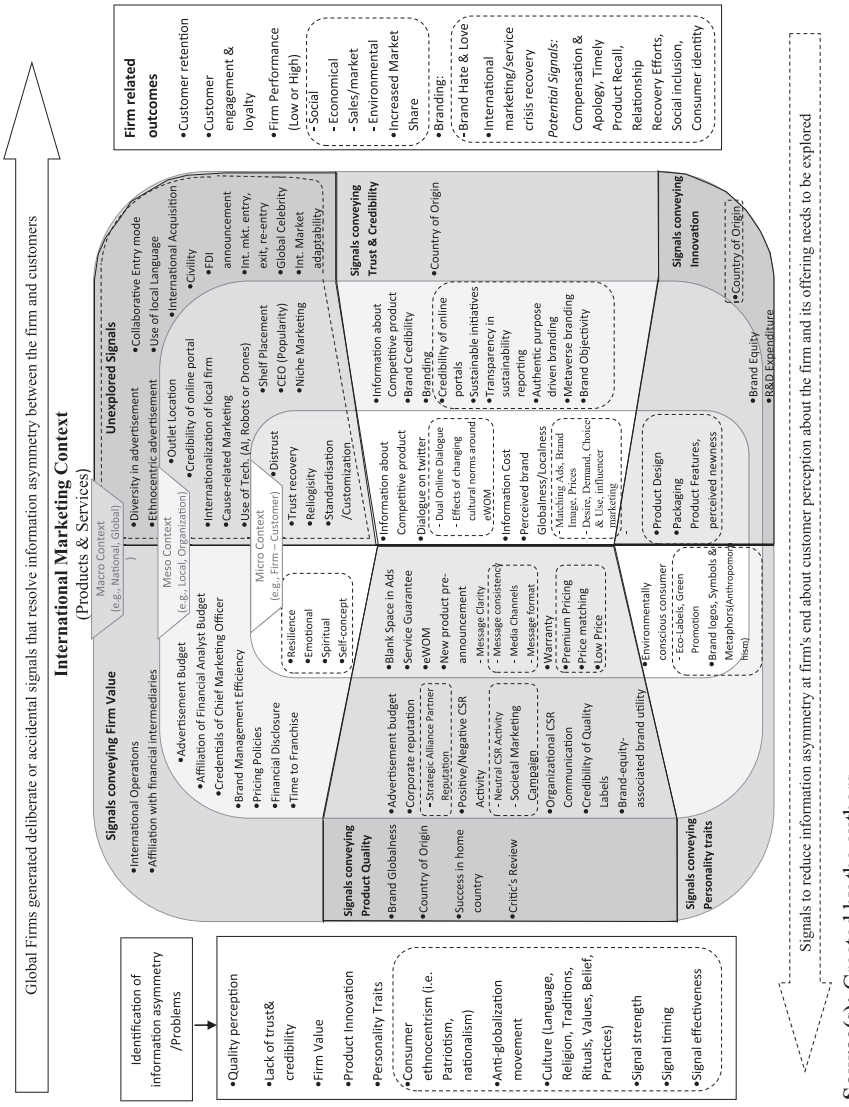
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Table 11.

specific regards to luxury global brands (for example, the use of A list celebrities in marketing).

Signaling theory and its relationship to country-of-origin (COO) effects: Signaling theory plays an important role in advancing the field of COO in international marketing (Livanis *et al.*, 2016). COO means the country where a product or service originates, and has the ability to influence consumers' opinions and purchase behavior (Magnusson *et al.*, 2015). Signaling theory can help consumers to understand the role of COO effects in shaping up consumer purchase behavior and also how companies can use COO cues as an influential marketing tool. Signaling theory highlights that consumers can use COO cues as a signal of product quality. Some countries are stereotyped with specific qualities, attributes and expertise in specific sectors. For instance, German cars are often perceived as being high quality products due to Germanys' country image effects. These COO effects help marketers to leverage COO cues as tool of enhancing perceived credibility, which subsequently leads to a boost in consumer trust and purchase intention. There are a limited number of studies linking signaling theory with country-of-origin literature. Therefore, future researchers can focus on how signaling theory helps to further explain the relationship between COO effects and product quality.

Most studies have been conducted in the context of advanced market economies (such as USA, Europe, and Japan) and ignored challenges of consumers from emerging market economies. Studies conducted on CSR activities, signaling, and COO has continued to ignore labour practices and philanthropic giving. Another opportunity missed is in grasping a better understanding of the interplay between the CSR signal and the COO signal and how consumers' global identity affects consumer response to CSR signals. Studies on the use of COO as a signal have remained fragmented in terms of uses and definitions. Within the



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Figure 6.
Conceptual framework summarizing the use of signaling theory in the context of international marketing

conceptualization of COO, country image has real potential to transform signaling theory. For example, use of country image as a strategic signal should be explored to further understand the associations of consumers with the global brands. In addition, we call for more research on global consumerism grounded in signaling theory. There is a gap on the application of signaling theory to this concept; for instance, research on exploring the role of signaling theory in the de-globalization of consumer behavior, ethical and unethical globalized consumption patterns, ethnocentrism, hybridity, nationalism, consumer distrust caused by unsought signals, and cultural imperialism could all benefit the field of international marketing.

In addition, signaling theory can also help to explain consumer ethnocentrism, which refers to the liking for the products or services produced in one's own country over those produced in other countries. Highly ethnocentric consumers decline to purchase products and services from foreign countries. In both advanced and emerging countries, there is a priority in such countries for products and services from the home country when consumers exhibit strong consumer ethnocentrism. While in consumers from advanced countries, this priority is expanded to products and services from countries having some degree of cultural congruence, consumers from developed countries have a more positive perception of native products than of foreign based products. Consumers feel threatened in the presence of large multinational companies that crush their culture; and this feeling is common among developing economies where consumer ethnocentrism exists widely. Furthermore, it has been observed that the degree of consumer ethnocentrism in developing countries may vary based on the level to which consumers have been influenced by globalization.

In developing countries, consumers do not essentially have the same level of involvement and affection towards home based products. For instance, ethnocentric consumers residing in developing economies may favorably evaluate the quality of foreign based products to some degree if they identify that the product as being connected with a highly industrialized economy or a developed country. Consumers from developing economies chose imported products due to their uniqueness and fine quality, but this cordial effect may decrease as the economy becomes more developed: therefore consumers can be less ethnocentric when their countries are in the initial stages of economic growth than more developed countries. Subsequently, by understanding consumer ethnocentrism, marketers can use COO signals to influence patriotism and national pride of consumers, which may ultimately incline consumers to prefer local products.

Previous research has ignored role of signaling theory in explaining consumer ethnocentrism. Therefore, future researchers can use signaling theory to better explain consumer ethnocentrism. Furthermore, culture is also considered to be one of the major factors when discussing COO all effects. Country stereotypes are affected by consumer's COO. Consumers' stereotypes towards certain countries can be influence orientation or cultural values. Moreover, cultural values Bay also influence COO effects in relation to products and services.

Relevant and unaddressed gaps on signaling and international marketing communication mix: The role of signaling theory in cross cultural communication is also under-researched. However, marketers can use positive product attributes as signals to form favorable consumer product evaluations. Additionally, signaling theory helps to effectively communicate favorable product signals across cultural boundaries (Akdeniz and Talay, 2013; Sinha *et al.*, 2019; Grow *et al.*, 2012; Swoboda and Hirschmann, 2017; Swoboda and Batton, 2020). These signals will help consumers to shape their willingness to purchase. Future research can use signaling theory to further extend cross-cultural frameworks in relation to COO effects. International marketing communication mix decisions and activities have been investigated with a limited focus covering international advertising strategies (Colliander *et al.*, 2015; Grow *et al.*, 2012; Hsu *et al.*, 2002; Zhang and Choi, 2018;

Schaefer *et al.*, 2019), hence paying limited attention to social media advertising and interactive marketing. Existing contributions on the use of signaling theory have been limited to advertising frequencies and eWOM regarding international products and consumers in various markets.

Research has not attempted an integrated perspective on signaling and international marketing communication mixes. Therefore, understanding whether and how other forms of communication mixes could act as better signals for global consumers in areas such as trust, quality perceptions, low risk and prestige is yet to be achieved. We call for an integrated analysis of various international marketing communication mixes in the light of signaling theory. Nevertheless, it is necessary to explore in depth whether specific areas of international marketing communication mix and their practices have been upgraded. Therefore, adopting a longitudinal perspective would help. We suggest further empirical research, both qualitative and quantitative in areas such as international advertising, events and experiences, interactive marketing, word-of-mouth marketing, public relations, direct marketing, sales promotion, and personal selling. In addition, researchers should explore signals that promote inclusivity, civility, and diversity through integrated international marketing mix.

Language and symbols play a vital role in reducing information asymmetry. However, current literature on the application of signaling theory in global marketing has not investigated the use of language and symbols as signals for information asymmetry. We suggest future researchers explore the antecedents and outcomes of the use of global and local languages and symbols as a way to communicate messages through marketing mix. As the use of technology and social media deeply embeds in global consumerism, international marketing researchers applying signaling theory must consider digitally based signals to reduce information asymmetry. For instance, current research addresses the use of twitter as a signal of informational authenticity for global audiences. However, research has not yet explored the use of YouTube, LinkedIn, Snapchat, TikTok, and Likee to understand consumer behavior. In the context of international entrepreneurial marketing communication, research is needed on understanding how crowd-funding platforms such as Indiegogbo, SeedInvest, GoFundMe, and Kickstarter could be sources of signaling for different stakeholders.

Unexplored areas of business-to-business (B2B) research in an international context: The studies that reviewed buyer-supplier relationships in the context of international marketing have provided little attention to the receiver's perspective in resolving asymmetric information. The information generated between international B2B contexts is important to attract, build, and maintain lasting relationships. On the other hand, exploring distrust, its signals, and outcomes become an important way forward to advance signaling theory, including what signals business partners tend to send before beautifully ending business relationships. There is an increasing, although limited; trend in understanding business networks and relationships within the frame of industrial marketing and purchasing group, and within that research, emphasis is placed on how companies manage various aspects of relationships such as conflict, respect, shared goals and values, trust, commitment, and power through their signaling approach. Several contributions focus on alliances and channel members partnerships in a cross-country context (considering limited modes of entry into international markets).

However, there is not much evidence on what signals firms tend to implement when increasing their efforts in international markets through international joint ventures, acquisitions, new ventures development, and exporting (as entry modes). It could be argued that increasing market uncertainty and complexity might induce international firms to share global marketing efforts with external actors. This suggests an opportunity for research on whether partnering with quality international advertising agencies could yield a signal for

consumers, in line with current literature, which suggests advertising expenditure is a signal to quality.

The future of international retailing, services and signaling theory: Recent literature does not contribute to signaling theory, international retailing, and services (in particular, what firms might do during the service crisis and recovery processes). Some studies have considered international franchising and the various signals generated to attract investors. Generally, our review shows that existing studies seem to ignore the real potential of international retailing and services literature. For example, international retailers originating from countries with a positive image among consumers may also carry positive marketing signals to resolve any asymmetry of information. Consumers' own positive and negative images towards international retailers, along with cognitive and emotional associations, may influence them in evaluating these retailers. Hence, the concepts of the country of origin and consumer ethnocentrism may play a critical role in refining signaling theory in international retailing.

Recent services literature has extended current international services research into how firms may respond to service crises and recoveries. However, signaling theory has only given limited attention to the international services literature. We propose that service firms that internationalize with a positive country image are less likely to experience difficulties in recovering from crises. This could be because of consumers' emotional connections and the lower levels of blame or forgiveness they are likely to place on such countries/firms. These connections might be based on firms' past performances, CSR activities, or corporate citizenship behaviors. Consequently, these activities help firms to create positive associations that can be transmitted through various signals or cues that are yet to be grounded in signaling theory.

In addition, signaling theory can help practitioners to effectively engage consumers following a service or product crisis event. The theory can provide a useful framework to companies recovering from a crisis by communicating their positive intentions, recovery plans and continuous commitments to consumers. Companies can send favorable signals to their consumers to convey information about the contemporary crisis situation and future recovery plans. Moreover, companies can convey their intentions to ensure enhanced quality post a crisis event. Firms can create open and transparent communication about the recent crisis and steps taken to recover. Sharing information signals about the post crisis situation and changes implemented will help firms to regain consumer trust. Future researchers can use signaling theory framework to investigate post crisis recovery strategies, which will subsequently help practitioners to implement optimal post crisis strategies.

Brands are continuously engaging with customers using social media and other digital platforms to swiftly respond to their queries and address their reservations in order to achieve customer satisfaction. This engagement acts as a signal of the brand's responsible behavior and intent to create a positive relationship. Therefore, signaling theory can provide a framework for how brands strategically communicate their capabilities and characteristics in the digital marketing domain. By effectively relying on these signals, brands can create credibility, boost trust, and grow relationships with their customers.

Studies in the post-pandemic world: The COVID 19 Pandemic has brought a wide array of challenges for traditional firms, as well as opportunities for firms relying upon digital marketing channels. Tenets of signaling theory can be used to forecast such external shocks, sales revenue from foreign markets for the next decade. There are opportunities for such studies in the context of different foreign markets. Structural equation models, Logit-Probit models and other approaches can be used to carry out such studies. International marketing trends and patterns in the post pandemic world can be studied using signaling theory constructs, considering that the COVID Pandemic has created enormous uncertainty in the world of International Marketing. In addition, we call for studies

blending the tenets of signaling theory and the 7-P framework for international marketing (Paul and Mas, 2020).

Conclusion

This paper seeks to contribute to the literature on international marketing by presenting a systematic review of journal articles on signaling theory published in the last 2 decades. Selected studies have been assessed in the light of an integrated framework depicting the flow of signaling within the contexts of international marketing. Overall, results show that researchers' interest in this topic has been growing over the past few years. However, a great deal of research work still needs to be done on this topic. Filling these research gaps is crucial to extract significant benefits in terms of implementing this theory in international marketing.

It is evident from this review that the implementation of signaling theory is quite effective in the field of international marketing, due to its ability to reduce information asymmetry and strengthen communication. As in the case of international marketing, cultural and environmental disparities create knowledge gaps between buyers and suppliers. These gaps then lead to complexities in marketing communication. Based on the analysis, it was found that various signals are effective in communicating the quality, innovation, prestige, and credibility of brands, products, and services.

In this review, we have identified a trend in research on this topic in the last 2 decades. These trends include research themes, geographic areas of studied subjects, and various signals utilized. In addition, the paper highlights some signals that are effectively used to communicate certain information. Furthermore, important areas are found to be either unexplored or underexplored; for instance, relevant themes including global branding, country of origin, international marketing communication mix, business-to-business, retailing, and services need greater attention from researchers. We acknowledge the limitation for our study for example; this study does not factor in the yearly updates since 2010 of journals by the ABDC list. However, it considers the recent ABDC dataset available for journal rankings. The paper concludes that this topic has great potential for further exploration because it can resolve many communication issues for international consumers.

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