

Applying generative artificial intelligence applications for academic research on firms' nonlinear internationalization

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Abstract

Purpose – This study aims to critically evaluate the applicability of generative artificial intelligence (GenAI) tools for academic research in international business (IB), specifically focusing on the topic of firms' nonlinear internationalization. It assesses these tools' key performance dimensions: correctness, hallucinations and thoroughness.

Design/methodology/approach – This research adopts an exploratory approach, examining a comprehensive set of GenAI tools: eight chatbots and four AI-driven applications designed for academic purposes. The evaluation focuses on the capabilities and limitations of these tools in generating accurate research-related content for IB scholars.

Findings – This study finds that while GenAI tools capture some aspects of nonlinear internationalization, they often produce partially accurate and/or biased results. Common issues include providing fictitious sources, incorrect publication data and vague or incorrect answers. Thus, substantial development is still needed for GenAI tools to become reliable for scientific research.

Practical implications – Researchers should use GenAI tools with caution, verifying the accuracy of generated content and citations independently. A cautious approach is crucial to maintain the integrity and quality of academic research.

Social implications – This study raises awareness about ethical and practical challenges of using AI in academia, including issues related to plagiarism and misinformation. It underscores the importance of critical evaluation when using GenAI tools for research.

Originality/value – This paper contributes to the emerging literature on the role of GenAI in academic research by providing a critical assessment of the usability and limitations of current tools in studying complex



IB phenomena. By using nonlinear internationalization as an example, it demonstrates how GenAI may support or hinder IB scholarship.

Keywords Nonlinear internationalization, De-internationalization, Re-internationalization, Internationalization, Generative artificial intelligence (GenAI) tools, GenAI tools in research

Paper type Research paper

1. Introduction

The usefulness of generative artificial intelligence (GenAI [1]) applications has greatly expanded since late 2022 when OpenAI's ChatGPT was released for public use, resulting in a wide variety of GenAI chatbots, applications and tools being piloted and launched within the past years. All the while, many of the existing online tools have added AI functionality by incorporating features made possible by the application programming interfaces offered by ChatGPT and others. However, international business (IB) research has mostly neglected their impact on the field (Benmamoun, 2025), although they are found increasingly useful from both empirical (Chen *et al.*, 2022; Rossi *et al.*, 2024) and theoretical (Gaessler and Piezunka, 2023; Mariani and Dwivedi, 2024) perspectives.

Moreover, the current research on the usefulness of GenAI applications is mixed. Several scholars have given positive feedback about their potential. For instance, according to Burger *et al.* (2023, p. 233), "AI already has the potential to make researchers' work faster, more reliable and more convenient," while Lahat *et al.* (2023, p. 3) stated that GenAI tools have "the potential to be a valuable resource for researchers." On the other hand, scholars are also worried about the ethical implications of GenAI use in academia (e.g. Akpan *et al.*, 2025; Dwivedi *et al.*, 2023; Gatrell *et al.*, 2024) and are concerned that relying too much on AI applications can result in producing low-quality research (Burger *et al.*, 2023; Tong and Zhang, 2023). While GenAI has been found to be an enabler of entrepreneurship (Davidsson and Sufyan, 2023), the evidence regarding the usefulness of open AI chatbots and other GenAI solutions (see, for instance, González-Esteban and Calvo, 2022) is contradictory: evaluations have ranged from very positive to very negative. Thus, it is important to assess how useful they are for studying business and management research phenomena and for conducting scholarly research in general (Benmamoun, 2025).

This study aims to critically assess the applicability and limitations of GenAI tools for academic research in IB, using the specific phenomenon of nonlinear internationalization as a case study. Nonlinear internationalization is characterized by fluctuations in the extent of firms' international engagement – including partial or full foreign market exits and reentries. It is an important and complex part of IB literature, as it emphasizes that firms are not only moving toward increased international involvement, as was supposed by earlier research streams (Domínguez Romero *et al.*, 2024). Moreover, nonlinear internationalization as a research topic has still not received enough research attention, although most internationalizing firms eventually face it (da Fonseca and da Rocha, 2023; Fernández-Alles *et al.*, 2023; Vissak, 2024). This focus fits the aims of the study because the topic of nonlinear internationalization is still a relatively narrow research area, and thus there is relatively little variation in the key terms, making it easier to identify the key studies on the topic. Therefore, the scope of the focal phenomenon is both narrow and emerging enough for GenAI tools to provide non-trivial information about, potentially aiding researchers in seeking to contribute to the ongoing discussions on the topic.

The analysis focuses on evaluating three key dimensions: correctness (accuracy of information), hallucinations (instances of fabricated or inaccurate data) and thoroughness (depth and comprehensiveness of responses). The main purpose of this study is not to generate new theoretical advancement on the topic of nonlinear internationalization itself

(although, by giving an overview of its nature, it also contributes to the understanding of firms' internationalization processes) but to use it as an exemplary context in which the capabilities of GenAI tools to contribute to conceptually ambiguous IB research areas can be tested upon. This empirical focus is appropriate because nonlinear internationalization, as an evolving IB topic, requires both interpretation and familiarity with specific literature, both of which can pose challenges for GenAI tools. In doing so, this study shows how these tools can support or impede IB scholars in studying this phenomenon. It contributes to the emerging literature on the role of GenAI in business and management scholarship by shedding light on the applicability and usefulness (but also shortcomings – e.g. hallucinations, providing incorrect information) of the main types of GenAI tools for researchers today, including:

- five main GenAI chatbots (ChatGPT Plus, Google Gemini, Microsoft Copilot, Claude and Perplexity);
- three other GenAI chatbots (Character.AI, ChatGPT Online and ColossalChat); and
- four AI-driven applications specifically designed for academic research (Avidnote, Elicit, Paper Digest and Scipace).

As the paper focuses on the usefulness of GenAI tools for studying nonlinear internationalization, then, initially, it is necessary to explain the essence of the studied phenomenon. Thus, the paper begins with a short literature review about the nature of nonlinear internationalization and an overview of studies on the usefulness of GenAI tools. After a methodology section, the results are analyzed, assessing both the answers and the sources provided by the selected tools, as, according to several studies, they sometimes “hallucinate”: give factually incorrect answers and cite sources incorrectly or even “invent” sources (cf. [Benmamoun, 2025](#); [Khizar et al., 2025](#)).

The main contribution of this study to the IB literature and scholarship is thus the critical evaluation of current GenAI tools' capabilities and limitations in researching a complex yet important IB phenomenon – firms' nonlinear internationalization – emphasizing both the potential and drawbacks of these technologies for IB scholars in areas where literature is limited, terminologies are specific and where a high degree of contextual accuracy is required. Nonlinear internationalization can be a strategic response to many of the major issues prevalent in IB strategy, such as for institutional uncertainty, market shocks and resource constraints. Thus, by evaluating how GenAI tools are able to accurately capture the phenomenon, the present study as a whole contributes to the understanding of how digital tools in general, and current GenAI tools in particular, can facilitate or constrain the discussion on important topics in IB research. In addition, the study contributes to the understanding of firms' internationalization processes.

2. Literature review

2.1 *Nonlinear internationalization*

Nonlinear internationalization has been defined in several ways in IB literature (see [Table 1](#)) but it is evident that although definitions vary to some extent, according to most authors, such internationalization should encompass single or multiple episodes of de- and/or re-internationalization. Thus, these definitions are also explained in [Table 1](#).

[Table 1](#) shows that firms' de-internationalization can be full/complete (all foreign activities cease) or partial: some foreign activities continue. Similarly, re-internationalization can be also full (all previous foreign activities are restored) or partial (only some are restored and/or new foreign activities are started instead of previous ones); moreover, it can follow a complete time-out period (no foreign activities) or a period of temporarily reduced foreign operations.

Table 1. Definitions of nonlinear internationalization in academic literature

Phenomenon	Characteristics
Nonlinear internationalization	<p>“foreign involvement fluctuations and internationalisation flexibility” (Chen <i>et al.</i>, 2019, p. 154)</p> <p>“substantial decreases and, sometimes, the following increases and further fluctuations in international involvement” (Vissak and Francioni, 2013, p. 951)</p> <p>“a series of entries and withdrawals” (Niittymies <i>et al.</i>, 2022: 11)</p> <p>“a process characterized by substantial increases and decreases in internationalization activity” (Vissak, 2010: 560)</p> <p>such firms’ “international commitment varies over time” (Nummela <i>et al.</i>, 2022, p. 297)</p> <p>“discontinuous and non-incremental steps” in internationalization (Schweizer and Vahlne, 2022, p. 584)</p> <p>“periods of acceleration, deceleration, and also of constant speed” (Johanson and Kalinic, 2016, p. 843)</p>
Serial nonlinear internationalization	<p>“de- and re-internationalizing several times in terms of market and/or entry mode selection” (Vissak and Francioni, 2013, p. 952)</p> <p>“internationalization process with several exits and re-entries or significant foreign involvement fluctuations” (Dominguez and Mayrhofer, 2017, p. 1054)</p> <p>“the discontinuous and repetitive process of export (re)entry and exit” (Jeong and Yang, 2023, p. 3)</p> <p>“continual de-internationalization and re-internationalization” (Ali and Mathur, 2022, p. 53)</p>
Intermittent exporters	<p>firms that “repeatedly enter, withdraw from, and re-enter exporting activity as a whole” (Bernini <i>et al.</i>, 2016, p. 1060)</p>
De-internationalization	<p>“voluntary or forced actions that reduce a company’s engagement in or exposure to current cross-border activities” (Benito and Welch, 1997, p. 9)</p> <p>“an intentional, proactive management strategy to cut back international activities” (Mellahi, 2003, p. 151)</p> <p>“withdrawal from inward and outward international operations” (Welch and Welch, 2009, p. 568)</p> <p>“withdraw[ing] from a foreign market” (Chen <i>et al.</i>, 2019, p. 154)</p> <p>“complete withdrawal from foreign markets /.../, exit from and/or reducing operations in one/more countries – like decreasing ownership in foreign subsidiaries or laying off some export managers – and switching to entry modes reducing resource commitment, for instance, starting to export after divesting” (Vissak and Francioni, 2013, p. 952)</p> <p>“full or partial foreign market exits or reductions of foreign involvement: e.g. divesting but continuing to export to a particular market” (Vissak and Francioni, 2020, p. 28)</p> <p>“A firm partially exits a market by, for instance, reducing its level of involvement /.../ A complete exit from a foreign market, on the other hand, is when a firm ceases all international sales or operations in that specific market” (Sousa <i>et al.</i>, 2021, p. 2)</p>
Re-internationalization	<p>“complete or partial exits from international markets” (Castillo <i>et al.</i>, 2025, p. 3)</p> <p>“a process comprising initial international experience, exit, time-out without any international involvement and eventual re-entry” (Welch and Welch, 2009, p. 568)</p> <p>“successfully renewed international operations” [after staying out of a foreign market] (Chen <i>et al.</i>, 2019, p. 154)</p> <p>“the process by which a firm restarts operations in a previously exited market from which it has had a complete withdrawal” (Sousa <i>et al.</i>, 2021, p. 2)</p>

(continued)

Table 1. Continued

Phenomenon	Characteristics
	<p>“re-entering all or some of the exited markets and/or renewing all or some of the reduced or temporarily terminated operations again” (Vissak and Francioni, 2020, p. 28)</p> <p>“a set of actions that subsequently escalate a firm’s involvement or exposure to foreign markets following a period of reduced activity” (Kafouros <i>et al.</i>, 2022, p. 2)</p> <p>“reentry to or restoration of resource commitment to specific markets from where the firm has previously exited, or where it had reduced its involvement, as well as entering different foreign markets instead of those that were exited and using entry modes with a higher resource commitment than after de-internationalization” (Vissak, 2010, pp. 566–568)</p>

Source(s): Authors’ own work

Firms can experience nonlinear internationalization because of several factors: for instance, changes in the local or foreign economic and institutional environment, ownership change, changed goals, strategies or expectations, changes in the firm’s capabilities or resources (for example, knowledge or financial resources), relying on sporadic orders, losing previous or finding new customers (for overviews, see, for instance, da Fonseca and da Rocha, 2023; Martins *et al.*, 2022; Tang *et al.*, 2021; Vissak, 2024). According to these studies, full or partial foreign market exits and reentries can be voluntary and planned and, in some cases, also forced (for example, occur because of economic sanctions).

Scholars differ on whether nonlinear internationalizers can be considered successful or not. According to Nummela *et al.* (2016, p. 53), “failure should be defined as the venture’s unexpected decreasing involvement in international activities,” and Gnizy and Shoham (2014, p. 279) mentioned that [de-internationalization] “experiences sometimes bear a stigma of failure.” On the other hand, Benito and Welch (1997), Martins *et al.* (2022), Mellahi (2003), Sousa *et al.* (2021) and Vissak *et al.* (2020) explained why de-internationalization does not always mean failure – for instance, because firms could exit some markets temporarily or permanently because of sudden unexpected changes in the business environment, or because exiting a market where a firm has very minor export activities could cost less than staying there; thus, exiting can also improve a firm’s profitability. Consequently, circumstances and the type of nonlinear internationalization (e.g. full vs partial, temporary vs permanent exit) could affect the evaluation of it: whether it demonstrates “success” or “failure” (Vissak, 2023).

Thus, it is evident that nonlinear internationalization can be defined differently, it can be caused by various internal and external factors, and it can be intentional or forced. Moreover, the “verdict” of whether nonlinear internationalizers could be considered successful or not could depend on why and how firms experienced it. Considering its relative definitional ambiguity in extant literature, nonlinear internationalization is a suitable concept with which the accuracy of GenAI tools can be tested from a research perspective.

2.2 Usefulness of generative artificial intelligence tools in scholarly work

Evidence about the usefulness of GenAI tools in general is mixed, and thus it is important to bring out both their potential and drawbacks. Several authors have noted that GenAI tools

such as chatbots could be useful for conducting scientific research. For instance, it has been suggested that such tools could be used to some extent for writing abstracts or even initial drafts of full papers (Anderson *et al.*, 2023; Dwivedi *et al.*, 2023; Lund *et al.*, 2023) or generating new research ideas (Dowling and Lucey, 2023; Ivanov and Soliman, 2023). GenAI tools can also be used for developing relevant scientific research questions (Graf and Bernardi, 2023; Lahat *et al.*, 2023; Tong and Zhang, 2023) and for explaining challenging topics (Ivanov and Soliman, 2023).

For literature search, the tools can be useful in finding and/or analyzing relevant research articles (Burger *et al.*, 2023; Farrokhnia *et al.*, 2024; Meloni *et al.*, 2023) and summarizing them (Akpan *et al.*, 2025; Zangrossi *et al.*, 2024). When writing, they can help develop hypotheses and even survey questions (Benmamoun, 2025; Graf and Bernardi, 2023; Ivanov and Soliman, 2023) and are usable for generating synthetic data (Akpan *et al.*, 2025) and identifying themes, trends and patterns in the data (Burger *et al.*, 2023; Dahal, 2024; Graf and Bernardi, 2023). According to some scholars, GenAI applications can also provide good ideas regarding how to title articles (Day, 2023; Emenike and Emenike, 2023; Vaishya *et al.*, 2023), while also helping authors to translate texts (Graf and Bernardi, 2023; Halloran *et al.*, 2023; Ray, 2023), improve their language and develop a logical structure for their work (Ariyaratne *et al.*, 2023; Elali and Rachid, 2023; Ivanov and Soliman, 2023).

On the other hand, several authors have criticized GenAI tools. For instance, according to some studies, they can provide fictitious sources for their text known as “hallucination,” provide incorrect publication data for existing studies or fail to recognize key literature on a given topic (Anderson *et al.*, 2023; Dhane *et al.*, 2024; Dwivedi *et al.*, 2023).

In addition, these tools have other shortcomings. For example, they can sometimes plagiarize: rephrase text created by others without citing these sources (Farrokhnia *et al.*, 2024; Lund *et al.*, 2023; Salvagno *et al.*, 2023). Because GenAI tools usually use open-access sources, their answers might also be based on articles published in “predatory” journals and other sources of questionable quality (see Burger *et al.*, 2023) and provide misleading or biased information (Akpan *et al.*, 2025; Khizar *et al.*, 2025).

According to Tong and Zhang (2023), some GenAI tools are sometimes too repetitive; Dowling and Lucey (2023) noted that they might not be able to link multiple ideas, while Dwivedi *et al.* (2023), Lahat *et al.* (2023) and Salvagno *et al.* (2023) criticized them for proposing questions or ideas that are not original enough. In addition, these tools can misinterpret the content of scientific articles (Zangrossi *et al.*, 2024) and create fake images that some authors could include in their scientific articles (Dash *et al.*, 2024). Finally, such tools can produce texts that are not (directly) related to the topic and/or are not factually accurate or complete (e.g. Anderson *et al.*, 2023; Farrokhnia *et al.*, 2024; Vaishya *et al.*, 2023). Overall, the extant literature on the usability of GenAI tools for academic research suggests that, while such tools can be used to some extent for doing scientific research, they also still have notable shortcomings, and not only because of ethical considerations (Akpan *et al.*, 2025; Benmamoun, 2025; Khizar *et al.*, 2025).

3. Method

To evaluate the applicability of current GenAI tools for academic research, this study adopts an exploratory, evaluation-based design. Specifically, we use the phenomenon of nonlinear internationalization as a testing topic for evaluating GenAI performance in a specific area of IB where we ourselves have domain-specific knowledge of the literature and thus are able to ascertain the accuracy of the data (GenAI output). This design allows us to examine how well the current GenAI tools can understand, define, and reference answers for a phenomenon that lacks a single consensus definition in literature and one that requires interpretation from

scholars. The main goal is not to empirically study the phenomenon itself, but instead to evaluate the capabilities and limitations of GenAI tools in handling research that is typical in IB scholarship.

For the analysis examining the applicability of current GenAI tools for IB research, both open AI chatbots and the main GenAI tools in use today (ChatGPT Plus, Google Gemini, Microsoft Copilot, Claude, and Perplexity) were used. In addition, considering the focus of the study, four commonly used AI-enabled research tools (Avidnote, Elicit, Scispace and PaperDigest) were also included. Because there are several open chatbots available, the three were chosen through Google search for free chatbots, free AI text tools and free ChatGPT alternatives. ChatGPT Online (<https://storysaverhd.io/chatgpt-online/>), Character.AI (<https://beta.character.ai/profile>) and ColossalChat (<https://chat.colossalai.org/>) were chosen as the first was created by OpenAI and had similar goals as ChatGPT Plus, the latter differed as it was created by others, while the second one, in turn, was created by OpenAI but differed from all other tools as its purpose was different. Patton (2015) also suggested using purposeful sampling for selecting similar and contrasting cases. The selected AI tools were first asked to describe themselves (see Table 2) and thereafter to answer four main questions about nonlinear internationalization.

Questions were developed based on the studies on nonlinear internationalization cited in the literature review. The first three questions focused on definitions of nonlinear internationalization, de-internationalization and re-internationalization as the latter are important components of nonlinear internationalization, while thereafter, all the GenAI tools were asked if nonlinear internationalizers can be considered successful or not. If necessary, two additional questions were asked: “Please provide sources for [...] [the text given by the tool]” or “Please provide a full record for [...] [the source(s) cited by the tool].” Initially, it was also planned to ask questions about the causes of these phenomena, but as some tools already mentioned causes in their answers to the other questions, this was not necessary. All questions were asked in March–June 2024 except in the case of ColossalChat, as it was taken down in spring 2023.

Each time, the whole answer was copied to a table without making any changes besides using a different format (Times New Roman 10 pt, changing apostrophes (‘instead of ’) and removing empty rows, when necessary), adding quotation marks (“”) to indicate that the text originated from an AI tool and making some slight changes in the format of the list of provided sources (e.g. using bullet points instead of numbers). Thereafter, the quality of each answer was analyzed. Correctness was assessed by comparing AI-generated outputs with established literature and checking for factual accuracy. Hallucinations were evaluated by the incidence of instances where tools cited non-existent or fabricated sources. Finally, thoroughness was evaluated by assessing the completeness and depth of responses in addressing the questions. All tools were treated as units of analysis. Their outputs were examined systematically across the three performance dimensions to evaluate their potential to support or mislead academic research in complex IB phenomena. The following sections show that while several parts of the text generated by these AI tools were at least to some extent correct, citing was very problematic for them.

4. Findings

4.1 Definitions of nonlinear internationalization

Appendix 1 includes the full answers from the tools to the following question: “Please define ‘firms’ nonlinear internationalization” based on scientific sources.”

From the five main GenAI chatbots, ChatGPT Plus, Google Gemini and Perplexity gave relatively comprehensive answers about the nature of nonlinear internationalization: all

Table 2. (Self-)descriptions of generative AI tools used in this study

Tool	Description
<i>Main generative AI chatbots</i>	
ChatGPT Plus (4.0)	"I am ChatGPT, a large language model developed by OpenAI based on the GPT-4 architecture. I am designed to assist with a wide range of tasks, including answering questions, providing explanations, generating text, and even creating lesson plans. My knowledge spans a vast array of topics, and I can help with everything from simple inquiries to complex research"
Google Gemini	"I am a large language model, also known as a conversational AI or chatbot, created by Google. I am trained on a massive amount of text data, and I am able to communicate and generate human-like text in response to a wide range of prompts and questions. For example, I can provide summaries of factual topics or create stories"
Microsoft Copilot	"I am an artificial intelligence language model created by OpenAI. My underlying architecture is based on deep learning techniques, specifically a variant of the transformer model. This model, known as GPT-4, has been trained on a diverse range of internet text to understand and generate human-like responses. My primary function is to assist users by providing information, answering questions, and engaging in conversation"
Perplexity	"I am an AI assistant created by Perplexity. My purpose is to be a knowledgeable, helpful, and engaging conversational partner. I have a wide breadth of knowledge spanning topics like science, technology, history, culture, and more"
Claude	"I'm an AI assistant called Claude, created by Anthropic. I'm designed to help with a wide variety of tasks including analysis, writing, math, coding, and general discussion. I have broad knowledge but I don't have access to real-time information or the ability to learn or update my knowledge through our conversations. I aim to be helpful, honest, and ethical in my interactions. I'm curious to learn about others' views and experiences"
<i>Other generative AI chatbots</i>	
Character.AI	"I'm the Brainstormer, your helpful guide for all things creativity. I'm an AI that loves to help people get unstuck and find the best novel solutions to any challenge. I'm a bit of a jack of all trades when it comes to creativity, but my specialty is coming up with interesting ideas for products, brands, campaigns, and more. I'm also an enthusiastic learner and seeker of knowledge. I can't resist a good article or blog about creativity and innovation"
ChatGPT Online	"I am a language model AI created by OpenAI, designed to assist and provide information to users in a conversational manner. I have been trained on a diverse range of topics and can help answer questions, engage in discussions, or provide information on various subjects. My primary goal is to assist users in obtaining the information they are looking for in a helpful and efficient manner"
ColossalChat**	"ColossalChat is the project to implement LLM [large language model] with RLHF [reinforcement learning from human feedback]. [It] includes supervised data collection, supervised fine-tuning, reward model training, and reinforcement learning fine-tuning /.../, and [is] the most practical open-source project that closely resembles the original ChatGPT technical solution"
<i>AI-driven applications specifically designed for academic research</i>	
Avidnote	"I am an AI language model trained to provide information and assist with various topics. I don't have personal experiences or emotions, but I'm here to offer ideas and suggestions to the best of my abilities"
Elicit	"Elicit is an AI-powered research assistant designed to automate and enhance the efficiency of scientific research processes. It's particularly adept at handling systematic literature reviews and meta-analyses. Elicit achieves this by leveraging large language models to sift through extensive databases of academic papers, identify relevant studies, extract key data, and summarize findings"

(continued)

Table 2. Continued

Tool	Description
PaperDigest	“AI-powered platform that helps researchers and academics quickly grasp the core ideas of academic articles. It automatically generates summaries of research papers, making it easier for users to understand and absorb key information without reading the full text”
Scispace	“SciSpace, previously known as Typeset, is a platform that supports the research process for academics and scientists. It offers tools for discovering, analyzing, writing, and publishing scientific literature. SciSpace incorporates AI-powered features, including literature reviews, data extraction, and paper formatting, aimed at enhancing productivity and accessibility in research”

Note(s): *According to its website, “Remember: Everything Characters say is made up!” **This description was based on its website as the service has been taken down temporarily

Source(s): Authors’ own work

mentioned following a nonlinear path, experiencing exits (the first two tools also mentioned reentries), and also several dimensions where nonlinearities can manifest (operation modes, customers, sales channels, products and markets). Microsoft Copilot was less detailed, and although it mentioned the same five dimensions, it did not explain if any exits or reentries should occur. Claude was also somewhat brief, and it did not mention these dimensions. These tools also mentioned some aspects they were not asked to focus on: ChatGPT Plus explained what happened in Estonia during the COVID-19 pandemic, Google Gemini stated that exits and reentries can occur because of internal and external factors, and Perplexity mentioned some managerial causes. Claude stated that it does not have access to the sources it cited, while Microsoft Copilot emphasized that this issue is currently being discussed and studied actively; thus, scholars might interpret the concept differently.

Regarding sources of their information, some tools were useful to some extent, yet they also came with issues: ChatGPT Plus cited three studies that all exist; moreover, the resulting text seems to originate from the cited sources. On the other hand, publication information for these sources was not fully complete – for instance, the author was not mentioned in the case of the first source and the editors in the other two – but, in principle, these sources can be found. Google Gemini cited five sources but provided partially incorrect (a wrong publication year for the first, a wrong link for the second) and somewhat incomplete information only about two. Most of the found information could originate from these two sources, but some could be compiled based on others not revealed by this tool. Microsoft Copilot provided information about three sources, but while citing the first source, it did not reveal that this information came from another one, as the authors had quoted another study for the definition. Moreover, Copilot did not use quotation marks despite copy-pasting relatively long parts of text (16 and 27 consecutive words in total, respectively). It also did not provide full publication information (editor and publishing house) for the third source. Perplexity made a mistake in the page numbers of the first source, “forgot” to mention two coauthors and the correct publication year of the third source; the information about the remaining two sources was also partially incorrect. Claude provided correct information about all three sources it mentioned, but most of its information seems to originate from the last one. Moreover, the latter two tools did not indicate which parts of their text originated from which source.

From the three open GenAI chatbots, none provided a clear enough answer to the question: Character.AI only focused on skipping close-by countries but did not mention exits or reentries; Colossal Chat did not explain the nature of nonlinearities at all (as achieving a lower level of internationalization compared to initial expectations is not necessarily nonlinear internationalization), while ChatGPT Online mentioned unpredictable changes and sudden divestments but ignored changes in firms' export operations or other foreign operation modes. On the other hand, ChatGPT Online and Colossal Chat listed several internal and external factors that could cause or influence nonlinear internationalization, although they were not asked to do that. These chatbots were also unclear regarding the sources of their information: ChatGPT Online refused to provide sources, while the other chatbots listed only fictitious sources: although these journals exist, they have never published such articles; moreover, books with such titles have not been published (yet), either.

From the four AI-driven applications specifically designed for academic research, Avidnote and PaperDigest only focused on skipping pre-determined stages; they did not clearly mention exits or reentries. Elicit provided a relatively vague answer: it mentioned that something untraditional should happen but again ignored de- and re-internationalization. Only Scispace gave a comprehensive enough answer. Some of these tools also had problems with revealing the sources of their information: Avidnote refused to provide article titles, journal names, etc. for the sources it cited in its answer, although it was asked to do that. Its answer could partially originate from these sources, but probably not from the first source as that one focused on innovation. Elicit did not mention the coauthors of three studies in its answer; however, its list of sources was almost correct (except for missing page numbers of the last source). The answer could be based on these sources. PaperDigest gave correct publication information about the mentioned source; however, that article did not focus on all these aspects; thus, most probably, this tool "forgot" to mention some other source(s). Scispace did not provide source information for every sentence; moreover, it made mistakes in providing information about some sources (e.g. regarding which were authors' first and last names) and provided incomplete publication information (e.g. journal volume number, issue number and page numbers were missing) for all sources.

Overall, these findings indicate that the tools should be used with extreme caution: in addition to not getting comprehensive and thorough enough answers about the nature of nonlinear internationalization, the potential users might get a list of fictitious sources because of "hallucinations"; moreover, some tools might cite some sources incorrectly; for instance, copy-paste long sentences without using quotation marks or provide incomplete publication data.

4.2 Definitions of de-internationalization

Appendix 2 contains the answers of the studied AI tools to the following question: "Please define "firms' de-internationalization" based on scientific sources."

From the main GenAI tools, ChatGPT Plus emphasized several important aspects; however, it mostly focused on divestments without clearly mentioning other operation modes. Google Gemini, Microsoft Copilot and Perplexity gave detailed answers that were, in principle, correct; however, they also encompassed issues they were not asked to discuss (reasons for de-internationalization, future research suggestions, and the importance of the research topic, respectively). Claude was briefer and it did not clearly mention export reductions.

All five tools provided information about sources, but its quality varied considerably. ChatGPT Plus provided correct publication information about the only source it cited, but

some of its material most probably originated from elsewhere. Google Gemini provided a list of six sources, but all were fictitious: a combination of existing authors' last names and existing journals, but random article titles. Microsoft Copilot provided a list of four sources but only cited three; moreover, it did not provide key information such as author names or titles about the first source. Perplexity mentioned five sources without indicating which parts of the text originated from which one; from these, the provided information was correct for only three: the other two were not published in these outlets. Finally, Claude cited only one source, but correctly enough.

From the three open GenAI chatbots, Character.AI focused on divestments without clearly mentioning other operation modes. ChatGPT Online mentioned both divestments and export or import reductions, while ColossalChat did not specifically mention any operation modes. These definitions were not wrong, but, at the same time, they were not comprehensive enough. All chatbots also listed several internal and external causes of de-internationalization, although they were not asked to. These causes can be considered correct enough. Character.AI's and ColossalChat's sources were all fictitious. ChatGPT Online cited two sources, but although their publication information was correct, those articles focus on other topics; thus, it is unclear which sources it actually used.

From the four AI-driven applications specifically designed for academic research, Avidnote's answer was brief but correct. Elicit and PaperDigest did not mention any specific foreign operations. Scispace was somewhat unclear regarding whether de-internationalization must always be complete. All these tools provided a list of sources, but again, some information was problematic. Avidnote's slightly changed the first article's title and provided wrong page numbers; moreover, it "invented" the remaining three sources. Elicit mentioned three sources in the text but only provided publication information about two. In one case, it only gave some of the necessary information, while in the other, publication information was correct in the list of sources, but in the text, the publication year was wrong, and coauthors were not mentioned. PaperDigest created a list of ten sources, but only cited seven without indicating which part of the text originated from which source. Moreover, from these sources, Nos. 8 and 10 focused on other topics. Scispace provided five sources, but the information was incorrect for the first source (wrong order of authors), partially missing in the second (no authors), and somewhat incorrect in others (regarding which were these authors' first or last names).

Thus, again the results show that although the studied AI tools were able to provide some useful information about the nature of de-internationalization, they had several problems with revealing the source(s) of such information. While some "cited" fictitious sources, some others did not disclose all sources or provided only partial information about them.

4.3 Definitions of re-internationalization

Appendix 3 encompasses the answers of the studied tools to the following question: "Please define 'firms' re-internationalization" based on scientific sources."

From the main GenAI chatbots, none mentioned that reentries can also occur after partial exits. ChatGPT Plus and Claude gave brief but relatively correct answers. Google Gemini gave a very detailed answer but mostly focused on causes of this phenomenon, which it had not been asked to provide. Microsoft Copilot did not focus much enough on answering the question, either. Perplexity also listed some causes and consequences, although it was not asked to.

All five tools provided information about sources, but its quality varied. ChatGPT Plus and Claude did not make mistakes this time: information about this source was correct, and its text could have originated from there; still, Claude warned that it does not have access to

it. Google Gemini, on the other hand, only listed fictitious sources. Microsoft Copilot cited two existing sources but did not provide fully correct information about one of them (regarding the book's title). In addition, it creatively "combined" the titles of two existing studies with wrong author names and publication titles. Perplexity listed four existing sources and provided correct information about them; however, the last source was fictitious, and it also did not indicate which sentences originated from which source.

From the three open GenAI chatbots, all three can be considered correct enough (but they could have also mentioned reentries after partial exits). On the other hand, again, they did not only explain the nature of re-internationalization but also mentioned its causes without being asked to do that. Both Character.AI and ColossalChat only listed fictitious sources. ChatGPT Online refused to provide any sources for the text it had created. Thus, it is unclear which sources these chatbots used to answer this question.

From the four AI-driven applications specifically designed for academic research, Avidnote's answer was short but correct. Elicit, PaperDigest and Scispace were more detailed, but they mostly focused on impact factors instead of explaining the nature of re-internationalization. Moreover, they did not mention that re-internationalization could occur after partial exits.

Avidnote listed four sources. For the first and fourth ones, publication information was correct, but most probably, the text did not originate from there. The second and third sources were "combinations" of existing and fictitious elements. Elicit only provided a list of existing sources, but it did not mention two studies' coauthors in the main text; moreover, it did not provide publication information for one source. PaperDigest gave links to five studies that seem to be the genuine sources of the provided information. Scispace, on the other hand, mentioned a wrong author in the case of the first source, did not mention any authors in the case of the second and fifth, and got "confused" regarding which were the authors' first and last names in the case of the third and fourth sources.

Thus, similarly to the answers to two previous questions, AI tools showed limited usefulness: some understanding about the nature of re-internationalization can be gained, but most tools failed to reveal all important aspects. Moreover, again, most of them "hallucinated": failed to cite their sources correctly and/or mentioned fictitious sources.

4.4 Assessments of whether nonlinear internationalizers are "successful"

Appendix 4 contains the answers of GenAI tools to the following question: "Please explain based on scientific sources if nonlinear internationalizers (firms that have de- and re-internationalized several times) can be considered successful or not."

From the main GenAI chatbots, ChatGPT Plus was not very detailed, but the answer can be considered correct. Google Gemini and Claude provided thorough answers listing several relevant arguments for and against success. Microsoft Copilot was somewhat vague but not wrong, either. Perplexity was vague, and it mentioned several aspects (e.g. cause, importance for research) not directly related to the question.

ChatGPT Plus provided somewhat incomplete (missing volume, issue and page numbers) publication information of one study that could have been the source of information (except for, probably, the last sentence). Google Gemini listed five publications, but all were fictitious. Microsoft Copilot listed two existing articles (for the second one, the issue number was wrong) and one that exists but not in this form (an article with this title was published in that year, but information about the authors and the journal was wrong). It also failed to use quotation marks despite copy-pasting 10 consecutive words from the first study. Perplexity listed six sources but made two mistakes: the volume number was wrong for the third source and one co-author was missing for the last one. Claude mentioned four studies but provided a

wrong publication year and did not mention two coauthors of the first study, gave slightly wrong page numbers for the third one, and did not mention volume and issue numbers for the last one. Also, the latter two tools did not indicate which sentences originated from which source(s).

Of the three open GenAI chatbots, all were to some extent correct. ChatGPT Online was relatively brief, but it managed to mention some success measures and emphasize that firms are heterogenous. Character.AI listed both negative – costs, uncertainty and risks – and positive (new opportunities, increased demand) aspects, but also some contextual factors. ColossalChat also mentioned some important aspects – agility versus high costs – regarding if such firms could be considered successful or not.

ChatGPT Online refused to reveal which sources it used; it only stated that its answer was based on “reputable sources.” Both Character.AI and ColossalChat mentioned three fictitious studies. The latter also listed two other sources – a journal (without mentioning any specific articles published there) and the website of a product and service testing service – but it is unclear if any parts of the answer originated from there.

From the four AI-driven applications specifically designed for academic research, Avidnote’s answer was detailed, and it listed several important aspects. Elicit was relatively brief but correct. PaperDigest and Scispace were somewhat vague – especially regarding how to evaluate if firms were successful or not – but not wrong, either.

Avidnote refused to provide a list of sources, although it mentioned four in the text. These four were most probably not the real sources for its information, as the most likely “candidates” (based on a search from Google Scholar) mostly focused on other issues. Elicit listed four sources and provided correct publication information about them, but it only cited three in the text; it also “forgot” to mention coauthors’ names in the text despite having this information in the list of sources. PaperDigest provided links to ten sources that all focus on various internationalization-related aspects but only cited four. Scispace, on the other hand, listed four sources but cited five in the text, and the order of provided sources did not fully coincide with the order of sentences in the text. For these four sources, publication information was almost fully correct, except for adding two unnecessary initials to the first author’s name in the case of the fourth study.

Consequently, likewise to the answers to three previous questions, these AI tools identified some useful aspects. On the other hand, again, most of them failed to provide correct publication information for the sources they cited in the text: some sources were listed but not cited and vice versa; moreover, some information was incorrect, and some studies were fictitious. Thus, again, “hallucinations” occurred.

5. Discussion

This study was designed to assess the contextual reliability of GenAI tools in academic research by evaluating their ability to engage with a specific, definitionally complex phenomenon typical for IB research. The intent was not to draw new empirical conclusions about nonlinear internationalization but to evaluate how these tools perform in a research setting that demands accuracy, source transparency, and domain familiarity.

The findings suggest that, to some extent, GenAI tools have developed to a point where they manage to provide somewhat useful information when conducting IB research. Consequently, scholars might use these tools for “brainstorming” (Khizar *et al.*, 2025) and, as a result, get a few ideas about which additional aspects they could study or which titles they could choose for their articles. On the other hand, all the examined tools also had some shortcomings: they often provided irrelevant sources and ignored some of the key foundational literature on the topic, and sometimes, while ignoring important studies in the

field, cited sources that have not actually made such statements about the specific topic at all. At the same time, it was not clear which actual sources were used. This is plagiarism, as the authors of the actual sources did not get credit for their work. Moreover, these tools sometimes provided too short, vague and/or partially incorrect answers. Checking for all these problems took considerable time. Thus, overall, in their current form, the studied GenAI tools should be used with extreme caution for conducting scientific research.

The findings raise questions about the overall impact of GenAI adoption in IB research, e.g. how such tools can affect theory development in the field, as well as the quality (problems) of managerial and policy recommendations that are based on AI-generated work. Moreover, this challenge is further heightened in narrow or emerging research domains, such as nonlinear internationalization, where conceptual clarity is still developing and where the corpus of foundational literature is still relatively small in number. In such cases, the inability of GenAI tools to reliably interpret, to cite, or to build on existing knowledge can potentially distort the scholarly understanding of the topic.

In sum, the findings contribute to the literature on GenAI by illustrating the interplay between current GenAI performance and IB research complexity. This study emphasizes both the potential (e.g. sometimes providing correct and relatively comprehensive responses and some useful ideas) and challenges (e.g. hallucinations and lack of thoroughness) these technologies present for scholars. Using nonlinear internationalization as the focal phenomenon allows us to assess the usefulness of GenAI tools in addressing research topics that are common to the IB domain, and thus the present study contributes to the wider discourse on how AI can assist in advancing scholarship in emerging and complex discussions in IB research. Next, the theoretical and practical implications are considered in more detail.

5.1 Theoretical implications

This study contributes to the discourse on strategy and research methodology in the IB research domain by analyzing how GenAI tools perform when asked to work on a complex but strategically notable phenomenon in the field: nonlinear internationalization. The emergence of GenAI tools has brought about a paradigm shift in the realm of academic research, and this paper contributes to the theoretical understanding of the role of GenAI in academic research by highlighting five critical points that scholars must consider when integrating these tools into their research process and practices.

First, the results suggest that GenAI tools currently demonstrate the ability to identify some useful aspects of domain-specific phenomena such as nonlinear internationalization. These tools can provide preliminary insights that can aid researchers in generating new research ideas, developing important research questions and identifying themes, trends and patterns in existing literature (Dowling and Lucey, 2023; Ivanov and Soliman, 2023; Graf and Bernardi, 2023; Lahat *et al.*, 2023; Tong and Zhang, 2023). The present study illustrates the ways in which, in IB research specifically, they are not infallible and often provide incomplete or partially incorrect information, necessitating domain-specific knowledge from researchers to ascertain the accuracy of their results.

Second, the citation quality provided by the AI tools is still often problematic: the tools frequently “hallucinate,” citing sources that are either fictitious or incorrectly attributed, which can lead to significant issues of academic integrity and reliability in the IB field. This problem is compounded by the fact that some sources listed in the references are not cited within the text and vice versa, leading to a disjointed and unreliable citation network (Anderson *et al.*, 2023; Dwivedi *et al.*, 2023; Lund *et al.*, 2023; Salvagno *et al.*, 2023). Such discrepancies require additional validation by IB scholars to ensure the accuracy of their

citations. As such, the extra work can result in offsetting some of the promise of GenAI tools as enhancers of scholarly research in general.

Third, as the tools sometimes provide too vague or off-topic answers, they can mislead researchers and guide them down unproductive paths. For example, while the tools might offer a broad overview of a topic, they often fail to account for the specific details that are necessary for rigorous academic research (Ivanov and Soliman, 2023; Burger *et al.*, 2023; Farrokhnia *et al.*, 2024; Meloni *et al.*, 2023; Vaishya *et al.*, 2023). This limitation points toward using these tools as supplementary aids rather than primary sources of information.

Fourth, the tools have been found to plagiarize content, presenting it as original work without proper attribution. This not only raises ethical concerns but can also undermine the credibility of the research produced using these tools. Plagiarism detection and prevention thus become necessary for researchers using GenAI in their work (Zangrossi *et al.*, 2024; Dash *et al.*, 2024). Researchers must be alert in checking the originality of the content generated by these tools to avoid inadvertent academic misconduct and plagiarism. The findings of the present study indicate that IB research is not exempt from these issues in GenAI use.

Fifth, the study finds the tools sometimes produce texts that are not directly related to the IB topic at hand or are factually inaccurate. This can lead to the dissemination of misinformation and consequently adversely affect the scholarly discourse in the field (cf. Anderson *et al.*, 2023; Ariyaratne *et al.*, 2023; Elali and Rachid, 2023; Emenike and Emenike, 2023; Halloran *et al.*, 2023; Ray, 2023).

In sum, the present study contributes to and advances the understanding of the usefulness of GenAI tools for IB scholars (and also business scholars more widely) as, unlike wider AI evaluations referred to in the literature review section, this empirical research highlights the specific challenges that emerging IB topics can present for GenAI tools – challenges such as their inability to address definitional ambiguity and their limited capabilities for robust use of literature. These findings contribute to the academic discourse on the role and challenges of GenAI tools in advancing research methodologies, particularly in under-researched IB domains where definitions are still forming or contested, where terminology can be context-dependent, and where theoretical frameworks are still being developed. The findings clearly indicate that such research streams require both methodological precision and domain-specific knowledge and judgment based thereof, which current GenAI tools do not yet seem reliable enough to replicate.

5.2 Practical implications

The practical implications of this study highlight the importance of critical validation and domain-specific expertise when using GenAI tools in IB research. Because of these tools' tendency to give too vague or somewhat off-topic answers, all their answers should be checked very carefully, as otherwise, serious mistakes might occur.

Thus, for IB researchers, but also those active in other fields, the findings emphasize the importance of being cautious and critical, as well as the necessity of possessing deep domain-specific knowledge on the focal research topic when relying on GenAI tools in any notable way in research. Scholars should search for the literature themselves to get a better understanding of the studied phenomena and to find all relevant studies on the studied topic(s), always verify AI-generated outputs against established literature, and thus see the tools as supplementary research aids rather than primary resources to be trusted without question. They should also carefully check if these tools cited sources correctly, as they all made some mistakes (e.g. plagiarized, provided fictitious sources, cited sources not mentioned in the list of references or vice versa): even if some of them did not make mistakes in answering some questions, they were not flawless in answering others. Thus, some of the

assumed productivity increases that GenAI tools have been argued to bring to scholarship are actually offset by the additional need to always re-check, cross-validate and carefully evaluate each and every GenAI tool output, regardless of whether or not the tool in question is open source, licensed or indeed developed for research purposes to begin with.

These above-mentioned risks are even greater in narrowly defined or under-researched areas such as nonlinear internationalization, where accuracy in terminology and citations is critical. The complexity of this phenomenon showcases in practice how IB phenomena can constitute distinct challenges for GenAI tools. This study demonstrated how GenAI tools often fail to provide comprehensive or accurate responses when they are used to make sense of emerging IB topics. These findings can in part also inform research on other similarly complex and underexplored areas in IB. Our findings therefore offer practical guidance not only for the use of GenAI tools in IB research in general but also for their potential application in emerging research domains in particular.

5.3 Limitations and future research

The dynamic nature of GenAI development means that the capabilities and limitations of these tools are continually evolving. As such, the current assessment of their utility may change over time. Future researchers should periodically reevaluate these tools to determine whether advancements have addressed existing shortcomings and how new features might enhance their usefulness (Rossi *et al.*, 2024). This ongoing evaluation will help ensure that scholars are making informed decisions about the use of AI tools.

This study asked 12 GenAI tools to define and explain specific nonlinear internationalization-related phenomena. Future researchers might focus on other topics or ask different questions from these tools – for instance, they might ask them to summarize, rewrite or translate some text. They could also try to “consult” several other tools such as Scopus AI or Scite AI. Moreover, as AI tools keep developing, the “verdict” about their usefulness could become more positive in the future. Consequently, it would be interesting to find out how these tools answer the same questions several years later.

6. Conclusion

This study was conducted to find out if GenAI tools could be regarded as useful for conducting IB research, using the concepts related to firms’ nonlinear internationalization as its empirical focus. In sum, the evaluation of GenAI tools revealed distinct strengths and limitations across the three dimensions. First, for *correctness*, while several tools provided partially accurate insights, significant discrepancies were observed in data consistency and alignment with established IB literature. Second, for *hallucinations*, several of the tools (especially, the open chatbots) frequently cited nonexistent or fabricated sources, raising concerns about their reliability for scholarly use. Third, for *thoroughness*, tools varied in their ability to provide comprehensive explanations: only a few offered detailed responses that adequately addressed the complex phenomenon of nonlinear internationalization.

Thus, the conclusion is that the studied 12 GenAI tools still have relatively limited usefulness for the purposes of IB scholars: domain-specific knowledge is needed to ascertain the quality of provided material. Moreover, the information about used sources should be checked carefully because of these tools’ tendency to “invent” fictitious sources and incorrectly cite existing ones. Thus, while GenAI tools offer promising capabilities for academic research, their limitations necessitate careful and critical use. By understanding and addressing the concerns, IB researchers can better leverage these tools to enhance their work while maintaining the rigor and integrity of their research. As nonlinear internationalization encompasses some of the complexities and ambiguities prevalent in IB scholarship in general, this study is also joining the

broader conversations on how scholars might responsibly – or irresponsibly – consider integrating GenAI tools into the study of IB and management.

Note

1. solutions that can respond to conversations by creating texts that resemble genuine human language (for their technical characteristics, see [Lund et al., 2023](#); [Meloni et al., 2023](#); [Ray, 2023](#); [Slavin, 2023](#); [Zangrossi et al., 2024](#)).

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Table A1. Definitions of nonlinear internationalization*

Source	Answer
<i>Main generative AI chatbots</i>	
ChatGPT Plus	<p>“Firms’ nonlinear internationalization refers to the patterns of international expansion that don’t follow a straight, predictable path. This concept suggests that firms may experience irregular patterns of growth, reduction, or changes in their international activities, rather than a smooth, gradual increase in international engagement. Here are some key insights into this concept based on scientific sources:</p> <ol style="list-style-type: none"> 1. Variety of Forms: Nonlinear internationalization can manifest in several ways, including changes in the markets firms enter, the customers they target, the products they offer, their sales channels, and the modes of operation they employ in foreign markets. This complexity means that internationalization should be analyzed not just by looking at a firm’s overall activities in each market, but also by considering how these activities vary across different products, sales channels, customers, and modes of operation within each market 2. Not Just an Anomaly: The concept challenges the traditional views of internationalization that emphasize either a gradual, step-by-step approach or a rapid “born global” path. Instead, it acknowledges the existence of substantial “jumps” or changes in a firm’s international intensity, including partial and complete de-internationalization and re-internationalization, as well as the phenomena of “born-again globals” and “born-again internationals.” It posits that such nonlinear paths are not merely irregular deviations but are instead common and should be seen as a normal part of the internationalization process 3. Relevance in Various Contexts: The study of nonlinear internationalization gained additional relevance with the onset of the COVID-19 pandemic. Research focusing on Estonian firms highlighted that nonlinear internationalization, characterized by entering and exiting foreign markets and experiencing significant export fluctuations, is not limited to times of economic crisis. It can be a normal aspect of a firm’s international strategy, offering opportunities for growth even in the face of global challenges like the pandemic. The pandemic’s impact included demand fluctuations and travel restrictions, but it also created new business opportunities for some firms, leading to increases in their overall turnover <p>These insights suggest that nonlinear internationalization is a significant aspect of international business that merits attention. Understanding this concept can help scholars and practitioners better grasp the complexities and dynamics of how firms engage with global markets”</p> <p>Sources</p> <ul style="list-style-type: none"> • Firms’ Nonlinear Internationalization. Proceedings of the 2021 International Conference on Transformations and Innovations in Business and Education (ICTIBE 2021), Advances in Economics, Business and Management Research. Atlantis Press • Vissak, T. (2010). “Nonlinear internationalization: a neglected topic in international business research.” <i>The Past, Present and Future of International Business and Management</i>, Advances in International Management, Vol. 23. Emerald Publishing Limited

(continued)

Table A1. Continued

Source	Answer
	<ul style="list-style-type: none"> • Vissak, T. (2022). "Serial Nonlinear Internationalization before and During the COVID-19 Pandemic: Case Study Evidence from Estonia." <i>International Business in Times of Crisis: Tribute Volume to Geoffrey Jones, Progress in International Business Research</i>, Vol. 16. Emerald Publishing Limited
Google Gemini	<p>"Firms' nonlinear internationalization refers to a process where a company's engagement with international markets doesn't follow a straight line of continual growth or expansion. This concept challenges the traditional view of internationalization as a linear, staged progression</p> <p>Here's a breakdown based on scientific sources:</p> <ul style="list-style-type: none"> • Deviation from Linear Growth: Nonlinear internationalization highlights that firms can experience periods of increasing international activity followed by stagnation, decline, or even complete withdrawal from certain markets [1, 4]. This can involve aspects like markets served, customers, products offered, sales channels, or foreign operation modes [2] • De-internationalization and Re-entry: The concept encompasses the possibility of firms exiting foreign markets entirely (de-internationalization) and then potentially re-entering them later [1, 3]. This cycle of exit and re-entry can be influenced by various internal and external factors [5] • Serial Nonlinearity: Research suggests that firms might undergo multiple cycles of nonlinear internationalization throughout their existence, referred to as "serial nonlinear internationalization" [4] <p>Overall, firms' nonlinear internationalization underscores the dynamic and complex nature of a company's international journey"</p> <p>Sources</p> <ul style="list-style-type: none"> • Vissak, T. (2019). Forms of Firms' Nonlinear Internationalization [1]. (www.atlantis-press.com/proceedings/ictibe-21/125959868) • Vissak, T. (2010). Nonlinear internationalization: A neglected topic in international business research [4]. (www.atlantis-press.com/article/125959868.pdf)
Microsoft copilot	<p>"Firms' nonlinear internationalization" refers to the various forms of internationalization that a firm can experience, which do not follow a linear or predictable path¹</p> <p>Firm internationalization is traditionally defined as the process through which a firm expands the sales of its goods or services across the borders of global regions and countries into different geographic locations or markets^{2,3}. This process is often perceived as the consequence of incremental adjustments to changing conditions within the firm and its environment³</p> <p>However, nonlinear internationalization acknowledges that this process can occur in various forms and dimensions, including markets, customers, products, sales channels, and foreign operation modes¹. This means that a firm's internationalization process may not always follow a predictable or step-by-step path, but instead, it can evolve in a more complex and dynamic manner. It's important to note that the concept of "firms' nonlinear internationalization" is a topic of ongoing research and discussion in the field of international business studies. Different scholars might have slightly</p> <p style="text-align: right;"><i>(continued)</i></p>

Table A1. Continued

Source	Answer
	<p>different interpretations or focus areas regarding this concept. The definitions provided here are based on the sources found²³</p> <p>Sources</p> <ul style="list-style-type: none"> • Attig, N., Boubakri, N., El Ghoul, S., and Guedhami, O. (2016). Firm internationalization and corporate social responsibility. <i>Journal of Business Ethics</i>, 134, 171–197 • Vissak, T. (2021, August). Forms of Firms’ Nonlinear Internationalization. In <i>2021 International Conference on Transformations and Innovations in Business and Education (ICTIBE 2021)</i> (pp. 244–249). Atlantis Press • Christofor, J. (2008). Theoretical Foundations of Firm Internationalization. <i>Antecedents of Venture Firms’ Internationalization: A Conjoint Analysis of International Entrepreneurship in the Net Economy</i>, 23–81
Perplexity	<p>“Firms’ nonlinear internationalization refers to the discontinuous, fluctuating, and often unpredictable patterns of a company’s international expansion, which does not follow a linear, gradual path. Key aspects include:</p> <ul style="list-style-type: none"> • Firms can enter and exit foreign markets in a non-sequential manner, with multiple cycles of internationalization and de-internationalization • A firm’s international operations, such as sales channels, operation modes, products, and customers, can change in a nonlinear fashion within a given foreign market, even as total sales in that market continue to grow • Nonlinearities can occur not just across markets, but also within a single market in terms of the firm’s specific activities and commitments • Factors like managerial cognition, heuristics, and individual decision-making play an important role in driving these nonlinear internationalization patterns <p>In contrast to traditional stage-based models, nonlinear internationalization highlights the dynamic, complex, and often unpredictable nature of firms’ foreign expansion processes. Understanding these nonlinearities is an important area of research in international business”</p> <p>Sources</p> <ul style="list-style-type: none"> • Vissak, T. (2021). Forms of Firms’ Nonlinear Internationalization. <i>Advances in Economics, Business and Management Research</i>, 186, 243–248 • Vissak, T., and Francioni, B. (2013). Serial nonlinear internationalization in practice: A case study. <i>International Business Review</i>, 22(6), 951–962 • Vissak, T. (2010). MVM’s Nonlinear Internationalization: A Case Study. <i>Journal of East-West Business</i>, 18(4), 275–300 • Vissak, T. (2014). Nonlinear internationalization: A neglected topic in international business research. In <i>The Routledge Companion to International Business Coaching</i> (pp. 61–74). Routledge • Vissak, T., and Masso, J. (2015). Export patterns: Typology development and application. <i>International Business Review</i>, 24(1), 220–237
Claude	<p>“Firms’ nonlinear internationalization” refers to the discontinuous, irregular, or non-sequential patterns of a company’s international expansion process. This concept</p> <p style="text-align: right;"><i>(continued)</i></p>

Table A1. Continued

Source	Answer
	<p>challenges the traditional view of internationalization as a gradual, linear progression Key aspects of nonlinear internationalization include:</p> <ol style="list-style-type: none"> (1) Irregular pace: Firms may rapidly accelerate or decelerate their international activities (2) Market entries and exits: Companies might enter new markets and then withdraw, only to re-enter later (3) Radical changes in operation modes: Firms may suddenly shift from exporting to foreign direct investment, or vice versa (4) Leapfrogging stages: Companies might skip expected stages in the typical internationalization process <p>This definition is synthesized from various academic sources, including work by researchers like Welch and Luostarinen (1988), Jones and Coviello (2005), and Vissak and Francioni (2013). However, as I don't have direct access to these sources, I recommend verifying this information with the original publications for the most accurate and up-to-date definition</p> <p>Sources</p> <ul style="list-style-type: none"> • Welch, L. S., and Luostarinen, R. (1988). Internationalization: Evolution of a concept. <i>Journal of General Management</i>, 14(2), 34–55 • Jones, M. V., and Coviello, N. E. (2005). Internationalisation: Conceptualising an entrepreneurial process of behaviour in time. <i>Journal of International Business Studies</i>, 36(3), 284–303 • Vissak, T., and Francioni, B. (2013). Serial nonlinear internationalization in practice: A case study. <i>International Business Review</i>, 22(6), 951–962
<i>Other generative AI chatbots</i>	
Character.AI	<p>“Firms’ nonlinear internationalization” can refer to how firms choose to expand in order to grow internationally. Specifically, firms have the option of expanding in a linear or nonlinear manner. Linear expansion can be defined as the traditional path of international expansion, where firms first focus on nearby markets and subsequently expand into increasingly distant target countries. This approach typically results in slow, steady growth. Nonlinear internationalization, on the other hand, refers to a more disruptive approach to international expansion, whereby firms choose to skip adjacent countries and go directly to more distant markets”</p> <p>Sources</p> <ul style="list-style-type: none"> • “Strategies and Structure: International Firms and Competitive Advantage” by Michael E. Porter • A study published in <i>The Journal of International Economics</i> called “International Expansion and Nonlinear Growth: Some Evidence from US Multinationals” • A study published by the University of St. Gallen called “Nonlinear Internationalization and Growth of New Firms”
ChatGPT Online	<p>“Firms’ nonlinear internationalization refers to the process by which companies expand their operations and market presence in foreign countries in a non-linear</p> <p style="text-align: right;"><i>(continued)</i></p>

Table A1. Continued

Source	Answer
	<p>fashion, characterized by sudden or unpredictable changes in their internationalization strategies and patterns. This can include rapid expansion into new markets, sudden divestment from certain regions, or the adoption of unconventional approaches to entering foreign markets. According to scientific sources, firms' nonlinear internationalization is often influenced by a variety of factors such as changes in global market conditions, shifts in consumer preferences, advancements in technology, and competitive pressures. This can lead to firms deviating from traditional linear models of internationalization, such as the Uppsala model, and adopting more dynamic and flexible approaches to expanding their global footprint. Research has shown that firms' nonlinear internationalization can be driven by a combination of internal and external factors, including firm-specific capabilities, managerial decisions, industry dynamics, and macroeconomic trends. By adapting to changing market conditions and embracing unpredictability in their internationalization strategies, firms can better navigate the complexities of global business environments and achieve sustainable growth and competitiveness on a global scale"</p> <p>Sources It refused: "I'm sorry, but I cannot provide sources as I am an AI assistant and do not have access to external sources. However, I recommend conducting a search on reputable websites or databases to find sources that support the information provided"</p>
ColossalChat	<p>"Firms' Nonlinear Internationalization (FNI) refers to firms' decision-making process of entering and expanding in foreign markets, which involves various strategies such as exporting, licensing, joint ventures or direct investments. FNI has been studied extensively from both theoretical and empirical perspectives. From a theoretical perspective, researchers have proposed different models to explain how and why firms decide to enter into foreign markets. These theories range from neoclassical economic theory to more recent institutionalist approaches. Empirically, scholars have used quantitative methods to analyze large datasets to identify factors influencing firms' decisions to go global. The results suggest that there are several drivers for firms' international expansion including market size, competition level, legal environment, cultural distance, political risk and financial accessibility. In addition, some studies also found that firm characteristics like ownership structure, product life cycle stage, and industry type can influence firms' internationalization strategy. Overall, this body of literature suggests that while many factors shape firms' internationalization decisions, they tend to be nonlinear; meaning certain combinations of factors may lead to greater or lesser levels of international activity than expected"</p> <p>Sources</p> <ul style="list-style-type: none"> • Zahra, S., and Nielsen, K. B. (2005). The internationalisation of firms: A review of theories and evidence. <i>Journal of World Business</i>, 40(3), 179–206. https://doi.org/10.1016/j.jwb.2005.08.001 • Hennart, J.-C., and Legrand, D. (Eds.). (2009). <i>Handbook on the economics of international trade</i>. North-Holland, Amsterdam. ISBN 9780444536444. Chapter 10 – Firms' nonlinear internationalization by Jean-Charles Hennart and Didier Legrand

(continued)

Table A1. Continued

Source	Answer
	<ul style="list-style-type: none"> Zahra, S.A., and Govindarajan, V. (2000). <i>Strategic Management of Global Enterprise: Text and Cases</i>. Prentice Hall. ISBN 9780130135948. Chapter 10 - Nonlinear Internationalization by Subhash Anand Zahra
<i>AI-driven applications specifically designed for academic research</i>	
Avidnote	<p>“Firms’ nonlinear internationalization refers to the process by which companies expand their operations and activities beyond their domestic markets in a non-linear, dynamic, and flexible manner. It implies that firms do not follow a linear progression of steps or a predefined pathway in their internationalization process. Scientific sources provide several perspectives on this concept. According to a study by Almeida and Kogut (1997), firms’ internationalization is not always a gradual progression from domestic to international markets but can occur through various modes and entry strategies simultaneously or in a discontinuous way. Additionally, research by Johanson and Vahlne (2009) supports the idea of nonlinear internationalization by suggesting that firms may engage in international activities through networks and cooperative partnerships, rather than through traditional hierarchical structures. Furthermore, another study by Knight and Cavusgil (1996) highlights the importance of experiential knowledge gained from previous international ventures, which can lead to accelerated internationalization and non-linear growth. Overall, the concept of firms’ nonlinear internationalization suggests that companies have the flexibility and autonomy to choose different pathways, modes, and strategies for their international expansion, rather than following a fixed sequence of steps”</p> <p>Sources It refused to provide more information (e.g. article title, journal name). It stated that “I’m sorry, but as an AI language model, my responses are generated based on a mixture of licensed data, data created by human trainers, and publicly available data. I have not been trained on specific publishers or have access to proprietary publishers’ databases. Therefore, I do not have direct access to the content of the article you mentioned. To find the specific publication information such as the article title, journal name, volume, and page numbers, you can try searching for it in academic databases, library catalogs, or online research platforms”</p>
Elicit	<p>“Firms’ nonlinear internationalization, as defined by Chandra (2017), is a complex and unpredictable process influenced by networks and social physics. Vissak (2021) further elaborates on this, identifying various forms of nonlinear internationalization, including in markets, customers, products, sales channels, and foreign operation modes. This concept challenges the traditional linear view of internationalization, as demonstrated by the case study of an Italian machinery producer (Vissak, 2013). Anh (2021) adds to this by highlighting the potential impact of nonlinear internationalization on firm financial performance, suggesting a U-shaped or S-shaped relationship”</p> <p>Sources</p> <ul style="list-style-type: none"> Chandra, Y., and Wilkinson, I. F. (2017). Firm internationalization from a network-centric complex-systems perspective. <i>Journal of World Business</i>, 52(5), 691–701 Vissak, T. (2021, August). Forms of Firms’ Nonlinear Internationalization. In <i>2021 International Conference on Transformations and Innovations in Business and Education (ICTIBE 2021)</i> (pp. 244–249). Atlantis Press Vissak, T., and Francioni, B. (2013). Serial nonlinear internationalization in practice: A case study. <i>International Business Review</i>, 22(6), 951–962 <p style="text-align: right;">(continued)</p>

Table A1. Continued

Source	Answer
	<ul style="list-style-type: none"> Tran, Q. A., and Dut, V. V. (2021). A 21-Year Review of Research on the Effect of Internationalization on Firm Financial Performance and Research Agenda. <i>VNU JOURNAL OF ECONOMICS AND BUSINESS</i>, 1(2)
PaperDigest	<p>“Based on the provided search results, firms’ nonlinear internationalization can be defined as a distinct mode of internationalization that exhibits characteristics of both the Uppsala model and the Born Global approach. This process involves unique features that differentiate it from traditional linear internationalization strategies. The nonlinear internationalization of firms involves a combination of various elements that contribute to its distinctiveness in the global market. This approach may involve a more dynamic and flexible strategy that allows firms to adapt to changing market conditions and opportunities. Additionally, firms’ nonlinear internationalization may involve a more rapid and aggressive expansion into international markets compared to traditional linear approaches. Overall, firms’ nonlinear internationalization is a complex and multifaceted process that requires a strategic and adaptive approach to succeed in the global marketplace”</p> <p>Source</p> <ul style="list-style-type: none"> Owusu, R. A., Sandhu, M., and Kock, S. (2007). Project business: a distinct mode of internationalization. <i>International Marketing Review</i>, 24(6), 695–714
Scispace	<p>““Firms’ nonlinear internationalization” refers to the non-linear growth patterns experienced by firms in their international expansion^{[1][2]}. This concept encompasses fluctuations in sales with different clients in various foreign markets and the varying number of foreign markets served over time^[3]. It highlights that internationalization should not only be assessed based on total sales in a specific market but also by considering activities across different sales channels, products, customers, and foreign operation modes within each market^[4]. Such fluctuations do not necessarily lead to failure and can be influenced by internal and external factors, occurring multiple times in a particular market^[5]. Understanding firms’ nonlinear internationalization involves analyzing growth patterns, crisis points, and the impact of various factors on the internationalization process”</p> <p>Sources</p> <ul style="list-style-type: none"> Tiia, Vissak. (2021). Forms of Firms’ Nonlinear Internationalization. doi: 10.2991/AEBMR.K.210809.034 Xiaotian, Zhang., Raushan, Aman., Julia, Helena, Zhang., Yanhong, Xi. (2020). Serial nonlinearities in firm’s internationalisation process: case evidence from China. doi: 10.1504/IJEXPORTM.2020.10029816 Niklas, Åkerman. (2015). International opportunity realization in firm internationalization: Non-linear effects of market-specific knowledge and internationalization knowledge. <i>Journal of International Entrepreneurship</i>, doi: 10.1007/S10843-015–0152-X Itzhak, Gnizy., Aviv, Shoham. (2014). Explicating the Reverse Internationalization Processes of Firms. <i>Journal of Global Marketing</i>, doi: 10.1080/08911762.2014.917755 <p>Note(s): *Answers to the following question: Please define “firms’ nonlinear internationalization” based on scientific sources. Some tools provided sources instantly, and some did it after asking them to provide sources for their text</p> <p>Source(s): Authors’ own work</p>

Table A2. Definitions of de-internationalization*

Source	Answer
<i>Main generative AI chatbots</i>	
ChatGPT Plus	<p>“Firms’ de-internationalization refers to the process where companies reduce their international activities, which can include divesting from foreign markets, scaling back operations, or entirely withdrawing from some regions. This strategic shift can be driven by various factors such as changes in the global economic environment, shifts in company strategy, or the need to focus on core competencies. The phenomenon contrasts with internationalization, where firms expand their operations globally. De-internationalization has been explored in research from multiple perspectives. Studies have examined the triggers and consequences of de-internationalization, noting that it is often not just about business failure but can also be a strategic choice to optimize resources or to adapt to adverse conditions in international markets. This process is not necessarily permanent; firms may re-enter foreign markets after a retreat, suggesting that de-internationalization can also be part of a dynamic strategy of international market engagement. For a deeper dive into the strategic and operational aspects of de-internationalization, you might explore academic articles and empirical studies that discuss how and why companies choose to reduce their international footprint, as well as the implications of these decisions”</p> <p>Source</p> <ul style="list-style-type: none"> Sort, J. C., and Turcan, R. V. (2019). De-internationalization: A business model perspective. <i>Journal of Business Models</i>, 7(4), 39–44
Google Gemini	<p>“Firms’ de-internationalization, according to scientific research, refers to the voluntary or forced scaling back of a company’s international activities. This can encompass a variety of actions, including: Market Exit: Withdrawing from specific foreign markets entirely. [Trąpczyński, 2016] Reduced Operations: Decreasing the level of engagement in a particular market, such as by closing subsidiaries or reducing production. Strategic Shift: Refocusing on domestic markets or changing the way a company operates internationally, like moving from direct ownership of facilities to licensing agreements. [Kafouros <i>et al.</i>, 2022] De-internationalization is not necessarily seen as a negative outcome, although it has traditionally been viewed that way in business research. It can be a strategic decision based on various factors like: Economic Conditions: Changes in global or regional economies that make international operations less profitable. [Belderbos and Zou, 2009] Political Instability: Unstable political environments in foreign markets that create risk. [Berry, 2013] Increased Competition: Facing tougher competition from local or international firms in foreign markets. [Benito and Welch, 1997] Strategic Priorities: A company deciding to focus resources on different areas, potentially domestic expansion. [Kafouros <i>et al.</i>, 2018] Understanding de-internationalization is important for researchers and businesses alike. It provides a more complete picture of how firms operate internationally, acknowledging that scaling back involvement in foreign markets can be a just as strategic a decision as international expansion”</p> <p>Sources</p> <ul style="list-style-type: none"> Belderbos, B., and Zou, H. (2009). Firms in transition from emerging to developed economies: A conceptual framework. <i>Journal of International Business Studies</i>, 40(8), 1333–1356

(continued)

Table A2. Continued

Source	Answer
	<ul style="list-style-type: none"> • Benito, G. R., and Welch, D. J. (1997). Firm heterogeneity and dynamic capabilities in international distribution channels. <i>Strategic Management Journal</i>, 18(8), 633–653 • Berry, S. J. (2013). Foreign direct investment and political risk: A review of the literature. <i>Journal of International Business Studies</i>, 44(1), 36–64 • Kafouros, M., Kostopoulos, V., and Zietsma, C. (2018). Firm-level determinants of de-internationalization: A review and research agenda. <i>International Business Review</i>, 27(2), 321–345 • Kafouros, M., Zietsma, C., and Dikova, D. (2022). De-internationalization through strategic asset divestment: A typology and framework. <i>Journal of International Management</i>, 28(2), 100832 • Trąpczyński, M. (2016). Determinants and consequences of firms' de-internationalization. <i>Management and Production Engineering Review</i>, 8(4), 94–102
Microsoft Copilot	<p>“Firms’ de-internationalization is a complex process that involves multiple aspects. It can be defined as the total or partial, voluntary or involuntary exit of a company from an external or foreign market¹. This process can take various forms such as foreign divestment, export reduction, withdrawal of a foreign operation, global exit, termination, and backshoring². The phenomenon of de-internationalization has been theoretically recognized as an important part of the dynamics of firm internationalization². It has practical, far-reaching implications for firms that either engage in direct investment in foreign countries or export overseas if these firms rely on these international activities to create value². Despite the theoretical importance and practical significance of de-internationalization, the international business field is still working to fully understand this phenomenon². The understanding of the determinants and consequences of de-internationalization processes can contribute to a more conscious management of foreign operations³. It’s important to note that while financial effects of divestments have been frequently studied, the competitiveness implications of de-internationalization have widely been neglected³. Therefore, further research should consider de-internationalization phenomena from the viewpoint of several interrelated aspects, as well as shift attention from studying failure to studying optimization³”</p> <p>Sources</p> <ul style="list-style-type: none"> • What is De-Internationalization IGI Global (igi-global.com) • Trąpczyński, P. (2016). De-internationalisation: A review of empirical studies and implications for international business research. <i>Baltic Journal of Management</i>, 11(4), 350–379 • Du, J., Zhu, S., and Li, W. H. (2023). Innovation through internationalization: A systematic review and research agenda. <i>Asia Pacific Journal of Management</i>, 40 (3), 1217–1251 • Tang, R. W., Zhu, Y., Cai, H., and Han, J. (2021). De-internationalization: a thematic review and the directions forward. <i>Management International Review</i>, 61(3), 267–312
Perplexity	<p>“De-internationalization refers to the process by which a firm reduces or withdraws its business activities from foreign markets. This can involve:</p> <ul style="list-style-type: none"> • Exiting or scaling back operations in specific foreign markets • Closing down international subsidiaries or joint ventures

(continued)

Table A2. Continued

Source	Answer
	<ul style="list-style-type: none"> Reducing international sales, exports, or other foreign market commitments <p>Key aspects of de-internationalization include:</p> <ul style="list-style-type: none"> It is not simply the reverse of the internationalization process, but a distinct phenomenon with its own drivers and dynamics Firms may de-internationalize selectively, by withdrawing from certain foreign markets while maintaining or even expanding operations in others De-internationalization can be a proactive strategic choice or a reactive response to poor performance, environmental changes, or other factors The reasons for de-internationalization can include market-specific factors, firm-specific factors, or broader environmental changes De-internationalization can have significant organizational and financial implications for the firm <p>Understanding the causes, processes, and consequences of de-internationalization is an important area of research in international business“</p> <p>Sources</p> <ul style="list-style-type: none"> Benito, G. R., and Welch, L. S. (1997). De-internationalization. <i>MIR: Management International Review</i>, 7–25 Turcan, R. V. (2011). De-internationalization: A conceptual note. <i>The Copenhagen Journal of Asian Studies</i>, 29(1), 57–67 Mellahi, K. (2003). The de-internationalization process: A case study of Marks and Spencer. <i>The Service Industries Journal</i>, 23(5), 51–68 Bemini, M., Du, J., and Love, J. H. (2016). Explaining intermittent exporting: exit and conditional re-entry in export markets. <i>Journal of International Business Studies</i>, 47(9), 1058–1076 Welch, C. L., and Welch, L. S. (2009). Re-internationalisation: Exploration and conceptualisation. <i>International Business Review</i>, 18(6), 567–577
Claude	<p>“Firms’ de-internationalization” refers to the process by which companies reduce their involvement in or withdraw from international markets. This concept encompasses a range of activities, from partial reduction of international operations to complete exit from foreign markets</p> <p>Key aspects of de-internationalization include:</p> <ol style="list-style-type: none"> Voluntary or forced reduction in international activities Decreasing foreign market presence Divestment of international assets or subsidiaries Refocusing on domestic markets <p>While I don’t have access to a live database of scientific sources, I can provide a general definition based on my training. However, for the most accurate and up-to-date information, it would be best to consult recent academic literature If I were to provide a citation, it might look something like this:</p>

(continued)

Table A2. Continued

Source	Answer
	Benito, G. R. G., and Welch, L. S. (1997). De-internationalization. <i>Management International Review</i> , 37(2), 7–25
	<p>This paper is often considered foundational in the study of de-internationalization. However, I must emphasize that while this citation is formatted based on standard academic citation styles, you should verify it independently. As an AI, I may sometimes generate plausible-looking citations that aren't entirely accurate. It's always best to double-check citations against a reliable academic database or the original sources</p> <p>For the most current research on this topic, I recommend searching recent publications in international business journals</p>
<i>Other generative AI chatbots</i>	
Character.AI	<p>"Firms' De-internationalization" can refer to instances where firms reduce their international operations, either by divesting international subsidiary firms or by reducing investments in foreign markets. This can be a result of regulatory pressure, economic downturns, or shifts in a firm's strategic direction. Firms' de-internationalization can be characterized by three main phases: disengagement, divestiture, and withdrawal. During the disengagement phase, firms reduce their international operations through a variety of techniques, such as downsizing international divisions or pulling out of specific foreign markets"</p> <p>Sources</p> <ul style="list-style-type: none"> • "Firms' International Expansion and Economic Growth: A Review and Empirical Investigation" by James R. Davis Jr. • A study published in <i>The Journal of International Entrepreneurship</i> called "Divestiture as a Form of International Disengagement: An Empirical Approach" • An article published in <i>The Economic Review</i> called "International Retrenchment as Managerial Response to Economic Cycle Shocks: A Data Based Exploration"
ChatGPT Online	<p>"Firms' de-internationalization refers to the process by which a company reduces or eliminates its international operations and presence in foreign markets. This can involve scaling back or closing foreign subsidiaries, reducing exports or imports, and withdrawing from foreign markets altogether. According to a study by Johanson and Vahlne (2009), firms' de-internationalization is often a strategic response to changes in the external environment, such as shifts in market conditions, regulatory changes, or increased competition. The decision to de-internationalize may also be influenced by internal factors, such as a company's financial performance, resource constraints, or a desire to refocus on core markets. Research by Rugman and Verbeke (2004) suggests that firms' de-internationalization can be a complex and challenging process, requiring careful planning and execution. It may involve restructuring the company's operations, reallocating resources, and managing relationships with stakeholders such as employees, suppliers, and customers. Overall, firms' de-internationalization is a strategic decision that can have significant implications for a company's competitiveness, growth, and overall performance in the global marketplace"</p> <p>Sources</p> <ul style="list-style-type: none"> • Johanson, J., and Vahlne, J. E. (2009). The Uppsala internationalization process model revisited: From liability of foreignness to liability of outsidership. <i>Journal of International Business Studies</i>, 40(9), 1411–1431

(continued)

Table A2. Continued

Source	Answer
ColossalChat	<ul style="list-style-type: none"> Rugman, A. M., and Verbeke, A. (2004). A perspective on regional and global strategies of multinational enterprises. <i>Journal of International Business Studies</i>, 35(1), 3–18 <p>“Firms’ De-Internationalization (FD) refers to when firms reduce their international operations and activities due to external or internal factors such as economic downturns, political instability, changes in trade policies, etc. FD can also be caused by strategic decisions made by companies to focus more resources locally instead of internationally. This phenomenon has been studied extensively within International Business research and literature”</p> <p>Sources</p> <ul style="list-style-type: none"> “De-Internationalisation Strategies Adopted By Multinational Enterprises” by Zhang <i>et al.</i>, 2020; “Exploring The Determinants of Firms’ De-Internationalization Decision Making” by Liu and Wang, 2016; “Understanding And Managing Firms’ De-Internationalization Processes” by Kumar <i>et al.</i>, 2015
AI-driven applications specifically designed for academic research Avidnote	<p>“Firms’ de-internationalization” refers to the process whereby a company reduces or withdraws its international operations or presence in foreign markets. It involves the reversal or scaling back of international activities previously undertaken by the firm. This could include divesting foreign subsidiaries, closing foreign operations, scaling down international market penetration, or shifting focus back to domestic markets”</p> <p>Sources</p> <ul style="list-style-type: none"> Hitt, M. A., Li, D., and Xu, K. (2016). International strategy: From local to global and back. <i>Journal of World Business</i>, 51(1), 11–23 Pehrsson, A. (2010). De-internationalization of the firm: A literature review and conceptual framework. <i>Advances in International Marketing</i>, 21, 99–116 Welch, L. S., and Luostarinen, R. K. (1988). Internationalization and the smaller firm: A review of contemporary empirical research. <i>Journal of International Business Studies</i>, 19(3), 461–476 Zhou, L., Wu, A., and Barnes, B. R. (2017). The dark side of internationalization: A critical review of the international business literature on firms’ de-internationalization. <i>International Business Review</i>, 26(6), 1216–1231
Elicit	<p>“Firms’ de-internationalization, as defined by Turcan (2003), is a process of reducing or completely withdrawing from international business operations, often due to factors such as resource constraints or strategic reorientation. This process is not always permanent, as some firms may later resume their international activities, a phenomenon known as re-internationalization (Fan-y, 2013). Kafouros (2021) further emphasizes the cyclical nature of these processes, highlighting the need for a comprehensive understanding of the antecedents and motivators for de-internationalization and re-internationalization. These studies collectively underscore</p> <p style="text-align: right;"><i>(continued)</i></p>

Table A2. Continued

Source	Answer
	<p>the dynamic and complex nature of firms' internationalization pathways, with de-internationalization being a key aspect of this process"</p> <p>Sources</p> <ul style="list-style-type: none"> • Turcan, R. V. (2003). Small firm de-internationalization: An entrepreneurship perspective • Kafouros, M., Cavusgil, S. T., Devinney, T. M., Ganotakis, P., and Fainshmidt, S. (2022). Cycles of de-internationalization and re-internationalization: Towards an integrative framework. <i>Journal of World Business</i>, 57(1), 101257
PaperDigest	<p>"Based on the provided search results, firms' de-internationalization can be defined as the process through which organizations retract their international operations and activities. This process is influenced by organizational institutionalism, attitudinal commitment, and resource-based strategies. Research on firms' de-internationalization focuses on specific criteria, historical temporality, and the impact of market volatility on exiting and re-entering emerging economies. The decision to de-internationalize is often based on past research indications and the competitive advantage offered by internal resources. Additionally, the cognitive foundations of firm internationalization play a role in understanding the bounded rationality behind de-internationalization processes. Overall, firms' de-internationalization involves a strategic withdrawal from international markets, influenced by various internal and external factors</p> <p>Sources [1], [2], [3], [4], [5], [7], [9]"</p> <p>[1] De-internationalization: An organizational institutionalism ...</p> <p>[2] Temporality and firm de-internationalization: Three historical ...</p> <p>[3] Internationalization: Evolution of a Concept - Lawrence S. Welch ...</p> <p>[4] What Doesn't Kill the MNE, Makes It Stronger? Impact of De ...</p> <p>[5] Market exit and re-entry in a volatile emerging economy: a case ...</p> <p>[6] The Art of Abandoning Ship</p> <p>[7] Foreign divestments: a review and research agenda Emerald Insight</p> <p>[8] (PDF) The Effect of Studying Abroad and Curriculum ...</p> <p>[9] The Cognitive Foundations of Firm Internationalization</p> <p>[10] (PDF) The Beauty and the Beast?</p>
Scispace	<p>"“Firms' de-internationalization” refers to the process where firms retract their international operations. This phenomenon is gaining attention due to its prevalence among both large corporations and SMEs. Various factors drive de-internationalization, such as internal determinants and external influences [1]. Commitment profiles, including affective, normative, instrumental, and continuance commitment, play a crucial role in influencing the timing, effort, and extent of de-internationalization [2]. Causes of de-internationalization can stem from incorrect internationalization processes, such as the Misfit Micro-Location issue, where firms choose unsuitable locations within a country for their operations [3]. Overall, de-internationalization involves firms making decisions to either adapt and stay or withdraw and exit international markets, influenced by a combination of factors and commitment types [4] [5]"</p> <p>Sources</p> <ul style="list-style-type: none"> • Weng, M., Lim., Symeon, Mandrinos. (2022). A general theory of de-internationalization. <i>Global Business and Organizational Excellence</i>, doi: 10.1002/joe.22186 • (2022). Towards De-internationalisation of Entrepreneurial SMEs: Exploring Internal and External Factors. doi: 10.5465/ambpp.2022.13188abstract

(continued)

Table A2. Continued

Source	Answer
	<ul style="list-style-type: none"> <li data-bbox="315 309 1039 391">• Andrea, Kuiken., Robert, Wentrup., Roger, Schweizer. (2020). Attitudinal commitment in firms' de-internationalization processes. <i>The Multinational Business Review</i>, doi: 10.1108/MBR-11-2019-0154 <li data-bbox="315 391 1039 455">• Raquel, Meneses., Helder, Pinho. (2019). Causes of De-Internationalization: Evidence of Six Cases. doi: 10.4018/978-1-5225-8906-8.CH008 <li data-bbox="315 455 1039 535">• Christophe, Loué. (2018). Firms and internationalization: an approach based on the skills and the profile of the entrepreneur. <i>Journal of small business and entrepreneurship</i>, doi: 10.1080/08276331.2018.1459013

Note(s): *Answers to the following question: Please define "firms' de-internationalization" based on scientific sources

Source(s): Authors' own work

Table A3. Definitions of re-internationalization*

Source	Answer
<i>Main generative AI chatbots</i>	
ChatGPT Plus	<p>“Firms’ re-internationalization refers to the process whereby companies re-enter international markets after previously withdrawing from them. This phase involves reestablishing or expanding their global presence, which can be driven by improved firm capabilities, market conditions, or strategic realignments. The re-internationalization process often relies on the experiences and lessons learned from past international engagements, using these insights to better navigate the complexities of global markets”</p>
Source	
	<ul style="list-style-type: none"> • Salman Ali and Ajeet N. Mathur, “When Failure is Neither Fatal nor Final: Understanding Re-internationalization Processes,” <i>American Business Review</i>: Vol. 25: No. 1, Article 5, 2022. https://digitalcommons.newhaven.edu/americanbusinessreview/vol25/iss1/5/
Google Gemini	<p>“Company re-entering the international arena after previously withdrawing from all its foreign operations. It’s distinct from simply re-entering a specific market they may have exited before, as re-internationalization signifies a complete withdrawal followed by a renewed international presence. This process can involve various stages:</p> <ul style="list-style-type: none"> • <i>Initial internationalization</i>: the company’s first foray into foreign markets • <i>De-internationalization</i>: the voluntary or forced scaling back of international activities, potentially through market exit, reduced operations, or strategic shifts • <i>Time-out period</i>: a period where the company has no international operations • <i>Re-entry</i>: The company resumes international activities, potentially in new markets or with a different approach. [Welch and Welch, 2009] <p>Re-internationalization is becoming increasingly recognized as a significant phenomenon in international business. Companies may choose to re-internationalize due to several factors, including:</p> <ul style="list-style-type: none"> • <i>Favorable business environment</i>: Improved conditions in previously unattractive markets • <i>Developed resources and capabilities</i>: the company may have gained valuable skills and knowledge during its international experience that can be leveraged for a successful re-entry • <i>Globally oriented management</i>: a shift in leadership towards a more international perspective • <i>Recovered Networks</i>: Re-establishing connections with former partners or distributors. [Javalgi et al., 2011; Vissak and Masso, 2015] <p>Understanding re-internationalization helps create a more nuanced understanding of how firms navigate the global marketplace. It acknowledges that internationalization is not always a linear process, and companies may strategically withdraw and re-enter foreign markets based on changing circumstances”</p>

(continued)

Table A3. Continued

Source	Answer
	<p>Sources</p> <ul style="list-style-type: none">Javalgi, R. G., Terpstra, R., and Agarwal, S. (2011). Re-internationalization of born-global firms: A conceptual framework. <i>Journal of International Entrepreneurship</i>, 9(2), 151–174Welch, D. J., and Welch, L. S. (2009). When failure is neither fatal nor final: Understanding re-internationalization processes. <i>Academy of Management Discoveries</i>, 3(4), 341–364Vissak, A., and Masso, C. (2015). Re-internationalisation of SMEs: A process model and evidence from the Baltic States. <i>Journal of Small Business Management</i>, 53(1), 189–213
Microsoft Copilot	<p>“Firms’ re-internationalization can be defined as the process where a firm, after a period of de-internationalization, decides to re-enter the international market¹. This process can be either full or partial, meaning a firm might return to all the markets from which it retreated, or it can decide to re-enter only one or some of them¹. The capability to re-internationalize is dependent on the interaction between entrepreneurs’ internal resources and external constraints². These constraints are explained by the Ghemawat’s CAGE Distance Framework, which includes “cultural,” “administrative,” “geographic,” and “economic” challenges². The re-internationalization process is part of the broader dynamics of firm internationalization, which includes various aspects such as foreign direct investment (FDI), the emergence and evolution of multinational enterprises (MNEs), and the transition from internationalization to globalization³”</p> <p>Sources</p> <ul style="list-style-type: none">Ngo, H. T. T., and Igwe, P. A. (2019). Internationalization of Firms and Entrepreneur’s Motivations: A Review and Research Agenda. Emerald Insight Home Books Societal Entrepreneurship and Competitiveness²Du, J., Zhu, S., and Li, W. H. (2022). Innovation through internationalization: A systematic review and research agenda. <i>Asia Pacific Journal of Management</i>⁴Turcan, R. V. (2003). Re-Internationalization: a Conceptual Framework and Some Evidence from International Small Business Journal¹Buckley, P. J., and Ghauri, P. N. (2023). Rethinking internationalization processes: toward a circular framework. <i>Review of International Business and Strategy</i>³
Other generative AI chatbots	
Character.AI	<p>“Firms’ Re-internationalization” can refer to instances where firms either re-enter certain foreign markets or expand their operations in new foreign markets after divesting or withdrawing from those markets. This can be a result of changes in strategic direction, or improvements in market conditions. Firms’ re-internationalization can be characterized by four main phases: reconfiguration, reentry, expansion (internationalization), and integration. During the reconfiguration phase, firms revisit their original international strategies and make adjustments accordingly. During the reentry phase, firms return to foreign markets they previously left”</p> <p>Sources</p> <ul style="list-style-type: none">“International Strategy and Strategy Execution: The Re-internationalization Choice” by Charles A. O’Reilly III and David A. Kaplan

(continued)

Table A3. Continued

Source	Answer
	<ul style="list-style-type: none"> • “The Role of Firm Strategy in Foreign Market Entry” by James R. Davis Jr • An article published in the Journal of Management Development called “The Re-Internationalization Process: A Strategic Perspective on Cross-Border Business”
ChatGPT Online	<p>“Firms’ re-internationalization” refers to the process by which a company that has previously expanded its operations into international markets, either through exporting, licensing, or establishing foreign subsidiaries, re-engages in international business activities after a period of retrenchment or withdrawal. This can involve a variety of strategies, such as re-entering markets where the firm has previously operated, entering new markets, or expanding existing international operations. According to scientific sources, firms’ re-internationalization is often driven by factors such as changes in market conditions, shifts in competitive dynamics, opportunities for growth in foreign markets, or the need to diversify risk. It can also be influenced by internal factors within the firm, such as changes in strategy, management, or resources. Research on firms’ re-internationalization has identified various challenges and strategies associated with the process, including the need to adapt to changing market conditions, navigate regulatory environments in different countries, manage relationships with foreign partners and stakeholders, and develop capabilities for international operations. Overall, firms’ re-internationalization is a complex and dynamic process that requires careful planning, strategic decision-making, and the ability to leverage both internal and external resources to successfully re-engage in international business activities”</p> <p>Sources It refused to provide sources as “it appears that you have not provided a specific question or answer for me to reference sources.” After clarifying the question regarding the necessary information, it started defining the phenomenon again instead of providing any sources</p>
ColossalChat	<p>“Firms’ re-internationalization refers to when firms which have previously been internationalized, or had operations in multiple countries, decide to expand their activities into other markets again after having reduced their global presence due to economic downturns and/or market conditions. This can involve either entering entirely new markets or acquiring existing businesses in different locations. It involves similar strategies as first time internationalisation but with more experience of doing so and often greater resources available. Re-internationalisation allows companies to take advantage of any opportunities they may have identified since leaving the original market, such as changes in technology, customer preferences, competitive landscape etc., while also taking advantage of their previous knowledge of the local culture and language. Firms’ re-internationalization has become increasingly popular over recent years due to its potential for cost savings compared to establishing a firm from scratch”</p> <p>Sources</p> <ul style="list-style-type: none"> • ‘Re-Internationalizing Firms – Strategic Choices and International Performance’, edited by Kok and van Tulder (2016) • ‘Second Chance Companies – The Dynamics of Re-Entry Mode Choice After Crisis’ by Kok <i>et al.</i> (2019)

(continued)

Table A3. Continued

Source	Answer
Perplexity	<p>Re-internationalization refers to the process by which a firm that has previously withdrawn from foreign markets re-engages in international business activities. This can involve:</p> <ul style="list-style-type: none">• Re-entering previously exited foreign markets• Expanding international operations after a period of de-internationalization• Resuming exports, foreign direct investment, or other international commitments <p>Key aspects of re-internationalization include:</p> <ul style="list-style-type: none">• It is distinct from the initial internationalization process, as the firm has prior international experience to draw upon• Firms may re-internationalize selectively, by re-entering certain foreign markets while maintaining a domestic focus in others• Re-internationalization can be a proactive strategic choice or a reactive response to changes in the firm's internal or external environment• Reasons for re-internationalization can include new market opportunities, improved firm capabilities, or shifts in competitive dynamics• The re-internationalization process may differ from the firm's initial foreign market entry, leveraging past experiences and knowledge• Re-internationalization can have significant organizational and performance implications for the firm <p>Understanding the drivers, processes, and outcomes of re-internationalization is an important area of research in international business</p> <p>Sources</p> <ul style="list-style-type: none">• Welch, C. L., and Welch, L. S. (2009). Re-internationalisation: Exploration and conceptualisation. <i>International Business Review</i>, 18(6), 567–577• Javalgi, R. G., Deligonul, S., Dixit, A., and Cavusgil, S. T. (2011). International market reentry: a review and research framework. <i>International Business Review</i>, 20(4), 377–393• Vissak, T., and Francioni, B. (2013). Serial nonlinear internationalization in practice: A case study. <i>International Business Review</i>, 22(6), 951–962• Bernini, M., Du, J., and Love, J. H. (2016). Explaining intermittent exporting: exit and conditional re-entry in export markets. <i>Journal of International Business Studies</i>, 47(9), 1058–1076• Turcan, R. V. (2011). De-internationalization: A conceptual note. <i>The Copenhagen Journal of Asian Studies</i>, 29(1), 57–67
Claude	<p>Re-internationalization refers to the process by which a firm re-enters international markets or resumes international activities after a period of de-internationalization or withdrawal from foreign operations. This concept is part of the broader understanding of nonlinear internationalization patterns</p> <p>Key aspects of re-internationalization include:</p> <ol style="list-style-type: none">(1) Re-entry into previously abandoned foreign markets

(continued)

Table A3. Continued

Source	Answer
	<p>(2) Resumption of international activities after a period of focus on domestic operations</p> <p>(3) Renewed commitment to international expansion following a period of retrenchment</p> <p>(4) Potentially different strategies or modes of entry compared to the initial internationalization</p>
	<p>While I don't have access to a live database of scientific sources, I can provide a general definition based on my training. For the most accurate and up-to-date information, it would be best to consult recent academic literature. However, I can offer an example of how a relevant citation might look, with the caveat that this should be independently verified: Welch, C. L., and Welch, L. S. (2009). Re-internationalisation: Exploration and conceptualisation. <i>International Business Review</i>, 18(6), 567–577</p> <p>This paper is often referenced in discussions of re-internationalization, but as an AI, I can't guarantee its content or relevance without the ability to access current databases. Always double-check citations and consider more recent publications for the most current research on this topic</p>
	<p><i>AI-driven applications specifically designed for academic research</i></p>
Avidnote	<p>“Firms’ re-internationalization” refers to the process through which a company expands its international operations after a period of reducing or withdrawing its international activities. It involves the re-engagement of a firm in foreign markets and the re-establishment of its international presence. This concept is explored in the academic literature within the field of international business”</p>
	<p>Sources</p> <ul style="list-style-type: none"> • Luo, Y., and Rui, H. (2009). An ambidexterity perspective toward multinational enterprises from emerging economies. <i>Academy of Management Perspectives</i>, 23(4), 49–70 • Chetty, S., and Campbell-Hunt, C. (2003). Exploitation and in international venture capital investment. <i>Journal of International Business Studies</i>, 34(), 473–488 • Slangen, A., and Hart, J. F. (2008). Do multinationals really prefer to enter culturally distant countries through greenfields rather than through acquisitions? The answer and its implications for entry mode choice. <i>Journal of International Business Studies</i>, 39(3), 472–490 • Agarwal, S., and Ramaswami, S. N. (1992). Choice of foreign market entry mode: Impact of ownership, location and internalization factors. <i>Journal of International Business Studies</i>, 23(1), 1–27
Elicit	<p>“Firms’ re-internationalization refers to the process of re-entering international operations after a period of withdrawal (Ali, 2021). This can be driven by factors such as initial internationalization experiences, dynamic capabilities, and organizational commitment to internationalization (Ali, 2021). The phenomenon of re-internationalization is often accompanied by de-internationalization, and both are influenced by various causal factors and theoretical frameworks (Fan-y, 2013). The changing international behavior of firms, including re-internationalization, is influenced by shifting environmental forces (Axinn, 2001). Some firms, particularly those facing low-cost international competition, may reposition into industry-focused international firms, which specialize in a particular industry</p>

(continued)

Table A3. Continued

Source	Answer
	and invest in R&D to create specialized expertise (Mascarenhas, 2013)”
	Sources
	<ul style="list-style-type: none">• Ali, S., Mathur, A. N., and Jaiswal, A. K. (2022). Antecedents to firm performance during re-internationalization. <i>Australian Journal of Management</i>, 47(3), 423–453• Axinn, C. N., and Matthyssens, P. (2001). Reassessing the internationalization of the firm (advances in international marketing, 11)• Mascarenhas, B. (2013). The Industry-focused International Strategy: Prevalence and Profile. <i>Management International Review</i>, 53, 251–267
PaperDigest	“Firms’ re-internationalization refers to the process in which companies expand their international presence after a period of withdrawal or reduced international activity. This phenomenon involves managing strategic tensions and digital transformation trajectories, as highlighted in research studies [1]. The significance of firms’ re-internationalization can be traced back to the 1990s, particularly in the context of the Indian economy [2]. Antecedents to firm performance during re-internationalization have been studied in developed countries in North America and Europe, shedding light on the factors influencing this process [3]. A comparison between re-internationalization and initial internationalization reveals that a prolonged break from international activities may impact the effectiveness of re-internationalization efforts [4]. Research also suggests that experiences and past indications play a crucial role in shaping firms’ re-internationalization strategies [5]”
	Sources
	[1] Managing digital transformation during re-internationalization [...] [2] Article - When Failure is Neither Fatal nor Final: Understanding Re [...] [3] Antecedents to firm performance during re-internationalization [...] [4] Re-Internationalization v/s Initial Internationalization: Comparison of [...] [5] What Doesn’t Kill the MNE, Makes It Stronger? Impact of De [...]
Scispace	““Firms’ re-internationalization” refers to the process where companies re-enter international markets after a complete withdrawal from previous international operations. This phenomenon is a crucial but often overlooked aspect in international business research ^{[1][2]} . The drivers of re-internationalization include factors such as firm-specific competitive advantage, market and product diversification strategies, overall exporting experience, and the firm’s time-out period ^[3] . Successful re-internationalization is facilitated by learning from past failures, gaining experiences, leveraging networks and relationships, maintaining organizational commitment to internationalization, and developing dynamic capabilities ^[4] . The process of re-internationalization involves a complex interplay of various factors that can influence both the re-entry into international markets and the subsequent post-re-entry performance in different ways ^[5] ”
	Sources
	<ul style="list-style-type: none">• Lucian, Hölscher. (2023). Recontextualization in International Business. <i>Oxford Research Encyclopedia of Business and Management</i>, doi: 10.1093/acrefore/9780190224851.013.342• (2022). Re-internationalization and Firm’s Post-re-entry Performance: The Role of International Heritage. <i>Proceedings - Academy of Management</i>, doi: 10.5465/ambpp.2022.10378abstract

(continued)

Table A3. Continued

Source	Answer
	<ul style="list-style-type: none">• Salman, Ali., Ajeet, N., Mathur. (2022). When Failure is Neither Fatal nor Final: Understanding Re-internationalization Processes. <i>American business review</i>, doi: 10.37625/abr.25.1.50–82• Salman, Ali., Ajeet, N, Mathur., Anand, Kumar, Jaiswal. (2021). Antecedents to firm performance during re-internationalization:. <i>Australian Journal of Management</i>, doi: 10.1177/03128962211040134• (2022). Learning Processes During Re-internationalization: A Case Study of Chinese SMEs. doi: 10.1108/s1745-886220220000016010

Note(s): *Answers to the following question: Please define “firms’ re-internationalization” based on scientific sources

Source(s): Authors’ own work

Appendix 4

Table A4. Evaluation if nonlinear internationalizers are successful or not*

Source	Answer
<i>Main generative AI chatbots</i>	
ChatGPT Plus	<p>“Nonlinear internationalizers, or firms that have repeatedly de-internationalized and re-internationalized, can indeed be considered successful under certain conditions. The success of these firms often hinges on the specific context of their internationalization activities. For instance, if the markets they operate in are small and the costs associated with exiting and re-entering these markets are low, then this pattern of entering and leaving can be a viable strategy. Success in this scenario is not strictly defined by constant market presence but rather by the strategic flexibility to adapt to changing market conditions and opportunities”</p> <p>Source</p> <ul style="list-style-type: none"> Vissak, Tiia, and Barbara Francioni, “Serial nonlinear internationalization in practice: A case study,” <i>International Business Review</i> (2013)
Google Gemini	<p>“The success of nonlinear internationalizers, firms that have undergone multiple cycles of de-internationalization and re-internationalization, is a complex issue with no definitive answer in scientific research. Here’s what we know:</p> <p><i>Arguments for Success:</i></p> <ul style="list-style-type: none"> <i>Strategic Flexibility:</i> These firms demonstrate an ability to adapt to changing environments and make calculated decisions about entering and exiting foreign markets. [Chrysochoidis and Stathopoulos, 2013] <i>Accumulated Knowledge:</i> Each internationalization cycle can provide valuable knowledge and experience that can be leveraged for future ventures, potentially leading to greater efficiency and effectiveness. [Morgan <i>et al.</i>, 2013] <i>Network Building:</i> De-internationalization doesn’t necessarily sever all ties. Firms may retain valuable relationships with distributors or partners that can be rekindled during re-entry, facilitating a smoother transition. [Javalgi <i>et al.</i>, 2011] <p><i>Arguments Against Success:</i></p> <ul style="list-style-type: none"> <i>Disruption Costs:</i> The repeated process of entering and exiting markets can be disruptive and expensive, potentially hindering long-term profitability. [Serrano <i>et al.</i>, 2017] <i>Loss of Reputation:</i> A history of withdrawing from markets may damage a firm’s reputation and make it difficult to re-establish trust with potential partners or customers. [Madsen and Serrano, 2007] <i>Missed Opportunities:</i> While accumulating knowledge through cycles, these firms may also miss out on opportunities for sustained growth in established foreign markets <p><i>The Verdict: Context Matters</i></p> <p>Scientific research suggests that the success of nonlinear internationalizers depends heavily on context. Factors such as:</p> <ul style="list-style-type: none"> <i>Reasons for De-internationalization:</i> Were they strategic decisions or forced exits due to unforeseen circumstances? <i>Nature of Re-entry:</i> Are they re-entering the same markets or exploring new ones? <p style="text-align: right;">(continued)</p>

Table A4. Continued

Source	Answer
	<ul style="list-style-type: none"> • <i>Industry and Market Dynamics:</i> Are they operating in stable or volatile industries and markets?
	<p><i>Further Research Needed</i> While research is ongoing, the long-term performance of nonlinear internationalizers remains a topic of debate. More studies are needed to understand the specific conditions under which these firms can achieve sustainable success”</p>
	<p>Sources</p> <ul style="list-style-type: none"> • Chrysochoidis, G., and Stathopoulos, A. (2013). The non-linear internationalization process of emerging market firms. <i>Journal of International Business Studies</i>, 44(5), 544–564 • Javalgi, R. G., Terpstra, R., and Agarwal, S. (2011). Re-internationalization of born-global firms: A conceptual framework. <i>Journal of International Entrepreneurship</i>, 9(2), 151–174 • Madsen, T. K., and Serrano, A. (2007). Leaving a negative mark: The effects of foreign market withdrawal on subsidiary performance. <i>Strategic Management Journal</i>, 28(11), 1129–1147 • Morgan, E., Jones, P., and Zheng, Y. (2013). Learning from failure: How firms leverage re-internationalisation experiences. <i>International Journal of Management</i>, 34(1), 1–22 • Serrano, A., Pedersen, T., and Shaver, P. (2017). The costs of international market exits and re-entries: A multilevel perspective. <i>Strategic Management Journal</i>, 38(2), 370–390
Microsoft Copilot	<p>“Nonlinear internationalizers, or firms that have undergone multiple cycles of de-internationalization and re-internationalization, can indeed be successful. However, their success is contingent on several factors. A study on a born global firm from Belarus showed that such a firm can experience nonlinear internationalization after initial rapid growth, and use some subsidiaries as bases for further gradual expansion¹. This suggests that nonlinear internationalization can be a strategic choice for firms to optimize their international operations over time. Another study on German SME managers found that strategic factors such as equity financing in the internationalization process, appropriate market selection, proactive motives, and a long-term scope can drive SMEs’ international success². These findings imply that the success of nonlinear internationalizers is not merely a function of their internationalization pattern, but also of their strategic decisions and resource allocation. However, it’s important to note that the success of nonlinear internationalizers can vary greatly depending on the specific circumstances of each firm, including their industry, home country environment, managerial capabilities, and other factors³”</p> <p>Sources</p> <ul style="list-style-type: none"> • Vissak, T., and Zhang, X. (2016). A born global’s radical, gradual and nonlinear internationalization: A case from Belarus. <i>Journal of East European Management Studies</i>, 21(2), 209–2301 • Kraus, S., Mitter, C., Eggers, F., and Stieg, P. (2017). Drivers of internationalization success: a conjoint choice experiment on German SME managers. <i>Review of Managerial Science</i>, 11(4), 691–7162 • Turcan, R. V. (2013). Serial nonlinear internationalization in practice: A case study. <i>Journal of International Entrepreneurship</i>, 11(4), 349–3723

(continued)

Table A4. Continued

Source	Answer
Perplexity	<p>Nonlinear internationalizers, which are firms that have experienced multiple cycles of de- and re-internationalization, can be considered successful in certain contexts, according to recent research: Vissak and Francioni's case study of an Italian machinery company found that nonlinear internationalization can be a successful strategy, as it allows firms to adapt to changing market conditions and take advantage of new opportunities. The authors argue that this exploratory study contributes to the emerging literature on serial nonlinear internationalization. Schweizer and Vahlne's research explains that nonlinear internationalization can be driven by the role of individuals, such as managers, within the firm. Their decisions are influenced by biases, cognitive triggers, and social factors. The authors suggest that incorporating these microfoundations into the Uppsala model can help explain nonlinear internationalization patterns. Additionally, Vissak's paper argues that nonlinear internationalization is an important but neglected topic in international business research. The author discusses how partial and complete de- and re-internationalization, as well as the internationalization of "born-again globals," can be considered successful strategies in certain contexts. However, it's important to note that the success of nonlinear internationalization likely depends on the specific industry, market conditions, and the firm's ability to adapt to changing circumstances. Firms that engage in nonlinear internationalization may face challenges such as liability of foreignness and outsidership. In summary, while nonlinear internationalization can be a successful strategy for some firms, it is a complex phenomenon that requires further research to fully understand its implications for firm performance and international success</p> <p>Sources</p> <ul style="list-style-type: none"> • Vissak, T., and Francioni, B. (2013). Serial nonlinear internationalization in practice: A case study. <i>International Business Review</i>, 22(6), 951–962 • Vissak, T. (2010). Nonlinear internationalization: A neglected topic in international business research. In T. Devinney, T. Pedersen, and L. Tihanyi (Eds.), <i>Advances in international management</i>. Vol. 23: The past, present and future of international business and management (pp. 559–580). New York: Emerald • Vissak, T., and Francioni, B. (2020). Re-internationalization forms and impact factors: four cases. <i>Problemy Zarządzania – Management Issues</i> 28(1), 27–53 • Vissak, T., Francioni, B. and Freeman, S. (2020). Foreign market entries, exits and re-entries: the role of knowledge, network relationships and decision-making logic. <i>International Business Review</i> 29(1), 101592 • Vissak, T., and Masso, J. (2015). Export patterns: Typology development and application to Estonian data. <i>International Business Review</i>, 24(4), 652–664 • Vissak, T., and Francioni, B. (2012). MVM's Nonlinear Internationalization: A Case Study. <i>Journal of East-West Business</i>, 18(4), 275–300
Claude	<p>The success of nonlinear internationalizers – firms that have undergone multiple cycles of de-internationalization and re-internationalization - is a complex topic in international business research. There isn't a simple, universal answer as to whether these firms can be considered successful or not. The outcomes can vary depending on various factors such as industry context, firm resources, management capabilities, and external market conditions</p> <p>Some researchers have found that nonlinear internationalization can be a viable and even successful strategy for some firms. For instance:</p>

(continued)

Table A4. Continued

Source	Answer
	<p>(1) Flexibility and adaptability: Nonlinear internationalization may reflect a firm’s ability to adapt to changing market conditions, which can be seen as a form of strategic flexibility</p> <p>(2) Learning opportunities: The process of de- and re-internationalization can provide valuable learning experiences, potentially improving a firm’s capabilities for future international ventures</p> <p>(3) Resource optimization: In some cases, temporary withdrawal from certain markets might allow firms to reallocate resources more efficiently</p> <p>However, other studies have highlighted potential drawbacks:</p> <p>(1) Costs and inefficiencies: Repeated entry and exit from markets can be costly and may lead to inefficiencies</p> <p>(2) Reputational damage: Inconsistent market presence might negatively impact a firm’s reputation with customers and partners in international markets</p> <p>(3) Loss of market knowledge: Periods of de-internationalization might result in the loss of market-specific knowledge and networks</p> <p>It’s important to note that success in this context can be defined in various ways – financial performance, long-term survival, market share, or learning outcomes, among others. While I can provide this general overview, I want to emphasize that I don’t have access to a current database of scientific literature. For the most up-to-date and accurate information, it would be best to consult recent academic publications in international business journals. If you’re looking for specific studies on this topic, you might consider searching for works by researchers who have published on nonlinear internationalization, such as Tiia Vissak, Jorma Larimo, or Peter Gabrielsson. However, I can’t provide specific citations as I don’t have access to verify their most recent publications. For a comprehensive and current understanding of this topic, I recommend conducting a systematic literature review using academic databases, focusing on recent publications in reputable international business journals.</p> <p>Sources</p> <ul style="list-style-type: none"> • Vissak, T. (2010). MVM’s Nonlinear Internationalization: A Case Study. <i>Journal of East-West Business</i>, 18(4), 275–300 • Vissak, T., and Francioni, B. (2013). Serial nonlinear internationalization in practice: A case study. <i>International Business Review</i>, 22(6), 951–962 • Vissak, T. (2021). Forms of Firms’ Nonlinear Internationalization. <i>Advances in Economics, Business and Management Research</i>, 186, 243–248 • Benito, G. R., and Welch, L. S. (1997). De-internationalization. <i>MIR: Management International Review</i>, 7–25 <p><i>Other generative AI chatbots</i></p> <p>Character AI “A nonlinear internationalizer (a firm that has gone through cycles of de- and re-internationalization) can be considered successful if it has continued to grow and remain competitive in its market. There is evidence that firms that have undertaken a nonlinear approach to internationalization can be successful, with studies showing that they have often achieved higher levels of exports and exports-per-employee than linear internationalizers. However, it is important to note that there is no one-size-fits-all approach to</p>

(continued)

Table A4. Continued

Source	Answer
	<p>internationalization, and firms should ultimately consider what approach best fits their own strategic goals and business model”</p> <p>Sources</p> <ul style="list-style-type: none"> • “International Firm Growth: The Role of Nonlinear Internationalization in the United States” by James R. Davis Jr. and Chris J. Wood • “The Effects of Nonlinear Internationalization on Firm Performance” by Brian E. Hall and Ronald M. Cohen • An article published in the Journal of International Marketing called “The Role of Nonlinear Internationalization Strategies in Emerging Markets: The Case of Japanese Automakers”
ChatGPT Online	<p>“There is limited scientific research specifically addressing the success of nonlinear internationalizers, as this concept is relatively new in the field of international business. However, we can draw some insights from existing literature on internationalization strategies and firm performance. Some studies suggest that firms that engage in frequent de- and re-internationalization may face higher levels of uncertainty and risk compared to firms that follow a more linear internationalization path. This could potentially impact their overall performance and success in the long run. Additionally, the costs associated with entering and exiting foreign markets multiple times can be significant and may erode a firm’s financial resources. On the other hand, some researchers argue that nonlinear internationalization strategies can be beneficial for firms in certain situations. For example, firms may choose to de-internationalize in response to changes in market conditions or to refocus their resources on core markets. Re-internationalization could then be a strategic response to new opportunities or market demand. In this sense, nonlinear internationalization can be seen as a flexible and adaptive approach to global expansion. Ultimately, the success of nonlinear internationalizers may depend on a variety of factors, including the firm’s industry, size, resources, and capabilities, as well as the specific contexts in which they operate. More research is needed to fully understand the implications of de- and re-internationalization for firm performance and success”</p> <p>Sources</p> <p>“I’m sorry, but I cannot provide specific sources for the information provided in the previous answer as it was generated based on my training data and programming. However, I can assure you that the information is based on a wide range of reputable sources, including textbooks, research papers, and websites.”</p>
Colossal Chat	<p>“Nonlinear internationalizers (i.e. firms who have both entered and exited markets multiple times) can be seen in different ways depending on one’s perspective. From a strategic point of view, these companies may appear more agile than their linear counterparts due to their ability to quickly adjust their portfolio according to market conditions. On the other hand, they also face higher costs associated with learning curves each time they enter/exit a market. Therefore, it could be argued that while some nonlinear internationalizers might experience success, others may struggle to remain competitive over the long run. Ultimately, further research needs to be conducted to determine whether nonlinear internationalizers can be classified as ‘successful’ overall”</p> <p>Sources</p> <ul style="list-style-type: none"> • “Internationalization Processes of Nonlinear Internationalisers” by J.A.M. van Praag <i>et al.</i>, 2018; “Understanding the Dynamics of Nonlinear Internationalisation Strategies” by M.J. McDougall and A.E. Harrison, 2016;

(continued)

Table A4. Continued

Source	Answer
	<ul style="list-style-type: none"> • “Exploring the Determinants of Nonlinear Internationalization Decisions” by S. Kumar <i>et al.</i>, 2019 • The Balance Small Business • Harvard Business Review
<i>AI-driven applications specifically designed for academic research</i>	
Avidnote	<p>“Based on a review of scientific sources, the of the success of nonlinear internationalizers, specifically firms that have undergone de-internationalization and re-internationalization multiple times, is a subject of nuanced interpretation. The evaluation of success in these cases is influenced by various factors and perspectives</p> <ol style="list-style-type: none"> 1. Performance Metrics: One approach to assessing success is based on financial and operational performance metrics. Researchers like Majocchi, Bacchiocchi, and Mayrhofer (2005) argue that firms engaging in nonlinear internationalization strategies may experience fluctuations in performance due to the risks and challenges associated with entering and exiting different markets. Success may be measured by evaluating long-term financial stability, profitability, market share, and growth potential 2. Firm-Specific Factors: Studies like Hitt, Ireland, and Palia (1982) highlight that the success of nonlinear internationalizers may depend on firm-specific factors such as management capabilities, resource allocation, strategic orientation, and learning capabilities. Firms with well-developed strategic capabilities and adaptive learning processes may achieve better outcomes in terms of market re-entry and subsequent internationalization attempts 3. Industry Dynamics: The industry context can also influence the perception of success for nonlinear internationalizers. Research by Luo and Tung (2007) emphasizes that industries with high levels of turbulence and uncertainty may necessitate de-internationalization to mitigate risks and preserve resources. In such cases, success may be evaluated based on the ability to adapt to changing market conditions and take advantage of new opportunities 4. Stakeholder Perspectives: Success can also be framed from the perspective of different stakeholders. For instance, Calof and Beamish (1995) suggest that stakeholder assessments of success may vary between shareholders seeking financial returns, employees concerned about job stability, or governments focusing on economic benefits. Understanding and managing these diverse stakeholder expectations is crucial in evaluating the overall success of nonlinear internationalizers. In summary, defining the success of nonlinear internationalizers is complex and multidimensional, taking into account performance metrics, firm-specific factors, industry dynamics, and stakeholder perspectives. It is important to consider these factors collectively when examining the success of firms that have experienced de- and re-internationalization multiple times, recognizing that success can be context-dependent and may vary across different dimensions” <p>Sources It refused to provide publication information for these sources</p>
Elicit	<p>“The concept of nonlinear internationalization, particularly in the context of de- and re-internationalization, has been explored in several studies. Vissak (2013) and Zhang (2020) both found that firms with such patterns can still be successful, with Vissak (2013) noting that de-internationalization is not necessarily a sign of failure. Vissak (2012) further emphasized that de-internationalization does not always indicate failure. These findings suggest that nonlinear internationalizers can indeed be successful, with the potential for growth and expansion despite fluctuations in their international activities”</p>

(continued)

Table A4. Continued

Source	Answer
	<p>Sources</p> <ul style="list-style-type: none"> Vissak, T., and Francioni, B. (2013). Serial nonlinear internationalization in practice: A case study. <i>International Business Review</i>, 22(6), 951–962 Zhang, X., Aman, R., Zhang, J. H., and Xi, Y. (2020). Serial nonlinearities in firm’s internationalisation process: case evidence from China. <i>International Journal of Export Marketing</i>, 3(3), 219–244 Vissak, T., Francioni, B., and Musso, F. (2012). MVM’s nonlinear internationalization: A case study. <i>Journal of East-West Business</i>, 18(4), 275–300 Vissak, T., and Zhang, X. (2016). A born global’s radical, gradual and nonlinear internationalization: A case from Belarus. <i>Journal of East European Management Studies</i>, 209–230
PaperDigest	<p>“Nonlinear internationalizers, firms that de- and re-internationalize several times, can be considered successful based on their unique strategies and circumstances. These firms, known as Serial Nonlinear Internationalizers (SNIs), may experience fluctuations in foreign involvement but can still achieve success. While some may view de- and re-internationalizations as failures, it is noted that such fluctuations are normal for many firms. Success in internationalization is not solely determined by a linear process, and firms can balance various factors to achieve their goals. Additionally, the internationalization process itself is not always straightforward, and firms may need to adapt their strategies over time. Therefore, the success of nonlinear internationalizers should be evaluated based on their ability to navigate challenges and capitalize on opportunities in the global market. [1] [3] [4] [8]”</p> <p>Sources</p> <ol style="list-style-type: none"> Serial nonlinear internationalization in practice: A case study ... A born global’s radical, gradual and nonlinear internationalization: A ... MVM’s Nonlinear Internationalization: A Case Study Request PDF Probl Zarz 1–20.indd The incremental expansion of Born Internationals: A comparison of ... Which variables predict the internationalization type of academic ... The interplay of entrepreneurial and non-entrepreneurial ... Understanding the De-internationalization of Entrepreneurial SMEs ... Rethinking internationalization processes: toward a circular framework warwick.ac.uk/lib-publications Manuscript version: Author’s ...
Scispace	<p>“Nonlinear internationalizers, firms engaging in de- and re-internationalization multiple times, can be considered successful based on various factors. Research suggests that successful internationalization is not limited to a specific trajectory[1]. Re-internationalization can positively impact innovation outcomes[2], and academic spin-offs that internationalize rely on different financial agents, indicating success in obtaining resources[3]. Additionally, factors like international heritage and firm-specific competitive advantage influence re-internationalization and post-re-entry performance[4]. However, challenges like recontextualization may hinder success by affecting strategic fit and global integration efforts [5]. Overall, nonlinear internationalizers can achieve success through adaptive strategies, leveraging resources effectively, and capitalizing on their international experience and competitive advantages”</p> <p>Sources</p> <ul style="list-style-type: none"> Vissak, T. (2023). A literature review on CEE firms’ internationalization: success measurement, achievement and outcomes. <i>Review of International Business and Strategy</i>, 33(5), 740–762

(continued)

Table A4. Continued

Source	Answer
	<ul style="list-style-type: none">• Brannen, M. Y. (2023). Recontextualization in International Business. In Oxford Research Encyclopedia of Business and Management• Freixanet, J., Rialp, J., and Angulo-Ruiz, F. (2022). The impact of cycles of de-internationalization and re-internationalization on innovation. In Academy of Management Proceedings (Vol. 2022, No. 1, p. 10413). Briarcliff Manor, NY 10510: Academy of Management• Fernández-Alles, M. D. L. L., Camelo-Ordaz, C., Diáñez-González, J. P., and Castillo-Rodríguez, E. C. (2023). Linear and non-linear patterns of internationalisation and funding in academic spin-offs. <i>Venture Capital</i>, 25(3), 285–315

Note(s): *Answers to the following question: Please explain based on scientific sources if nonlinear internationalizers (firms that have de- and re-internationalized several times) can be considered successful or not

Source(s): Authors' own work

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